BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAI`I

In the Matter of the Application of	)	DOCKET NO. 2017-0350
	)	
WAIKOLOA RESORT UTILITIES, INC., dba WEST HAWAII UTILITY COMPANY	)	
	)	
For a General Rate Case and For Approval of Revisions to its Tariff	)	
	)	

APPLICATION

EXHIBITS WHUC 1 THROUGH 4; WHUC WATER 3 THROUGH 12; WHUC SEWER 3 THROUGH 15; and WHUC IRRIGATION 3 THROUGH 12

EXHIBITS WHUC-T-100 though WHUC-T-304

VERIFICATION

and

CERTIFICATE OF SERVICE

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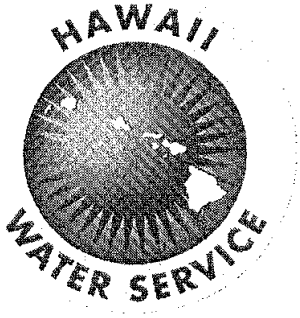
BINDER 2 OF 2

Exhibit WHUC-T-100
Direct Testimony of Robert Stout



West Hawaii Utility Company General Rate Case
Docket No. 2017-0350
December 2017

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WEST HAWAII UTILITY COMPANY GENERAL RATE CASE
DIRECT TESTIMONY OF ROBERT STOUT

Introduction

Q. Please state your name, position, and business address.

A. My name is Robert Stout. I am the Accounting Manager of Hawaii Water Service Company, Inc. ("Hawaii Water"). My business mailing address is PO Box 384809 Waikoloa, Hawaii, 96738.

Q. Please summarize your educational background and professional experience.

A. I hold a Bachelor of Science Degree in Finance from California State University, Chico. I spent 25 years in the hospitality industry, the final seven as Controller of a Hawaii Island Resort. I have eight years with Hawaii Water and have served as the Accounting Manager since January of 2013.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to explain the details of the revenue requirements for West Hawaii Utility Company ("WHUC") for the test year beginning January 1, 2018 to December 31, 2018. Additionally, I will address sales and revenue estimates, estimates of certain expenses, calculation of rate base, rate of return, recovery of capital project costs that were excluded in the previous rate cases, the amendment of the water sharing agreement between WHUC and West Hawaii Water Company ("WHWC"), proposed tariff revisions, special requests, the phase-in of rates, the cost of service studies, and the proposed rate design for WHUC.

Q. Please summarize the financial exhibits supporting this application.

A. Exhibit WHUC-2 Schedule D shows the 2016 balance sheet and income statement as of December 31, 2016 as reported to the Hawaii Public Utilities Commission (the "Commission") in WHUC's annual reports, and Exhibit WHUC-2 Schedule E, WHUC's balance sheet and income statement as of June 30, 2017. The other financial exhibits supporting the Application are listed in Section V of the Application.

Q. Please explain the use of Unaudited Financial Statements.

A. WHUC requests that the Commission waive the requirement to provide audited financial statements. The Commission granted this request in Hawaii Water's most recent rate case for the Pukalani district, Docket No. 2015-0236. In the most recent general rate case filings for WHUC, West Hawaii Sewer Company ("WHSC"), and WHWC (collectively, the "Waikoloa Utilities"),[1] the same request was made and the waiver was granted. The estimated cost to hire a third party to perform an audit is at least $215,000. This would be an undue burden to the ratepayers. A copy of an estimate for an independent audit of the Waikoloa Utilities from Deloitte & Touche, California Water Service Group's ("CWSG") auditor is attached as Exhibit WHUC-T-101. CWSG, Hawaii Water's parent company, has audited financial statements, which include all of its subsidiaries. A copy of CWSG's latest audited statement is included in CWSG's Form 10K, which is located on CWSG's website.[2] Also included in this application are the consolidated revenue requirement and rate base for WHUC.[3]

Revenue Requirement

Q. Please describe the summary of earnings.

A. The summary of earnings exhibit for each division shows the revenue requirement and rate of return summary at present and proposed rates for the test year ending December 31, 2018.[4] These exhibits show all of the expense categories estimated in the work papers, the average rate base for the test year, and the rate of return at present and proposed rates. Most of the expenses and capital additions are described in detail in Mr. Carrasco's and Mr. Green's testimonies. My testimony addresses the calculation of the revenue requirement, test year revenue estimates, certain expense estimates, calculation of rate base, capital structure, and rate of return.

[1] See Docket Nos. 2011-0331 (WHUC), 2012-0147 (WHSC), and 2012-0148 (WHWC). The waiver was also granted for Kona Water Service Company, Inc. ("KWSC") in Docket No. 2013-0375.
[2] http://ir.calwatergroup.com/Investor-Relations/Financial-Reports/SEC-Filings
[3] See Exhibits WHUC 3 and WHUC 4.
[4] The summary of earnings exhibits for each division are listed in Table 101 below.

Q. What are the total revenue requirements that WHUC is requesting for the test year?

A. The following table summarizes revenue at present rates, incremental increases, and revenue requirements for WHUC in the test year beginning January 1, 2018 to December 31, 2018:

Division	Revenue at Present Rates	Incremental	Revenue at Proposed Rates	% Increase	Exhibit Reference
WHUC Water	$ 4,229,110	$ 305,026	$ 4,534,136	7.2%	Exhibit WHUC Water 6
WHUC Sewer	$ 3,695,726	$ 2,046,590	$ 5,742,316	55.4%	Exhibit WHUC Sewer 6
WHUC Irrigation	$ 307,966	$ 48,988	$ 356,954	15.9%	Exhibit WHUC Irrigation 6

Table 101. Test year revenue requirements.

Details of revenue requirements for each division can be found in the corresponding Exhibits listed in the table above.

Test Year Revenues

Q. Please describe how revenues were estimated at present and proposed rates.

A. Revenue for WHUC consists of three components: fixed revenue, metered revenue, and power cost charge ("PCC") revenue. Fixed revenue at present rates is calculated using the currently adopted fixed rate, multiplied by the estimated customer count in the respective customer class for the test year. There is no currently adopted fixed revenue component for WHUC irrigation at present rates. Metered revenue at present rates is calculated using the currently adopted quantity rate, multiplied by the estimated water consumption in the respective customer class for the test year.[5] PCC revenue is calculated using the division's corresponding PCC formula multiplied by the estimated water consumption in the respective customer class for the test year. The following table summarizes revenue at present rates by component for WHUC:

[5] WHUC Sewer customers are charged a quantity rate based on their metered water use.

Division	Fixed Revenue	Metered Revenue	PCC Revenue	Total	Exhibit Reference
WHUC Water	$ 107,075	$ 2,350,914	$ 1,771,122	$ 4,229,110	Exhibit WHUC Water 8.1
WHUC Sewer	$ 927,943	$ 2,377,222	$ 390,561	$ 3,695,726	Exhibit WHUC Sewer 8.1
WHUC Irrigation	$ -	$ 137,906	$ 170,060	$ 307,966	Exhibit WHUC Irrigation 8.1

Table 102. Revenue at present rates.

Details of revenue at present and proposed rates for each division can be found in the corresponding Exhibits listed in the table above. Fixed revenue at proposed rates is calculated using proposed rates, multiplied by the estimated customer count for the test year. Metered revenue at proposed rates is calculated using proposed rates, multiplied by the estimated water consumption in the test year. Finally, PCC revenue is calculated using the division's corresponding PCC formula multiplied by the estimated water consumption for the test year.

Sales, Services, and Production

Q. Please discuss the Exhibits where recorded and forecasted customer counts are shown.

A. Exhibits WHUC Water 8.3, WHUC Sewer 8.2, and WHUC Irrigation 8.2 show the recorded customer counts by customer class. The Exhibits also show the forecasted customer counts by customer class in the test year.

Q. How were customer counts estimated for the test year?

A. Generally, customer counts for the test year were estimated by using the actual 2017 customer count as of June 30, 2017. Applicants have observed steady customer counts in most customer classes and believe the recorded 2017 customer counts are a reasonable forecast for customer counts in the test year. The 2017 customer count will be updated when the recorded 2017 data is available and the test year forecast will be updated accordingly. The following table summarizes customer counts by customer class for WHUC forecasted for the test year:

Division	Residential		Non-Residential		Total	Exhibit Reference
	Single-family	Multi-family	Business	Public Authority		
WHUC Water	23	23	45	0	91	Exhibit WHUC Water 8.3
WHUC Sewer	15	1,742	1,807	0	3,564	Exhibit WHUC Sewer 8.2
WHUC Irrigation	0	0	2	0	2	Exhibit WHUC Irrigation 8.2

Table 103. Customer count.

Details of customer counts for each division can be found in the corresponding Exhibits listed in the table above.

Q. How were water sales and billed sewer flows forecasted for the test year?

A. "Water sales" is defined as water sold to customers measured in thousands of gallons ("TG") and is applicable to WHUC Water and WHUC Irrigation. "Billed sewer flows" is defined as water sold to customers that receive both water and sewer service. This is also measured in TG. The flows are applicable to WHUC Sewer. Both water sales and billed sewer flows were estimated using a 3 year average of recorded data from 2015 to 2017. Since only the first 6 months of 2017 were available when the application was prepared, the 2017 figures are annualized. These figures will be updated with data through the end of 2017 once it is available. The following table summarizes water sales and billed sewer flows in TG by customer class for WHUC forecasted for the test year:

Division	Residential		Non-Residential		Total	Exhibit Reference
	Single-family	Multi-family	Business	Public Authority		
WHUC Water	32,867	502,961	583,654	0	1,119,483	Exhibit WHUC Water 8.2
WHUC Sewer	24,202	501,879	406,162	0	932,244	Exhibit WHUC Sewer 8.2
WHUC Irrigation	0	0	1,119,363	0	1,119,363	Exhibit WHUC Irrigation 8.2

Table 104. Water sales and billed sewer flows (TG).

Details of water sales and billed sewer flows for each division can be found in the corresponding Exhibits listed in the table above.

Expense Estimates

Q. Which expense estimates are you testifying to in this proceeding?

A. I am testifying on the expense allocation methodology, depreciation expenses, and income taxes.

4-factor Allocation

Q. Please explain which expenses are allocated from Hawaii Water to WHUC.

A. Hawaii Water has several operating units and subsidiaries: Waikoloa Village Water and Sewer, Waikoloa Resort Water, Sewer and Irrigation, Pukalani Wastewater, Ka'anapali Water, and Kona Water and Sewer. Hawaii Water incurs certain expenses which apply to more than one of its operating units, which are allocated among the various operating units. These expenses include payroll, rent, insurance, and employee benefits. The details of these expenses are discussed in the testimony of Anthony Carrasco (Exhibit WHUC-T-200).

Q. Why must these expenses be allocated?

A. When employees are engaged in directly supporting a specific operating unit, they charge their time directly to the appropriate operating unit. For example, when Hawaii Water employees perform work on the Ka'anapali water system, the employees charge their time directly to the Ka'anapali operating unit (Dept. 700). However, certain other expenses benefit more than one operating unit. These expenses must be allocated to the operating units to which they apply.

Q. Can you explain how charges for expense for the different ratemaking areas are allocated?

A. The payroll for the positions assigned to Hawaii Water's General Office department (Dept. 790), as well as indirect expense charges, are allocated to the two operations departments on Maui (Ka'anapali and Pukalani) and seven departments on the Big Island (Waikoloa Water, Waikoloa Wastewater, Waikoloa Resort Water, Waikoloa Resort Wastewater, Waikoloa Resort Irrigation, Kona Water, and Kona Wastewater) based on a 4-factor methodology. Payroll for the positions dedicated to Hawaii Water's Maui operations (Dept. 710), as well as indirect labor and

expenses, are allocated between the two Maui departments as determined by the 4-factor method. Similarly, the payroll for the positions dedicated to Hawaii Water's Big Island operations (Dept. 720), as well as indirect labor and expenses, are allocated between the seven Big Island departments as determined by the 4-factor method. Finally, payroll for Hawaii Water's Wastewater Administration (Dept. 796), as well as indirect expense charges, are allocated to Hawaii Water's wastewater systems.

Additionally, there are charges allocated from California Water Service Company ("Cal Water") to the four regulated subsidiaries it provides service to: Cal Water districts, Hawaii Water, Washington Water Service Company, and New Mexico Water Service Company. These charges are applied to Hawaii Water's General Office. Details of this allocation are included in the direct testimony of Anthony Carrasco.

Q. Please describe the 4-factor methodology and the rationale for using it.

A. Hawaii Water uses an internal 4-factor methodology to allocate general operations costs among its regulated utility companies. The four factors used to determine the allocation include the number of customer equivalents, gross plant in service, direct operations & maintenance expenses, and direct gross payroll. Customer equivalents are used because of the correlation between the number of customers in a system, and the billing and service costs associated with those customers. This is also a good indicator of the size of the system. Plant in service is used because many general costs are related to the level of capital investment used in a system and there is a general relationship between the amount of this capital investment and the general costs allocated to effectively operate that infrastructure. Additionally, direct operation & maintenance expenses are also good indicators of the size of the system. Finally, direct gross payroll is used because it represents the number of employees working in the system that are served by various general office departments. These four factors can vary between systems, but by not equally weighting all four, individual systems are not penalized in their general allocation for any one factor that is higher than the other systems.

Q. Is Hawaii Water proposing to revise the 4 factor allocations to its operating units in this proceeding?

A. Yes. As explained above, there are several factors that affect the allocation to Hawaii Water's operating units. These factors change from time to time. In this proceeding, Hawaii Water revised the 4-factor allocations from its General Office, Maui Operation, and Wastewater Administration to its operating units. Hawaii Water used the same methodology it has used in the past to calculate the 4-factor allocation. The following table shows the test year 4-factor allocations to WHUC from Hawaii Water and Big Island operations, respectively[6]:

Division	Hawaii Water GO (790)	Big Island (720)	Wastewater Admin. (796)	Exhibit Reference
WHUC Water	13.27%	19.14%	0.00%	Exhibit WHUC Water 8.5
WHUC Sewer	18.18%	25.40%	45.16%	Exhibit WHUC Sewer 8.4
WHUC Irrigation	0.75%	1.02%	0.00%	Exhibit WHUC Irrigation 8.4

Table 105. 4-factor allocations.

The information contained in the Exhibits above is identical for each of the divisions.

Q. Is the 4-factor methodology widely accepted in the water industry?

A. Yes. Companies use a factor allocation when a more direct method is unavailable or would be impractical. The 4-factor methodology is a widely accepted technique used to determine proper allocation of general costs to specific business units. This is the method used by many state Public Utilities Commissions, and has been accepted by the Hawaii Public Utilities Commission in the recent rate cases filed for Hawaii Water's Waikoloa Resort, Waikoloa Village Water, Waikoloa Village Sewer, Kona, Ka'anapali Water, and Pukalani Wastewater operating units.[7]

[6] The 2017 4-factor allocations are used for the test year. The factors for 2018 will be used once they are available.
[7] See Decision and Order No. 32107 filed on May 23, 2014 in Docket No. 2011-0331 (the "WHUC D&O"); Decision and Order No. 32685 filed on February 19, 2015 in Docket No. 2012-0148 (the "WHWC D&O"); Decision and Order No. 32926 filed on June 22, 2015 in Docket No. 2012-0147 (the "WHSC D&O"); Decision and Order No. 32944 filed on June 29, 2015 in Docket No. 2013-0375; Decision and Order No. 33908 filed on September 12, 2016 in Docket No. 2015-0230 (the "Ka'anapali D&O"); and Proposed Decision and Order No. 34822 filed on September 15, 2017 in Docket No. 2015-0236 (the "Pukalani Proposed D&O").

Depreciation Expense

Q. How were the depreciable lives determined?

A. WHUC is proposing to use group depreciation for its plant, property, and equipment. For this application, AUS was retained to perform a detailed deprecation study of the Waikoloa Utilities' plant, property, and equipment. The reports and results of the study are attached as Exhibit WHUC-T-102 and Exhibit WHUC-T-103 for water and wastewater, respectively.

Q. Why is group depreciation being proposed in this case?

A. When numerous property units exist within a utility's operating property, the units are typically grouped into similar depreciation categories as opposed to being depreciated on an individual unit basis. This is known as group depreciation. While the items within a specific group may serve the same or similar function, they typically do not have identical service lives. Their useful lives are dispersed over a range of time. Some items may last longer than the expected service life, while others may last less than the expected useful service life. The application of group depreciation rates allows for uniform depreciation to groups of similar property instead of performing extensive depreciation calculations on an item-by-item basis. The proposal to use group depreciation is consistent with Hawaii Water's most recent rate cases for the Ka`anapali water system and the Pukalani wastewater system, in which the Commission approved the agreement between Hawaii Water and the Consumer Advocate to use group depreciation.[8]

Q. How was depreciation expense estimated?

A. As discussed above, a group deprecation method is being proposed to calculate depreciable lives of groups of assets. However, in general, depreciation expense is calculated by multiplying the prior year's ending plant balance by the group depreciation rate. The following table summarizes test year depreciation expense for WHUC:

[8] See Ka`anapali D&O at 38-39; Pukalani Proposed D&O at 38-41.

Division		Depreciation Expense	Depreciation Expense Exhibit Reference	Depreciation Group Detail Exhibit Reference
WHUC Water	$	415,594	Exhibit WHUC Water 7.5	Exhibit WHUC Water 7.6
WHUC Sewer	$	1,007,108	Exhibit WHUC Sewer 7.5	Exhibit WHUC Sewer 7.6
WHUC Irrigation	$	30,588	Exhibit WHUC Irrigation 7.5	Exhibit WHUC Irrigation 7.6

Table 106. Depreciation Expense.

Details of depreciation expense and depreciation groups for each division can be found in the corresponding Exhibits listed in the table above. Exhibit 7.7[9] shows detailed depreciation expense calculations for Hawaii Water General Office, Big Island Operations, and Wastewater Administration.

Income Tax Expense

Q. How were income taxes at present and proposed rates calculated?

A. Federal income taxes at present and proposed rates were calculated using the 34% corporate rate, net of the effective Hawaii State Income Tax rate since state income tax is a deduction from federal tax. State income taxes at present and proposed rates are calculated using the corporate Hawaii State Income Tax rate of 6.4%. State income tax expense was reduced by the test year's amortized expense for the Hawaii Capital Goods Excise Tax Credit ("HCGETC"). Book depreciation was used as deductions for both federal and state income taxes. The difference between book and federal tax depreciation is reflected in rate base as deferred taxes. The following table summarizes test year income tax expense for WHUC:

Division		Income Tax Expense	Exhibit Reference
WHUC Water	$	284,280	Exhibit WHUC Water 8.22
WHUC Sewer	$	753,267	Exhibit WHUC Sewer 8.21
WHUC Irrigation	$	12,091	Exhibit WHUC Irrigation 8.21

Table 107. Income Tax Expense.

[9] Exhibits WHUC Water 7.7, WHUC Sewer 7.7, and WHUC Irrigation 7.7 are identical. The only difference between the Exhibits is the dollar amount allocated to each division.

Details of income tax expense for each division can be found in the corresponding Exhibits listed in the table above. Applicant is in the process of analyzing the effects of changes to the federal income tax laws that are scheduled to become effective on January 1, 2018. Applicant will provide updates to its income tax expense and any other schedules that are affected by these changes by mid-February.

Rate Base

Q. How was rate base estimated?

A. An average rate base was used to calculate the test year revenue requirement.

Q. What components make up the proposed rate base?

A. Rate base consists of plant in service with deductions for accumulated depreciation reserve, contributions in aid of construction ("CIAC"), deferred income taxes, unamortized HCGETC, net salvage adjustment, additions for working capital, and a proration of Hawaii Water General Office and Big Island Operations rate base.

Q. How was plant in service estimated?

A. Plant in service used recorded plant for the period ending December 31, 2016 as the starting point. Utility plant acquired or constructed during the period from January 1, 2017 through December 31, 2017 was added and any assets removed from service during the same period were deducted. Utility plant expected to be in service during the test year was added and any expected retirements were deducted. The following table summarizes WHUC's plant balance as of December 31, 2016, December 31, 2017, and December 31, 2018:

Division	Plant Balance 12/31/2016	Plant Balance 12/31/2017	Plant Balance 12/31/2018	Exhibit Reference
WHUC Water	$ 25,645,765	$ 26,214,909	$ 29,333,189	Exhibit WHUC Water 7.2
WHUC Sewer	$ 36,411,526	$ 36,966,320	$ 37,086,674	Exhibit WHUC Sewer 7.2
WHUC Irrigation	$ 1,161,123	$ 1,165,783	$ 1,166,905	Exhibit WHUC Irrigation 7.2

Table 107. Plant in Service.

Details of plant in service for each division can be found in the corresponding Exhibits listed in the table above.

Plant additions from January 1, 2017 – December 31, 2018 for WHUC are summarized in the table below:

Division	Plant Additions 2017	Plant Additions 2018	Exhibit Reference
WHUC Water	$ 569,145	$ 3,118,279	Exhibit WHUC Water 7.3
WHUC Sewer	$ 554,794	$ 120,354	Exhibit WHUC Sewer 7.3
WHUC Irrigation	$ 4,660	$ 1,123	Exhibit WHUC Irrigation 7.3

Table 108. Plant Additions

Details of plant additions for each division can be found in the corresponding Exhibits listed in the table above. Project justifications for projects greater than $25,000 that have been completed since WHUC's last rate case, and that will be completed before December 31, 2018 are discussed in Mr. Green's direct testimony (Exhibit WHUC-T-300).

Q. How was accumulated depreciation reserve estimated?

A. Accumulated depreciation reserve used the recorded accumulated depreciation reserve balance as of December 31, 2016 as the starting point. Depreciation accruals were then added to this balance. The methodology for determining the depreciation accruals is discussed above. The following table summarizes WHUC's accumulated depreciation reserves as of December 31, 2016, December 31, 2017, and December 31, 2018:

Division	Reserve Balance 12/31/2016	Reserve Balance 12/31/2017	Reserve Balance 12/31/2018	Exhibit Reference
WHUC Water	$ 9,549,453	$ 10,199,959	$ 10,939,419	Exhibit WHUC Water 7.4
WHUC Sewer	$ 4,587,269	$ 6,034,287	$ 7,496,523	Exhibit WHUC Sewer 7.4
WHUC Irrigation	$ 696,035	$ 726,530	$ 757,118	Exhibit WHUC Irrigation 7.4

Table 109. Accumulated Depreciation Reserve.

Details of accumulated depreciation reserve for each division can be found in the corresponding Exhibits listed in the table above.

Q. What is the net salvage adjustment and why is it included in the rate base calculation?

A. The net salvage adjustment represents a reduction to rate base due to the collection of net salvage through depreciation. The adjustment is calculated by taking the difference of depreciation expense with net salvage and without net salvage. In the most recent rate cases for Hawaii Water's Ka'anapali water and Pukalani wastewater divisions, Hawaii Water and the Consumer Advocate agreed to use group depreciation on the condition that a net salvage adjustment be included in the rate base calculation. This adjustment was approved by the Commission in its decisions for the Ka'anapali and Pukalani rate cases.[10] The same adjustment is being proposed for WHUC in this case.

Q. How were contributions in aid of construction estimated?

A. CIAC was calculated using the latest recorded information for contributions as of December 31, 2016. Contributions are amortized over periods that would estimate the useful lives of the assets they were used to acquire. The following table shows the Exhibits where details of contributions can be found for WHUC:

Division	CIAC	CIAC Amortization
WHUC Water	Exhibit WHUC Water 7.8	Exhibit WHUC Water 7.9
WHUC Sewer	Exhibit WHUC Sewer 7.8	Exhibit WHUC Sewer 7.9
WHUC Irrigation	Exhibit WHUC Irrigation 7.8	Exhibit WHUC Irrigation 7.9

Table 110. Contributions in Aid of Construction.

Q. How were deferred income taxes estimated?

A. Deferred income taxes were based on accelerated depreciation for federal income tax purposes by the Economic Recovery Act of 1981 and the Tax Reform Act of 1986. Under these statues, state regulatory commissions calculate provision for federal income taxes at book rates, and then allow the utility to record the tax difference between book and federal and state depreciation as adjustments to rate base. For the test year, deferred income taxes were estimated based on the recent recorded accruals and forecasts of the new plant in the test year. The

[10] See Ka'anapali D&O at 38-39; Pukalani Proposed D&O at 38-41.

following table shows the Exhibits where details of deferred income taxes can be found for WHUC:

Division	Deferred Income Taxes Exhibits
WHUC Water	Exhibit WHUC Water 7.10 - 7.13
WHUC Sewer	Exhibit WHUC Sewer 7.10 - 7.13
WHUC Irrigation	Exhibit WHUC Irrigation 7.10 - 7.13

Table 111. Deferred Income Taxes.

Q. How was working cash calculated?

A. The Commission has established a policy of providing utilities an allowance for working capital, also known as working cash, in the determination of rate base. For this proceeding, working cash was calculated using the $1/12^{th}$ method, which is generally accepted by state regulatory commissions for determining working cash for smaller utilities. This method uses $1/12^{th}$ of the annual operating expenses as a proxy for determining the amount of cash that is dedicated to utility service (paying bills prior to receiving customer revenues). The result is counted as an addition to rate base. The following table summarizes working cash for WHUC for the test year:

Division	Working Cash	Exhibit Reference
WHUC Water	$ 245,727	Exhibit WHUC Water 7.15
WHUC Sewer	$ 172,717	Exhibit WHUC Sewer 7.15
WHUC Irrigation	$ 22,349	Exhibit WHUC Irrigation 7.15

Table 112. Working Cash.

Details of working cash for each division can be found in the corresponding Exhibits listed in the table above.

Rate of Return

Q. What capital structure is Applicant requesting in this case?

A. A capital structure of 47/53 debt to equity is being requested in this case. This is based on the overall capital structure that Hawaii Water's affiliate, Cal Water, currently uses. Equity is

calculated as 53% of the proposed average test year rate base. The proposed capital structure is shown in Exhibit 10.[11]

Q. What rate of return is Applicant proposing and why?

A. Applicant is requesting a 7.75% rate of return ("ROR") based on a 47%/53% debt/equity ratio. The requested ROR is the same as the ROR that was approved for the most recent rate cases of the Waikoloa Utilities, KWSC, Ka`anapali, and Pukalani.

Applicants are proposing a 5.5% cost of debt and a 9.75% return on equity. The 5.5% cost of debt is the actual interest rate under the long term note in the original principal amount of $9,069,804 dated May 31, 2012 payable by WHUC to CWSG.[12] Therefore, the 5.5% cost of debt is an appropriate forecast for the current proceeding.

The requested ROE of 9.75% maintains the 7.75% ROR that was approved in the recent rate cases described above. Investors in CWSG equity will expect the company and its subsidiaries to make rational allocations of capital to meet the facilities needs of their service areas. In CPUC Decision (D.) 12-07-009, the most recent proceeding approving a return on equity ("ROE") for Hawaii Water's affiliate, Cal Water, Cal Water was allowed a 9.99% ROE for the period 2012-2015.[13] Cal Water has filed a cost of capital application in 2017. The proceeding is still pending before the California Public Utilities Commission. Applicants believe it would be reasonable to request a similar ROE as their affiliate, Cal Water (i.e. 9.99%). However, Applicants are only requesting a ROE of 9.75% in order to maintain the 7.75% ROR that was approved in the recent rate cases described above. Applicants plan to update the ROE and capital structure for the current proceeding using the approved cost of capital for Cal Water as the basis.

[11] Exhibits WHUC Water 10, WHUC Sewer 10, and WHUC Irrigation 10 are identical.
[12] See Letter to the Commission dated April 26, 2013 in Docket No. 2008-0018.
[13] This is still the current approved ROE for Cal Water.

Capital Project Costs

Waikoloa Beach Resort Water Reclamation Plant

Q. Please describe the rate-making treatment of the cost of the Waikoloa Beach Resort Water Reclamation Plant (the "R-Plant) that was approved in WHUC's last rate case.

A. In WHUC's last rate case, WHUC proposed to include the cost of Phase 1 of the R-Plant in rate base.[14] Phase 1 of the R-Plant has a capacity of 1 million gallons per day ("MGD") and produces R-1 effluent. In the Application, WHUC estimated that the cost of Phase 1 would be $17,440,968. In responses to information requests, WHUC updated the estimate of R-Plant costs, including overhead and capitalized interest, to $17,910,282, and provided a comparison of the updated costs to the original costs.[15]

In the WHUC Stipulation, WHUC and the Consumer Advocate agreed that the upgrade and expansion of the R-Plant was reasonable and necessary. They further agreed that: a) the cost of Phase 1 of the R-Plant, in the amount of $17,158,698 was reasonable for ratemaking purposes in that rate case; [16] and (b) if WHUC seeks to include the additional costs of Phase 1 (i.e. in excess of $17,910,282) in the next rate case, the Consumer Advocate may challenge those additional costs.[17] Therefore, although WHUC and the Consumer Advocate agreed to include only $17,158,698 in plant in service, they also agreed that only the costs in excess of the $17,910,282 would be subject to challenge by the Consumer Advocate in this rate case.

In addition, the Consumer Advocate agreed that there should not be any "excess capacity" or "excluded capacity"[18] adjustment to the cost of the R-Plant.[19] Finally, WHUC and the Consumer Advocate agreed that all of WHUC's deferred CIAC for sewer service would be applied to the R-Plant.[20]

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[14] Phase 2 of the R-Plant will be constructed when needed. It will increase capacity to 2 MGD.
[15] See response to CA-IR-13(b); Stipulation of the Parties for Full Settlement filed on March 18, 2014 in Docket No. 2011-0331 (the "WHUC Stipulation") at 50. The Commission approved the WHUC Stipulation in the WHUC D&O.
[16] The stipulated cost of $17,158,698 was based on the original estimate of $17,440,968, reduced by a portion of the cost of a pipeline for disposal of effluent to the injection well. See WHUC Stipulation at 50, fn. 8.
[17] WHUC Stipulation at 50-51.
[18] Because the Waikoloa Utilities believe their WWTPs are appropriately sized, they refer to adjustments to plant capacity as "excluded" capacity, rather than "excess" capacity.
[19] WHUC Stipulation at 51-53.
[20] WHUC Stipulation at 65. The application of the deferred CIAC was made pursuant to the Settlement Agreement dated October 22, 2009 between the Waikoloa Utilities and the Consumer Advocate (the "Global Settlement"),

Q. Please describe the proposed rate-making treatment of the R-Plant in this rate case.

A. The final cost of the R-Plant is $19,219,224. As explained above, in WHUC's last rate case, the parties agreed that the Consumer Advocate may only challenge costs above $17,910,282. WHUC is proposing to include the full cost of the R-Plant in plant in service in this rate case, a difference of $1,308,942 between this case and the last case.[21] As I will explain in greater detail below, WHUC should be able to include the full cost of the R-Plant for several reasons: 1) in the last rate case, the parties recognized that the actual plant costs could exceed $17,910,282; 2) the costs in excess of $17,910,282 are reasonable, necessary, and documented; and 3) there is no excess capacity in the plant as demonstrated in Mr. Green's testimony.

In WHUC's last rate case, WHUC and the Consumer Advocate agreed that any costs to complete the R-Plant that exceeded $17,910,282 could be challenged in the current case. The $17,910,282 cost estimate was based on the costs presented in response to CA-IR-13-b. However, that response only included costs through November 2012. WHUC incurred additional costs after that date including: $1,146,958 in contractor/vendor costs, $95,435 in overhead, and $66,550 in labor costs. These costs were for project management work, engineering work, the plant operations manual, the effluent piping system, and the third rotating drum screen. The invoices supporting the costs in excess of $17,901,282 are available upon request. WHUC believes that these costs are reasonable and necessary and should be included in plant in service.

In addition, as noted above, a portion of the cost of the effluent piping was excluded from plant in service in the last rate case. The total cost of the effluent piping was $324,888. WHUC agreed with the Consumer Advocate's exclusion of $260,988 because the pipe would not be placed in service in the test year. WHUC also agreed to the exclusion of $42,600 on the grounds that the pipe was oversized for 2.0 MGD.[22] WHUC has included the $260,988 of effluent piping cost in this rate case because the effluent piping has been placed in service. This is part of the final $19,219,224 cost.

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under which the Waikoloa Utilities agreed to apply "deferred" CIAC amounts recorded on their book to the cost of utility plant.

[21] $19,219,224 - $17,910,282 = $1,308,942

[22] WHUC Stipulation at 53-54.

As discussed in more detail in the Direct Testimony of Stephen Green, WHUC has not made any "excluded capacity" adjustment to the cost of the R-Plant. Finally, the R-Plant was completed during the test year of WHUC's last rate case. Because the Commission uses an average test year rate base, only half of the cost of the R-Plant was included in rate base in that rate case. Therefore, customers have benefitted from a fully utilized plant while only half of the cost has been included in rates. The entire cost of the plant is included in Test Year rate base in this rate case.

Deep Well No. 7

Q. Please describe the rate-making treatment of the cost of DW-7 that was approved in WHUC's last rate case.

A. In its last rate case, WHUC included its allocated share of the estimated cost of Deep Well No. 7 ("DW-7") in plant in service for the test year. The estimated cost of DW-7 was $5,062,739.[23] WHWC's allocated share of this cost was $2,214,196, and WHUC's allocated share of the cost was $2,848,546.[24] The Consumer Advocate found there was a need for DW-7.[25]

Q. What was the final cost of DW-7?

A. The final cost of DW-7 was $4,900,821, which is slightly less than the estimated cost. WHWC's allocated share of this cost was $2,143,371, and WHUC's allocated share of the cost was $2,757,450.

Q. Please describe the proposed rate-making treatment of DW-7 in this rate case.

A. DW-7 was completed during the test year of WHUC's last rate case. Because the Commission uses an average test year rate base, only half of WHUC's allocated share of the cost of DW-7 was included in rate base in that rate case. Therefore, customers have benefitted from a fully utilized well while only half of the cost has been included in rates. WHUC's entire

[23] Application filed on August 28, 2012 in Docket No. 2012-0148, Exhibit WHWC-T-205.
[24] Response to CA-IR-4 filed on August 8, 2013 in Docket No. 2011-0331. The cost of DW-7 was allocated in accordance with the terms of the Water Sharing Agreement between WHUC and WHWC.
[25] WHUC Stipulation at 42.

allocated share of the actual cost of DW-7 has been included in WHUC's plant in service in this rate case.

Amendment of Water Sharing Agreement

Q. Please describe the Water Sharing Agreement between WHUC and WHWC.

A. WHWC and WHUC jointly own, operate and maintain the water system that provides potable water to their respective service areas. In 1981, WHWC and WHUC entered a Water-Sharing Agreement (the "WSA") that addressed the ownership of the two wells and related transmission lines, reservoirs, and other equipment that existed at that time; the management of the water system by WHWC; the sharing of water from the wells; the allocation of operating costs; and the allocation of the costs of future wells and related facilities.[26]

Q. Please describe the amendment of the Water Sharing Agreement.

A. WHWC and WHUC recently amended and restated the WSA in the First Amendment and Restatement of Water Sharing Agreement dated October 5, 2017 (the "Amendment"). A copy of the Amendment is attached as Exhibit WHUC-T-104.[27] The Amendment is intended to update the WSA to reflect the current ownership of the wells, tanks, and other equipment comprising the water system; to amend the method of allocating operating costs; and to amend the allocation of the cost of future additions to the water system. The main differences between the original WSA and the Amendment relate to the allocation of operating costs and the allocation of capital costs, as described below.

Operating Costs. Under the original WSA, operating costs were to be allocated based on the proportionate share of water used by each party. The proportionate shares were estimated based on the difference between the total amount of water introduced into the system and the amount of water that flowed through the "WRU meter". The difference between the two meter readings was deemed to be the amount of water used by WHWC. The Amendment changes this

[26] A copy of the WSA was filed in response to CA-IR-60 in WHWC's last rate case. See WHWC's Responses to the Division of Consumer Advocacy's Information Requests filed on February 14, 2013 in Docket No. 2012-0148.
[27] WHUC and WHWC are "affiliates", as defined in HRS §269-19.5(a). HRS §269-19.5(c) provides that certain agreements between a public utility and an affiliated interest are not valid or effective unless they are filed the Commission. However, HRS §269-19.5(h) states that "transactions between affiliated Hawaii based utilities shall be exempt from the provisions of this section". WHWC and WHUC are affiliated Hawaii based utilities. Therefore, WHUC and WHWC understand that the Amendment is exempt from the requirements of §269-19.5.

so that operating costs will be allocated to WHUC and WHWC based upon the proportionate share of water consumed by each party's customers as determined by customer meter data. WHWC and WHUC believe that this method more fairly allocates the costs between WHWC and WHUC, since it is based on the respective usage of each party.

Capital costs. Under the original WSA, the costs of the fifth and any additional wells were to be paid as follows: 25% by WHUC; 25% by WHWC; and the remaining 50% allocated in the same manner as operating costs. The Amendment changes this so that the capital costs will be allocated based only on the proportionate share of water consumed by each party's customers, consistent with the changes to the allocation of operating costs. WHWC and WHUC believe that this method more fairly allocates the costs between WHWC and WHUC since it more accurately reflects the benefit received by each party from the improvements.

Proposed Tariff Revisions

Please describe the revisions WHUC is proposing to its tariff.

A. As explained in more detail below, WHUC is requesting approval of the following proposed revisions to its tariff: (a) replace its existing flat CIAC rate for water service with a formula for determining CIAC; and (b) remove the service application form from its tariff. Clean and black-lined versions of the proposed revised tariff pages are attached as Exhibits WHUC-T-105 and WHUC-T-106, respectively.

Q. Please describe the revisions WHUC proposes to its CIAC tariff.

A. WHUC proposes to revise Rule XI, Section 7 and Section E-4 of its tariff regarding the amount of CIAC payable for water service. WHUC's tariff currently provides that CIAC for water service is to be assessed at a rate of $4.34 per gallon of estimated water usage. WHUC proposes to revise its tariff to provide that the amount of CIAC for water service will be determined based on a formula to determine an applicant's fair share of the cost of improvements required to serve its project. Hawaii Water would like to amend the CIAC provisions for all of

its divisions so they are substantially the same. The CIAC formula proposed by WHUC in this case is substantially the same as the formulas in the tariffs of the other Hawaii Water divisions.[28]

Q. Please describe the other proposed revisions to WHUC's tariff.

A. WHUC proposes to remove the service application form that is attached as Exhibit "B" to its tariff. This form was created and used by WHUC before it was acquired by Hawaii Water. WHUC would like the flexibility to create and utilize a more modern form of application, and to revise the form as necessary. The Commission recently approved Hawaii Water's request to remove the service application form from the tariff for its Pukalani division.[29] Consistent with the stipulation of Hawaii Water and the Consumer Advocate in that case, WHUC will post its application form on the Hawaii Water website.[30]

Special Requests

Q. What special requests is WHUC making in this general rate case proceeding?

A. In WHUC's last general rate case, the Commission ordered it to file quarterly energy use and efficiency reports ("EUE Reports") with the Commission.[31] WHUC requests that this reporting requirement be modified to require annual, rather than quarterly, reports.

In addition to requiring quarterly EUE Reports, the Commission ordered WHUC to conduct an energy audit, and to file the results of the audit along with its plans to implement the recommendations in the audit.[32] WHUC has complied with the requirements to conduct and file an energy audit and to file quarterly EUE Reports. The energy audit recommended a number of actions to reduce energy consumption. WHUC analyzed those recommendations and has implemented the actions that it considered to be reasonable. The quarterly EUE Reports have reported on the status of the recommendations in the audit, as well as other energy-related projects.

Initially, the EUE Reports included several items, since WHUC had not previously reported its energy conservation efforts. However, the number of items reported slowed for

[28] See, e.g. Rule XI of Kona Water Service Company, Inc.'s Tariff No. 1.
[29] See Pukalani Proposed D&O at 86-87.
[30] See Stipulation of the Parties for Partial Settlement filed on July 21, 2017 in Docket No. 2015-0236 at 39-40.
[31] WHUC D&O at 140.
[32] Id.

WHUC. Some quarterly reports show that there has not been an update since the previous report. This is attributable to several factors, including the slow pace of the electric utility industry, permitting constraints, and judicious decisions regarding capital investments. Quarterly reporting imposes an administrative burden on WHUC. Therefore, WHUC requests that the frequency of the EUE Reports be changed from quarterly to annually. WHUC believes that annual reporting will result in more substantive reports and will reduce the administrative burden of generating quarterly reports.

Phase-in of Rate Increases

Q. Are there any proposals for phase-in rate implementation?

A. Yes. WHUC proposes to phase-in rates for WHUC Sewer. The proposed revenue increase for WHUC is greater than 25%. Based on the Consumer Advocate's position that increases in rates greater than 25% might constitute rate shock, and in order to reduce the burden to its customers and to mitigate rate shock, WHUC proposes to phase-in the requested revenue increases for WHUC Sewer over three years. The proposed increase for the first phase revenue increase is 25% over present revenues. The second year increase is equal to the first year increase. The third year increase is the difference between the proposed increase and the total that was implemented in the previous year. The following table summarizes the revenue phase-in for WHUC:

Division	First Phase Revenue Increase	Second Phase Revenue Increase	Third Phase Revenue Increase	Total Revenue Increase	Exhibit Reference
WHUC Water	$ 305,026	$ -	$ -	$ 305,026	Exhibit WHUC Water 11
WHUC Sewer	$ 923,932	$ 923,932	$ 198,727	$ 1,847,863	Exhibit WHUC Sewer 11
WHUC Irrigation	$ 48,988	$ -	$ -	$ 48,988	Exhibit WHUC Irrigation 1

Table 113. Revenue Phase-in.

Details of the revenue phase-in for WHUC Sewer can be found in the corresponding Exhibits listed in the table above. WHUC is not requesting a phase-in for WHUC Water or WHUC Irrigation.

WHUC is proposing a revenue phase-in in order to mitigate rate shock. The phase-in period is based on the revenue increase requested in this Application. If the adopted revenue

increase is less than requested in this Application but greater than 25%, WHUC requests that the first year revenue increase be equal to 25% over present revenues and that the rest of the revenue increase be phased-in equally until the revenue at proposed rates is fully phased in. WHUC's proposal to phase in the revenue increase is not intended to preclude it from filing another rate case before the proposed revenues in this case are fully phased-in. Finally, if the adopted revenue increase is less than 25%, WHUC withdraws the phase-in proposal and requests that revenues be increased in the test year with no phase-in.

Rate Design and Cost of Service Studies

Q. Is WHUC proposing any changes to its rate designs in this proceeding?

A. Yes. WHUC is proposing to revise the pump efficiency factors for its water and irrigation operations, as described in greater detail below. WHUC is also proposing to revise rate design for two of the three divisions. As I will discuss in greater detail below, WHUC is not proposing to make major changes to rate design, but rather shift revenues between fixed and variable charges.

Power Cost Charge

Q. Does WHUC propose to make any changes to the PCC?

A. Yes. WHUC proposes to revise the pump efficiency factor used in the PCC calculation for WHUC Water and WHUC Irrigation. The following formula shows the methodology used to calculate the PCC for WHUC Water and WHUC Irrigation:

$$\begin{aligned} &Electricity\ cost\ per\ Thousand\ Gallons \\ &= previous\ month's\ unit\ cost\ of\ electricity\ \left(\frac{\$}{kWh}\right) \\ &\times pump\ efficiency\ factor\ \left(\frac{kWh}{TG}\right) \times revenue\ tax\ factor \end{aligned}$$

where the pump efficiency factor is 5.63 kWh / TG for WHUC Water and 0.5337 for WHUC Irrigation. The revenue tax factor for both divisions is 1.06385, which consists of the Public Service Company tax and Public Utility Commission fee. The pump efficiency factor is a

function of the amount of energy consumed and the volume of water pumped from wells. WHUC proposes to update the pump efficiency factors to reflect the energy consumption and volume of water pumped from wells forecasted for the test year. The following table shows the proposed pump efficiency factors for WHUC Water and WHUC Irrigation:

Division	Pump Efficiency Factor (kWh / TG)	Exhibit Reference
WHUC Water	5.5132	Exhibit WHUC Water 8.8
WHUC Irrigation	0.4249	Exhibit WHUC Irrigation 8.7

Table 114. Pump Efficiency Factors.

Details of the pump efficiency factor calculations can be found in the corresponding Exhibits listed in the table above. WHUC is not proposing to change the methodology used to calculate the PCC.

The following formula shows the methodology used to calculate the PCC for WHUC Sewer:

$$Electricity\ Cost\ per\ Thousand\ Gallons = \frac{Previous\ Month's\ Electrical\ Cost\ (\$)}{Previous\ Month's\ Total\ Metered\ TG\ of\ Water} \times revenue\ tax\ factor$$

where the revenue tax factor is 1.06385. WHUC is not proposing any changes to the PCC for WHUC Sewer.

For the purposes of this proceeding, WHUC has included a calculation of estimated revenues resulting from the PCC, which is shown on the following table:

Division	PCC Revenue	Exhibit Reference
WHUC Water	$ 1,734,390	Exhibit WHUC Water 8.8
WHUC Sewer	$ 390,561	Exhibit WHUC Sewer 8.7
WHUC Irrigation	$ 144,031	Exhibit WHUC Irrigation 8.7

Table 115. PCC Revenue.

Details of the PCC revenues can be found in the corresponding Exhibits listed in the table above. The PCC revenues presented in this application are annualized and are meant to demonstrate

how the PCC works. The actual PCC passed through to customers varies month to month depending on the power consumed and sales that month.[33]

Cost of Service Studies and Rate Designs

Q. Why did WHUC conduct a COSS for this proceeding?

A. In WHUC's most recent rate case, the Commission ordered it to complete and file a Cost of Service Study (the "COSS") with its next rate case application.[34] In order to comply with the Commission's order, WHUC retained Shambaugh Utility Consulting, LLC and EXP 1, LLC to perform the COSS for the current application. The report and results of the COSS are attached as Exhibits WHUC-T-107 through WHUC-T-109. The goal of a cost of service study is to allocate costs to customer classes based on the demand they place on the system. Once the costs are allocated to the customer classes, rates are designed to recover those costs.

Q. What is the rate design proposal in this proceeding?

A. WHUC proposes to maintain its existing rate designs. The cost of service analysis shows that in WHUC Water and WHUC Irrigation, there is no cross subsidization between customer classes. The cost of service analysis for WHUC Sewer showed that the business customer class is somewhat subsidizing the single family and multi-family customer classes. The difference is small enough that it does not warrant a change in the rate structure. It is rare in utilities that the rate structure will exactly match the cost of service. As I will explain in greater detail below, WHUC proposes to maintain its existing rate designs, but to shift revenues between flat rate and quantity revenue.

Q. How were proposed rates calculated?

A. The following discussions describe the procedures used to calculate proposed rates for WHUC. The procedures describe how rates were calculated if there were no phase-in.

[33] Sales affect sewer PCC, not water PCC.
[34] See WHUC D&O at 141.

WHUC Water

First, WHUC took the difference between the proposed revenue requirement and the forecasted PCC revenue. This ensures that the revenue collected through meter charges and quantity rates excludes the cost of power. The amount of revenue to be collected through meter charges and quantity rates is $2,799,747:

$$\$4,534,136 - \$1,734,390 = \$2,799,747$$

where $4,516,835 is the proposed revenue requirement and $1,734,390 is PCC revenue.

Next, the revenue was allocated into two categories: flat rate revenue and quantity revenue. The ratio between flat rate revenue and quantity revenue at present rates is approximately 4.4%/95.6%. The industry guideline to collect revenues is 30%/70% flat rate revenue and quantity revenue, respectively. In the current proceeding, WHUC proposes a revenue split of 7.6%/92.4% flat rate revenue and quantity revenue, respectively. This revenue allocation sends a conservation signal to customers while helping to stabilize WHUC revenues for its water operations. Additionally, this proposed revenue split limits the increase to the monthly meter charge to 100%. Because a sudden shift in the revenue split should be avoided, WHUC is not proposing a 30%/70% revenue split. The resulting revenues to be collected through meter charges and quantity rates are $214,149 and $2,585,597, respectively:

$$\$2,799,747 \times 7.6\% = \$214,149$$

and

$$\$2,799,747 - \$214,149 = \$2,585,597$$

Next, meter charges are calculated. Meter charges at present rates are increased by the percentage increase that flat rate revenue is increasing. In this case, flat rate revenues are increasing by approximately 100%.

Finally, quantity rates are calculated. The amount of revenue to be collected through quantity rates, as calculated above, is divided by the projected sales for the test year. The resulting rate is $2.3096 per TG:

$$\frac{\$2{,}585{,}597}{1{,}119{,}483\ TG} = \$2.3096\ /\ TG$$

Detailed calculations are shown in Exhibit WHUC Water 12.

WHUC Sewer

First, WHUC took the difference between the proposed revenue requirement and the forecasted PCC revenue. This ensures that the revenue collected through fixed customer charges and quantity rates excludes the cost of power. The amount of revenue to be collected through fixed customer charges and quantity rates is $5,351,755:

$$\$5{,}742{,}316 - \$390{,}561 = \$5{,}351{,}755$$

where $5,742,316 is the proposed revenue requirement and $390,561 is PCC revenue.

Next, the revenue was allocated into two categories: flat rate revenue and quantity revenue. The ratio between flat rate revenue and quantity revenue at present rates is approximately 28.1%/71.9%. In the current proceeding, WHUC proposes a revenue split of 30%/70% flat rate revenue and quantity revenue, respectively. This revenue allocation brings WHUC in line with industry guidelines, sends a conservation signal to customers, and stabilizes WHUC revenues for its sewer operations. The resulting revenues to be collected through fixed customer charges and quantity rates are $1,605,526 and $3,746,228, respectively:

$$\$5{,}351{,}755 \times 30\% = \$1{,}605{,}526$$

and

$$\$5{,}351{,}755 - \$1{,}605{,}526 = \$3{,}746{,}228$$

Next, fixed customer charges are calculated. Customer charges at present rates are increased by the percentage increase that flat rate revenue is increasing. In this case, flat rate revenues are increasing by approximately 73%.

Finally, quantity rates are calculated. The amount of revenue to be collected through quantity rates, as calculated above, is divided by the projected billed sewer flows for the test year. The resulting rate is $4.0185 per TG:

$$\frac{\$3{,}746{,}228}{932{,}244\ TG} = \$4.0185\ /\ TG$$

Detailed calculations are shown in Exhibit WHUC Sewer 12.

WHUC Irrigation

First, WHUC took the difference between the proposed revenue requirement and the forecasted PCC revenue. This ensures that the revenue collected through quantity rates excludes the cost of power. The amount of revenue to be collected through quantity rates is $212,922:

$$\$356{,}954 - \$144{,}031 = \$212{,}922$$

where $356,954 is the proposed revenue requirement and $144,031 is PCC revenue.

Next, quantity rates are calculated. The rate structure for WHUC Irrigation includes only a quantity rate. Since there is only one component to the rate design for WHUC Irrigation, the amount calculated above is divided by the projected test year sales to calculate the quantity rate. The resulting rate is $0.1902 per TG:

$$\frac{\$212{,}922}{1{,}119{,}363\ TG} = \$0.1902/\ TG$$

Detailed calculations are shown in Exhibit WHUC Irrigation 12.

Q. Does this conclude your testimony?

A. Yes it does.

Deloitte.

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December 4, 2017

Mr. Thomas F. Smegal III
California Water Service Group
1720 North First Street
San Jose, CA 95112-4598

Dear Tom,

As a follow up to our conversation regarding a stand-alone audit for the Waikoloa District (Village and Resort) financial statements, our estimated fee is $215,000 plus expenses. This fee estimate would be for the performance of the audits as of and for the year ended December 31, 2016 and as of and for the six-month period ended June 30, 2017. The estimated fees outlined herein are only an estimate for fees associated with performing the audit. This estimate does not contemplate requests for information or any procedures that would need to be performed in connection with any such request. Should Deloitte & Touche LLP agree to perform such procedures, fees for such procedures would be subject to the mutual agreement of the Company and Deloitte & Touche LLP, and subject to approval by the California Water Service Group's Audit Committee.

Please let me know if you require anything further on this audit fee quote and if you would like us to begin this engagement.

Best regards,

Brady W. Rice

Partner – Audit Services
Deloitte & Touche LLP

HAWAII WATER SERVICE COMPANY

WAIKOLOA WATER – Waikoloa Village, Waikoloa Resort & Waikoloa Irrigation

Depreciation Study

as of December 31, 2016

Earl M. Robinson, Principal
David A. Sheffer, Principal

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July, 2017

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November 17, 2017

Mr. Julian Gandara
Regulatory Program Manager
California Water Service Company
1720 North First Street
San Jose, CA 95112

RE: Hawaii Water Service Company-Waikoloa Water
Depreciation Study as of 12-31-2016

Dear Mr. Gandara:

In accordance with your authorization, we have prepared a depreciation study related to the utility plant in service of Hawaii Water Service Company-Waikoloa Water (Waikoloa Water or the Company) as of December 31, 2016. Our findings and recommendations, together with supporting schedules and exhibits, are set forth in the accompanying report.

Summary schedules have been prepared to illustrate the impact of instituting the recommended annual depreciation rates as a basis for the Company's annual depreciation expense as compared to the rates presently utilized. The application of the present rates to the depreciable plant in service as of December 31, 2016 results in an annual depreciation expense of $991,507. In comparison, the application of the proposed depreciation rates to the depreciable plant in service at December 31, 2016 results in an annual depreciation expense of $1,005,927, which is an increase of $14,420 from current rates. The composite annual depreciation rate under present rates is 2.45 percent, while the proposed pro forma composite depreciation rate is 2.49 percent.

Section 2 of our report contains the summary schedules showing the results of our service life and salvage studies and summaries of presently utilized depreciation rates. The subsequent sections of the report present a detailed outline of the methodology and procedures used in the study together with supporting calculations and analyses used in the development of the results.

Respectfully submitted,

EARL M. ROBINSON, CDP
&
DAVID A. SHEFFER

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SECTION 1

Hawaii Water Service Company
Waikoloa Village Water, Waikoloa Resort Water, Waikoloa Irrigation

Executive Summary

Table 1's on pages 2-1 to 2-8 are comparative summaries which illustrates the effect of the proposed depreciation rates. The schedule includes a comparison of the annual depreciation rates and annual depreciation expense under both present and proposed historical rates applied using the Straight Line Method for each depreciable property group of the Hawaii Water Service Company-Waikoloa Water ("Waikoloa or Company") plant in service as of December 31, 2016. The proposed depreciation rates were developed utilizing the Straight Line (SL) Method, Broad Group (BG) Procedure, and the Average Remaining Life (ARL) Technique.

Table 1a's on pages 2-9 to 2-21 summarizes the Company's December 31, 2016 property group depreciation reserves by the detailed segments of plant only, gross salvage, and cost of removal components.

Table 2 - Plant Only on pages 2-22 to 2-33 is the development of average remaining life depreciation rates for the Plant Only recovery component), provides a summary of the detailed life estimates and service life parameters (Iowa Curves) utilized in preparing the Average Remaining Life depreciation rates for each property group. The schedule provides a summary of the detailed data and narrative of the study results set forth in Sections 4 through 6. The developed depreciation rates (Column L) were determined by studying the Company's historical investment data together with the interpretation of future life expectancies which will have a bearing on the overall service life of the Company's property.

Table 2 - Gross Salvage on pages 2-34 to 2-45 are similar tables to Table 2 - Plant Only, except that this table develops the component level depreciation rates for the recovery of the gross salvage portion of the property cost.

Table 2 - Cost of Removal on pages 2-46 to 2-57 summarizes the depreciation recovery rates for the cost of removal segment of the total plant cost.

Table 3's on pages 2-58 to 2-69 reconciles the December 31, 2016 account level plant in service balances per books versus the balances utilized in the performance of the depreciation study.

Table 4's on pages 2-70 to 2-81 summarizes the Company's December 31, 2015 book depreciation reserve balances per books, adjustments, and the depreciation reserve per the December 31, 2016 depreciation study.

Table 5's on pages 2-82 to 2-93 summarizes the depreciation parameters underlying the Company's current depreciation rates as well as also provides similar information relative to the proposed depreciation parameters and depreciation rates as of December 31, 2016.

Table 6 on pages 2-94 to 2-95 summarizes the depreciation average service lives and net salvage percent utilized throughout the industry for the various property groups. This information was utilized along with an investigation of the Company's property investments, historical analysis of available data, discussions with management, and a general review of the physical operating property to estimated depreciation parameters underlying the proposed depreciation rates.

While the overall aggregate change to the composite depreciation rate and expense was quite minor, some selected property groups did experience more sizable levels of depreciation change (greater or lesser) than that produced via the application of the present depreciation rates.

The accounts for which the most notable depreciation expense changes occurred in comparison to the current depreciation rates include Account 315-Wells, Account 342-Reservoirs & Tanks, and Account 343-Transmission & Distribution Mains.

The depreciation rate for Account 315 – Wells increased from 2.00 percent to 3.15 percent. A 48 year average service life is estimated as the applicable average service life for the proposed depreciation rate to give consideration to the anticipated ongoing changes of property operating and the general range of lives used in the industry. The implicit underlying average service life for this property group is 44.5 years. The net salvage underlying the current depreciation rate is unknown, but assumed to be zero percent. Future net salvage of negative 35% is estimated in developing the proposed depreciation rate.

The depreciation rate for Account 342 – Reservoirs & Tanks declined from 2.56 percent to 2.20 percent. A 50 year average service life is forecast as the applicable average service life for the proposed depreciation rate to give consideration to the content of the property group and general range of lives used in the industry. The implicit underlying average service life for this property group is 39.0 years. The net salvage underlying the current depreciation rate is unknown, but assumed to be zero percent. Future net salvage of negative 15% is estimated in developing the proposed depreciation rate.

The proposed depreciation rate for Account 343 – Transmission & Distribution Mains, increased from 2.06 percent to 1.66 percent. The proposed depreciation rate is the result of combined changes of both the average service life and net salvage parameters. The underlying estimated (implicit) average service life for the proposed depreciation rates is 75 years (giving the mix of the property investment within the property group and the range of lives within the industry. The implicit average service life underlying the current depreciation rate is 48.5 years.

The future negative net salvage estimated for the proposed property group depreciation rate is negative thirty-five percent. The net salvage percent underlying the current depreciation rate is unknown, but assumed to be zero percent.

The utilization of the recommended depreciation rates based upon the Straight Line Average Remaining Life Procedure results in the setting of depreciation rates which will continuously true up the Company's level of capital recovery over the life of each asset group. Application of this procedure, which is based upon the current best estimates of service life together with the Company's plant in service and accrued depreciation, produces annual depreciation rates that will result in the Company recovering 100 percent of its investment -- no more, no less.

It is recommended that the Company continue to apply depreciation rates and maintain its book depreciation reserve on an account-level basis. The maintenance of the book reserve on an account-level basis requires both the development of annual depreciation expense and distribution of other reserve account charges to an individual level. Maintaining the Company's depreciation records in this detail will aid in completing the various rate studies and, most importantly, clearly identify the Company's level of capital recovery relative to each category of plant investment.

The general drivers for the proposed depreciation rates include an assessment of the Company's historical experience with regard to achieved service lives and net salvage factors. In addition, consideration is given to current and anticipated events which are anticipated to impact the Company's ability to recover its fixed capital costs related to utility plant in service.

The depreciation rate for each individual account changed as a result of estimates obtained through the in-depth analysis of the Company's most recent data together with an interpretation of ongoing and anticipated future events. Some of the revisions were not significant and typically

reflect fine tuning of previously utilized depreciation rates while others were more substantial in nature. Several of the accounts did reflect more significant changes (as outlined in Section 4 of this report) from the previously utilized depreciation rates.

Several of the remaining account/sub-accounts experienced increases or decreases in recommended depreciation rates to a lesser degree, as noted per Table 1 of this report. This revision in annual depreciation rates and expense is the result of both changes in the estimated service lives and salvage factors, and reflects the impact of the Company's property changes since the most recent study.

With regard to the inclusion of higher negative net salvage levels in the development of proposed depreciation rates, as noted within the discussion related to net salvage in Section 3 of the depreciation report, it should be noted that the level of experienced net salvage should simply be a benchmark from which to estimate future net salvage. It is highly likely that the negative net salvage amounts experienced even recently will simply be the floor above which future negative net salvage levels will increase to a higher level. To appropriately and proportionately allocate the true total asset cost (original cost adjusted for net salvage) over its applicable service life, proper consideration must be given, in each accounting period, to the total costs that are anticipated to occur relative to the Company's assets that provide customer service.

Applying the proposed depreciation rates to the Company's December 31, 2016 historical depreciable plant in service balances produces annual depreciation expense of $1,005,926 which is an increase of $14,420 in depreciation expense from the application of the current depreciation rates.

The following summary compares the present and proposed composite depreciation rates and is for illustrative purposes only. The Composite Depreciation Rate should not be applied to

the total Company investment inasmuch as the non-proportional change in plant investment as a result of property additions or retirements would render the composite rate inappropriate. The Table 1 schedule (in Section 2 of the report) lists the recommended annual depreciation rates for each of the applicable property accounts.

Present Depreciation Rates

Depreciable Plant In Service at December 31, 2016	$40,427,887
Annual Depreciation Expense	$991,507
Composite Annual Depreciation Rate	2.45%

Proposed Depreciation Rates

Depreciable Plant In Service at December 31, 2016	$40,427,887
Annual Depreciation Expense	$1,005,927
Composite Annual Depreciation Rate	2.49%

SECTION 2

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	PRESENT RATES		PROPOSED RATES								Net Change Depr. Exp.
					Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Source of Supply												
311.00	Structures & Improvements	293,873.79	2.25%	6,601.92	2.11%	6,209.99	0.00%	-	0.22%	646.52	2.34%	6,865.76	263.84
	Total Account 311	293,873.79	2.25%	6,601.92	2.11%	6,209.99	0.00%	-	0.22%	646.52	2.34%	6,865.76	263.84
312.00	Collecting & Impounding Reservoirs	109,812.34	0.00%	-	0.10%	109.81	0.00%	-	0.27%	296.49	0.37%	406.31	406.31
315.00	Wells	5,508,561.96	2.02%	111,051.46	2.42%	133,579.83	0.00%	-	0.73%	40,212.50	3.15%	173,792.33	62,740.87
	TOTAL Source of Supply	5,912,248.09	1.99%	117,653.38	2.37%	139,899.63	0.00%	-	0.70%	41,155.51	3.06%	181,064.40	63,411.02
	Pumping Plant												
321.00	Pumping Structures & Improvements	1,782,027.31	1.48%	26,434.19	2.14%	38,214.68	0.00%	-	0.22%	3,920.46	2.37%	42,234.05	15,799.86
	Total Account 321	1,782,027.31	1.48%	26,434.19	2.14%	38,214.68	0.00%	-	0.22%	3,920.46	2.37%	42,234.05	15,799.86
324.00	Pumping Equipment	6,001,787.43	3.51%	210,435.79	3.11%	186,575.29	0.00%	-	0.67%	40,211.98	3.77%	226,505.02	16,069.23
324.10	System Ctrl Computer Equip	131,306.12	2.50%	3,282.79	16.20%	21,277.80	0.00%	-	0.00%	-	16.20%	21,277.80	17,995.01
	TOTAL Pumping Plant	7,915,120.86	3.03%	240,152.77	3.11%	246,067.77	0.00%	-	0.56%	44,132.44	3.66%	290,016.87	49,864.10
	Water Treatment Plant												
331.00	Water Treatment Structures & Improvements	109,963.51	2.00%	2,199.24	2.46%	2,701.42	0.00%	-	0.22%	241.92	2.68%	2,944.01	744.77
	Total Account 331	109,963.51	2.00%	2,199.24	2.46%	2,701.42	0.00%	-	0.22%	241.92	2.68%	2,944.01	744.77
332.00	Water Treatment Equipment	18,507.90	1.65%	306.00	2.61%	483.42	0.00%	-	0.26%	48.39	2.88%	533.10	227.10
	Total Account 332	18,507.90	1.65%	306.00	2.61%	483.42	0.00%	-	0.26%	48.39	2.88%	533.10	227.10
	TOTAL Water Treatment Plant	128,471.41	1.95%	2,505.24	2.48%	3,184.84	0.00%	-	0.23%	290.31	2.71%	3,477.11	971.87
	Transmission & Distribution Plant												
341.00	Trans. & Distr. Structures & Improvements	277,579.04	3.33%	9,252.38	3.50%	9,707.79	0.00%	-	0.50%	1,387.90	4.00%	11,095.69	1,843.31
341.10	Trans. & Distr. Struct. & Improv. - Pavement	39,945.52	3.33%	1,331.52	10.64%	4,248.59	0.00%	-	0.00%	-	10.64%	4,250.33	2,918.81
	Total Account 341	317,524.56	3.33%	10,583.90	4.40%	13,956.38	0.00%	-	0.44%	1,387.90	4.83%	15,346.02	4,762.12
342.00	Reservoirs & Tanks	9,627,473.27	2.56%	246,833.28	1.90%	183,302.72	0.00%	-	0.30%	28,882.42	2.20%	212,185.13	(34,648.15)
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	2.50%	6,363.96	9.00%	22,908.95	0.00%	-	0.00%	-	9.00%	22,908.95	16,544.99
	Total Reservoirs & Tanks	9,882,017.20	2.56%	253,197.24	2.09%	206,211.67	0.00%	-	0.29%	28,882.42	2.38%	235,094.08	(18,103.16)
	Transmission & Distribution Mains												
343.10	Mains-Asbestos Cement	9,341,040.75	2.04%	190,963.20	1.20%	111,976.33	0.00%	-	0.54%	50,791.71	1.74%	162,768.04	(28,195.16)
343.40	Mains-All Other	418,095.71	2.33%	9,729.96	1.15%	4,808.73	0.00%	-	0.45%	1,868.52	1.60%	6,691.70	(3,038.26)
343.50	Mains-Ductile Iron	4,277,053.66	2.07%	88,550.76	1.09%	46,619.89	0.00%	-	0.39%	16,680.51	1.48%	63,300.39	(25,250.37)
	Total Account 343	14,036,190.12	2.06%	289,243.92	1.16%	163,404.95	0.00%	-	0.49%	69,340.74	1.66%	232,760.13	(56,483.79)

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	PRESENT RATES Rate %	PRESENT RATES Annual Accrual Amount	PROPOSED RATES: Proposed Plant Only Rates Rate %	Proposed Plant Only Rates Annual Accrual Amount	Proposed Gross Salvage Rates Rate %	Proposed Gross Salvage Rates Annual Accrual Amount	Proposed Gross COR Rates Rate %	Proposed Gross COR Rates Annual Accrual Amount	Total Proposed Rates Rate %	Total Proposed Rates Annual Accrual Amount	Net Change Depr. Exp.
	Services												
345.00	Services	24,242.18	0.00%	-	2.99%	724.84	0.00%	-	0.89%	215.76	3.88%	940.60	940.60
345.20	Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 345	24,242.18	0.00%	-	2.99%	724.84	0.00%	-	0.89%	215.76	3.88%	940.60	940.60
	Meters												
346.11	Meters - 1" & Under	494,582.23	3.17%	15,668.76	5.50%	27,189.61	0.00%	-	0.00%	-	5.50%	27,189.61	11,520.85
346.12	Meters - Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
346.20	Meter Boxes	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 346	494,582.23	3.17%	15,668.76	5.50%	27,189.61	0.00%	-	0.00%	-	5.50%	27,189.61	11,520.85
348.00	Hydrants	15,234.28	1.78%	271.80	1.42%	216.93	0.00%	-	0.50%	76.17	1.93%	293.92	22.12
	TOTAL Trans. & Distr. Plant	24,769,790.57	2.30%	568,965.62	1.66%	411,704.38	0.00%	-	0.40%	99,902.99	2.07%	511,624.36	(57,341.26)
	General Plant												
371.00	General Plant Structures & Improvements	948,235.82	4.95%	46,978.32	2.12%	20,109.03	0.00%	-	0.33%	3,129.18	2.45%	23,238.21	(23,740.11)
	Total Account 371	948,235.82	4.95%	46,978.32	2.12%	20,109.03	0.00%	-	0.33%	3,129.18	2.45%	23,238.21	(23,740.11)
372.00	Office Furniture & Equipment	23,385.61	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.10	Office-Elec. Equip/Computers	52,835.85	0.00%	-	0.00%	-	0.00%	-	-6.44%	(3,405.13)	0.00%	-	-
372.20	Computer Software	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 372	76,221.46	0.00%	-	0.00%	-	0.00%	-	-4.47%	(3,405.13)	0.00%	-	-
373.00	Transportation Equipment	319,505.33	0.00%	-	-1.73%	(5,520.41)	-0.71%	(2,268.49)	0.00%	-	-2.44%	(7,788.64)	(7,788.64)
374.00	Stores Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
375.00	Laboratory Equipment	35,052.25	2.99%	1,048.56	3.21%	1,124.45	0.00%	-	0.00%	-	3.21%	1,124.45	75.89
376.00	Communication Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
377.00	Power Operated Equipment	242,805.90	5.38%	13,053.84	1.91%	4,645.70	-0.67%	(1,626.80)	0.00%	-	1.25%	3,043.18	(10,010.66)
378.00	Tools, Shop & Garage Equipment	39,512.58	2.91%	1,149.48	0.32%	126.77	0.00%	-	0.00%	-	0.32%	126.77	(1,022.71)
379.00	Other General Plant	40,922.90	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL General Plant	1,702,256.24	3.66%	62,230.20	1.20%	20,485.54	-0.23%	(3,895.29)	-0.02%	(275.95)	1.16%	19,743.97	(42,486.23)
	TOTAL DEPRECIABLE PLANT	40,427,887.17	2.45%	991,507.21	2.03%	821,342.16	-0.01%	(3,895.29)	0.46%	185,205.30	2.49%	1,005,926.71	14,419.50
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
303.00	Other Intangible Plant	46,820.21											
	TOTAL Intangible Plant	46,820.21											
	TOTAL NON-DEPRECIABLE PLANT	46,820.21											
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38											

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Source of Supply												
311.00	Structures & Improvements	92,504.73	2.50%	2,308.92	2.12%	1,961.10	0.00%	-	0.22%	203.51	2.35%	2,173.86	(135.06)
	Total Account 311	92,504.73	2.50%	2,308.92	2.12%	1,961.10	0.00%	-	0.22%	203.51	0.00%	2,173.86	(135.06)
312.00	Collecting & Impounding Reservoirs	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
315.00	Wells	1,336,130.94	2.06%	27,548.61	2.31%	30,864.62	0.00%	-	0.73%	9,753.76	3.04%	40,618.38	13,069.77
	TOTAL Source of Supply	1,428,635.67	2.09%	29,857.53	2.30%	32,825.72	0.00%	-	0.70%	9,957.27	3.00%	42,792.24	12,934.71
	Pumping Plant												
321.00	Pumping Structures & Improvements	793,028.08	3.33%	26,434.19	2.15%	17,050.10	0.00%	-	0.22%	1,744.66	2.37%	18,794.77	(7,639.42)
	Total Account 321	793,028.08	3.33%	26,434.19	2.15%	17,050.10	0.00%	-	0.22%	1,744.66	2.37%	18,794.77	(7,639.42)
324.00	Pumping Equipment	3,088,602.82	3.68%	113,718.13	2.99%	92,349.22	0.00%	-	0.67%	20,693.64	3.66%	113,042.86	(675.27)
324.10	System Ctrl Computer Equip	57,405.95	2.50%	1,435.16	16.70%	9,586.79	0.00%	-	0.00%	-	16.70%	9,586.79	8,151.63
	TOTAL Pumping Plant	3,939,036.85	3.59%	141,587.48	3.02%	118,986.11	0.00%	-	0.57%	22,438.30	3.59%	141,424.42	(163.06)
	Water Treatment Plant												
331.00	Water Treatment Structures & Improvements	6,757.10	2.00%	135.12	2.10%	141.90	0.00%	-	0.22%	14.87	2.33%	157.44	22.32
	Total Account 331	6,757.10	0.00%	135.12	2.10%	141.90	0.00%	-	0.22%	14.87	2.33%	157.44	22.32
332.00	Water Treatment Equipment	12,820.33	1.69%	216.12	2.36%	302.56	0.00%	-	0.20%	25.64	2.57%	329.48	113.36
	Total Account 332	12,820.33	1.69%	216.12	2.36%	302.56	0.00%	-	0.20%	25.64	2.57%	329.48	113.36
	TOTAL Water Treatment Plant	19,577.43	1.79%	351.24	2.27%	444.46	0.00%	-	0.21%	40.51	2.49%	486.92	135.68
	Transmission & Distribution Plant												
341.00	Trans. & Distr. Structures & Improvements	122,363.13	3.33%	4,078.78	3.57%	4,368.36	0.00%	-	0.50%	611.82	4.07%	4,980.18	901.40
341.10	Trans. & Distr. Struct. & Improv. - Pavement	17,449.98	3.33%	581.64	12.50%	2,181.25	0.00%	-	0.00%	-	12.51%	2,182.99	1,601.35
	Total Account 341	139,813.11	3.33%	4,660.42	4.68%	6,549.61	0.00%	-	0.44%	611.82	5.12%	7,163.17	2,502.75
342.00	Reservoirs & Tanks	1,455,062.40	2.87%	41,741.64	1.87%	27,209.67	0.00%	-	0.30%	4,365.19	2.17%	31,574.85	(10,166.79)
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	2.50%	6,363.96	9.00%	22,908.95	0.00%	-	0.00%	-	9.00%	22,908.95	16,544.99
	Total Reservoirs & Tanks	1,709,606.33	2.81%	48,105.60	2.93%	50,118.62	0.00%	-	0.26%	4,365.19	3.19%	54,483.80	6,378.20
	Transmission & Distribution Mains												
343.10	Mains-Asbestos Cement	6,420,961.31	2.01%	128,887.20	1.18%	75,767.34	0.00%	-	0.55%	35,315.29	1.73%	111,082.63	(17,804.57)
343.40	Mains-All Other	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
343.50	Mains-Ductile Iron	61,527.21	3.33%	2,050.92	1.09%	670.65	0.00%	-	0.39%	239.96	1.48%	910.60	(1,140.32)
	Total Account 343	6,482,488.52	2.02%	130,938.12	1.18%	76,437.99	0.00%	-	0.55%	35,555.25	1.73%	111,993.23	(18,944.89)

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES								Net Change Depr. Exp.
					Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Services												
345.00	Services	24,242.18	0.00%	-	2.99%	724.84	0.00%	-	0.89%	215.76	3.88%	940.60	940.60
345.20	Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 345	24,242.18	0.00%	-	2.99%	724.84	0.00%	-	0.89%	215.76	3.88%	940.60	940.60
	Meters												
346.11	Meters - 1" & Under	322,441.49	3.35%	10,808.04	5.36%	17,282.86	0.00%	-	0.00%	-	5.36%	17,282.86	6,474.82
346.12	Meters - Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
346.20	Meter Boxes	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 346	322,441.49		10,808.04		17,282.86		-		-		17,282.86	6,474.82
348.00	Hydrants	8,330.90	1.35%	112.08	1.22%	101.64	0.00%	-	0.50%	41.65	1.73%	144.12	32.04
	TOTAL Trans. & Distr. Plant	8,686,922.53	2.24%	194,624.26	1.74%	151,215.56	0.00%	-	0.47%	40,789.67	2.21%	192,007.78	(2,616.48)
	General Plant												
371.00	General Plant Structures & Improvements	36,160.15	4.18%	1,510.08	2.39%	864.23	0.00%	-	0.33%	119.33	2.72%	983.56	(526.52)
	Total Account 371	36,160.15	4.18%	1,510.08	2.39%	864.23	0.00%	-	0.33%	119.33	2.72%	983.56	(526.52)
372.00	Office Furniture & Equipment	2,231.30	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.10	Office-Elec. Equip/Computers	21,402.48	0.00%	-	0.00%	-	0.00%	-	-15.91%	(3,405.13)	0.00%	-	-
372.20	Computer Software	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 372	23,633.78	0.00%	-	0.00%	-	0.00%	-	-14.41%	(3,405.13)	0.00%	-	-
373.00	Transportation Equipment	2,623.35	0.00%	-	-2.67%	(70.04)	-0.71%	(18.63)	0.00%	-	-3.37%	(88.41)	(88.41)
374.00	Stores Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
375.00	Laboratory Equipment	19,719.79	2.61%	514.20	5.50%	1,084.59	0.00%	-	0.00%	-	5.50%	1,084.59	570.39
376.00	*Communication Equipment*	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
377.00	Power Operated Equipment	62,225.24	0.00%	-	-0.95%	(591.14)	-0.67%	(416.91)	0.00%	-	-1.61%	(1,001.83)	(1,001.83)
378.00	Tools, Shop & Garage Equipment	9,618.49	5.03%	483.36	0.51%	49.05	0.00%	-	0.00%	-	0.51%	49.05	(434.31)
379.00	Other General Plant	12,781.74	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL General Plant	166,762.54	1.50%	2,507.64	0.80%	1,336.69	-0.26%	(435.54)	-1.97%	(3,285.80)	0.62%	1,026.96	(1,480.68)
	TOTAL DEPRECIABLE PLANT	14,240,935.02	2.59%	368,928.15	2.14%	304,808.54	0.00%	(435.54)	0.49%	69,939.95	2.65%	377,738.32	8,810.17
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	-											
302.00	Franchises & Consents	-											
303.00	Other Intangible Plant	46,820.21											
	TOTAL Intangible Plant	46,820.21											
	TOTAL NON-DEPRECIABLE PLANT	46,820.21											
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23											

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Source of Supply												
311.00	Structures & Improvements	201,369.06	2.13%	4,293.00	2.11%	4,248.89	0.00%	-	0.22%	443.01	2.33%	4,691.90	398.90
	Total Account 311	201,369.06	2.13%	4,293.00	2.11%	4,248.89	0.00%	-	0.22%	443.01	0.00%	4,691.90	398.90
312.00	Collecting & Impounding Reservoirs	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
315.00	Wells	3,427,734.49	2.00%	68,608.93	2.41%	82,608.40	0.00%	-	0.73%	25,022.46	3.14%	107,630.86	39,021.93
	TOTAL Source of Supply	3,629,103.55	2.01%	72,901.93	2.39%	86,857.29	0.00%	-	0.70%	25,465.47	3.10%	112,322.76	39,420.83
	Pumping Plant												
321.00	Pumping Structures & Improvements	988,999.23	0.00%	-	2.14%	21,164.58	0.00%	-	0.22%	2,175.80	2.37%	23,439.28	23,439.28
	Total Account 321	988,999.23	0.00%	-	0.00%	21,164.58	0.00%	-	0.00%	2,175.80	0.00%	23,439.28	23,439.28
324.00	Pumping Equipment	2,822,483.13	3.43%	96,717.66	3.26%	92,012.95	0.00%	-	0.67%	18,910.64	3.92%	110,641.34	13,923.68
324.10	System Ctrl Computer Equip	73,900.17	2.50%	1,847.63	15.82%	11,691.01	0.00%	-	0.00%	-	15.82%	11,691.01	9,843.38
	TOTAL Pumping Plant	3,885,382.53	2.54%	98,565.29	3.21%	124,868.54	0.00%	-	0.54%	21,086.44	3.75%	145,771.63	47,206.34
	Water Treatment Plant												
331.00	Water Treatment Structures & Improvements	103,206.41	2.00%	2,064.12	2.48%	2,559.52	0.00%	-	0.22%	227.05	2.70%	2,786.57	722.45
	Total Account 331	103,206.41	2.00%	2,064.12	2.48%	2,559.52	0.00%	-	0.22%	227.05	0.00%	2,786.57	722.45
332.00	Water Treatment Equipment	5,687.57	1.58%	89.88	3.18%	180.86	0.00%	-	0.40%	22.75	3.58%	203.62	113.74
	Total Account 332	5,687.57	1.58%	89.88	3.18%	180.86	0.00%	-	0.40%	22.75	3.58%	203.62	113.74
	TOTAL Water Treatment Plant	108,893.98	1.98%	2,154.00	2.52%	2,740.38	0.00%	-	0.23%	249.80	2.75%	2,990.19	836.19
	Transmission & Distribution Plant												
341.00	Trans. & Distr. Structures & Improvements	155,215.91	3.33%	5,173.60	3.44%	5,339.43	0.00%	-	0.50%	776.08	3.94%	6,115.51	941.91
341.10	Trans. & Distr. Struct. & Improv. - Pavement	22,495.54	3.33%	749.88	9.19%	2,067.34	0.00%	-	0.00%	-	9.19%	2,067.34	1,317.46
	Total Account 341	177,711.45	3.33%	5,923.48	4.17%	7,406.77	0.00%	-	0.44%	776.08	4.60%	8,182.85	2,259.37
342.00	Reservoirs & Tanks	8,172,410.87	2.51%	205,091.64	1.91%	156,093.05	0.00%	-	0.30%	24,517.23	2.21%	180,610.28	(24,481.36)
342.10	Reservoirs & Tanks - Tank Painting	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Reservoirs & Tanks	8,172,410.87	2.51%	205,091.64	1.91%	156,093.05	0.00%	-	0.30%	24,517.23	2.21%	180,610.28	(24,481.36)
	Transmission & Distribution Mains												
343.10	Mains-Asbestos Cement	2,920,079.44	2.13%	62,076.00	1.24%	36,208.99	0.00%	-	0.53%	15,476.42	1.77%	51,685.41	(10,390.59)
343.40	Mains-All Other	273,615.71	2.50%	6,840.36	1.24%	3,392.83	0.00%	-	0.44%	1,203.91	1.68%	4,596.74	(2,243.62)
343.50	Mains-Ductile Iron	4,215,526.45	2.05%	86,499.84	1.09%	45,949.24	0.00%	-	0.39%	16,440.55	1.48%	62,389.79	(24,110.05)
	Total Account 343	7,409,221.60	2.10%	155,416.20	1.15%	85,551.06	0.00%	-	0.45%	33,120.88	1.60%	118,671.94	(36,744.26)

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Annual Accrual		Annual Accrual		Annual Accrual		Annual Accrual		Annual Accrual		
			Rate %	Amount	Rate %	Amount	Rate %	Amount	Rate %	Amount	Rate %	Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Services												
345.00	Services	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
345.20	Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 345	-		-		-		-		-		-	-
	Meters												
346.11	Meters - 1" & Under	166,729.12	2.78%	4,638.12	5.75%	9,586.92	0.00%	-	0.00%	-	5.75%	9,586.92	4,948.80
346.12	Meters - Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
346.20	Meter Boxes	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 346	166,729.12		4,638.12		9,586.92		-		-		9,586.92	4,948.80
348.00	Hydrants	6,903.38	2.31%	159.72	1.67%	115.29	0.00%	-	0.50%	34.52	2.17%	149.80	(9.92)
	TOTAL Trans. & Distr. Plant	15,932,976.42	2.33%	371,229.16	1.62%	258,753.09	0.00%	-	0.37%	58,448.71	1.99%	317,201.79	(54,027.37)
	General Plant												
371.00	General Plant Structures & Improvements	912,075.67	4.99%	45,468.24	2.11%	19,244.80	0.00%	-	0.33%	3,009.85	2.44%	22,254.65	(23,213.59)
	Total Account 371	912,075.67	4.99%	45,468.24	2.11%	19,244.80	0.00%	-	0.33%	3,009.85	2.44%	22,254.65	(23,213.59)
372.00	Office Furniture & Equipment	21,154.31	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.10	Office-Elec. Equip/Computers	31,433.37	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.20	Computer Software	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 372	52,587.68	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
373.00	Transportation Equipment	316,881.98	0.00%	-	-1.72%	(5,450.37)	-0.71%	(2,249.86)	0.00%	-	-2.43%	(7,700.23)	(7,700.23)
374.00	Stores Equipment	-	2.50%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
375.00	Laboratory Equipment	15,332.46	3.49%	534.36	0.26%	39.86	0.00%	-	0.00%	-	0.26%	39.86	(494.50)
376.00	Communication Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
377.00	Power Operated Equipment	180,580.66	7.23%	13,053.84	2.90%	5,236.84	-0.67%	(1,209.89)	0.00%	-	2.24%	4,045.01	(9,008.83)
378.00	Tools, Shop & Garage Equipment	29,894.09	2.23%	666.12	0.26%	77.72	0.00%	-	0.00%	-	0.26%	77.72	(588.40)
379.00	Other General Plant	28,141.16	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL General Plant	1,535,493.70	3.89%	59,722.56	1.25%	19,148.85	-0.23%	(3,459.75)	0.20%	3,009.85	1.22%	18,717.01	(41,005.55)
	TOTAL DEPRECIABLE PLANT	25,091,850.18	2.41%	604,572.94	1.96%	492,368.15	-0.01%	(3,459.75)	0.43%	108,260.27	2.38%	597,003.38	(7,569.56)
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	-											
302.00	Franchises & Consents	-											
303.00	Other Intangible Plant	-											
	TOTAL Intangible Plant	-											
	TOTAL NON-DEPRECIABLE PLANT	-											
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18											

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES								Net Change Depr. Exp.
					Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		
			Rate %	Ann. Accrual Amount	Rate %	Ann. Accrual Amount	Rate %	Ann. Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Ann. Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Source of Supply												
311.00	Structures & Improvements	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 311	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
312.00	Collecting & Impounding Reservoirs	109,812.34	0.00%	-	0.10%	109.81	0.00%	-	0.27%	296.49	0.37%	406.31	406.31
315.00	Wells	744,696.53	2.00%	14,893.92	2.70%	20,106.81	0.00%	-	0.73%	5,436.28	3.43%	25,543.09	10,649.17
	TOTAL Source of Supply	854,508.87	1.74%	14,893.92	2.37%	20,216.62	0.00%	-	0.67%	5,732.77	3.04%	25,949.40	11,055.48
	Pumping Plant												
321.00	Pumping Structures & Improvements	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 321	-		-		-		-		-		-	-
324.00	Pumping Equipment	90,701.48	0.00%	-	2.44%	2,213.12	0.00%	-	0.67%	607.70	3.11%	2,820.82	2,820.82
324.10	System Ctrl Computer Equip	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL Pumping Plant	90,701.48	0.00%	-	2.44%	2,213.12	0.00%	-	0.67%	607.70	3.11%	2,820.82	2,820.82
	Water Treatment Plant												
331.00	Water Treatment Structures & Improvemen	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 331	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
332.00	Water Treatment Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 332	-		-		-		-		-		-	-
	TOTAL Water Treatment Plant	-		-		-		-		-		-	-
	Transmission & Distribution Plant												
341.00	Trans. & Distr. Structures & Improvements	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
341.10	Trans. & Distr. Struct. & Improv. - Pavemen	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 341	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
342.00	Reservoirs & Tanks	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
342.10	Reservoirs & Tanks - Tank Painting	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Reservoirs & Tanks	-		-		-		-		-	0.00%	-	-
	Transmission & Distribution Mains												
343.10	Mains-Asbestos Cement	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
343.40	Mains-All Other	144,480.00	2.00%	2,889.60	0.98%	1,415.90	0.00%	-	0.46%	664.61	1.45%	2,094.96	(794.64)
343.50	Mains-Ductile Iron	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 343	144,480.00	2.00%	2,889.60	0.98%	1,415.90	0.00%	-	0.46%	664.61	1.45%	2,094.96	(794.64)

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Rate %	Ann. Accrual Amount	Rate %	Ann. Accrual Amount	Rate %	Ann. Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Ann. Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	Services												
345.00	Services	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
345.20	Over 1"	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 345	-		-		-		-		-		-	-
	Meters												
346.11	Meters - 1" & Under	5,411.62	4.11%	222.60	5.91%	319.83	0.00%	-	0.00%	-	5.91%	319.83	97.23
346.12	Meters - Over 1"	-	4.11%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
346.20	Meter Boxes	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 346	5,411.62		222.60		319.83		-		-		319.83	97.23
348.00	Hydrants	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL Trans. & Distr. Plant	149,891.62	2.08%	3,112.20	1.16%	1,735.73	0.00%	-	0.44%	664.61	1.61%	2,414.79	(697.41)
	General Plant												
371.00	General Plant Structures & Improvements	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 371	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.00	Office Furniture & Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.10	Office-Elec. Equip/Computers	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
372.20	Computer Software	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	Total Account 372	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
373.00	Transportation Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
374.00	Stores Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
375.00	Laboratory Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
376.00	Communication Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
377.00	Power Operated Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
378.00	Tools, Shop & Garage Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
379.00	*Other General Plant*	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL General Plant	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL DEPRECIABLE PLANT	1,095,101.97	1.64%	18,006.12	2.21%	24,165.47	0.00%	-	0.64%	7,005.08	2.85%	31,185.01	13,178.89
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	-											
302.00	Franchises & Consents	-											
303.00	Other Intangible Plant	-											
	TOTAL Intangible Plant	-											
	TOTAL NON-DEPRECIABLE PLANT	-											
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97											

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (d)	Original Cost 12-31-16 (e)	Existing A.S.L./ Curve (f)	Existing Salvage % (d)	Theoretical Deprecation Reserve (e)	Total Book Depr Reserve 12-31-16 (f)	Cost of Removal In Book Res. (g)	Gross Salvage In Book Res. (h)	Plant Only Depr Reserve 12-31-16 (i)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	293,873.79	45-R4	-10.0%	117,490.95	126,480.59	10,681.00	-	115,799.59
	Total Account 311	293,873.79			117,490.95	126,480.59	10,681.00	-	115,799.59
312.00	Collecting & Impounding Reservoirs	109,812.34	75-R3	-20.0%	36,214.94	109,812.34	6,035.83	-	103,776.51
315.00	Wells	5,508,561.96	48-R3	-35.0%	2,613,538.00	2,050,437.50	677,583.92	-	1,372,853.58
	TOTAL Source of Supply	5,912,248.09			2,767,243.89	2,286,730.43	694,300.75	-	1,592,429.68
	Pumping Plant								
321.00	Pumping Structures & Improvements	1,782,027.31	45-R3	-10.0%	148,447.61	205,627.02	13,495.24	-	192,131.78
	Total Account 321	1,782,027.31			148,447.61	205,627.02	13,495.24	-	192,131.78
324.00	Pumping Equipment	6,001,787.43	30-R4	-20.0%	2,777,044.48	3,039,158.67	462,840.74	-	2,576,317.93
324.10	System Ctrl Computer Equip	131,306.12	10-R3	0.0%	56,773.09	10,423.27	-	-	10,423.27
	TOTAL Pumping Plant	7,915,120.86			2,982,265.18	3,255,208.96	476,335.98	-	2,778,872.98
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvemen	109,963.51	45-R3	-10.0%	64,165.06	58,514.09	5,833.19	-	52,680.90
	Total Account 331	109,963.51			64,165.06	58,514.09	5,833.19	-	52,680.90
332.00	Water Treatment Equipment	18,507.90	25-R4	-10.0%	10,353.14	10,097.19	941.19	-	9,156.00
	Total Account 332	18,507.90	0.00		10,353.14	10,097.19	941.19	-	9,156.00
	TOTAL Water Treatment Plant	128,471.41	0.00		74,518.20	68,611.28	6,774.38	-	61,836.90

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(d)	(e)	(f)	(d)	(e)	(f)	(g)	(h)	(i)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	277,579.04	30-R2.5	-15.0%	40,790.07	28,789.81	5,320.44	-	23,469.37
341.10	Trans. & Distr. Struct. & Improv. - Pavemen	39,945.52	15-R3	0.0%	18,453.61	5,649.74	-	-	5,649.74
	Total Account 341	317,524.56			59,243.68	34,439.55	5,320.44	-	29,119.11
342.00	Reservoirs & Tanks	9,627,473.27	50-R3	-15.0%	3,303,580.68	3,624,363.66	430,901.83	-	3,193,461.83
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	15-R4	0.0%	92,307.04	35,519.54	-	-	35,519.54
	Total Reservoirs & Tanks	9,882,017.20			3,395,887.72	3,659,883.20	430,901.83	-	3,228,981.37
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	9,341,040.75	70-R3	-35.0%	4,490,608.01	5,425,459.14	1,036,282.62	-	4,389,176.52
343.40	Mains-All Other	418,095.71	80-R2.5	-35.0%	63,118.75	86,208.19	14,565.87	-	71,642.32
343.50	Mains-Ductile Iron	4,277,053.66	90-R2.5	-35.0%	410,371.13	502,290.24	94,701.03	-	407,589.21
	Total Account 343	14,036,190.12			4,964,097.89	6,013,957.57	1,145,549.52	-	4,868,408.05
	Services								
345.00	Services	24,242.18	45-R3	-40.0%	26,153.79	24,242.18	7,472.51	-	16,769.67
345.20	Over 1"	-		-40.0%	-	-	-	-	-
	Total Account 345	24,242.18			26,153.79	24,242.18	7,472.51	-	16,769.67
	Meters								
346.11	Meters - 1" & Under	494,582.23	20-R3	0.0%	348,860.83	331,467.49	-	-	331,467.49
346.12	Meters - Over 1"	-	20-R3	0.0%	-	-	(187,282.87)	-	187,282.87
346.20	Meter Boxes	-	20-R3	0.0%	-	-	-	-	-
	Total Account 346	494,582.23			348,860.83	331,467.49	(187,282.87)	-	518,750.36
348.00	Hydrants	15,234.28	60-R2.5	-30.0%	3,222.27	5,001.94	743.60	-	4,258.34
	TOTAL Trans. & Distr. Plant	24,769,790.57			8,797,466.18	10,068,991.93	1,402,705.03	-	8,666,286.90

Hawaii Water Service Company

Hawaii Water Service - Water (Waikoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(d)	(e)	(f)	(d)	(e)	(f)	(g)	(h)	(i)
	General Plant								
371.00	General Plant Structures & Improvements	948,235.82	30-R2	-10.0%	305,376.68	550,427.43	27,761.51	-	522,665.92
	Total Account 371	948,235.82			305,376.68	550,427.43	27,761.51	-	522,665.92
372.00	Office Furniture & Equipment	23,385.61	12-L3	0.0%	17,728.29	23,385.61	-	-	23,385.61
372.10	Office-Elec. Equip/Computers	52,835.85	6-L3	0.0%	51,650.48	52,835.85	1,906.46	-	50,929.39
372.20	Computer Software	-	6-L3	0.0%	-	-	-	-	-
	Total Account 372	76,221.46			69,378.77	76,221.46	1,906.46	-	74,315.00
373.00	Transportation Equipment	319,505.33	14-R5	10.0%	205,788.63	329,399.78	-	(19,675.53)	349,075.31
374.00	Stores Equipment	-	25-L2	0.0%	6,425.03	4,199.80	-	-	4,199.80
375.00	Laboratory Equipment	35,052.25	15-R2.5	0.0%	21,237.09	27,202.05	-	-	27,202.05
376.00	Communication Equipment	-	10-R2	0.0%	-	-	-	-	-
377.00	Power Operated Equipment	242,805.90	15-R2.5	10.0%	118,213.39	195,978.51	-	(13,134.83)	209,113.34
378.00	Tools, Shop & Garage Equipment	39,512.58	20-L1	0.0%	17,977.52	38,020.22	-	-	38,020.22
379.00	Other General Plant	40,922.90	15-L2	0.0%	30,047.49	40,922.90	-	-	40,922.90
	TOTAL General Plant	1,702,256.24			774,444.60	1,262,372.15	29,667.97	(32,810.36)	1,265,514.54
	TOTAL DEPRECIABLE PLANT	40,427,887.17			15,395,938.05	16,941,914.75	2,609,784.11	(32,810.36)	14,364,941.00
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
303.00	Other Intangible Plant	46,820.21							
	TOTAL Intangible Plant	46,820.21							
	TOTAL NON-DEPRECIABLE PLANT	46,820.21							
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38							

Hawaii Water Service Company

Waikoloa Village Water Operations (VW)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	92,504.73	45-R4	-10.0%	42,999.10	45,357.61	3,909.01	-	41,448.60
	Total Account 311	92,504.73			42,999.10	45,357.61	3,909.01	-	41,448.60
312.00	Collecting & Impounding Reservoirs	-	75-R3	-20.0%	-	-	-	-	-
315.00	Wells	1,336,130.94	48-R3	-35.0%	530,616.35	427,303.96	137,567.20	-	289,736.76
	TOTAL Source of Supply	1,428,635.67			573,615.45	472,661.57	141,476.21	-	331,185.36
	Pumping Plant								
321.00	Pumping Structures & Improvements	793,028.08	45-R3	-10.0%	65,513.68	90,527.05	5,955.79	-	84,571.26
	Total Account 321	793,028.08			65,513.68	90,527.05	5,955.79	-	84,571.26
324.00	Pumping Equipment	3,088,602.82	30-R4	-20.0%	1,087,424.47	1,310,033.70	181,237.41	-	1,128,796.29
324.10	System Ctrl Computer Equip	57,405.95	10-R3	0.0%	24,816.16	2,938.19	-	-	2,938.19
	TOTAL Pumping Plant	3,939,036.85			1,177,754.31	1,403,498.93	187,193.20	-	1,216,305.73
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	6,757.10	45-R3	-10.0%	5,727.80	5,810.87	520.71	-	5,290.16
	Total Account 331	6,757.10			5,727.80	5,810.87	520.71	-	5,290.16
332.00	Water Treatment Equipment	12,820.33	25-R4	-10.0%	7,879.55	6,920.37	716.32	-	6,204.05
	Total Account 332	12,820.33	0.00		7,879.55	6,920.37	716.32	-	6,204.05
	TOTAL Water Treatment Plant	19,577.43	0.00		13,607.35	12,731.24	1,237.03	-	11,494.21

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Village Water Operations (VW)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	122,363.13	30-R2.5	-15.0%	17,886.90	10,263.61	2,333.07	-	7,930.54
341.10	Trans. & Distr. Struct. & Improv. - Pavement	17,449.98	15-R3	0.0%	8,061.36	(161.79)	-	-	(161.79)
	Total Account 341	139,813.11			25,948.26	10,101.82	2,333.07	-	7,768.75
342.00	Reservoirs & Tanks	1,455,062.40	50-R3	-15.0%	525,909.46	592,706.24	68,596.89	-	524,109.35
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	15-R4	0.0%	92,307.04	35,519.54	-	-	35,519.54
	Total Reservoirs & Tanks	1,709,606.33			618,216.50	628,225.78	68,596.89	-	559,628.89
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	6,420,961.31	70-R3	-35.0%	3,304,990.65	3,973,918.29	762,678.61	-	3,211,239.68
343.40	Mains-All Other	-	80-R2.5	-35.0%	-	-	-	-	-
343.50	Mains-Ductile Iron	61,527.21	90-R2.5	-35.0%	5,641.79	6,783.68	1,301.95	-	5,481.73
	Total Account 343	6,482,488.52			3,310,632.44	3,980,701.97	763,980.56	-	3,216,721.41

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Village Water Operations (VW)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	Services								
345.00	Services	24,242.18	45-R3	-40.0%	26,153.79	24,242.18	7,472.51	-	16,769.67
345.20	Over 1"	-		-40.0%	-	-	-	-	-
	Total Account 345	24,242.18			26,153.79	24,242.18	7,472.51	-	16,769.67
	Meters								
346.11	Meters - 1" & Under	322,441.49	20-R3	0.0%	234,222.56	225,493.85	-	-	225,493.85
346.12	Meters - Over 1"	-	20-R3	0.0%	-	-	(187,282.87)	-	187,282.87
346.20	Meter Boxes	-	20-R3	0.0%	-	-	-	-	-
	Total Account 346	322,441.49			234,222.56	225,493.85	(187,282.87)	-	412,776.72
348.00	Hydrants	8,330.90	60-R2.5	-30.0%	2,078.13	3,857.34	479.57	-	3,377.77
	TOTAL Trans. & Distr. Plant	8,686,922.53			4,217,251.68	4,872,622.94	655,579.73	-	4,217,043.21
	General Plant								
371.00	General Plant Structures & Improvements	36,160.15	30-R2	-10.0%	13,988.30	20,648.39	1,271.66	-	19,376.73
	Total Account 371	36,160.15			13,988.30	20,648.39	1,271.66	-	19,376.73
372.00	Office Furniture & Equipment	2,231.30	12-L3	0.0%	1,690.45	2,231.30	-	-	2,231.30
372.10	Office-Elec. Equip/Computers	21,402.48	6-L3	0.0%	20,435.93	21,402.48	1,906.46	-	19,496.02
372.20	Computer Software	-	6-L3	0.0%	-	-	-	-	-
	Total Account 372	23,633.78			22,126.38	23,633.78	1,906.46	-	21,727.32
373.00	Transportation Equipment	2,623.35	14-R5	10.0%	1,860.80	2,623.35	-	(206.76)	2,830.11
374.00	Stores Equipment	-	25-L2	0.0%	-	-	-	-	-
375.00	Laboratory Equipment	19,719.79	15-R2.5	0.0%	10,423.80	12,047.73	-	-	12,047.73
376.00	Communication Equipment	-	10-R2	0.0%	-	-	-	-	-
377.00	Power Operated Equipment	62,225.24	15-R2.5	10.0%	32,866.83	62,225.24	-	(3,651.87)	65,877.11
378.00	Tools, Shop & Garage Equipment	9,618.49	20-L1	0.0%	3,709.39	9,014.37	-	-	9,014.37
379.00	Other General Plant	12,781.74	15-L2	0.0%	8,772.37	12,781.74	-	-	12,781.74
	TOTAL General Plant	166,762.54			93,747.87	142,974.60	3,178.12	(3,858.63)	143,655.11
	TOTAL DEPRECIABLE PLANT	14,240,935.02			6,075,976.66	6,904,489.29	988,664.29	(3,858.63)	5,919,683.63

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-							
302.00	Franchises & Consents	-							
303.00	Other Intangible Plant	46,820.21							
	TOTAL Intangible Plant	46,820.21							
	TOTAL NON-DEPRECIABLE PLANT	46,820.21							
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23							

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	201,369.06	45-R4	-10.0%	74,491.85	81,122.98	6,771.99	-	74,350.99
	Total Account 311	201,369.06			74,491.85	81,122.98	6,771.99	-	74,350.99
312.00	Collecting & Impounding Reservoirs	-	75-R3	-20.0%	-	-	-	-	-
315.00	Wells	3,427,734.49	48-R3	-35.0%	1,575,624.70	1,224,528.08	408,495.29	-	816,032.79
	TOTAL Source of Supply	3,629,103.55			1,650,116.55	1,305,651.06	415,267.28	-	890,383.78
	Pumping Plant								
321.00	Pumping Structures & Improvements	988,999.23	45-R3	-10.0%	82,933.93	115,099.97	7,539.45	-	107,560.52
	Total Account 321	988,999.23			82,933.93	115,099.97	7,539.45	-	107,560.52
324.00	Pumping Equipment	2,822,483.13	30-R4	-20.0%	1,604,116.65	1,638,423.49	267,352.77	-	1,371,070.72
324.10	System Ctrl Computer Equip	73,900.17	10-R3	0.0%	31,956.93	7,485.08	-	-	7,485.08
	TOTAL Pumping Plant	3,885,382.53			1,719,007.51	1,761,008.55	274,892.22	-	1,486,116.33
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	103,206.41	45-R3	-10.0%	58,437.26	52,703.22	5,312.48	-	47,390.74
	Total Account 331	103,206.41			58,437.26	52,703.22	5,312.48	-	47,390.74
332.00	Water Treatment Equipment	5,687.57	25-R4	-10.0%	2,473.59	3,176.82	224.87	-	2,951.95
	Total Account 332	5,687.57	0.00		2,473.59	3,176.82	224.87	-	2,951.95
	TOTAL Water Treatment Plant	108,893.98	0.00		60,910.85	55,880.04	5,537.35	-	50,342.69

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	155,215.91	30-R2.5	-15.0%	22,903.17	18,526.20	2,987.37	-	15,538.83
341.10	Trans. & Distr. Struct. & Improv. - Pavement	22,495.54	15-R3	0.0%	10,392.25	5,811.53	-	-	5,811.53
	Total Account 341	177,711.45			33,295.42	24,337.73	2,987.37	-	21,350.36
342.00	Reservoirs & Tanks	8,172,410.87	50-R3	-15.0%	2,777,671.22	3,031,657.42	362,304.94	-	2,669,352.48
342.10	Reservoirs & Tanks - Tank Painting	-	15-R4	0.0%	-	-	-	-	-
	Total Reservoirs & Tanks	8,172,410.87			2,777,671.22	3,031,657.42	362,304.94	-	2,669,352.48
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	2,920,079.44	70-R3	-35.0%	1,185,617.36	1,451,540.86	273,604.01	-	1,177,936.85
343.40	Mains-All Other	273,615.71	80-R2.5	-35.0%	6,688.76	8,188.99	1,543.56	-	6,645.43
343.50	Mains-Ductile Iron	4,215,526.45	90-R2.5	-35.0%	404,729.34	495,506.55	93,399.08	-	402,107.47
	Total Account 343	7,409,221.60			1,597,035.46	1,955,236.40	368,546.65	-	1,586,689.75
	Services								
345.00	Services	-	45-R3	-40.0%	-	-	-	-	-
345.20	Over 1"	-		-40.0%	-	-	-	-	-
	Total Account 345	-			-	-	-	-	-
	Meters								
346.11	Meters - 1" & Under	166,729.12	20-R3	0.0%	112,690.38	104,653.39	-	-	104,653.39
346.12	Meters - Over 1"	-	20-R3	0.0%	-	-	-	-	-
346.20	Meter Boxes	-	20-R3	0.0%	-	-	-	-	-
	Total Account 346	166,729.12			112,690.38	104,653.39	-	-	104,653.39
348.00	Hydrants	6,903.38	60-R2.5	-30.0%	1,144.14	1,144.60	264.03	-	880.57
	TOTAL Trans. & Distr. Plant	15,932,976.42			4,521,836.62	5,117,029.54	734,102.99	-	4,382,926.55

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	General Plant								
371.00	General Plant Structures & Improvements	912,075.67	30-R2	-10.0%	291,388.38	529,779.04	26,489.85	-	503,289.19
	Total Account 371	912,075.67			291,388.38	529,779.04	26,489.85	-	503,289.19
372.00	Office Furniture & Equipment	21,154.31	12-L3	0.0%	16,037.84	21,154.31	-	-	21,154.31
372.10	Office-Elec. Equip/Computers	31,433.37	6-L3	0.0%	31,214.55	31,433.37	-	-	31,433.37
372.20	Computer Software	-	6-L3	0.0%	-	-	-	-	-
	Total Account 372	52,587.68			47,252.39	52,587.68	-	-	52,587.68
373.00	Transportation Equipment	316,881.98	14-R5	10.0%	203,927.83	326,776.43	-	(19,468.77)	346,245.20
374.00	Stores Equipment	-	25-L2	0.0%	6,425.03	4,199.80	-	-	4,199.80
375.00	Laboratory Equipment	15,332.46	15-R2.5	0.0%	10,813.29	15,154.32	-	-	15,154.32
376.00	Communication Equipment	-	10-R2	0.0%	-	-	-	-	-
377.00	Power Operated Equipment	180,580.66	15-R2.5	10.0%	85,346.56	133,753.27	-	(9,482.96)	143,236.23
378.00	Tools, Shop & Garage Equipment	29,894.09	20-L1	0.0%	14,268.13	29,005.85	-	-	29,005.85
379.00	Other General Plant	28,141.16	15-L2	0.0%	21,275.12	28,141.16	-	-	28,141.16
	TOTAL General Plant	1,535,493.70			680,696.73	1,119,397.55	26,489.85	(28,951.73)	1,121,859.43
	TOTAL DEPRECIABLE PLANT	25,091,850.18			8,632,568.26	9,358,966.73	1,456,289.69	(28,951.73)	7,931,628.77
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-							
302.00	Franchises & Consents	-							
303.00	Other Intangible Plant	-							
	TOTAL Intangible Plant	-							
	TOTAL NON-DEPRECIABLE PLANT	-							
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18							

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	-	45-R4	-10.0%	-	-	-	-	-
	Total Account 311	-			-	-	-	-	-
312.00	Collecting & Impounding Reservoirs	109,812.34	75-R3	-20.0%	36,214.94	109,812.34	6,035.83	-	103,776.51
315.00	Wells	744,696.53	48-R3	-35.0%	507,296.95	398,605.46	131,521.43	-	267,084.03
	TOTAL Source of Supply	854,508.87			543,511.89	508,417.80	137,557.26	-	370,860.54
	Pumping Plant								
321.00	Pumping Structures & Improvements	-	45-R3	-10.0%	-	-	-	-	-
	Total Account 321	-			-	-	-	-	-
324.00	Pumping Equipment	90,701.48	30-R4	-20.0%	85,503.36	90,701.48	14,250.56	-	76,450.92
324.10	System Ctrl Computer Equip	-	10-R3	0.0%	-	-	-	-	-
	TOTAL Pumping Plant	90,701.48			85,503.36	90,701.48	14,250.56	-	76,450.92
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	-	45-R3	-10.0%	-	-	-	-	-
	Total Account 331	-			-	-	-	-	-
332.00	Water Treatment Equipment	-	25-R4	-10.0%	-	-	-	-	-
	Total Account 332	-	0.00		-	-	-	-	-
	TOTAL Water Treatment Plant	-	0.00		-	-	-	-	-

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	-	30-R2.5	-15.0%	-	-	-	-	-
341.10	Trans. & Distr. Struct. & Improv. - Pavement	-	15-R3	0.0%	-	-	-	-	-
	Total Account 341	-			-	-	-	-	-
342.00	Reservoirs & Tanks	-	50-R3	-15.0%	-	-	-	-	-
342.10	Reservoirs & Tanks - Tank Painting	-	15-R4	0.0%	-	-	-	-	-
	Total Reservoirs & Tanks	-			-	-	-	-	-
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	-	70-R3	-35.0%	-	-	-	-	-
343.40	Mains-All Other	144,480.00	80-R2.5	-35.0%	56,429.99	78,019.20	13,022.31	-	64,996.89
343.50	Mains-Ductile Iron	-	90-R2.5	-35.0%	-	-	-	-	-
	Total Account 343	144,480.00			56,429.99	78,019.20	13,022.31	-	64,996.89
	Services								
345.00	Services	-	45-R3	-40.0%	-	-	-	-	-
345.20	Over 1"	-		-40.0%	-	-	-	-	-
	Total Account 345	-			-	-	-	-	-
	Meters								
346.11	Meters - 1" & Under	5,411.62	20-R3	0.0%	1,947.89	1,320.25	-	-	1,320.25
346.12	Meters - Over 1"	-	20-R3	0.0%	-	-	-	-	-
346.20	Meter Boxes	-	20-R3	0.0%	-	-	-	-	-
	Total Account 346	5,411.62			1,947.89	1,320.25	-	-	1,320.25
348.00	Hydrants	-	60-R2.5	-30.0%	-	-	-	-	-
	TOTAL Trans. & Distr. Plant	149,891.62			58,377.88	79,339.45	13,022.31	-	66,317.14

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	General Plant								
371.00	General Plant Structures & Improvements	-	30-R2	-10.0%	-	-	-	-	-
	Total Account 371	-			-	-	-	-	-
372.00	Office Furniture & Equipment	-	12-L3	0.0%	-	-	-	-	-
372.10	Office-Elec. Equip/Computers	-	6-L3	0.0%	-	-	-	-	-
372.20	Computer Software	-	6-L3	0.0%	-	-	-	-	-
	Total Account 372	-			-	-	-	-	-
373.00	Transportation Equipment	-	14-R5	10.0%	-	-	-	-	-
374.00	Stores Equipment	-	25-L2	0.0%	-	-	-	-	-
375.00	Laboratory Equipment	-	15-R2.5	0.0%	-	-	-	-	-
376.00	Communication Equipment	-	10-R2	0.0%	-	-	-	-	-
377.00	Power Operated Equipment	-	15-R2.5	10.0%	-	-	-	-	-
378.00	Tools, Shop & Garage Equipment	-	20-L1	0.0%	-	-	-	-	-
379.00	Other General Plant	-	15-L2	0.0%	-	-	-	-	-
	TOTAL General Plant	-			-	-	-	-	-
	TOTAL DEPRECIABLE PLANT	1,095,101.97			687,393.13	678,458.73	164,830.13	-	513,628.60
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-							
302.00	Franchises & Consents	-							
303.00	Other Intangible Plant	-							
	TOTAL Intangible Plant	-							
	TOTAL NON-DEPRECIABLE PLANT	-							
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97							

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Hawaii Water Service - Water (Waikoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Net Salvage % (d)	Estimated Future Net Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	293,873.79	0.0%	-	293,873.79	115,799.59	178,074.20	45-R4	47.27	6,217.00	2.12%
	Total Account 311	293,873.79		-	293,873.79	115,799.59	178,074.20			6,217.00	2.12%
312.00	Collecting & Impounding Reservoirs	109,812.34	0.0%	-	109,812.34	103,776.51	6,035.83	75-R3	989.30	111.00	0.10%
315.00	Wells	5,508,561.96	0.0%	-	5,508,561.96	1,372,853.58	4,135,708.38	48-R3	41.27	133,462.00	2.42%
	TOTAL Source of Supply	5,912,248.09		-	5,912,248.09	1,592,429.68	4,319,818.41			139,790.00	2.36%
	Pumping Plant										
321.00	Pumping Structures & Improvements	1,782,027.31	0.0%	-	1,782,027.31	192,131.78	1,589,895.53	45-R3	46.62	38,226.00	2.15%
	Total Account 321	1,782,027.31		-	1,782,027.31	192,131.78	1,589,895.53			38,226.00	2.15%
324.00	Pumping Equipment	6,001,787.43	0.0%	-	6,001,787.43	2,576,317.93	3,425,469.50	30-R4	32.17	186,580.00	3.11%
324.10	System Ctrl Computer Equip	131,306.12	0.0%	-	131,306.12	10,423.27	120,882.85	10-R3	6.17	21,282.00	16.21%
	TOTAL Pumping Plant	7,915,120.86		-	7,915,120.86	2,778,872.98	5,136,247.88			246,088.00	3.11%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvem	109,963.51	0.0%	-	109,963.51	52,680.90	57,282.61	45-R3	40.76	2,698.00	2.45%
	Total Account 331	109,963.51		-	109,963.51	52,680.90	57,282.61			2,698.00	2.45%
332.00	Water Treatment Equipment	18,507.90	0.0%	-	18,507.90	9,156.00	9,351.90	25-R4	38.24	484.00	2.62%
	Total Account 332	18,507.90		-	18,507.90	9,156.00	9,351.90			484.00	2.62%
	TOTAL Water Treatment Plant	128,471.41		-	128,471.41	61,836.90	66,634.51			3,182.00	2.48%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvemen	277,579.04	0.0%	-	277,579.04	23,469.37	254,109.67	30-R2.5	28.59	9,710.00	3.50%
341.10	Trans. & Distr. Struct. & Improv. - Pavem	39,945.52	0.0%	-	39,945.52	5,649.74	34,295.78	15-R3	9.40	4,249.00	10.64%
	Total Account 341	317,524.56		-	317,524.56	29,119.11	288,405.45			13,959.00	4.40%
342.00	Reservoirs & Tanks	9,627,473.27	0.0%	-	9,627,473.27	3,193,461.83	6,434,011.44	50-R3	52.50	183,397.00	1.90%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0.0%	-	254,543.93	35,519.54	219,024.39	15-R4	11.11	22,911.00	9.00%
	Total Reservoirs & Tanks	9,882,017.20		-	9,882,017.20	3,228,981.37	6,653,035.83			206,308.00	2.09%

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Net Salvage % (d)	Estimated Future Net Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	9,341,040.75	0.0%	-	9,341,040.75	4,389,176.52	4,951,864.23	70-R3	83.32	112,105.00	1.20%
343.40	Mains-All Other	418,095.71	0.0%	-	418,095.71	71,642.32	346,453.39	80-R2.5	86.72	4,821.00	1.15%
343.50	Mains-Ductile Iron	4,277,053.66	0.0%	-	4,277,053.66	407,589.21	3,869,464.45	90-R2.5	92.13	46,422.00	1.09%
	Total Account 343	14,036,190.12		-	14,036,190.12	4,868,408.05	9,167,782.07			163,348.00	1.16%
	Services										
345.00	Services	24,242.18	0.0%	-	24,242.18	16,769.67	7,472.51	45-R3	33.48	724.00	2.99%
345.20	Over 1"	-	0.0%	-	-	-	-		-	-	0.00%
	Total Account 345	24,242.18		-	24,242.18	16,769.67	7,472.51			724.00	2.99%
	Meters										
346.11	Meters - 1" & Under	494,582.23	0.0%	-	494,582.23	331,467.49	163,114.74	20-R3	18.20	27,181.00	5.50%
346.12	Meters - Over 1"	-	0.0%	-	-	187,282.87	(187,282.87)	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	494,582.23		-	494,582.23	518,750.36	(24,168.13)			27,181.00	5.50%
348.00	Hydrants	15,234.28	0.0%	-	15,234.28	4,258.34	10,975.94	60-R2.5	70.20	217.00	1.42%
	TOTAL Trans. & Distr. Plant	24,769,790.57		-	24,769,790.57	8,666,286.90	16,103,503.67			411,737.00	1.66%
	General Plant										
371.00	General Plant Structures & Improvement	948,235.82	0.0%	-	948,235.82	522,665.92	425,569.90	30-R2	47.26	20,064.00	2.12%
	Total Account 371	948,235.82		-	948,235.82	522,665.92	425,569.90			20,064.00	2.12%
372.00	Office Furniture & Equipment	23,385.61	0.0%	-	23,385.61	23,385.61	-	12-L3	-	-	0.00%
372.10	Office-Elec. Equip/Computers	52,835.85	0.0%	-	52,835.85	50,929.39	1,906.46	6-L3	-	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	76,221.46		-	76,221.46	74,315.00	1,906.46			-	
373.00	Transportation Equipment	319,505.33	0.0%	-	319,505.33	349,075.31	(29,569.98)	14-R5	(58.01)	(5,508.00)	-1.72%
374.00	Stores Equipment	-	0.0%	-	-	4,199.80	(4,199.80)	25-L2	-	-	0.00%
375.00	Laboratory Equipment	35,052.25	0.0%	-	35,052.25	27,202.05	7,850.20	15-R2.5	31.16	1,125.00	3.21%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	242,805.90	0.0%	-	242,805.90	209,113.34	33,692.56	15-R2.5	52.15	4,656.00	1.92%
378.00	Tools, Shop & Garage Equipment	39,512.58	0.0%	-	39,512.58	38,020.22	1,492.36	20-L1	313.59	126.00	0.32%
379.00	Other General Plant	40,922.90	0.0%	-	40,922.90	40,922.90	(0.00)	15-L2	-	-	0.00%
	TOTAL General Plant	1,702,256.24		-	1,702,256.24	1,265,514.54	436,741.70			20,463.00	1.20%
	TOTAL DEPRECIABLE PLANT	40,427,887.17		-	40,427,887.17	14,364,941.00	26,062,946.17			821,260.00	2.03%

Hawaii Water Service Company

Hawaii Water Service - Water (Waikoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage %	Estimated Future Net Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38									

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	92,504.73	0%	-	92,504.73	41,448.60	51,056.13	45-R4	25.98	1,965.00	2.12%
	Total Account 311	92,504.73		-	92,504.73	41,448.60	51,056.13			1,965.00	2.12%
312.00	Collecting & Impounding Reservoirs	-	0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	1,336,130.94	0%	-	1,336,130.94	289,736.76	1,046,394.18	48-R3	33.88	30,885.00	2.31%
	TOTAL Source of Supply	1,428,635.67		-	1,428,635.67	331,185.36	1,097,450.31			32,850.00	2.30%
	Pumping Plant										
321.00	Pumping Structures & Improvements	793,028.08	0%	-	793,028.08	84,571.26	708,456.82	45-R3	41.62	17,022.00	2.15%
	Total Account 321	793,028.08		-	793,028.08	84,571.26	708,456.82			17,022.00	2.15%
324.00	Pumping Equipment	3,088,602.82	0%	-	3,088,602.82	1,128,796.29	1,959,806.53	30-R4	21.20	92,444.00	2.99%
324.10	System Ctrl Computer Equip	57,405.95	0%	-	57,405.95	2,938.19	54,467.76	10-R3	5.68	9,589.00	16.70%
	TOTAL Pumping Plant	3,939,036.85		-	3,939,036.85	1,216,305.73	2,722,731.11			119,055.00	3.02%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvements	6,757.10	0%	-	6,757.10	5,290.16	1,466.94	45-R3	10.32	142.00	2.10%
	Total Account 331	6,757.10		-	6,757.10	5,290.16	1,466.94			142.00	2.10%
332.00	Water Treatment Equipment	12,820.33	0%	-	12,820.33	6,204.05	6,616.28	25-R4	21.82	303.00	2.36%
	Total Account 332	12,820.33		-	12,820.33	6,204.05	6,616.28			303.00	2.36%
	TOTAL Water Treatment Plant	19,577.43		-	19,577.43	11,494.21	8,083.22			445.00	2.27%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	122,363.13	0%	-	122,363.13	7,930.54	114,432.59	30-R2.5	26.19	4,369.00	3.57%
341.10	Trans. & Distr. Struct. & Improv. - Pavement	17,449.98	0%	-	17,449.98	(161.79)	17,611.77	15-R3	8.07	2,182.00	12.50%
	Total Account 341	139,813.11		-	139,813.11	7,768.75	132,044.36			6,551.00	4.69%
342.00	Reservoirs & Tanks	1,455,062.40	0%	-	1,455,062.40	524,109.35	930,953.05	50-R3	34.29	27,149.00	1.87%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0%	-	254,543.93	35,519.54	219,024.39	15-R4	9.56	22,911.00	9.00%
	Total Reservoirs & Tanks	1,709,606.33		-	1,709,606.33	559,628.89	1,149,977.44			50,060.00	2.93%

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	6,420,961.31	0%	-	6,420,961.31	3,211,239.68	3,209,721.63	70-R3	42.28	75,916.00	1.18%
343.40	Mains-All Other	-	0%	-	-	-	-	80-R2.5	48.63	-	0.00%
343.50	Mains-Ductile Iron	61,527.21	0%	-	61,527.21	5,481.73	56,045.48	90-R2.5	83.65	670.00	1.09%
	Total Account 343	6,482,488.52		-	6,482,488.52	3,216,721.41	3,265,767.11			76,586.00	1.18%
	Services										
345.00	Services	24,242.18	0%	-	24,242.18	16,769.67	7,472.51	45-R3	10.32	724.00	2.99%
345.20	Over 1"	-	0%	-	-	-	-		-	-	0.00%
	Total Account 345	24,242.18		-	24,242.18	16,769.67	7,472.51			724.00	2.99%
	Meters										
346.11	Meters - 1" & Under	322,441.49	0%	-	322,441.49	225,493.85	96,947.64	20-R3	5.61	17,281.00	5.36%
346.12	Meters - Over 1"	-	0%	-	-	187,282.87	(187,282.87)	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	322,441.49		-	322,441.49	412,776.72	(90,335.23)			17,281.00	5.36%
348.00	Hydrants	8,330.90	0%	-	8,330.90	3,377.77	4,953.13	60-R2.5	48.49	102.00	1.22%
	TOTAL Trans. & Distr. Plant	8,686,922.53		-	8,686,922.53	4,217,043.21	4,469,879.32			151,304.00	1.74%
	General Plant										
371.00	General Plant Structures & Improvements	36,160.15	0%	-	36,160.15	19,376.73	16,783.42	30-R2	19.45	863.00	2.39%
	Total Account 371	36,160.15		-	36,160.15	19,376.73	16,783.42			863.00	2.39%
372.00	Office Furniture & Equipment	2,231.30	0%	-	2,231.30	2,231.30	-	12-L3	2.91	-	0.00%
372.10	Office-Elec. Equip/Computers	21,402.48	0%	-	21,402.48	19,496.02	1,906.46	6-L3	0.56	-	0.00%
372.20	Computer Software	-	0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	23,633.78		-	23,633.78	21,727.32	1,906.46			-	0.00%
373.00	Transportation Equipment	2,623.35	0%	-	2,623.35	2,830.11	(206.76)	14-R5	2.97	(70.00)	-2.67%
374.00	Stores Equipment	-	0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	19,719.79	0%	-	19,719.79	12,047.73	7,672.06	15-R2.5	7.07	1,085.00	5.50%
376.00	Communication Equipment	-	0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	62,225.24	0%	-	62,225.24	65,877.11	(3,651.87)	15-R2.5	6.20	(589.00)	-0.95%
378.00	Tools, Shop & Garage Equipment	9,618.49	0%	-	9,618.49	9,014.37	604.12	20-L1	12.29	49.00	0.51%
379.00	Other General Plant	12,781.74	0%	-	12,781.74	12,781.74	-	15-L2	4.71	-	0.00%
	TOTAL General Plant	166,762.54		-	166,762.54	143,655.11	23,107.43			1,338.00	0.80%
	TOTAL DEPRECIABLE PLANT	14,240,935.02		-	14,240,935.02	5,919,683.63	8,321,251.39			304,992.00	2.14%

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23									

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	201,369.06	0%	-	201,369.06	74,350.99	127,018.07	45-R4	29.87	4,252.00	2.11%
	Total Account 311	201,369.06		-	201,369.06	74,350.99	127,018.07			4,252.00	2.11%
312.00	Collecting & Impounding Reservoirs	-	0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	3,427,734.49	0%	-	3,427,734.49	816,032.79	2,611,701.70	48-R3	31.66	82,492.00	2.41%
	TOTAL Source of Supply	3,629,103.55		-	3,629,103.55	890,383.78	2,738,719.77			86,744.00	2.39%
	Pumping Plant										
321.00	Pumping Structures & Improvements	988,999.23	0%	-	988,999.23	107,560.52	881,438.71	45-R3	41.57	21,204.00	2.14%
	Total Account 321	988,999.23		-	988,999.23	107,560.52	881,438.71			21,204.00	2.14%
324.00	Pumping Equipment	2,822,483.13	0%	-	2,822,483.13	1,371,070.72	1,451,412.41	30-R4	15.79	91,920.00	3.26%
324.10	System Ctrl Computer Equip	73,900.17	0%	-	73,900.17	7,485.08	66,415.09	10-R3	5.68	11,693.00	15.82%
	TOTAL Pumping Plant	3,885,382.53		-	3,885,382.53	1,486,116.33	2,399,266.21			124,817.00	3.21%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvements	103,206.41	0%	-	103,206.41	47,390.74	55,815.67	45-R3	21.84	2,556.00	2.48%
	Total Account 331	103,206.41		-	103,206.41	47,390.74	55,815.67			2,556.00	2.48%
332.00	Water Treatment Equipment	5,687.57	0%	-	5,687.57	2,951.95	2,735.62	25-R4	15.12	181.00	3.18%
	Total Account 332	5,687.57		-	5,687.57	2,951.95	2,735.62			181.00	3.18%
	TOTAL Water Treatment Plant	108,893.98		-	108,893.98	50,342.69	58,551.29			2,737.00	2.51%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	155,215.91	0%	-	155,215.91	15,538.83	139,677.08	30-R2.5	26.15	5,341.00	3.44%
341.10	Trans. & Distr. Struct. & Improv. - Pavement	22,495.54	0%	-	22,495.54	5,811.53	16,684.01	15-R3	8.07	2,067.00	9.19%
	Total Account 341	177,711.45		-	177,711.45	21,350.36	156,361.09			7,408.00	4.17%
342.00	Reservoirs & Tanks	8,172,410.87	0%	-	8,172,410.87	2,669,352.48	5,503,058.39	50-R3	35.22	156,248.00	1.91%
342.10	Reservoirs & Tanks - Tank Painting	-	0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	8,172,410.87		-	8,172,410.87	2,669,352.48	5,503,058.39			156,248.00	1.91%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	2,920,079.44	0%	-	2,920,079.44	1,177,936.85	1,742,142.59	70-R3	48.14	36,189.00	1.24%
343.40	Mains-All Other	273,615.71	0%	-	273,615.71	6,645.43	266,970.28	80-R2.5	78.50	3,401.00	1.24%
343.50	Mains-Ductile Iron	4,215,526.45	0%	-	4,215,526.45	402,107.47	3,813,418.98	90-R2.5	83.35	45,752.00	1.09%
	Total Account 343	7,409,221.60		-	7,409,221.60	1,586,689.75	5,822,531.85			85,342.00	1.15%
	Services										
345.00	Services	-	0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	166,729.12	0%	-	166,729.12	104,653.39	62,075.73	20-R3	6.48	9,580.00	5.75%
346.12	Meters - Over 1"	-	0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	166,729.12		-	166,729.12	104,653.39	62,075.73			9,580.00	5.75%
348.00	Hydrants	6,903.38	0%	-	6,903.38	880.57	6,022.81	60-R2.5	52.35	115.00	1.67%
	TOTAL Trans. & Distr. Plant	15,932,976.42		-	15,932,976.42	4,382,926.55	11,550,049.87			258,693.00	1.62%
	General Plant										
371.00	General Plant Structures & Improvements	912,075.67	0%	-	912,075.67	503,289.19	408,786.48	30-R2	21.29	19,201.00	2.11%
	Total Account 371	912,075.67		-	912,075.67	503,289.19	408,786.48			19,201.00	2.11%
372.00	Office Furniture & Equipment	21,154.31	0%	-	21,154.31	21,154.31	-	12-L3	2.90	-	0.00%
372.10	Office-Elec. Equip/Computers	31,433.37	0%	-	31,433.37	31,433.37	(0.00)	6-L3	0.54	-	0.00%
372.20	Computer Software	-	0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	52,587.68		-	52,587.68	52,587.68	(0.00)			-	0.00%
373.00	Transportation Equipment	316,881.98	0%	-	316,881.98	346,245.20	(29,363.22)	14-R5	5.40	(5,438.00)	-1.72%
374.00	Stores Equipment	-	0%	-	-	4,199.80	(4,199.80)	25-L2	-	-	0.00%
375.00	Laboratory Equipment	15,332.46	0%	-	15,332.46	15,154.32	178.14	15-R2.5	4.42	40.00	0.26%
376.00	Communication Equipment	-	0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	180,580.66	0%	-	180,580.66	143,236.23	37,344.43	15-R2.5	7.12	5,245.00	2.90%
378.00	Tools, Shop & Garage Equipment	29,894.09	0%	-	29,894.09	29,005.85	888.24	20-L1	11.60	77.00	0.26%
379.00	Other General Plant	28,141.16	0%	-	28,141.16	28,141.16	(0.00)	15-L2	3.66	-	0.00%
	TOTAL General Plant	1,535,493.70		-	1,535,493.70	1,121,859.43	413,634.27			19,125.00	1.25%
	TOTAL DEPRECIABLE PLANT	25,091,850.18		-	25,091,850.18	7,931,628.77	17,160,221.41			492,116.00	1.96%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18									

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	-	0%	-	-	-	-	45-R4	-	-	0.00%
	Total Account 311	-		-	-	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	109,812.34	0%	-	109,812.34	103,776.51	6,035.83	75-R3	54.39	111.00	0.10%
315.00	Wells	744,696.53	0%	-	744,696.53	267,084.03	477,612.50	48-R3	23.78	20,085.00	2.70%
	TOTAL Source of Supply	854,508.87		-	854,508.87	370,860.54	483,648.33			20,196.00	2.36%
	Pumping Plant										
321.00	Pumping Structures & Improvements	-	0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 321	-		-	-	-	-			-	0.00%
324.00	Pumping Equipment	90,701.48	0%	-	90,701.48	76,450.92	14,250.56	30-R4	6.43	2,216.00	2.44%
324.10	System Ctrl Computer Equip	-	0%	-	-	-	-	10-R3	-	-	0.00%
	TOTAL Pumping Plant	90,701.48		-	90,701.48	76,450.92	14,250.56			2,216.00	2.44%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvements	-	0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 331	-		-	-	-	-			-	0.00%
332.00	Water Treatment Equipment	-	0%	-	-	-	-	25-R4	-	-	0.00%
	Total Account 332	-		-	-	-	-			-	0.00%
	TOTAL Water Treatment Plant	-		-	-	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	-	0%	-	-	-	-	30-R2.5	-	-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Pavement	-	0%	-	-	-	-	15-R3	-	-	0.00%
	Total Account 341	-		-	-	-	-			-	0.00%
342.00	Reservoirs & Tanks	-	0%	-	-	-	-	50-R3	-	-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	-	0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	-		-	-	-	-			-	0.00%

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	-	0%	-	-	-	-	70-R3		-	0.00%
343.40	Mains-All Other	144,480.00	0%	-	144,480.00	64,996.89	79,483.11	80-R2.5	55.96	1,420.00	0.98%
343.50	Mains-Ductile Iron	-	0%	-	-	-	-	90-R2.5		-	0.00%
	Total Account 343	144,480.00		-	144,480.00	64,996.89	79,483.11			1,420.00	0.98%
	Services										
345.00	Services	-	0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	5,411.62	0%	-	5,411.62	1,320.25	4,091.37	20-R3	12.80	320.00	5.91%
346.12	Meters - Over 1"	-	0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	5,411.62		-	5,411.62	1,320.25	4,091.37			320.00	5.91%
348.00	Hydrants	-	0%	-	-	-	-	60-R2.5	-	-	0.00%
	TOTAL Trans. & Distr. Plant	149,891.62		-	149,891.62	66,317.14	83,574.48			1,740.00	1.16%
	General Plant										
371.00	General Plant Structures & Improvements	-	0%	-	-	-	-	30-R2	-	-	0.00%
	Total Account 371	-		-	-	-	-			-	0.00%
372.00	Office Furniture & Equipment	-	0%	-	-	-	-	12-L3	-	-	0.00%
372.10	Office-Elec. Equip/Computers	-	0%	-	-	-	-	6-L3	-	-	0.00%
372.20	Computer Software	-	0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	-		-	-	-	-			-	0.00%
373.00	Transportation Equipment	-	0%	-	-	-	-	14-R5	-	-	0.00%
374.00	Stores Equipment	-	0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	-	0%	-	-	-	-	15-R2.5	-	-	0.00%
376.00	Communication Equipment	-	0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	-	0%	-	-	-	-	15-R2.5	-	-	0.00%
378.00	Tools, Shop & Garage Equipment	-	0%	-	-	-	-	20-L1	-	-	0.00%
379.00	Other General Plant	-	0%	-	-	-	-	15-L2	-	-	0.00%
	TOTAL General Plant	-		-	-	-	-	0.00		-	0.00%
	TOTAL DEPRECIABLE PLANT	1,095,101.97		-	1,095,101.97	513,628.60	581,473.37			24,152.00	2.21%

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97									

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	293,873.79	0.0%	-	293,873.79	-	-	45-R4		-	0.00%
	Total Account 311	293,873.79		-	293,873.79	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	109,812.34	0.0%	-	109,812.34	-	-	75-R3		-	0.00%
315.00	Wells	5,508,561.96	0.0%	-	5,508,561.96	-	-	48-R3		-	0.00%
	TOTAL Source of Supply	5,912,248.09		-	5,912,248.09	-	-			-	0.00%
	Pumping Plant										
321.00	Pumping Structures & Improvements	1,782,027.31	0.0%	-	1,782,027.31	-	-	45-R3		-	0.00%
	Total Account 321	1,782,027.31	0.0%	-	1,782,027.31	-	-	0.0		-	0.00%
324.00	Pumping Equipment	6,001,787.43	0.0%	-	6,001,787.43	-	-	30-R4		-	0.00%
324.10	System Ctrl Computer Equip	131,306.12	0.0%	-	131,306.12	-	-	10-R3		-	0.00%
	TOTAL Pumping Plant	7,915,120.86		-	7,915,120.86	-	-			-	0.00%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	109,963.51	0.0%	-	109,963.51	-	-	45-R3		-	0.00%
	Total Account 331	109,963.51		-	109,963.51	-	-			-	0.00%
332.00	Water Treatment Equipment	18,507.90	0.0%	-	18,507.90	-	-	25-R4		-	0.00%
	Total Account 332	18,507.90		-	18,507.90	-	-			-	0.00%
	TOTAL Water Treatment Plant	128,471.41		-	128,471.41	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	277,579.04	0.0%	-	277,579.04	-	-	30-R2.5		-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Pavemer	39,945.52	0.0%	-	39,945.52	-	-	15-R3		-	0.00%
	Total Account 341	317,524.56		-	317,524.56	-	-			-	0.00%
342.00	Reservoirs & Tanks	9,627,473.27	0.0%	-	9,627,473.27	-	-	50-R3		-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0.0%	-	254,543.93	-	-	15-R4		-	0.00%
	Total Reservoirs & Tanks	9,882,017.20		-	9,882,017.20	-	-			-	0.00%

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	9,341,040.75	0.0%	-	9,341,040.75	-	-	70-R3		-	0.00%
343.40	Mains-All Other	418,095.71	0.0%	-	418,095.71	-	-	80-R2.5		-	0.00%
343.50	Mains-Ductile Iron	4,277,053.66	0.0%	-	4,277,053.66	-	-	90-R2.5		-	0.00%
	Total Account 343	14,036,190.12		-	14,036,190.12	-	-			-	0.00%
344.00	Fire Mains	-	0.0%	-	-		-	0.0		-	0.00%
	Services										
345.00	Services	24,242.18	0.0%	-	24,242.18	-	-	45-R3		-	0.00%
345.20	Over 1"	-	0.0%	-	-	-	-			-	0.00%
	Total Account 345	24,242.18		-	24,242.18	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	494,582.23	0.0%	-	494,582.23	-	-	20-R3		-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3		-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3		-	0.00%
	Total Account 346	494,582.23		-	494,582.23	-	-			-	
348.00	Hydrants	15,234.28	0.0%	-	15,234.28	-	-	60-R2.5		-	0.00%
	TOTAL Trans. & Distr. Plant	24,769,790.57		-	24,769,790.57	-	-			-	0.00%
	General Plant										
371.00	General Plant Structures & Improvements	948,235.82	0.0%	-	948,235.82	-	-	30-R2		-	0.00%
	Total Account 371	948,235.82		-	948,235.82	-	-			-	0.00%
372.00	Office Furniture & Equipment	23,385.61	0.0%	-	23,385.61	-	-	12-L3		-	0.00%
372.10	Office-Elec. Equip/Computers	52,835.85	0.0%	-	52,835.85	-	-	6-L3		-	0.00%
372.20	Computer Software	-	0.0%	-	-	-		6-L3		-	0.00%
	Total Account 372	76,221.46		-	76,221.46	-	-			-	0.00%
373.00	Transportation Equipment	319,505.33	10.0%	31,950.53	287,554.80	(19,675.53)	(12,275.00)	14-R5		(2,281.57)	-0.71%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2		-	0.00%
375.00	Laboratory Equipment	35,052.25	0.0%	-	35,052.25	-	-	15-R2.5		-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2		-	0.00%
377.00	Power Operated Equipment	242,805.90	10.0%	24,280.59	218,525.31	(13,134.83)	(11,145.76)	15-R2.5		(1,618.99)	-0.67%
378.00	Tools, Shop & Garage Equipment	39,512.58	0.0%	-	39,512.58	-	-	20-L1		-	0.00%
379.00	Other General Plant	40,922.90	0.0%	-	40,922.90	-	-	15-L2		-	0.00%
	TOTAL General Plant	1,702,256.24		56,231.12	1,646,025.12	(32,810.36)	(23,420.76)			(3,900.56)	-0.23%
	TOTAL DEPRECIABLE PLANT	40,427,887.17		56,231.12	40,371,656.05	(32,810.36)	(23,420.76)			(3,900.56)	-0.01%

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38									

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	92,504.73	0.0%	-	92,504.73	-	-	45-R4	25.98	-	0.00%
	Total Account 311	92,504.73		-	92,504.73	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	-	0.0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	1,336,130.94	0.0%	-	1,336,130.94	-	-	48-R3	33.88	-	0.00%
	TOTAL Source of Supply	1,428,635.67		-	1,428,635.67	-	-			-	0.00%
	Pumping Plant										
321.00	Pumping Structures & Improvements	793,028.08	0.0%	-	793,028.08	-	-	45-R3	41.62	-	0.00%
	Total Account 321	793,028.08	0.0%	-	793,028.08	-	-			-	0.00%
324.00	Pumping Equipment	3,088,602.82	0.0%	-	3,088,602.82	-	-	30-R4	21.20	-	0.00%
324.10	System Ctrl Computer Equip	57,405.95	0.0%	-	57,405.95	-	-	10-R3	5.68	-	0.00%
	TOTAL Pumping Plant	3,939,036.85		-	3,939,036.85	-	-			-	0.00%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	6,757.10	0.0%	-	6,757.10	-	-	45-R3	10.32	-	0.00%
	Total Account 331	6,757.10		-	6,757.10	-	-			-	0.00%
332.00	Water Treatment Equipment	12,820.33	0.0%	-	12,820.33	-	-	25-R4	21.82	-	0.00%
	Total Account 332	12,820.33		-	12,820.33	-	-			-	0.00%
	TOTAL Water Treatment Plant	19,577.43		-	19,577.43	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	122,363.13	0.0%	-	122,363.13	-	-	30-R2.5	26.19	-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Pavemer	17,449.98	0.0%	-	17,449.98	-	-	15-R3	8.07	-	0.00%
	Total Account 341	139,813.11		-	139,813.11	-	-			-	0.00%
342.00	Reservoirs & Tanks	1,455,062.40	0.0%	-	1,455,062.40	-	-	50-R3	34.29	-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0.0%	-	254,543.93	-	-	15-R4	9.56	-	0.00%
	Total Reservoirs & Tanks	1,709,606.33		-	1,709,606.33	-	-			-	0.00%

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	6,420,961.31	0.0%	-	6,420,961.31	-	-	70-R3	42.28	-	0.00%
343.40	Mains-All Other	-	0.0%	-	-	-	-	80-R2.5	48.63	-	0.00%
343.50	Mains-Ductile Iron	61,527.21	0.0%	-	61,527.21	-	-	90-R2.5	83.65	-	0.00%
	Total Account 343	6,482,488.52		-	6,482,488.52	-	-			-	0.00%
	Services										
345.00	Services	24,242.18	0.0%	-	24,242.18	-	-	45-R3	10.32	-	0.00%
345.20	Over 1"	-	0.0%	-	-	-	-		-	-	0.00%
	Total Account 345	24,242.18		-	24,242.18	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	322,441.49	0.0%	-	322,441.49	-	-	20-R3	5.61	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	322,441.49		-	322,441.49	-	-			-	0.00%
348.00	Hydrants	8,330.90	0.0%	-	8,330.90	-	-	60-R2.5	48.49	-	0.00%
	TOTAL Trans. & Distr. Plant	8,686,922.53		-	8,686,922.53	-	-			-	0.00%
	General Plant										
371.00	General Plant Structures & Improvements	36,160.15	0.0%	-	36,160.15	-	-	30-R2	19.45	-	0.00%
	Total Account 371	36,160.15		-	36,160.15	-	-			-	0.00%
372.00	Office Furniture & Equipment	2,231.30	0.0%	-	2,231.30	-	-	12-L3	2.91	-	0.00%
372.10	Office-Elec. Equip/Computers	21,402.48	0.0%	-	21,402.48	-	-	6-L3	0.56	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	23,633.78		-	23,633.78	-	-			-	0.00%
373.00	Transportation Equipment	2,623.35	10.0%	262.34	2,361.01	(206.76)	(55.58)	14-R5	2.97	(18.71)	-0.71%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	19,719.79	0.0%	-	19,719.79	-	-	15-R2.5	7.07	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	62,225.24	10.0%	6,222.52	56,002.72	(3,651.87)	(2,570.65)	15-R2.5	6.20	(414.62)	-0.67%
378.00	Tools, Shop & Garage Equipment	9,618.49	0.0%	-	9,618.49	-	-	20-L1	12.29	-	0.00%
379.00	Other General Plant	12,781.74	0.0%	-	12,781.74	-	-	15-L2	4.71	-	0.00%
	TOTAL General Plant	166,762.54		6,484.86	160,277.68	(3,858.63)	(2,626.23)			(433.33)	-0.26%
	TOTAL DEPRECIABLE PLANT	14,240,935.02		6,484.86	14,234,450.16	(3,858.63)	(2,626.23)			(433.33)	0.00%

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23									

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	201,369.06	0.0%	-	201,369.06	-	-	45-R4	29.87	-	0.00%
	Total Account 311	201,369.06		-	201,369.06	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	-	0.0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	3,427,734.49	0.0%	-	3,427,734.49	-	-	48-R3	31.66	-	0.00%
	TOTAL Source of Supply	3,629,103.55		-	3,629,103.55	-	-			-	0.00%
	Pumping Plant										
321.00	Pumping Structures & Improvements	988,999.23	0.0%	-	988,999.23	-	-	45-R3	41.57	-	0.00%
	Total Account 321	988,999.23	0.0%	-	988,999.23	-	-			-	0.00%
324.00	Pumping Equipment	2,822,483.13	0.0%	-	2,822,483.13	-	-	30-R4	15.79	-	0.00%
324.10	System Ctrl Computer Equip	73,900.17	0.0%	-	73,900.17	-	-	10-R3	5.68	-	0.00%
	TOTAL Pumping Plant	3,885,382.53		-	3,885,382.53	-	-			-	0.00%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	103,206.41	0.0%	-	103,206.41	-	-	45-R3	21.84	-	0.00%
	Total Account 331	103,206.41		-	103,206.41	-	-			-	0.00%
332.00	Water Treatment Equipment	5,687.57	0.0%	-	5,687.57	-	-	25-R4	15.12	-	0.00%
	Total Account 332	5,687.57		-	5,687.57	-	-			-	0.00%
	TOTAL Water Treatment Plant	108,893.98		-	108,893.98	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	155,215.91	0.0%	-	155,215.91	-	-	30-R2.5	26.15	-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Paveme	22,495.54	0.0%	-	22,495.54	-	-	15-R3	8.07	-	0.00%
	Total Account 341	177,711.45		-	177,711.45	-	-			-	0.00%
342.00	Reservoirs & Tanks	8,172,410.87	0.0%	-	8,172,410.87	-	-	50-R3	35.22	-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	-	0.0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	8,172,410.87		-	8,172,410.87	-	-			-	0.00%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	2,920,079.44	0.0%	-	2,920,079.44	-	-	70-R3	48.14	-	0.00%
343.40	Mains-All Other	273,615.71	0.0%	-	273,615.71	-	-	80-R2.5	78.50	-	0.00%
343.50	Mains-Ductile Iron	4,215,526.45	0.0%	-	4,215,526.45	-	-	90-R2.5	83.35	-	0.00%
	Total Account 343	7,409,221.60		-	7,409,221.60	-	-			-	0.00%
	Services										
345.00	Services	-	0.0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	0.0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	166,729.12	0.0%	-	166,729.12	-	-	20-R3	6.48	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	166,729.12		-	166,729.12	-	-			-	0.00%
348.00	Hydrants	6,903.38	0.0%	-	6,903.38	-	-	60-R2.5	52.35	-	0.00%
	TOTAL Trans. & Distr. Plant	15,932,976.42		-	15,932,976.42	-	-			-	0.00%
	General Plant										
371.00	General Plant Structures & Improvements	912,075.67	0.0%	-	912,075.67	-	-	30-R2	21.29	-	0.00%
	Total Account 371	912,075.67		-	912,075.67	-	-			-	0.00%
372.00	Office Furniture & Equipment	21,154.31	0.0%	-	21,154.31	-	-	12-L3	2.90	-	0.00%
372.10	Office-Elec. Equip/Computers	31,433.37	0.0%	-	31,433.37	-	-	6-L3	0.54	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	52,587.68		-	52,587.68	-	-			-	0.00%
373.00	Transportation Equipment	316,881.98	10.0%	31,688.20	285,193.78	(19,468.77)	(12,219.43)	14-R5	5.40	(2,262.86)	-0.71%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	15,332.46	0.0%	-	15,332.46	-	-	15-R2.5	4.42	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	180,580.66	10.0%	18,058.07	162,522.59	(9,482.96)	(8,575.11)	15-R2.5	7.12	(1,204.37)	-0.67%
378.00	Tools, Shop & Garage Equipment	29,894.09	0.0%	-	29,894.09	-	-	20-L1	11.60	-	0.00%
379.00	Other General Plant	28,141.16	0.0%	-	28,141.16	-	-	15-L2	3.66	-	0.00%
	TOTAL General Plant	1,535,493.70		49,746.27	1,485,747.43	(28,951.73)	(20,794.54)			(3,467.23)	-0.23%
	TOTAL DEPRECIABLE PLANT	25,091,850.18		49,746.27	25,042,103.91	(28,951.73)	(20,794.54)			(3,467.23)	-0.01%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18									

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	-	0.0%	-	-	-	-	45-R4	-	-	0.00%
	Total Account 311	-		-	-	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	109,812.34	0.0%	-	109,812.34	-	-	75-R3	54.39	-	0.00%
315.00	Wells	744,696.53	0.0%	-	744,696.53	-	-	48-R3	23.78	-	0.00%
	TOTAL Source of Supply	854,508.87		-	854,508.87	-	-			-	0.00%
	Pumping Plant										
321.00	Pumping Structures & Improvements	-	0.0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 321	-	0.0%	-	-	-	-			-	0.00%
324.00	Pumping Equipment	90,701.48	0.0%	-	90,701.48	-	-	30-R4	6.43	-	0.00%
324.10	System Ctrl Computer Equip	-	0.0%	-	-	-	-	10-R3	-	-	0.00%
	TOTAL Pumping Plant	90,701.48		-	90,701.48	-	-			-	0.00%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	-	0.0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 331	-		-	-	-	-			-	
332.00	Water Treatment Equipment	-	0.0%	-	-	-	-	25-R4	-	-	0.00%
	Total Account 332	-		-	-	-	-			-	0.00%
	TOTAL Water Treatment Plant	-		-	-	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	-	0.0%	-	-	-	-	30-R2.5	-	-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Pavemei	-	0.0%	-	-	-	-	15-R3	-	-	0.00%
	Total Account 341	-		-	-	-	-			-	0.00%
342.00	Reservoirs & Tanks	-	0.0%	-	-	-	-	50-R3	-	-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	-	0.0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	-		-	-	-	-			-	0.00%

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	-	0.0%	-	-	-	-	70-R3		-	0.00%
343.40	Mains-All Other	144,480.00	0.0%	-	144,480.00	-	-	80-R2.5	55.96	-	0.00%
343.50	Mains-Ductile Iron	-	0.0%	-	-	-	-	90-R2.5		-	0.00%
	Total Account 343	144,480.00		-	144,480.00	-	-			-	0.00%
	Services										
345.00	Services	-	0.0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	0.0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	5,411.62	0.0%	-	5,411.62	-	-	20-R3	12.80	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	5,411.62		-	5,411.62	-	-			-	0.00%
348.00	Hydrants	-	0.0%	-	-	-	-	60-R2.5	-	-	0.00%
349.00	Other Trans. & Distr. Plant	-	0.0%	-	-	-	-	0.0	-	-	0.00%
	TOTAL Trans. & Distr. Plant	149,891.62		-	149,891.62	-	-			-	0.00%
	General Plant										
371.00	General Plant Structures & Improvements	-	0.0%	-	-	-	-	30-R2	-	-	0.00%
	Total Account 371	-		-	-	-	-			-	0.00%
372.00	Office Furniture & Equipment	-	0.0%	-	-	-	-	12-L3	-	-	0.00%
372.10	Office-Elec. Equip/Computers	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	-		-	-	-	-			-	0.00%
373.00	Transportation Equipment	-	10.0%	-	-	-	-	14-R5	-	-	0.00%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	-	0.0%	-	-	-	-	15-R2.5	-	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	-	10.0%	-	-	-	-	15-R2.5	-	-	0.00%
378.00	Tools, Shop & Garage Equipment	-	0.0%	-	-	-	-	20-L1	-	-	0.00%
379.00	Other General Plant	-	0.0%	-	-	-	-	15-L2	-	-	0.00%
	TOTAL General Plant	-		-	-	-	-			-	0.00%
	TOTAL DEPRECIABLE PLANT	1,095,101.97		-	1,095,101.97	-	-			-	0.00%

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	1,095,101.97									
	TOTAL Intangible Plant	1,095,101.97									
	TOTAL NON-DEPRECIABLE PLANT	1,095,101.97									
	TOTAL UTILITY PLANT IN SERVICE	2,190,203.94									

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	293,873.79	-10.0%	(29,387.38)	323,261.17	10,681.00	18,706.38	45-R4		653.04	0.22%
	Total Account 311	293,873.79		(29,387.38)	323,261.17	10,681.00	18,706.38			653.04	0.22%
312.00	Collecting & Impounding Reservoirs	109,812.34	-20.0%	(21,962.47)	131,774.81	6,035.83	15,926.64	75-R3		292.82	0.27%
315.00	Wells	5,508,561.96	-35.0%	(1,927,996.69)	7,436,558.65	677,583.92	1,250,412.77	48-R3		40,163.35	0.73%
	TOTAL Source of Supply	5,912,248.09		(1,979,346.54)	7,891,594.63	694,300.75	1,285,045.79			41,109.21	0.70%
	Pumping Plant										
321.00	Pumping Structures & Improvements	1,782,027.31	-10.0%	(178,202.73)	1,960,230.04	13,495.24	164,707.49	45-R3		3,960.05	0.22%
	Total Account 321	1,782,027.31	0.0%	(178,202.73)	1,960,230.04	13,495.24	164,707.49			3,960.05	0.22%
324.00	Pumping Equipment	6,001,787.43	-20.0%	(1,200,357.49)	7,202,144.92	462,840.74	737,516.75	30-R4		40,012.25	0.67%
324.10	System Ctrl Computer Equip	131,306.12	0.0%	-	131,306.12	-	-	10-R3		-	0.00%
	TOTAL Pumping Plant	7,915,120.86		(1,378,560.22)	9,293,681.08	476,335.98	902,224.24			43,972.30	0.56%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvements	109,963.51	-10.0%	(10,996.35)	120,959.86	5,833.19	5,163.16	45-R3		244.33	0.22%
	Total Account 331	109,963.51		(10,996.35)	120,959.86	5,833.19	5,163.16			244.33	0.22%
332.00	Water Treatment Equipment	18,507.90	-10.0%	(1,850.79)	20,358.69	941.19	909.60	25-R4		48.67	0.26%
	Total Account 332	18,507.90		(1,850.79)	20,358.69	941.19	909.60			48.67	0.26%
	TOTAL Water Treatment Plant	128,471.41		(12,847.14)	141,318.55	6,774.38	6,072.76			293.00	0.23%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	277,579.04	-15.0%	(41,636.86)	319,215.90	5,320.44	36,316.42	30-R2.5		1,387.84	0.50%
341.10	Trans. & Distr. Struct. & Improv. - Pavement	39,945.52	0.0%	-	39,945.52	-	-	15-R3		-	0.00%
	Total Account 341	317,524.56		(41,636.86)	359,161.42	5,320.44	36,316.42			1,387.84	0.44%
342.00	Reservoirs & Tanks	9,627,473.27	-15.0%	(1,444,120.99)	11,071,594.26	430,901.83	1,013,219.16	50-R3		28,883.54	0.30%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0.0%	-	254,543.93	-	-	15-R4		-	0.00%
	Total Reservoirs & Tanks	9,882,017.20		(1,444,120.99)	11,326,138.19	430,901.83	1,013,219.16			28,883.54	0

Hawaii Water Service Company
Hawaii Water Service - Water (Waikoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	9,341,040.75	-35.0%	(3,269,364.26)	12,610,405.01	1,036,282.62	2,233,081.64	70-R3		50,661.71	0.54%
343.40	Mains-All Other	418,095.71	-35.0%	(146,333.50)	564,429.21	14,565.87	131,767.63	80-R2.5		1,871.22	0.45%
343.50	Mains-Ductile Iron	4,277,053.66	-35.0%	(1,496,968.78)	5,774,022.44	94,701.03	1,402,267.75	90-R2.5		16,822.98	0.39%
	Total Account 343	14,036,190.12		(4,912,666.54)	18,948,856.66	1,145,549.52	3,767,117.02			69,355.91	0.49%
	Services										
345.00	Services	24,242.18	-40.0%	(9,696.87)	33,939.05	7,472.51	2,224.36	45-R3		215.54	0.89%
345.20	Over 1"	-	-40.0%	-	-	-	-			-	0.00%
	Total Account 345	24,242.18		(9,696.87)	33,939.05	7,472.51	2,224.36			215.54	0.89%
	Meters										
346.11	Meters - 1" & Under	494,582.23	0.0%	-	494,582.23	-	-	20-R3		-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	(187,282.87)	187,282.87	20-R3		-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3		-	0.00%
	Total Account 346	494,582.23		-	494,582.23	(187,282.87)	187,282.87			-	0.00%
348.00	Hydrants	15,234.28	-30.0%	(4,570.28)	19,804.56	743.60	3,826.68	60-R2.5		76.17	0.50%
	TOTAL Trans. & Distr. Plant	24,769,790.57		(6,412,691.54)	31,182,482.11	1,402,705.03	5,009,986.51			99,918.99	0.40%
	General Plant										
371.00	General Plant Structures & Improvements	948,235.82	-10.0%	(94,823.58)	1,043,059.40	27,761.51	67,062.07	30-R2		3,160.35	0.33%
	Total Account 371	948,235.82		(94,823.58)	1,043,059.40	27,761.51	67,062.07			3,160.35	0.33%
372.00	Office Furniture & Equipment	23,385.61	0.0%	-	23,385.61	-	-	12-L3		-	0.00%
372.10	Office-Elec. Equip/Computers	52,835.85	0.0%	-	52,835.85	1,906.46	(1,906.46)	6-L3		(3,404.39)	-6.44%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3		-	0.00%
	Total Account 372	76,221.46		-	76,221.46	1,906.46	(1,906.46)			(3,404.39)	
373.00	Transportation Equipment	319,505.33	0.0%	-	319,505.33	-	-	14-R5		-	0.00%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2		-	0.00%
375.00	Laboratory Equipment	35,052.25	0.0%	-	35,052.25	-	-	15-R2.5		-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2		-	0.00%
377.00	Power Operated Equipment	242,805.90	0.0%	-	242,805.90	-	-	15-R2.5		-	0.00%
378.00	Tools, Shop & Garage Equipment	39,512.58	0.0%	-	39,512.58	-	-	20-L1		-	0.00%
379.00	Other General Plant	40,922.90	0.0%	-	40,922.90	-	-	15-L2		-	0.00%
	TOTAL General Plant	1,702,256.24		(94,823.58)	1,797,079.82	29,667.97	65,155.61			(244.04)	-0.01%
	TOTAL DEPRECIABLE PLANT	40,427,887.17		(9,878,269.02)	50,306,156.19	2,609,784.11	7,268,484.91			185,049.46	0.46%

Hawaii Water Service Company
Hawaii Water Service - Water (Waikoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38									

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	92,504.73	-10.0%	(9,250.47)	101,755.20	3,909.01	5,341.46	45-R4	25.98	205.60	0.22%
	Total Account 311	92,504.73		(9,250.47)	101,755.20	3,909.01	5,341.46			205.60	0.22%
312.00	Collecting & Impounding Reservoirs	-	-20.0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	1,336,130.94	-35.0%	(467,645.83)	1,803,776.77	137,567.20	330,078.63	48-R3	33.88	9,742.58	0.73%
	TOTAL Source of Supply	1,428,635.67		(476,896.30)	1,905,531.97	141,476.21	335,420.09			9,948.18	0.70%
	Pumping Plant										
321.00	Pumping Structures & Improvements	793,028.08	-10.0%	(79,302.81)	872,330.89	5,955.79	73,347.02	45-R3	41.62	1,762.30	0.22%
	Total Account 321	793,028.08	0.0%	(79,302.81)	872,330.89	5,955.79	73,347.02			1,762.30	0.22%
324.00	Pumping Equipment	3,088,602.82	-20.0%	(617,720.56)	3,706,323.38	181,237.41	436,483.15	30-R4	21.20	20,588.83	0.67%
324.10	System Ctrl Computer Equip	57,405.95	0.0%	-	57,405.95	-	-	10-R3	5.68	-	0.00%
	TOTAL Pumping Plant	3,939,036.85		(697,023.37)	4,636,060.22	187,193.20	509,830.17			22,351.13	0.57%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	6,757.10	-10.0%	(675.71)	7,432.81	520.71	155.00	45-R3	10.32	15.02	0.22%
	Total Account 331	6,757.10		(675.71)	7,432.81	520.71	155.00			15.02	0.22%
332.00	Water Treatment Equipment	12,820.33	-10.0%	(1,282.03)	14,102.36	716.32	565.71	25-R4	21.82	25.93	0.20%
	Total Account 332	12,820.33		(1,282.03)	14,102.36	716.32	565.71			25.93	0.20%
	TOTAL Water Treatment Plant	19,577.43		(1,957.74)	21,535.17	1,237.03	720.71			40.95	0.21%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	122,363.13	-15.0%	(18,354.47)	140,717.60	2,333.07	16,021.40	30-R2.5	26.19	611.74	0.50%
341.10	Trans. & Distr. Struct. & Improv. - Pavemer	17,449.98	0.0%	-	17,449.98	-	-	15-R3	8.07	-	0.00%
	Total Account 341	139,813.11		(18,354.47)	158,167.58	2,333.07	16,021.40			611.74	0.44%
342.00	Reservoirs & Tanks	1,455,062.40	-15.0%	(218,259.36)	1,673,321.76	68,596.89	149,662.47	50-R3	34.29	4,364.61	0.30%
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0.0%	-	254,543.93	-	-	15-R4	9.56	-	0.00%
	Total Reservoirs & Tanks	1,709,606.33		(218,259.36)	1,927,865.69	68,596.89	149,662.47			4,364.61	0.26%

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	6,420,961.31	-35.0%	(2,247,336.46)	8,668,297.77	762,678.61	1,484,657.85	70-R3	42.28	35,114.90	0.55%
343.40	Mains-All Other	-	-35.0%	-	-	-	-	80-R2.5	48.63	-	0.00%
343.50	Mains-Ductile Iron	61,527.21	-35.0%	(21,534.52)	83,061.73	1,301.95	20,232.57	90-R2.5	83.65	241.87	0.39%
	Total Account 343	6,482,488.52		(2,268,870.98)	8,751,359.50	763,980.56	1,504,890.42			35,356.77	0.55%
	Services										
345.00	Services	24,242.18	-40.0%	(9,696.87)	33,939.05	7,472.51	2,224.36	45-R3	10.32	215.54	0.89%
345.20	Over 1"	-	-40.0%	-	-	-	-		-	-	0.00%
	Total Account 345	24,242.18		(9,696.87)	33,939.05	7,472.51	2,224.36			215.54	0.89%
	Meters										
346.11	Meters - 1" & Under	322,441.49	0.0%	-	322,441.49	-	-	20-R3	5.61	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	(187,282.87)	187,282.87	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	322,441.49		-	322,441.49	(187,282.87)	187,282.87			-	0.00%
348.00	Hydrants	8,330.90	-30.0%	(2,499.27)	10,830.17	479.57	2,019.70	60-R2.5	48.49	41.65	0.50%
	TOTAL Trans. & Distr. Plant	8,686,922.53		(2,517,680.95)	11,204,603.48	655,579.73	1,862,101.22			40,590.31	0.47%
	General Plant										
371.00	General Plant Structures & Improvements	36,160.15	-10.0%	(3,616.02)	39,776.17	1,271.66	2,344.36	30-R2	19.45	120.53	0.33%
	Total Account 371	36,160.15		(3,616.02)	39,776.17	1,271.66	2,344.36			120.53	0.33%
372.00	Office Furniture & Equipment	2,231.30	0.0%	-	2,231.30	-	-	12-L3	2.91	-	0.00%
372.10	Office-Elec. Equip/Computers	21,402.48	0.0%	-	21,402.48	1,906.46	(1,906.46)	6-L3	0.56	(3,404.39)	-15.91%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	23,633.78		-	23,633.78	1,906.46	(1,906.46)			(3,404.39)	-14.40%
373.00	Transportation Equipment	2,623.35	0.0%	-	2,623.35	-	-	14-R5	2.97	-	0.00%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	19,719.79	0.0%	-	19,719.79	-	-	15-R2.5	7.07	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	62,225.24	0.0%	-	62,225.24	-	-	15-R2.5	6.20	-	0.00%
378.00	Tools, Shop & Garage Equipment	9,618.49	0.0%	-	9,618.49	-	-	20-L1	12.29	-	0.00%
379.00	Other General Plant	12,781.74	0.0%	-	12,781.74	-	-	15-L2	4.71	-	0.00%
	TOTAL General Plant	166,762.54		(3,616.02)	170,378.56	3,178.12	437.90			(3,283.86)	-1.97%
	TOTAL DEPRECIABLE PLANT	14,240,935.02		(3,697,174.38)	17,938,109.40	988,664.29	2,708,510.09			69,646.70	0.49%

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	46,820.21									
	TOTAL Intangible Plant	46,820.21									
	TOTAL NON-DEPRECIABLE PLANT	46,820.21									
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23									

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	201,369.06	-10.0%	(20,136.91)	221,505.97	6,771.99	13,364.92	45-R4	29.87	447.44	0.22%
	Total Account 311	201,369.06		(20,136.91)	221,505.97	6,771.99	13,364.92			447.44	0.22%
312.00	Collecting & Impounding Reservoirs	-	-20.0%	-	-	-	-	75-R3	-	-	0.00%
315.00	Wells	3,427,734.49	-35.0%	(1,199,707.07)	4,627,441.56	408,495.29	791,211.78	48-R3	31.66	24,990.90	0.73%
	TOTAL Source of Supply	3,629,103.55		(1,219,843.98)	4,848,947.53	415,267.28	804,576.70			25,438.33	0.70%
	Pumping Plant										
321.00	Pumping Structures & Improvements	988,999.23	-10.0%	(98,899.92)	1,087,899.15	7,539.45	91,360.47	45-R3	41.57	2,197.75	0.22%
	Total Account 321	988,999.23	0.0%	(98,899.92)	1,087,899.15	7,539.45	91,360.47			2,197.75	0.22%
324.00	Pumping Equipment	2,822,483.13	-20.0%	(564,496.63)	3,386,979.76	267,352.77	297,143.86	30-R4	15.79	18,818.48	0.67%
324.10	System Ctrl Computer Equip	73,900.17	0.0%	-	73,900.17	-	-	10-R3	5.68	-	0.00%
	TOTAL Pumping Plant	3,885,382.53		(663,396.55)	4,548,779.08	274,892.22	388,504.33			21,016.23	0.54%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	103,206.41	-10.0%	(10,320.64)	113,527.05	5,312.48	5,008.16	45-R3	21.84	229.31	0.22%
	Total Account 331	103,206.41		(10,320.64)	113,527.05	5,312.48	5,008.16			229.31	0.22%
332.00	Water Treatment Equipment	5,687.57	-10.0%	(568.76)	6,256.33	224.87	343.89	25-R4	15.12	22.74	0.40%
	Total Account 332	5,687.57		(568.76)	6,256.33	224.87	343.89			22.74	0.40%
	TOTAL Water Treatment Plant	108,893.98		(10,889.40)	119,783.38	5,537.35	5,352.05			252.06	0.23%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	155,215.91	-15.0%	(23,282.39)	178,498.30	2,987.37	20,295.02	30-R2.5	26.15	776.10	0.50%
341.10	Trans. & Distr. Struct. & Improv. - Pavemer	22,495.54	0.0%	-	22,495.54	-	-	15-R3	8.07	-	0.00%
	Total Account 341	177,711.45		(23,282.39)	200,993.84	2,987.37	20,295.02			776.10	0.44%
342.00	Reservoirs & Tanks	8,172,410.87	-15.0%	(1,225,861.63)	9,398,272.50	362,304.94	863,556.69	50-R3	35.22	24,518.93	0.30%
342.10	Reservoirs & Tanks - Tank Painting	-	0.0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	8,172,410.87		(1,225,861.63)	9,398,272.50	362,304.94	863,556.69			24,518.93	0.30%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	2,920,079.44	-35.0%	(1,022,027.80)	3,942,107.24	273,604.01	748,423.79	70-R3	48.14	15,546.82	0.53%
343.40	Mains-All Other	273,615.71	-35.0%	(95,765.50)	369,381.21	1,543.56	94,221.94	80-R2.5	78.50	1,200.28	0.44%
343.50	Mains-Ductile Iron	4,215,526.45	-35.0%	(1,475,434.26)	5,690,960.71	93,399.08	1,382,035.18	90-R2.5	83.35	16,581.11	0.39%
	Total Account 343	7,409,221.60		(2,593,227.56)	10,002,449.16	368,546.65	2,224,680.91			33,328.20	0.45%
	Services										
345.00	Services	-	-40.0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	-40.0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	166,729.12	0.0%	-	166,729.12	-	-	20-R3	6.48	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	166,729.12		-	166,729.12	-	-			-	0.00%
348.00	Hydrants	6,903.38	-30.0%	(2,071.01)	8,974.39	264.03	1,806.98	60-R2.5	52.35	34.52	0.50%
	TOTAL Trans. & Distr. Plant	15,932,976.42		(3,844,442.59)	19,777,419.01	734,102.99	3,110,339.60			58,657.75	0.37%
	General Plant										
371.00	General Plant Structures & Improvements	912,075.67	-10.0%	(91,207.57)	1,003,283.24	26,489.85	64,717.72	30-R2	21.29	3,039.82	0.33%
	Total Account 371	912,075.67		(91,207.57)	1,003,283.24	26,489.85	64,717.72			3,039.82	0.33%
372.00	Office Furniture & Equipment	21,154.31	0.0%	-	21,154.31	-	-	12-L3	2.90	-	0.00%
372.10	Office-Elec. Equip/Computers	31,433.37	0.0%	-	31,433.37	-	-	6-L3	0.54	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	52,587.68		-	52,587.68	-	-			-	0.00%
373.00	Transportation Equipment	316,881.98	0.0%	-	316,881.98	-	-	14-R5	5.40	-	0.00%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	15,332.46	0.0%	-	15,332.46	-	-	15-R2.5	4.42	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	180,580.66	0.0%	-	180,580.66	-	-	15-R2.5	7.12	-	0.00%
378.00	Tools, Shop & Garage Equipment	29,894.09	0.0%	-	29,894.09	-	-	20-L1	11.60	-	0.00%
379.00	Other General Plant	28,141.16	0.0%	-	28,141.16	-	-	15-L2	3.66	-	0.00%
	TOTAL General Plant	1,535,493.70		(91,207.57)	1,626,701.27	26,489.85	64,717.72			3,039.82	0.20%
	TOTAL DEPRECIABLE PLANT	25,091,850.18		(5,829,780.09)	30,921,630.27	1,456,289.69	4,373,490.40			108,404.19	0.43%

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18									

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Source of Supply										
311.00	Structures & Improvements	-	-10.0%	-	-	-	-	45-R4	-	-	0.00%
	Total Account 311	-		-	-	-	-			-	0.00%
312.00	Collecting & Impounding Reservoirs	109,812.34	-20.0%	(21,962.47)	131,774.81	6,035.83	15,926.64	75-R3	54.39	292.82	0.27%
315.00	Wells	744,696.53	-35.0%	(260,643.79)	1,005,340.32	131,521.43	129,122.36	48-R3	23.78	5,429.87	0.73%
	TOTAL Source of Supply	854,508.87		(282,606.26)	1,137,115.13	137,557.26	145,049.00			5,722.70	0.67%
	Pumping Plant										
321.00	Pumping Structures & Improvements	-	-10.0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 321	-	0.0%	-	-	-	-			-	0.00%
324.00	Pumping Equipment	90,701.48	-20.0%	(18,140.30)	108,841.78	14,250.56	3,889.74	30-R4	6.43	604.94	0.67%
324.10	System Ctrl Computer Equip	-	0.0%	-	-	-	-	10-R3	-	-	0.00%
	TOTAL Pumping Plant	90,701.48		(18,140.30)	108,841.78	14,250.56	3,889.74			604.94	0.67%
	Water Treatment Plant										
331.00	Water Treatment Structures & Improvemer	-	-10.0%	-	-	-	-	45-R3	-	-	0.00%
	Total Account 331	-		-	-	-	-			-	0.00%
332.00	Water Treatment Equipment	-	-10.0%	-	-	-	-	25-R4	-	-	0.00%
	Total Account 332	-		-	-	-	-			-	0.00%
	TOTAL Water Treatment Plant	-		-	-	-	-			-	0.00%
	Transmission & Distribution Plant										
341.00	Trans. & Distr. Structures & Improvements	-	-15.0%	-	-	-	-	30-R2.5	-	-	0.00%
341.10	Trans. & Distr. Struct. & Improv. - Pavemei	-	0.0%	-	-	-	-	15-R3	-	-	0.00%
	Total Account 341	-		-	-	-	-			-	0.00%
342.00	Reservoirs & Tanks	-	-15.0%	-	-	-	-	50-R3	-	-	0.00%
342.10	Reservoirs & Tanks - Tank Painting	-	0.0%	-	-	-	-	15-R4	-	-	0.00%
	Total Reservoirs & Tanks	-		-	-	-	-			-	0.00%

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	Transmission & Distribution Mains										
343.10	Mains-Asbestos Cement	-	-35.0%	-	-	-	-	70-R3		-	0.00%
343.40	Mains-All Other	144,480.00	-35.0%	(50,568.00)	195,048.00	13,022.31	37,545.69	80-R2.5	55.96	670.94	0.46%
343.50	Mains-Ductile Iron	-	-35.0%	-	-	-	-	90-R2.5		-	0.00%
	Total Account 343	144,480.00		(50,568.00)	195,048.00	13,022.31	37,545.69			670.94	0.46%
	Services										
345.00	Services	-	-40.0%	-	-	-	-	45-R3	-	-	0.00%
345.20	Over 1"	-	-40.0%	-	-	-	-		-	-	0.00%
	Total Account 345	-		-	-	-	-			-	0.00%
	Meters										
346.11	Meters - 1" & Under	5,411.62	0.0%	-	5,411.62	-	-	20-R3	12.80	-	0.00%
346.12	Meters - Over 1"	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
346.20	Meter Boxes	-	0.0%	-	-	-	-	20-R3	-	-	0.00%
	Total Account 346	5,411.62		-	5,411.62	-	-			-	0.00%
348.00	Hydrants	-	-30.0%	-	-	-	-	60-R2.5	-	-	0.00%
	TOTAL Trans. & Distr. Plant	149,891.62		(50,568.00)	200,459.62	13,022.31	37,545.69			670.94	0.45%
	General Plant										
371.00	General Plant Structures & Improvements	-	-10.0%	-	-	-	-	30-R2	-	-	0.00%
	Total Account 371	-		-	-	-	-			-	0.00%
372.00	Office Furniture & Equipment	-	0.0%	-	-	-	-	12-L3	-	-	0.00%
372.10	Office-Elec. Equip/Computers	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
372.20	Computer Software	-	0.0%	-	-	-	-	6-L3	-	-	0.00%
	Total Account 372	-		-	-	-	-			-	0.00%
373.00	Transportation Equipment	-	0.0%	-	-	-	-	14-R5	-	-	0.00%
374.00	Stores Equipment	-	0.0%	-	-	-	-	25-L2	-	-	0.00%
375.00	Laboratory Equipment	-	0.0%	-	-	-	-	15-R2.5	-	-	0.00%
376.00	Communication Equipment	-	0.0%	-	-	-	-	10-R2	-	-	0.00%
377.00	Power Operated Equipment	-	0.0%	-	-	-	-	15-R2.5	-	-	0.00%
378.00	Tools, Shop & Garage Equipment	-	0.0%	-	-	-	-	20-L1	-	-	0.00%
379.00	Other General Plant	-	0.0%	-	-	-	-	15-L2	-	-	0.00%
	TOTAL General Plant	-		-	-	-	-			-	0.00%
	TOTAL DEPRECIABLE PLANT	1,095,101.97		(351,314.56)	1,446,416.53	164,830.13	186,484.43			6,998.57	0.64%

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97									

Table 3 - Total

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	DEPRECIABLE PLANT					
	Source of Supply					
311.00	Structures & Improvements	293,873.79	-	-		293,873.79
	Total Account 311	293,873.79	-	-	-	293,873.79
312.00	Collecting & Impounding Reservoirs	109,812.34	-	-		109,812.34
315.00	Wells	4,184,403.17	-	(96,666.81)	1,420,825.60	5,508,561.96
	TOTAL Source of Supply	4,588,089.30	-	(96,666.81)	1,420,825.60	5,912,248.09
	Pumping Plant					
321.00	Pumping Structures & Improvements	1,451,167.76	-	(1,426,902.83)	1,757,762.38	1,782,027.31
	Total Account 321	1,451,167.76	-	(1,426,902.83)	1,757,762.38	1,782,027.31
324.00	Pumping Equipment	6,001,787.43	-	(1,404,235.46)	1,404,235.46	6,001,787.43
324.10	System Ctrl Computer Equip	131,306.12	-	(90,166.42)	90,166.42	131,306.12
	TOTAL Pumping Plant	7,584,261.31	-	(2,921,304.71)	3,252,164.26	7,915,120.86
	Water Treatment Plant					
331.00	Water Treatment Structures & Improvements	109,963.51	-	-		109,963.51
	Total Account 331	109,963.51	-	-	-	109,963.51
332.00	Water Treatment Equipment	18,507.90	-	-		18,507.90
	Total Account 332	18,507.90	-	-	-	18,507.90
	TOTAL Water Treatment Plant	128,471.41	-	-	-	128,471.41
	Transmission & Distribution Plant					
341.00	Trans. & Distr. Structures & Improvements	277,579.04	-	(227,831.36)	227,831.36	277,579.04
341.10	Trans. & Distr. Struct. & Improv. - Pavement	39,945.52	-	-		39,945.52
	Total Account 341	317,524.56	-	(227,831.36)	227,831.36	317,524.56
342.00	Reservoirs & Tanks	9,627,473.27	-	-		9,627,473.27
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	-	-		254,543.93
	Total Reservoirs & Tanks	9,882,017.20	-	-	-	9,882,017.20

Table 3 - Total

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	Transmission & Distribution Mains					
343.10	Mains-Asbestos Cement	9,341,040.75	-	-		9,341,040.75
343.40	Mains-All Other	418,095.71	-	-		418,095.71
343.50	Mains-Ductile Iron	4,277,053.66	-	-		4,277,053.66
	Total Account 343	14,036,190.12	-	-	-	14,036,190.12
	Services					
345.00	Services	24,242.18	-	-		24,242.18
345.20	Over 1"	-	-	-		0.00
	Total Account 345	24,242.18	-	-	-	24,242.18
	Meters					
346.11	Meters - 1" & Under	494,582.23	-			494,582.23
346.12	Meters - Over 1"	-	-			0.00
346.20	Meter Boxes	-	-			0.00
	Total Account 346	494,582.23	-	-	-	494,582.23
348.00	Hydrants	15,234.28	-			15,234.28
	TOTAL Trans. & Distr. Plant	24,769,790.57	-	(227,831.36)	227,831.36	24,769,790.57
	General Plant					
371.00	General Plant Structures & Improvements	948,235.82	-			948,235.82
	Total Account 371	948,235.82	-	-	-	948,235.82
372.00	Office Furniture & Equipment	23,385.61	-			23,385.61
372.10	Office-Elec. Equip/Computers	52,835.85	-			52,835.85
372.20	Computer Software	-	-			0.00
	Total Account 372	76,221.46	-		-	76,221.46
373.00	Transportation Equipment	374,372.59	54,867.26			319,505.33
374.00	Stores Equipment	22,871.25	22,871.25			0.00
375.00	Laboratory Equipment	35,052.25	-			35,052.25
376.00	Communication Equipment	-	-			0.00
377.00	Power Operated Equipment	242,805.90	-			242,805.90
378.00	Tools, Shop & Garage Equipment	45,453.54	5,940.96			39,512.58
379.00	Other General Plant	40,922.90	-			40,922.90
	TOTAL General Plant	1,785,935.71	83,679.47	-	-	1,702,256.24
	TOTAL DEPRECIABLE PLANT	38,856,548.30	83,679.47	(3,245,802.88)	4,900,821.22	40,427,887.17

Table 3 - Total

Hawaii Water Service Company
Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	NON-DEPRECIABLE PLANT					
	Intangible Plant					
303.00	Other Intangible Plant	46,820.21	-			46,820.21
	TOTAL Intangible Plant	46,820.21	-	-	-	46,820.21
	TOTAL NON-DEPRECIABLE PLANT	46,820.21	-	-	-	46,820.21
	TOTAL UTILITY PLANT IN SERVICE	38,903,368.51	83,679.47	(3,245,802.88)	4,900,821.22	40,474,707.38

Table 3 - VW

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	DEPRECIABLE PLANT					
	Source of Supply					
311.00	Structures & Improvements	92,504.73				92,504.73
	Total Account 311	92,504.73	0.00	0.00	0.00	92,504.73
312.00	Collecting & Impounding Reservoirs	0.00				0.00
315.00	Wells	811,392.13		(96,666.81)	621,405.62	1,336,130.94
	TOTAL Source of Supply	903,896.86	0.00	(96,666.81)	621,405.62	1,428,635.67
	Pumping Plant					
321.00	Pumping Structures & Improvements	1,451,167.76		(1,426,902.83)	768,763.15	793,028.08
	Total Account 321	1,451,167.76	0.00	(1,426,902.83)	768,763.15	793,028.08
324.00	Pumping Equipment	3,878,712.44		(1,404,235.46)	614,125.84	3,088,602.82
324.10	System Ctrl Computer Equip	108,138.06		(90,166.42)	39,434.31	57,405.95
	TOTAL Pumping Plant	5,438,018.26	0.00	(2,921,304.71)	1,422,323.30	3,939,036.85
	Water Treatment Plant					
331.00	Water Treatment Structures & Improvemen	6,757.10				6,757.10
	Total Account 331	6,757.10	0.00	0.00	0.00	6,757.10
332.00	Water Treatment Equipment	12,820.33				12,820.33
	Total Account 332	12,820.33	0.00	0.00	0.00	12,820.33
	TOTAL Water Treatment Plant	19,577.43	0.00	0.00	0.00	19,577.43
	Transmission & Distribution Plant					
341.00	Trans. & Distr. Structures & Improvements	250,552.44		(227,831.36)	99,642.05	122,363.13
341.10	Trans. & Distr. Struct. & Improv. - Pavemer	17,449.98				17,449.98
	Total Account 341	268,002.42	0.00	(227,831.36)	99,642.05	139,813.11
342.00	Reservoirs & Tanks	1,455,062.40				1,455,062.40
342.10	Reservoirs & Tanks - Tank Painting	254,543.93				254,543.93
	Total Reservoirs & Tanks	1,709,606.33	0.00	0.00	0.00	1,709,606.33

Table 3 - VW

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	Transmission & Distribution Mains					
343.10	Mains-Asbestos Cement	6,420,961.31				6,420,961.31
343.40	Mains-All Other	0.00				0.00
343.50	Mains-Ductile Iron	61,527.21				61,527.21
	Total Account 343	6,482,488.52	0.00	0.00	0.00	6,482,488.52
	Services					
345.00	Services	24,242.18				24,242.18
345.20	Over 1"	0.00				0.00
	Total Account 345	24,242.18	0.00	0.00	0.00	24,242.18
	Meters					
346.11	Meters - 1" & Under	322,441.49				322,441.49
346.12	Meters - Over 1"	0.00				0.00
346.20	Meter Boxes	0.00				0.00
	Total Account 346	322,441.49	0.00	0.00	0.00	322,441.49
348.00	Hydrants	8,330.90				8,330.90
	TOTAL Trans. & Distr. Plant	8,815,111.84	0.00	(227,831.36)	99,642.05	8,686,922.53
	General Plant					
371.00	General Plant Structures & Improvements	36,160.15				36,160.15
	Total Account 371	36,160.15	0.00	0.00	0.00	36,160.15
372.00	Office Furniture & Equipment	2,231.30				2,231.30
372.10	Office-Elec. Equip/Computers	21,402.48				21,402.48
372.20	Computer Software	0.00				0.00
	Total Account 372	23,633.78	0.00	0.00	0.00	23,633.78
373.00	Transportation Equipment	2,623.35				2,623.35
374.00	Stores Equipment	0.00				0.00
375.00	Laboratory Equipment	19,719.79				19,719.79
376.00	Communication Equipment	0.00				0.00
377.00	Power Operated Equipment	62,225.24				62,225.24
378.00	Tools, Shop & Garage Equipment	9,618.49				9,618.49
379.00	Other General Plant	12,781.74				12,781.74
	TOTAL General Plant	166,762.54	0.00	0.00	0.00	166,762.54
	TOTAL DEPRECIABLE PLANT	15,343,366.93	0.00	(3,245,802.88)	2,143,370.97	14,240,935.02

Table 3 - VW

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	NON-DEPRECIABLE PLANT					
	Intangible Plant					
301.00	Organization	0.00				0.00
302.00	Franchises & Consents	0.00				0.00
303.00	Other Intangible Plant	46,820.21				46,820.21
	TOTAL Intangible Plant	46,820.21	0.00	0.00	0.00	46,820.21
	TOTAL NON-DEPRECIABLE PLANT	46,820.21	-	-	-	46,820.21
	TOTAL UTILITY PLANT IN SERVICE	15,390,187.14	-	(3,245,802.88)	2,143,370.97	14,287,755.23

Table 3 - WR

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	DEPRECIABLE PLANT					
	Source of Supply					
311.00	Structures & Improvements	201,369.06				201,369.06
	Total Account 311	201,369.06	0.00	0.00	0.00	201,369.06
312.00	Collecting & Impounding Reservoirs	0.00				0.00
315.00	Wells	2,628,314.51			799,419.98	3,427,734.49
	TOTAL Source of Supply	2,829,683.57	0.00	0.00	799,419.98	3,629,103.55
	Pumping Plant					
321.00	Pumping Structures & Improvements	0.00			988,999.23	988,999.23
	Total Account 321	0.00	0.00	0.00	988,999.23	988,999.23
324.00	Pumping Equipment	2,032,373.51			790,109.62	2,822,483.13
324.10	System Ctrl Computer Equip	23,168.06			50,732.11	73,900.17
	TOTAL Pumping Plant	2,055,541.57	0.00	0.00	1,829,840.96	3,885,382.53
	Water Treatment Plant					
331.00	Water Treatment Structures & Improvements	103,206.41				103,206.41
	Total Account 331	103,206.41	0.00	0.00	0.00	103,206.41
332.00	Water Treatment Equipment	5,687.57				5,687.57
	Total Account 332	5,687.57	0.00	0.00	0.00	5,687.57
	TOTAL Water Treatment Plant	108,893.98	0.00	0.00	0.00	108,893.98
	Transmission & Distribution Plant					
341.00	Trans. & Distr. Structures & Improvements	27,026.60			128,189.31	155,215.91
341.10	Trans. & Distr. Struct. & Improv. - Pavement	22,495.54				22,495.54
	Total Account 341	49,522.14	0.00	0.00	128,189.31	177,711.45
342.00	Reservoirs & Tanks	8,172,410.87				8,172,410.87
342.10	Reservoirs & Tanks - Tank Painting	0.00				0.00
	Total Reservoirs & Tanks	8,172,410.87	0.00	0.00	0.00	8,172,410.87

Table 3 - WR

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	Transmission & Distribution Mains					
343.10	Mains-Asbestos Cement	2,920,079.44				2,920,079.44
343.40	Mains-All Other	273,615.71				273,615.71
343.50	Mains-Ductile Iron	4,215,526.45				4,215,526.45
	Total Account 343	7,409,221.60	0.00	0.00	0.00	7,409,221.60
	Services					
345.00	Services	0.00				0.00
345.20	Over 1"	0.00				0.00
	Total Account 345	0.00	0.00	0.00	0.00	0.00
	Meters					
346.00	Meters - 1" & Under	166,729.12				166,729.12
346.12	Meters - Over 1"	0.00				0.00
346.20	Meter Boxes	0.00				0.00
	Total Account 346	166,729.12	0.00	0.00	0.00	166,729.12
348.00	Hydrants	6,903.38				6,903.38
	TOTAL Trans. & Distr. Plant	15,804,787.11	0.00	0.00	128,189.31	15,932,976.42
	General Plant					
371.00	General Plant Structures & Improvements	912,075.67				912,075.67
	Total Account 371	912,075.67	0.00	0.00	0.00	912,075.67
372.00	Office Furniture & Equipment	21,154.31				21,154.31
372.10	Office-Elec. Equip/Computers	31,433.37				31,433.37
372.20	Computer Software	0.00				0.00
	Total Account 372	52,587.68	0.00	0.00	0.00	52,587.68
373.00	Transportation Equipment	371,749.24	54,867.26			316,881.98
374.00	Stores Equipment	22,871.25	22,871.25			0.00
375.00	Laboratory Equipment	15,332.46				15,332.46
376.00	Communication Equipment	0.00				0.00
377.00	Power Operated Equipment	180,580.66				180,580.66
378.00	Tools, Shop & Garage Equipment	35,835.05	5,940.96			29,894.09
379.00	Other General Plant	28,141.16				28,141.16
	TOTAL General Plant	1,619,173.17	83,679.47	0.00	0.00	1,535,493.70
	TOTAL DEPRECIABLE PLANT	22,418,079.40	83,679.47	0.00	2,757,450.25	25,091,850.18

Table 3 - WR

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	NON-DEPRECIABLE PLANT					
	Intangible Plant					
301.00	Organization	0.00				0.00
302.00	Franchises & Consents	0.00				0.00
303.00	Other Intangible Plant	0.00				0.00
	TOTAL Intangible Plant	0.00	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	22,418,079.40	83,679.47	0.00	2,757,450.25	25,091,850.18

Table 3 - WI

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	DEPRECIABLE PLANT					
	Source of Supply					
311.00	Structures & Improvements	0.00				0.00
	Total Account 311	0.00	0.00	0.00	0.00	0.00
312.00	Collecting & Impounding Reservoirs	109,812.34				109,812.34
315.00	Wells	744,696.53				744,696.53
	TOTAL Source of Supply	854,508.87	0.00	0.00	0.00	854,508.87
	Pumping Plant					
321.00	Pumping Structures & Improvements					0.00
	Total Account 321	0.00	0.00	0.00	0.00	0.00
324.00	Pumping Equipment	90,701.48				90,701.48
324.10	System Ctrl Computer Equip					0.00
	TOTAL Pumping Plant	90,701.48	0.00	0.00	0.00	90,701.48
	Water Treatment Plant					
331.00	Water Treatment Structures & Improvements					0.00
	Total Account 331	0.00		0.00	0.00	0.00
332.00	Water Treatment Equipment					0.00
	Total Account 332	0.00	0.00	0.00	0.00	0.00
	TOTAL Water Treatment Plant	0.00	0.00	0.00	0.00	0.00
	Transmission & Distribution Plant					
341.00	Trans. & Distr. Structures & Improvements					0.00
341.10	Trans. & Distr. Struct. & Improv. - Pavement					0.00
	Total Account 341	0.00	0.00	0.00	0.00	0.00
342.00	Reservoirs & Tanks					0.00
342.10	Reservoirs & Tanks - Tank Painting					0.00
	Total Reservoirs & Tanks	0.00	0.00	0.00	0.00	0.00

Table 3 - WI

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	Transmission & Distribution Mains					
343.10	Mains-Asbestos Cement	0.00				0.00
343.40	Mains-All Other	144,480.00				144,480.00
343.50	Mains-Ductile Iron	0.00				0.00
	Total Account 343	144,480.00	0.00	0.00	0.00	144,480.00
	Services					
345.00	Services	0.00				0.00
345.20	Over 1"	0.00				0.00
	Total Account 345	0.00	0.00	0.00	0.00	0.00
	Meters					
346.11	Meters - 1" & Under	5,411.62				5,411.62
346.12	Meters - Over 1"	0.00				0.00
346.20	Meter Boxes	0.00				0.00
	Total Account 346	5,411.62	0.00	0.00	0.00	5,411.62
348.00	Hydrants	0.00				0.00
	TOTAL Trans. & Distr. Plant	149,891.62	0.00	0.00	0.00	149,891.62
	General Plant					
371.00	General Plant Structures & Improvements					0.00
	Total Account 371	0.00	0.00	0.00	0.00	0.00
372.00	Office Furniture & Equipment					0.00
372.10	Office-Elec. Equip/Computers					0.00
372.20	Computer Software					0.00
	Total Account 372	0.00	0.00	0.00	0.00	0.00
373.00	Transportation Equipment	0.00				0.00
374.00	Stores Equipment	0.00				0.00
375.00	Laboratory Equipment	0.00				0.00
376.00	Communication Equipment	0.00				0.00
377.00	Power Operated Equipment	0.00				0.00
378.00	Tools, Shop & Garage Equipment	0.00				0.00
379.00	Other General Plant	0.00				0.00
	TOTAL General Plant	0.00	0.00	0.00	0.00	0.00
	TOTAL DEPRECIABLE PLANT	1,095,101.97	0.00	0.00	0.00	1,095,101.97

Table 3 - WI

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Excluded Assets (d)	Pending DW-7 Addition Reversal (e)	Transfer In Pending DW-7 Well Re-class (f)	Original Cost Per Depr Study Data 12-31-16 (g)
	NON-DEPRECIABLE PLANT					
	Intangible Plant					
301.00	Organization					0.00
302.00	Franchises & Consents					0.00
303.00	Other Intangible Plant					0.00
	TOTAL Intangible Plant	0.00	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97	0.00	0.00	0.00	1,095,101.97

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	293,873.79	-10%	45-R4	117,490.95	126,480.59	126,480.59	-	126,480.59
	Total Account 311	293,873.79			117,490.95	126,480.59	126,480.59	-	126,480.59
312.00	Collecting & Impounding Reservoirs	109,812.34	-20%	75-R3	36,214.94	109,812.34	109,812.34	-	109,812.34
315.00	Wells	5,508,561.96	-35%	48-R3	2,613,538.00	2,050,437.50	1,948,430.32	109,458.61	2,057,888.93
	TOTAL Source of Supply	5,912,248.09			2,767,243.89	2,286,730.43	2,184,723.25	109,458.61	2,294,181.86
	Pumping Plant								
321.00	Pumping Structures & Improvements	1,782,027.31	-10%	45-R3	148,447.61	205,627.02	171,622.09	204,440.44	376,062.53
	Total Account 321	1,782,027.31			148,447.61	205,627.02	171,622.09	204,440.44	376,062.53
324.00	Pumping Equipment	6,001,787.43	-20%	30-R4	2,777,044.48	3,039,158.67	3,039,158.67	108,243.08	3,147,401.75
324.10	System Ctrl Computer Equip	131,306.12	0%	10-R3	56,773.09	10,423.27	10,423.27	6,950.45	17,373.72
	TOTAL Pumping Plant	7,915,120.86			2,982,265.18	3,255,208.96	3,221,204.03	319,633.97	3,540,838.00
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	109,963.51	-10%	45-R3	64,165.06	58,514.09	58,514.09	-	58,514.09
	Total Account 331	109,963.51			64,165.06	58,514.09	58,514.09	-	58,514.09
332.00	Water Treatment Equipment	18,507.90	-10%	25-R4	10,353.14	10,097.19	10,097.19	-	10,097.19
	Total Account 332	18,507.90			10,353.14	10,097.19	10,097.19	-	10,097.19
	TOTAL Water Treatment Plant	128,471.41			74,518.20	68,611.28	68,611.28	-	68,611.28

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	277,579.04	-15%	30-R2.5	40,790.07	28,789.81	28,789.81	23,415.95	52,205.76
341.10	Trans. & Distr. Struct. & Improv. - Pavement	39,945.52	0%	15-R3	18,453.61	5,649.74	5,649.74	-	5,649.74
	Total Account 341	317,524.56			59,243.68	34,439.55	34,439.55	23,415.95	57,855.50
342.00	Reservoirs & Tanks	9,627,473.27	-15%	50-R3	3,303,580.68	3,624,363.66	3,624,363.66	-	3,624,363.66
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0%	15-R4	92,307.04	35,519.54	35,519.54	-	35,519.54
	Total Reservoirs & Tanks	9,882,017.20			3,395,887.72	3,659,883.20	3,659,883.20	-	3,659,883.20
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	9,341,040.75	-35%	70-R3	4,490,608.01	5,425,459.14	5,425,459.14	-	5,425,459.14
343.40	Mains-All Other	418,095.71	-35%	80-R2.5	63,118.75	86,208.19	86,208.19	-	86,208.19
343.50	Mains-Ductile Iron	4,277,053.66	-35%	90-R2.5	410,371.13	502,290.24	502,290.24	-	502,290.24
	Total Account 343	14,036,190.12		0.00	4,964,097.89	6,013,957.57	6,013,957.57	-	6,013,957.57
	Services								
345.00	Services	24,242.18	-40%	45-R3	26,153.79	24,242.18	24,242.18	-	24,242.18
345.20	Over 1"	-	-40%		-	-	-	-	0.00
	Total Account 345	24,242.18			26,153.79	24,242.18	24,242.18	-	24,242.18
	Meters								
346.11	Meters - 1" & Under	494,582.23	0%	20-R3	348,860.83	331,467.49	331,467.49	-	331,467.49
346.12	Meters - Over 1"	-	0%	20-R3	-	-	-	-	0.00
346.20	Meter Boxes	-	0%	20-R3	-	-	-	-	0.00
	Total Account 346	494,582.23			348,860.83	331,467.49	331,467.49	-	331,467.49
348.00	Hydrants	15,234.28	-30%	60-R2.5	3,222.27	5,001.94	5,001.94	-	5,001.94
	TOTAL Trans. & Distr. Plant	24,769,790.57			8,797,466.18	10,068,991.93	10,068,991.93	23,415.95	10,092,407.88

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Adjusted Book Reserve 12-31-16 (g)	Book Reserve 12-31-16 (h)	Transfer In Pending DW-7 Well Depr Resr Re-class (j)	Adjusted Depr Resr Per Depr Study 12-31-16 (k)
	General Plant								
371.00	General Plant Structures & Improvements	948,235.82	-10%	30-R2	305,376.68	550,427.43	550,427.43	-	550,427.43
	Total Account 371	948,235.82			305,376.68	550,427.43	550,427.43	-	550,427.43
372.00	Office Furniture & Equipment	23,385.61	0%	12-L3	17,728.29	23,385.61	23,385.61	-	23,385.61
372.10	Office-Elec. Equip/Computers	52,835.85	0%	6-L3	51,650.48	52,835.85	52,835.85	-	52,835.85
372.20	Computer Software	-	0%	6-L3	-	-	-	-	0.00
	Total Account 372	76,221.46			69,378.77	76,221.46	76,221.46	-	76,221.46
373.00	Transportation Equipment	319,505.33	10%	14-R5	205,788.63	329,399.78	329,399.78	-	329,399.78
374.00	Stores Equipment	-	0%	25-L2	6,425.03	4,199.80	4,199.80	-	4,199.80
375.00	Laboratory Equipment	35,052.25	0%	15-R2.5	21,237.09	27,202.05	27,202.05	-	27,202.05
376.00	Communication Equipment	-	0%	10-R2	-	-	-	-	0.00
377.00	Power Operated Equipment	242,805.90	10%	15-R2.5	118,213.39	195,978.51	195,978.51	-	195,978.51
378.00	Tools, Shop & Garage Equipment	39,512.58	0%	20-L1	17,977.52	38,020.22	38,020.22	-	38,020.22
379.00	Other General Plant	40,922.90	0%	15-L2	30,047.49	40,922.90	40,922.90	-	40,922.90
	TOTAL General Plant	1,702,256.24			774,444.60	1,262,372.15	1,262,372.15	-	1,262,372.15
	TOTAL DEPRECIABLE PLANT	40,427,887.17			15,395,938.05	16,941,914.75	16,805,902.64	452,508.53	17,258,411.17
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-				-	-		0.00
302.00	Franchises & Consents	-				-	-		0.00
303.00	Other Intangible Plant	46,820.21	0%	0	-	24,060.36	24,060.36	-	24,060.36
	TOTAL Intangible Plant	46,820.21			-	24,060.36	24,060.36	-	24,060.36
	TOTAL NON-DEPRECIABLE PLANT	46,820.21			-	24,060.36	24,060.36	-	24,060.36
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38			15,395,938.05	16,965,975.11	16,829,963.00	452,508.53	17,282,471.53

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Adjusted Book Reserve 12-31-16 (g)	Book Reserve 12-31-16 (h)	Reversal of Booked DW-7 Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class (j)	Adjusted Depr Resr Per Depr Study 12-31-16 (k)
	DEPRECIABLE PLANT									
	Source of Supply									
311.00	Structures & Improvements	92,504.73	-10%	45-R4	42,999.10	45,357.61	45,357.61	0.00		45,357.61
	Total Account 311	92,504.73			42,999.10	45,357.61	45,357.61	0.00	0.00	45,357.61
312.00	Collecting & Impounding Reservoirs	-	-20%	75-R3	0.00	0.00	0.00			0.00
315.00	Wells	1,336,130.94	-35%	48-R3	530,616.35	427,303.96	386,921.98	(7,451.43)	47,833.41	427,303.96
	TOTAL Source of Supply	1,428,635.67			573,615.45	472,661.57	432,279.59	(7,451.43)	47,833.41	472,661.57
	Pumping Plant									
321.00	Pumping Structures & Improvements	793,028.08	-10%	45-R3	65,513.68	90,527.05	171,622.09	(170,435.51)	89,340.47	90,527.05
	Total Account 321	793,028.08			65,513.68	90,527.05	171,622.09	(170,435.51)	89,340.47	90,527.05
324.00	Pumping Equipment	3,088,602.82	-20%	30-R4	1,087,424.47	1,310,033.70	1,370,974.55	(108,243.08)	47,302.23	1,310,033.70
324.10	System Ctrl Computer Equip	57,405.95	0%	10-R3	24,816.16	2,938.19	6,851.29	(6,950.45)	3,037.35	2,938.19
	TOTAL Pumping Plant	3,939,036.85			1,177,754.31	1,403,498.93	1,549,447.93	(285,629.04)	139,680.04	1,403,498.93
	Water Treatment Plant									
331.00	Water Treatment Structures & Improvements	6,757.10	-10%	45-R3	5,727.80	5,810.87	5,810.87			5,810.87
	Total Account 331	6,757.10			5,727.80	5,810.87	5,810.87	0.00	0.00	5,810.87
332.00	Water Treatment Equipment	12,820.33	-10%	25-R4	7,879.55	6,920.37	6,920.37			6,920.37
	Total Account 332	12,820.33			7,879.55	6,920.37	6,920.37	0.00	0.00	6,920.37
	TOTAL Water Treatment Plant	19,577.43			13,607.35	12,731.24	12,731.24	0.00	0.00	12,731.24

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Reversal of Booked DW-7 Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)		(j)	(k)
	Transmission & Distribution Plant									
341.00	Trans. & Distr. Structures & Improvements	122,363.13	-15%	30-R2.5	17,886.90	10,263.61	23,446.79	(23,415.95)	10,232.77	10,263.61
341.10	Trans. & Distr. Struct. & Improv. - Pavement	17,449.98	0%	15-R3	8,061.36	-161.79	-161.79			(161.79)
	Total Account 341	139,813.11			25,948.26	10,101.82	23,285.00	(23,415.95)	10,232.77	10,101.82
342.00	Reservoirs & Tanks	1,455,062.40	-15%	50-R3	525,909.46	592,706.24	592,706.24			592,706.24
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0%	15-R4	92,307.04	35,519.54	35,519.54			35,519.54
	Total Reservoirs & Tanks	1,709,606.33			618,216.50	628,225.78	628,225.78	0.00	0.00	628,225.78
	Transmission & Distribution Mains									
343.10	Mains-Asbestos Cement	6,420,961.31	-35%	70-R3	3,304,990.65	3,973,918.29	3,973,918.29			3,973,918.29
343.40	Mains-All Other	0.00	-35%	80-R2.5	0.00	0.00	0.00			0.00
343.50	Mains-Ductile Iron	61,527.21	-35%	90-R2.5	5,641.79	6,783.68	6,783.68			6,783.68
	Total Account 343	6,482,488.52			3,310,632.44	3,980,701.97	3,980,701.97	0.00	0.00	3,980,701.97
	Services									
345.00	Services	24,242.18	-40%	45-R3	26,153.79	24,242.18	24,242.18			24,242.18
345.20	Over 1"	-	-40%		0.00	0.00	0.00			0.00
	Total Account 345	24,242.18			26,153.79	24,242.18	24,242.18	0.00	0.00	24,242.18
	Meters									
346.11	Meters - 1" & Under	322,441.49	0%	20-R3	234,222.56	225,493.85	225,493.85			225,493.85
346.12	Meters - Over 1"	-	0%	20-R3	0.00	0.00	0.00			0.00
346.20	Meter Boxes	-	0%	20-R3	0.00	0.00	0.00			0.00
	Total Account 346	322,441.49			234,222.56	225,493.85	225,493.85	0.00	0.00	225,493.85
348.00	Hydrants	8,330.90	-30%	60-R2.5	2,078.13	3,857.34	3,857.34			3,857.34
	TOTAL Trans. & Distr. Plant	8,686,922.53			4,217,251.68	4,872,622.94	4,885,806.12	(23,415.95)	10,232.77	4,872,622.94

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Adjusted Book Reserve 12-31-16 (g)	Book Reserve 12-31-16 (h)	Reversal of Booked DW-7 Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class (j)	Adjusted Depr Resr Per Depr Study 12-31-16 (k)
	General Plant									
371.00	General Plant Structures & Improvements	36,160.15	-10%	30-R2	13,988.30	20,648.39	20,648.39			20,648.39
	Total Account 371	36,160.15			13,988.30	20,648.39	20,648.39	0.00	0.00	20,648.39
372.00	Office Furniture & Equipment	2,231.30	0%	12-L3	1,690.45	2,231.30	2,231.30			2,231.30
372.10	Office-Elec. Equip/Computers	21,402.48	0%	6-L3	20,435.93	21,402.48	21,402.48			21,402.48
372.20	Computer Software	-	0%	6-L3	0.00	0.00	0.00			0.00
	Total Account 372	23,633.78			22,126.38	23,633.78	23,633.78	0.00	0.00	23,633.78
373.00	Transportation Equipment	2,623.35	10%	14-R5	1,860.80	2,623.35	2,623.35			2,623.35
374.00	Stores Equipment	-	0%	25-L2	0.00	0.00	0.00			0.00
375.00	Laboratory Equipment	19,719.79	0%	15-R2.5	10,423.80	12,047.73	12,047.73			12,047.73
376.00	Communication Equipment	-	0%	10-R2	0.00	0.00	0.00			0.00
377.00	Power Operated Equipment	62,225.24	10%	15-R2.5	32,866.83	62,225.24	62,225.24			62,225.24
378.00	Tools, Shop & Garage Equipment	9,618.49	0%	20-L1	3,709.39	9,014.37	9,014.37			9,014.37
379.00	Other General Plant	12,781.74	0%	15-L2	8,772.37	12,781.74	12,781.74			12,781.74
	TOTAL General Plant	166,762.54			93,747.87	142,974.60	142,974.60	0.00	-	142,974.60
	TOTAL DEPRECIABLE PLANT	14,240,935.02			6,075,976.66	6,904,489.29	7,023,239.48	(316,496.42)	197,746.23	6,904,489.29
	NON-DEPRECIABLE PLANT									
	Intangible Plant									
301.00	Organization	-				0.00	0.00			0.00
302.00	Franchises & Consents	-				0.00	0.00			0.00
303.00	Other Intangible Plant	46,820.21				24,060.36	24,060.36			24,060.36
	TOTAL Intangible Plant	46,820.21			0.00	24,060.36	24,060.36	0.00	0.00	24,060.36
	TOTAL NON-DEPRECIABLE PLANT	46,820.21			0.00	24,060.36	24,060.36	0.00	0.00	24,060.36
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23			6,075,976.66	6,928,549.65	7,047,299.84	(316,496.42)	197,746.23	6,928,549.65

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	201,369.06	-10%	45-R4	74,491.85	81,122.98	81,122.98		81,122.98
	Total Account 311	201,369.06			74,491.85	81,122.98	81,122.98	0.00	81,122.98
312.00	Collecting & Impounding Reservoirs	0.00	-20%	75-R3	0.00	0.00	0.00		0.00
315.00	Wells	3,427,734.49	-35%	48-R3	1,575,624.70	1,224,528.08	1,162,902.88	61,625.20	1,224,528.08
	TOTAL Source of Supply	3,629,103.55			1,650,116.55	1,305,651.06	1,244,025.86	61,625.20	1,305,651.06
	Pumping Plant								
321.00	Pumping Structures & Improvements	988,999.23	-10%	45-R3	82,933.93	115,099.97	0.00	115,099.97	115,099.97
	Total Account 321	988,999.23			82,933.93	115,099.97	0.00	115,099.97	115,099.97
324.00	Pumping Equipment	2,822,483.13	-20%	30-R4	1,604,116.65	1,638,423.49	1,577,482.64	60,940.85	1,638,423.49
324.10	System Ctrl Computer Equip	73,900.17	0%	10-R3	31,956.93	7,485.08	3,571.98	3,913.10	7,485.08
	TOTAL Pumping Plant	3,885,382.53			1,719,007.51	1,761,008.55	1,581,054.62	179,953.93	1,761,008.55
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	103,206.41	-10%	45-R3	58,437.26	52,703.22	52,703.22		52,703.22
	Total Account 331	103,206.41			58,437.26	52,703.22	52,703.22	0.00	52,703.22
332.00	Water Treatment Equipment	5,687.57	-10%	25-R4	2,473.59	3,176.82	3,176.82		3,176.82
	Total Account 332	5,687.57			2,473.59	3,176.82	3,176.82	0.00	3,176.82
	TOTAL Water Treatment Plant	108,893.98			60,910.85	55,880.04	55,880.04	0.00	55,880.04

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	155,215.91	-15%	30-R2.5	22,903.17	18,526.20	5,343.02	13,183.18	18,526.20
341.10	Trans. & Distr. Struct. & Improv. - Pavement	22,495.54	0%	15-R3	10,392.25	5,811.53	5,811.53		5,811.53
	Total Account 341	177,711.45			33,295.42	24,337.73	11,154.55	13,183.18	24,337.73
342.00	Reservoirs & Tanks	8,172,410.87	-15%	50-R3	2,777,671.22	3,031,657.42	3,031,657.42		3,031,657.42
342.10	Reservoirs & Tanks - Tank Painting	0.00	0%	15-R4	0.00	0.00	0.00		0.00
	Total Reservoirs & Tanks	8,172,410.87			2,777,671.22	3,031,657.42	3,031,657.42	0.00	3,031,657.42
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	2,920,079.44	-35%	70-R3	1,185,617.36	1,451,540.86	1,451,540.86		1,451,540.86
343.40	Mains-All Other	273,615.71	-35%	80-R2.5	6,688.76	8,188.99	8,188.99		8,188.99
343.50	Mains-Ductile Iron	4,215,526.45	-35%	90-R2.5	404,729.34	495,506.55	495,506.55		495,506.55
	Total Account 343	7,409,221.60			1,597,035.46	1,955,236.40	1,955,236.40	0.00	1,955,236.40
	Services								
345.00	Services	0.00	-40%	45-R3	0.00	0.00	0.00		0.00
345.20	Over 1"	0.00	-40%		0.00	0.00	0.00		0.00
	Total Account 345	0.00			0.00	0.00	0.00	0.00	0.00
	Meters								
346.11	Meters - 1" & Under	166,729.12	0%	20-R3	112,690.38	104,653.39	104,653.39		104,653.39
346.12	Meters - Over 1"	0.00	0%	20-R3	0.00	0.00	0.00		0.00
346.20	Meter Boxes	0.00	0%	20-R3	0.00	0.00	0.00		0.00
	Total Account 346	166,729.12			112,690.38	104,653.39	104,653.39	0.00	104,653.39
348.00	Hydrants	6,903.38	-30%	60-R2.5	1,144.14	1,144.60	1,144.60		1,144.60
	TOTAL Trans. & Distr. Plant	15,932,976.42			4,521,836.62	5,117,029.54	5,103,846.36	13,183.18	5,117,029.54

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Adjusted Book Reserve 12-31-16 (g)	Book Reserve 12-31-16 (h)	Transfer In Pending DW-7 Well Depr Resr Re-class (j)	Adjusted Depr Resr Per Depr Study 12-31-16 (k)
	General Plant								
371.00	General Plant Structures & Improvements	912,075.67	-10%	30-R2	291,388.38	529,779.04	529,779.04		529,779.04
	Total Account 371	912,075.67			291,388.38	529,779.04	529,779.04	0.00	529,779.04
372.00	Office Furniture & Equipment	21,154.31	0%	12-L3	16,037.84	21,154.31	21,154.31		21,154.31
372.10	Office-Elec. Equip/Computers	31,433.37	0%	6-L3	31,214.55	31,433.37	31,433.37		31,433.37
372.20	Computer Software	0.00	0%	6-L3	0.00	0.00	0.00		0.00
	Total Account 372	52,587.68			47,252.39	52,587.68	52,587.68	0.00	52,587.68
373.00	Transportation Equipment	316,881.98	10%	14-R5	203,927.83	326,776.43	326,776.43		326,776.43
374.00	Stores Equipment	0.00	0%	25-L2	6,425.03	4,199.80	4,199.80		4,199.80
375.00	Laboratory Equipment	15,332.46	0%	15-R2.5	10,813.29	15,154.32	15,154.32		15,154.32
376.00	Communication Equipment	0.00	0%	10-R2	0.00	0.00	0.00		0.00
377.00	Power Operated Equipment	180,580.66	10%	15-R2.5	85,346.56	133,753.27	133,753.27		133,753.27
378.00	Tools, Shop & Garage Equipment	29,894.09	0%	20-L1	14,268.13	29,005.85	29,005.85		29,005.85
379.00	Other General Plant	28,141.16	0%	15-L2	21,275.12	28,141.16	28,141.16		28,141.16
	TOTAL General Plant	1,535,493.70			680,696.73	1,119,397.55	1,119,397.55	0.00	1,119,397.55
	TOTAL DEPRECIABLE PLANT	25,091,850.18			8,632,568.26	9,358,966.73	9,104,204.43	254,762.30	9,358,966.73
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00				0.00	0.00		0.00
302.00	Franchises & Consents	0.00				0.00	0.00		0.00
303.00	Other Intangible Plant	0.00				0.00	0.00		0.00
	TOTAL Intangible Plant	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18			8,632,568.26	9,358,966.73	9,104,204.43	254,762.30	9,358,966.73

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	DEPRECIABLE PLANT								
	Source of Supply								
311.00	Structures & Improvements	0.00	-10%	45-R4	0.00	0.00	0.00		0.00
	Total Account 311	0.00			0.00	0.00	0.00	0.00	0.00
312.00	Collecting & Impounding Reservoirs	109,812.34	-20%	75-R3	36,214.94	109,812.34	109,812.34		109,812.34
315.00	Wells	744,696.53	-35%	48-R3	507,296.95	398,605.46	398,605.46		398,605.46
	TOTAL Source of Supply	854,508.87			543,511.89	508,417.80	508,417.80		508,417.80
	Pumping Plant								
321.00	Pumping Structures & Improvements	0.00	-10%	45-R3	0.00	0.00	0.00		0.00
	Total Account 321	0.00			0.00	0.00	0.00	0.00	0.00
324.00	Pumping Equipment	90,701.48	-20%	30-R4	85,503.36	90,701.48	90,701.48		90,701.48
324.10	System Ctrl Computer Equip	0.00	0%	10-R3	0.00	0.00	0.00		0.00
	TOTAL Pumping Plant	90,701.48			85,503.36	90,701.48	90,701.48	0.00	90,701.48
	Water Treatment Plant								
331.00	Water Treatment Structures & Improvements	0.00	-10%	45-R3	0.00	0.00	0.00		0.00
	Total Account 331	0.00			0.00	0.00	0.00	0.00	0.00
332.00	Water Treatment Equipment	0.00	-10%	25-R4	0.00	0.00	0.00		0.00
	Total Account 332	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL Water Treatment Plant	0.00			0.00	0.00	0.00	0.00	0.00

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Adjusted Book Reserve 12-31-16	Book Reserve 12-31-16	Transfer In Pending DW-7 Well Depr Resr Re-class	Adjusted Depr Resr Per Depr Study 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(j)	(k)
	Transmission & Distribution Plant								
341.00	Trans. & Distr. Structures & Improvements	0.00	-15%	30-R2.5	0.00	0.00	0.00		0.00
341.10	Trans. & Distr. Struct. & Improv. - Pavement	0.00	0%	15-R3	0.00	0.00	0.00		0.00
	Total Account 341	0.00			0.00	0.00	0.00	0.00	0.00
342.00	Reservoirs & Tanks	0.00	-15%	50-R3	0.00	0.00	0.00		0.00
342.10	Reservoirs & Tanks - Tank Painting	0.00	0%	15-R4	0.00	0.00	0.00		0.00
	Total Reservoirs & Tanks	0.00			0.00	0.00	0.00	0.00	0.00
	Transmission & Distribution Mains								
343.10	Mains-Asbestos Cement	0.00	-35%	70-R3	0.00	0.00	0.00		0.00
343.40	Mains-All Other	144,480.00	-35%	80-R2.5	56,429.99	78,019.20	78,019.20		78,019.20
343.50	Mains-Ductile Iron	0.00	-35%	90-R2.5	0.00	0.00	0.00		0.00
	Total Account 343	144,480.00			56,429.99	78,019.20	78,019.20	0.00	78,019.20
	Services								
345.00	Services	0.00	-40%	45-R3	0.00	0.00	0.00		0.00
345.20	Over 1"	0.00	-40%		0.00	0.00	0.00		0.00
	Total Account 345	0.00			0.00	0.00	0.00	0.00	0.00
	Meters								
346.11	Meters - 1" & Under	5,411.62	0%	20-R3	1,947.89	1,320.25	1,320.25		1,320.25
346.12	Meters - Over 1"	0.00	0%	20-R3	0.00	0.00	0.00		0.00
346.20	Meter Boxes	0.00	0%	20-R3	0.00	0.00	0.00		0.00
	Total Account 346	5,411.62			1,947.89	1,320.25	1,320.25	0.00	1,320.25
348.00	Hydrants	0.00	-30%	60-R2.5	0.00	0.00	0.00		0.00
	TOTAL Trans. & Distr. Plant	149,891.62			58,377.88	79,339.45	79,339.45	0.00	79,339.45

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Adjusted Book Reserve 12-31-16 (g)	Book Reserve 12-31-16 (h)	Transfer In Pending DW-7 Well Depr Resr Re-class (j)	Adjusted Depr Resr Per Depr Study 12-31-16 (k)
	General Plant								
371.00	General Plant Structures & Improvements	0.00	-10%	30-R2	0.00	0.00	0.00		0.00
	Total Account 371	0.00			0.00	0.00	0.00	0.00	0.00
372.00	Office Furniture & Equipment	0.00	0%	12-L3	0.00	0.00	0.00		0.00
372.10	Office-Elec. Equip/Computers	0.00	0%	6-L3	0.00	0.00	0.00		0.00
372.20	Computer Software	0.00	0%	6-L3	0.00	0.00	0.00		0.00
	Total Account 372	0.00			0.00	0.00	0.00	0.00	0.00
373.00	Transportation Equipment	0.00	10%	14-R5	0.00	0.00	0.00		0.00
374.00	Stores Equipment	0.00	0%	25-L2	0.00	0.00	0.00		0.00
375.00	Laboratory Equipment	0.00	0%	15-R2.5	0.00	0.00	0.00		0.00
376.00	Communication Equipment	0.00	0%	10-R2	0.00	0.00	0.00		0.00
377.00	Power Operated Equipment	0.00	10%	15-R2.5	0.00	0.00	0.00		0.00
378.00	Tools, Shop & Garage Equipment	0.00	0%	20-L1	0.00	0.00	0.00		0.00
379.00	Other General Plant	0.00	0%	15-L2	0.00	0.00	0.00		0.00
	TOTAL General Plant	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL DEPRECIABLE PLANT	1,095,101.97			687,393.13	678,458.73	678,458.73	0.00	678,458.73
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00				0.00	0.00		0.00
302.00	Franchises & Consents	0.00				0.00	0.00		0.00
303.00	Other Intangible Plant	0.00				0.00	0.00		0.00
	TOTAL Intangible Plant	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00			0.00	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97			687,393.13	678,458.73	678,458.73	0.00	678,458.73

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters Net Salvage W/ COR % (d)	Net Salvage Gross Salv % (e)	Net Salvage Gross COR % (f)	Implicit ASL (Yrs) (g)	Depr Rate (h)	Proposed Parameters Net Salvage W/ COR % (i)	Net Salvage Gross Salv % (j)	Net Salvage Gross COR % (k)	A.S.L./ Survivor Curve (l)	Average Remain. Life (m)
	DEPRECIABLE PLANT											
	Source of Supply											
311.00	Structures & Improvements	293,873.79	0%	0%	0%	44.5	2.25%	-10%	0%	-10%	45-R4	28.6
	Total Account 311	293,873.79										
312.00	Collecting & Impounding Reservoirs	109,812.34	0%	0%	0%	0.0	0.00%	-20%	0%	-20%	75-R3	54.4
315.00	Wells	5,508,561.96	0%	0%	0%	49.6	2.02%	-35%	0%	-35%	48-R3	31.0
	TOTAL Source of Supply	5,912,248.09										
	Pumping Plant											
321.00	Pumping Structures & Improvements	1,782,027.31	0%	0%	0%	67.4	1.48%	-10%	0%	-10%	45-R3	41.6
	Total Account 321	1,782,027.31										
324.00	Pumping Equipment	6,001,787.43	0%	0%	0%	28.5	3.51%	-20%	0%	-20%	30-R4	18.4
324.10	System Ctrl Computer Equip	131,306.12	0%	0%	0%	40.0	2.50%	0%	0%	0%	10-R3	5.7
	TOTAL Pumping Plant	7,915,120.86										
	Water Treatment Plant											
331.00	Water Treatment Structures & Improvements	109,963.51	0%	0%	0%	50.0	2.00%	-10%	0%	-10%	45-R3	21.2
	Total Account 331	109,963.51										
332.00	Water Treatment Equipment	18,507.90	0%	0%	0%	60.5	1.65%	-10%	0%	-10%	25-R4	19.3
	Total Account 332	18,507.90										
	TOTAL Water Treatment Plant	128,471.41										
	Transmission & Distribution Plant											
341.00	Trans. & Distr. Structures & Improvements	277,579.04	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	30-R2.5	26.2
341.10	Trans. & Distr. Struct. & Improv. - Pavement	39,945.52	0%	0%	0%	30.0	3.33%	0%	0%	0%	15-R3	8.1
	Total Account 341	317,524.56										

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters Net Salvage W/ COR %	Net Salvage Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	Proposed Parameters Net Salvage W/ COR %	Net Salvage Gross Salv %	Net Salvage Gross COR %	A.S.L./ Survivor Curve	Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
342.00	Reservoirs & Tanks	9,627,473.27	0%	0%	0%	39.0	2.56%	-15%	0%	-15%	50-R3	35.1
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0%	0%	0%	40.0	2.50%	0%	0%	0%	15-R4	9.6
	Total Reservoirs & Tanks	9,882,017.20										
	Transmission & Distribution Mains											
343.10	Mains-Asbestos Cement	9,341,040.75	0%	0%	0%	48.9	2.04%	-35%	0%	-35%	70-R3	44.1
343.40	Mains-All Other	418,095.71	0%	0%	0%	43.0	2.33%	-35%	0%	-35%	80-R2.5	71.5
343.50	Mains-Ductile Iron	4,277,053.66	0%	0%	0%	48.3	2.07%	-35%	0%	-35%	90-R2.5	83.4
	Total Account 343	14,036,190.12				48.5						
	Services											
345.00	Services	24,242.18	0%	0%	0%	0.0	0.00%	-40%	0%	-40%	45-R3	10.3
345.20	Over 1"	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%		0.0
	Total Account 345	24,242.18										
	Meters											
346.11	Meters - 1" & Under	494,582.23	0%	0%	0%	31.6	3.17%	0%	0%	0%	20-R3	6.0
346.12	Meters - Over 1"	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	0.0
346.20	Meter Boxes	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	0.0
	Total Account 346	494,582.23										
348.00	Hydrants	15,234.28	0%	0%	0%	56.0	1.78%	-30%	0%	-30%	60-R2.5	50.5
	TOTAL Trans. & Distr. Plant	24,769,790.57										
	General Plant											
371.00	General Plant Structures & Improvements	948,235.82	0%	0%	0%	20.2	4.95%	-10%	0%	-10%	30-R2	21.2
	Total Account 371	948,235.82										
372.00	Office Furniture & Equipment	23,385.61	0%	0%	0%	0.0	0.00%	0%	0%	0%	12-L3	0.0
372.10	Office-Elec. Equip/Computers	52,835.85	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	0.0
372.20	Computer Software	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	0.0
	Total Account 372	76,221.46										

Hawaii Water Service Company

Hawaii Water Service - Water (Wiakoloa Village, Waikoloa Resort, & Waikoloa Irrigation)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

			Present Parameters					Proposed Parameters				
			Net Salvage					Net Salvage				
Account No.	Description	Original Cost 12-31-16	W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	W/ COR %	Gross Salv %	Gross COR %	A.S.L./ Survivor Curve	Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
373.00	Transportation Equipment	319,505.33	0%	0%	0%	0.0	0.00%	10%	10%	0%	14-R5	5.4
374.00	Stores Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	25-L2	0.0
375.00	Laboratory Equipment	35,052.25	0%	0%	0%	33.4	2.99%	0%	0%	0%	15-R2.5	7.0
376.00	Communication Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R2	0.0
377.00	Power Operated Equipment	242,805.90	0%	0%	0%	18.6	5.38%	10%	10%	0%	15-R2.5	7.4
378.00	Tools, Shop & Garage Equipment	39,512.58	0%	0%	0%	34.4	2.91%	0%	0%	0%	20-L1	11.9
379.00	Other General Plant	40,922.90	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-L2	7.3
	TOTAL General Plant	1,702,256.24										
	TOTAL DEPRECIABLE PLANT	40,427,887.17										
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
303.00	Other Intangible Plant	46,820.21										
	TOTAL Intangible Plant	46,820.21										
	TOTAL NON-DEPRECIABLE PLANT	46,820.21										
	TOTAL UTILITY PLANT IN SERVICE	40,474,707.38										

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters					Proposed Parameters				
			Net Salvage					Net Salvage			A.S.L./	Average
			W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	W/ COR %	Gross Salv %	Gross COR %	Survivor Curve	Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
	DEPRECIABLE PLANT											
	Source of Supply											
311.00	Structures & Improvements	92,504.73	0%	0%	0%	40.1	2.50%	-10%	0%	-10%	45-R4	25.98
	Total Account 311	92,504.73										
312.00	Collecting & Impounding Reservoirs	-	0%	0%	0%	0.0	0.00%	-20%	0%	-20%	75-R3	-
315.00	Wells	1,336,130.94	0%	0%	0%	48.5	2.06%	-35%	0%	-35%	48-R3	33.88
	TOTAL Source of Supply	1,428,635.67										
	Pumping Plant											
321.00	Pumping Structures & Improvements	793,028.08	-10%	0%	-10%	30.0	3.33%	-10%	0%	-10%	45-R3	41.62
	Total Account 321	793,028.08										
324.00	Pumping Equipment	3,088,602.82	0%	0%	0%	27.2	3.68%	-20%	0%	-20%	30-R4	21.20
324.10	System Ctrl Computer Equip	57,405.95	0%	0%	0%	40.0	2.50%	0%	0%	0%	10-R3	5.68
	TOTAL Pumping Plant	3,939,036.85										
	Water Treatment Plant											
331.00	Water Treatment Structures & Improvements	6,757.10	-10%	0%	-10%	50.0	2.00%	-10%	0%	-10%	45-R3	10.32
	Total Account 331	6,757.10										
332.00	Water Treatment Equipment	12,820.33	0%	0%	0%	0.0	1.69%	-10%	0%	-10%	25-R4	21.82
	Total Account 332	12,820.33										
	TOTAL Water Treatment Plant	19,577.43										
	Transmission & Distribution Plant											
341.00	Trans. & Distr. Structures & Improvements	122,363.13	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	30-R2.5	26.19
341.10	Trans. & Distr. Struct. & Improv. - Pavement	17,449.98	0%	0%	0%	30.0	3.33%	0%	0%	0%	15-R3	8.07
	Total Account 341	139,813.11										

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters: Net Salvage W/ COR %	Present Parameters: Net Salvage Gross Salv %	Present Parameters: Net Salvage Gross COR %	Present Parameters: Implicit ASL (Yrs)	Present Parameters: Depr Rate	Proposed Parameters: Net Salvage W/ COR %	Proposed Parameters: Net Salvage Gross Salv %	Proposed Parameters: Net Salvage Gross COR %	Proposed Parameters: A.S.L./ Survivor Curve	Proposed Parameters: Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
342.00	Reservoirs & Tanks	1,455,062.40	0%	0%	0%	34.9	2.87%	-15%	0%	-15%	50-R3	34.29
342.10	Reservoirs & Tanks - Tank Painting	254,543.93	0%	0%	0%	40.0	2.50%	0%	0%	0%	15-R4	9.56
	Total Reservoirs & Tanks	1,709,606.33										
	Transmission & Distribution Mains											
343.10	Mains-Asbestos Cement	6,420,961.31	0%	0%	0%	49.8	2.01%	-35%	0%	-35%	70-R3	42.28
343.40	Mains-All Other	-	0%	0%	0%	0.0	0.00%	-35%	0%	-35%	80-R2.5	48.63
343.50	Mains-Ductile Iron	61,527.21	0%	0%	0%	30.0	3.33%	-35%	0%	-35%	90-R2.5	83.65
	Total Account 343	6,482,488.52										
	Services											
345.00	Services	24,242.18	0%	0%	0%	0.0	0.00%	-40%	0%	-40%	45-R3	10.32
345.20	Over 1"	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%	45-R3	-
	Total Account 345	24,242.18										
	Meters											
346.11	Meters - 1" & Under	322,441.49	0%	0%	0%	29.8	3.35%	0%	0%	0%	20-R3	5.61
346.12	Meters - Over 1"	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	-
346.20	Meter Boxes	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	-
	Total Account 346	322,441.49										
348.00	Hydrants	8,330.90	0%	0%	0%	74.3	1.35%	-30%	0%	-30%	60-R2.5	48.49
	TOTAL Trans. & Distr. Plant	8,686,922.53										
	General Plant											
371.00	General Plant Structures & Improvements	36,160.15	0%	0%	0%	23.9	4.18%	-10%	0%	-10%	30-R2	19.45
	Total Account 371	36,160.15										
372.00	Office Furniture & Equipment	2,231.30	0%	0%	0%	0.0	0.00%	0%	0%	0%	12-L3	2.91
372.10	Office-Elec. Equip/Computers	21,402.48	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	0.56
372.20	Computer Software	-	0%			0.0	0.00%	0%	0%	0%	6-L3	-
	Total Account 372	23,633.78										

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Water Operations (VW)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

			Present Parameters					Proposed Parameters				
			Net Salvage					Net Salvage				
Account No.	Description	Original Cost 12-31-16	W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	W/ COR %	Gross Salv %	Gross COR %	A.S.L./ Survivor Curve	Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
373.00	Transportation Equipment	2,623.35	0%	0%	0%	0.0	0.00%	10%	10%	0%	14-R5	2.97
374.00	Stores Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	25-L2	-
375.00	Laboratory Equipment	19,719.79	0%	0%	0%	38.4	2.61%	0%	0%	0%	15-R2.5	7.07
376.00	Communication Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R2	-
377.00	Power Operated Equipment	62,225.24	0%	0%	0%	0.0	0.00%	10%	10%	0%	15-R2.5	6.20
378.00	Tools, Shop & Garage Equipment	9,618.49	0%	0%	0%	19.9	5.03%	0%	0%	0%	20-L1	12.29
379.00	Other General Plant	12,781.74	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-L2	4.71
	TOTAL General Plant	166,762.54										
	TOTAL DEPRECIABLE PLANT	14,240,935.02										
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	-										
302.00	Franchises & Consents	-										
303.00	Other Intangible Plant	46,820.21					16.67%					
	TOTAL Intangible Plant	46,820.21										
	TOTAL NON-DEPRECIABLE PLANT	46,820.21										
	TOTAL UTILITY PLANT IN SERVICE	14,287,755.23										

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters: Net Salvage W/ COR % (d)	Present Parameters: Net Salvage Gross Salv % (e)	Present Parameters: Net Salvage Gross COR % (f)	Present Parameters: Implicit ASL (Yrs) (g)	Present Parameters: Depr Rate (h)	Proposed Parameters: Net Salvage W/ COR % (i)	Proposed Parameters: Net Salvage Gross Salv % (j)	Proposed Parameters: Net Salvage Gross COR % (k)	Proposed Parameters: A.S.L./ Survivor Curve (l)	Proposed Parameters: Average Remain. Life (m)
	DEPRECIABLE PLANT											
	Source of Supply											
311.00	Structures & Improvements	201,369.06	0%	0%	0%	46.9	2.13%	-10%	0%	-10%	45-R4	29.87
	Total Account 311	201,369.06										
312.00	Collecting & Impounding Reservoirs	-	0%	0%	0%	0.0	0.00%	-20%	0%	-20%	75-R3	-
315.00	Wells	3,427,734.49	0%	0%	0%	50.0	2.00%	-35%	0%	-35%	48-R3	31.66
	TOTAL Source of Supply	3,629,103.55										
	Pumping Plant											
321.00	Pumping Structures & Improvements	988,999.23	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	45-R3	41.57
	Total Account 321	988,999.23										
324.00	Pumping Equipment	2,822,483.13	0%	0%	0%	29.2	3.43%	-20%	0%	-20%	30-R4	15.79
324.10	System Ctrl Computer Equip	73,900.17	0%	0%	0%	40.0	2.50%	0%	0%	0%	10-R3	5.68
	TOTAL Pumping Plant	3,885,382.53										
	Water Treatment Plant											
331.00	Water Treatment Structures & Improveme	103,206.41	0%	0%	0%	50.0	2.00%	-10%	0%	-10%	45-R3	21.84
	Total Account 331	103,206.41										
332.00	Water Treatment Equipment	5,687.57	0%	0%	0%	0.0	1.58%	-10%	0%	-10%	25-R4	15.12
	Total Account 332	5,687.57										
	TOTAL Water Treatment Plant	108,893.98										
	Transmission & Distribution Plant											
341.00	Trans. & Distr. Structures & Improvement	155,215.91	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	30-R2.5	26.15
341.10	Trans. & Distr. Struct. & Improv. - Paveme	22,495.54	0%	0%	0%	30.0	3.33%	0%	0%	0%	15-R3	8.07
	Total Account 341	177,711.45										

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters: Net Salvage W/ COR % (d)	Present Parameters: Net Salvage Gross Salv % (e)	Present Parameters: Gross COR % (f)	Present Parameters: Implicit ASL (Yrs) (g)	Present Parameters: Depr Rate (h)	Proposed Parameters: Net Salvage W/ COR % (i)	Proposed Parameters: Net Salvage Gross Salv % (j)	Proposed Parameters: Gross COR % (k)	Proposed Parameters: A.S.L./ Survivor Curve (l)	Proposed Parameters: Average Remain. Life (m)
342.00	Reservoirs & Tanks	8,172,410.87	0%	0%	0%	39.8	2.51%	-15%	0%	-15%	50-R3	35.22
342.10	Reservoirs & Tanks - Tank Painting	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R4	-
	Total Reservoirs & Tanks	8,172,410.87										
	Transmission & Distribution Mains											
343.10	Mains-Asbestos Cement	2,920,079.44	0%	0%	0%	0.0	2.13%	-35%	0%	-35%	70-R3	48.14
343.40	Mains-All Other	273,615.71	0%	0%	0%	0.0	2.50%	-35%	0%	-35%	80-R2.5	78.50
343.50	Mains-Ductile Iron	4,215,526.45	0%	0%	0%	48.7	2.05%	-35%	0%	-35%	90-R2.5	83.35
	Total Account 343	7,409,221.60										
	Services											
345.00	Services	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%	45-R3	-
345.20	Over 1"	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%		-
	Total Account 345	-										
	Meters											
346.11	Meters - 1" & Under	166,729.12	0%	0%	0%	35.9	2.78%	0%	0%	0%	20-R3	6.48
346.12	Meters - Over 1"	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	-
346.20	Meter Boxes	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	-
	Total Account 346	166,729.12										
348.00	Hydrants	6,903.38	0%	0%	0%	43.2	2.31%	-30%	0%	-30%	60-R2.5	52.35
	TOTAL Trans. & Distr. Plant	15,932,976.42										
	General Plant											
371.00	General Plant Structures & Improvements	912,075.67	0%	0%	0%	20.1	4.99%	-10%	0%	-10%	30-R2	21.29
	Total Account 371	912,075.67										
372.00	Office Furniture & Equipment	21,154.31	0%	0%	0%	0.0	0.00%	0%	0%	0%	12-L3	2.90
372.10	Office-Elec. Equip/Computers	31,433.37	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	0.54
372.20	Computer Software	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	-
	Total Account 372	52,587.68										

Hawaii Water Service Company
Waikoloa Resort Operations-Water (WR)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

			Present Parameters					Proposed Parameters				
		Original	Net Salvage					Net Salvage			A.S.L./	Average
Account No.	Description	Cost 12-31-16	W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	W/ COR %	Gross Salv %	Gross COR %	Survivor Curve	Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
373.00	Transportation Equipment	316,881.98	0%	0%	0%	0.0	0.00%	10%	10%	0%	14-R5	5.40
374.00	Stores Equipment	-	0%	0%	0%	40.0	2.50%	0%	0%	0%	25-L2	-
375.00	Laboratory Equipment	15,332.46	0%	0%	0%	28.7	3.49%	0%	0%	0%	15-R2.5	4.42
376.00	Communication Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R2	-
377.00	Power Operated Equipment	180,580.66	0%	0%	0%	13.8	7.23%	10%	10%	0%	15-R2.5	7.12
378.00	Tools, Shop & Garage Equipment	29,894.09	0%	0%	0%	44.9	2.23%	0%	0%	0%	20-L1	11.60
379.00	Other General Plant	28,141.16	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-L2	3.66
	TOTAL General Plant	1,535,493.70										
	TOTAL DEPRECIABLE PLANT	25,091,850.18										
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	-										
302.00	Franchises & Consents	-										
303.00	Other Intangible Plant	-										
	TOTAL Intangible Plant	-										
	TOTAL NON-DEPRECIABLE PLANT	-										
	TOTAL UTILITY PLANT IN SERVICE	25,091,850.18										

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters: Net Salvage W/ COR % (d)	Present Parameters: Net Salvage Gross Salv % (e)	Present Parameters: Net Salvage Gross COR % (f)	Present Parameters: Implicit ASL (Yrs) (g)	Present Parameters: Implicit Depr Rate (h)	Proposed Parameters: Net Salvage W/ COR % (i)	Proposed Parameters: Net Salvage Gross Salv % (j)	Proposed Parameters: Net Salvage Gross COR % (k)	Proposed Parameters: A.S.L./ Survivor Curve (l)	Proposed Parameters: Average Remain. Life (m)
	DEPRECIABLE PLANT											
	Source of Supply											
311.00	Structures & Improvements	-	0%	0%	0%	0.0	0	-10%	0%	-10%	45-R4	-
	Total Account 311	-										
312.00	Collecting & Impounding Reservoirs	109,812.34	0%	0%	0%	0.0	0.00%	-20%	0%	-20%	75-R3	54.39
315.00	Wells	744,696.53	0%	0%	0%	50.0	2.00%	-35%	0%	-35%	48-R3	23.78
	TOTAL Source of Supply	854,508.87										
	Pumping Plant											
321.00	Pumping Structures & Improvements	-	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	45-R3	-
	Total Account 321	-										
324.00	Pumping Equipment	90,701.48	0%	0%	0%	0.0	0.00%	-20%	0%	-20%	30-R4	6.43
324.10	System Ctrl Computer Equip	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R3	-
	TOTAL Pumping Plant	90,701.48										
	Water Treatment Plant											
331.00	Water Treatment Structures & Improvements	-	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	45-R3	-
	Total Account 331	-										
332.00	Water Treatment Equipment	-	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	25-R4	-
	Total Account 332	-										
	TOTAL Water Treatment Plant	-										
	Transmission & Distribution Plant											
341.00	Trans. & Distr. Structures & Improvements	-	0%	0%	0%	0.0	0.00%	-15%	0%	-15%	30-R2.5	-
341.10	Trans. & Distr. Struct. & Improv. - Pavement	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R3	-
	Total Account 341	-										

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters: Net Salvage W/ COR %	Present Parameters: Net Salvage Gross Salv %	Present Parameters: Net Salvage Gross COR %	Present Parameters: Implicit ASL (Yrs)	Present Parameters: Implicit Depr Rate	Proposed Parameters: Net Salvage W/ COR %	Proposed Parameters: Net Salvage Gross Salv %	Proposed Parameters: Net Salvage Gross COR %	Proposed Parameters: A.S.L./ Survivor Curve	Proposed Parameters: Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
342.00	Reservoirs & Tanks	-	0%	0%	0%	0.0	0.00%	-15%	0%	-15%	50-R3	-
342.10	Reservoirs & Tanks - Tank Painting	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R4	-
	Total Reservoirs & Tanks	-										
	Transmission & Distribution Mains											
343.10	Mains-Asbestos Cement	-	0%	0%	0%	0.0	0.00%	-35%	0%	-35%	70-R3	
343.40	Mains-All Other	144,480.00	0%	0%	0%	50.0	2.00%	-35%	0%	-35%	80-R2.5	55.96
343.50	Mains-Ductile Iron	-	0%	0%	0%	0.0	0.00%	-35%	0%	-35%	90-R2.5	
	Total Account 343	144,480.00										
	Services											
345.00	Services	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%	45-R3	-
345.20	Over 1"	-	0%	0%	0%	0.0	0.00%	-40%	0%	-40%		-
	Total Account 345	-										
	Meters											
346.11	Meters - 1" & Under	5,411.62	0%	0%	0%	24.3	4.11%	0%	0%	0%	20-R3	12.80
346.12	Meters - Over 1"	-	0%	0%	0%	24.3	4.11%	0%	0%	0%	20-R3	-
346.20	Meter Boxes	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-R3	-
	Total Account 346	5,411.62										
348.00	Hydrants	-	0%	0%	0%	0.0	0.00%	-30%	0%	-30%	60-R2.5	-
	TOTAL Trans. & Distr. Plant	149,891.62										
	General Plant											
371.00	General Plant Structures & Improvements	-	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	30-R2	-
	Total Account 371	-										
372.00	Office Furniture & Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	12-L3	-
372.10	Office-Elec. Equip/Computers	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	6-L3	-
372.20	Computer Software		0%			0.0	0.00%	0%	0%	0%	6-L3	-
	Total Account 372	-										

Hawaii Water Service Company

Waikoloa Resort Irrigation-Water (WI)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

			Present Parameters					Proposed Parameters				
			Net Salvage				Implicit	Net Salvage			A.S.L./	Average
Account No.	Description	Original Cost 12-31-16	W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	W/ COR %	Gross Salv %	Gross COR %	Survivor Curve	Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
373.00	Transportation Equipment	-	0%	0%	0%	0.0	0.00%	10%	10%	0%	14-R5	-
374.00	Stores Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	25-L2	-
375.00	Laboratory Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R2.5	-
376.00	Communication Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R2	-
377.00	Power Operated Equipment	-	0%	0%	0%	0.0	0.00%	10%	10%	0%	15-R2.5	-
378.00	Tools, Shop & Garage Equipment	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	20-L1	-
379.00	Other General Plant	-	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-L2	-
	TOTAL General Plant	-										
	TOTAL DEPRECIABLE PLANT	1,095,101.97										
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	-										
302.00	Franchises & Consents	-										
303.00	Other Intangible Plant	-										
	TOTAL Intangible Plant	-										
	TOTAL NON-DEPRECIABLE PLANT	-										
	TOTAL UTILITY PLANT IN SERVICE	1,095,101.97										

Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Co-Water
Summary of ASL's and Net Salvage Percent
From Industy Depreciation Studies

Account No. (a)	Description (b)	Proposed ASL (e)	Cal Water Average	Avg of ASL's (f)	Sum of ASL's (g)	Summary of ASL's: Arizona American (h)	California Citizens (i)	New Mexico American (j)	Ca Water Dominguez (k)	Ca Water Metro (l)	Ca Water Valley (m)	Iowa American (n)	Illinois American (o)	Monarch Utilities (p)	Tidewater Utilities (q)	Pennichuck East Utilities (r)
	DEPRECIABLE PLANT															
	Source of Supply															
315.00	Wells & Springs	48-R3	43	42	457	50	45	33	35	45	50	30	65	45	30	29
316.00	Supply Mains		51	51	154				35	54	65					
	Total Source of Supply Plant															
	Pumping Plant															
321.00	Pumping Structures & Improvements	45-R3	29	38	413	38	36	40	33	29	26	50	50	40	35	37
321.10	Pumping Struct. & Improv. - Pavement		15	15	45				15	15	15					
324.00	Electric Pumping Eq.	30-R4	32	27	293	20	22	15	24	36	37	33	30	26	30	20
324.10	Pumping Equip-Telemetering				0											
	Total Pumping Plant															
	Water Treatement Plant															
331.00	WT Structures & Improvements	45-R3	42	41	369	34	33		32	45	50	50	45	45	35	
332.00	Treatment Equipment	25-R4	35	25	247	14	15	22	32	42	30	27	25	28		12
	Total Water Treatment Plant															
	Transmission & Distribution Plant															
341.00	Trans. & Distr. Structures & Improv	30-R2.5	50	48	190				30	70	50			40		
342.00	Distr. Reservoirs & Standpipes	50-R3	44	52	568	39	45	51	40	40	52	100	60	40	45	57
343.00	Mains-Asbestos Cement	70-R3	72	76	834	74	71	78	66	73	71	90	98	70	75	68
	Mains-All Other	80-R2.5														
	Mains-Ductile Iron	90-R2.5														
345.00	Services	45-R3	60	50	554	25	32	50	55	62	57	55	83	40	40	55
346.00	Meters	20-R3	31	24	236	17	23	15	40	30	33	14		20	25	19
348.00	Hydrants	60-R2.5	72	61	675	51	55	65	70	66	80	60	63	40	50	75
	Total Trans & Distr Plant															
	General Plant															
371.00	Adm & Gen Structures & Improvements	30-R2	24	31	312	36	34	35	10	33	28	20	40	35	40	
372.00	Office Furniture & Equipment	12-L3	15	16	165	13	13	20	8	19	18	24	28	12	10	
372.10	Computer & Preph	6-L3	8	7	65	6	5	7	6	8	11	7	7			8
372.20	Computer Software	6-L3	9	9	17					10	7					
373.00	Transportation	14-R5	8	9	61				9	8	8	6	7	8		15
377.00	Power Operated Eq	15-R2.5	17	16	172	18	15	20	11	20	20	18	10	15	15	10
378.00	(347.50) Tools, Shop & Garage Equipment	20-L1	19	21	214	20	20	30	16	22	18	28	27	18	15	

Table 6

Hawaii Water Service Co-Water
Summary of ASL's and Net Salvage Percent
From Industy Depreciation Studies

Account No. (a)	Description (b)	Proposed NS % (e)	Cal Water Average	Avg Net Salv % (f)	Sum of NS %'s (g)	Summary of Net Salvage: Arizona American (h)	California Citizens (i)	New Mexico American (j)	Ca Water Dominguez (k)	Ca Water Metro (l)	Ca Water Valley (m)	Iowa American (n)	Illinois American (o)	Monarch Utilities (p)	Tidewater Utilities (q)	Pennichuck East Utilities (r)
	DEPRECIABLE PLANT															
	Source of Supply															
315.00	Wells & Springs	-35%	-37%	-26%	-290%	-5%	-50%	-10%	-10%	-50%	-50%	-40%	-30%	-25%	-10%	-10%
316.00	Supply Mains		-11%	-11%	-33%				-3%	-20%	-10%					
	Total Source of Supply Plant															
	Pumping Plant															
321.00	Pumping Structures & Improvements	-10%	-11%	-13%	-143%	-10%	-15%	-10%	-3%	-15%	-15%	-25%	-25%	-10%	-10%	-5%
321.10	Pumping Struct. & Improv. - Pavement		0%	0%	0%				0%	0%	0%					
324.00	Electric Pumping Eq.	-20%	-10%	-14%	-125%	-10%	-5%			-10%	-10%	-25%	-35%	-10%	-5%	-15%
324.10	Pumping Equip-Telemetering				0%											
	Total Pumping Plant															
	Water Treatement Plant															
331.00	WT Structures & Improvements	-10%	-8%	-9%	-83%	0%	-5%		-3%	-10%	-10%	-25%	-20%	-10%	0%	
332.00	Treatment Equipment	-10%		-8%	-75%	0%	0%	0%	0%	0%	0%	-40%	-10%	-10%		-15%
	Total Water Treatment Plant															
	Transmission & Distribution Plant															
341.00	Trans. & Distr. Structures & Improv	-15%	-7%	-5%	-20%				-5%	-10%	-5%			0%		
342.00	Distr. Reservoirs & Standpipes	-15%	-27%	-19%	-205%	-10%	-10%	-30%	-30%	-25%	-25%	-20%	-20%	-15%	-10%	-10%
343.00	Mains-Asbestos Cement	-35%	-40%	-35%	-390%	-40%	-35%	-35%	0%	-60%	-60%	-50%	-50%	-30%	-10%	-20%
	Mains-All Other															
	Mains-Ductile Iron															
345.00	Services	-40%	-180%	-114%	-1255%	-40%	-40%	-75%	0%	-180%	-180%	-275%	-300%	-100%	-30%	-35%
346.00	Meters	0%	5%	-2%	-22%	-10%	-10%	5%	0%	5%	5%	-20%		0%	8%	-5%
348.00	Hydrants	-30%	-35%	-41%	-455%	-20%	-20%	-20%	-5%	-50%	-50%	-150%	-100%	-20%	-10%	-10%
	Total Trans & Distr Plant															
	General Plant															
371.00	Adm & Gen Structures & Improvements	-10%	-8%	-7%	-68%	-10%	-10%	0%	-3%	-10%	-10%	-5%	-10%	-10%	0%	
372.00	Office Furniture & Equipment	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	
372.10	Computer & Preph	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%			0%
372.20	Computer Software	0%	0%	0%	0%					0%	0%					
373.00	Transportation	10%	15%	13%	89%				15%	15%	15%	0%	20%	15%		9%
377.00	Power Operated Eq	10%	7%	11%	125%	5%	25%	20%	5%	5%	10%	-5%	30%	15%	0%	15%
378.00	(347.50) Tools, Shop & Garage Equipment	0%	0%	1%	8%	5%	0%	0%	0%	0%	0%	3%	0%	0%	0%	

SECTION 3

Hawaii Water Service Company
Waikoloa Village Water, Waikoloa Resort Water, Waikoloa Irrigation

General

This report sets forth the results of our study of the depreciable property of Hawaii Water Service Company – Waikoloa Water (Waikoloa Water or the "Company") as of December 31, 2016 and contains the basic parameters (recommended average service lives and life characteristics) for the proposed average remaining life depreciation rates. All average service lives set forth in this report are developed based upon plant in service as of December 31, 2016.

The scope of the study included an analysis of Waikoloa historical data through December 31, 2016, discussions with Company management and staff to identify prior and prospective factors affecting the Company's plant in service, as well as interpretation of past service life data experience and future life expectancies to determine the appropriate average service lives of the Company's surviving plant. The service lives and life characteristics resulting from the in-depth study were utilized together with the Company's plant in service and book depreciation reserve to determine the recommended Average Remaining Life (ARL) depreciation rates related to the Company's plant in service as of December 31, 2016.

In preparing the study, the Company's historical investment data were studied using various service life analysis techniques. Further, discussions were held with the Waikoloa's management to obtain an overview of the Company's facilities and to discuss the general scope of operations together with other factors which could have a

bearing on the service lives of the Company's property. Finally, the study results were tempered by information gathered during plant inspection tours of a representative portion of the Company's property.

The Company maintains property records containing a summary of its fixed capital investments by property account. This investment data was analyzed and summarized by property group and/or sub group and vintage, then utilized as a basis for the various depreciation calculations.

Depreciation Study Overview

There are numerous methods utilized to recover property investment depending upon the goal. For example, accelerated methods such as double declining balance and sum of years digits are methods used in tax accounting to motivate additional investments. Broad Group (BG) and Equal Life Group (ELG) are both Straight Line Grouping Procedures recognized and utilized by various regulatory jurisdictions depending upon the policy of the specific agency.

The Straight Line Group Method of depreciation utilized in this study to develop the recommended depreciation rates is the Broad Group Procedure together with the Average Remaining Life Technique. The use of this procedure and technique is based upon recovering the net book cost (original cost less book reserve) of the surviving plant in service over its estimated remaining useful life. Any variance between the book reserve and an implied theoretical calculated reserve is compensated for under this procedure. That is, as the Company's book reserve increases above or declines below the theoretical reserve at a specific point in time, the Company's average remaining life depreciation rate in subsequent years will be increased or decreased to compensate for the variance, thereby, assuring full recovery of the Company's investment by the end of

the property's life.

The Company, like any other business, includes as an annual operating expense an amount which reflects a portion of the capital investment which was consumed in providing service during the accounting period. The annual depreciation amount to be recognized is based upon the remaining productive life over which the undepreciated capital investment needs to be recovered. The determination of the productive remaining life for each property group usually includes an in-depth study of past experience in addition to estimates of future expectations.

Annual Depreciation Accrual

Through the utilization of the Average Remaining Life Technique, the Company will recover the un-depreciated fixed capital investment in the appropriate amounts as annual depreciation expense in each year throughout the remaining life of the property. The procedure incorporates the future life expectancy of the property, the vintaged surviving plant in service, and estimated net salvage, together with the book depreciation reserve balance to develop the annual depreciation rate for each property account. Accordingly, the ARL technique meets the objective of providing a straight line recovery of the un-depreciated fixed capital property investment.

As indicated, the use of the Average Remaining Life Technique results in charging the appropriate annual depreciation amounts over the remaining life of the property to insure full recovery by the end of the life of the property. The annual expense is calculated on a Straight Line Method rather than by the previously mentioned, "sum of the years digits" or "double declining balance" methods, etc. The "group" refers to the method of calculating annual depreciation on the summation of the investment in any one depreciable group or plant account rather than calculating

depreciation for each individual unit.

Under Broad Group Depreciation some units may be over depreciated and other units may be under depreciated at the time when they are retired from service, but overall, the account is fully depreciated when average service life is attained. By comparison, Equal Life Group depreciation rates are designed to fully accrue the cost of the asset group by the time of retirement. For both the Broad Group and Equal Life Group Procedures the full cost of the investment is credited to plant in service when the retirement occurs and likewise the depreciation reserve is debited with an equal retirement cost. No gain or loss is recognized at the time of property retirement because of the assumption that the retired property was at average service life.

Group Depreciation Procedures

Group depreciation procedures are utilized to depreciate property when more than one item of property is being depreciated. Such a procedure is appropriate because all of the items within a specific group typically do not have identical service lives, but have lives which are dispersed over a range of time. Utilizing a group depreciation procedure allows for a condensed application of depreciation rates to groups of similar property in lieu of extensive depreciation calculations on an item by item basis. The two more common group depreciation procedures are the Broad Group (BG) and Equal Life Group (ELG) approach.

In developing depreciation rates using the Broad Group procedure, the annual depreciation rate is based on the average life of the overall property group, which is then applied to the group's surviving original cost investment. A characteristic of this procedure is that retirements of individual units occurring prior to average service life will be under depreciated, while individual units retired after average service life will be

over depreciated when removed from service, but overall, the group investment will achieve full recovery by the end of the life of the total property group. That is, the under recovery occurring early in the life of the account is balanced by the over recovery occurring subsequent to average service life. In summary, the cost of the investment is complete at the end of the property's life cycle, but the rate of recovery does not match the consumption pattern which was used to provide service to the company's customers.

Under the average service life procedure, the annual depreciation rate is calculated by the following formula:

$$\text{Annual Accrual Rate, Percent} = \frac{100\% - \text{Salvage}}{\text{Average Service Life}} \times 100$$

The application of the broad group procedure to life span groups results in each vintage investment having a different average service life. This circumstance exists because the concurrent retirement of all vintages at the anticipated retirement year results in truncating and, therefore, restricting the life of each successive years vintage investment. An average service life is calculated for each vintage investment in accordance with the above formula. Subsequently, a composite service life and depreciation rate is calculated relative to all vintages within the property group by weighting the life for each vintage by the related surviving vintage investment within the group.

In the Equal Life Group, the property group is subdivided, through the use of plant life tables, into equal life groups. In each equal life group, portions of the overall property group includes that portion which experiences the life of the specific sub-group. The relative size of each sub-group is determined from the overall group life

characteristic (property dispersion curve). This procedure both overcomes the disadvantage of voluminous record requirements of unit depreciation, as well as eliminates the need to base depreciation on overall lives as required under the broad group procedure. The application of this procedure results in each sub-group of the property having a single life. In this procedure, the full cost of short lived units is accrued during their lives leaving no under accruals to be recovered by over accruals on long lived plant. The annual depreciation for the group is the summation of the depreciation accruals based on the service life of each Equal Life Group.

The ELG Procedure is viewed as being the more definitive procedure for identifying the life characteristics of utility property and as a basis for developing service lives and depreciation rates, nevertheless, the Broad Group procedure is more widely utilized throughout the utility industry by regulatory commissions as a basis for depreciation rates. That is, the ELG Procedure is more definitive because it allocates the capital cost of a group property to annual expense in accordance with the consumption of the property group providing service to customers. In this regard, the company's customers are more appropriately charged with the cost of the property consumed in providing them service during the applicable service period. The more timely return of plant cost is accomplished by fully accruing each unit's cost during its service life, thereby not only reducing the risk of incomplete cost recovery, but also resulting in less return on rate base over the life of a depreciable group. The total depreciation expense over the life of the property is the same for all procedures which allocate the full capital cost to expense, but at any specific point in time, the depreciated original cost is less under the ELG procedure than under the BG procedure. This circumstance exists because under the equal life group procedure, the rate base is not

maintained at a level of greater than the future service value of the surviving plant as is the case when using the average service life procedure. Consequently, the total return required from the ratepayers is less under the ELG procedure.

While the Equal Life Group procedure has been known to depreciation experts for many years, widespread interest in applying the procedure developed only after high speed electronic computers became available to perform the large volume of arithmetic computations required in developing ELG based depreciation lives and rates. The table on the following page illustrates the procedure for calculating equal life group depreciation accrual rates and summarizes the results of the underlying calculations. Depreciation rates are determined for each age interval (one year increment) during the life of a group of property which was installed in a given year or vintage group. The age of the vintage group is shown in column (A) of the ELG table. The percent surviving at the beginning of each age interval is determined from the Iowa 10-R3 survivor curve which is set forth in column (B). The percent retired during each age interval, as shown in column (C), is the difference between the percent surviving at successive age intervals. Accordingly, the percentage amount of the vintage group retired defines the size of each equal life group. For example, during the interval 3 1/2 to 4 1/2, 1.93690 percent of the vintage group is retired at an average age of four years. In this case, the 1.93690 percent of the group experiences an equal life of four years. Likewise, 3.00339 percent is retired during the interval 4 1/2 to 5 1/2 and experiences a service life of five years. Furthermore, 4.42969 percent experiences a six-year life; etc. Calculations are made for each age interval from the zero age interval through the end of the life of the vintage group. The average service life for each age interval's equal life group is shown in column (E) of the table.

XYZ UTILITY COMPANY
CALCULATION OF ASL, ARL AND ACCRUED DEPRECIATION FACTORS — Table 7
BASED UPON AN IOWA 10-R3 CURVE USING THE EQUAL LIFE GROUP (ELG) PROCEDURE

							EQUAL LIFE GROUP PROCEDURE			
AGE AT BEGIN OF INTERVAL	LIFE TABLE BEGIN OF INTERVAL	RETIREMENT DURING INTERVAL	AVERAGE SURVIVING	AGE OF AMOUNT RETIRED	AMOUNT FOR EACH LIFE GROUP	AMOUNT FOR REMAINING LIFE GROUPS	AVERAGE SERVICE LIFE	AVERAGE REMAINING LIFE	ELG/ARL DEPR RATE	ACCRUED DEPR RES FACTOR
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
0.0	1.0000000	0.0009198	0.9995401	0.25	0.0009198	0.0583036	8.57	8.57	11.67	0.0000000
0.5	0.9990802	0.0033314	0.9974145	1.0	0.0033314	0.1131019	8.82	8.32	11.34	0.0566975
1.5	0.9957488	0.0065393	0.9924792	2.0	0.0032697	0.1098013	9.04	7.54	11.06	0.1659501
2.5	0.9892095	0.0117037	0.9833577	3.0	0.0039012	0.1062159	9.26	6.76	10.80	0.2700337
3.5	0.9775058	0.0193690	0.9678213	4.0	0.0048422	0.1018442	9.50	6.00	10.52	0.3683062
4.5	0.9581368	0.0300339	0.9431199	5.0	0.0060068	0.0964196	9.78	5.28	10.22	0.4600565
5.5	0.9281029	0.0442969	0.9059545	6.0	0.0073828	0.0897248	10.10	4.60	9.90	0.5447146
6.5	0.8838060	0.0631367	0.8522377	7.0	0.0090195	0.0815237	10.45	3.95	9.57	0.6217794
7.5	0.8206693	0.0876232	0.7768577	8.0	0.0109529	0.0715375	10.86	3.36	9.21	0.6906424
8.5	0.7330461	0.1166879	0.6747022	9.0	0.0129653	0.0595783	11.32	2.82	8.83	0.7505770
9.5	0.6163582	0.1431836	0.5447664	10.0	0.0143184	0.0459365	11.86	2.36	8.43	0.8010714
10.5	0.4731746	0.1533568	0.3964962	11.0	0.0139415	0.0318066	12.47	1.97	8.02	0.8423003
11.5	0.3198178	0.1363216	0.2516570	12.0	0.0113601	0.0191557	13.14	1.64	7.61	0.8753616
12.5	0.1834962	0.0975199	0.1347363	13.0	0.0075015	0.0097249	13.85	1.35	7.22	0.9022159
13.5	0.0859763	0.0559043	0.0580242	14.0	0.0039932	0.0039775	14.59	1.09	6.85	0.9254232
14.5	0.0300720	0.0244398	0.0178521	15.0	0.0016293	0.0011663	15.31	0.81	6.53	0.9473077
15.5	0.0056322	0.0055324	0.0028660	16.0	0.0003458	0.0001788	16.03	0.53	6.24	0.9667657
16.5	0.0000998	0.0000998	0.0000499	17.0	0.0000059	0.0000029	17.00	0.50	5.88	0.9705882
17.5	0.0000000	0.0000000	0.0000000	18.0	0.0000000	0.0000000				
		1.0000000				1.0000000				

The amount to be accrued annually for each equal life group is equal to the percentage retired in the equal life group divided by its service life. In as much as

additions and retirements are assumed, for calculation purposes, to occur at midyear only one-half of the equal life group's annual accrual is allocated to expense during its first and last years of service life. The accrual amount for the property retired during age interval 0 to .5 must be equal to the amount retired to insure full recovery of that component during that period. The accruals for each equal life group during the age intervals of the vintage group's life cycle are shown in column (F). The total accrual for a given year is the summation of the equal life group accruals for that year. For example, the total accrual for the second year, as shown in column (G), is 11.31019 percent and is the sum of all succeeding years remaining equal life group accruals plus one half of the current years life group accrual listed in column (F). For the zero age interval year, the total accrual is equal to one half of the sum of all succeeding years remaining equal life accruals plus the amount for the zero interval equal life group accrual. The one half year accrual for the zero age interval is consistent with the half year convention relative to property during its installation year. The sum of the annual accruals for each age interval contained in column (G) total to 1.000 demonstrating that the developed rates will recover 100% of plant no more and no less. The annual accrual rate which will result in the accrual amount is the ratio of the accrual amount (11.31019 percent) to the average percent surviving during the interval, column (D), (99.74145 percent), which is a rate of 11.34% (column J). Column (J) contains a summary of the accrual rates for each age interval of the property groups life cycle based upon an Iowa 10-R3 survivor curve.

Remaining Life Technique

In the Average Remaining Life depreciation technique, the annual accrual is calculated according to the following formula where, (A) the annual depreciation for

each group equals, (D) the depreciable cost of plant less (U) the accumulated provision for depreciation less (S) the estimated future net salvage, divided by (R) the composite remaining life of the group:

$$A = \frac{D - U - S}{R}$$

The annual accrual rate (a) is expressed as a percentage of the depreciable plant balance by dividing the equation by (D) the depreciable cost of plant times 100:

$$(a) = \frac{D - U - S}{R} \times \frac{1}{D} \times 100$$

As further indicated by the equation, the accumulated provision for depreciation by vintage is required in order to calculate the remaining life depreciation rate for each property group. In practice, most often such detail is not available; therefore, composite remaining lives are determined for each depreciable group, (i.e., property account).

The remaining life for a depreciable group is calculated by first determining the remaining life for each vintage year in which there is surviving investment. This is accomplished by solving the area under the survivor curve selected to represent the average life and life characteristic of the property account. The remaining life for each vintage is determined by dividing (D) the depreciable cost of each vintage, by (L) its average service life, and multiplying this ratio by its average remaining life (E). The composite remaining life of the group (R) equals the sums of products divided by the sum of the quotients:

$$R\ Group = \frac{\sum \frac{D/L \times E}{}}{\sum D/L}$$

The account level accumulated provision for depreciation, which was the basis for developing the composite average remaining life accrual and annual depreciation rate

for each property account as per this report, was obtained from the Company's books and records.

Salvage

Net salvage is the difference between gross salvage, or what is received when an asset is disposed of, and the cost of removing it from service. Salvage experience is normally included with the depreciation rate so that current accounting periods reflect a proportional share of the ultimate abandonment and removal cost or salvage received at the end of the property service life. Net salvage is said to be positive if gross salvage exceeds the cost of removal, but if cost of removal exceeds gross salvage the result is then negative salvage.

The cost of removal includes such costs as demolishing, dismantling, tearing down, disconnecting or otherwise removing plant, as well as normal environmental clean up costs associated with the property. Salvage includes proceeds received for the sale of plant and materials or the return of equipment to stores for reuse.

Net salvage experience is studied for a period of years to determine the trends which have occurred in the past. These trends are considered together with any changes that are anticipated in the future to determine the future net salvage factor for remaining life depreciation purposes. The net salvage percentage is determined by relating the total net positive or negative salvage to the book cost of the property investment.

Many retired assets generate little, if any, positive salvage. Instead, many of the Company's asset property groups generate negative net salvage at end of their life as a result of the cost of removal (retirement).

The method used to estimate the retirement cost is a standard analysis

approach which is used to identify a company's historical experience with regard to what the end of life cost will be relative to the cost of the plant when first placed into service. This information, along with knowledge about the average age of the historical retirements that have occurred to date, enables the depreciation professional to estimate the level of retirement cost that will be experienced by the Company at the end of each property group's useful life. The study methodology utilized has been extensively set forth in depreciation textbooks and has been the accepted practice by depreciation professionals for many decades. Furthermore, the cost of removal analysis approach is the current standard practice used for mass assets by essentially all depreciation professionals in estimating future net salvage for the purpose of identifying the applicable depreciation for a property group. There is a direct relationship to the installation of specific plant in service and its corresponding removal in that the installation is its beginning of life cost while the removal is its end of life cost. Also, it is important to note that average remaining life based depreciation rates incorporate future net salvage which is routinely more representative of recent versus long-term past average net salvage.

The Company's historical net salvage experience was analyzed to identify the historical net salvage factor for each applicable property group. This analysis routinely identifies that historical retirements have occurred at average ages significantly prior to the property group's average service life. This occurrence of historical retirements, at an age which is significantly younger than the average service life of the property category, clearly demonstrates that the historical data does not appropriately recognize the true level of retirement cost at the end of the property's useful life. An additional level of cost to retire will occur due to the passage of time until all the current in service

plant is retired at end of life. That is, the level of retirement costs will increase over time until the average service life is attained. The estimated additional inflation, within the estimate of retirement cost, is related to those additional year's cost increases (primarily higher labor costs over time) that will occur prior to the end of the property group's average life.

To provide an additional explanation of the issue, several general principles surrounding property retirements and related net salvage need to be highlighted. Those are that as property continues to age, the retirement of assets, if generating positive salvage when retired, will typically generate a lower percent of positive salvage. By comparison, if the class of property is one that typically generates negative net salvage (cost of removal), with increasing age at retirement the negative percentage as related to original cost will typically be greater. This situation is routinely driven by the higher labor cost with the passage of time.

Next, a simple example will aid in a better understanding of the above discussed net salvage analysis and the required adjustment to the historical analysis results. Assume the following scenario. A company has two (2) cars, Car #1 and Car #2, each purchased for $20,000. Car #1 is retired after 2 years and Car #2, is retired after 10 years. Accordingly, the average life of the two cars is six (6) years (2 Yrs. Plus 10 Yrs./2). Car #1 generates 75% salvage or $15,000 when retired and Car #2 generates 5% salvage or $1,000 when retired.

Unit	Cost	Ret. Age (Yrs)	% Salv.	Salvage Amount
Car # 1	$20,000	2	75%	$15,000
Car # 2	20,000	10	5%	1,000
Total	40,000	6	40%	16,000

Assume an analysis of the experienced net salvage at year three (3). Based upon the Car #1 retirement, which was retired at a young age (2 Yrs.) as compared to the average six (6) year life of the property group, the analysis indicates that the property group would generate 75% salvage. This analysis indication is incorrect and is the result of basing the estimate on incomplete data. That is, the estimate is based upon the salvage generated from a retirement that occurred at an age which is far less than the average service life of the property group. The actual total net salvage, that occurred over the average life of the assets (which experienced a six (6) year average life for the property group) is 40% as opposed to the initial incorrect estimate of 75%.

This is exactly the situation with the majority of the Company's historical net salvage data except that most of the Company's plant property groups routinely experience negative net salvage (cost of removal) as opposed to positive salvage.

The total end of life net salvage amount must be incorporated in the development of annual depreciation rates to enable the Company to fully recover its total plant life costs. Otherwise, upon retirement of the plant, the Company will incur end of life costs without having recovered those plant related costs from the customers who benefitted from the use of the expired plant.

With regard to location type properties (e.g. generation facilities, etc.) a company will routinely experience both interim and terminal net salvage. Interim net salvage occurs in conjunction with interim retirements that occur throughout the life of the asset group. This net salvage activity (routinely and largely cost of removal) is attributable to the removal of components within the Company's facilities to enable the placement of a new asset component. Interim net salvage is routinely negative given the care required in removing the defective component so as not to damage the remaining plant in

service. Interim net salvage is applicable to the estimated interim retirement assets.

The terminal net salvage component is attributable to the end of life costs incurred (less any gross salvage received) to disconnect, remove, demolish and/or dispose of the operating asset. Terminal net salvage is attributable to those assets remaining in service subsequent to the occurrence of interim retirements.

The total net salvage incorporated into the depreciation rate for location type plant account investments is the sum of interim and terminal net salvage. Both of the items must be incorporated in the development of annual depreciation rates to enable the Company to fully recover its total plant life costs. Otherwise, upon retirement of the plant, the Company will incur end of life costs without having recovered those plant related costs from the customers who benefitted from the use of the expired facility.

Service Lives

Several factors contribute to the length of time or average service life which the property achieves. The three (3) major categories under which these factors fall are: (1) physical; (2) functional, and; (3) contingent casualties.

The physical category includes such things as deterioration, wear and tear and the action of the natural elements. The functional category includes inadequacy, obsolescence and requirements of governmental authorities. Obsolescence occurs when it is no longer economically feasible to use the property to provide service to customers or when technological advances have provided a substitute of superior performance. The remaining factor of contingent casualties relates to retirements caused by accidental damage or construction activity of one type or another.

In performing the life analysis for any property being studied, both past experience and future expectations must be considered in order to fully evaluate the

circumstances which may have a bearing on the remaining life of the property. This ensures the selection of an average service life which best represents the expected life of each property investment.

Survivor Curves

The preparation of a depreciation study or theoretical depreciation reserve typically incorporates smooth curves to represent the experienced or estimated survival characteristics of the property. The "smoothed" or standard survivor curves generally used are the family of curves developed at Iowa State University which are widely used and accepted throughout the utility industry.

The shape of the curves within the Iowa family are dependent upon whether the maximum rate of retirement occurs before, during or after the average service life. If the maximum retirement rate occurs earlier in life, it is a left (L) mode curve; if occurring at average life, it is a symmetrical (S) mode curve; if it occurs after average life, it is a right (R) mode curve. In addition, there is the origin (O) mode curve for plant which has heavy retirements at the beginning of life.

Many times, actual Company data has not completed its life cycle, therefore, the survivor table generated from the Company data is not extended to zero percent surviving. This situation requires an estimate be made with regard to the remaining segment of the property group's life experience. Furthermore, actual Company experience is often erratic, making its utilization for average service life estimating difficult. Accordingly, the Iowa curves are used to both extend Company experience to zero percent surviving as well as to smooth actual Company data.

Study Procedures

Several study procedures were used to determine the prospective service lives

recommended for the Company's plant in service. These include the review and analysis of historical retirements, current and future construction, historical experience and future expectations of salvage and cost of removal as related to plant investment. Service lives are affected by many different factors, some of which can be obtained from studying plant experience, others which may rely heavily on future expectations. When physical aspects are the controlling factor in determining the service life of property, historical experience is a valuable tool in selecting service lives. In the case where changing technology or a less costly alternative develops, then historical experience is of lesser value.

While various methods are available to study historical data, the principal methods utilized to determine average service lives for a Company's property are the Retirement Rate Method, the Simulated Plant Record Method, the Life Span Method, and the Judgment Method.

Retirement Rate Method - The Retirement Rate Method uses actual Company retirement experience to develop a survivor curve (Observed Life Table) which is used to determine the average service life being experienced in the account under study. Computer processing provides the opportunity to review various experience bands throughout the life of the account to observe trends and changes. For each experience band studied, the "observed life table" is constructed based on retirement experience within the band of years. In some cases, the total life of the account has not been achieved and the experienced life table, when plotted, results in a "stub curve." It is this "stub curve" or total life curve, if achieved, which is matched or fitted to a standard Survivor curve. The matching process is performed both by computer analysis, using a least squares technique, and by manually plotting observed life tables to which smooth

curves are fitted. The fitted smooth curve provides the basis to determine the average service life of the property group under study.

Simulated Balances Method - In this method of analysis, simulated surviving balances are determined for each balance included in the test band by multiplying each proceeding year's original gross additions installed by the Company by the appropriate factor of each Standard Survivor Curve, summing the products, and comparing the results with the related year end plant balance to determine the "best fitting" curve and life within the test period. Various test bands are reviewed to determine trends or changes to indicated service lives in various bands of years. By definition, the curve with the "best fit" is the curve which produces simulated plant balances that most closely matches the actual plant balances as determined by the sum of the "least squares". The sum of the "least squares" is arrived at by starting with the difference between the simulated balances and the actual balance for a given year, squaring the difference, and the curve which produces the smallest sum (of squared difference) is judged to be the "best fit".

Period Retirements Method - The application of the Period Retirements Method is similar to the "Simulated Plant Balances" Method, except the procedure utilizes a Standard Survivor Curve and service life to simulate annual retirements instead of balances in performing the "least squares" fitting process during the test period. This procedure does tend to experience wider fluctuations due to the greater variations in level of experienced retirements versus additions and balances thereby producing greater variation in the study results.

Life Span Method - The Life Span or Forecast Method is a method utilized to study various accounts in which the expected retirement dates of specific property or

locations can be reasonably estimated. In the Life Span Method, an estimated probable retirement year is determined for each location of the property group. An example of this would be a structure account, in which the various segments of the account are "life spanned" to a probable retirement date which is determined after considering a number of factors, such as management plans, industry standards, the original construction date, subsequent additions, resultant average age and the current - as well as the overall - expected service life of the property being studied. If, in the past, the property has experienced interim retirements, these are studied to determine an interim retirement rate. Otherwise, interim retirement rate parameters are estimated for properties which are anticipated to experience such retirements. The selected interim service life parameters (Iowa curve and life) are then used with the vintage investment and probable retirement year of the property to determine the average remaining life as of the study date.

Judgment Method - Standard quantitative methods such as the Retirement Rate Method, Simulated Plant Record Method, etc. are normally utilized to analyze a Company's available historical service life data. The results of the analysis together with information provided by management as well as judgment are utilized in estimating the prospective recommended average service lives. However, there are some circumstances where sufficient retirements have not occurred, or where prospective plans or guidelines are unavailable. In these circumstances, judgment alone is utilized to estimate service lives based upon service lives used by other utilities for this class of plant as well as what is considered to be a reasonable life for this plant giving consideration to the current age and use of the facilities.

SECTION 4

Hawaii Water Service Company
Waikoloa Village Water, Waikoloa Resort, Waikoloa Irrigation

Study Analysis Results & Recommendations

ACCOUNT – 311.00 Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $293,874
Average Age of Survivors = 16.64 years
Original Gross Additions = $293,874
Oldest Surviving vintage = 1974
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 45-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The Waikoloa entities have both potable wells and irrigation wells. Numerous of the sites include relatively small structures to house well site and pumping related equipment. The Company's service area is relatively compact being only approximately a few miles square, however the terrain in which the wells are located is rugged in some cases requiring all wheel drive vehicles to access. Each of the sites is visited on a regular schedule to insure proper monitoring and maintenance.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 44.5

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R4

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.34%	2.25%
Av. Remaining Life	28.6 years	N/A

ACCOUNT – 312.00 Collecting & Impounding Reservoirs

Historical Experience

Plant Statistics
Plant Balance = $109,812
Average Age of Survivors = 21.50 years
Original Gross Additions = $109,812
Oldest Surviving vintage = 1995
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 75-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: -20%

Plant Considerations/Future Expectations

The investment contained in this property group is related to an irrigation lake liner.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): N/A

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 75-R3

Future Net Salvage: -20%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	0.37%	0.00%
Av. Remaining Life	54.4 years	N/A

ACCOUNT – 315.00 Wells

Historical Experience

Plant Statistics
Plant Balance = $5,508,562
Average Age of Survivors = 18.36 years
Original Gross Additions = $5,510,044
Oldest Surviving vintage =1974
Retirements = $1,482 or 0% of historical additions.
Average Age of Retirements = 40.5 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 29 – 65 Years
Average of Industry Data: 42 Years
California Water Data Avg: 43 Years

Estimate Average Service Life: 48-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -5% to -50%
Average of Industry Data: -26%
California Water Data Avg: -37%

Estimate Future Net Salvage: -35%

Plant Considerations/Future Expectations

The investments contained within this property group are related to a variety of potable and irrigation wells and appurtenant equipment located throughout the company's service territory. The Waikoloa and Kona entities have 13 potable wells and 5 irrigation wells. The potable water well are typically in the range of 1,200 to 1,500 plus feet in depth. The irrigation wells are shallower generally being 100 feet plus or minus in depth. Numerous of the sites include relatively small structures to house well site and pumping related equipment. The Company's service area is relatively compact being only approximately a few miles square, however the terrain in which the wells are located is somewhat rugged in some cases requiring all wheel drive vehicles to access. Each of the sites is visited on a regular schedule to insure proper monitoring and maintenance. The typical well site includes the well, a structure to house the controls, the well head, and in various cases a portable generator. A majority of the wells are equipped with submersible pumps.

The property group has experienced an average growth rate of approximately 8 percent over the years since the 1974 inception of the account. The Company anticipates adding to and upgrading its supply source during the coming years.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 49.6

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 48-R3

Future Net Salvage: -35%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.15%	2.02%
Av. Remaining Life	31.0 years	N/A

ACCOUNT – 321.00 Pumping Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $1,782,027
Average Age of Survivors = 3.48 years
Original Gross Additions = $1,783,441
Oldest Surviving vintage = 2010
Retirements = $1,413 or .1% of historical additions.
Average Age of Retirements = 5.5 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 25 – 50 Years
Average of Industry Data: 38 Years
California Water Data Avg: 29 Years

Estimate Average Service Life: 45-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -3% to -25%
Average of Industry Data: -13%
California Water Data Avg: -11%

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The Waikoloa entities have both potable wells and irrigation wells. Numerous of the sites include relatively small structures to house well site and pumping related equipment. The Company's service area is relatively compact being only approximately a few miles square, however the terrain in which the wells are located is rugged in some cases requiring all wheel drive vehicles to access. Each of the sites is visited on a regular schedule to insure proper monitoring and maintenance.

The Company's pumping facilities vary in size depending upon the specific requirements, but in most circumstances, are smaller facilities and are principally of basic masonry block construction. Future repairs and/or upgrades, related to the building components such as heating, roof covering, doors, windows, etc. are anticipated to limit the overall average useful life of the property group investments.

The property group investment is generally split between the Company's Village Water and Resort Water. The property group investment has grown dramatically within the past decade with a large portion of the investment being related to Well #7. Upgrades and replacement of facilities can be anticipated during future years.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 67.4

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.37%	1.48%
Av. Remaining Life	41.6 years	N/A

ACCOUNT – 324.00 Pumping Equipment

Historical Experience

Plant Statistics
Plant Balance = $6,001,787
Average Age of Survivors = 12.19 years
Original Gross Additions = $6,333,250
Oldest Surviving vintage = 1997
Retirements = $403,917or 6.4% of historical additions.
Average Age of Retirements = 23.7 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 15 – 37 Years
Average of Industry Data: 27 Years
California Water Data Avg: 32 Years

Estimate Average Service Life: 30-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -5% to -35%
Average of Industry Data: -14%
California Water Data Avg: -10%

Estimate Future Net Salvage: -20%

Plant Considerations/Future Expectations

The Waikoloa entities have both potable wells and irrigation wells. Numerous of the sites include relatively small structures to house well site and pumping related equipment. This property group investment is related to pumping facilities located that the Company various well sites throughout its service territory. The Company's service area is relatively compact being only approximately a few miles square, however the terrain in which the wells are located is rugged in some cases requiring all wheel drive vehicles to access. Each of the sites is visited on a regular schedule to insure proper monitoring and maintenance.

The potable water wells are equipped with pumps ranging from 200 to 600 hp depending upon the well capacity and flow requirements. By comparison, the irrigations system wells are equipment with far smaller pumping equipment (ranging from 15 to 25 hp) due to the far lower supply flow requirements and much shallower wells.

While a sizable portion of the well sites are equipped with vertical turbine pumps and associated control equipment, others are equipped with submersible pumps that experience and/or require higher levels of maintenance and replacement.

Life Analysis Method: Retirement Rate Analysis (Actuarial) - Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 28.5

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R4

Future Net Salvage: -20%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.77%	3.51%
Av. Remaining Life	18.4 years	N/A

ACCOUNT – 324.10 System Control Computer Equipment

Historical Experience

Plant Statistics
Plant Balance = $131,306
Average Age of Survivors = 4.75 years
Original Gross Additions = $90,166
Oldest Surviving vintage = 2009
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 10-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This investment is related to Telemetry property installed to control the water operating property. Telemetry equipment is electronic based facilities that are subject to ongoing upgrades and obsolescence.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 40.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 10-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	16.20%	2.50%
Av. Remaining Life	5.7 years	N/A

ACCOUNT – 331.00 Water Treatment Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $109,964
Average Age of Survivors = 26.46 years
Original Gross Additions = $109,964
Oldest Surviving Vintage = 1974
Retirements = $0, or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 32 – 50 Years
Average of Industry Data: 41 Years
California Water Data Avg: 42 Years

Estimate Average Service Life: 45-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -3% to -25%
Average of Industry Data: -9%
California Water Data Avg: -8%

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

This category of property includes the investments related to the operating water structures such as plant structures, control building, aeration chambers, leach field, etc.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 50

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.68%	2.00%
Av. Remaining Life	21.2 years	N/A

ACCOUNT – 332.00 Water Treatment Equipment

Historical Experience

Plant Statistics
Plant Balance = $18,508
Average Age of Survivors = 18.85 years
Original Gross Additions = $24,694
Oldest Surviving Vintage = 1974
Retirements = $6,186, or 25.1% of historical additions.
Average Age of Retirements = 18.9 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 12 – 42 Years
Average of Industry Data: 25 Years
California Water Data Avg: 35 Years

Estimate Average Service Life: 25-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -40%
Average of Industry Data: -8%
California Water Data Avg: 0%

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The investments in this property account are related to a limited level of disinfection related equipment. The property is updated on an as needed basis.

Life Analysis Method: Retirement Rate Analysis (Actuarial) - Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 60.5

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 25-R4

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.88%	1.65%
Av. Remaining Life	19.3 years	N/A

ACCOUNT – 341.00 T & D Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $277,579
Average Age of Survivors = 4.12 years
Original Gross Additions = $232,197
Oldest Surviving Vintage = 2009
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 30 – 70 Years
Average of Industry: 48 Years
California Water Data Avg: 50 Years

Estimate Average Service Life: 30-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -10%
Average of Industry Data: -5%
California Water Data Avg: -7%

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

The limited investment in this property group is related to emergency equipment, fencing, etc. that is upgraded on an as needed basis.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 30.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R2.5

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	4.00%	3.33%
Av. Remaining Life	26.2 years	N/A

ACCOUNT – 341.10 T & D Structures & Improvements-Paving

Historical Experience

Plant Statistics
Plant Balance = $39,946
Average Age of Survivors = 7.50 years
Original Gross Additions = $0
Oldest Surviving Vintage = 2009
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0.0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 15-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

The investment in this property group is related to paving at the Company's Water Operations facilities.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 30.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	10.64%	3.33%
Av. Remaining Life	8.1 years	N/A

ACCOUNT – 342.00 Reservoirs & Tanks

Historical Experience

Plant Statistics
Plant Balance = $9,627,473
Average Age of Survivors = 16.09 years
Original Gross Additions = $7,896,104
Oldest Surviving vintage = 1974
Retirements = $1,592 or 0.0% of historical additions.
Average Age of Retirements = 16.4 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 39 – 100 Years
Average of Industry Data: 52 Years
California Water Data Avg: 44 Years

Estimate Average Service Life: 50-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -10% to -30%
Average of Industry Data: -19%
California Water Data Avg: -27%

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

The Waikoloa entities have storage tanks ranging from 500,000 to more than a million gallons as well as several smaller capacity tanks. The tanks are typically of steel construction.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 39.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 50-R3

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.20%	2.56%
Av. Remaining Life	35.1 years	N/A

ACCOUNT – 342.10 Reservoirs & Tanks-Painting

Historical Experience

Plant Statistics
Plant Balance = $254,544
Average Age of Survivors = 5.50 years
Original Gross Additions = $254,544
Oldest Surviving Vintage = 2011
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 15-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

The Company's limited investment in this account is related to tank painting.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 40.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R4

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	9.00%	2.50%
Av. Remaining Life	9.6 years	N/A

ACCOUNT – 343.10 Mains-Asbestos Cement

Historical Experience

Plant Statistics
Plant Balance = $9,341,041
Average Age of Survivors = 28.06 years
Original Gross Additions = $9,341,041
Oldest Surviving Vintage = 1974
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 66 – 98 Years
Average of Industry Data: 76 Years
California Water Data Avg: 72 Years

Estimate Average Service Life: 70-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -60%
Average of Industry Data: -35%
California Water Data Avg: -40%

Estimate Future Net Salvage: -35%

Plant Considerations/Future Expectations

The Mains property group contains the Company's investment in Transmission and Distribution Mains and comprises approximately 35 percent of the Company's depreciable plant in service. Within the Mains property group investment approximately 67% is Asbestos Cement pipe construction while the remaining 30% plus is of Ductile Iron pipe construction with some limited other material types. The pipe sizes range from smaller 4 diameter upwards to 20 inch diameter pipe. A large portion of the Mains facilities are comprise of 8 in through 12 inch diameter pipe.

Sufficient levels of plant retirement records have not been identified to develop any meaningful service life indications. Accordingly, average service lives for each of the applicable property groups were estimated giving consideration of general ranges of lives used throughout the industry as well as for the Companies parent operating entity California Water Company.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 48.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 70-R3

Future Net Salvage: -35%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.74%	2.04%
Av. Remaining Life	44.1 years	N/A

ACCOUNT – 343.40 Mains-All Others

Historical Experience

Plant Statistics
Plant Balance = $418,096
Average Age of Survivors = 10.20 years
Original Gross Additions = $418,096
Oldest Surviving Vintage = 2013
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 66 – 98 Years
Average of Industry Data: 76 Years
California Water Data Avg: 72 Years

Estimate Average Service Life: 80-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -60%
Average of Industry Data: -35%
California Water Data Avg: -40%

Estimate Future Net Salvage: -35%

Plant Considerations/Future Expectations

The Mains property group contains the Company's investment in Transmission and Distribution Mains and comprises approximately 35 percent of the Company's depreciable plant in service. Within the Mains property group investment approximately 67% is Asbestos Cement pipe construction while the remaining 30% plus is of Ductile Iron pipe construction with some limited other material types. The pipe sizes range from smaller 4 diameter upwards to 20 inch diameter pipe. A large portion of the Mains facilities are comprise of 8 in through 12 inch diameter pipe.

Sufficient levels of plant retirement records have not been maintained to develop any meaningful service life indications. Accordingly, average service lives for each of the applicable property groups were estimated giving consideration of general ranges of lives used throughout the industry as well as for the Companies parent operating entity California Water Company.

This property class includes the minor investments in non-classified Mains located within the Company's service territory.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 43.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 80-R2.5

Future Net Salvage: -35%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.60%	2.33%
Av. Remaining Life	71.5 years	N/A

ACCOUNT – 343.50 Mains-Ductile Iron

Plant Statistics
Plant Balance = $4,277,054
Average Age of Survivors = 7.08 years
Original Gross Additions = $4,156,910
Oldest Surviving Vintage = 2009
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 66 – 98 Years
Average of Industry Data: 76 Years
California Water Data Avg: 72 Years

Estimate Average Service Life: 90-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -60%
Average of Industry Data: -35%
California Water Data Avg: -40%

Estimate Future Net Salvage: -35%

Plant Considerations/Future Expectations

The Mains property group contains the Company's investment in Transmission and Distribution Mains and comprises approximately 35 percent of the Company's depreciable plant in service. Within the Mains property group investment approximately 67% is Asbestos Cement pipe construction while the remaining 30% plus is of Ductile Iron pipe construction with some limited other material types. The pipe sizes range from smaller 4 diameter upwards to 20 inch diameter pipe. A large portion of the Mains facilities are comprise of 8 in through 12 inch diameter pipe.

Sufficient levels of plant retirement records have not been maintained to develop any meaningful service life indications. Accordingly, average service lives for each of the applicable property groups were estimated giving consideration of general ranges of lives used throughout the industry as well as for the Companies parent operating entity California Water Company.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 48.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 90-R2.5

Future Net Salvage: -35%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.48%	2.07%
Av. Remaining Life	83.4 years	N/A

ACCOUNT – 345.00 Services

Historical Experience

Plant Statistics
Plant Balance = $24,242
Average Age of Survivors = 42.50 years
Original Gross Additions = $24,242
Oldest Surviving vintage = 1974
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 25 – 83 Years
Average of Industry Data: 50 Years
California Water Data Avg: 60 Years

Estimate Average Service Life: 45-R3

Historical Net Salvage: Industry Information

Range of Data: 0% to -300%
Average of Industry Data: -114%
California Water Data Avg: -180%

Estimate Future Net Salvage: -40%

Plant Considerations/Future Expectations

This property group contains the Company's small investment in customer Service laterals.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Future Net Salvage: -40%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.88%	0.00%
Av. Remaining Life	10.3 years	N/A

ACCOUNT – 346.00 Meters

Historical Experience

Plant Statistics
Plant Balance = $494,582
Average Age of Survivors = 18.24 years
Original Gross Additions = $500,586
Oldest Surviving vintage = 1974
Retirements = $6,004 or 1.2% of historical additions.
Average Age of Retirements = 22.6 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 14 – 40 Years
Average of Industry Data: 24 Years
California Water Data Avg: 31 Years

Estimate Average Service Life: 20-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 8% to -20%
Average of Industry Data: -2%
California Water Data Avg: 5%

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property group contains the Company's investment in customer Meters. The majority of the Meter investments are related to facilities within the Village Water operations with less quantities at the Resort entity and minor investments at the Company Irrigation entity. As the present time, the Company upgrades/replaces Meters on an as needed basis.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 31.6

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 20-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	5.50%	3.17%
Av. Remaining Life	6.0 years	N/A

ACCOUNT – 348.00 Hydrants

Historical Experience

Plant Statistics
Plant Balance = $15,234
Average Age of Survivors = 10.85 years
Original Gross Additions = $17,184
Oldest Surviving vintage =1989
Retirements = $1,950 or 11.3% of historical additions.
Average Age of Retirements = 42.5 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 50 – 80 Years

Range of Data: 40 – 80 Years
Average of Industry Data: 61 Years
California Water Data Avg: 72 Years

Estimate Average Service Life: 60-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -5% to -150%
Average of Industry Data: -41%
California Water Data Avg: -35%

Estimate Future Net Salvage: -30%

Plant Considerations/Future Expectations

This property group contains the Company's limited capitalized investment in hydrants. There are no specific replacement plans for this class of property.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 56.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 60-R2.5

Future Net Salvage: -30%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.93%	1.78%
Av. Remaining Life	50.5 years	N/A

ACCOUNT – 371.00 General Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $948,236
Average Age of Survivors = 10.29 years
Original Gross Additions = $948,236
Oldest Surviving vintage = 2001
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 10 – 40 Years
Average of Industry Data: 31 Years
California Water Data Avg: 24 Years

Estimate Average Service Life: 30-R2

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -10%
Average of Industry Data: -6%
California Water Data Avg: -8%

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The property group contains the Company's limited investment related to its administrative offices.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 20.2

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R2

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.45%	4.95%
Av. Remaining Life	21.2 years	N/A

ACCOUNT – 372.00 Office Furniture & Equipment

Historical Experience

Plant Statistics
Plant Balance = $23,386
Average Age of Survivors = 15.24 years
Original Gross Additions = $23,386
Oldest Surviving vintage = 1995
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 10 – 28 Years
Range of Data: 8 – 28 Years
Average of Industry Data: 16 Years
California Water Data Avg: 15 Years

Estimate Average Service Life: 12-L3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to 1%
Average of Industry Data: 0%
California Water Data Avg: 0%

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property group includes investments related to furniture and equipment located at the Company's office site.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 12-L3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	0.00%	0.00%
Av. Remaining Life	0 years	N/A

ACCOUNT – 372.10 Office Electronic Equipment/Computers

Historical Experience

Plant Statistics
Plant Balance = $52,836
Average Age of Survivors = 20.08 years
Original Gross Additions = $54,964
Oldest Surviving vintage = 1997
Retirements = $2,128 or 4.0% of historical additions.
Average Age of Retirements = 20.0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 5 – 11 Years
Average of Industry Data: 7 Years
California Water Data Avg: 8 Years

Estimate Average Service Life: 6-L3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to 0%
Average of Industry Data: 0%
California Water Data Avg: 0%

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property group investment is principally related to servers and PC equipment as well as investments in SCADA control equipment. Accordingly, this property is continually experiencing upgrades and replacement on an ongoing basis.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 6-L3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	0.00%	0.00%
Av. Remaining Life	0 years	N/A

ACCOUNT – 373.00 Transportation Equipment

Historical Experience

Plant Statistics
Plant Balance = $319,505
Average Age of Survivors = 8.72 years
Original Gross Additions = $332,456
Oldest Surviving Vintage = 2003
Retirements = $12,951 or 3.4% of historical additions.
Average Age of Retirements = 14.2 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 6 – 15 Years

Range of Data: 6 – 15 Years
Average of Industry Data: 9 Years
California Water Data Avg: 8 Years

Estimate Average Service Life: 14-R5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to 20%
Average of Industry Data: 11%
California Water Data Avg: 7%

Estimate Future Net Salvage: 10%

Plant Considerations/Future Expectations

This property group investment is principally related to light trucks used in maintaining the Company's operating property and providing customer service. The Company continues to upgrade its transportation fleet on an as required basis.

Life Analysis Method: Retirement Rate Analysis (Actuarial) - Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 14-R5

Future Net Salvage: 10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	-2.44%	0.00%
Av. Remaining Life	5.4 years	N/A

ACCOUNT – 375.00 Laboratory Equipment

Historical Experience

Plant Statistics
Plant Balance =$35,052
Average Age of Survivors = 11.58 years
Original Gross Additions = $35,052
Oldest Surviving Vintage = 2002
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 15-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

The equipment category typically includes facilities used for water quality testing purposes. Given the continuing increase in regulatory requirements, ongoing upgrades of equipment will be required.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 33.4

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R2.5

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.21%	2.99%
Av. Remaining Life	7.0 years	N/A

ACCOUNT – 377.00 Power Operated Equipment

Historical Experience

Plant Statistics
Plant Balance =$242,806
Average Age of Survivors = 10.02 years
Original Gross Additions = $242,806
Oldest Surviving Vintage = 2006
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 10 – 20 Years
Average of Industry Data: 16 Years
California Water Data Avg: 17 Years

Estimate Average Service Life: 15-R2.5

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: -5% to 30%
Average of Industry Data: 11%
California Water Data Avg: 7%

Estimate Future Net Salvage: 10%

Plant Considerations/Future Expectations

This property group investment is principally related equipment such as backhoes, compressors etc. used in the construction, replacement and/or maintenance of the Company's distribution system.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 18.6

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R2.5

Future Net Salvage: 10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.25%	5.38%
Av. Remaining Life	7.4 years	N/A

ACCOUNT – 378.00 Tools, Shop & Garage Equipment

Historical Experience

Plant Statistics
Plant Balance =$39,513
Average Age of Survivors = 13.58 years
Original Gross Additions = $39,513
Oldest Surviving Vintage = 1992
Retirements = $0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 15 – 30 Years
Average of Industry Data: 21 Years
California Water Data Avg: 19 Years

Estimate Average Service Life: 20-L1

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to 5%
Average of Industry Data: 1%
California Water Data Avg: 0%

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property group is related to tools and equipment used by the Company's workforce to maintain the distribution system.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 34.4

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 20-L1

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	0.32%	2.91%
Av. Remaining Life	11.9 years	N/A

ACCOUNT – 379.00 Other General Plant

Historical Experience

Plant Statistics
Plant Balance =$40,923
Average Age of Survivors = 22.74 years
Original Gross Additions = $44,892
Oldest Surviving Vintage = 1996
Retirements = $3,969 or 8.8% of historical additions.
Average Age of Retirements = 20.7 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Average Service Life: 15-L2

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: N/A
Average of Industry Data: N/A
California Water Data Avg: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This account contains a miscellaneous group of assets used in the utilities operations. These properties are replaced as required.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-L2

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	0.00%	0.00%
Av. Remaining Life	7.3 years	N/A

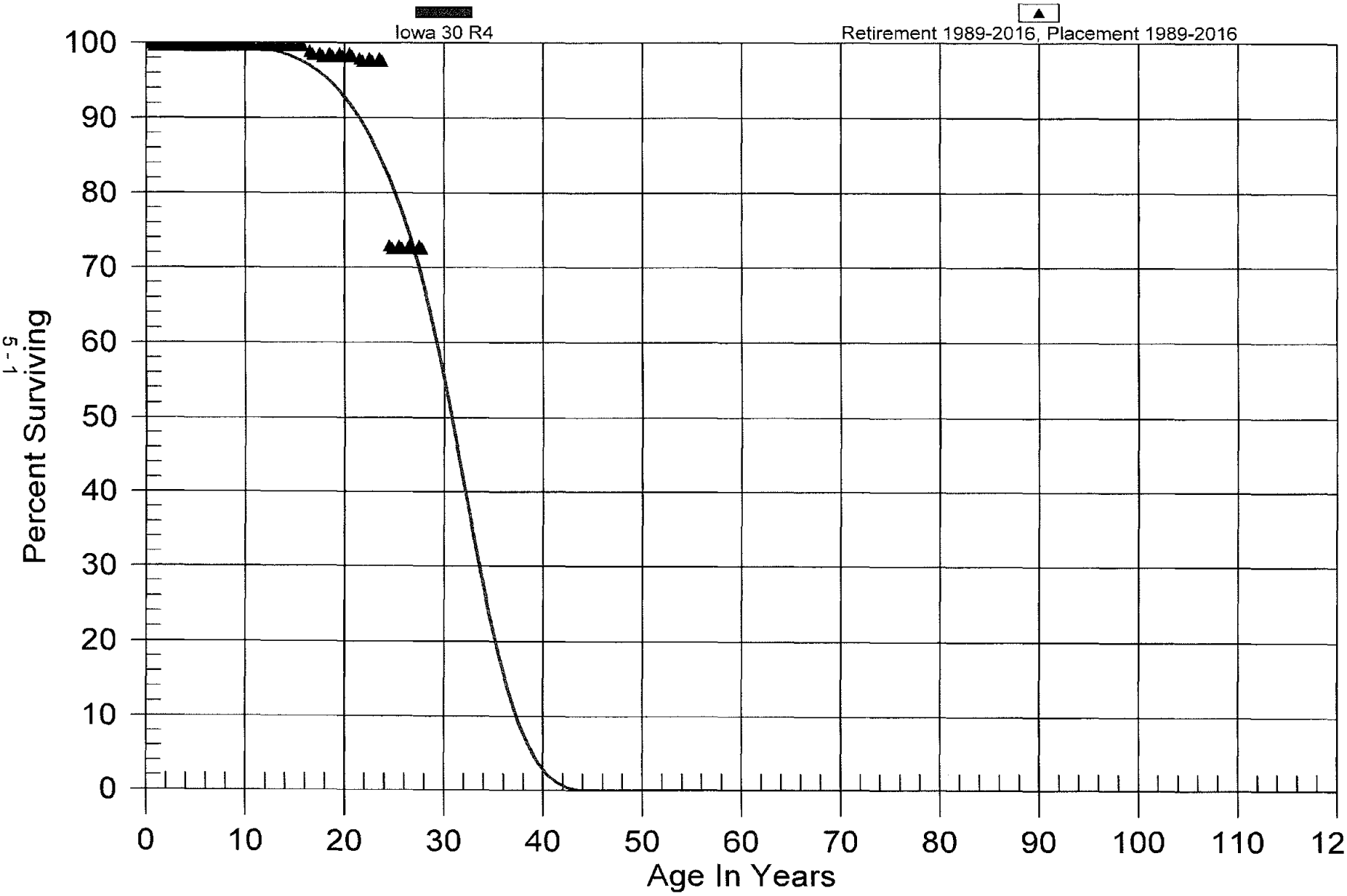
SECTION 5

Hawaii Water Service Company

(721) Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort Water

324.00 PUMPING EQUIPMENT

Original And Smooth Survivor Curves



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Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Smith

Hawaii Water Service Company

Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort I

324.00 PUMPING EQUIPMENT

Observed Life Table

Retirement Expr. 1989 TO 2016

Placement Years 1989 TO 2016

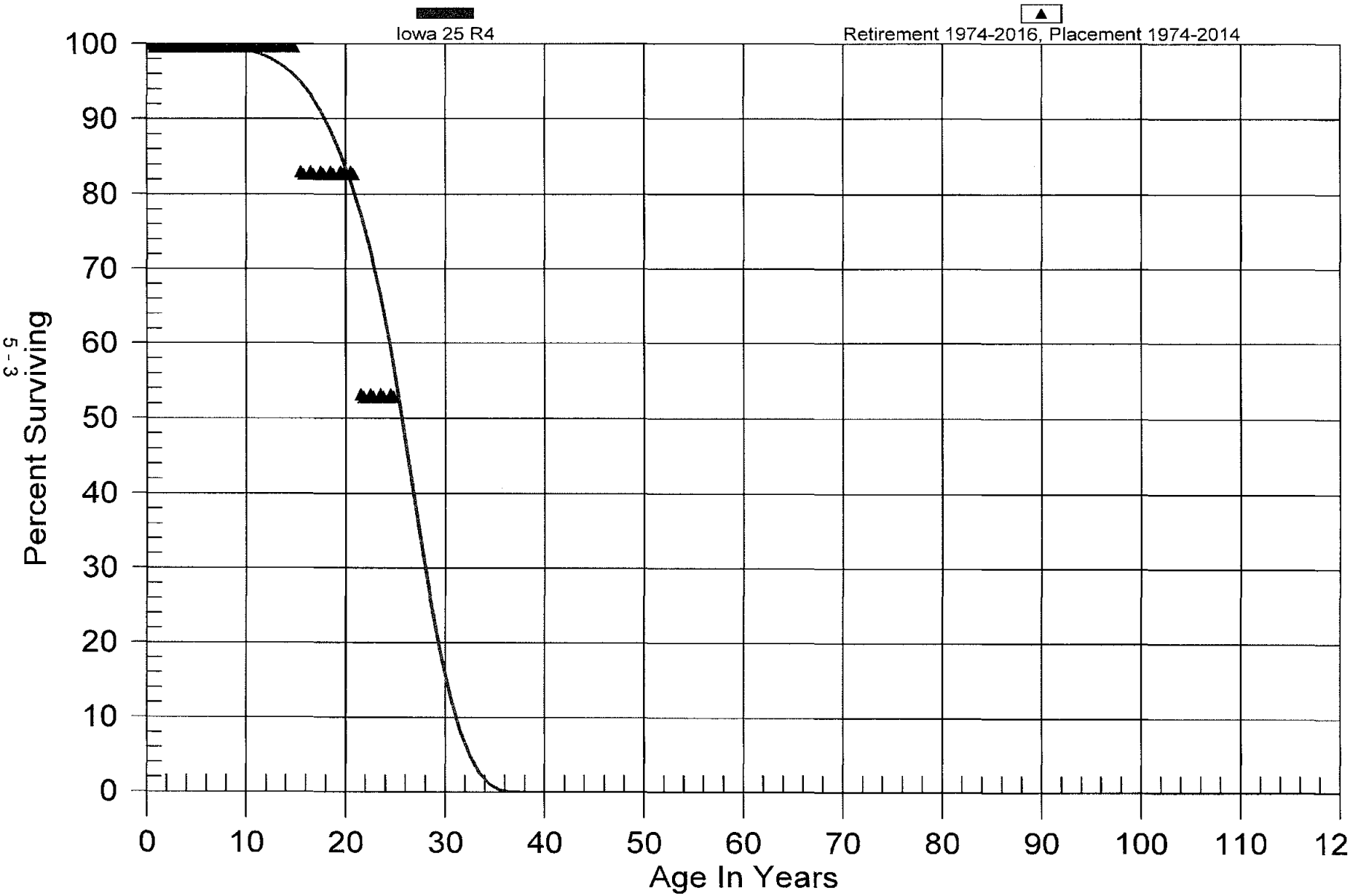
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$6,333,249.70	$0.00	0.00000	100.00
0.5 - 1.5	$6,404,045.92	$0.00	0.00000	100.00
1.5 - 2.5	$6,392,918.30	$0.00	0.00000	100.00
2.5 - 3.5	$6,386,299.99	$0.00	0.00000	100.00
3.5 - 4.5	$4,762,974.32	$0.00	0.00000	100.00
4.5 - 5.5	$4,762,974.32	$0.00	0.00000	100.00
5.5 - 6.5	$4,762,974.32	$0.00	0.00000	100.00
6.5 - 7.5	$4,762,974.32	$0.00	0.00000	100.00
7.5 - 8.5	$4,690,519.67	$0.00	0.00000	100.00
8.5 - 9.5	$4,690,519.67	$1,045.22	0.00022	100.00
9.5 - 10.5	$2,395,222.98	$0.00	0.00000	99.98
10.5 - 11.5	$2,395,222.98	$0.00	0.00000	99.98
11.5 - 12.5	$2,395,222.98	$0.00	0.00000	99.98
12.5 - 13.5	$2,395,222.98	$0.00	0.00000	99.98
13.5 - 14.5	$2,395,222.98	$0.00	0.00000	99.98
14.5 - 15.5	$2,395,222.98	$0.00	0.00000	99.98
15.5 - 16.5	$2,380,691.82	$25,757.64	0.01082	99.98
16.5 - 17.5	$2,321,532.48	$7,407.80	0.00319	98.90
17.5 - 18.5	$2,228,396.95	$0.00	0.00000	98.58
18.5 - 19.5	$2,228,396.95	$290.74	0.00013	98.58
19.5 - 20.5	$1,497,397.24	$0.00	0.00000	98.57
20.5 - 21.5	$1,468,368.84	$9,309.22	0.00634	98.57
21.5 - 22.5	$1,446,563.57	$0.00	0.00000	97.94
22.5 - 23.5	$1,409,276.76	$0.00	0.00000	97.94
23.5 - 24.5	$1,409,276.76	$360,106.30	0.25553	97.94
24.5 - 25.5	$941,031.68	$0.00	0.00000	72.92
25.5 - 26.5	$252,298.19	$0.00	0.00000	72.92
26.5 - 27.5	$0.00	$0.00	0.00000	72.92

Hawaii Water Service Company

(721) Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort Water

332.00 WATER TREATMENT EQUIPMENT

Original And Smooth Survivor Curves



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Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Sim

Hawaii Water Service Company

Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort

332.00 WATER TREATMENT EQUIPMENT

Observed Life Table

Retirement Expr. 1974 TO 2016

Placement Years 1974 TO 2014

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$24,693.87	$0.00	0.00000	100.00
0.5 - 1.5	$24,693.87	$0.00	0.00000	100.00
1.5 - 2.5	$24,693.87	$0.00	0.00000	100.00
2.5 - 3.5	$22,678.73	$0.00	0.00000	100.00
3.5 - 4.5	$15,513.54	$0.00	0.00000	100.00
4.5 - 5.5	$15,513.54	$0.00	0.00000	100.00
5.5 - 6.5	$15,513.54	$0.00	0.00000	100.00
6.5 - 7.5	$15,513.54	$0.00	0.00000	100.00
7.5 - 8.5	$15,513.54	$0.00	0.00000	100.00
8.5 - 9.5	$15,513.54	$0.00	0.00000	100.00
9.5 - 10.5	$15,513.54	$0.00	0.00000	100.00
10.5 - 11.5	$15,513.54	$0.00	0.00000	100.00
11.5 - 12.5	$15,513.54	$0.00	0.00000	100.00
12.5 - 13.5	$15,513.54	$0.00	0.00000	100.00
13.5 - 14.5	$15,513.54	$0.00	0.00000	100.00
14.5 - 15.5	$15,513.54	$2,630.97	0.16959	100.00
15.5 - 16.5	$12,882.57	$0.00	0.00000	83.04
16.5 - 17.5	$9,893.00	$0.00	0.00000	83.04
17.5 - 18.5	$9,893.00	$0.00	0.00000	83.04
18.5 - 19.5	$9,893.00	$0.00	0.00000	83.04
19.5 - 20.5	$9,893.00	$0.00	0.00000	83.04
20.5 - 21.5	$9,893.00	$3,555.00	0.35934	83.04
21.5 - 22.5	$6,338.00	$0.00	0.00000	53.20
22.5 - 23.5	$6,338.00	$0.00	0.00000	53.20
23.5 - 24.5	$6,338.00	$0.00	0.00000	53.20
24.5 - 25.5	$6,338.00	$0.00	0.00000	53.20
25.5 - 26.5	$6,338.00	$0.00	0.00000	53.20
26.5 - 27.5	$6,338.00	$0.00	0.00000	53.20
27.5 - 28.5	$6,338.00	$0.00	0.00000	53.20
28.5 - 29.5	$6,338.00	$0.00	0.00000	53.20
29.5 - 30.5	$6,338.00	$0.00	0.00000	53.20
30.5 - 31.5	$6,338.00	$0.00	0.00000	53.20
31.5 - 32.5	$6,338.00	$0.00	0.00000	53.20
32.5 - 33.5	$6,338.00	$0.00	0.00000	53.20
33.5 - 34.5	$6,338.00	$0.00	0.00000	53.20
34.5 - 35.5	$6,338.00	$0.00	0.00000	53.20
35.5 - 36.5	$6,338.00	$0.00	0.00000	53.20

Hawaii Water Service Company

Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort I

332.00 WATER TREATMENT EQUIPMENT

Observed Life Table

Retirement Expr. 1974 TO 2016
Placement Years 1974 TO 2014

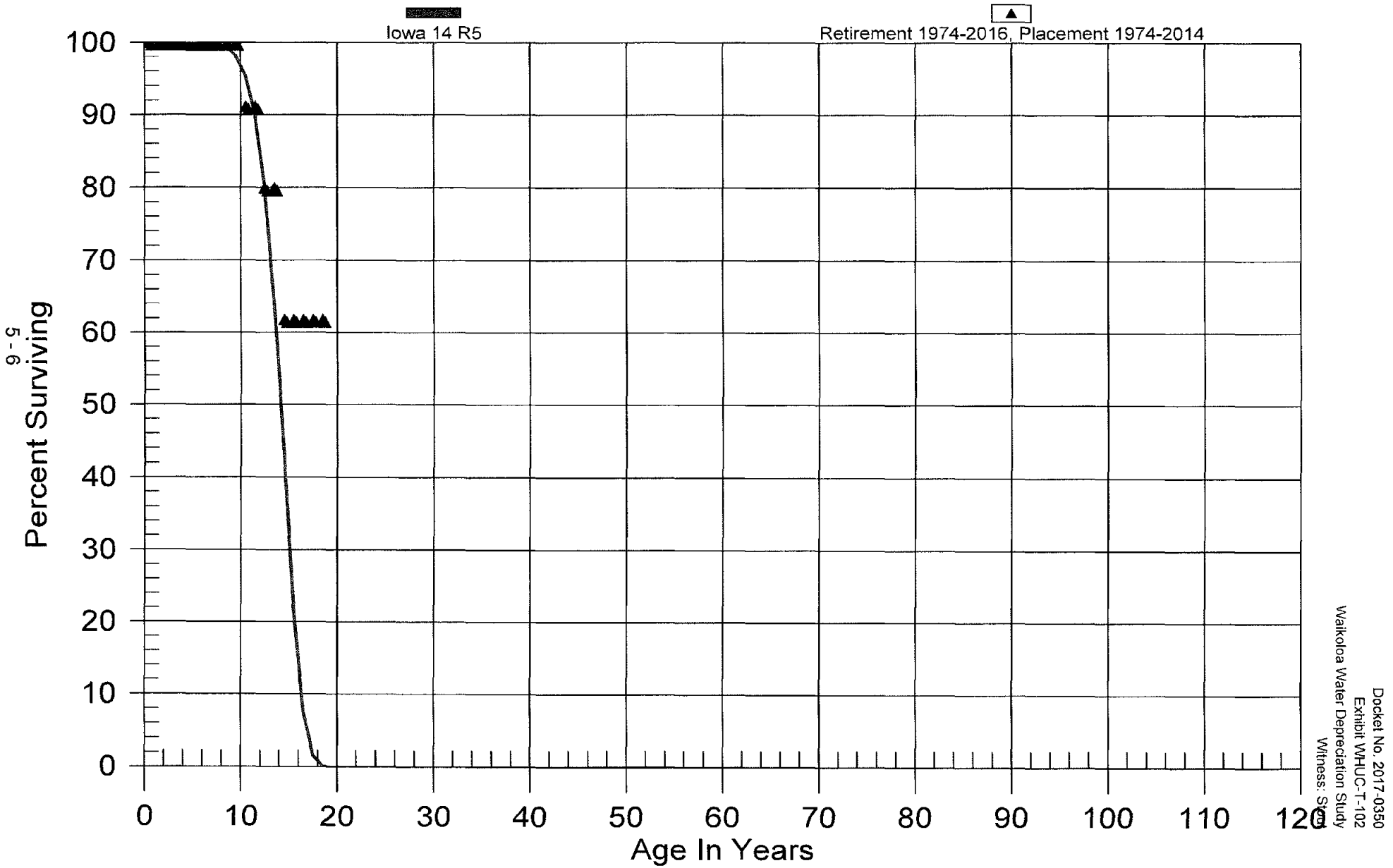
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$6,338.00	$0.00	0.00000	53.20
37.5 - 38.5	$6,338.00	$0.00	0.00000	53.20
38.5 - 39.5	$6,338.00	$0.00	0.00000	53.20
39.5 - 40.5	$6,338.00	$0.00	0.00000	53.20
40.5 - 41.5	$6,338.00	$0.00	0.00000	53.20
41.5 - 42.5	$6,338.00	$0.00	0.00000	53.20

Hawaii Water Service Company

(721) Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort Water

373.00 TRANSPORTATION EQUIPMENT

Original And Smooth Survivor Curves



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Docket No. 2017-0350
Exhibit WHUC-T-102
Waikoloa Water Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Village Water, (725) Waikoloa Irrigation, (723) Waikoloa Resort I

373.00 TRANSPORTATION EQUIPMENT

Observed Life Table

Retirement Expr. 1995 TO 2016

Placement Years 1995 TO 2009

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$387,323.16	$0.00	0.00000	100.00
0.5 - 1.5	$387,323.16	$0.00	0.00000	100.00
1.5 - 2.5	$387,323.16	$0.00	0.00000	100.00
2.5 - 3.5	$387,323.16	$0.00	0.00000	100.00
3.5 - 4.5	$387,323.16	$0.00	0.00000	100.00
4.5 - 5.5	$387,323.16	$0.00	0.00000	100.00
5.5 - 6.5	$387,323.16	$0.00	0.00000	100.00
6.5 - 7.5	$387,323.16	$0.00	0.00000	100.00
7.5 - 8.5	$201,766.41	$0.00	0.00000	100.00
8.5 - 9.5	$140,167.21	$0.00	0.00000	100.00
9.5 - 10.5	$68,968.33	$6,112.24	0.08862	100.00
10.5 - 11.5	$60,746.97	$0.00	0.00000	91.14
11.5 - 12.5	$7,795.27	$956.94	0.12276	91.14
12.5 - 13.5	$6,838.33	$0.00	0.00000	79.95
13.5 - 14.5	$5,881.39	$1,333.34	0.22670	79.95
14.5 - 15.5	$4,548.05	$0.00	0.00000	61.82
15.5 - 16.5	$4,548.05	$0.00	0.00000	61.82
16.5 - 17.5	$4,548.05	$0.00	0.00000	61.82
17.5 - 18.5	$4,548.05	$0.00	0.00000	61.82

SECTION 6

Hawaii Water Service Company
(721) Waikoloa Village Water
311.00 STRUCTURES & IMPROV-SUPPLY

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	1,706.00	45.00	37.91	7.87	298.24
1994	3,776.17	45.00	83.91	23.04	1,933.49
1997	72,356.10	45.00	1,607.91	25.82	41,520.25
2001	14,666.46	45.00	325.92	29.65	9,662.66
Total	92,504.73	45.00	2,055.65	25.98	53,414.64

Composite Average Remaining Life ... 25.98 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
315.00 WELLS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 48 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	220,430.68	48.00	4,592.30	12.57	57,705.58
1997	412,100.64	48.00	8,585.42	29.65	254,592.28
1999	82,194.00	48.00	1,712.37	31.42	53,802.58
2013	621,405.62	48.00	12,945.94	44.57	576,981.35
Total	1,336,130.94	48.00	27,836.04	33.88	943,081.79

Composite Average Remaining Life ... 33.88 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
321.00 STRUCTURES & IMPROVEMENTS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2010	1,018.71	45.00	22.64	38.67	875.31
2011	548.59	45.00	12.19	39.63	483.11
2013	768,763.15	45.00	17,083.62	41.57	710,157.95
2015	22,697.63	45.00	504.39	43.53	21,953.82
Total	793,028.08	45.00	17,622.84	41.62	733,470.19

Composite Average Remaining Life ... 41.62 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
324.00 PUMPING EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1997	313,438.18	30.00	10,447.89	11.46	119,730.55
1999	37,013.41	30.00	1,233.77	13.14	16,212.98
2000	20,354.15	30.00	678.47	14.01	9,508.19
2001	7,492.27	30.00	249.74	14.91	3,722.92
2007	1,785,229.75	30.00	59,507.37	20.57	1,224,355.36
2009	72,454.65	30.00	2,415.14	22.54	54,430.64
2013	833,216.05	30.00	27,773.73	26.51	736,184.89
2014	6,618.31	30.00	220.61	27.50	6,067.57
2015	11,127.62	30.00	370.92	28.50	10,571.86
2016	1,658.43	30.00	55.28	29.50	1,630.81
Total	3,088,602.82	30.00	102,952.92	21.20	2,182,415.76

Composite Average Remaining Life ... 21.20 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
324.10 PUMPING EQUIPMENT - TELEMETERING
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 10 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	17,971.64	10.00	1,797.13	3.48	6,258.58
2013	39,434.31	10.00	3,943.37	6.68	26,331.21
Total	57,405.95	10.00	5,740.50	5.68	32,589.79

Composite Average Remaining Life ... 5.68 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
331.00 STRUCTURES & IMPROV-TREATMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	6,757.10	45.00	150.16	10.32	1,550.01
Total	6,757.10	45.00	150.16	10.32	1,550.01

Composite Average Remaining Life ... 10.32 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
332.00 WATER TREATMENT EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 25 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	6,338.00	0.00	0.00	0.00	0.00
2013	4,467.19	25.00	178.69	21.51	3,843.15
2014	2,015.14	25.00	80.61	22.50	1,813.95
Total	12,820.33	16.67	259.29	21.82	5,657.10

Composite Average Remaining Life ... 21.82 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
341.00 STRUCTURES & IMPROV-TRANS & DISTR
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	19,824.69	30.00	660.82	23.11	15,272.44
2013	99,642.05	30.00	3,321.38	26.73	88,776.80
2015	2,896.39	30.00	96.55	28.59	2,760.06
Total	122,363.13	30.00	4,078.75	26.19	106,809.30

Composite Average Remaining Life ... 26.19 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
341.10 STRUCTURES & IMPROV-TRANS & DISTR-PAVING
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	17,449.98	15.00	1,163.32	8.07	9,388.62
Total	17,449.98	15.00	1,163.32	8.07	9,388.62

Composite Average Remaining Life ... 8.07 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
342.00 DISTR. RESERVOIRS & TANKS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 50 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	329,725.10	50.00	6,594.50	14.14	93,244.76
1997	240,908.35	50.00	4,818.17	31.60	152,268.05
2005	93,343.69	50.00	1,866.87	38.89	72,611.24
2009	757,034.68	50.00	15,140.69	42.69	646,425.12
2015	26,183.36	50.00	523.67	48.52	25,410.91
2016	7,867.22	50.00	157.34	49.51	7,789.76
Total	1,455,062.40	50.00	29,101.24	34.29	997,749.83

Composite Average Remaining Life ... 34.29 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
342.10 DISTR. RESERVOIRS & TANKS-TANK PAINTING
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2011	254,543.93	15.00	16,969.49	9.56	162,236.89
Total	254,543.93	15.00	16,969.49	9.56	162,236.89

Composite Average Remaining Life ... 9.56 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
343.10 MAINS - ASBESTOS CEMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	3,659,613.31	70.00	52,280.19	31.64	1,653,924.68
1993	266,785.00	70.00	3,811.21	47.63	181,533.18
1994	346,200.00	70.00	4,945.71	48.54	240,055.15
1995	50,642.20	70.00	723.46	49.45	35,773.61
1996	126,911.76	70.00	1,813.02	50.36	91,312.71
1997	124,277.85	70.00	1,775.40	51.29	91,051.74
1998	124,433.00	70.00	1,777.61	52.21	92,812.32
1999	42,985.00	70.00	614.07	53.14	32,632.94
2004	18,754.61	70.00	267.92	57.86	15,501.70
2005	469,760.05	70.00	6,710.86	58.81	394,693.49
2008	1,190,598.53	70.00	17,008.55	61.70	1,049,407.77
Total	6,420,961.31	70.00	91,728.01	42.28	3,878,699.27

Composite Average Remaining Life ... 42.28 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
343.50 MAINS - DUCTICLE IRON
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 90 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	52,484.05	90.00	583.16	82.96	48,381.24
2014	9,043.16	90.00	100.48	87.64	8,806.13
Total	61,527.21	90.00	683.63	83.65	57,187.37

Composite Average Remaining Life ... 83.65 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
345.00 SERVICES - 1" & UNDER

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	24,242.18	45.00	538.71	10.32	5,560.90
Total	24,242.18	45.00	538.71	10.32	5,560.90

Composite Average Remaining Life ... 10.32 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
346.00 METERS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	1,341.08	0.00	0.00	0.00	0.00
1975	815.97	0.00	0.00	0.00	0.00
1976	734.75	0.00	0.00	0.00	0.00
1977	1,198.80	0.00	0.00	0.00	0.00
1978	1,238.16	0.00	0.00	0.00	0.00
1979	592.72	0.00	0.00	0.00	0.00
1980	1,139.84	0.00	0.00	0.00	0.00
1981	641.16	0.00	0.00	0.00	0.00
1982	71.24	0.00	0.00	0.00	0.00
1985	255.32	20.00	12.77	0.65	8.30
1987	9,231.43	20.00	461.57	1.10	506.50
1988	3,673.92	20.00	183.70	1.35	247.81
1989	43,569.32	20.00	2,178.46	1.59	3,472.53
1990	7,465.20	20.00	373.26	1.85	690.98
1991	6,405.72	20.00	320.29	2.11	675.21
1992	9,170.85	20.00	458.54	2.39	1,094.42
1993	9,618.99	20.00	480.95	2.69	1,291.88
1994	22,769.50	20.00	1,138.47	3.02	3,440.20
1995	16,718.12	20.00	835.91	3.40	2,839.31
1996	9,350.80	20.00	467.54	3.82	1,784.62
1997	17,203.05	20.00	860.15	4.28	3,685.54
1998	12,092.67	20.00	604.63	4.80	2,901.85
1999	21,623.62	20.00	1,081.18	5.36	5,798.07
2000	14,550.99	20.00	727.55	5.97	4,341.95
2001	11,951.07	20.00	597.55	6.62	3,953.45
2002	14,572.22	20.00	728.61	7.30	5,318.23
2003	12,223.27	20.00	611.16	8.02	4,900.28

Hawaii Water Service Company
(721) Waikoloa Village Water
346.00 METERS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2004	13,323.05	20.00	666.15	8.77	5,839.33
2008	58,898.66	20.00	2,944.93	12.03	35,428.46
Total	322,441.49	13.79	15,733.38	5.61	88,218.93

Composite Average Remaining Life ... 5.61 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
348.00 HYDRANTS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 60 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	3,848.00	60.00	64.13	35.63	2,284.76
2016	4,482.90	60.00	74.71	59.53	4,447.58
Total	8,330.90	60.00	138.85	48.49	6,732.34

Composite Average Remaining Life ... 48.49 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
371.00 STRUCTURES & IMPROV-GENERAL
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2001	5,221.52	30.00	174.05	17.17	2,988.07
2003	5,417.24	30.00	180.57	18.66	3,369.94
2004	6,752.62	30.00	225.09	19.43	4,373.32
2005	16,200.54	30.00	540.01	20.21	10,914.10
2006	2,568.23	30.00	85.61	21.00	1,798.08
Total	36,160.15	30.00	1,205.33	19.45	23,443.51

Composite Average Remaining Life ... 19.45 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
372.00 FURNITURE & OFFICE EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 12 *Survivor Curve: L3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1995	638.56	12.00	53.21	1.47	78.33
2002	226.27	12.00	18.86	3.16	59.52
2004	1,366.47	12.00	113.87	3.54	403.00
Total	2,231.30	12.00	185.94	2.91	540.85

Composite Average Remaining Life ... 2.91 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
372.10 ELECTRONICS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 6 *Survivor Curve: L3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1997	4,766.51	0.00	0.00	0.00	0.00
1998	668.27	0.00	0.00	0.00	0.00
1999	2,049.53	0.00	0.00	0.00	0.00
2001	2,713.19	0.00	0.00	0.00	0.00
2002	838.17	0.00	0.00	0.00	0.00
2003	1,771.86	6.00	295.32	0.50	147.66
2004	7,685.28	6.00	1,280.91	0.54	688.73
2005	478.06	6.00	79.68	0.67	53.59
2007	431.61	6.00	71.94	1.06	76.57
Total	21,402.48	2.67	1,727.84	0.56	966.55

Composite Average Remaining Life ... 0.56 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
373.00 TRANSPORTATION EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 14 *Survivor Curve: R5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2003	956.94	14.00	68.36	1.65	113.09
2006	1,666.41	14.00	119.04	3.72	442.70
Total	2,623.35	14.00	187.39	2.97	555.79

Composite Average Remaining Life ... 2.97 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
375.00 LABORATORY EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2002	9,433.88	15.00	628.91	3.83	2,409.73
2011	10,285.91	15.00	685.71	10.04	6,886.26
Total	19,719.79	15.00	1,314.62	7.07	9,295.99

Composite Average Remaining Life ... 7.07 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
377.00 POWER OPERATED EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2006	62,225.24	15.00	4,148.26	6.20	25,706.54
Total	62,225.24	15.00	4,148.26	6.20	25,706.54

Composite Average Remaining Life ... 6.20 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
378.00 TOOLS, SHOP & GARAGE EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: L1*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1992	614.59	20.00	30.73	8.03	246.77
1995	536.00	20.00	26.80	8.91	238.72
2000	207.28	20.00	10.36	10.53	109.08
2002	1,197.64	20.00	59.88	11.23	672.69
2003	1,602.95	20.00	80.14	11.60	929.92
2006	626.97	20.00	31.35	12.78	400.68
2008	4,833.06	20.00	241.63	13.70	3,311.25
Total	9,618.49	20.00	480.89	12.29	5,909.10

Composite Average Remaining Life ... 12.29 Years

Hawaii Water Service Company
(721) Waikoloa Village Water
379.00 OTHER GENERAL PLANT EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: L2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1996	2,168.77	15.00	144.58	4.50	650.17
1997	10,612.97	15.00	707.53	4.75	3,359.20
Total	12,781.74	15.00	852.12	4.71	4,009.37

Composite Average Remaining Life ... 4.71 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
311.00 STRUCTURES & IMPROV-SUPPLY

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	14,599.09	45.00	324.42	20.36	6,605.49
1993	308.44	45.00	6.85	22.14	151.72
1997	87,825.30	45.00	1,951.66	25.82	50,396.97
2003	15,938.00	45.00	354.18	31.60	11,190.22
2007	82,698.23	45.00	1,837.73	35.54	65,304.79
Total	201,369.06	45.00	4,474.85	29.87	133,649.20

Composite Average Remaining Life ... 29.87 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
315.00 WELLS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 48 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	336,750.93	48.00	7,015.64	22.98	161,228.60
1991	1,243,813.03	48.00	25,912.75	24.59	637,136.43
1992	22,560.88	48.00	470.02	25.41	11,941.75
1997	632,926.00	48.00	13,185.95	29.65	391,016.31
2007	392,263.67	48.00	8,172.15	38.79	317,012.52
2013	799,419.98	48.00	16,654.57	44.57	742,269.47
Total	3,427,734.49	48.00	71,411.07	31.66	2,260,605.08

Composite Average Remaining Life ... 31.66 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
321.00 STRUCTURES & IMPROVEMENTS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2013	988,999.23	45.00	21,977.75	41.57	913,604.75
Total	988,999.23	45.00	21,977.75	41.57	913,604.75

Composite Average Remaining Life ... 41.57 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
324.00 PUMPING EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1990	163,772.76	30.00	5,459.07	6.35	34,655.12
1991	688,733.49	30.00	22,957.67	7.00	160,793.26
1992	108,138.78	30.00	3,604.61	7.69	27,704.13
1994	37,286.81	30.00	1,242.89	9.12	11,336.59
1995	10,320.00	30.00	344.00	9.87	3,396.90
1996	29,028.40	30.00	967.61	10.66	10,310.39
1997	417,270.79	30.00	13,908.96	11.46	159,393.66
1999	48,714.32	30.00	1,623.80	13.14	21,338.33
2000	13,047.55	30.00	434.92	14.01	6,095.00
2001	7,038.89	30.00	234.63	14.91	3,497.63
2007	509,021.72	30.00	16,967.31	20.57	349,099.87
2013	790,109.62	30.00	26,336.86	26.51	698,098.37
Total	2,822,483.13	30.00	94,082.31	15.79	1,485,719.25

Composite Average Remaining Life ... 15.79 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
324.10 PUMPING EQUIPMENT - TELEMETERING
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 10 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	23,168.06	10.00	2,316.77	3.48	8,068.22
2013	50,732.11	10.00	5,073.13	6.68	33,875.01
Total	73,900.17	10.00	7,389.90	5.68	41,943.24

Composite Average Remaining Life ... 5.68 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
331.00 STRUCTURES & IMPROV-TREATMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	94,289.39	45.00	2,095.32	21.77	45,609.25
1992	8,917.02	45.00	198.16	22.57	4,472.37
Total	103,206.41	45.00	2,293.47	21.84	50,081.63

Composite Average Remaining Life ... 21.84 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
332.00 WATER TREATMENT EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 25 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2000	2,989.57	25.00	119.58	9.35	1,117.74
2013	2,698.00	25.00	107.92	21.51	2,321.11
Total	5,687.57	25.00	227.50	15.12	3,438.85

Composite Average Remaining Life ... 15.12 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
341.00 STRUCTURES & IMPROV-TRANS & DISTR
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	25,556.89	30.00	851.89	23.11	19,688.38
2013	128,189.31	30.00	4,272.95	26.73	114,211.19
2015	1,469.71	30.00	48.99	28.59	1,400.53
Total	155,215.91	30.00	5,173.83	26.15	135,300.11

Composite Average Remaining Life ... 26.15 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
341.10 STRUCTURES & IMPROV-TRANS & DISTR-PAVING
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	22,495.54	15.00	1,499.69	8.07	12,103.29
Total	22,495.54	15.00	1,499.69	8.07	12,103.29

Composite Average Remaining Life ... 8.07 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
342.00 DISTR. RESERVOIRS & TANKS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 50 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	1,012,765.25	50.00	20,255.30	18.77	380,265.91
1991	920,248.76	50.00	18,404.97	26.48	487,414.43
1993	9,738.03	50.00	194.76	28.15	5,482.90
1997	350,149.37	50.00	7,002.98	31.60	221,314.70
2004	7,587.25	50.00	151.74	37.96	5,760.03
2005	4,501,182.56	50.00	90,023.61	38.89	3,501,430.33
2007	394,812.83	50.00	7,896.25	40.78	322,041.13
2009	975,926.82	50.00	19,518.53	42.69	833,335.15
Total	8,172,410.87	50.00	163,448.15	35.22	5,757,044.59

Composite Average Remaining Life ... 35.22 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
343.10 MAINS - ASBESTOS CEMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 70 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	449,228.84	70.00	6,417.55	37.24	238,987.09
1989	344,172.07	70.00	4,916.74	44.07	216,672.25
1991	1,211,109.33	70.00	17,301.56	45.84	793,084.67
1992	6,287.59	70.00	89.82	46.73	4,197.65
1997	112,738.46	70.00	1,610.55	51.29	82,597.44
2001	11,194.17	70.00	159.92	55.02	8,798.08
2002	311,660.35	70.00	4,452.29	55.96	249,148.37
2007	212,755.51	70.00	3,039.36	60.73	184,590.98
2008	260,933.12	70.00	3,727.62	61.70	229,989.57
Total	2,920,079.44	70.00	41,715.42	48.14	2,008,066.09

Composite Average Remaining Life ... 48.14 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
343.40 MAINS - ALL OTHER

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 80 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2013	12,773.67	80.00	159.67	76.70	12,247.28
2015	260,842.04	80.00	3,260.52	78.58	256,223.23
Total	273,615.71	80.00	3,420.19	78.50	268,470.51

Composite Average Remaining Life ... 78.50 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
343.50 MAINS - DUCTICLE IRON

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 90 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	2,454,947.45	90.00	27,277.17	82.96	2,263,038.24
2010	1,760,579.00	90.00	19,561.97	83.90	1,641,157.95
Total	4,215,526.45	90.00	46,839.14	83.35	3,904,196.19

Composite Average Remaining Life ... 83.35 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
346.00 METERS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1988	10,810.17	20.00	540.51	1.35	729.16
1989	8,050.83	20.00	402.54	1.59	641.66
1990	2,368.57	20.00	118.43	1.85	219.23
1991	1,364.61	20.00	68.23	2.11	143.84
1994	3,977.11	20.00	198.86	3.02	600.89
1995	4,134.97	20.00	206.75	3.40	702.26
1996	3,135.63	20.00	156.78	3.82	598.44
1997	650.11	20.00	32.51	4.28	139.28
1998	46,883.53	20.00	2,344.17	4.80	11,250.54
1999	23,599.87	20.00	1,179.99	5.36	6,327.98
2000	5,234.41	20.00	261.72	5.97	1,561.92
2003	11,323.59	20.00	566.18	8.02	4,539.60
2004	6,121.89	20.00	306.09	8.77	2,683.15
2007	32,607.12	20.00	1,630.35	11.18	18,223.29
2014	6,466.71	20.00	323.34	17.56	5,677.48
Total	166,729.12	20.00	8,336.45	6.48	54,038.74

Composite Average Remaining Life ... 6.48 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
348.00 HYDRANTS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 60 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2000	2,547.25	60.00	42.45	44.90	1,906.17
2013	4,356.13	60.00	72.60	56.71	4,117.11
Total	6,903.38	60.00	115.06	52.35	6,023.27

Composite Average Remaining Life ... 52.35 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
371.00 STRUCTURES & IMPROV-GENERAL
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1992	12,106.20	30.00	403.54	11.22	4,526.12
1994	2,987.71	30.00	99.59	12.42	1,236.87
1996	17,823.16	30.00	594.10	13.69	8,136.03
2001	5,091.00	30.00	169.70	17.17	2,913.38
2003	13,021.91	30.00	434.06	18.66	8,100.62
2004	14,691.86	30.00	489.72	19.43	9,515.14
2005	24,486.51	30.00	816.21	20.21	16,496.26
2006	45,370.28	30.00	1,512.33	21.00	31,764.87
2007	776,497.04	30.00	25,882.99	21.81	564,487.84
Total	912,075.67	30.00	30,402.23	21.29	647,177.14

Composite Average Remaining Life ... 21.29 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
372.00 FURNITURE & OFFICE EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 12 *Survivor Curve: L3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1994	5,731.61	12.00	477.64	1.27	604.43
1998	1,234.45	12.00	102.87	2.16	221.75
2002	226.27	12.00	18.86	3.16	59.52
2004	10,326.64	12.00	860.56	3.54	3,045.53
2006	3,635.34	12.00	302.95	3.91	1,185.24
Total	21,154.31	12.00	1,762.88	2.90	5,116.47

Composite Average Remaining Life ... 2.90 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
372.10 ELECTRONICS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 6 *Survivor Curve: L3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	23,314.50	0.00	0.00	0.00	0.00
1997	5,677.20	0.00	0.00	0.00	0.00
2004	2,441.67	6.00	406.95	0.54	218.82
Total	31,433.37	2.00	406.95	0.54	218.82

Composite Average Remaining Life ... 0.54 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
373.00 TRANSPORTATION EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 14 *Survivor Curve: R5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2005	43,057.25	14.00	3,075.68	2.92	8,967.41
2006	442.71	14.00	31.62	3.72	117.61
2007	71,198.88	14.00	5,085.90	4.60	23,394.90
2008	61,599.20	14.00	4,400.17	5.54	24,357.22
2009	140,583.94	14.00	10,042.24	6.51	65,357.17
Total	316,881.98	14.00	22,635.61	5.40	122,194.31

Composite Average Remaining Life ... 5.40 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
375.00 LABORATORY EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2000	6,554.86	15.00	436.98	2.98	1,301.32
2001	3,489.20	15.00	232.61	3.38	785.26
2007	5,288.40	15.00	352.55	6.90	2,432.59
Total	15,332.46	15.00	1,022.14	4.42	4,519.17

Composite Average Remaining Life ... 4.42 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
377.00 POWER OPERATED EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1995	9,220.00	15.00	614.65	1.61	987.12
1996	15,327.57	15.00	1,021.82	1.83	1,873.73
2002	1,595.15	15.00	106.34	3.83	407.46
2007	80,207.82	15.00	5,347.07	6.90	36,894.45
2010	74,230.12	15.00	4,948.57	9.21	45,588.39
Total	180,580.66	15.00	12,038.44	7.12	85,751.14

Composite Average Remaining Life ... 7.12 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
378.00 TOOLS, SHOP & GARAGE EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: L1*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	4,268.52	20.00	213.41	7.21	1,539.18
1999	4,999.99	20.00	249.98	10.19	2,546.05
2000	207.28	20.00	10.36	10.53	109.08
2002	1,077.03	20.00	53.85	11.23	604.95
2003	833.59	20.00	41.68	11.60	483.59
2005	3,715.73	20.00	185.77	12.37	2,298.69
2006	8,191.99	20.00	409.57	12.78	5,235.24
2008	6,599.96	20.00	329.97	13.70	4,521.79
Total	29,894.09	20.00	1,494.59	11.60	17,338.58

Composite Average Remaining Life ... 11.60 Years

Hawaii Water Service Company
(723) Waikoloa Resort Water
379.00 OTHER GENERAL PLANT EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: L2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	15,248.98	15.00	1,016.60	2.86	2,910.47
1993	2,026.70	15.00	135.11	3.76	508.08
1994	4,415.91	15.00	294.39	4.00	1,177.71
1997	4,996.45	15.00	333.10	4.75	1,581.47
2006	1,453.12	15.00	96.87	7.11	688.31
Total	28,141.16	15.00	1,876.08	3.66	6,866.04

Composite Average Remaining Life ... 3.66 Years

Hawaii Water Service Company
(725) Waikoloa Irrigation
312.00 COLLECTING & IMPOUNDING RESERVOIRS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 75 *Survivor Curve:* R3

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1995	109,812.34	75.00	1,464.16	54.39	79,633.23
Total	109,812.34	75.00	1,464.16	54.39	79,633.23

Composite Average Remaining Life ... *54.39 Years*

Hawaii Water Service Company
(725) Waikoloa Irrigation
315.00 WELLS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 48 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1990	744,696.53	48.00	15,514.50	23.78	368,921.01
Total	744,696.53	48.00	15,514.50	23.78	368,921.01

Composite Average Remaining Life ... 23.78 Years

Hawaii Water Service Company
(725) Waikoloa Irrigation
324.00 PUMPING EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1990	88,525.43	30.00	2,950.83	6.35	18,732.41
1995	2,176.05	30.00	72.53	9.87	716.26
Total	90,701.48	30.00	3,023.37	6.43	19,448.68

Composite Average Remaining Life ... 6.43 Years

Hawaii Water Service Company
(725) Waikoloa Irrigation
343.40 MAINS - ALL OTHER

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 80 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1990	144,480.00	80.00	1,806.00	55.96	101,072.32
Total	144,480.00	80.00	1,806.00	55.96	101,072.32

Composite Average Remaining Life ... 55.96 Years

Hawaii Water Service Company
(725) Waikoloa Irrigation
346.00 METERS

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 20 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1987	108.39	20.00	5.42	1.10	5.95
1996	865.80	20.00	43.29	3.82	165.24
1998	945.67	20.00	47.28	4.80	226.93
2014	3,491.76	20.00	174.59	17.56	3,065.61
Total	5,411.62	20.00	270.58	12.80	3,463.73

Composite Average Remaining Life ... 12.80 Years

HAWAII WATER SERVICE COMPANY

WAIKOLOA WASTEWATER – Waikoloa Village &Waikoloa Resort

Depreciation Study

as of December 31, 2016

Earl M. Robinson, Principal
David A. Sheffer, Principal

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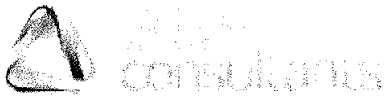
November, 2017



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November 17, 2017

Mr. Julian Gandara
Regulatory Program Manager
California Water Service Company
1720 North First Street
San Jose, CA 95112

RE: Hawaii Water Service Company-Waikoloa
Wastewater Depreciation Study as of 12-31-2016

Dear Mr. Gandara:

In accordance with your authorization, we have prepared a depreciation study related to the utility plant in service of Hawaii Water Service Company-Waikoloa Wastewater (Waikoloa Wastewater or the Company) as of December 31, 2016. Our findings and recommendations, together with supporting schedules and exhibits, are set forth in the accompanying report.

Summary schedules have been prepared to illustrate the impact of instituting the recommended annual depreciation rates as a basis for the Company's annual depreciation expense as compared to the rates presently utilized. The application of the present rates to the depreciable plant in service as of December 31, 2016 results in an annual depreciation expense of $1,675,490. In comparison, the application of the proposed depreciation rates to the depreciable plant in service at December 31, 2016 results in an annual depreciation expense of $1,974,881 which is an increase of $299,391 from current rates. The composite annual depreciation rate under present rates is 3.25 percent, while the proposed pro forma composite depreciation rate is 3.83 percent.

Section 2 of our report contains the summary schedules showing the results of our service life and salvage studies and summaries of presently utilized depreciation rates. The subsequent sections of the report present a detailed outline of the methodology and procedures used in the study together with supporting calculations and analyses used in the development of the results.

Respectfully submitted,

Earl M Robinson

EARL M. ROBINSON, CDP
&

David A. Sheffer

DAVID A. SHEFFER

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SECTION 1

Hawaii Water Service Company
Waikoloa Village Wastewater & Waikoloa Resort Wastewater

Executive Summary

Table 1's on pages 2-1 to 2-3 is are comparative summaries (for Waikoloa Total, Village, and Resort) which illustrates the effect of the proposed depreciation rates. The schedule includes a comparison of the annual depreciation rates and annual depreciation expense under both present and proposed historical rates applied using the Straight Line Method for each depreciable property group of the Hawaii Water Service Company-Waikoloa Wastewater ("Waikoloa Wastewater or Company") plant in service as of December 31, 2016. The proposed depreciation rates were developed utilizing the Straight Line (SL) Method, Broad Group (BG) Procedure, and the Average Remaining Life (ARL) Technique.

Table 1a's on pages 2-4 to 2-9 summarizes the Company's December 31, 2016 property group depreciation reserves by the detailed segments of plant only, gross salvage, and cost of removal components.

Table 2 - Plant Only's on pages 2-10 to 2-15, which are the development of average remaining life depreciation rates for the Plant Only recovery component), provides a summary of the detailed life estimates and service life parameters (Iowa Curves) utilized in preparing the Average Remaining Life depreciation rates for each property group. The schedule provides a summary of the detailed data and narrative of the study results set forth in Sections 4 through 6. The developed depreciation rates (Column L) were determined by studying the Company's historical investment data together with the interpretation of future life expectancies which will have a bearing on the overall service life of the Company's property.

Table 2 - Gross Salvage on pages 2-16 to 2-21 are similar tables to Table 2 - Plant Only, except that this table develops the component level depreciation rates for the recovery of the gross salvage portion of the property cost.

Table 2 - Cost of Removal's on pages 2-22 to 2-27 summarizes the depreciation recovery rates for the cost of removal segment of the total plant cost.

Table 3's on pages 2-28 to 2-32 reconciles the December 31, 2016 account level plant in service balances per books versus the balances utilized in the performance of the depreciation study.

Table 4's on pages 2-33 to 2-37 summarizes the Company's December 31, 2016 book depreciation reserve balances per books, adjustments, and the depreciation reserve per the December 31, 2016 depreciation study.

Table 5's on pages 2-38 to 2-43 summarizes the depreciation parameters underlying the Company's current depreciation rates as well as also provides similar information relative to the proposed depreciation parameters and depreciation rates as of December 31, 2016.

Table 6 on pages 2-44 to 2-45 summarizes the depreciation average service lives and net salvage percent utilized throughout the industry for the various property groups. This information was utilized along with an investigation of the Company's property investments, historical analysis of available data, discussions with management, and a general review of the physical operating property to estimated depreciation parameters underlying the proposed depreciation rates.

With regard to the Company's plant in service, several of the proposed rates reflect marked changes (as outlined in Section 4 of the study) from the current depreciation rates. The accounts for which the most notable depreciation expense changes occurred in comparison to the

current depreciation rates include Account 354.00-Structures & Improvements, and Account 380.10-Treatment & Disposal Equipment.

The depreciation rate for Account 354.00 – Structures & Improvements declined from 3.10 percent to 2.71 percent. A 35 year average service life is forecast as the applicable average service life for the proposed depreciation rate to give consideration to the anticipated ongoing changes of property operating along with the general range of lives used in the industry. The implicit underlying average service life for this property group is 32.3 years. The net salvage underlying the current depreciation rate is unknown, but assumed to be zero percent. Future net salvage of negative 15% is estimated in developing the proposed depreciation rate.

The proposed depreciation rate for Account 380.10 – Treatment & Disposal Equipment, increased from 3.05 percent to 4.60 percent. The proposed depreciation rate is the result of combined changes of both the average service life and net salvage parameters. The underlying estimated average service life is 30 years (giving consideration of the range of lives within the industry and the corrosive environment in which the property operates and available company experience. The implicit average service life underlying the current depreciation rate is 32.8 years. The future negative net salvage estimated for the proposed property group depreciation rate is negative ten (10) percent. The net salvage percent underlying the current depreciation rate is unknown, but assumed to be zero percent.

The utilization of the recommended depreciation rates based upon the Straight Line Average Remaining Life Procedure results in the setting of depreciation rates which will continuously true up the Company's level of capital recovery over the life of each asset group. Application of this procedure, which is based upon the current best estimates of service life together with the Company's plant in service and accrued depreciation, produces annual

depreciation rates that will result in the Company recovering 100 percent of its investment -- no more, no less.

It is recommended that the Company continue to apply depreciation rates and maintain its book depreciation reserve on an account-level basis. The maintenance of the book reserve on an account-level basis requires both the development of annual depreciation expense and distribution of other reserve account charges to an individual level. Maintaining the Company's depreciation records in this detail will aid in completing the various rate studies and, most importantly, clearly identify the Company's level of capital recovery relative to each category of plant investment.

The general drivers for the proposed depreciation rates include an assessment of the Company's historical experience with regard to achieved service lives and net salvage factors. In addition, consideration is given to current and anticipated events which are anticipated to impact the Company's ability to recover its fixed capital costs related to utility plant in service.

The depreciation rate for each individual account changed as a result of estimates obtained through the in-depth analysis of the Company's most recent data together with an interpretation of ongoing and anticipated future events. Some of the revisions were not significant and typically reflect fine tuning of previously utilized depreciation rates while others were more substantial in nature. Several of the accounts did reflect more significant changes (as outlined in Section 4 of this report) from the previously utilized depreciation rates.

Several of the remaining account/sub-accounts experienced increases or decreases in recommended depreciation rates to a lesser degree, as noted per Table 1 of this report. This revision in annual depreciation rates and expense is the result of both changes in the estimated service lives and salvage factors, and reflects the impact of the Company's property changes since the most recent study.

With regard to the inclusion of higher negative net salvage levels in the development of proposed depreciation rates, as noted within the discussion related to net salvage in Section 3 of the depreciation report, it should be noted that the level of experienced net salvage should simply be a benchmark from which to estimate future net salvage. It is highly likely that the negative net salvage amounts experienced even recently will simply be the floor above which future negative net salvage levels will increase to a higher level. To appropriately and proportionately allocate the true total asset cost (original cost adjusted for net salvage) over its applicable service life, proper consideration must be given, in each accounting period, to the total costs that are anticipated to occur relative to the Company's assets that provide customer service.

Applying the proposed depreciation rates to the Company's December 31, 2016 historical depreciable plant in service balances produces annual depreciation expense of $1,974,861 which is an increase of $299,391 in depreciation expense from the application of the current depreciation rate.

The following summary compares the present and proposed composite depreciation rates and is for illustrative purposes only. The Composite Depreciation Rate should not be applied to the total Company investment inasmuch as the non-proportional change in plant investment as a result of property additions or retirements would render the composite rate inappropriate. The Table 1 schedule (in Section 2 of the report) lists the recommended annual depreciation rates for each of the applicable property accounts.

Present Depreciation Rates

Depreciable Plant In Service at December 31, 2016	$51,620,728
Annual Depreciation Expense	$1,675,490
Composite Annual Depreciation Rate	3.25%

Proposed Depreciation Rates

Depreciable Plant In Service at December 31, 2016	$51,620,728
Annual Depreciation Expense	$1,974,881
Composite Annual Depreciation Rate	3.83%

SECTION 2

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	PRESENT RATES Rate %	PRESENT RATES Annual Accrual Amount	PROPOSED RATES: Proposed Plant Only Rates Rate %	Proposed Plant Only Rates Annual Accrual Amount	Proposed Gross Salvage Rates Rate %	Proposed Gross Salvage Rates Annual Accrual Amount	Proposed Gross COR Rates Rate %	Proposed Gross COR Rates Annual Accrual Amount	Total Proposed Rates Rate %	Total Proposed Rates Annual Accrual Amount	Net Change Depr. Exp.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Collection Plant												
354.00	Structure & Improvements	19,179,430.57	3.10%	593,950.36	2.34%	448,422.34	0.00%	-	0.37%	70,020.27	2.71%	519,416.93	(74,533.43)
355.00	Power Generation Equipment	886,808.10	6.76%	59,964.24	3.77%	33,390.35	0.00%	-	0.00%	-	3.77%	33,390.35	(26,573.89)
360.00	Collection Sewers Force	3,654,843.66	2.26%	82,746.53	2.40%	87,690.52	0.00%	-	0.19%	6,784.56	2.59%	94,500.81	11,754.28
361.00	Collection Sewers Gravity	5,025,568.13	2.07%	104,005.13	2.25%	113,268.50	0.00%	-	0.27%	13,792.05	2.52%	126,697.77	22,692.64
362.00	Special Collecting Structure	2,792,198.23	3.24%	90,544.80	2.25%	62,824.46	0.00%	-	0.37%	10,331.13	2.62%	73,155.59	(17,389.21)
364.00	Flow Measuring Devices	76,036.70	3.33%	2,534.85	9.99%	7,596.07	0.00%	-	0.00%	-	9.99%	7,596.07	5,061.22
370.00	Receiving Wells	1,066,775.27	2.10%	22,385.28	3.08%	32,859.15	0.00%	-	0.43%	4,587.14	3.51%	37,443.81	15,058.53
370.10	Pumping Equipment	3,356,094.16	3.15%	105,602.20	4.19%	140,574.53	0.00%	-	0.71%	23,814.36	4.89%	164,176.18	58,573.98
	TOTAL Collection Plant	36,037,754.82	2.95%	1,061,733.39	2.57%	926,625.92	0.00%	-	0.36%	129,329.51	2.93%	1,056,377.51	(5,355.88)
	Treatment & Disposal Plant												
380.10	Treatment & Disposal Equip	12,068,731.95	3.05%	367,776.71	4.20%	506,917.86	0.00%	-	0.40%	48,243.81	4.60%	555,161.67	187,384.96
381.00	Plant Sewers	36,649.20	3.33%	1,221.60	3.31%	1,213.09	0.00%	-	0.38%	139.27	3.69%	1,352.36	130.76
382.00	Outfall Sewer Lines	114,384.01	3.33%	3,812.76	3.50%	4,003.44	0.00%	-	0.39%	446.10	3.89%	4,449.54	636.78
385.00	Reuse Trans & Distrib System	264,783.22	3.33%	8,826.12	3.50%	9,267.41	0.00%	-	0.39%	1,032.65	3.89%	10,300.07	1,473.95
	TOTAL Treatment & Disposal Plant	12,484,548.38	3.06%	381,637.19	4.18%	521,401.80	0.00%	-	0.40%	49,861.83	4.58%	571,263.64	189,626.45
	General Plant												
389.00	Other Miscellaneous Equipment	521,694.77	3.54%	18,475.20	8.12%	42,368.40	0.00%	-	0.00%	-	8.12%	42,368.40	23,893.20
393.00	Tools, Shop, Garage Equipment	872.06	60.00%	523.20	6.99%	60.96	0.00%	-	0.00%	-	7.02%	61.22	(461.98)
394.00	Laboratory Equipment	81,651.55	1.47%	1,202.00	7.43%	6,063.34	0.00%	-	0.00%	-	7.43%	6,063.34	4,861.34
395.50	Power Operated Equip	30,968.65	0.79%	244.68	2.92%	903.55	-1.20%	(371.40)	0.00%	-	1.72%	532.15	287.47
395.50	Office Furn & Equipment	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
396.00	Communication Equipment	87,695.96	0.29%	257.88	2.13%	1,867.92	0.00%	-	0.00%	-	2.13%	1,867.92	1,610.04
396.50	Transportation Equipment	577,873.12	4.19%	24,191.12	20.49%	118,406.77	-3.72%	(21,468.92)	0.00%	-	16.77%	96,937.85	72,746.73
397.00	Miscellaneous Equipment	1,679,656.13	10.95%	184,002.96	10.48%	176,027.96	0.00%	-	0.00%	-	10.48%	176,027.96	(7,975.00)
397.50	Stores Equipment	6,846.85	3.33%	228.24	6.55%	448.15	0.00%	-	0.00%	-	6.54%	447.79	219.55
398.00	Other Tangible Plant	111,166.14	2.69%	2,994.36	20.63%	22,933.57	0.00%	-	0.00%	-	20.63%	22,933.57	19,939.21
	TOTAL General Plant	3,098,425.23	7.49%	232,119.64	11.91%	369,080.62	-0.70%	(21,840.32)	0.00%	0.00	11.21%	347,240.20	115,120.56
	TOTAL DEPRECIABLE PLANT	51,620,728.43	3.25%	1,675,490.22	3.52%	1,817,108.34	-0.04%	(21,840.32)	0.35%	179,191.34	3.83%	1,974,881.35	299,391.13
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	-											
302.00	Franchises & Consents	-											
303.00	Other Intangible Plant	-											
	TOTAL Intangible Plant	-											
	Land & Land Rights												
306.00	Land & Land Rights	1,078,436.82											
	TOTAL Land & Land Rights	1,078,436.82											
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82											
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25											

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Collection Plant												
354.00	Structure & Improvements	9,743,198.99	3.33%	324,925.51	1.91%	186,095.10	0.00%	-	0.37%	36,049.84	2.29%	223,119.26	(101,806.25)
355.00	Power Generation Equipment	326,112.48	3.33%	10,870.32	3.31%	10,794.32	0.00%	-	0.00%	-	3.31%	10,794.32	(76.00)
360.00	Collection Sewers Force	257,304.50	2.00%	5,146.08	2.39%	6,149.58	0.00%	-	0.26%	668.99	2.66%	6,844.30	1,698.22
361.00	Collection Sewers Gravity	1,397,699.83	2.17%	30,365.04	2.16%	30,190.32	0.00%	-	0.26%	3,634.02	2.42%	33,824.34	3,459.30
362.00	Special Collecting Structure	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
364.00	Flow Measuring Devices	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
370.00	Receiving Wells	24,727.27	3.33%	824.52	3.09%	764.07	0.00%	-	0.43%	106.33	3.51%	867.93	43.41
370.10	Pumping Equipment	8,181.20	3.33%	272.76	3.63%	296.98	0.00%	-	0.54%	44.18	1.57%	128.44	(144.32)
	TOTAL Collection Plant	11,757,224.27	3.17%	372,404.23	1.99%	234,290.37	0.00%	-	0.34%	40,503.36	2.34%	275,578.59	(96,825.64)
	Treatment & Disposal Plant												
380.10	Treatment & Disposal Equip	3,919,192.75	2.94%	115,275.27	4.18%	163,822.26	0.00%	-	0.42%	16,460.61	4.60%	180,282.87	65,007.60
381.00	Plant Sewers	36,649.20	3.33%	1,221.60	3.31%	1,213.09	0.00%	-	0.38%	139.27	3.69%	1,352.36	130.76
382.00	Outfall Sewer Lines	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
385.00	Reuse Trans & Distrib System	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL Treatment & Disposal Plant	3,955,841.95	2.94%	116,496.87	4.17%	165,035.35	0.00%	-	0.42%	16,599.88	4.59%	181,635.23	65,138.36
	General Plant												
389.00	Other Miscellaneous Equipment	519,178.75	3.54%	18,391.32	8.12%	42,157.31	0.00%	-	0.00%	-	8.12%	42,157.31	23,765.99
393.00	Tools, Shop, Garage Equipment	872.06	60.00%	523.20	6.99%	60.96	0.00%	-	0.00%	-	7.02%	61.22	(461.98)
394.00	Laboratory Equipment	7,239.01	3.34%	241.52	3.58%	259.16	0.00%	-	0.00%	-	3.58%	259.16	17.64
395.00	Power Operated Equip	19,531.31	0.00%	-	0.00%	-	-1.07%	(208.99)	0.00%	-	-1.07%	(208.99)	(208.99)
395.50	Office Furn & Equipment	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
396.00	Communication Equipment	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
396.50	Transportation Equipment	339,984.33	3.45%	11,746.08	18.51%	62,931.10	-3.18%	(10,811.50)	0.00%	-	15.33%	52,119.60	40,373.52
397.00	Miscellaneous Equipment	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
397.50	Stores Equipment	1,795.09	3.34%	59.88	5.35%	96.04	0.00%	-	0.00%	-	5.33%	95.68	35.80
398.00	Other Tangible Plant	111,166.14	2.69%	2,994.36	20.63%	22,933.57	0.00%	-	0.00%	-	20.63%	22,933.57	19,939.21
	TOTAL General Plant	999,766.69	3.40%	33,956.36	12.85%	128,438.14	-1.10%	(11,020.49)	0.00%	0.00	11.74%	117,417.55	83,461.19
	TOTAL DEPRECIABLE PLANT	16,712,832.91	3.13%	522,857.46	3.16%	527,763.86	-0.07%	(11,020.49)	0.34%	57,103.24	3.44%	574,631.37	51,773.91
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	0.00											
302.00	Franchises & Consents	0.00											
303.00	Other Intangible Plant	0.00											
	TOTAL Intangible Plant	0.00											
	Land & Land Rights												
306.00	Land & Land Rights	0.00											
	TOTAL Land & Land Rights	0.00											
	TOTAL NON-DEPRECIABLE PLANT	0.00											
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91											

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service
as of December 31, 2016 and Related Annual Book Depreciation Expense
Under Present and Proposed Rates

Acct. No	Description	Original Cost 12-31-16	Under Present Rates		PROPOSED RATES: Proposed Plant Only Rates		Proposed Gross Salvage Rates		Proposed Gross COR Rates		Total Proposed Rates		Net Change Depr. Exp.
			Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	Rate %	Annual Accrual Amount	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)
	DEPRECIABLE PLANT												
	Collection Plant												
354.00	Structure & Improvements	9,436,231.58	2.85%	269,024.85	2.78%	262,327.24	0.00%	-	0.36%	33,970.43	3.14%	296,297.67	27,272.82
355.00	Power Generation Equipment	560,695.62	8.76%	49,093.92	4.03%	22,596.03	0.00%	-	0.00%	-	4.03%	22,596.03	(26,497.89)
360.00	Collection Sewers Force	3,397,539.16	2.28%	77,600.45	2.40%	81,540.94	0.00%	-	0.18%	6,115.57	2.58%	87,656.51	10,056.06
361.00	Collection Sewers Gravity	3,627,868.30	2.03%	73,640.09	2.29%	83,078.18	0.00%	-	0.28%	10,158.03	2.56%	92,873.43	19,233.34
362.00	Special Collecting Structure	2,792,198.23	3.24%	90,544.80	2.25%	62,824.46	0.00%	-	0.37%	10,331.13	2.62%	73,155.59	(17,389.21)
364.00	Flow Measuring Devices	76,036.70	3.33%	2,534.85	9.99%	7,596.07	0.00%	-	0.00%	-	9.99%	7,596.07	5,061.22
370.00	Receiving Wells	1,042,048.00	2.07%	21,560.76	3.08%	32,095.08	0.00%	-	0.43%	4,480.81	3.51%	36,575.88	15,015.12
370.10	Pumping Equipment	3,347,912.96	3.15%	105,329.44	4.19%	140,277.55	0.00%	-	0.71%	23,770.18	4.90%	164,047.74	58,718.30
	TOTAL Collection Plant	24,280,530.55	2.84%	689,329.16	2.85%	692,335.55	0.00%	-	0.37%	88,826.15	3.22%	780,798.92	91,469.76
	Treatment & Disposal Plant												
380.10	Treatment & Disposal Equip	8,149,539.20	3.10%	252,501.44	4.21%	343,095.60	0.00%	-	0.39%	31,783.20	4.60%	374,878.80	122,377.36
381.00	Plant Sewers	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
382.00	Outfall Sewer Lines	114,384.01	3.33%	3,812.76	3.50%	4,003.44	0.00%	-	0.39%	446.10	3.89%	4,449.54	636.78
385.00	Reuse Trans & Distrib System	264,783.22	3.33%	8,826.12	3.50%	9,267.41	0.00%	-	0.39%	1,032.65	3.89%	10,300.07	1,473.95
	TOTAL Treatment & Disposal Plant	8,528,706.43	3.11%	265,140.32	4.18%	356,366.45	0.00%	-	0.39%	33,261.95	4.57%	389,628.41	124,488.09
	General Plant												
389.00	Other Miscellaneous Equipment	2,516.02	3.33%	83.88	8.39%	211.09	0.00%	-	0.00%	-	8.39%	211.09	127.21
393.00	Tools, Shop, Garage Equipment	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
394.00	Laboratory Equipment	74,412.54	1.29%	960.48	7.80%	5,804.18	0.00%	-	0.00%	-	7.80%	5,804.18	4,843.70
395.00	Power Operated Equip	11,437.34	2.14%	244.68	7.90%	903.55	-1.42%	(162.41)	0.00%	-	6.48%	741.14	496.46
395.50	Office Furn & Equipment	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
396.00	Communication Equipment	87,695.96	0.29%	257.88	2.13%	1,867.92	0.00%	-	0.00%	-	2.13%	1,867.92	1,610.04
396.50	Transportation Equipment	237,888.79	5.23%	12,445.04	23.32%	55,475.67	-4.48%	(10,657.42)	0.00%	-	18.84%	44,818.25	32,373.21
397.00	Miscellaneous Equipment	1,679,656.13	10.95%	184,002.96	10.48%	176,027.96	0.00%	-	0.00%	-	10.48%	176,027.96	(7,975.00)
397.50	Stores Equipment	5,051.76	3.33%	168.36	6.97%	352.11	0.00%	-	0.00%	-	6.97%	352.11	183.75
398.00	Other Tangible Plant	0.00	0.00%	-	0.00%	-	0.00%	-	0.00%	-	0.00%	-	-
	TOTAL General Plant	2,098,658.54	9.44%	198,163.28	11.47%	240,642.48	-0.52%	(10,819.83)	0.00%	0.00	10.95%	229,822.65	31,659.37
	TOTAL DEPRECIABLE PLANT	34,907,895.52	3.30%	1,152,632.76	3.69%	1,289,344.48	-0.03%	(10,819.83)	0.35%	122,088.10	4.01%	1,400,249.98	247,617.22
	NON-DEPRECIABLE PLANT												
	Intangible Plant												
301.00	Organization	-											
302.00	Franchises & Consents	-											
303.00	Other Intangible Plant	-											
	TOTAL Intangible Plant	-											
	Land & Land Rights												
306.00	Land & Land Rights	1,078,436.82											
	TOTAL Land & Land Rights	1,078,436.82											
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82											
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34											

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(d)	(e)	(f)	(d)	(e)	(f)	(g)	(h)	(i)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	19,179,430.57	35-R4	-15.0%	3,365,866.90	2,395,954.76	191,924.79	0.00	2,204,029.97
355.00	Power Generation Equipment	886,808.10	30-R3	0.0%	152,245.99	60,748.78	0.00	0.00	60,748.78
360.00	Collection Sewers Force	3,654,843.66	45-R3	-10.0%	1,193,321.40	1,063,690.03	157,677.06	0.00	906,012.97
361.00	Collection Sewers Gravity	5,025,568.13	45-R3	-10.0%	1,552,976.72	1,451,316.97	64,267.57	0.00	1,387,049.40
362.00	Special Collecting Structure	2,792,198.23	45-R4	-15.0%	335,079.07	265,788.27	1,664.76	0.00	264,123.51
364.00	Flow Measuring Devices	76,036.70	10-R3	0.0%	37,326.54	12,693.77	0.00	0.00	12,693.77
370.00	Receiving Wells	1,066,775.27	40-R3	-15.0%	223,211.56	0.00	9,811.63	0.00	-9,811.63
370.10	Pumping Equipment	3,356,094.16	30-R3	-15.0%	1,441,422.34	1,124,480.21	107,031.88	0.00	1,017,448.33
	TOTAL Collection Plant	36,037,754.82			8,301,450.52	6,374,672.79	532,377.69	0.00	5,842,295.10
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	12,068,731.95	30-R4	-10.0%	3,749,416.49	2,190,567.26	242,346.30	0.00	1,948,220.96
381.00	Plant Sewers	36,649.20	30-R3	-10.0%	4,595.40	4,377.42	0.00	0.00	4,377.42
382.00	Outfall Sewer Lines	114,384.01	35-R3	-10.0%	18,383.57	11,756.01	0.00	0.00	11,756.01
385.00	Reuse Trans & Distrib System	264,783.22	35-R3	-10.0%	42,555.43	27,213.87	0.00	0.00	27,213.87
	TOTAL Treatment & Disposal Plant	12,484,548.38			3,814,950.89	2,233,914.56	242,346.30	0.00	1,991,568.26
	General Plant								
389.00	Other Miscellaneous Equipment	521,694.77	15-R3	0.0%	121,202.85	33,599.56	0.00	0.00	33,599.56
393.00	Tools, Shop, Garage Equipment	872.06	15-R3	0.0%	85.32	43.60	0.00	0.00	43.60
394.00	Laboratory Equipment	81,651.55	7-R3	0.0%	72,282.21	60,956.10	0.00	0.00	60,956.10
395.00	Power Operated Equip	30,968.65	15-R3	15.0%	7,470.25	23,627.47	0.00	-483.58	24,111.05
395.50	Office Furn & Equipment	0.00	15-R3	0.0%	0.00	780.65	0.00	-483.58	1,264.23
396.00	Communication Equipment	87,695.96	12-R2.5	0.0%	77,599.02	84,448.59	0.00	0.00	84,448.59
396.50	Transportation Equipment	577,873.12	8-R3	15.0%	241,739.14	105,001.45	0.00	-2,229.15	107,230.60
397.00	Miscellaneous Equipment	1,679,656.13	15-R1.5	0.0%	669,684.02	94,319.92	0.00	0.00	94,319.92
397.50	Stores Equipment	6,846.85	15-R1.5	0.0%	0.00	953.02	0.00	0.00	953.02
398.00	Other Tangible Plant	111,166.14	10-R3	0.0%	98,414.19	82,041.48	0.00	0.00	82,041.48
	TOTAL General Plant	3,098,425.23			1,288,477.00	485,771.84	0.00	(3,196.31)	488,968.15
	TOTAL DEPRECIABLE PLANT	51,620,728.43			13,404,878.41	9,094,359.19	774,723.99	(3,196.31)	8,322,831.51

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(d)	(e)	(f)	(d)	(e)	(f)	(g)	(h)	(i)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00							
302.00	Franchises & Consents	0.00							
303.00	Other Intangible Plant	0.00							
	TOTAL Intangible Plant	0.00							
	Land & Land Rights								
306.00	Land & Land Rights	1,078,436.82							
	TOTAL Land & Land Rights	1,078,436.82							
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82							
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25							

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	9,743,198.99	35-R4	-15.0%	1,756,345.76	2,466,806.40	43,390.38	-	2,423,416.02
355.00	Power Generation Equipment	326,112.48	30-R3	0.0%	37,173.52	39,093.79	-	-	39,093.79
360.00	Collection Sewers Force	257,304.50	45-R3	-10.0%	127,655.37	114,246.28	9,142.65	-	105,103.63
361.00	Collection Sewers Gravity	1,397,699.83	45-R3	-10.0%	819,686.34	828,238.93	64,267.57	-	763,971.36
362.00	Special Collecting Structure	-	45-R4	-15.0%	-	-			
364.00	Flow Measuring Devices	-	10-R3	0.0%	-	-	-	-	-
370.00	Receiving Wells	24,727.27	40-R3	-15.0%	5,173.92	-	226.27	-	(226.27)
370.10	Pumping Equipment	8,181.20	30-R3	-15.0%	768.08	5,873.89			
	TOTAL Collection Plant	11,757,224.27			2,746,802.99	3,454,259.29	117,026.87	-	3,331,358.53
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	3,919,192.75	30-R4	-10.0%	2,008,921.41	1,402,594.72	125,961.07	-	1,276,633.65
381.00	Plant Sewers	36,649.20	30-R3	-10.0%	4,595.40	4,377.42	-	-	4,377.42
382.00	Outfall Sewer Lines	0.00	35-R3	-10.0%	-	-	-	-	-
385.00	Reuse Trans & Distrib System	0.00	35-R3	-10.0%	-	-	-	-	-
	TOTAL Treatment & Disposal Plant	3,955,841.95			2,013,516.81	1,406,972.14	125,961.07	-	1,281,011.07
	General Plant								
389.00	Other Miscellaneous Equipment	519,178.75	15-R3	0.0%	120,480.70	33,340.93	-	-	33,340.93
393.00	Tools, Shop, Garage Equipment	872.06	15-R3	0.0%	85.32	43.60	-	-	43.60
394.00	Laboratory Equipment	7,239.01	7-R3	0.0%	2,450.79	6,040.09	-	-	6,040.09
395.00	Power Operated Equip	19,531.31	15-R3	15.0%	2,590.66	19,531.31	-	-	19,531.31
395.50	Office Furn & Equipment	0.00	15-R3	0.0%	-	-	-	-	-
396.00	Communication Equipment	0.00	12-R2.5	0.0%	-	-	-	-	-
396.50	Transportation Equipment	339,984.33	8-R3	15.0%	119,031.48	43,496.51	-	(45.62)	43,542.13
397.00	Miscellaneous Equipment	-	15-R1.5	0.0%	-	3,063.39	-	-	3,063.39
397.50	Stores Equipment	1,795.09	15-R1.5	0.0%	146.05	476.00	-	-	476.00
398.00	Other Tangible Plant	111,166.14	10-R3	0.0%	98,414.19	82,041.48	-	-	82,041.48
	TOTAL General Plant	999,766.69			343,199.19	188,033.31	0.00	(45.62)	188,078.93
	TOTAL DEPRECIABLE PLANT	16,712,832.91			5,103,518.99	5,049,264.74	242,987.94	(45.62)	4,800,448.53

Hawaii Water Service Company

Waikoloa Village Wastewater Operations (VS)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-							
302.00	Franchises & Consents	-							
303.00	Other Intangible Plant	-							
	TOTAL Intangible Plant	-							
	Land & Land Rights								
306.00	Land & Land Rights	-							
	TOTAL Land & Land Rights	-							
	TOTAL NON-DEPRECIABLE PLANT	-							
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91							

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company

Waikoloa Resort Operations-Wastewater (WS)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Existing A.S.L./ Curve	Existing Salvage %	Theoretical Deprecation Reserve	Total Book Depr Reserve 12-31-16	Cost of Removal In Book Res.	Gross Salvage In Book Res.	Plant Only Depr Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	9,436,231.58	35-R4	-15.0%	1,609,521.14	(70,851.64)	148,534.41	-	(219,386.05)
355.00	Power Generation Equipment	560,695.62	30-R3	0.0%	115,072.47	21,654.99	-	-	21,654.99
360.00	Collection Sewers Force	3,397,539.16	45-R3	-10.0%	1,065,666.03	949,443.75	148,534.41	-	800,909.34
361.00	Collection Sewers Gravity	3,627,868.30	45-R3	-10.0%	733,290.38	623,078.04	-	-	623,078.04
362.00	Special Collecting Structure	2,792,198.23	45-R4	-15.0%	335,079.07	265,788.27	1,664.76	-	264,123.51
364.00	Flow Measuring Devices	76,036.70	10-R3	0.0%	37,326.54	12,693.77	-	-	12,693.77
370.00	Receiving Wells	1,042,048.00	40-R3	-15.0%	218,037.64	-	9,585.36	-	(9,585.36)
370.10	Pumping Equipment	3,347,912.96	30-R3	-15.0%	1,440,654.26	1,118,606.32	107,031.88	-	1,011,574.44
	TOTAL Collection Plant	24,280,530.55			5,554,647.53	2,920,413.50	415,350.82	-	2,505,062.68
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	8,149,539.20	30-R4	-10.0%	1,740,495.08	787,972.54	116,385.23	-	671,587.31
381.00	Plant Sewers	0.00	30-R3	-10.0%	-	-	-	-	-
382.00	Outfall Sewer Lines	114,384.01	35-R3	-10.0%	18,383.57	11,756.01	-	-	11,756.01
385.00	Reuse Trans & Distrib System	264,783.22	35-R3	-10.0%	42,555.43	27,213.87	-	-	27,213.87
	TOTAL Treatment & Disposal Plant	8,528,706.43			1,801,434.08	826,942.42	116,385.23	-	710,557.19
	General Plant								
389.00	Other Miscellaneous Equipment	2,516.02	15-R3	0.0%	722.15	258.63	-	-	258.63
393.00	Tools, Shop, Garage Equipment	0.00	15-R3	0.0%	-	-	-	-	-
394.00	Laboratory Equipment	74,412.54	7-R3	0.0%	69,831.42	54,916.01	-	-	54,916.01
395.00	Power Operated Equip	11,437.34	15-R3	15.0%	4,879.59	4,096.16	-	(483.58)	4,579.74
395.50	Office Furn & Equipment	0.00	15-R3	0.0%	-	780.65	-	(483.58)	1,264.23
396.00	Communication Equipment	87,695.96	12-R2.5	0.0%	77,599.02	84,448.59	-	-	84,448.59
396.50	Transportation Equipment	237,888.79	8-R3	15.0%	122,707.66	61,504.94	-	(2,183.53)	63,688.47
397.00	Miscellaneous Equipment	1,679,656.13	15-R1.5	0.0%	669,684.02	91,256.53	-	-	91,256.53
397.50	Stores Equipment	5,051.76	15-R1.5	0.0%	678.55	477.02	-	-	477.02
398.00	Other Tangible Plant	0.00	10-R3	0.0%	-	-	-	-	-
	TOTAL General Plant	2,098,658.54			946,102.41	297,738.53	0.00	(3,150.69)	300,889.22
	TOTAL DEPRECIABLE PLANT	34,907,895.52			8,302,184.02	4,045,094.45	531,736.05	(3,150.69)	3,516,509.09

Hawaii Water Service Company

Waikoloa Resort Operations-Wastewater (WS)

Summary of Gross Salvage and Cost of Removal In Book Depreciation Reserve as of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Existing A.S.L./ Curve (d)	Existing Salvage % (e)	Theoretical Deprecation Reserve (f)	Total Book Depr Reserve 12-31-16 (g)	Cost of Removal In Book Res. (h)	Gross Salvage In Book Res. (i)	Plant Only Depr Reserve 12-31-16 (j)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	-							
302.00	Franchises & Consents	-							
303.00	Other Intangible Plant	-							
	TOTAL Intangible Plant	-							
	Land & Land Rights								
306.00	Land & Land Rights	1,078,436.82							
	TOTAL Land & Land Rights	1,078,436.82							
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82							
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34							

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage %	Estimated Future Net Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	19,179,430.57	0.0%	0.00	19,179,430.57	2,204,029.97	16,975,400.60	35-R4	42.8	448,635.00	2.34%
355.00	Power Generation Equipment	886,808.10	0.0%	0.00	886,808.10	60,748.78	826,059.32	30-R3	26.5	33,409.00	3.77%
360.00	Collection Sewers Force	3,654,843.66	0.0%	0.00	3,654,843.66	906,012.97	2,748,830.69	45-R3	41.6	87,868.00	2.40%
361.00	Collection Sewers Gravity	5,025,568.13	0.0%	0.00	5,025,568.13	1,387,049.40	3,638,518.73	45-R3	44.4	113,145.00	2.25%
362.00	Special Collecting Structure	2,792,198.23	0.0%	0.00	2,792,198.23	264,123.51	2,528,074.72	45-R4	44.5	62,731.00	2.25%
364.00	Flow Measuring Devices	76,036.70	0.0%	0.00	76,036.70	12,693.77	63,342.93	10-R3	0.0	7,595.00	9.99%
370.00	Receiving Wells	1,066,775.27	0.0%	0.00	1,066,775.27	-9,811.63	1,076,586.90	40-R3	32.4	32,903.00	3.08%
370.10	Pumping Equipment	3,356,094.16	0.0%	0.00	3,356,094.16	1,011,574.44	2,344,519.72	30-R3	23.9	140,533.00	4.19%
	TOTAL Collection Plant	36,037,754.82		0.00	36,037,754.82	5,836,421.21	30,201,333.61			926,819.00	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	12,068,731.95	0.0%	0.00	12,068,731.95	1,948,220.96	10,120,510.99	30-R4	23.8	506,595.00	4.20%
381.00	Plant Sewers	36,649.20	0.0%	0.00	36,649.20	4,377.42	32,271.78	30-R3	30.2	1,214.00	3.31%
382.00	Outfall Sewer Lines	114,384.01	0.0%	0.00	114,384.01	11,756.01	102,628.00	35-R3	28.6	4,006.00	3.50%
385.00	Reuse Trans & Distrib System	264,783.22	0.0%	0.00	264,783.22	27,213.87	237,569.35	35-R3	28.6	9,273.00	3.50%
	TOTAL Treatment & Disposal Plant	12,484,548.38		0.00	12,484,548.38	1,991,568.26	10,492,980.12			521,088.00	
	General Plant										
389.00	Other Miscellaneous Equipment	521,694.77	0.0%	0.00	521,694.77	33,599.56	488,095.21	15-R3	12.3	42,384.00	8.12%
393.00	Tools, Shop, Garage Equipment	872.06	0.0%	0.00	872.06	43.60	828.46	15-R3	14.3	61.00	6.99%
394.00	Laboratory Equipment	81,651.55	0.0%	0.00	81,651.55	60,956.10	20,695.45	7-R3	13.5	6,062.00	7.42%
395.00	Power Operated Equip	30,968.65	0.0%	0.00	30,968.65	24,111.05	6,857.60	15-R3	34.3	904.00	2.92%
395.50	Office Furn & Equipment	0.00	0.0%	0.00	0.00	1,264.23	-1,264.23	15-R3	0.0	0.00	0.00%
396.00	Communication Equipment	87,695.96	0.0%	0.00	87,695.96	84,448.59	3,247.37	12-R2.5	47.0	1,866.00	2.13%
396.50	Transportation Equipment	577,873.12	0.0%	0.00	577,873.12	107,230.60	470,642.52	8-R3	4.9	118,417.00	20.49%
397.00	Miscellaneous Equipment	1,679,656.13	0.0%	0.00	1,679,656.13	94,319.92	1,585,336.21	15-R1.5	9.5	176,098.00	10.48%
397.50	Stores Equipment	6,846.85	0.0%	0.00	6,846.85	953.02	5,893.83	15-R1.5	15.3	448.00	6.54%
398.00	Other Tangible Plant	111,166.14	0.0%	0.00	111,166.14	82,041.48	29,124.66	10-R3	4.8	22,933.00	20.63%
	TOTAL General Plant	3,098,425.23		0.00	3,098,425.23	488,968.15	2,609,457.08			369,173.00	11.91%
	TOTAL DEPRECIABLE PLANT	51,620,728.43		0.00	51,620,728.43	8,316,957.62	43,303,770.81			1,817,080.00	3.52%

Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage %	Estimated Future Net Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	0.00									
302.00	Franchises & Consents	0.00									
303.00	Other Intangible Plant	0.00									
	TOTAL Intangible Plant	0.00									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82	0.0%	0.00	1,078,436.82		1,078,436.82	0.0	0.0	0.00	0.00%
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25									

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,743,198.99	0%	-	9,743,198.99	2,423,416.02	7,319,782.97	35-R4	39.2	186,539.00	1.91%
355.00	Power Generation Equipment	326,112.48	0%	-	326,112.48	39,093.79	287,018.69	30-R3	26.6	10,798.00	3.31%
360.00	Collection Sewers Force	257,304.50	0%	-	257,304.50	105,103.63	152,200.87	45-R3	24.7	6,162.00	2.39%
361.00	Collection Sewers Gravity	1,397,699.83	0%	-	1,397,699.83	763,971.36	633,728.47	45-R3	21.0	30,163.00	2.16%
362.00	Special Collecting Structure	-	0%	-	-	-	-	45-R4	0.0	-	0.00%
364.00	Flow Measuring Devices	-	0%	-	-	-	-	10-R3	0.0	-	0.00%
370.00	Receiving Wells	24,727.27	0%	-	24,727.27	(226.27)	24,953.54	40-R3	32.7	763.00	3.09%
370.10	Pumping Equipment	8,181.20	0%	-	8,181.20	-	8,181.20	30-R3	27.6	297.00	3.63%
	TOTAL Collection Plant	11,757,224.27		-	11,757,224.27	3,331,358.53	8,425,865.74			234,722.00	2.00%
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	3,919,192.75	0%	-	3,919,192.75	1,276,633.65	2,642,559.10	30-R4	16.1	163,727.00	4.18%
381.00	Plant Sewers	36,649.20	0%	-	36,649.20	4,377.42	32,271.78	30-R3	26.6	1,214.00	3.31%
382.00	Outfall Sewer Lines	0.00	0%	-	-	-	-	35-R3	0.0	-	0.00%
385.00	Reuse Trans & Distrib System	0.00	0%	-	-	-	-	35-R3	0.0	-	0.00%
	TOTAL Treatment & Disposal Plant	3,955,841.95		-	3,955,841.95	1,281,011.07	2,674,830.88			164,941.00	4.17%
	General Plant										
389.00	Other Miscellaneous Equipment	519,178.75	0%	-	519,178.75	33,340.93	485,837.82	15-R3	11.5	42,173.00	8.12%
393.00	Tools, Shop, Garage Equipment	872.06	0%	-	872.06	43.60	828.46	15-R3	13.5	61.00	6.99%
394.00	Laboratory Equipment	7,239.01	0%	-	7,239.01	6,040.09	1,198.92	7-R3	4.6	259.00	3.58%
395.00	Power Operated Equip	19,531.31	0%	-	19,531.31	19,531.31	-	15-R3	14.0	-	0.00%
395.50	Office Furn & Equipment	0.00	0%	-	-	-	-	15-R3	0.0	-	0.00%
396.00	Communication Equipment	0.00	0%	-	-	-	-	12-R2.5	0.0	-	0.00%
396.50	Transportation Equipment	339,984.33	0%	-	339,984.33	43,542.13	296,442.20	8-R3	4.7	62,939.00	18.51%
397.00	Miscellaneous Equipment	-	0%	-	-	3,063.39	(3,063.39)	15-R1.5	0.0	-	0.00%
397.50	Stores Equipment	1,795.09	0%	-	1,795.09	476.00	1,319.09	15-R1.5	13.8	96.00	5.35%
398.00	Other Tangible Plant	111,166.14	0%	-	111,166.14	82,041.48	29,124.66	10-R3	1.3	22,933.00	20.63%
	TOTAL General Plant	999,766.69		0.00	999,766.69	188,078.93	811,687.76			128,461.00	12.85%
	TOTAL DEPRECIABLE PLANT	16,712,832.91		0.00	16,712,832.91	4,800,448.53	11,912,384.38			528,124.00	3.16%

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	-									
	TOTAL Land & Land Rights	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91									

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,436,231.58	0%	-	9,436,231.58	(219,386.05)	9,655,617.63	35-R4	36.8	262,096.00	2.78%
355.00	Power Generation Equipment	560,695.62	0%	-	560,695.62	21,654.99	539,040.63	30-R3	23.8	22,611.00	4.03%
360.00	Collection Sewers Force	3,397,539.16	0%	-	3,397,539.16	800,909.34	2,596,629.82	45-R3	31.8	81,706.00	2.40%
361.00	Collection Sewers Gravity	3,627,868.30	0%	-	3,627,868.30	623,078.04	3,004,790.26	45-R3	36.2	82,982.00	2.29%
362.00	Special Collecting Structure	2,792,198.23	0%	-	2,792,198.23	264,123.51	2,528,074.72	45-R4	40.3	62,731.00	2.25%
364.00	Flow Measuring Devices	76,036.70	0%	-	76,036.70	12,693.77	63,342.93	10-R3	8.3	7,595.00	9.99%
370.00	Receiving Wells	1,042,048.00	0%	-	1,042,048.00	(9,585.36)	1,051,633.36	40-R3	32.7	32,140.00	3.08%
370.10	Pumping Equipment	3,347,912.96	0%	-	3,347,912.96	1,011,574.44	2,336,338.52	30-R3	16.7	140,236.00	4.19%
	TOTAL Collection Plant	24,280,530.55		-	24,280,530.55	2,505,062.68	21,775,467.87			692,097.00	2.85%
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	8,149,539.20	0%	-	8,149,539.20	671,587.31	7,477,951.89	30-R4	21.8	342,868.00	4.21%
381.00	Plant Sewers	0.00	0%	-	-	-	-	30-R3	0.0	-	0.00%
382.00	Outfall Sewer Lines	114,384.01	0%	-	114,384.01	11,756.01	102,628.00	35-R3	25.6	4,006.00	3.50%
385.00	Reuse Trans & Distrib System	264,783.22	0%	-	264,783.22	27,213.87	237,569.35	35-R3	25.6	9,273.00	3.50%
	TOTAL Treatment & Disposal Plant	8,528,706.43		-	8,528,706.43	710,557.19	7,818,149.24			342,868.00	4.02%
	General Plant										
389.00	Other Miscellaneous Equipment	2,516.02	0%	-	2,516.02	258.63	2,257.39	15-R3	10.7	211.00	8.39%
393.00	Tools, Shop, Garage Equipment	0.00	0%	-	-	-	-	15-R3	0.0	-	0.00%
394.00	Laboratory Equipment	74,412.54	0%	-	74,412.54	54,916.01	19,496.53	7-R3	3.4	5,803.00	7.80%
395.00	Power Operated Equip	11,437.34	0%	-	11,437.34	4,579.74	6,857.60	15-R3	7.6	904.00	7.90%
395.50	Office Furn & Equipment	0.00	0%	-	-	1,264.23	(1,264.23)	15-R3	0.0	-	0.00%
396.00	Communication Equipment	87,695.96	0%	-	87,695.96	84,448.59	3,247.37	12-R2.5	1.7	1,866.00	2.13%
396.50	Transportation Equipment	237,888.79	0%	-	237,888.79	63,688.47	174,200.32	8-R3	3.1	55,478.00	23.32%
397.00	Miscellaneous Equipment	1,679,656.13	0%	-	1,679,656.13	91,256.53	1,588,399.60	15-R1.5	9.0	176,098.00	10.48%
397.50	Stores Equipment	5,051.76	0%	-	5,051.76	477.02	4,574.74	15-R1.5	13.0	352.00	6.97%
398.00	Other Tangible Plant	0.00	0%	-	-	-	-	10-R3	0.0	-	0.00%
	TOTAL General Plant	2,098,658.54		0.00	2,098,658.54	300,889.22	1,797,769.32			240,712.00	11.47%
	TOTAL DEPRECIABLE PLANT	34,907,895.52		0.00	34,907,895.52	3,516,509.09	31,391,386.43			1,275,677.00	3.65%

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utility
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Net Salvage % Rate	Estimated Future Net Salvage Amount	Original Cost Less Est. Future Net Salvage	Book Depreciation Reserve	Unrecovered Original Cost	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depreciation Rate
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82									
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34									

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Gross Salvage % (d)	Estimated Future Gross Salvage Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	*Structure & Improvements*	19,179,430.57	0.0%	0.00	19,179,430.57	0.00	0.00	35-R4	-	0.00	0.00%
355.00	Power Generation Equipment	886,808.10	0.0%	0.00	886,808.10	0.00	0.00	30-R3	-	0.00	0.00%
360.00	Collection Sewers Force	3,654,843.66	0.0%	0.00	3,654,843.66	0.00	0.00	45-R3	-	0.00	0.00%
361.00	Collection Sewers Gravity	5,025,568.13	0.0%	0.00	5,025,568.13	0.00	0.00	45-R3	-	0.00	0.00%
362.00	Special Collecting Structure	2,792,198.23	0.0%	0.00	2,792,198.23	0.00	0.00	45-R4	-	0.00	0.00%
364.00	Flow Measuring Devices	76,036.70	0.0%	0.00	76,036.70	0.00	0.00	10-R3	-	0.00	0.00%
370.00	Receiving Wells	1,066,775.27	0.0%	0.00	1,066,775.27	0.00	0.00	40-R3	-	0.00	0.00%
370.10	Pumping Equipment	3,356,094.16	0.0%	0.00	3,356,094.16	0.00	0.00	30-R3	-	0.00	0.00%
	TOTAL Collection Plant	36,037,754.82		0.00	36,037,754.82	0.00	0.00			0.00	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	12,068,731.95	0.0%	0.00	12,068,731.95	0.00	0.00	30-R4	-	0.00	0.00%
381.00	Plant Sewers	36,649.20	0.0%	0.00	36,649.20	0.00	0.00	30-R3	-	0.00	0.00%
382.00	*Outfall Sewer Lines*	114,384.01	0.0%	0.00	114,384.01	0.00	0.00	35-R3	-	0.00	0.00%
385.00	Reuse Trans & Distrib System	264,783.22	0.0%	0.00	264,783.22	0.00	0.00	35-R3	-	0.00	0.00%
	TOTAL Treatment & Disposal Plant	12,484,548.38		0.00	12,484,548.38	0.00	0.00			0.00	
	General Plant										
389.00	Other Miscellaneous Equipment	521,694.77	0.0%	0.00	521,694.77	0.00	0.00	15-R3	-	0.00	0.00%
393.00	Tools, Shop, Garage Equipment	872.06	0.0%	0.00	872.06	0.00	0.00	15-R3	-	0.00	0.00%
394.00	Laboratory Equipment	81,651.55	0.0%	0.00	81,651.55	0.00	0.00	7-R3	-	0.00	0.00%
395.00	Power Operated Equip	30,968.65	15.0%	4,645.30	26,323.35	-483.58	-4,161.72	15-R3	11.20	-371.59	-1.20%
395.50	Office Furn & Equipment	0.00	0.0%	0.00	0.00	-483.58	483.58	15-R3	-	0.00	0.00%
396.00	Communication Equipment	87,695.96	0.0%	0.00	87,695.96	0.00	0.00	12-R2.5	-	0.00	0.00%
396.50	Transportation Equipment	577,873.12	15.0%	86,680.97	491,192.15	-2,229.15	-84,451.82	8-R3	3.93	-21,486.56	-3.72%
397.00	Miscellaneous Equipment	1,679,656.13	0.0%	0.00	1,679,656.13	0.00	0.00	15-R1.5	-	0.00	0.00%
397.50	Stores Equipment	6,846.85	0.0%	0.00	6,846.85	0.00	0.00	15-R1.5	-	0.00	0.00%
398.00	Other Tangible Plant	111,166.14	0.0%	0.00	111,166.14	0.00	0.00	10-R3	-	0.00	0.00%
	TOTAL General Plant	3,098,425.23		91,326.27	3,007,098.96	(3,196.31)	(88,129.96)			(21,858.15)	-0.71%
	TOTAL DEPRECIABLE PLANT	51,620,728.43		91,326.27	51,529,402.16	(3,196.31)	(88,129.96)			(21,858.15)	-0.04%

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	0.00									
302.00	Franchises & Consents	0.00									
303.00	Other Intangible Plant	0.00									
	TOTAL Intangible Plant	0.00									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82									
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25									

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,743,198.99	0.0%	-	9,743,198.99	-	-	35-R4	39.24	-	0.00%
355.00	Power Generation Equipment	326,112.48	0.0%	-	326,112.48	-	-	30-R3	26.58	-	0.00%
360.00	Collection Sewers Force	257,304.50	0.0%	-	257,304.50	-	-	45-R3	24.70	-	0.00%
361.00	Collection Sewers Gravity	1,397,699.83	0.0%	-	1,397,699.83	-	-	45-R3	21.01	-	0.00%
362.00	Special Collecting Structure	-	0.0%	-	-	-	-	45-R4	-	-	0.00%
364.00	Flow Measuring Devices	-	0.0%	-	-	-	-	10-R3	-	-	0.00%
370.00	Receiving Wells	24,727.27	0.0%	-	24,727.27	-	-	40-R3	32.72	-	0.00%
370.10	Pumping Equipment	8,181.20	0.0%	-	8,181.20	-	-	30-R3	27.55	-	0.00%
	TOTAL Collection Plant	11,757,224.27		-	11,757,224.27	-	-			-	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	3,919,192.75	0.0%	-	3,919,192.75	-	-	30-R4	16.14	-	0.00%
381.00	Plant Sewers	36,649.20	0.0%	-	36,649.20	-	-	30-R3	26.58	-	0.00%
382.00	Outfall Sewer Lines	0.00	0.0%	-	-	-	-	35-R3	-	-	0.00%
385.00	Reuse Trans & Distrib System	0.00	0.0%	-	-	-	-	35-R3	-	-	0.00%
	TOTAL Treatment & Disposal Plant	3,955,841.95		-	3,955,841.95	-	-			-	
	General Plant										
389.00	Other Miscellaneous Equipment	519,178.75	0.0%	-	519,178.75	-	-	15-R3	11.52	-	0.00%
393.00	Tools, Shop, Garage Equipment	872.06	0.0%	-	872.06	-	-	15-R3	13.53	-	0.00%
394.00	Laboratory Equipment	7,239.01	0.0%	-	7,239.01	-	-	7-R3	4.63	-	0.00%
395.00	Power Operated Equip	19,531.31	15.0%	2,929.70	16,601.61	-	(2,929.70)	15-R3	14.00	(209.26)	-1.07%
395.50	Office Furn & Equipment	0.00	0.0%	-	-	-	-	15-R3	-	-	0.00%
396.00	Communication Equipment	0.00	0.0%	-	-	-	-	12-R2.5	-	-	0.00%
396.50	Transportation Equipment	339,984.33	15.0%	50,997.65	288,986.68	(45.62)	(50,952.03)	8-R3	4.71	(10,817.84)	-3.18%
397.00	Miscellaneous Equipment	-	0.0%	-	-	-	-	15-R1.5	-	-	0.00%
397.50	Stores Equipment	1,795.09	0.0%	-	1,795.09	-	-	15-R1.5	13.78	-	0.00%
398.00	Other Tangible Plant	111,166.14	0.0%	-	111,166.14	-	-	10-R3	1.27	-	0.00%
	TOTAL General Plant	999,766.69		53,927.35	945,839.34	(45.62)	(53,881.73)			(11,027.11)	
	TOTAL DEPRECIABLE PLANT	16,712,832.91		53,927.35	16,658,905.56	(45.62)	(53,881.73)			(11,027.11)	

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	-									
	TOTAL Land & Land Rights	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91									

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,436,231.58	0.0%	-	9,436,231.58	-	-	35-R4	36.84	-	0.00%
355.00	Power Generation Equipment	560,695.62	0.0%	-	560,695.62	-	-	30-R3	23.84	-	0.00%
360.00	Collection Sewers Force	3,397,539.16	0.0%	-	3,397,539.16	-	-	45-R3	31.78	-	0.00%
361.00	Collection Sewers Gravity	3,627,868.30	0.0%	-	3,627,868.30	-	-	45-R3	36.21	-	0.00%
362.00	Special Collecting Structure	2,792,198.23	0.0%	-	2,792,198.23	-	-	45-R4	40.30	-	0.00%
364.00	Flow Measuring Devices	76,036.70	0.0%	-	76,036.70	-	-	10-R3	8.34	-	0.00%
370.00	Receiving Wells	1,042,048.00	0.0%	-	1,042,048.00	-	-	40-R3	32.72	-	0.00%
370.10	Pumping Equipment	3,347,912.96	0.0%	-	3,347,912.96	-	-	30-R3	16.66	-	0.00%
	TOTAL Collection Plant	24,280,530.55		-	24,280,530.55	-	-			-	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	8,149,539.20	0.0%	-	8,149,539.20	-	-	30-R4	21.81	-	0.00%
381.00	Plant Sewers	0.00	0.0%	-	-	-	-	30-R3	-	-	0.00%
382.00	Outfall Sewer Lines	114,384.01	0.0%	-	114,384.01	-	-	35-R3	25.62	-	0.00%
385.00	Reuse Trans & Distrib System	264,783.22	0.0%	-	264,783.22	-	-	35-R3	25.62	-	0.00%
	TOTAL Treatment & Disposal Plant	8,528,706.43		-	8,528,706.43	-	-			-	
	General Plant										
389.00	Other Miscellaneous Equipment	2,516.02	0.0%	-	2,516.02	-	-	15-R3	10.69	-	0.00%
393.00	Tools, Shop, Garage Equipment	0.00	0.0%	-	-	-	-	15-R3	-	-	0.00%
394.00	Laboratory Equipment	74,412.54	0.0%	-	74,412.54	-	-	7-R3	3.36	-	0.00%
395.00	Power Operated Equip	11,437.34	15.0%	1,715.60	9,721.74	(483.58)	(1,232.02)	15-R3	7.59	(162.32)	-1.42%
395.50	Office Furn & Equipment	0.00	0.0%	-	-	(483.58)	483.58	15-R3	-	-	0.00%
396.00	Communication Equipment	87,695.96	0.0%	-	87,695.96	-	-	12-R2.5	1.74	-	0.00%
396.50	Transportation Equipment	237,888.79	15.0%	35,683.32	202,205.47	(2,183.53)	(33,499.79)	8-R3	3.14	(10,668.72)	-4.48%
397.00	Miscellaneous Equipment	1,679,656.13	0.0%	-	1,679,656.13	-	-	15-R1.5	9.02	-	0.00%
397.50	Stores Equipment	5,051.76	0.0%	-	5,051.76	-	-	15-R1.5	12.99	-	0.00%
398.00	Other Tangible Plant	0.00	0.0%	-	-	-	-	10-R3	-	-	0.00%
	TOTAL General Plant	2,098,658.54		37,398.92	2,061,259.62	(3,150.69)	(34,248.23)			(10,831.04)	
	TOTAL DEPRECIABLE PLANT	34,907,895.52		37,398.92	34,870,496.60	(3,150.69)	(34,248.23)			(10,831.04)	

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Gross Salvage %	Estimated Future Gross Salvage Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82									
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34									

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	19,179,430.57	-15.0%	-2,876,914.59	22,056,345.16	191,924.79	2,684,989.80	35-R4	38.1	70,528.14	0.37%
355.00	Power Generation Equipment	886,808.10	0.0%	0.00	886,808.10	0.00	0.00	30-R3	-	0.00	0.00%
360.00	Collection Sewers Force	3,654,843.66	-10.0%	-365,484.37	4,020,328.03	157,677.06	207,807.31	45-R3	31.1	6,688.55	0.18%
361.00	Collection Sewers Gravity	5,025,568.13	-10.0%	-502,556.81	5,528,124.94	64,267.57	438,289.24	45-R3	32.2	13,612.61	0.27%
362.00	Special Collecting Structure	2,792,198.23	-15.0%	-418,829.73	3,211,027.96	1,664.76	417,164.97	45-R4	40.3	10,351.49	0.37%
364.00	Flow Measuring Devices	76,036.70	0.0%	0.00	76,036.70	0.00	0.00	10-R3	-	0.00	0.00%
370.00	Receiving Wells	1,066,775.27	-15.0%	-160,016.29	1,226,791.56	9,811.63	150,204.66	40-R3	32.7	4,590.61	0.43%
370.10	Pumping Equipment	3,356,094.16	-15.0%	-503,414.12	3,859,508.28	107,031.88	396,382.24	30-R3	16.7	23,763.33	0.71%
	TOTAL Collection Plant	36,037,754.82		-4,827,215.91	40,864,970.73	532,377.69	4,294,838.22			129,534.72	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	12,068,731.95	-10.0%	-1,206,873.20	13,275,605.15	242,346.30	964,526.90	30-R4	19.9	48,507.95	0.40%
381.00	Plant Sewers	36,649.20	-10.0%	-3,664.92	40,314.12	0.00	3,664.92	30-R3	26.6	137.88	0.38%
382.00	*Outfall Sewer Lines*	114,384.01	-10.0%	-11,438.40	125,822.41	0.00	11,438.40	35-R3	25.6	446.46	0.39%
385.00	Reuse Trans & Distrib System	264,783.22	-10.0%	-26,478.32	291,261.54	0.00	26,478.32	35-R3	25.6	1,033.50	0.39%
	TOTAL Treatment & Disposal Plant	12,484,548.38		-1,248,454.84	13,733,003.22	242,346.30	1,006,108.54			50,125.79	
	General Plant										
389.00	Other Miscellaneous Equipment	521,694.77	0.0%	0.00	521,694.77	0.00	0.00	15-R3	-	0.00	0.00%
393.00	Tools, Shop, Garage Equipment	872.06	0.0%	0.00	872.06	0.00	0.00	15-R3	-	0.00	0.00%
394.00	Laboratory Equipment	81,651.55	0.0%	0.00	81,651.55	0.00	0.00	7-R3	-	0.00	0.00%
395.00	Power Operated Equip	30,968.65	0.0%	0.00	30,968.65	0.00	0.00	15-R3	-	0.00	0.00%
395.50	Office Furn & Equipment	0.00	0.0%	0.00	0.00	0.00	0.00	15-R3	-	0.00	0.00%
396.00	Communication Equipment	87,695.96	0.0%	0.00	87,695.96	0.00	0.00	12-R2.5	-	0.00	0.00%
396.50	Transportation Equipment	577,873.12	0.0%	0.00	577,873.12	0.00	0.00	8-R3	-	0.00	0.00%
397.00	Miscellaneous Equipment	1,679,656.13	0.0%	0.00	1,679,656.13	0.00	0.00	15-R1.5	-	0.00	0.00%
397.50	Stores Equipment	6,846.85	0.0%	0.00	6,846.85	0.00	0.00	15-R1.5	-	0.00	0.00%
398.00	Other Tangible Plant	111,166.14	0.0%	0.00	111,166.14	0.00	0.00	10-R3	-	0.00	0.00%
	TOTAL General Plant	3,098,425.23		0.00	3,098,425.23	0.00	0.00			0.00	0.00%
	TOTAL DEPRECIABLE PLANT	51,620,728.43		(6,075,670.75)	57,696,399.18	774,723.99	5,300,946.76			179,660.52	0.35%

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	0.00									
302.00	Franchises & Consents	0.00									
303.00	Other Intangible Plant	0.00									
	TOTAL Intangible Plant	0.00									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82									
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25									

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Estimated Future Cost of Removal % (d)	Estimated Future Cost of Removal Amount (e)	Original Cost Less Salvage (f)	Book Depreciation Reserve (g)	Net Original Cost Less Salvage (h)	A.S.L./ Survivor Curve (i)	Average Remaining Life (j)	Annual Depreciation Accrual (k)	Annual Depr Rate (l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,743,198.99	-15.0%	(1,461,479.85)	11,204,678.84	43,390.38	1,418,089.47	35-R4	39.24	36,138.88	0.37%
355.00	Power Generation Equipment	326,112.48	0.0%	-	326,112.48	-	-	30-R3	26.58	-	0.00%
360.00	Collection Sewers Force	257,304.50	-10.0%	(25,730.45)	283,034.95	9,142.65	16,587.80	45-R3	24.70	671.57	0.26%
361.00	Collection Sewers Gravity	1,397,699.83	-10.0%	(139,769.98)	1,537,469.81	64,267.57	75,502.41	45-R3	21.01	3,593.64	0.26%
362.00	Special Collecting Structure	-	-15.0%	-	-	-	-	45-R4	-	-	0.00%
364.00	Flow Measuring Devices	-	0.0%	-	-	-	-	10-R3	-	-	0.00%
370.00	Receiving Wells	24,727.27	-15.0%	(3,709.09)	28,436.36	226.27	3,482.82	40-R3	32.72	106.44	0.43%
370.10	Pumping Equipment	8,181.20	-15.0%	(1,227.18)	9,408.38	-	1,227.18	30-R3	27.55	44.54	0.54%
	TOTAL Collection Plant	11,757,224.27		(1,631,916.55)	13,389,140.82	117,026.87	1,514,889.68			40,555.07	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	3,919,192.75	-10.0%	(391,919.28)	4,311,112.03	125,961.07	265,958.21	30-R4	16.14	16,478.20	0.42%
381.00	Plant Sewers	36,649.20	-10.0%	(3,664.92)	40,314.12	-	3,664.92	30-R3	26.58	137.88	0.38%
382.00	Outfall Sewer Lines	0.00	-10.0%	-	-	-	-	35-R3	-	-	0.00%
385.00	Reuse Trans & Distrib System	0.00	-10.0%	-	-	-	-	35-R3	-	-	0.00%
	TOTAL Treatment & Disposal Plant	3,955,841.95		(395,584.20)	4,351,426.15	125,961.07	269,623.13			16,616.09	
	General Plant										
389.00	Other Miscellaneous Equipment	519,178.75	0.0%	-	519,178.75	-	-	15-R3	11.52	-	0.00%
393.00	Tools, Shop, Garage Equipment	872.06	0.0%	-	872.06	-	-	15-R3	13.53	-	0.00%
394.00	Laboratory Equipment	7,239.01	0.0%	-	7,239.01	-	-	7-R3	4.63	-	0.00%
395.00	Power Operated Equip	19,531.31	0.0%	-	19,531.31	-	-	15-R3	14.00	-	0.00%
395.50	Office Furn & Equipment	0.00	0.0%	-	-	-	-	15-R3	-	-	0.00%
396.00	Communication Equipment	0.00	0.0%	-	-	-	-	12-R2.5	-	-	0.00%
396.50	Transportation Equipment	339,984.33	0.0%	-	339,984.33	-	-	8-R3	4.71	-	0.00%
397.00	Miscellaneous Equipment	-	0.0%	-	-	-	-	15-R1.5	-	-	0.00%
397.50	Stores Equipment	1,795.09	0.0%	-	1,795.09	-	-	15-R1.5	13.78	-	0.00%
398.00	Other Tangible Plant	111,166.14	0.0%	-	111,166.14	-	-	10-R3	1.27	-	0.00%
	TOTAL General Plant	999,766.69		0.00	999,766.69	0.00	0.00			0.00	
	TOTAL DEPRECIABLE PLANT	16,712,832.91		(2,027,500.75)	18,740,333.66	242,987.94	1,784,512.81			57,171.16	

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	-									
	TOTAL Land & Land Rights	-									
	TOTAL NON-DEPRECIABLE PLANT	-									
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91									

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	DEPRECIABLE PLANT										
	Collection Plant										
354.00	Structure & Improvements	9,436,231.58	-15.0%	(1,415,434.74)	10,851,666.32	148,534.41	1,266,900.33	35-R4	36.84	34,389.26	0.36%
355.00	Power Generation Equipment	560,695.62	0.0%	-	560,695.62	-	-	30-R3	23.84	-	0.00%
360.00	Collection Sewers Force	3,397,539.16	-10.0%	(339,753.92)	3,737,293.08	148,534.41	191,219.51	45-R3	31.78	6,016.98	0.18%
361.00	Collection Sewers Gravity	3,627,868.30	-10.0%	(362,786.83)	3,990,655.13	-	362,786.83	45-R3	36.21	10,018.97	0.28%
362.00	Special Collecting Structure	2,792,198.23	-15.0%	(418,829.73)	3,211,027.96	1,664.76	417,164.97	45-R4	40.30	10,351.49	0.37%
364.00	Flow Measuring Devices	76,036.70	0.0%	-	76,036.70	-	-	10-R3	8.34	-	0.00%
370.00	Receiving Wells	1,042,048.00	-15.0%	(156,307.20)	1,198,355.20	9,585.36	146,721.84	40-R3	32.72	4,484.16	0.43%
370.10	Pumping Equipment	3,347,912.96	-15.0%	(502,186.94)	3,850,099.90	107,031.88	395,155.06	30-R3	16.66	23,718.79	0.71%
	TOTAL Collection Plant	24,280,530.55		(3,195,299.36)	27,475,829.91	415,350.82	2,779,948.54			88,979.65	
	Treatment & Disposal Plant										
380.10	Treatment & Disposal Equip	8,149,539.20	-10.0%	(814,953.92)	8,964,493.12	116,385.23	698,568.69	30-R4	21.81	32,029.74	0.39%
381.00	Plant Sewers	0.00	-10.0%	-	-	-	-	30-R3	-	-	0.00%
382.00	Outfall Sewer Lines	114,384.01	-10.0%	(11,438.40)	125,822.41	-	11,438.40	35-R3	25.62	446.46	0.39%
385.00	Reuse Trans & Distrib System	264,783.22	-10.0%	(26,478.32)	291,261.54	-	26,478.32	35-R3	25.62	1,033.50	0.39%
	TOTAL Treatment & Disposal Plant	8,528,706.43		(852,870.64)	9,381,577.07	116,385.23	736,485.41			33,509.71	
	General Plant										
389.00	Other Miscellaneous Equipment	2,516.02	0.0%	-	2,516.02	-	-	15-R3	10.69	-	0.00%
393.00	Tools, Shop, Garage Equipment	0.00	0.0%	-	-	-	-	15-R3	-	-	0.00%
394.00	Laboratory Equipment	74,412.54	0.0%	-	74,412.54	-	-	7-R3	3.36	-	0.00%
395.00	Power Operated Equip	11,437.34	0.0%	-	11,437.34	-	-	15-R3	7.59	-	0.00%
395.50	Office Furn & Equipment	0.00	0.0%	-	-	-	-	15-R3	-	-	0.00%
396.00	Communication Equipment	87,695.96	0.0%	-	87,695.96	-	-	12-R2.5	1.74	-	0.00%
396.50	Transportation Equipment	237,888.79	0.0%	-	237,888.79	-	-	8-R3	3.14	-	0.00%
397.00	Miscellaneous Equipment	1,679,656.13	0.0%	-	1,679,656.13	-	-	15-R1.5	9.02	-	0.00%
397.50	Stores Equipment	5,051.76	0.0%	-	5,051.76	-	-	15-R1.5	12.99	-	0.00%
398.00	Other Tangible Plant	0.00	0.0%	-	-	-	-	10-R3	-	-	0.00%
	TOTAL General Plant	2,098,658.54		0.00	2,098,658.54	0.00	0.00			0.00	
	TOTAL DEPRECIABLE PLANT	34,907,895.52		(4,048,170.00)	38,956,065.52	531,736.05	3,516,433.95			122,489.36	

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service and Calculation of
Annual Depreciation Rates and Depreciation Expense Based Upon Utilization of
Book Depreciation Reserve and Average Remaining Lives as of December 31, 2016

Account No.	Description	Original Cost 12-31-16	Estimated Future Cost of Removal %	Estimated Future Cost of Removal Amount	Original Cost Less Salvage	Book Depreciation Reserve	Net Original Cost Less Salvage	A.S.L./ Survivor Curve	Average Remaining Life	Annual Depreciation Accrual	Annual Depr Rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
	NON-DEPRECIABLE PLANT										
	Intangible Plant										
301.00	Organization	-									
302.00	Franchises & Consents	-									
303.00	Other Intangible Plant	-									
	TOTAL Intangible Plant	-									
	Land & Land Rights										
306.00	Land & Land Rights	1,078,436.82									
	TOTAL Land & Land Rights	1,078,436.82									
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82									
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34									

Table 3 - Total

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Additional 2016 Retirements (d)	Pending Transfer In (e)	Original Cost Per Depreciation Study Data 12-31-16 (f)
	DEPRECIABLE PLANT				
	Collection Plant				
354.00	Structure & Improvements	21,410,207.77	3,481,995.10	1,251,217.90	19,179,430.57
355.00	Power Generation Equipment	886,808.10	0.00	0.00	886,808.10
360.00	Collection Sewers Force	3,461,792.32	0.00	193,051.34	3,654,843.66
361.00	Collection Sewers Gravity	4,259,114.94	0.00	766,453.19	5,025,568.13
362.00	Special Collecting Structure	2,792,198.23	0.00	0.00	2,792,198.23
364.00	Flow Measuring Devices	16,406.93	0.00	59,629.77	76,036.70
370.00	Receiving Wells	1,066,775.27	0.00	0.00	1,066,775.27
370.10	Pumping Equipment	2,352,983.78	0.00	1,003,110.38	3,356,094.16
	TOTAL Collection Plant	36,246,287.34	3,481,995.10	3,273,462.58	36,037,754.82
	Treatment & Disposal Plant				
380.10	Treatment & Disposal Equip	13,676,613.64	1,686,243.10	78,361.41	12,068,731.95
381.00	Plant Sewers	36,649.20	0.00	0.00	36,649.20
382.00	Outfall Sewer Lines	114,384.01	0.00	0.00	114,384.01
385.00	Reuse Trans & Distrib System	264,783.22	0.00	0.00	264,783.22
	TOTAL Treatment & Disposal Plant	14,092,430.07	1,686,243.10	78,361.41	12,484,548.38
	General Plant				
389.00	Other Miscellaneous Equipment	521,694.77	0.00	0.00	521,694.77
393.00	Tools, Shop, Garage Equipment	872.06	0.00	0.00	872.06
394.00	Laboratory Equipment	75,732.54	0.00	5,919.01	81,651.55
395.00	Power Operated Equip	11,437.34	0.00	19,531.31	30,968.65
395.50	Office Furn & Equipment	0.00	0.00	0.00	0.00
396.00	Communication Equipment	87,695.96	0.00	0.00	87,695.96
396.50	Transportation Equipment	577,380.64	0.00	492.48	577,873.12
397.00	Miscellaneous Equipment	1,679,656.13	0.00	0.00	1,679,656.13
397.50	Stores Equipment	6,846.85	0.00	0.00	6,846.85
398.00	Other Tangible Plant	111,166.14	0.00	0.00	111,166.14
	TOTAL General Plant	3,072,482.43	0.00	25,942.80	3,098,425.23
	TOTAL DEPRECIABLE PLANT	53,411,199.84	5,168,238.20	3,377,766.79	51,620,728.43
	NON-DEPRECIABLE PLANT				
	Intangible Plant				
301.00	Organization	0.00	0.00	0.00	0.00
302.00	Franchises & Consents	0.00	0.00	0.00	0.00
303.00	Other Intangible Plant	0.00	0.00	0.00	0.00
	TOTAL Intangible Plant	0.00	0.00	0.00	0.00
	Land & Land Rights				
306.00	Land & Land Rights	1,078,436.82	0.00	0.00	1,078,436.82
	TOTAL Land & Land Rights	1,078,436.82	0.00	0.00	1,078,436.82
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82	0.00	0.00	1,078,436.82
	TOTAL UTILITY PLANT IN SERVICE	54,489,636.66	5,168,238.20	3,377,766.79	52,699,165.25

Table 3 - VS

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Additional 2016 Retirements (d)	Pending Transfer In (e)	Original Cost Per Depreciation Study Data 12-31-16 (f)
	DEPRECIABLE PLANT				
	Collection Plant				
354.00	Structure & Improvements	8,945,443.53		797,755.46	9,743,198.99
355.00	Power Generation Equipment	326,112.48			326,112.48
360.00	Collection Sewers Force	257,304.50			257,304.50
361.00	Collection Sewers Gravity	1,397,699.83			1,397,699.83
362.00	Special Collecting Structure	0.00			0.00
364.00	Flow Measuring Devices	0.00			0.00
370.00	Receiving Wells	24,727.27			24,727.27
370.10	Pumping Equipment	8,181.20			8,181.20
	TOTAL Collection Plant	10,959,468.81	0.00	797,755.46	11,757,224.27
	Treatment & Disposal Plant				
380.11	Treatment & Disposal Equip	4,377,535.89	458,343.14		3,919,192.75
381.00	Plant Sewers	36,649.20			36,649.20
382.00	Outfall Sewer Lines	0.00			0.00
385.00	Reuse Trans & Distrib System	0.00			0.00
	TOTAL Treatment & Disposal Plant	4,414,185.09	458,343.14	0.00	3,955,841.95
	General Plant				
389.00	Other Miscellaneous Equipment	519,178.75			519,178.75
393.00	Tools, Shop, Garage Equipment	872.06			872.06
394.00	Laboratory Equipment	1,320.00		5,919.01	7,239.01
395.00	Power Operated Equip	0.00		19,531.31	19,531.31
395.50	Office Furn & Equipment	0.00			0.00
396.00	Communication Equipment	0.00			0.00
396.50	Transportation Equipment	339,984.33			339,984.33
397.00	Miscellaneous Equipment	0.00			0.00
397.50	Stores Equipment	1,795.09			1,795.09
398.00	Other Tangible Plant	111,166.14			111,166.14
	TOTAL General Plant	974,316.37	0.00	25,450.32	999,766.69
	TOTAL DEPRECIABLE PLANT	16,347,970.27	458,343.14	823,205.78	16,712,832.91

Table 3 - VS

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Additional 2016 Retirements (d)	Pending Transfer In (e)	Original Cost Per Depreciation Study Data 12-31-16 (f)
	NON-DEPRECIABLE PLANT				
	Intangible Plant				
301.00	Organization	0.00			0.00
302.00	Franchises & Consents	0.00			0.00
303.00	Other Intangible Plant	0.00			0.00
	TOTAL Intangible Plant	0.00	0.00	0.00	0.00
	Land & Land Rights				
306.00	Land & Land Rights	0.00			0.00
	TOTAL Land & Land Rights	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	16,347,970.27	458,343.14	823,205.78	16,712,832.91

Table 3 - WS

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Additional 2016 Retirements (d)	Pending Transfer In (e)	Original Cost Per Depreciation Study Data 12-31-16 (f)
	DEPRECIABLE PLANT				
	Collection Plant				
354.00	Structure & Improvements	12,464,764.24	3,481,995.10	453,462.44	9,436,231.58
355.00	Power Generation Equipment	560,695.62			560,695.62
360.00	Collection Sewers Force	3,204,487.82		193,051.34	3,397,539.16
361.00	Collection Sewers Gravity	2,861,415.11		766,453.19	3,627,868.30
362.00	Special Collecting Structure	2,792,198.23			2,792,198.23
364.00	Flow Measuring Devices	16,406.93		59,629.77	76,036.70
370.00	Receiving Wells	1,042,048.00			1,042,048.00
370.10	Pumping Equipment	2,344,802.58		1,003,110.38	3,347,912.96
	TOTAL Collection Plant	25,286,818.53	3,481,995.10	2,475,707.12	24,280,530.55
	Treatment & Disposal Plant				
380.11	Treatment & Disposal Equip	9,299,077.75	1,227,899.96	78,361.41	8,149,539.20
381.00	Plant Sewers	0.00			0.00
382.00	Outfall Sewer Lines	114,384.01			114,384.01
385.00	Reuse Trans & Distrib System	264,783.22			264,783.22
	TOTAL Treatment & Disposal Plant	9,678,244.98	1,227,899.96	78,361.41	8,528,706.43
	General Plant				
389.00	Other Miscellaneous Equipment	2,516.02			2,516.02
393.00	Tools, Shop, Garage Equipment	0.00			0.00
394.00	Laboratory Equipment	74,412.54			74,412.54
395.00	Power Operated Equip	11,437.34			11,437.34
395.50	Office Furn & Equipment	0.00			0.00
396.00	Communication Equipment	87,695.96			87,695.96
396.50	Transportation Equipment	237,396.31		492.48	237,888.79
397.00	Miscellaneous Equipment	1,679,656.13			1,679,656.13
397.50	Stores Equipment	5,051.76			5,051.76
398.00	Other Tangible Plant	0.00			0.00
	TOTAL General Plant	2,098,166.06	0.00	492.48	2,098,658.54
	TOTAL DEPRECIABLE PLANT	37,063,229.57	4,709,895.06	2,554,561.01	34,907,895.52

Table 3 - WS

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Original Cost Per Books, Adjustments, and Original Cost Per Depreciation Study
as of December 31, 2016

Account No. (a)	Description (b)	Original Cost Per Book 12-31-16 (c)	Additional 2016 Retirements (d)	Pending Transfer In (e)	Original Cost Per Depreciation Study Data 12-31-16 (f)
	NON-DEPRECIABLE PLANT				
	Intangible Plant				
301.00	Organization	0.00			0.00
302.00	Franchises & Consents	0.00			0.00
303.00	Other Intangible Plant	0.00			0.00
	TOTAL Intangible Plant	0.00	0.00	0.00	0.00
	Land & Land Rights				
306.00	Land & Land Rights	1,078,436.82			1,078,436.82
	TOTAL Land & Land Rights	1,078,436.82	0.00	0.00	1,078,436.82
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82	0.00	0.00	1,078,436.82
	TOTAL UTILITY PLANT IN SERVICE	38,141,666.39	4,709,895.06	2,554,561.01	35,986,332.34

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Book Reserve 12-31-16	Additional 2016 Retirements	Pending Depr Resr Transfer In	Adjusted Book Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	19,179,430.57	-15%	35-R4	3,365,866.90	4,999,628.79	3,481,995.10	878,321.07	2,395,954.76
355.00	Power Generation Equipment	886,808.10	0%	30-R3	152,245.99	60,748.78	0.00	0.00	60,748.78
360.00	Collection Sewers Force	3,654,843.66	-10%	45-R3	1,193,321.40	1,024,543.75	0.00	39,146.28	1,063,690.03
361.00	Collection Sewers Gravity	5,025,568.13	-10%	45-R3	1,552,976.72	1,295,897.27	0.00	155,419.70	1,451,316.97
362.00	Special Collecting Structure	2,792,198.23	-15%	45-R4	335,079.07	265,788.27	0.00	0.00	265,788.27
364.00	Flow Measuring Devices	76,036.70	0%	10-R3	37,326.54	602.05	0.00	12,091.72	12,693.77
370.00	Receiving Wells	1,066,775.27	-15%	40-R3	223,211.56	-	0.00	0.00	0.00
370.10	Pumping Equipment	3,356,094.16	-15%	30-R3	1,441,422.34	921,280.98	0.00	203,199.23	1,124,480.21
	TOTAL Collection Plant	36,037,754.82			8,301,450.52	8,568,489.89	3,481,995.10	1,288,178.00	6,374,672.79
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	12,068,731.95	-10%	30-R4	3,749,416.49	3,865,257.00	1,686,243.10	11,553.36	2,190,567.26
381.00	Plant Sewers	36,649.20	-10%	30-R3	4,595.40	4,377.42	0.00	0.00	4,377.42
382.00	Outfall Sewer Lines	114,384.01	-10%	35-R3	18,383.57	11,756.01	0.00	0.00	11,756.01
385.00	Reuse Trans & Distrib System	264,783.22	-10%	35-R3	42,555.43	27,213.87	0.00	0.00	27,213.87
	TOTAL Treatment & Disposal Plant	12,484,548.38			3,814,950.89	3,908,604.30	1,686,243.10	11,553.36	2,233,914.56
	General Plant								
389.00	Other Miscellaneous Equipment	521,694.77	0%	15-R3	121,202.85	33,599.56	0.00	0.00	33,599.56
393.00	Tools, Shop, Garage Equipment	872.06	0%	15-R3	85.32	43.60	0.00	0.00	43.60
394.00	Laboratory Equipment	81,651.55	0%	7-R3	72,282.21	55,037.09	0.00	5,919.01	60,956.10
395.00	Power Operated Equip	30,968.65	15%	15-R3	7,470.25	4,096.16	0.00	19,531.31	23,627.47
395.50	Office Furn & Equipment	0.00	0%	15-R3	-	780.65	0.00	0.00	780.65
396.00	Communication Equipment	87,695.96	0%	12-R2.5	77,599.02	84,448.59	0.00	0.00	84,448.59
396.50	Transportation Equipment	577,873.12	15%	8-R3	241,739.14	104,952.15	0.00	49.30	105,001.45
397.00	Miscellaneous Equipment	1,679,656.13	0%	15-R1.5	669,684.02	94,319.92	0.00	0.00	94,319.92
397.50	Stores Equipment	6,846.85	0%	15-R1.5		953.02	0.00	0.00	953.02
398.00	Other Tangible Plant	111,166.14	0%	10-R3	98,414.19	82,041.48	0.00	0.00	82,041.48
	TOTAL General Plant	3,098,425.23			1,288,477.00	460,272.22	0.00	25,499.62	485,771.84
	TOTAL DEPRECIABLE PLANT	51,620,728.43			13,404,878.41	12,937,366.41	5,168,238.20	1,325,230.98	9,094,359.19
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00				0.00	0.00	0.00	0.00
302.00	Franchises & Consents	0.00				0.00	0.00	0.00	0.00
303.00	Other Intangible Plant	0.00				0.00	0.00	0.00	0.00
	TOTAL Intangible Plant	0.00			0.00	0.00	0.00	0.00	0.00
	Land & Land Rights								
306.00	Land & Land Rights	1,078,436.82				0.00	0.00	0.00	0.00
	TOTAL Land & Land Rights	1,078,436.82			0.00	0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82			0.00	0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25			13,404,878.41	12,937,366.41	5,168,238.20	1,325,230.98	9,094,359.19

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Book Reserve 12-31-16	Additional 2016 Retirements	Pending Depr Resr Transfer In	Adjusted Book Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	9,743,198.99	-15%	35-R4	1,756,345.76	1,669,050.94		797,755.46	2,466,806.40
355.00	Power Generation Equipment	326,112.48	0%	30-R3	37,173.52	39,093.79			39,093.79
360.00	Collection Sewers Force	257,304.50	-10%	45-R3	127,655.37	114,246.28			114,246.28
361.00	Collection Sewers Gravity	1,397,699.83	-10%	45-R3	819,686.34	828,238.93			828,238.93
362.00	Special Collecting Structure	0.00	-15%	45-R4	0.00	0.00			0.00
364.00	Flow Measuring Devices	0.00	0%	10-R3	0.00	0.00			0.00
370.00	Receiving Wells	24,727.27	-15%	40-R3	5,173.92	0.00			0.00
370.10	Pumping Equipment	8,181.20	-15%	30-R3	768.08	5,873.89			5,873.89
	TOTAL Collection Plant	11,757,224.27			2,746,802.99	2,656,503.83	0.00	797,755.46	3,454,259.29
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	3,919,192.75	-10%	30-R4	2,008,921.41	1,860,937.86	458,343.14		1,402,594.72
381.00	Plant Sewers	36,649.20	-10%	30-R3	4,595.40	4,377.42			4,377.42
382.00	Outfall Sewer Lines	0.00	-10%	35-R3	0.00	0.00			0.00
385.00	Reuse Trans & Distrib System	0.00	-10%	35-R3	0.00	0.00			0.00
	TOTAL Treatment & Disposal Plant	3,955,841.95			2,013,516.81	1,865,315.28	458,343.14	0.00	1,406,972.14
	General Plant								
389.00	Other Miscellaneous Equipment	519,178.75	0%	15-R3	120,480.70	33,340.93			33,340.93
393.00	Tools, Shop, Garage Equipment	872.06	0%	15-R3	85.32	43.60			43.60
394.00	Laboratory Equipment	7,239.01	0%	7-R3	2,450.79	121.08		5,919.01	6,040.09
395.00	Power Operated Equip	19,531.31	15%	15-R3	2,590.66	0.00		19,531.31	19,531.31
395.50	Office Furn & Equipment	0.00	0%	15-R3	0.00	0.00			0.00
396.00	Communication Equipment	0.00	0%	12-R2.5	0.00	0.00			0.00
396.50	Transportation Equipment	339,984.33	15%	8-R3	119,031.48	43,496.51			43,496.51
397.00	Miscellaneous Equipment	0.00	0%	15-R1.5	0.00	3,063.39			3,063.39
397.50	Stores Equipment	1,795.09	0%	15-R1.5	146.05	476.00			476.00
398.00	Other Tangible Plant	111,166.14	0%	10-R3	98,414.19	82,041.48			82,041.48
	TOTAL General Plant	999,766.69			343,199.19	162,582.99	0.00	25,450.32	188,033.31
	TOTAL DEPRECIABLE PLANT	16,712,832.91			5,103,518.99	4,684,402.10	458,343.14	823,205.78	5,049,264.74

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No. (a)	Description (b)	Original Cost 12-31-16 (c)	Net Salvage Rate (d)	A.S.L./ Survivor Curve (e)	Calculated Reserve 12-31-16 (f)	Book Reserve 12-31-16 (g)	Additional 2016 Retirements (h)	Pending Depr Resr Transfer In (i)	Adjusted Book Reserve 12-31-16 (j)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00				0.00			0.00
302.00	Franchises & Consents	0.00				0.00			0.00
303.00	Other Intangible Plant	0.00				0.00			0.00
	TOTAL Intangible Plant	0.00				0.00	0.00	0.00	0.00
	Land & Land Rights								
306.00	Land & Land Rights	0.00				0.00			0.00
	TOTAL Land & Land Rights	0.00				0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	0.00				0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91				4,684,402.10	458,343.14	823,205.78	5,049,264.74

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Book Reserve 12-31-16	Additional 2016 Retirements	Pending Depr Resr Transfer In	Adjusted Book Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	DEPRECIABLE PLANT								
	Collection Plant								
354.00	Structure & Improvements	9,436,231.58	-15%	35-R4	1,609,521.14	3,330,577.85	3,481,995.10	80,565.61	-70,851.64
355.00	Power Generation Equipment	560,695.62	0%	30-R3	115,072.47	21,654.99			21,654.99
360.00	Collection Sewers Force	3,397,539.16	-10%	45-R3	1,065,666.03	910,297.47		39,146.28	949,443.75
361.00	Collection Sewers Gravity	3,627,868.30	-10%	45-R3	733,290.38	467,658.34		155,419.70	623,078.04
362.00	Special Collecting Structure	2,792,198.23	-15%	45-R4	335,079.07	265,788.27			265,788.27
364.00	Flow Measuring Devices	76,036.70	0%	10-R3	37,326.54	602.05		12,091.72	12,693.77
370.00	Receiving Wells	1,042,048.00	-15%	40-R3	218,037.64	-			0.00
370.10	Pumping Equipment	3,347,912.96	-15%	30-R3	1,440,654.26	915,407.09		203,199.23	1,118,606.32
	TOTAL Collection Plant	24,280,530.55			5,554,647.53	5,911,986.06	3,481,995.10	490,422.54	2,920,413.50
	Treatment & Disposal Plant								
380.10	Treatment & Disposal Equip	8,149,539.20	-10%	30-R4	1,740,495.08	2,004,319.14	1,227,899.96	11,553.36	787,972.54
381.00	Plant Sewers	0.00	-10%	30-R3	0.00	0.00			0.00
382.00	Outfall Sewer Lines	114,384.01	-10%	35-R3	18,383.57	11,756.01			11,756.01
385.00	Reuse Trans & Distrib System	264,783.22	-10%	35-R3	42,555.43	27,213.87			27,213.87
	TOTAL Treatment & Disposal Plant	8,528,706.43			1,801,434.08	2,043,289.02	1,227,899.96	11,553.36	826,942.42
	General Plant								
389.00	Other Miscellaneous Equipment	2,516.02	0%	15-R3	722.15	258.63			258.63
393.00	Tools, Shop, Garage Equipment	0.00	0%	15-R3	0.00	0.00			0.00
394.00	Laboratory Equipment	74,412.54	0%	7-R3	69,831.42	54,916.01			54,916.01
395.00	Power Operated Equip	11,437.34	15%	15-R3	4,879.59	4,096.16			4,096.16
395.50	Office Furn & Equipment	0.00	0%	15-R3	0.00	780.65			780.65
396.00	Communication Equipment	87,695.96	0%	12-R2.5	77,599.02	84,448.59			84,448.59
396.50	Transportation Equipment	237,888.79	15%	8-R3	122,707.66	61,455.64		49.30	61,504.94
397.00	Miscellaneous Equipment	1,679,656.13	0%	15-R1.5	669,684.02	91,256.53			91,256.53
397.50	Stores Equipment	5,051.76	0%	15-R1.5	678.55	477.02			477.02
398.00	Other Tangible Plant	0.00	0%	10-R3	0.00	0.00			0.00
	TOTAL General Plant	2,098,658.54			946,102.41	297,689.23	0.00	49.30	297,738.53
	TOTAL DEPRECIABLE PLANT	34,907,895.52			8,302,184.02	8,252,964.31	4,709,895.06	502,025.20	4,045,094.45

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Company's Book Reserve and Allocation of Book Reserve
Based Upon Calculated Reserve
As of December 31, 2016

Acct. No.	Description	Original Cost 12-31-16	Net Salvage Rate	A.S.L./ Survivor Curve	Calculated Reserve 12-31-16	Book Reserve 12-31-16	Additional 2016 Retirements	Pending Depr Resr Transfer In	Adjusted Book Reserve 12-31-16
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	NON-DEPRECIABLE PLANT								
	Intangible Plant								
301.00	Organization	0.00							0.00
302.00	Franchises & Consents	0.00							0.00
303.00	Other Intangible Plant	0.00							0.00
	TOTAL Intangible Plant	0.00				0.00	0.00	0.00	0.00
	Land & Land Rights								
306.00	Land & Land Rights	1,078,436.82				0.00			0.00
	TOTAL Land & Land Rights	1,078,436.82				0.00	0.00	0.00	0.00
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82				0.00	0.00	0.00	0.00
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34				8,252,964.31	4,709,895.06	502,025.20	4,045,094.45

Hawaii Water Service Company

Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters: Net Salvage W/ COR %	Present Parameters: Net Salvage Gross Salv %	Present Parameters: Net Salvage Gross COR %	Present Parameters: Implicit ASL (Yrs)	Present Parameters: Depr Rate	Proposed Parameters: Net Salvage W/ COR %	Proposed Parameters: Net Salvage Gross Salv %	Proposed Parameters: Net Salvage Gross COR %	Proposed Parameters: A.S.L./ Survivor Curve	Proposed Parameters: Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(m)	(n)
	DEPRECIABLE PLANT											
	Collection Plant											
354.00	Structure & Improvements	19,179,430.57	0%	0%	0%	32.3	3.10%	-15%	0%	-15%	35-R4	37.9
355.00	Power Generation Equipment	886,808.10	0%	0%	0%	14.8	6.76%	0%	0%	0%	30-R3	26.5
360.00	Collection Sewers Force	3,654,843.66	0%	0%	0%	44.2	2.26%	-10%	0%	-10%	45-R3	31.3
361.00	Collection Sewers Gravity	5,025,568.13	0%	0%	0%	48.3	2.07%	-10%	0%	-10%	45-R3	32.2
362.00	Special Collecting Structure	2,792,198.23	0%	0%	0%	30.8	3.24%	-15%	0%	-15%	45-R4	40.3
364.00	Flow Measuring Devices	76,036.70	0%	0%	0%	30.0	3.33%	0%	0%	0%	10-R3	0.0
370.00	Receiving Wells	1,066,775.27	0%	0%	0%	47.7	2.10%	-15%	0%	-15%	40-R3	32.7
370.10	Pumping Equipment	3,356,094.16	0%	0%	0%	31.8	3.15%	-15%	0%	-15%	30-R3	16.7
	TOTAL Collection Plant	36,037,754.82										
	Treatment & Disposal Plant											
380.10	Treatment & Disposal Equip	12,068,731.95	0%	0%	0%	32.8	3.05%	-10%	0%	-10%	30-R4	20.0
381.00	Plant Sewers	36,649.20	0%	0%	0%	0.0	3.33%	-10%	0%	-10%	30-R3	26.6
382.00	Outfall Sewer Lines	114,384.01	0%	0%	0%	0.0	3.33%	-10%	0%	-10%	35-R3	25.6
385.00	Reuse Trans & Distrib System	264,783.22	0%	0%	0%	0.0	3.33%	-10%	0%	-10%	35-R3	25.6
	TOTAL Treatment & Disposal Plant	12,484,548.38										
	General Plant											
389.00	Other Miscellaneous Equipment	521,694.77	0%	0%	0%	28.2	3.54%	0%	0%	0%	15-R3	0.0
393.00	Tools, Shop, Garage Equipment	872.06	0%	0%	0%	1.7	60.00%	0%	0%	0%	15-R3	0.0
394.00	Laboratory Equipment	81,651.55	0%	0%	0%	67.9	1.47%	0%	0%	0%	7-R3	3.4
395.00	Power Operated Equip	30,968.65	0%	0%	0%	126.6	0.79%	15%	15%	0%	15-R3	5.1
395.50	Office Furn & Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R3	0.0
396.00	Communication Equipment	87,695.96	0%	0%	0%	340.1	0.29%	0%	0%	0%	12-R2.5	1.7
396.50	Transportation Equipment	577,873.12	0%	0%	0%	23.9	4.19%	15%	15%	0%	8-R3	4.0
397.00	Miscellaneous Equipment	1,679,656.13	0%	0%	0%	9.1	10.95%	0%	0%	0%	15-R1.5	9.0
397.50	Stores Equipment	6,848.85	0%	0%	0%	30.0	3.33%	0%	0%	0%	15-R1.5	13.2
398.00	Other Tangible Plant	111,166.14	0%	0%	0%	37.1	2.69%	0%	0%	0%	10-R3	1.3
	TOTAL General Plant	3,098,425.23										
	TOTAL DEPRECIABLE PLANT	51,620,728.43										

Hawaii Water Service Company
Hawaii Water Service - Wastewater (Waikoloa Village and Resort)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters: Net Salvage W/ COR % (d)	Present Parameters: Net Salvage Gross Salv % (e)	Present Parameters: Net Salvage Gross COR % (f)	Present Parameters: Implicit ASL (Yrs) (g)	Present Parameters: Depr Rate (h)	Proposed Parameters: Net Salvage W/ COR % (i)	Proposed Parameters: Net Salvage Gross Salv % (j)	Proposed Parameters: Net Salvage Gross COR % (k)	Proposed Parameters: A.S.L./ Survivor Curve (m)	Proposed Parameters: Average Remain. Life (n)
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	0.00										
302.00	Franchises & Consents	0.00										
303.00	Other Intangible Plant	0.00										
	TOTAL Intangible Plant	0.00										
	Land & Land Rights											
306.00	Land & Land Rights	1,078,436.82										
	TOTAL Land & Land Rights	1,078,436.82										
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82										
	TOTAL UTILITY PLANT IN SERVICE	52,699,165.25										

Hawaii Water Service Company

Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters Net Salvage W/ COR %	Present Parameters Net Salvage Gross Salv %	Present Parameters Net Salvage Gross COR %	Present Parameters Implicit ASL (Yrs)	Present Parameters Depr Rate	Proposed Parameters Net Salvage W/ COR %	Proposed Parameters Net Salvage Gross Salv %	Proposed Parameters Net Salvage Gross COR %	Proposed Parameters A.S.L./ Survivor Curve	Proposed Parameters Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(m)	(n)
	DEPRECIABLE PLANT											
	Collection Plant											
354.00	Structure & Improvements	9,743,198.99	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	35-R4	39.24
355.00	Power Generation Equipment	326,112.48	0%	0%	0%	0.0	3.33%	0%	0%	0%	30-R3	26.58
360.00	Collection Sewers Force	257,304.50	0%	0%	0%	50.0	2.00%	-10%	0%	-10%	45-R3	24.70
361.00	Collection Sewers Gravity	1,397,699.83	0%	0%	0%	46.0	2.17%	-10%	0%	-10%	45-R3	21.01
362.00	Special Collecting Structure	0.00	0%	0%	0%	0.0	0.00%	-15%	0%	-15%	45-R4	-
364.00	Flow Measuring Devices	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R3	-
370.00	Receiving Wells	24,727.27	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	40-R3	32.72
370.10	Pumping Equipment	8,181.20	0%	0%	0%	30.0	3.33%	-15%	0%	-15%	30-R3	27.55
	TOTAL Collection Plant	11,757,224.27										
	Treatment & Disposal Plant											
380.10	Treatment & Disposal Equip	3,919,192.75	-10%	0%	-10%	34.0	2.94%	-10%	0%	-10%	30-R3	16.14
381.00	Plant Sewers	36,649.20	-10%	0%	-10%	30.0	3.33%	-10%	0%	-10%	30-R3	26.58
382.00	Outfall Sewer Lines	0.00	-10%	0%	-10%	0.0	0.00%	-10%	0%	-10%	30-R3	-
385.00	Reuse Trans & Distrib System	0.00	-10%	0%	-10%	0.0	0.00%	-10%	0%	-10%	30-R3	-
	TOTAL Treatment & Disposal Plant	3,955,841.95										
	General Plant											
389.00	Other Miscellaneous Equipment	519,178.75	0%	0%	0%	28.2	3.54%	0%	0%	0%	15-R3	11.52
393.00	Tools, Shop, Garage Equipment	872.06	0%	0%	0%	1.7	60.00%	0%	0%	0%	15-R3	13.53
394.00	Laboratory Equipment	7,239.01	0%	0%	0%	30.0	3.34%	0%	0%	0%	7-R3	4.63
395.00	Power Operated Equip	19,531.31	0%	0%	0%	0.0	0.00%	15%	15%	0%	15-R3	14.00
395.50	Office Furn & Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R3	-
396.00	Communication Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	12-R2.5	-
396.50	Transportation Equipment	339,984.33	0%	0%	0%	28.9	3.45%	15%	15%	0%	8-R3	4.71
397.00	Miscellaneous Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R1.5	-
397.50	Stores Equipment	1,795.09	0%	0%	0%	30.0	3.34%	0%	0%	0%	15-R1.5	13.78
398.00	Other Tangible Plant	111,166.14	0%	0%	0%	37.1	2.69%	0%	0%	0%	10-R3	1.27
	TOTAL General Plant	999,766.69										
	TOTAL DEPRECIABLE PLANT	16,712,832.91										

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Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stout

Hawaii Water Service Company
Waikoloa Village Wastewater Operations (VS)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No. (a)	Description (b)	Original Cost 12-31-16 (c)	Present Parameters Net Salvage W/ COR % (d)	Present Parameters Net Salvage Gross Salv % (e)	Present Parameters Net Salvage Gross COR % (f)	Present Parameters Implicit ASL (Yrs) (g)	Present Parameters Depr Rate (h)	Proposed Parameters Net Salvage W/ COR % (i)	Proposed Parameters Net Salvage Gross Salv % (j)	Proposed Parameters Net Salvage Gross COR % (k)	Proposed Parameters A.S.L./ Survivor Curve (m)	Proposed Parameters Average Remain. Life (n)
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	0.00										
302.00	Franchises & Consents	0.00										
303.00	Other Intangible Plant	0.00										
	TOTAL Intangible Plant	0.00										
	Land & Land Rights											
306.00	Land & Land Rights	0.00										
	TOTAL Land & Land Rights	0.00										
	TOTAL NON-DEPRECIABLE PLANT	0.00										
	TOTAL UTILITY PLANT IN SERVICE	16,712,832.91										

Table 5 - WS

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters Net Salvage W/ COR %	Gross Salv %	Gross COR %	Implicit ASL (Yrs)	Depr Rate	Proposed Parameters Net Salvage W/ COR %	Gross Salv %	Gross COR %	A.S.L./ Survivor Curve	Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(m)	(n)
	DEPRECIABLE PLANT											
	Collection Plant											
354.00	Structure & Improvements	9,436,231.58	0%	0%	0%	35.1	2.85%	-15%	0%	-15%	35-R4	36.84
355.00	Power Generation Equipment	560,695.62	0%	0%	0%	0.0	8.76%	0%	0%	0%	30-R3	23.84
360.00	Collection Sewers Force	3,397,539.16	0%	0%	0%	43.8	2.28%	-10%	0%	-10%	45-R3	31.78
361.00	Collection Sewers Gravity	3,627,868.30	0%	0%	0%	49.3	2.03%	-10%	0%	-10%	45-R3	36.21
362.00	Special Collecting Structure	2,792,198.23	0%	0%	0%	0.0	3.24%	-15%	0%	-15%	45-R4	40.30
364.00	Flow Measuring Devices	76,036.70	0%	0%	0%	0.0	3.33%	0%	0%	0%	10-R3	8.34
370.00	Receiving Wells	1,042,048.00	0%	0%	0%	48.3	2.07%	-15%	0%	-15%	40-R3	32.72
370.10	Pumping Equipment	3,347,912.96	0%	0%	0%	31.8	3.15%	-15%	0%	-15%	30-R3	16.66
	TOTAL Collection Plant	24,280,530.55										
	Treatment & Disposal Plant											
380.10	Treatment & Disposal Equip	8,149,539.20	0%	0%	0%	32.3	3.10%	-10%	0%	-10%	30-R4	21.81
381.00	Plant Sewers	0.00	0%	0%	0%	0.0	0.00%	-10%	0%	-10%	30-R3	-
382.00	Outfall Sewer Lines	114,384.01	0%	0%	0%	30.0	3.33%	-10%	0%	-10%	35-R3	25.62
385.00	Reuse Trans & Distrib System	264,783.22	0%	0%	0%	30.0	3.33%	-10%	0%	-10%	35-R3	25.62
	TOTAL Treatment & Disposal Plant	8,528,706.43										
	General Plant											
389.00	Other Miscellaneous Equipment	2,516.02	0%	0%	0%	0.0	3.33%	0%	0%	0%	15-R3	10.69
393.00	Tools, Shop, Garage Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R3	-
394.00	Laboratory Equipment	74,412.54	0%	0%	0%	77.5	1.29%	0%	0%	0%	7-R3	3.36
395.00	Power Operated Equip	11,437.34	0%	0%	0%	0.0	2.14%	15%	15%	0%	15-R3	7.59
395.50	Office Furn & Equipment	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	15-R3	-
396.00	Communication Equipment	87,695.96	0%	0%	0%	340.1	0.29%	0%	0%	0%	12-R2.5	1.74
396.50	Transportation Equipment	237,888.79	0%	0%	0%	19.1	5.23%	15%	15%	0%	8-R3	3.14
397.00	Miscellaneous Equipment	1,679,656.13	0%	0%	0%	9.1	10.95%	0%	0%	0%	15-R1.5	9.02
397.50	Stores Equipment	5,051.76	0%	0%	0%	30.0	3.33%	0%	0%	0%	15-R1.5	12.99
398.00	Other Tangible Plant	0.00	0%	0%	0%	0.0	0.00%	0%	0%	0%	10-R3	-
	TOTAL General Plant	2,098,658.54										
	TOTAL DEPRECIABLE PLANT	34,907,895.52										

Table 5 - WS

Hawaii Water Service Company
Waikoloa Resort Operations-Wastewater (WS)

Summary of Original Cost of Utility Plant in Service as of December 31, 2016 and
Present and Proposed Parameters

Account No.	Description	Original Cost 12-31-16	Present Parameters Net Salvage W/ COR %	Present Parameters Net Salvage Gross Salv %	Present Parameters Net Salvage Gross COR %	Present Parameters Implicit ASL (Yrs)	Present Parameters Depr Rate	Proposed Parameters Net Salvage W/ COR %	Proposed Parameters Net Salvage Gross Salv %	Proposed Parameters Net Salvage Gross COR %	Proposed Parameters A.S.L./ Survivor Curve	Proposed Parameters Average Remain. Life
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(m)	(n)
	NON-DEPRECIABLE PLANT											
	Intangible Plant											
301.00	Organization	0.00										
302.00	Franchises & Consents	0.00										
303.00	Other Intangible Plant	0.00										
	TOTAL Intangible Plant	0.00										
	Land & Land Rights											
306.00	Land & Land Rights	1,078,436.82										
	TOTAL Land & Land Rights	1,078,436.82										
	TOTAL NON-DEPRECIABLE PLANT	1,078,436.82										
	TOTAL UTILITY PLANT IN SERVICE	35,986,332.34										

Table 6

Hawaii Water Service Co-Wastewater
Summary of ASL's and Net Salvage Percent
From Industy Depreciation Studies

Account No. (b)	Description (c)	Original Cost 12-31-16 (c)	Proposed ASL	Summary of ASL's: Implicit ASL	Sum of ASL's	Arizona -Am. Sewer	Illinois-Am Sewer	Monarch Wastewater	New Jersey Amer-Sewer	Pukalani Wastewater
	DEPRECIABLE PLANT									
	Collection, Treatment & Disposal Equipment									
354.00	Structure & Improvements	3,016,636.89	35-R4	36	180	40	40	35	30	35
362.00	Special Collection Structure	15,800.00	45-R4	19	38			10		28
370.10	Pumping Equipment	557,909.82	30-R3	18	92	15	25	20	17	15
380.10	Treatment & Disposal Equipment	5,336,802.03	30-R4	25	101	21	20	25		35
	TOTAL Treatment & Disposal Plant	8,927,148.74								
	General Plant									
373.00	Transportation Equipment	31,503.89	8-R3	7	7					7
389.00	Other Miscellaneous Equipment	0.00	15-R3	25	25			25		
395.50	Office Furniture & Equipment	0.00	15-R3	15	29			15		14
	TOTAL General Plant	31,503.89								
	SUBTOTAL Depreciable Plant	8,958,652.63								

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Table 6

Hawaii Water Service Co-Wastewater
Summary of ASL's and Net Salvage Percent
From Industy Depreciation Studies

Account No. (b)	Description (c)	Original Cost 12-31-16 (c)	Proposed Salv %	Summary of Net Salv %'s: Implicit Net Salv %	Sum of NS %'s	Arizona -Am. Sewer	Illinois-Am Sewer	Monarch Wastewater	New Jersey Amer-Sewer	Pukalani Wastewater
	DEPRECIABLE PLANT									
	Collection, Treatment & Disposal Equipment									
354.00	Structure & Improvements	3,016,636.89	-15%	-11%	-55%	-10%	-10%	-5%	-15%	-15%
362.00	Special Collection Structure	15,800.00	-15%	-15%	-15%					-15%
370.10	Pumping Equipment	557,909.82	-15%	-12%	-60%	0%	-30%	0%	-15%	-15%
380.10	Treatment & Disposal Equipment	5,336,802.03	-10%	-10%	-40%	0%	-25%	-5%		-10%
	TOTAL Treatment & Disposal Plant	8,927,148.74								
	General Plant									
373.00	Transportation Equipment	31,503.89	15%	15%	15%					15%
389.00	Other Miscellaneous Equipment	0.00	0%	0%	0%			0%		0%
395.50	Office Furniture & Equipment	0.00	0%	0%	0%			0%		0%
	TOTAL General Plant	31,503.89								
	SUBTOTAL Depreciable Plant	8,958,652.63								

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Waikoloa Wastewater Depreciation Study
Witness: Stout

SECTION 3

Hawaii Water Service Company
Waikoloa Village Wastewater & Waikoloa Resort Wastewater

General

This report sets forth the results of our study of the depreciable property of Hawaii Water Service Company – Waikoloa Wastewater (Waikoloa Wastewater or the "Company") as of December 31, 2016 and contains the basic parameters (recommended average service lives and life characteristics) for the proposed average remaining life depreciation rates. All average service lives set forth in this report are developed based upon plant in service as of December 31, 2016.

The scope of the study included an analysis of Waikoloa Wastewater historical data through December 31, 2016, discussions with Company management and staff to identify prior and prospective factors affecting the Company's plant in service, as well as interpretation of past service life data experience and future life expectancies to determine the appropriate average service lives of the Company's surviving plant. The service lives and life characteristics resulting from the in-depth study were utilized together with the Company's plant in service and book depreciation reserve to determine the recommended Average Remaining Life (ARL) depreciation rates related to the Company's plant in service as of December 31, 2016.

In preparing the study, the Company's historical investment data were studied using various service life analysis techniques. Further, discussions were held with the Company's management to obtain an overview of the Company's facilities and to discuss the general scope of operations together with other factors which could have a

bearing on the service lives of the Company's property. Finally, the study results were tempered by information gathered during plant inspection tours of a representative portion of the Company's property.

The Company maintains property records containing a summary of its fixed capital investments by property account. This investment data was analyzed and summarized by property group and/or sub group and vintage, then utilized as a basis for the various depreciation calculations.

Depreciation Study Overview

There are numerous methods utilized to recover property investment depending upon the goal. For example, accelerated methods such as double declining balance and sum of years digits are methods used in tax accounting to motivate additional investments. Broad Group (BG) and Equal Life Group (ELG) are both Straight Line Grouping Procedures recognized and utilized by various regulatory jurisdictions depending upon the policy of the specific agency.

The Straight Line Group Method of depreciation utilized in this study to develop the recommended depreciation rates is the Broad Group Procedure together with the Average Remaining Life Technique. The use of this procedure and technique is based upon recovering the net book cost (original cost less book reserve) of the surviving plant in service over its estimated remaining useful life. Any variance between the book reserve and an implied theoretical calculated reserve is compensated for under this procedure. That is, as the Company's book reserve increases above or declines below the theoretical reserve at a specific point in time, the Company's average remaining life depreciation rate in subsequent years will be increased or decreased to compensate for the variance, thereby, assuring full recovery of the Company's investment by the end of

the property's life.

The Company, like any other business, includes as an annual operating expense an amount which reflects a portion of the capital investment which was consumed in providing service during the accounting period. The annual depreciation amount to be recognized is based upon the remaining productive life over which the undepreciated capital investment needs to be recovered. The determination of the productive remaining life for each property group usually includes an in-depth study of past experience in addition to estimates of future expectations.

Annual Depreciation Accrual

Through the utilization of the Average Remaining Life Technique, the Company will recover the un-depreciated fixed capital investment in the appropriate amounts as annual depreciation expense in each year throughout the remaining life of the property. The procedure incorporates the future life expectancy of the property, the vintaged surviving plant in service, and estimated net salvage, together with the book depreciation reserve balance to develop the annual depreciation rate for each property account. Accordingly, the ARL technique meets the objective of providing a straight line recovery of the un-depreciated fixed capital property investment.

As indicated, the use of the Average Remaining Life Technique results in charging the appropriate annual depreciation amounts over the remaining life of the property to insure full recovery by the end of the life of the property. The annual expense is calculated on a Straight Line Method rather than by the previously mentioned, "sum of the years digits" or "double declining balance" methods, etc. The "group" refers to the method of calculating annual depreciation on the summation of the investment in any one depreciable group or plant account rather than calculating

depreciation for each individual unit.

Under Broad Group Depreciation some units may be over depreciated and other units may be under depreciated at the time when they are retired from service, but overall, the account is fully depreciated when average service life is attained. By comparison, Equal Life Group depreciation rates are designed to fully accrue the cost of the asset group by the time of retirement. For both the Broad Group and Equal Life Group Procedures the full cost of the investment is credited to plant in service when the retirement occurs and likewise the depreciation reserve is debited with an equal retirement cost. No gain or loss is recognized at the time of property retirement because of the assumption that the retired property was at average service life.

Group Depreciation Procedures

Group depreciation procedures are utilized to depreciate property when more than one item of property is being depreciated. Such a procedure is appropriate because all of the items within a specific group typically do not have identical service lives, but have lives which are dispersed over a range of time. Utilizing a group depreciation procedure allows for a condensed application of depreciation rates to groups of similar property in lieu of extensive depreciation calculations on an item by item basis. The two more common group depreciation procedures are the Broad Group (BG) and Equal Life Group (ELG) approach.

In developing depreciation rates using the Broad Group procedure, the annual depreciation rate is based on the average life of the overall property group, which is then applied to the group's surviving original cost investment. A characteristic of this procedure is that retirements of individual units occurring prior to average service life will be under depreciated, while individual units retired after average service life will be

over depreciated when removed from service, but overall, the group investment will achieve full recovery by the end of the life of the total property group. That is, the under recovery occurring early in the life of the account is balanced by the over recovery occurring subsequent to average service life. In summary, the cost of the investment is complete at the end of the property's life cycle, but the rate of recovery does not match the consumption pattern which was used to provide service to the company's customers.

Under the average service life procedure, the annual depreciation rate is calculated by the following formula:

$$\text{Annual Accrual Rate, Percent} = \frac{100\% - \text{Salvage}}{\text{Average Service Life}} \times 100$$

The application of the broad group procedure to life span groups results in each vintage investment having a different average service life. This circumstance exists because the concurrent retirement of all vintages at the anticipated retirement year results in truncating and, therefore, restricting the life of each successive years vintage investment. An average service life is calculated for each vintage investment in accordance with the above formula. Subsequently, a composite service life and depreciation rate is calculated relative to all vintages within the property group by weighting the life for each vintage by the related surviving vintage investment within the group.

In the Equal Life Group, the property group is subdivided, through the use of plant life tables, into equal life groups. In each equal life group, portions of the overall property group includes that portion which experiences the life of the specific sub-group. The relative size of each sub-group is determined from the overall group life

characteristic (property dispersion curve). This procedure both overcomes the disadvantage of voluminous record requirements of unit depreciation, as well as eliminates the need to base depreciation on overall lives as required under the broad group procedure. The application of this procedure results in each sub-group of the property having a single life. In this procedure, the full cost of short lived units is accrued during their lives leaving no under accruals to be recovered by over accruals on long lived plant. The annual depreciation for the group is the summation of the depreciation accruals based on the service life of each Equal Life Group.

The ELG Procedure is viewed as being the more definitive procedure for identifying the life characteristics of utility property and as a basis for developing service lives and depreciation rates, nevertheless, the Broad Group procedure is more widely utilized throughout the utility industry by regulatory commissions as a basis for depreciation rates. That is, the ELG Procedure is more definitive because it allocates the capital cost of a group property to annual expense in accordance with the consumption of the property group providing service to customers. In this regard, the company's customers are more appropriately charged with the cost of the property consumed in providing them service during the applicable service period. The more timely return of plant cost is accomplished by fully accruing each unit's cost during its service life, thereby not only reducing the risk of incomplete cost recovery, but also resulting in less return on rate base over the life of a depreciable group. The total depreciation expense over the life of the property is the same for all procedures which allocate the full capital cost to expense, but at any specific point in time, the depreciated original cost is less under the ELG procedure than under the BG procedure. This circumstance exists because under the equal life group procedure, the rate base is not

maintained at a level of greater than the future service value of the surviving plant as is the case when using the average service life procedure. Consequently, the total return required from the ratepayers is less under the ELG procedure.

While the Equal Life Group procedure has been known to depreciation experts for many years, widespread interest in applying the procedure developed only after high speed electronic computers became available to perform the large volume of arithmetic computations required in developing ELG based depreciation lives and rates. The table on the following page illustrates the procedure for calculating equal life group depreciation accrual rates and summarizes the results of the underlying calculations. Depreciation rates are determined for each age interval (one year increment) during the life of a group of property which was installed in a given year or vintage group. The age of the vintage group is shown in column (A) of the ELG table. The percent surviving at the beginning of each age interval is determined from the Iowa 10-R3 survivor curve which is set forth in column (B). The percent retired during each age interval, as shown in column (C), is the difference between the percent surviving at successive age intervals. Accordingly, the percentage amount of the vintage group retired defines the size of each equal life group. For example, during the interval 3 1/2 to 4 1/2, 1.93690 percent of the vintage group is retired at an average age of four years. In this case, the 1.93690 percent of the group experiences an equal life of four years. Likewise, 3.00339 percent is retired during the interval 4 1/2 to 5 1/2 and experiences a service life of five years. Furthermore, 4.42969 percent experiences a six-year life; etc. Calculations are made for each age interval from the zero age interval through the end of the life of the vintage group. The average service life for each age interval's equal life group is shown in column (E) of the table.

XYZ UTILITY COMPANY

CALCULATION OF ASL, ARL AND ACCRUED DEPRECIATION FACTORS **Table 7**

BASED UPON AN IOWA 10-R3 CURVE USING THE EQUAL LIFE GROUP (ELG) PROCEDURE

							EQUAL LIFE GROUP PROCEDURE			
AGE AT BEGIN OF INTERVAL	LIFE TABLE BEGIN OF INTERVAL	RETIREMENT DURING INTERVAL	AVERAGE SURVIVING	AGE OF AMOUNT RETIRED	AMOUNT FOR EACH LIFE GROUP	AMOUNT FOR REMAINING LIFE GROUPS	AVERAGE SERVICE LIFE	AVERAGE REMAINING LIFE	ELG/ARL DEPR RATE	ACCRUED DEPR RES FACTOR
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
0.0	1.0000000	0.0009198	0.9995401	0.25	0.0009198	0.0583036	8.57	8.57	11.67	0.0000000
0.5	0.9990802	0.0033314	0.9974145	1.0	0.0033314	0.1131019	8.82	8.32	11.34	0.0566975
1.5	0.9957488	0.0065393	0.9924792	2.0	0.0032697	0.1098013	9.04	7.54	11.06	0.1659501
2.5	0.9892095	0.0117037	0.9833577	3.0	0.0039012	0.1062159	9.26	6.76	10.80	0.2700337
3.5	0.9775058	0.0193690	0.9678213	4.0	0.0048422	0.1018442	9.50	6.00	10.52	0.3683062
4.5	0.9581368	0.0300339	0.9431199	5.0	0.0060068	0.0964196	9.78	5.28	10.22	0.4600565
5.5	0.9281029	0.0442969	0.9059545	6.0	0.0073828	0.0897248	10.10	4.60	9.90	0.5447146
6.5	0.8838060	0.0631367	0.8522377	7.0	0.0090195	0.0815237	10.45	3.95	9.57	0.6217794
7.5	0.8206693	0.0876232	0.7768577	8.0	0.0109529	0.0715375	10.86	3.36	9.21	0.6906424
8.5	0.7330461	0.1166879	0.6747022	9.0	0.0129653	0.0595783	11.32	2.82	8.83	0.7505770
9.5	0.6163582	0.1431836	0.5447664	10.0	0.0143184	0.0459365	11.86	2.36	8.43	0.8010714
10.5	0.4731746	0.1533568	0.3964962	11.0	0.0139415	0.0318066	12.47	1.97	8.02	0.8423003
11.5	0.3198178	0.1363216	0.2516570	12.0	0.0113601	0.0191557	13.14	1.64	7.61	0.8753616
12.5	0.1834962	0.0975199	0.1347363	13.0	0.0075015	0.0097249	13.85	1.35	7.22	0.9022159
13.5	0.0859763	0.0559043	0.0580242	14.0	0.0039932	0.0039775	14.59	1.09	6.85	0.9254232
14.5	0.0300720	0.0244398	0.0178521	15.0	0.0016293	0.0011663	15.31	0.81	6.53	0.9473077
15.5	0.0056322	0.0055324	0.0028660	16.0	0.0003458	0.0001788	16.03	0.53	6.24	0.9667657
16.5	0.0000998	0.0000998	0.0000499	17.0	0.0000059	0.0000029	17.00	0.50	5.88	0.9705882
17.5	0.0000000	0.0000000	0.0000000	18.0	0.0000000	0.0000000				
		1.0000000				1.0000000				

The amount to be accrued annually for each equal life group is equal to the percentage retired in the equal life group divided by its service life. In as much as

additions and retirements are assumed, for calculation purposes, to occur at midyear only one-half of the equal life group's annual accrual is allocated to expense during its first and last years of service life. The accrual amount for the property retired during age interval 0 to .5 must be equal to the amount retired to insure full recovery of that component during that period. The accruals for each equal life group during the age intervals of the vintage group's life cycle are shown in column (F). The total accrual for a given year is the summation of the equal life group accruals for that year. For example, the total accrual for the second year, as shown in column (G), is 11.31019 percent and is the sum of all succeeding years remaining equal life group accruals plus one half of the current years life group accrual listed in column (F). For the zero age interval year, the total accrual is equal to one half of the sum of all succeeding years remaining equal life accruals plus the amount for the zero interval equal life group accrual. The one half year accrual for the zero age interval is consistent with the half year convention relative to property during its installation year. The sum of the annual accruals for each age interval contained in column (G) total to 1.000 demonstrating that the developed rates will recover 100% of plant no more and no less. The annual accrual rate which will result in the accrual amount is the ratio of the accrual amount (11.31019 percent) to the average percent surviving during the interval, column (D), (99.74145 percent), which is a rate of 11.34% (column J). Column (J) contains a summary of the accrual rates for each age interval of the property groups life cycle based upon an Iowa 10-R3 survivor curve.

Remaining Life Technique

In the Average Remaining Life depreciation technique, the annual accrual is calculated according to the following formula where, (A) the annual depreciation for

each group equals, (D) the depreciable cost of plant less (U) the accumulated provision for depreciation less (S) the estimated future net salvage, divided by (R) the composite remaining life of the group:

$$A = \frac{D - U - S}{R}$$

The annual accrual rate (a) is expressed as a percentage of the depreciable plant balance by dividing the equation by (D) the depreciable cost of plant times 100:

$$(a) = \frac{D - U - S}{R} \times \frac{1}{D} \times 100$$

As further indicated by the equation, the accumulated provision for depreciation by vintage is required in order to calculate the remaining life depreciation rate for each property group. In practice, most often such detail is not available; therefore, composite remaining lives are determined for each depreciable group, (i.e., property account).

The remaining life for a depreciable group is calculated by first determining the remaining life for each vintage year in which there is surviving investment. This is accomplished by solving the area under the survivor curve selected to represent the average life and life characteristic of the property account. The remaining life for each vintage is determined by dividing (D) the depreciable cost of each vintage, by (L) its average service life, and multiplying this ratio by its average remaining life (E). The composite remaining life of the group (R) equals the sums of products divided by the sum of the quotients:

$$R\ Group = \frac{\sum \frac{D}{L} \times E}{\sum \frac{D}{L}}$$

The account level accumulated provision for depreciation, which was the basis for developing the composite average remaining life accrual and annual depreciation rate

for each property account as per this report, was obtained from the Company's books and records.

Salvage

Net salvage is the difference between gross salvage, or what is received when an asset is disposed of, and the cost of removing it from service. Salvage experience is normally included with the depreciation rate so that current accounting periods reflect a proportional share of the ultimate abandonment and removal cost or salvage received at the end of the property service life. Net salvage is said to be positive if gross salvage exceeds the cost of removal, but if cost of removal exceeds gross salvage the result is then negative salvage.

The cost of removal includes such costs as demolishing, dismantling, tearing down, disconnecting or otherwise removing plant, as well as normal environmental clean up costs associated with the property. Salvage includes proceeds received for the sale of plant and materials or the return of equipment to stores for reuse.

Net salvage experience is studied for a period of years to determine the trends which have occurred in the past. These trends are considered together with any changes that are anticipated in the future to determine the future net salvage factor for remaining life depreciation purposes. The net salvage percentage is determined by relating the total net positive or negative salvage to the book cost of the property investment.

Many retired assets generate little, if any, positive salvage. Instead, many of the Company's asset property groups generate negative net salvage at end of their life as a result of the cost of removal (retirement).

The method used to estimate the retirement cost is a standard analysis

approach which is used to identify a company's historical experience with regard to what the end of life cost will be relative to the cost of the plant when first placed into service. This information, along with knowledge about the average age of the historical retirements that have occurred to date, enables the depreciation professional to estimate the level of retirement cost that will be experienced by the Company at the end of each property group's useful life. The study methodology utilized has been extensively set forth in depreciation textbooks and has been the accepted practice by depreciation professionals for many decades. Furthermore, the cost of removal analysis approach is the current standard practice used for mass assets by essentially all depreciation professionals in estimating future net salvage for the purpose of identifying the applicable depreciation for a property group. There is a direct relationship to the installation of specific plant in service and its corresponding removal in that the installation is its beginning of life cost while the removal is its end of life cost. Also, it is important to note that average remaining life based depreciation rates incorporate future net salvage which is routinely more representative of recent versus long-term past average net salvage.

The Company's historical net salvage experience was analyzed to identify the historical net salvage factor for each applicable property group. This analysis routinely identifies that historical retirements have occurred at average ages significantly prior to the property group's average service life. This occurrence of historical retirements, at an age which is significantly younger than the average service life of the property category, clearly demonstrates that the historical data does not appropriately recognize the true level of retirement cost at the end of the property's useful life. An additional level of cost to retire will occur due to the passage of time until all the current in service

plant is retired at end of life. That is, the level of retirement costs will increase over time until the average service life is attained. The estimated additional inflation, within the estimate of retirement cost, is related to those additional year's cost increases (primarily higher labor costs over time) that will occur prior to the end of the property group's average life.

To provide an additional explanation of the issue, several general principles surrounding property retirements and related net salvage need to be highlighted. Those are that as property continues to age, the retirement of assets, if generating positive salvage when retired, will typically generate a lower percent of positive salvage. By comparison, if the class of property is one that typically generates negative net salvage (cost of removal), with increasing age at retirement the negative percentage as related to original cost will typically be greater. This situation is routinely driven by the higher labor cost with the passage of time.

Next, a simple example will aid in a better understanding of the above discussed net salvage analysis and the required adjustment to the historical analysis results. Assume the following scenario. A company has two (2) cars, Car #1 and Car #2, each purchased for $20,000. Car #1 is retired after 2 years and Car #2, is retired after 10 years. Accordingly, the average life of the two cars is six (6) years (2 Yrs. Plus 10 Yrs./2). Car #1 generates 75% salvage or $15,000 when retired and Car #2 generates 5% salvage or $1,000 when retired.

Unit	Cost	Ret. Age (Yrs)	% Salv.	Salvage Amount
Car # 1	$20,000	2	75%	$15,000
Car # 2	20,000	10	5%	1,000
Total	40,000	6	40%	16,000

Assume an analysis of the experienced net salvage at year three (3). Based upon the Car #1 retirement, which was retired at a young age (2 Yrs.) as compared to the average six (6) year life of the property group, the analysis indicates that the property group would generate 75% salvage. This analysis indication is incorrect and is the result of basing the estimate on incomplete data. That is, the estimate is based upon the salvage generated from a retirement that occurred at an age which is far less than the average service life of the property group. The actual total net salvage, that occurred over the average life of the assets (which experienced a six (6) year average life for the property group) is 40% as opposed to the initial incorrect estimate of 75%.

This is exactly the situation with the majority of the Company's historical net salvage data except that most of the Company's plant property groups routinely experience negative net salvage (cost of removal) as opposed to positive salvage.

The total end of life net salvage amount must be incorporated in the development of annual depreciation rates to enable the Company to fully recover its total plant life costs. Otherwise, upon retirement of the plant, the Company will incur end of life costs without having recovered those plant related costs from the customers who benefitted from the use of the expired plant.

With regard to location type properties (e.g. generation facilities, etc.) a company will routinely experience both interim and terminal net salvage. Interim net salvage occurs in conjunction with interim retirements that occur throughout the life of the asset group. This net salvage activity (routinely and largely cost of removal) is attributable to the removal of components within the Company's facilities to enable the placement of a new asset component. Interim net salvage is routinely negative given the care required in removing the defective component so as not to damage the remaining plant in

service. Interim net salvage is applicable to the estimated interim retirement assets.

The terminal net salvage component is attributable to the end of life costs incurred (less any gross salvage received) to disconnect, remove, demolish and/or dispose of the operating asset. Terminal net salvage is attributable to those assets remaining in service subsequent to the occurrence of interim retirements.

The total net salvage incorporated into the depreciation rate for location type plant account investments is the sum of interim and terminal net salvage. Both of the items must be incorporated in the development of annual depreciation rates to enable the Company to fully recover its total plant life costs. Otherwise, upon retirement of the plant, the Company will incur end of life costs without having recovered those plant related costs from the customers who benefitted from the use of the expired facility.

Service Lives

Several factors contribute to the length of time or average service life which the property achieves. The three (3) major categories under which these factors fall are: (1) physical; (2) functional, and; (3) contingent casualties.

The physical category includes such things as deterioration, wear and tear and the action of the natural elements. The functional category includes inadequacy, obsolescence and requirements of governmental authorities. Obsolescence occurs when it is no longer economically feasible to use the property to provide service to customers or when technological advances have provided a substitute of superior performance. The remaining factor of contingent casualties relates to retirements caused by accidental damage or construction activity of one type or another.

In performing the life analysis for any property being studied, both past experience and future expectations must be considered in order to fully evaluate the

circumstances which may have a bearing on the remaining life of the property. This ensures the selection of an average service life which best represents the expected life of each property investment.

Survivor Curves

The preparation of a depreciation study or theoretical depreciation reserve typically incorporates smooth curves to represent the experienced or estimated survival characteristics of the property. The "smoothed" or standard survivor curves generally used are the family of curves developed at Iowa State University which are widely used and accepted throughout the utility industry.

The shape of the curves within the Iowa family are dependent upon whether the maximum rate of retirement occurs before, during or after the average service life. If the maximum retirement rate occurs earlier in life, it is a left (L) mode curve; if occurring at average life, it is a symmetrical (S) mode curve; if it occurs after average life, it is a right (R) mode curve. In addition, there is the origin (O) mode curve for plant which has heavy retirements at the beginning of life.

Many times, actual Company data has not completed its life cycle, therefore, the survivor table generated from the Company data is not extended to zero percent surviving. This situation requires an estimate be made with regard to the remaining segment of the property group's life experience. Furthermore, actual Company experience is often erratic, making its utilization for average service life estimating difficult. Accordingly, the Iowa curves are used to both extend Company experience to zero percent surviving as well as to smooth actual Company data.

Study Procedures

Several study procedures were used to determine the prospective service lives

recommended for the Company's plant in service. These include the review and analysis of historical retirements, current and future construction, historical experience and future expectations of salvage and cost of removal as related to plant investment. Service lives are affected by many different factors, some of which can be obtained from studying plant experience, others which may rely heavily on future expectations. When physical aspects are the controlling factor in determining the service life of property, historical experience is a valuable tool in selecting service lives. In the case where changing technology or a less costly alternative develops, then historical experience is of lesser value.

While various methods are available to study historical data, the principal methods utilized to determine average service lives for a Company's property are the Retirement Rate Method, the Simulated Plant Record Method, the Life Span Method, and the Judgment Method.

Retirement Rate Method - The Retirement Rate Method uses actual Company retirement experience to develop a survivor curve (Observed Life Table) which is used to determine the average service life being experienced in the account under study. Computer processing provides the opportunity to review various experience bands throughout the life of the account to observe trends and changes. For each experience band studied, the "observed life table" is constructed based on retirement experience within the band of years. In some cases, the total life of the account has not been achieved and the experienced life table, when plotted, results in a "stub curve." It is this "stub curve" or total life curve, if achieved, which is matched or fitted to a standard Survivor curve. The matching process is performed both by computer analysis, using a least squares technique, and by manually plotting observed life tables to which smooth

curves are fitted. The fitted smooth curve provides the basis to determine the average service life of the property group under study.

Simulated Balances Method - In this method of analysis, simulated surviving balances are determined for each balance included in the test band by multiplying each proceeding year's original gross additions installed by the Company by the appropriate factor of each Standard Survivor Curve, summing the products, and comparing the results with the related year end plant balance to determine the "best fitting" curve and life within the test period. Various test bands are reviewed to determine trends or changes to indicated service lives in various bands of years. By definition, the curve with the "best fit" is the curve which produces simulated plant balances that most closely matches the actual plant balances as determined by the sum of the "least squares". The sum of the "least squares" is arrived at by starting with the difference between the simulated balances and the actual balance for a given year, squaring the difference, and the curve which produces the smallest sum (of squared difference) is judged to be the "best fit".

Period Retirements Method - The application of the Period Retirements Method is similar to the "Simulated Plant Balances" Method, except the procedure utilizes a Standard Survivor Curve and service life to simulate annual retirements instead of balances in performing the "least squares" fitting process during the test period. This procedure does tend to experience wider fluctuations due to the greater variations in level of experienced retirements versus additions and balances thereby producing greater variation in the study results.

Life Span Method - The Life Span or Forecast Method is a method utilized to study various accounts in which the expected retirement dates of specific property or

locations can be reasonably estimated. In the Life Span Method, an estimated probable retirement year is determined for each location of the property group. An example of this would be a structure account, in which the various segments of the account are "life spanned" to a probable retirement date which is determined after considering a number of factors, such as management plans, industry standards, the original construction date, subsequent additions, resultant average age and the current - as well as the overall - expected service life of the property being studied. If, in the past, the property has experienced interim retirements, these are studied to determine an interim retirement rate. Otherwise, interim retirement rate parameters are estimated for properties which are anticipated to experience such retirements. The selected interim service life parameters (Iowa curve and life) are then used with the vintage investment and probable retirement year of the property to determine the average remaining life as of the study date.

Judgment Method - Standard quantitative methods such as the Retirement Rate Method, Simulated Plant Record Method, etc. are normally utilized to analyze a Company's available historical service life data. The results of the analysis together with information provided by management as well as judgment are utilized in estimating the prospective recommended average service lives. However, there are some circumstances where sufficient retirements have not occurred, or where prospective plans or guidelines are unavailable. In these circumstances, judgment alone is utilized to estimate service lives based upon service lives used by other utilities for this class of plant as well as what is considered to be a reasonable life for this plant giving consideration to the current age and use of the facilities.

SECTION 4

Hawaii Water Service Company

Waikoloa Village and Waikoloa Resort Wastewater

Study Analysis Results & Recommendations

ACCOUNT – 354.00 Structures & Improvements

Historical Experience

Plant Statistics
Plant Balance = $19,179,431
Average Age of Survivors = 5.38 years
Original Gross Additions = $16,750,367
Oldest Surviving Vintage = 1986
Retirements = $3,481,995 or 20.8% of historical additions.
Average Age of Retirements = 16.3 years

Experience Band 1988 – 2015 (Full Depth) 18-L3

Average Service Life: Industry Information/Judgment

Range of Data: 30 – 40 Years
Average of Industry Data: 36 Years

Estimate Average Service Life: 35 Years

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information

Range of Data: -5% to -15%
Average of Industry Data: -11%

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

This category of property includes the investments related to the operating wastewater structures such as plant structures, control building, aeration chambers, leach field, etc. Such structures are exposed to the highly corrosive and aggressive components inherent in wastewater and therefore are subject to acceleration deterioration as compared to normal structures.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 29.4

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 35-R4

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.71%	3.10%
Av. Remaining Life	37.9 years	N/A

ACCOUNT – 355.00 Power Generation Equipment

Historical Experience

Plant Statistics
Plant Balance = $886,606
Average Age of Survivors = 5.32 years
Original Gross Additions = $886,808
Oldest Surviving Vintage = 2009
Retirements = $0, or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 30 Years

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This category of property includes the investments related to emergency generators used to provide electrical service in the event of a power outage.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 30.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.77%	6.76%
Av. Remaining Life	26.5 years	N/A

ACCOUNT – 360.00 Collection Sewers-Force

Historical Experience

Plant Statistics
Plant Balance = $3,654,844
Average Age of Survivors = 14.65 years
Original Gross Additions = $3,461,792
Oldest Surviving Vintage = 1981
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 45-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The Mains property group contains the Company's investment in Collection Sewer Mains (which included both Force and Gravity Main) aggregate approximately 16 percent of the Company's depreciable plant in service. Within the Mains property group investment approximately 42% is Force Mains while the remaining 56% is Gravity Mains. The pipe sizes range from smaller 8 diameter upwards to 18 inch diameter pipe.

Sufficient levels of plant retirement records have not occurred to develop meaningful service life indications. Accordingly, average service lives for each of the applicable property groups were estimated giving consideration of content of the property group, the potential future system changes, the corrosive nature of the effluent being transported, and general service life ranges of mains/pipe.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.59%	2.26%
Av. Remaining Life	31.3 years	N/A

ACCOUNT – 361.00 Collection Sewers-Gravity

Historical Experience

Plant Statistics
Plant Balance = $5,025,568
Average Age of Survivors = 14.26 years
Original Gross Additions = $4,259,115
Oldest Surviving Vintage = 1974
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 45-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

The Mains property group contains the Company's investment in Collection Sewer Mains (which included both Force and Gravity Main) aggregate approximately 16 percent of the Company's depreciable plant in service. Within the Mains property group investment approximately 42% is Force Mains while the remaining 56% is Gravity Mains. The pipe sizes range from smaller 8 diameter upwards to 18 inch diameter pipe.

Sufficient levels of plant retirement records have not occurred to develop meaningful service life indications. Accordingly, average service lives for each of the applicable property groups were estimated giving consideration of content of the property group, the potential future system changes, the corrosive nature of the effluent being transported, and general service life ranges of mains/pipe.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.52%	2.07%
Av. Remaining Life	32.2 years	N/A

ACCOUNT – 362.00 Special Collection Structures

Historical Experience

Plant Statistics
Plant Balance = $2,792,198
Average Age of Survivors = 4.70 years
Original Gross Additions = $2,792,198
Oldest Surviving Vintage = 2009
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 10 – 28 Years
Average of Industry Data: 19 Years

Estimate Average Service Life: 45-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information

Range of Data: -15%
Average of Industry Data: -15%

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

The investment in this property group is related to a generator building structure and a waste treatment basin. The estimated useful life gives consideration to the content of the account investment and general live experienced by structures.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 45-R4

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.62%	3.24%
Av. Remaining Life	40.3 years	N/A

ACCOUNT – 364.00 Flow Measuring Devices

Historical Experience

Plant Statistics
Plant Balance = $76,036
Average Age of Survivors = 5.47 years
Original Gross Additions = $16,407
Oldest Surviving Vintage = 2010
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Estimate Average Service Life: 10-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

The investment in this property group is related to a programmable meter that is subject to future technological obsolescence.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 45.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 10-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	9.99%	3.33%
Av. Remaining Life	0 years	N/A

ACCOUNT – 370.00 Receiving Wells

Historical Experience

Plant Statistics
Plant Balance = $1,066,775
Average Age of Survivors = 7.50 years
Original Gross Additions = $1,042,176
Oldest Surviving Vintage = 2009
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 40-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Judgment

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

The investment in this property group is related to a wet well with valve box, and piping.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 40-R3

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.51%	2.10%
Av. Remaining Life	32.7 years	N/A

ACCOUNT – 370.10 Pumping Equipment

Historical Experience

Plant Statistics
Plant Balance = $3,356,094
Average Age of Survivors = 12.23 years
Original Gross Additions = $2,371,757
Oldest Surviving vintage = 1989
Retirements = $18,773 or 0.8% of historical additions.
Average Age of Retirements = 11.1 years

Experience Band N/A

Average Service Life: Judgment/Industry Information

Average Service Life: Industry Information/Judgment
Range of Data: 20 – 35 Years
Average of Industry Data: 20 Years

Estimate Average Service Life: 30-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information/Judgment

Range of Data: 0% to -30%%
Average of Industry Data: -12%

Estimate Future Net Salvage: -15%

Plant Considerations/Future Expectations

The facilities whose investments comprise this property account are the Company's various types of pumps such as Permeate Pumps, Plant Water Pumps, and Submersible Pumps. Most of the facilities are exposed to corrosive wastewater and therefore, will require ongoing maintenance and relative young aged replacement. Consideration was given the account investment content and the general industry range in estimating the applicable average service life

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 29.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R3

Future Net Salvage: -15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	4.89%	3.15%
Av. Remaining Life	16.7 years	N/A

ACCOUNT – 380.10 Treatment & Disposal Equipment

Historical Experience

Plant Statistics
Plant Balance = $12,068,732
Average Age of Survivors = 8.93 years
Original Gross Additions = $11,791,285
Oldest Surviving Vintage = 1974
Retirements = $1,755,415 or 14.9% of historical additions.
Average Age of Retirements = (30.0) years

Experience Band 1974 – 2016 (Full Depth) 30-R4

Average Service Life: Retirement Rate Method (Actuarial)-Judgment/Industry Information

Range of Data: 20 – 35 Years
Average of Industry Data: 25 Years

Estimate Average Service Life: 30-R4

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information

Range of Data: 0% to -25%
Average of Industry Data: -10%

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

This property group investment is related to the Company's various items of treatment equipment including conveyors, blowers, diffusers, tanks, screens, mixers, dewatering system, membrane units, and piping. Given that many of the facilities are mechanical in nature and are often directly exposed to wastewater ongoing replacements will be required. In addition to the above treatment equipment, such items include, but are not limited to, monitoring probes, turbidity pumps, wastewater pumps, flow meters, membranes, belt press components, bar screen components, and numerous other treatment plant components.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 57.5

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R4

Future Net Salvage:-10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	4.60%	3.05%
Av. Remaining Life	20.0 years	N/A

ACCOUNT – 381.00 Plant Sewers

Historical Experience

Plant Statistics
Plant Balance = $36,649
Average Age of Survivors = 3.50 years
Original Gross Additions = $36,649
Oldest Surviving Vintage = 2013
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 30-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment
Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

This property class includes a limited investment in a sewer effluent manhole and related equipment.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 10.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 30-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.69%	3.333%
Av. Remaining Life	26.6 years	N/A

ACCOUNT – 382.00 Outfall Sewer Lines

Historical Experience

Plant Statistics
Plant Balance = $114,384
Average Age of Survivors = 4.50 years
Original Gross Additions = $114,384
Oldest Surviving Vintage = 2012
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 35-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment
Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

This property class includes a limited investment in a water treatment plant piping and related equipment.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 10.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 35-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.89%	3.33%
Av. Remaining Life	25.6 years	N/A

ACCOUNT – 385.00 Reuse Trans & Distr System

Historical Experience

Plant Statistics
Plant Balance = $264,783
Average Age of Survivors = 4.50 years
Original Gross Additions = $264,783
Oldest Surviving Vintage = 2012
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 35-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment
Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: -10%

Plant Considerations/Future Expectations

This property class includes a limited investment relative to the construction of an injection well.

Life Analysis Method: Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 10.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 35-R3

Future Net Salvage: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.89%	3.33%
Av. Remaining Life	25.6 years	N/A

ACCOUNT – 389.00 Other Miscellaneous Equipment

Historical Experience

Plant Statistics
Plant Balance = $521,695
Average Age of Survivors = 3.67 years
Original Gross Additions = $521,695
Oldest Surviving Vintage = 1996
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 25 Years
Average of Industry Data: 25 Years

Estimate Average Service Life: 15-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: 0%
Average of Industry Data: 0%

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes investments in miscellaneous sewer plant equipment such a sewer line washer equipment, water heater, etc., that will be replace on an as needed basis.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 10.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	8.12%	3.54%
Av. Remaining Life	0 years	N/A

ACCOUNT – 393.00 Tools, Shops & Garage Equipment

Historical Experience

Plant Statistics
Plant Balance = $872
Average Age of Survivors = 1.50 years
Original Gross Additions = $872
Oldest Surviving Vintage = 2015
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 15-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes tools and work equipment used to operate the wastewater facilities.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 30.0

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	7.02%	60.00%
Av. Remaining Life	0 years	N/A

ACCOUNT – 394.00 Laboratory Equipment

Plant Statistics
Plant Balance = $81,652
Average Age of Survivors = 16.53 years
Original Gross Additions = $78,926
Oldest Surviving Vintage = 1989
Retirements = $3,194 or 4.0% of historical additions.
Average Age of Retirements = 21.0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 7-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

The property class includes investments in lab equipment used to monitor the treatment process. This equipment routinely needs to be updated to keep current with advancing technology and testing requirements.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 20.1

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 7-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	7.43%	1.47%
Av. Remaining Life	3.4 years	N/A

ACCOUNT – 395.00 Power Operated Equipment

Historical Experience

Plant Statistics
Plant Balance =$30,969
Average Age of Survivors = 5.22 years
Original Gross Additions = $11,437
Oldest Surviving Vintage = 1991
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 15-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 15%

Plant Considerations/Future Expectations

This property class includes used to maintain the wastewater plant operations.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 1.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R3

Future Net Salvage: 15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	1.72%	0.79%
Av. Remaining Life	5.1 years	N/A

ACCOUNT – 396.00 Communication Equipment

Historical Experience

Plant Statistics
Plant Balance =$87,696
Average Age of Survivors = 18.65 years
Original Gross Additions = $87,696
Oldest Surviving Vintage = 1992
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 12-R2.5

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes communication/computer type equipment used for the wastewater plant operations.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 1.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 12-R2.5

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	2.13%	0.29%
Av. Remaining Life	1.7 years	N/A

ACCOUNT – 396.50 Transportation Equipment

Historical Experience

Plant Statistics
Plant Balance = $577,813
Average Age of Survivors = 4.34 years
Original Gross Additions = $242,357
Oldest Surviving Vintage = 2011
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Industry Information/Judgment

Range of Data: 7 Years
Average of Industry Data: 7 Years

Estimate Average Service Life: 8-R3

Co. Historical Net Salvage: N/A

Historical Net Salvage: Industry Information

Range of Data: 15%
Average of Industry Data: 15%

Estimate Future Net Salvage: 15%

Plant Considerations/Future Expectations

This property investment includes a minor quantity of transportation related property used in the operation the wastewater facilities.

Life Analysis Method: Industry Information/Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 0.9

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 8-R3

Future Net Salvage: 15%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	16.77%	4.19%
Av. Remaining Life	4.0 years	N/A

ACCOUNT – 397.00 Miscellaneous Equipment

Historical Experience

Plant Statistics
Plant Balance =$1,679,656
Average Age of Survivors = 7.96 years
Original Gross Additions = $1,679,656
Oldest Surviving Vintage = 1992
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 15-R1.5

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes various items of equipment and tools used for the wastewater plant operations.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 1.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R1.5

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	10.48%	10.95%
Av. Remaining Life	9.0 years	N/A

ACCOUNT – 397.50 Stores Equipment

Historical Experience

Plant Statistics
Plant Balance =$6,847
Average Age of Survivors = 2.24 years
Original Gross Additions = $6,847
Oldest Surviving Vintage = 2014
Retirements = $0 or 0.0% of historical additions.
Average Age of Retirements = 0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 15-R1.5

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes storage facilities used for the wastewater plant operations.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 1.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 15-R1.5

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	6.54%	3.33%
Av. Remaining Life	13.2 years	N/A

ACCOUNT – 398.00 Other Tangible Equipment

Historical Experience

Plant Statistics
Plant Balance =$111,166
Average Age of Survivors = 13.02 years
Original Gross Additions = $106,011
Oldest Surviving Vintage = 1991
Retirements = (-$5,155) or (-4.9)% of historical additions.
Average Age of Retirements = 0.0 years

Experience Band N/A

Average Service Life: Judgment

Average Service Life: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Average Service Life: 10-R3

Co. Historical Net Salvage: N/A

Net Salvage: Judgment

Historical Net Salvage: Industry Information

Range of Data: N/A
Average of Industry Data: N/A

Estimate Future Net Salvage: 0%

Plant Considerations/Future Expectations

This property class includes miscellaneous tools and equipment used for the wastewater plant operations.

Life Analysis Method: Retirement Rate Method (Actuarial)-Judgment

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

Implicit Life (Yrs): 1.3

Net Salvage: N/A

Proposed Depreciation Parameters

ASL/Curve: 10-R3

Future Net Salvage: 0%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	20.63%	2.69%
Av. Remaining Life	1.3 years	N/A

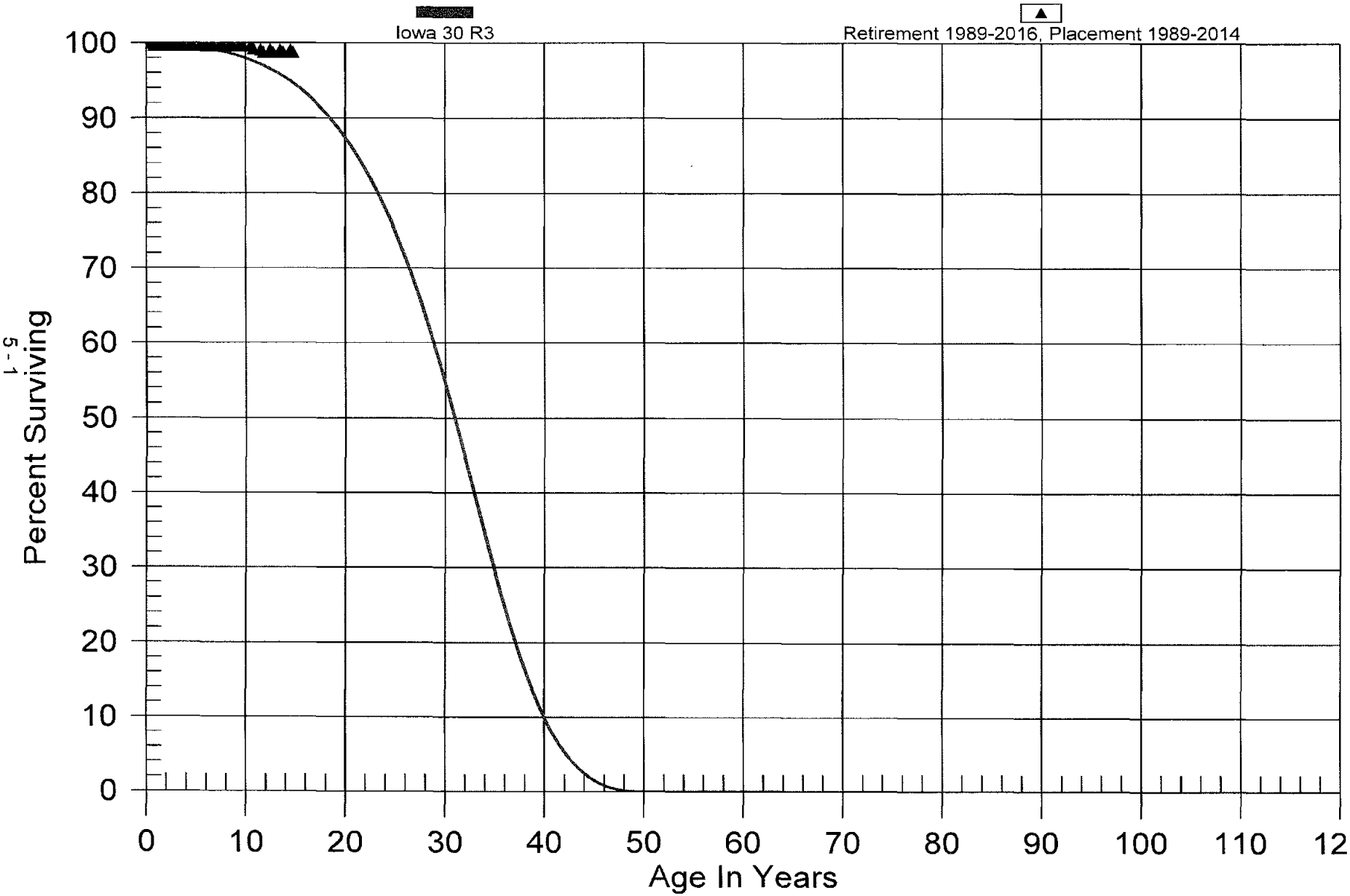
SECTION 5

Hawaii Water Service Company

(722) Waikoloa Village Wastewater, (724) Waikoloa Resort Wastewater

370.10 PUMPING EQUIPMENT

Original And Smooth Survivor Curves



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Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stern

Hawaii Water Service Company
(722) Waikoloa Village Wastewater, (724) Waikoloa Resort Wastewater
370.10 PUMPING EQUIPMENT
Observed Life Table
Retirement Expr. 1989 TO 2016
Placement Years 1989 TO 2014

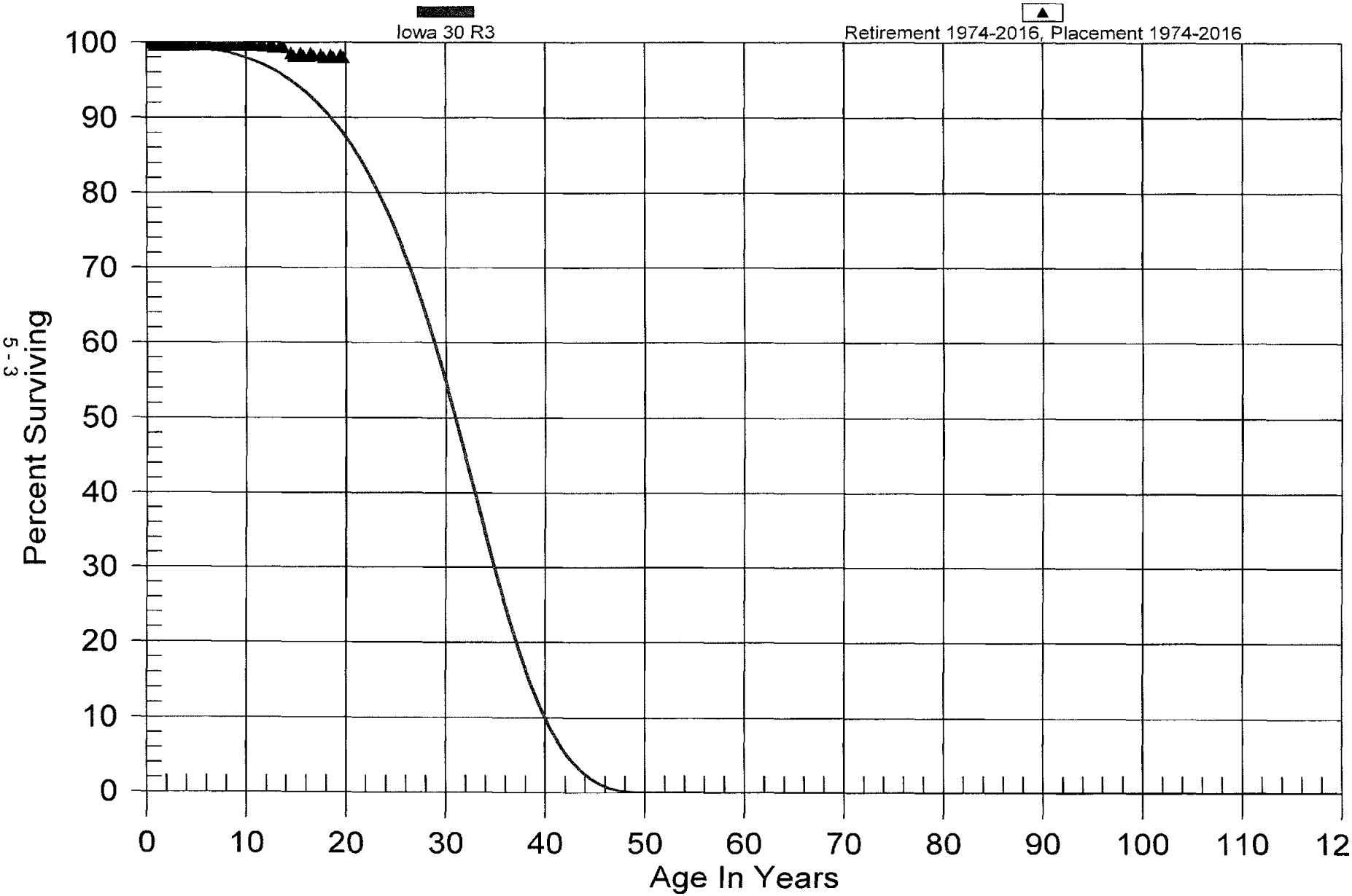
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$2,371,757.03	$0.00	0.00000	100.00
0.5 - 1.5	$2,371,757.03	$0.00	0.00000	100.00
1.5 - 2.5	$2,371,757.03	$0.00	0.00000	100.00
2.5 - 3.5	$2,358,987.53	$0.00	0.00000	100.00
3.5 - 4.5	$2,330,882.01	$0.00	0.00000	100.00
4.5 - 5.5	$2,330,882.01	$0.00	0.00000	100.00
5.5 - 6.5	$2,330,882.01	$0.00	0.00000	100.00
6.5 - 7.5	$2,330,882.01	$0.00	0.00000	100.00
7.5 - 8.5	$2,080,882.01	$0.00	0.00000	100.00
8.5 - 9.5	$2,041,236.43	$0.00	0.00000	100.00
9.5 - 10.5	$2,041,236.43	$8,072.15	0.00395	100.00
10.5 - 11.5	$2,033,164.28	$10,701.10	0.00526	99.60
11.5 - 12.5	$2,022,463.18	$0.00	0.00000	99.08
12.5 - 13.5	$2,022,463.18	$0.00	0.00000	99.08
13.5 - 14.5	$397,509.67	$0.00	0.00000	99.08
14.5 - 15.5	$397,509.67	$0.00	0.00000	99.08
15.5 - 16.5	$397,509.67	$0.00	0.00000	99.08
16.5 - 17.5	$397,509.67	$0.00	0.00000	99.08
17.5 - 18.5	$397,509.67	$0.00	0.00000	99.08
18.5 - 19.5	$375,246.69	$0.00	0.00000	99.08
19.5 - 20.5	$375,246.69	$0.00	0.00000	99.08
20.5 - 21.5	$310,092.16	$0.00	0.00000	99.08
21.5 - 22.5	$306,156.13	$0.00	0.00000	99.08
22.5 - 23.5	$305,269.01	$0.00	0.00000	99.08
23.5 - 24.5	$305,269.01	$0.00	0.00000	99.08
24.5 - 25.5	$305,269.01	$0.00	0.00000	99.08
25.5 - 26.5	$305,269.01	$0.00	0.00000	99.08
26.5 - 27.5	$305,269.01	$0.00	0.00000	99.08

Hawaii Water Service Company

(722) Waikoloa Village Wastewater, (724) Waikoloa Resort Wastewater

380.10 TREATMENT & DISPOSAL EQUIPMENT

Original And Smooth Survivor Curves



Docket No. 2017-0350
Exhibit WHUC-T-103
Waikoloa Wastewater Depreciation Study
Witness: Stern

Hawaii Water Service Company
(722) Waikoloa Village Wastewater, (724) Waikoloa Resort Wastewater
380.10 TREATMENT & DISPOSAL EQUIPMENT

Observed Life Table

Retirement Expr. 1974 TO 2016
Placement Years 1974 TO 2016

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$13,745,785.89	$0.00	0.00000	100.00
0.5 - 1.5	$13,738,887.87	$0.00	0.00000	100.00
1.5 - 2.5	$13,719,418.34	$0.00	0.00000	100.00
2.5 - 3.5	$13,714,710.09	$0.00	0.00000	100.00
3.5 - 4.5	$13,705,255.85	$0.00	0.00000	100.00
4.5 - 5.5	$6,253,528.75	$0.00	0.00000	100.00
5.5 - 6.5	$6,253,528.75	$0.00	0.00000	100.00
6.5 - 7.5	$6,253,528.75	$0.00	0.00000	100.00
7.5 - 8.5	$4,288,862.94	$0.00	0.00000	100.00
8.5 - 9.5	$4,232,383.95	$0.00	0.00000	100.00
9.5 - 10.5	$4,208,854.42	$0.00	0.00000	100.00
10.5 - 11.5	$4,208,854.42	$3,911.43	0.00093	100.00
11.5 - 12.5	$4,184,413.67	$6,607.97	0.00158	99.91
12.5 - 13.5	$4,164,195.73	$1,430.12	0.00034	99.75
13.5 - 14.5	$4,135,651.66	$47,417.56	0.01147	99.72
14.5 - 15.5	$4,041,454.88	$0.00	0.00000	98.57
15.5 - 16.5	$4,019,079.97	$0.00	0.00000	98.57
16.5 - 17.5	$4,011,275.68	$8,953.20	0.00223	98.57
17.5 - 18.5	$3,528,874.52	$0.00	0.00000	98.35
18.5 - 19.5	$3,526,693.64	$0.00	0.00000	98.35
19.5 - 20.5	$3,449,462.37	$0.00	0.00000	98.35
20.5 - 21.5	$3,441,937.76	$0.00	0.00000	98.35
21.5 - 22.5	$3,422,998.29	$0.00	0.00000	98.35
22.5 - 23.5	$2,988,568.23	$851.97	0.00029	98.35
23.5 - 24.5	$2,974,578.38	$0.00	0.00000	98.32
24.5 - 25.5	$2,230,742.08	$0.00	0.00000	98.32
25.5 - 26.5	$1,689,865.37	$0.00	0.00000	98.32
26.5 - 27.5	$1,187,685.94	$0.00	0.00000	98.32
27.5 - 28.5	$1,187,685.94	$0.00	0.00000	98.32
28.5 - 29.5	$1,187,685.94	$0.00	0.00000	98.32
29.5 - 30.5	$1,187,685.94	$0.00	0.00000	98.32
30.5 - 31.5	$1,187,685.94	$0.00	0.00000	98.32
31.5 - 32.5	$1,187,685.94	$0.00	0.00000	98.32
32.5 - 33.5	$1,187,685.94	$0.00	0.00000	98.32
33.5 - 34.5	$1,187,685.94	$0.00	0.00000	98.32
34.5 - 35.5	$1,187,685.94	$0.00	0.00000	98.32
35.5 - 36.5	$28,327.46	$0.00	0.00000	98.32

Hawaii Water Service Company
(722) Waikoloa Village Wastewater, (724) Waikoloa Resort Wastewater
380.10 TREATMENT & DISPOSAL EQUIPMENT
Observed Life Table
Retirement Expr. 1974 TO 2016
Placement Years 1974 TO 2016

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
36.5 - 37.5	$28,327.46	$0.00	0.00000	98.32
37.5 - 38.5	$28,327.46	$0.00	0.00000	98.32
38.5 - 39.5	$27,008.66	$0.00	0.00000	98.32
39.5 - 40.5	$27,008.66	$0.00	0.00000	98.32
40.5 - 41.5	$27,008.66	$0.00	0.00000	98.32
41.5 - 42.5	$27,008.66	$0.00	0.00000	98.32

SECTION 6

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
354.00 STRUCTURE & IMPROVEMENTS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 35 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	3,796.00	35.00	108.46	9.73	1,055.13
1999	693.00	35.00	19.80	17.92	354.84
2000	50,029.98	35.00	1,429.42	18.84	26,929.87
2003	16,949.22	35.00	484.26	21.67	10,492.34
2004	76,585.60	35.00	2,188.15	22.63	49,515.18
2009	4,694,044.97	35.00	134,114.81	27.53	3,692,022.07
2013	4,088,652.82	35.00	116,817.99	31.51	3,680,448.59
2014	801,363.49	35.00	22,895.97	32.50	744,198.07
2016	11,083.91	35.00	316.68	34.50	10,925.71
Total	9,743,198.99	35.00	278,375.54	29.51	8,215,941.81

Composite Average Remaining Life ... 29.51 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
355.00 POWER GENERATION EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2013	326,112.48	30.00	10,870.40	26.58	288,938.96
Total	326,112.48	30.00	10,870.40	26.58	288,938.96

Composite Average Remaining Life ... 26.58 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
360.00 COLLECTION SEWERS FORCE
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1993	147,285.00	45.00	3,273.00	23.38	76,532.04
1996	34,887.50	45.00	775.28	25.89	20,069.56
1997	75,132.00	45.00	1,669.60	26.74	44,652.57
Total	257,304.50	45.00	5,717.87	24.70	141,254.17

Composite Average Remaining Life ... 24.70 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
361.00 COLLECTION SEWERS GRAVITY
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	871,886.35	45.00	19,375.24	10.32	200,001.54
2008	344,985.00	45.00	7,666.33	36.75	281,761.20
2013	122,060.37	45.00	2,712.45	41.57	112,755.33
2014	2,589.42	45.00	57.54	42.55	2,448.18
2016	56,178.69	45.00	1,248.41	44.51	55,564.18
Total	1,397,699.83	45.00	31,059.98	21.01	652,530.43

Composite Average Remaining Life ... 21.01 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
370.00 RECEIVING WELLS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 40 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	24,727.27	40.00	618.18	32.72	20,228.21
Total	24,727.27	40.00	618.18	32.72	20,228.21

Composite Average Remaining Life ... 32.72 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
370.10 PUMPING EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2014	8,181.20	30.00	272.71	27.55	7,513.31
Total	8,181.20	30.00	272.71	27.55	7,513.31

Composite Average Remaining Life ... 27.55 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
380.10 TREATMENT & DISPOSAL EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	27,008.66	30.00	900.28	0.78	700.38
1978	1,318.80	30.00	43.96	1.67	73.24
1981	2,005.00	30.00	66.83	2.46	164.51
1990	502,179.43	30.00	16,739.23	6.35	106,263.63
1992	741,286.30	30.00	24,709.42	7.69	189,910.53
1993	9,319.30	30.00	310.64	8.39	2,606.98
1995	9,259.30	30.00	308.64	9.87	3,047.77
1997	73,046.31	30.00	2,434.87	11.46	27,903.03
1999	471,112.32	30.00	15,703.67	13.14	206,361.28
2000	7,804.29	30.00	260.14	14.01	3,645.68
2001	13,549.76	30.00	451.66	14.91	6,732.89
2002	32,445.74	30.00	1,081.52	15.82	17,108.64
2003	6,917.87	30.00	230.59	16.75	3,861.56
2004	4,536.66	30.00	151.22	17.69	2,674.64
2007	1,500.00	30.00	50.00	20.57	1,028.74
2008	23,506.47	30.00	783.55	21.55	16,888.11
2009	1,953,896.22	30.00	65,129.55	22.54	1,467,839.79
2013	9,454.24	30.00	315.14	26.51	8,353.26
2014	2,678.53	30.00	89.28	27.50	2,455.64
2015	19,469.53	30.00	648.98	28.50	18,497.14
2016	6,898.02	30.00	229.93	29.50	6,783.15
Total	3,919,192.75	30.00	130,639.12	16.02	2,092,900.56

Composite Average Remaining Life ... 16.02 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
381.00 PLANT SEWERS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2013	36,649.20	30.00	1,221.64	26.58	32,471.56
Total	36,649.20	30.00	1,221.64	26.58	32,471.56

Composite Average Remaining Life ... 26.58 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
389.00 OTHER MISCELLANEOUS EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1996	5,144.00	15.00	342.93	1.25	429.70
2013	514,034.75	15.00	34,268.77	11.62	398,268.35
Total	519,178.75	15.00	34,611.70	11.52	398,698.05

Composite Average Remaining Life ... 11.52 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
393.00 TOOLS, SHOP & GARAGE EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2015	872.06	15.00	58.14	13.53	786.74
Total	872.06	15.00	58.14	13.53	786.74

Composite Average Remaining Life ... 13.53 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
394.00 LABORATORY EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 7 *Survivor Curve:* R3

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2014	7,239.01	7.00	1,034.09	4.63	4,788.22
Total	7,239.01	7.00	1,034.09	4.63	4,788.22

Composite Average Remaining Life ... 4.63 *Years*

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
395.00 POWER OPERATED EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2014	19,531.31	15.00	1,302.08	12.57	16,365.83
Total	19,531.31	15.00	1,302.08	12.57	16,365.83

Composite Average Remaining Life ... 12.57 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
396.50 TRANSPORTATION EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 8 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2011	4,960.47	8.00	620.04	3.14	1,947.05
2013	335,023.86	8.00	41,876.63	4.73	198,000.25
Total	339,984.33	8.00	42,496.67	4.71	199,947.30

Composite Average Remaining Life ... 4.71 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
397.50 STORES EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2015	1,795.09	15.00	119.66	13.78	1,649.04
Total	1,795.09	15.00	119.66	13.78	1,649.04

Composite Average Remaining Life ... 13.78 Years

Hawaii Water Service Company
(722) Waikoloa Village Wastewater
398.00 OTHER TANGIBLE EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 10 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	2,026.79	0.00	0.00	0.00	0.00
1997	2,216.40	0.00	0.00	0.00	0.00
1998	1,990.99	0.00	0.00	0.00	0.00
1999	4,693.82	0.00	0.00	0.00	0.00
2000	496.83	10.00	49.68	0.50	24.84
2001	8,468.78	10.00	846.86	0.52	438.44
2002	3,112.72	10.00	311.27	0.69	214.96
2003	16,715.24	10.00	1,671.50	0.92	1,531.83
2004	22,271.65	10.00	2,227.13	1.16	2,591.64
2005	34,748.98	10.00	3,474.84	1.45	5,054.27
2006	8,579.13	10.00	857.90	1.82	1,562.29
2007	5,844.81	10.00	584.47	2.28	1,333.69
Total	111,166.14	6.67	10,023.65	1.27	12,751.95

Composite Average Remaining Life ... 1.27 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
354.00 STRUCTURE & IMPROVEMENTS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 35 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1986	21,118.70	35.00	603.39	7.67	4,630.30
1989	161,295.00	35.00	4,608.40	9.73	44,833.38
2003	161,563.64	35.00	4,616.08	21.67	100,015.28
2005	8,425.46	35.00	240.73	23.60	5,680.73
2006	34,513.05	35.00	986.08	24.57	24,231.99
2007	10,610.82	35.00	303.16	25.55	7,747.36
2009	132,237.22	35.00	3,778.18	27.53	104,008.96
2010	321,225.22	35.00	9,177.81	28.52	261,752.34
2012	8,583,956.74	35.00	245,254.52	30.51	7,482,516.96
2015	1,285.73	35.00	36.73	33.50	1,230.69
Total	9,436,231.58	35.00	269,605.10	29.81	8,036,647.98

Composite Average Remaining Life ... 29.81 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
355.00 POWER GENERATION EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	350,000.00	30.00	11,666.65	22.78	265,711.70
2012	210,695.62	30.00	7,023.18	25.62	179,911.46
Total	560,695.62	30.00	18,689.83	23.84	445,623.15

Composite Average Remaining Life ... 23.84 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
360.00 COLLECTION SEWERS FORCE
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	688,221.90	45.00	15,293.81	14.46	221,221.01
1989	39,608.06	45.00	880.18	20.20	17,780.27
2003	845,691.00	45.00	18,793.12	32.08	602,930.06
2009	1,002,680.00	45.00	22,281.76	37.71	840,161.64
2010	193,051.34	45.00	4,290.03	38.67	165,875.81
2013	613,543.96	45.00	13,634.30	41.57	566,771.60
2014	13,075.22	45.00	290.56	42.55	12,362.04
2016	1,667.68	45.00	37.06	44.51	1,649.44
Total	3,397,539.16	45.00	75,500.83	32.17	2,428,751.86

Composite Average Remaining Life ... 32.17 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
361.00 COLLECTION SEWERS GRAVITY

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	170,108.60	45.00	3,780.19	20.20	76,362.64
2002	198,107.51	45.00	4,402.39	31.17	137,225.85
2009	2,493,199.00	45.00	55,404.39	37.71	2,089,091.39
2010	766,453.19	45.00	17,032.28	38.67	658,560.80
Total	3,627,868.30	45.00	80,619.25	36.73	2,961,240.68

Composite Average Remaining Life ... 36.73 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
362.00 SPECIAL COLLECTION STRUCTURE
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 45 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	200,000.00	45.00	4,444.42	37.52	166,755.48
2012	2,577,030.21	45.00	57,267.07	40.51	2,319,743.34
2014	15,168.02	45.00	337.07	42.50	14,326.32
Total	2,792,198.23	45.00	62,048.56	40.30	2,500,825.13

Composite Average Remaining Life ... 40.30 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
364.00 FLOW MEASURING DEVICES
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 10 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2010	59,629.77	10.00	5,962.88	4.20	25,032.36
2014	3,509.63	10.00	350.96	7.59	2,664.62
2015	12,897.30	10.00	1,289.71	8.54	11,013.19
Total	76,036.70	10.00	7,603.55	5.09	38,710.16

Composite Average Remaining Life ... 5.09 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
370.00 RECEIVING WELLS
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 40 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2009	1,042,048.00	40.00	26,051.18	32.72	852,450.05
Total	1,042,048.00	40.00	26,051.18	32.72	852,450.05

Composite Average Remaining Life ... 32.72 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
370.10 PUMPING EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	305,269.01	30.00	10,175.62	7.33	74,583.08
1994	887.12	30.00	29.57	10.43	308.34
1995	3,936.03	30.00	131.20	11.12	1,459.33
1996	65,154.53	30.00	2,171.81	11.84	25,718.80
1998	22,262.98	30.00	742.10	13.34	9,898.81
2003	1,624,953.51	30.00	54,165.05	17.40	942,528.44
2008	39,645.58	30.00	1,321.52	21.85	28,872.64
2009	250,000.00	30.00	8,333.32	22.78	189,794.07
2010	1,003,110.38	30.00	33,436.97	23.71	792,891.12
2013	28,105.52	30.00	936.85	26.58	24,901.78
2014	4,588.30	30.00	152.94	27.55	4,213.72
Total	3,347,912.96	30.00	111,596.95	18.77	2,095,170.12

Composite Average Remaining Life ... 18.77 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
380.10 TREATMENT & DISPOSAL EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R4*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	7,551.89	30.00	251.73	2.46	619.62
1991	540,876.71	30.00	18,029.14	7.00	126,274.29
1992	2,550.00	30.00	85.00	7.69	653.29
1993	3,818.58	30.00	127.29	8.39	1,068.21
1994	1,968.81	30.00	65.63	9.12	598.59
1996	2,092.48	30.00	69.75	10.66	743.21
1997	4,184.96	30.00	139.50	11.46	1,598.62
1998	2,180.88	30.00	72.70	12.29	893.29
1999	2,335.64	30.00	77.85	13.14	1,023.08
2001	8,825.15	30.00	294.17	14.91	4,385.22
2002	14,333.48	30.00	477.78	15.82	7,558.04
2003	20,196.08	30.00	673.20	16.75	11,273.45
2004	9,073.31	30.00	302.44	17.69	5,349.27
2005	1,251.58	30.00	41.72	18.64	777.66
2012	7,447,908.52	30.00	248,262.40	25.51	6,333,358.35
2013	78,361.41	30.00	2,612.03	26.51	69,235.93
2014	2,029.72	30.00	67.66	27.50	1,860.82
Total	8,149,539.20	30.00	271,649.98	24.18	6,567,270.95

Composite Average Remaining Life ... 24.18 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
382.00 OUTFALL SEWER LINES
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2012	114,384.01	30.00	3,812.80	25.62	97,671.67
Total	114,384.01	30.00	3,812.80	25.62	97,671.67

Composite Average Remaining Life ... 25.62 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
385.00 REUSE TRANS & DISPOSAL PLANT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 30 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2012	264,783.22	30.00	8,826.10	25.62	226,096.46
Total	264,783.22	30.00	8,826.10	25.62	226,096.46

Composite Average Remaining Life ... 25.62 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
389.00 OTHER MISCELLANEOUS EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2012	2,516.02	15.00	167.73	10.69	1,793.87
Total	2,516.02	15.00	167.73	10.69	1,793.87

Composite Average Remaining Life ... 10.69 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
394.00 LABORATORY EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 7 *Survivor Curve:* R3

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	381.88	0.00	0.00	0.00	0.00
1990	5,925.45	0.00	0.00	0.00	0.00
1991	3,684.40	0.00	0.00	0.00	0.00
1992	2,475.12	0.00	0.00	0.00	0.00
1994	2,523.72	0.00	0.00	0.00	0.00
1995	4,333.76	0.00	0.00	0.00	0.00
1996	22,199.00	0.00	0.00	0.00	0.00
1997	2,197.76	0.00	0.00	0.00	0.00
1998	924.00	0.00	0.00	0.00	0.00
1999	1,742.75	0.00	0.00	0.00	0.00
2000	4,376.54	0.00	0.00	0.00	0.00
2001	4,992.16	0.00	0.00	0.00	0.00
2002	850.65	0.00	0.00	0.00	0.00
2003	3,473.61	0.00	0.00	0.00	0.00
2004	4,788.32	0.00	0.00	0.00	0.00
2007	2,814.63	7.00	402.07	0.68	275.12
2013	4,984.42	7.00	712.03	3.77	2,683.79
2016	1,744.37	7.00	249.18	6.51	1,622.21
Total	74,412.54	1.17	1,363.28	3.36	4,581.12

Composite Average Remaining Life ... 3.36 *Years*

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
395.00 POWER OPERATED EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	175.16	0.00	0.00	0.00	0.00
1997	3,921.00	15.00	261.40	1.50	392.63
2012	6,210.01	15.00	414.00	10.69	4,427.60
2013	1,131.17	15.00	75.41	11.62	876.42
Total	11,437.34	11.25	750.81	7.59	5,696.65

Composite Average Remaining Life ... 7.59 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
396.00 COMMUNICATION EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 12 *Survivor Curve: R2.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1992	15,253.08	0.00	0.00	0.00	0.00
1993	1,534.31	0.00	0.00	0.00	0.00
1994	1,396.72	0.00	0.00	0.00	0.00
1995	1,820.00	12.00	151.66	0.50	75.83
1996	38,692.97	12.00	3,224.30	0.60	1,926.23
1997	572.92	12.00	47.74	0.82	39.20
1998	1,428.34	12.00	119.02	1.03	122.77
1999	4,344.14	12.00	362.00	1.24	448.71
2000	3,053.60	12.00	254.46	1.46	371.13
2001	2,046.87	12.00	170.57	1.70	289.52
2002	838.17	12.00	69.84	1.97	137.33
2003	1,938.13	12.00	161.50	2.28	368.77
2004	3,791.77	12.00	315.97	2.66	842.05
2005	566.10	12.00	47.17	3.12	147.14
2006	2,249.17	12.00	187.42	3.65	683.40
2007	1,831.62	12.00	152.63	4.24	647.09
2008	2,801.61	12.00	233.46	4.89	1,141.90
2014	3,536.44	12.00	294.69	9.69	2,855.86
Total	87,695.96	10.00	5,792.44	1.74	10,096.94

Composite Average Remaining Life ... 1.74 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
396.50 TRANSPORTATION EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 8 *Survivor Curve:* R3

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2011	237,396.31	8.00	29,673.58	3.14	93,181.28
2014	492.48	8.00	61.56	5.61	345.56
Total	237,888.79	8.00	29,735.14	3.15	93,526.84

Composite Average Remaining Life ... 3.15 *Years*

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
397.00 MISCELLANEOUS EQUIPMENT
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1992	5,563.80	15.00	370.89	1.64	606.93
1994	4,837.30	15.00	322.46	2.16	695.24
1997	2,251.38	15.00	150.08	3.06	459.12
1998	14,563.74	15.00	970.84	3.40	3,300.92
1999	26,262.52	15.00	1,750.70	3.77	6,597.57
2000	9,335.40	15.00	622.31	4.17	2,593.79
2001	1,931.24	15.00	128.74	4.60	592.36
2002	2,314.18	15.00	154.27	5.07	782.00
2005	6,450.00	15.00	429.97	6.68	2,872.79
2007	17,387.19	15.00	1,159.06	7.92	9,176.46
2009	1,580,000.00	15.00	105,325.43	9.26	975,569.42
2012	7,921.00	15.00	528.03	11.44	6,043.26
2013	838.38	15.00	55.89	12.21	682.26
Total	1,679,656.13	15.00	111,968.67	9.02	1,009,972.11

Composite Average Remaining Life ... 9.02 Years

Hawaii Water Service Company
(724) Waikoloa Resort Wastewater
397.50 STORES EQUIPMENT

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2016
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 15 *Survivor Curve: R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2014	5,051.76	15.00	336.76	12.99	4,373.21
Total	5,051.76	15.00	336.76	12.99	4,373.21

Composite Average Remaining Life ... 12.99 Years

HAWAII WATER SERVICE COMPANY

FIRST AMENDMENT AND RESTATEMENT OF WATER SHARING AGREEMENT

THIS FIRST AMENDMENT AND RESTATEMENT OF WATER SHARING AGREEMENT (the "**Agreement**") is made on October, 5, 2017 (the "**Amendment Date**") by and between WAIKOLOA WATER CO., INC., dba West Hawaii Water Company ("**WHWC**") and WAIKOLOA RESORT UTILITIES, INC., dba West Hawaii Utility Company ("**WHUC**") (collectively, the "**Parties**").

RECITALS:

A. WHUC is a public utility authorized by the Hawaii Public Utilities Commission (the "HPUC") to provide water service to the Waikoloa Beach Resort area (the "**Resort Area**") at Anaehoomalu Bay, Waikoloa, District of South Kohala, Hawaii.

B. WHWC is a public utility authorized by the HPUC to provide water service to the Waikoloa Village area ("**Village Area**") at Waikoloa, District of South Kohala, Hawaii.

C. WHWC and WHUC entered into that certain Water Sharing Agreement dated January 1, 1981 (the "**WSA**") which sets forth certain agreements relating to the water system that serves the Resort Area and the Village Area.

D. WHUC and WHWC wish to amend and restate the WSA in its entirely to better address the ownership and operation of the water system that services the Resort Area and the Village Area (such water system, including any additions or modifications, is referred to as the "**Water System**").

AGREEMENT

In consideration of the promises herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties here to agree as follows:

1. Date and Effect of this Amendment. This First Amendment and Restatement of Water Sharing Agreement amends and completely restates the original WSA as of the Amendment Date set out above.

2. Designation of WHWC as Manager. WHWC shall act as the manager of the Parties' rights hereunder, as an independent contractor to WHUC, with the following rights and obligations:

a. Provide for the distribution of water to WHWC and WHUC and the allocation of the cost of the operation of the Water System pursuant to the terms of this Agreement.

b. Plan for new explorations or new wells as required by law or by the needs of the Parties hereto.

c. Prepare or cause to be prepared all accountings, statement or reports, and handle all billings, collections, accounts payable, accounts receivable, payroll or other administrative matters required by this Agreement.

WHWC shall not receive any fee for such service, but any out-of pocket costs and expenses which it incurs in providing such service shall be treated as an operating cost under Section 6.a. and WHWC shall be reimbursed for such costs and expenses from such funds.

3. Term. The term of this Agreement shall be ten (10) years, commencing on the Amendment Date (the "Initial Term"), and shall be renewed automatically for one (1) additional period of ten (10) years, unless either party gives written notice of termination prior to expiration of the Initial Term, or unless earlier terminated as the parties shall mutually agree.

4. Existing Water System.

a. Wells and Tanks. WHWC and WHUC agree that the existing Water System includes the following wells and tanks, together with related pumps, meters, valves chlorinators. SCADA equipment, and other appurtenant equipment and facilities, which are owned by WHWC and/or WHUC as follows:

Well / Tank	Owner
DW-1	WHUC
DW-2	WHUC
DW-3	WHWC / WHUC
DW-4	WHWC
DW-5	WHWC
DW-6	WHUC / WHWC
DW-7	WHUC / WHWC
Tank 1200N-1	WHWC
Tank 1200N-2	WHWC/WHUC
Tank 1200S-1	WHUC
Tank 1200S-2	WHWC/WHWC
Tank 300-1	WHUC
Tank 300-2	WHUC
Tank 300-3	WHUC
Tank 900	WHWC / WHUC

b. Transmission System. The existing transmission system consists of:

(i) a main transmission line made up of a 14-inch and 16-inch connected main line running from the north well field past the Village Area and then Makai (downhill) for a distance of approximately 9 ½ miles to the 300 foot elevation level;

(ii) a 24-inch connected main line continuing Makai (downhill) from such 300 foot elevation level for a distance of approximately 1 ½ miles to the Resort Area;

(iii) a second 24-inch connected main line from the 300 foot elevation for 1.0 mile to the Resort Area;

(iv) a main transmission line made up of a 20-inch transmission line from the South Well Field for 1.3 miles to Waikoloa Village.

(v) various laterals, feeders, mains and other pipelines and equipment to service WHWC's and WHUC's customers in the Village Area and the Resort Area.

5. Sharing of Water. WHWC and WHUC shall each have the right to use such amounts of the water from the existing Water System and any future wells, as each shall require to service the customers in its respective area of service and for such other purposes as each

party deems appropriate; provided however, that in the event of a shortage in the supply of such water, then each party shall have the right to use of fifty percent (50%) of the available water.

WHWC agrees that WHUC may use its water transmission system to carry WHUC's share of water to the Resort Area or to such reservoirs or other water facilities which WHUC may develop to service the Resort Area.

6. Allocation of Costs.

a. Shared Operation and Maintenance Costs. As used in this Agreement, "Shared Facilities" shall mean all of the existing and future facilities comprising the Water System, regardless of the ownership of such facilities, including, without limitation, existing and additional wells, well fields and well operating systems, tanks, pumps, SCADA equipment, control valves, and transmission lines, but excluding the WHWC Distribution System and the WHUC Distribution System, as described in Sections 6.b. and 6.c. below. As used in this Agreement, "Shared Costs" shall mean the cost of operation and maintenance of the Shared Facilities, including, without limitation, power and other energy source(s) to operate the pumps necessary to draw water from the wells; lubricating oils and chemicals; maintenance, operation and upkeep of Shared Facilities, labor, payroll, insurance and other costs which are incurred in the operations of the Shared Facilities. The Shared Costs shall be allocated between WHWC and WHUC as described in Section 6.d below.

b. WHWC Distribution Cost. As used in this Agreement, the "WHWC Distribution System" shall mean the laterals, feeder mains and other pipelines or equipment connected into the main transmission line that are used to service WHWC's customers in the Village Area. WHWC shall be solely responsible for payment of all costs of maintenance, upkeep and repair of the WHWC Distribution system, for any work done on the main

transmission line in connection with the installation or servicing of such laterals or mains, and for the cost of any additions or replacements to the WHWC Distribution System.

c. WHUC Distribution Cost. As used in this Agreement, the "WHUC Distribution System" shall mean the laterals, feeder mains and other pipelines or equipment connected into the main transmission line that are used to service WHUC's customers in the Resort Area. WHUC shall be solely responsible for payment of all costs of maintenance, upkeep and repair of the WHUC Distribution System, for any work done on the main transmission line in connection with the installation or servicing of such laterals or mains, and for the cost of any additions or replacements to the WHUC Distribution System.

d. Shared Cost Allocation Formula. WRU and WHWC shall share the cost of the Shared Facilities based on the proportionate share of water consumed by each party's customers, calculated monthly based on customer meter data. Therefore, each party's share of the Shared Costs shall be equal to the percentage obtained by dividing the total of WHWC's and WHUC's consumption by that party's consumption (the "Shared Cost Allocation Formula"). An illustration of the Shared Cost Allocation Formula is attached hereto as Exhibit A.

e. Contribution in Aid of Construction. Each party shall be entitled to collect contributions in aid of construction in accordance with the terms of its Tariff, as approved by the HPUC from time to time, and to keep as its own funds and not be required to account for or share with the other party any contributions in aid of construction which such party may receive from its customers.

7. Future Additions to Water System. WHUC and WHWC agree that the cost of any future Shared Facilities which may be required by either WHWC or WHUC to provide service to the Resort Area or the Village Area including, without limitation, the cost of planning,

design, permitting and construction of such facilities, shall be based on the Shared Cost Allocation Formula described in Section 6.d for the calendar year immediately preceding the year the improvement is placed in service. The Shared Allocation Formula shall apply to all Shared Facilities that will be placed in service after the Effective Date, and to the following projects: well DW-8; SCADA equipment; DW-1 electrical building; replacement of three (3) Cla-vals; and upgrade of DW-2 and DW-3 starters.

8. Default. If either party shall fail to make any payment required under this Agreement or to perform any of its obligations, it shall be in default under this Agreement. Upon such occurrence, the other party may institute an action to compel compliance with this Agreement or to seek damages for breach of this Agreement or any other remedy permitted by law. Any advance of funds made by one party on behalf of a defaulting party shall be repaid to such party by the defaulting party together with interest at either 12% per annum or the highest rate permitted by law, whichever is lower.

9. Indemnity. Each party herby agrees to defend and hold harmless the other party from and against all costs, expenses, liabilities, damages, claims, demands, actions, suits and proceedings which may arise by virtue of (i) any acts or omissions of the indemnifying party (or, any of its agents, employees or representatives) outside of the scope or in the breach of the terms of this Agreement, and (ii) the performance by the indemnifying party (or its agents, employees or any of its representatives) of all or any part of the obligations of such party under this Agreement. The rights and obligations of each party under this section shall survive the termination of this Agreement.

10. No Third Party Beneficiaries. Nothing in this Agreement shall be deemed to create any right in any one not a party hereto, and this Agreement shall not be construed in any respect to be a contract in whole or in part for the benefit of anyone not a party hereto.

11. Definitions. As used herein, the term "water" shall be interpreted to mean potable water having, meeting or exceeding the standards adopted by the U.S. Environmental Protection Agency or the State Department of Health or the Department of Water Supply, County of Hawaii on a county-wide basis for potable water.

12. Miscellaneous.

a. Time. It is agreed that time is of the essence of this transaction.

b. Attorneys' Fees. If legal action be commenced to enforce or to declare the effect of any provisions of this Agreement, the court as part of its judgment shall award reasonable attorneys' fees and costs to the prevailing party.

c. No Waiver. The waiver by one party of the performance of any covenant, condition or promise shall not invalidate this Agreement nor shall it be considered a waiver by such party of any other covenant, condition or promise hereunder. The waiver by either or both parties of the time for performing any act shall not constitute a waiver of the time for performing any other act or identical act required to be performed at a later time. The exercise of any remedy provided by law and the provisions of this Agreement for any remedy shall not exclude other consistent remedies unless they are expressly excluded.

d. Construction. As used in this Agreement, the masculine, feminine or neuter gender and the singular or plural numbers shall each be deemed to include the other whenever the context so indicates. This Agreement shall be construed as a whole and in

accordance with its fair meaning, the captions being for convenience only and not intended to fully describe or define the provisions in the portions of the Agreement to which they pertain.

e. Merger. It is agreed that all understandings and agreements heretofore had between the parties respecting this transaction are merged in this Agreement, which fully and completely expresses the agreement of the parties, and that there are no representations, warranties, agreements except as specifically and expressly set forth herein.

f. Amendments. The terms of this Agreement may only be amended by a written instrument executed by WHWC and WHUC.

g. Invalidity of Provision. If any provision of this Agreement as applied to either party or to any circumstance shall be adjudged by a court of competent jurisdiction to be void or unenforceable for any reason, the same shall in no way affect (to the maximum extent permissible by law) any other provision of this Agreement, the application of any such provision under circumstances different from those adjudicated by the court, or the validity or enforceability of this Agreement as a whole.

h. Computation of Periods. All periods of time referred to in this Agreement shall include all Saturdays, Sundays and state or national holidays, unless the period of time specifies business days, provided that if the date or last date to perform any act or give any notice with respect to this Agreement shall fall on a Saturday, Sunday or state or national holiday, such act or notice may be timely performed or given on the next succeeding day which is not a Saturday, Sunday or state or national holiday.

i. Successors and Assigns. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties hereto.

j. Applicable Law. This Agreement shall be governed by the laws of the State of Hawai'i and applicable federal statutes and rules both as to interpretation and performance.

k. Notice. If a demand, request, approval, consent or notice (collectively a "notice") is given to either party by the other, the notice shall be in writing and delivered by hand or sent by registered or certified mail with return receipt requested, or sent by overnight or same day courier service at the party's respective address. Each notice shall be deemed to have been received or given on the earlier to occur of actual delivery or the date on which delivery is refused. Either party may, at any time, change its notice address by giving the other party written notice of the new address in the manner described herein.

l. Jurisdiction; Venue. The jurisdiction and venue for any and all arbitrations or lawsuits if any, shall be the County of Hawaii, State of Hawai'i.

m. Counterparts; Facsimile Copies. This Agreement may be executed in counterparts. Each counterpart shall be executed by one or more of the parties to this document and the several counterparts shall constitute one document to the same effect as though the signature of all the parties were upon the same document. Emailed or facsimile copies shall be deemed to be originals.

IN WITNESS WHEREOF, the WHWC and WHUC have executed this Agreement as of the day and year first above written.

WAIKOLOA WATER CO., INC., dba West Hawaii Water Company

By _____
Name: Anthony Carrasco
Title: General Manager

"WHWC"

WAIKOLOA RESORT UTILITIES, INC., dba West Hawaii Utility Company

By _____
Name: Anthony Carrasco
Title: General Manager

"WHUC"

Exhibit A

Shared Cost Allocation Formula:

Village WHWC % = Village WHWC Annual Consumption /
(Resort WHUC Annual Consumption + Village WHWC Annual Consumption)

Resort WHUC % = Resort WHUC Annual Consumption /
(Resort WHUC Annual Consumption + Village WHWC Annual Consumption)

Illustration based on 2016 Consumption:

WHWC Annual Consumption = 687,456 TG
WHUC Annual Consumption = 1,216,957 TG

Village WHWC ___% = 36.1%

687,456 TG/
(687,456 TG + 1,216,857 TG)

Resort WHUC _____% = 63.9%

1,216,957 TG/
(687,456 TG + 1,216,857 TG)

WHUC Tariff Revisions

WEST HAWAII UTILITY COMPANY — WHUC Tariff No. 1
A subsidiary of Hawaii Water Service Company, Inc. — Eighth Revised Sheet No. 1
Waikoloa, Hawaii — Cancels Seventh Revised Sheet No. 1

CHECK LIST

Sheet	Revision
Title	First
1	Eighth
2	Fifth
3	First
4	First
5	First
6	First
7	First
8	First
9	First
10	First
11	Second
12	First
13	First
14	First
15	Fourth
16	Third
17	Second
18	First
19	First
20	First
21	First
22	First
23	Second
24	Third
24A	First
24B	Original
25	Second
26	Second
26A	Original
27	Second
27A	Original
28	Second
29	Second
30	Second
31	Second
32	First
33	First
34	First
35	First
36	First
37	First
38	First
39	First
40	First

WEST HAWAII UTILITY COMPANY — WHUC Tariff No. 1
A subsidiary of Hawaii Water Service Company, Inc. — Fifth Revised Sheet No. 2
Waikoloa, Hawaii — Cancels Fourth Revised Sheet No. 2

Sheet	Revision
41	First
42	First
43	First
44	First
45	First
46	First
47	First
48	First
49	First
50	First
51	First
52	First
53	First
54	First
55	First
56	First
57	Third
58	Third
59	Third
60	Fourth
61	First
62	Second
63	First
64	Second

c. Contribution in aid of construction payments are used by the Company for the purpose of expanding the capacity of the irrigation water system, including:

(i) Construction of wells or increasing the capacity of existing wells;

(ii) Construction of reservoirs;

(iii) Construction of primary transmission system or improvements to increase the capacity or efficiency of the existing primary transmission system;

(iv) Construction of irrigation water treatment or upgrading wastewater effluent treatment facilities;

(v) Related improvements intended to increase the capacity, efficiency or quality of the primary irrigation water system; and

(vi) Increased capacity or improved service of electrical systems required for paragraphs 2c.i-v above.

3. "Special facility costs" are costs to construct facilities that are necessary to service applicant's project, as set forth in more detail in Rule XII.

4. "New facilities" shall mean premises or facilities that have been connected to the Company's system after January 1, 1988.

5. "Substantially modified facilities" shall mean premises or facilities to which any material change is made in the size of the premises or facilities, or in the character or extent of any commercial activities conducted at the premises or facilities, that results in an estimated increase in annual average water usage by the customer in excess of 300 gallons per day.

6. The contribution in aid of construction required as a condition of service to a new facility shall be payable only once for such facility, provided that an additional contribution in aid of construction may be required from customers for facilities that are substantially modified.

7. The amount of the contribution in aid of construction for irrigation service shall be as stated in Section E-4 of these rules. The contribution in aid of construction for water and sewer service shall be equal to an equivalent per gallon charge, calculated as follows:

(a) If the Company has no capacity available at the time a request for service or substantial modification is made, the contribution in aid of construction payment shall be based on the Company's good faith estimate, based on engineering and construction analyses, of the anticipated total cost to construct the next capacity addition, but, in the case of a wastewater treatment plant ("WWTP") only, not less than the average cost per gallon of the most recent two phases of plant capacity, and is calculated as follows:

Estimated Daily Gallons for Proposed or Existing Development	X	Estimated Cost per Gallon of the Company's Next Capacity Addition, But (for a WWTP only) In No Event Less Than The Average Cost Per Gallon of the Most Recent Two Phases of Plant Capacity	X	If CIAC is Based On Historical Costs: CPI in the year of payment / CPI for the base year (last capacity addition used in calculating CIAC)

(b) If the Company has capacity available at the time the request for service is made, the applicant shall pay a contribution in aid of construction payment as follows:

Estimated Daily Gallons for Proposed or Existing Development	X	Actual Cost per Gallon of the Company's Most Recent Capacity Addition, But (for a WWTP only) In No Event Less Than The Average Cost Per Gallon of the Most Recent Two Phases of Plant Capacity	X	CPI in year of contribution payment / CPI for base year (last capacity addition used in calculating CIAC)

"CPI" shall mean the "Consumers Price Index for all urban Consumers, Honolulu, Hawaii, ALL ITEMS", as published by the Bureau of Labor Statistics, United States Department of Labor.

(c) If the Company collects a greater amount of CIAC than the total cost of all constructed phases of the wastewater treatment plant (an "Over-Collection"), then for purposes of calculating the CIAC to be paid by an applicant who will be served by the next capacity addition of the plant, the cost of such next capacity addition shall be reduced by the net unamortized Over-Collection.

(d) Where the contribution in aid of construction is based on estimated construction costs, promptly following completion of construction, the Company shall deliver to the applicant a statement showing the actual costs of construction and a recalculation of the contribution in aid of construction based on actual construction costs. Any difference between the originally calculated and recalculated contribution in aid of construction shall be payable by the Company or the applicant, as applicable, within thirty (30) days of the date of the statement.

SECTION E-4

CONTRIBUTION IN AID OF CONSTRUCTION

WATER

As a condition to receiving water service, the customer will be required to pay a one-time contribution in aid of construction to the Company determined in accordance with paragraph 7 of Rule XI of these Rules and Regulations. Payment shall be made in accordance with paragraphs 10 and 11 of Rule XI of these Rules and Regulations. This contribution in aid of construction is in addition to the connection charge provided for in paragraph 5 of Rule IV of these Rules and Regulations.

SEWER

As a condition to receiving sewer service, the customer will be required to pay a one time contribution in aid of construction to the Company determined in accordance with paragraph 7 of Rule XI of these Rules and Regulations. Payment shall be made in accordance with paragraphs 10 and 11 of Rule XI of these Rules and Regulations. This contribution in aid of construction is in addition to the connection charge provided for in paragraph 5 of Rule IV of these Rules and Regulations.

NON-POTABLE IRRIGATION

Customer shall pay to the Company the actual cost to construct new irrigation water source, storage, transmission and pumping of non-potable irrigation water facilities required to provide irrigation water for golf course use to the new customer with such new facilities becoming an integral portion of the overall non-potable golf course irrigation system serving all such similar customers.

WHUC Tariff Revisions

WEST HAWAII UTILITY COMPANY WHUC Tariff No. 1
A subsidiary of Hawaii Water Service Company, Inc. ~~Seventh~~Eighth Revised Sheet No. 1
Waikoloa, Hawaii Cancels ~~Sixth~~Seventh Revised Sheet No. 1

CHECK LIST

Sheet	Revision
Title	First
1	~~Seventh~~ Eighth
2	~~Fourth~~Fifth
3	First
4	First
5	First
6	First
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9	First
10	First
11	Second
12	First
13	First
14	First
15	Fourth
16	Third
17	Second
18	First
19	First
20	First
21	First
22	First
23	Second
24	~~Second~~Third
24A	~~Original~~First
24B	Original
25	Second
26	Second
26A	Original
27	Second
27A	Original
28	Second
29	Second
30	Second
31	Second
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33	First
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WEST HAWAII UTILITY COMPANY WHUC Tariff No. 1
A subsidiary of Hawaii Water Service Company, Inc. ~~Fourth~~Fifth Revised Sheet No. 2
Waikoloa, Hawaii Cancels ~~Third~~Fourth Revised Sheet No. 2

Sheet	Revision
41	First
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56	First
57	Third
58	Third
59	Third
60	~~Third~~ Fourth
61	First
62	Second
63	First
64	Second
~~65~~	~~First~~

c. Contribution in aid of construction payments are used by the Company for the purpose of expanding the capacity of the irrigation water system, including:

(i) Construction of wells or increasing the capacity of existing wells;

(ii) Construction of reservoirs;

(iii) Construction of primary transmission system or improvements to increase the capacity or efficiency of the existing primary transmission system;

(iv) Construction of irrigation water treatment or upgrading wastewater effluent treatment facilities;

(v) Related improvements intended to increase the capacity, efficiency or quality of the primary irrigation water system; and

(vi) Increased capacity or improved service of electrical systems required for paragraphs 2c.i-v above.

3. "Special facility costs" are costs to construct facilities that are necessary to service applicant's project, as set forth in more detail in Rule XII.

4. "New facilities" shall mean premises or facilities that have been connected to the Company's system after January 1, 1988.

5. "Substantially modified facilities" shall mean premises or facilities to which any material change is made in the size of the premises or facilities, or in the character or extent of any commercial activities conducted at the premises or facilities, that results in an estimated increase in annual average water usage by the customer in excess of 300 gallons per day.

6. The contribution in aid of construction required as a condition of service to a new facility shall be payable only once for such facility, provided that an additional contribution in aid of construction may be required from customers for facilities that are substantially modified.

7. The amount of the contribution in aid of construction for ~~water and~~ irrigation service shall be as stated in Section E-4 of these rules. The contribution in aid of construction for water and sewer service shall be equal to an equivalent per gallon charge, calculated as follows:

(a) If the Company has no capacity available at the time a request for service or substantial modification is made, the contribution in aid of construction payment shall be based on the Company's good faith estimate, based on engineering and construction analyses, of the anticipated total cost to construct the next capacity addition, but, in the case of a wastewater treatment plant ("WWTP") only, not less than the average cost per gallon of the most recent two phases of plant capacity, and is calculated as follows:

Estimated Daily Gallons for Proposed or Existing Development	X	Estimated Cost per Gallon of the Company's Next Capacity Addition, But (for a WWTP only) In No Event Less Than The Average Cost Per Gallon of the Most Recent Two Phases of Plant Capacity	X	If CIAC is Based On Historical Costs: CPI in the year of payment / CPI for the base year (last capacity addition used in calculating CIAC)

(b) If the Company has capacity available at the time the request for service is made, the applicant shall pay a contribution in aid of construction payment as follows:

Estimated Daily Gallons for Proposed or Existing Development	X	Actual Cost per Gallon of the Company's Most Recent Capacity Addition, But (for a WWTP only) In No Event Less Than The Average Cost Per Gallon of the Most Recent Two Phases of Plant Capacity	X	CPI in year of contribution payment / CPI for base year (last capacity addition used in calculating CIAC)

"CPI" shall mean the "Consumers Price Index for all urban Consumers, Honolulu, Hawaii, ALL ITEMS", as published by the Bureau of Labor Statistics, United States Department of Labor.

(c) If the Company collects a greater amount of CIAC than the total cost of all constructed phases of the wastewater treatment plant (an "Over-Collection"), then for purposes of calculating the CIAC to be paid by an applicant who will be served by the next capacity addition of the plant, the cost of such next capacity addition shall be reduced by the net unamortized Over-Collection.

(d) Where the contribution in aid of construction is based on estimated construction costs, promptly following completion of construction, the Company shall deliver to the applicant a statement showing the actual costs of construction and a recalculation of the contribution in aid of construction based on actual construction costs. Any difference between the originally calculated and recalculated contribution in aid of construction shall be payable by the Company or the applicant, as applicable, within thirty (30) days of the date of the statement.

SECTION E-4

CONTRIBUTION IN AID OF CONSTRUCTION

WATER

As a condition to receiving water service, the customer will be required to pay a one-time contribution in aid of construction to the Company ~~at a rate of $4.34 per gallon of estimated average daily water use, usage or demand, based on a full time occupancy~~determined in accordance with paragraph 7 of Rule XI of these Rules and Regulations. Payment shall be made in accordance with paragraphs 10 and 11 of Rule XI of these Rules and Regulations. This contribution in aid of construction is in addition to the connection charge provided for in paragraph 5 of Rule IV of these Rules and Regulations.

SEWER

As a condition to receiving sewer service, the customer will be required to pay a one time contribution in aid of construction to the Company determined in accordance with paragraph 7 of Rule XI of these Rules and Regulations. Payment shall be made in accordance with paragraphs 10 and 11 of Rule XI of these Rules and Regulations. This contribution in aid of construction is in addition to the connection charge provided for in paragraph 5 of Rule IV of these Rules and Regulations.

NON-POTABLE IRRIGATION

Customer shall pay to the Company the actual cost to construct new irrigation water source, storage, transmission and pumping of non-potable irrigation water facilities required to provide irrigation water for golf course use to the new customer with such new facilities becoming an integral portion of the overall non-potable golf course irrigation system serving all such similar customers.

WEST HAWAII UTILITY COMPANY WHUC Tariff No. 1
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~~EXHIBIT "B"~~

~~NEW INSTALLATION ☐ OWNER ☐~~
~~RECONNECTION ☐ TENANT ☐~~

~~WEST HAWAII UTILITY COMPANY~~				
~~LOT #:~~				
~~ACCT #:~~				
~~STREET ADDRESS:~~				
~~DATE OF APPLICATION:~~				
~~SERVICE FEE:~~	~~CURRENT RATE:~~	~~DEPOSIT:~~	~~CLASS:~~	~~PURPOSE:~~
~~DATE OF SERVICE:~~				
~~OWNER (1) / AGENT:~~				
~~OWNER (2):~~				

~~BILLING INFORMATION~~

~~APPLICANT'S NAME:~~			
~~ADDRESS:~~			
~~CITY / STATE:~~		~~ZIP~~	
~~SOCIAL SECURITY NO.:~~			
~~HOME/PRIMARY PHONE:~~	(——)		
~~CELL/ALTERNATIVE PHONE:~~	(——)		

~~THE UNDERSIGNED HEREBY APPLIED TO WEST HAWAII UTILITY COMPANY FOR WATER SERVICE AT THE ABOVE LOCATION AND IN CONSIDERATION OF THE INSTALLATION OF SUCH SERVICE AND METER, AGREES TO PAY ALL CHARGES INCURRED UPON SUCH LOCATION FOR SUCH WATER AND/OR SEWER SERVICE AND TO ABIDE BY ALL RULES, REGULATIONS AND PROVISIONS PRESCRIBED BY WEST HAWAII UTILITY COMPANY AND AUTHORIZED BY THE PUBLIC UTILITIES COMMISSION OF THE STATE OF HAWAII RELATING TO WATER AND/OR SEWER SERVICE AND/OR RATES. THE UNDERSIGNED UNCONDITIONALLY GUARANTEES PAYMENT OF ALL CHARGES FOR WATER AND/OR SEWER SERVICE DURING HIS/HER TENURE AS OWNER OF THE LOCATION DESCRIBED HEREIN, INCLUDING BUT NOT LIMITED TO, CHARGES INCURRED BY PRESENT AND FUTURE TENANTS OF THE OWNER OR OTHER PARTIES HAVING ACCESS TO SAID LOCATION.~~

~~BY SIGNING BELOW YOU ACKNOWLEDGE YOU HAVE READ, UNDERSTAND AND AGREE TO THE ABOVE TERMS.~~

~~(X) _____ (X) _____~~
~~SIGN AND DATE – TENANT SIGN AND DATE – OWNER (1)~~

~~(X) _____ (X) _____~~

WEST HAWAII UTILITY COMPANY WHUC Tariff No. 1
A subsidiary of Hawaii Water Service Company, Inc. First Revised Sheet No. 65
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~~SIGN AND DATE – ACTING AGENT~~ ~~SIGN AND DATE – OWNER (2)~~

WEST HAWAII UTILITY COMPANY
WATER

2018 TEST YEAR
COST OF SERVICE STUDY

by

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December 15, 2017

2018 TEST YEAR
COST OF SERVICE STUDY
WEST HAWAII UTILITY COMPANY
WATER

Introduction

This report sets forth the procedures, findings, and results of a cost of service allocation study for the West Hawaii Utility Company – Water (the "Company"). The cost of service allocation study developed herein is based on the financial and operating parameters developed by the Company for use in a rate filing.

A discussion of the rationale employed for cost of service allocation studies, including a description of the allocations, together with the resulting tables and a general discussion of rate and tariff design follows.

General

The cost of service study utilizes the "Base – Extra Capacity Method" as set forth in the American Water Works Association M1 Manual of Water Supply Practices entitled "Principles of Water Rates, Fees, and Charges (Sixth Edition). This methodology identifies operating costs and allocates the Company's annual revenue requirements to functional cost categories. The functional costs are briefly described as follows:

- Base costs include those costs which would generally be incurred if the water system were operated at a uniform rate year-round and customers received water on the same basis.
- Extra capacity costs include those costs related to peak rates of water use in excess of average requirements.
- Customer costs include those costs associated with connection and serving customers irrespective of the volume of water used or demand requirements imposed.

The costs of the water utility are first assigned to several functional cost categories through the use of allocation factors which are developed for each item of operating expense, rate base element, capital expenditure, and other costs. Once the cost of service has been determined by functional cost category, the next step is the allocation of such costs to the customer classifications.

Customer classifications, or equivalent customer groups, are the groupings of those customers who have similar service, consumption, and demand characteristics. The present study identifies and analyzes the following customer groups: residential, multi-family, non-residential and public authority.

The proper allocation of the cost of service requires that each customer group be charged with a portion of the base cost, the extra capacity cost and the customer cost in accordance with the respective needs and use of the service rendered. This is accomplished by allocating the functional costs to each customer group in the proportion that each respective group bears a responsibility for the costs relative to the total cost responsibility of all customers served by the system. The sum of all functional costs attributable to a customer group is the total cost of service to be recovered from that group.

The base, the extra capacity, and the customer costs, when summarized by customer groups, define the total cost of service to be recovered from each customer group. This summation also provides identity of the responsibility of each customer group for each of the functional costs which together constitute the total cost of service.

Annual Revenue Requirements

The initial step in the establishment of customer tariff rates for water utility service is the identification or development of an annual revenue requirement. The Company has provided their proposed 2018 test year annual revenue requirements to be filed with the Hawaii Public Utilities Commission as follows:

Operation & Maintenance Expense	$2,821,469
Annual Depreciation Expense	415,584
Taxes Other Than Income Taxes	289,505
Public Company Allocation	127,259
Utility Operating Income	596,038
Income Taxes	284,281
Total Revenue Requirement	$4,534,136

As subsequently discussed herein, this study results in the allocation of $4,534,136 total annual revenue requirement set forth above to the various customer classes.

A comparison of the cost of service allocation results, the current revenue levels received from each customer class and proposed revenues will indicate the degree to which each customer class is meeting its cost responsibilities will be discussed later in this report. The results of that comparison are used to provide a guideline for use in the proposed rate design.

Water Production/System Delivery

A necessary step in a water cost of service allocation study is the development of the appropriate allocation factors for the functional cost elements. Therefore, it is necessary to determine the system-wide water production and delivery on average day, maximum day, and maximum hour bases.

The Company's Master Plan shows the system maximum day to average day ratio of 1.25 times. We find this ratio as reasonable and appropriate for use in the development of the functional cost allocations. This means that for costs allocated on a maximum day basis, 80 percent of the cost is assigned to the Base Cost function, while 20 percent of the cost is assigned to the Extra Capacity Cost – Maximum Day function.

The Company defines the maximum hour to average hour ratio of 3.00 times or 300 percent. This results in costs allocated on a maximum hour basis, 33.33 percent of the cost is assigned to Base Cost Function and 66.67 percent of the cost is assigned to the Extra Capacity Cost – Maximum Hour Function.

The system factor for transmission and distribution mains is 3.09 times based on the Master Plan. This results in the following factors for T&D mains functionalization: 32.36 percent for Base Cost Function, 8.09 percent for Extra Capacity – Maximum Day and 59.55 percent for Extra Capacity – Maximum Hour Cost function.

Application of Functional Cost Allocation Factors

These three factors allocate costs to the Base Cost function and the Extra Capacity Cost – Maximum Day and/or Maximum Hour functions. In addition to these three factors, several other functional cost allocation factors are utilized in the cost of service analysis. A number of these additional factors allocate costs only to one specific cost function – either Base Cost, Extra Capacity Cost – Maximum Hour, Customer Cost – Commercial, Customer Cost – Meters or Customer Cost – Services. An additional factor is used to allocate

purchase power costs to the base, maximum day and maximum hour functions in order to recognize the significant demand element in purchase power costs.

A supporting schedule to the cost of service analysis sets forth the description of the functional cost allocation factors and their application to the various revenue requirements is attached to this report and identified as Schedule No. 1, Pages 1 to 13.

Water Consumption Analysis

In order to develop the various factors needed to allocate functional costs to the customer groups and to allow for detailed rate design, a summary of customer group water usage by meter size and consumption level is required. Such a summary is known as a billing analysis or bill frequency distribution and contains billing and consumption data for an entire twelve-month period to account for the effects of any seasonal variation in consumption patterns. The water use data for the Test Year twelve months ended December 31, 2018 are as follows:

	Water Use
Customer Group	**1,000 Gallons**
Residential	32,867
Multi-Family	502,961
Non-Residential	583,654
Total	1,119,482

This information was provided by the Company and was utilized in the development of the customer group allocation factors. The application of these factors and the cost of service allocation for the water system are discussed in the following section.

Cost of Service Allocation

The Company's total cost of service is synonymous with its total annual revenue requirement. As developed herein this is the amount needed from all customers, in total, to permit the Company to meet all annual operating requirements. A cost of service allocation study allocates the total cost of service, that is, the revenue requirement among groups or classes of customers in accordance with recognized principles and generally accepted procedures in order to obtain an indication of the relative cost responsibilities of each such

class of customers. A cost of service allocation is one of a number of factors that may be considered in designing the rates and charges that produce the required revenues.

The allocation of the cost of service of the water system of the Company to the customer classifications of residential, multi-family and non-residential is set forth in Schedule 2 of this report.

The development of the factors used in the allocation of the functional costs to the customer groups is set forth on Schedule 1. Schedule 2 illustrates the consumption as well as the non-coincident maximum day and maximum hour usage by customer group. The consumption data is based on the consumption levels discussed previously. Maximum daily and maximum hourly totals for customer groups are based on the application of customer group demand factors to the average consumption. These demand factors are conservative estimates based on a review of the system characteristics coupled with available information, experience of other studies, and professional judgement.

We performed a review of water use of the residential and non-residential classes. Based upon this analysis and our extensive experience in performing water load analysis and fully allocated cost of service studies, we have selected the following maximum day and maximum hour class allocation factors:

Customer Class	**Maximum Day/ Average Day**	**Maximum Hour/ Average Hour**
Residential	1.60	3.00
Multi-Family	1.90	3.50
Non-Residential	1.75	3.50

The maximum day and the maximum hour demands experienced by a water utility system are a result of the interaction of the individual demands of the individual demands of each customer using the system at that time. The total of the estimated demands represents the non-coincident demand. That is, due to diversity between groups, the sum of the individual customer group's coincidental peak requirements is non-coincident to the system. The estimated demand factors used in these studies are considered reasonable for cost allocation purposes.

Schedule 2 sets forth a description of the allocation codes which designate the groups of percentage which are utilized to allocate the amount of a given cost element to the customer groups or classes.

Accordingly, the Company's proposed and filed 2018 annual revenue requirement was allocated to each customer class. The comparison of revenues at present rates, cost of service allocated revenue requirement and 2018 proposed rate design revenues by customer class is shown on Schedule 3. The results show that revenues by class from proposed rates compared with cost of service allocated revenues for all customer classes match very closely and there is no need for consideration of rate re-design based on cross-subsidization considerations.

Rate Design

Seldom, if ever, are rates exactly in line with the cost of service indications at any given time, nor is it usually possible to design rate structures which are in complete exact agreement with all aspects of a cost of service allocation study. Generally, minor differences will exist just as a matter of normal circumstances. Cost of service allocations are the products of analyses based in part on judgement and experience, and their results provide a substantial guide in the design of rates. Actual rate design, in addition to relying on the results of cost of service analyses, should also include consideration of policy matters, actual budget procedures, impact of rate changes, future planning, special customer characteristics, and judicial regulatory, and contract requirements. Management has the responsibility of adopting a proposed schedule of rates that are fair, just and reasonable.

As stated above, the revenue levels generated by customer class are very close and well-conform with the cost of service based allocation of revenues.

Conclusion

The studies discussed in this report have considered the Company's filed revenue requirement for Test Year 2018 and have used this requirement as the basis for developing a proposed schedule of rates and charges. The studies and recommendations set forth herein provide useful guides for the development of a system of equitable rates and charges. The rates as designed generate revenue from each class are a fraction of a percent different from the cost of service study.

Schedule 1
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West Hawaii Utility Company - Water

Summary of Functional Cost Allocation Factors

Allocation Code	Description	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Check Total
20	Base Cost	100.00 %	0.00 %	0.00 %	0.00 %	0.00 %	100.00 %
21	Base/Ex C - Max Day	80.00 %	20.00 %	0.00 %	0.00 %	0.00 %	100.00 %
22	Base/Ex C - Max Hour	33.33 %	0.00 %	66.67 %	0.00 %	0.00 %	100.00 %
24	Meters	0.00 %	0.00 %	0.00 %	100.00 %	0.00 %	100.00 %
25	Services	0.00 %	0.00 %	0.00 %	0.00 %	100.00 %	100.00 %
27	Depreciated Plant	93.03 %	6.12 %	0.37 %	0.00 %	0.48 %	100.00 %
29	Total Plant in Service	93.05 %	5.76 %	0.23 %	0.00 %	0.96 %	100.00 %
33	Total Rate Base	89.68 %	8.03 %	1.35 %	(0.01) %	0.94 %	99.99 %
37	T&D Operation	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %	100.00 %
38	T&D Maintenance	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %	100.00 %
41	Pumping	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %	100.00 %
43	Purchased Power	85.00 %	10.00 %	5.00 %	0.00 %	0.00 %	100.00 %
44	T&D Mains	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %	100.00 %
45	Distribution Storage	10.00 %	15.00 %	75.00 %	0.00 %	0.00 %	100.00 %
46	Total O&M Expense	68.90 %	10.10 %	17.88 %	0.00 %	3.12 %	100.00 %
47	Admin. & Gen'l Expense	37.84 %	9.46 %	32.36 %	0.00 %	20.34 %	100.00 %
48	Labor Benefits	46.49 %	11.52 %	41.98 %	0.00 %	0.00 %	99.99 %

System Factors:

		Base	Max Day	Max Hour
Max Day - Average Day	125 %	80.00 %	20.00 %	
Max Hour - Average Hour	300 %	33.33 %		66.67 %
T&D Mains	309 %	32.36 %	8.09 %	59.55 %

Transmission goes to base and maximum day. Distribution goes to base, maximum day and maximum hour. (M1 Manual)

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West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Rate Base

Acct. No.	Description	Total Investment	Base Invest	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
Exhibit WHUC - Water 7.2	**Pro Forma Utility Plant in Service**							
5	Intangible	26,360	$ 26,360	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	-	-	-	-	-	33
7	Structures and Improvements	2,552,442	2,041,954	510,488	-	-	-	21
8	Pumping Equipment	2,978,485	2,978,485	-	-	-	-	20
9	Treatment Equipment	5,688	5,688	-	-	-	-	20
10	Transmission & Distribution Plant	7,648,647	7,648,647	-	-	-	-	20
11	Reservoirs	8,369,598	8,369,598	-	-	-	-	20
12	Wells	4,913,913	3,931,131	982,783	-	-	-	21
13	Office Furniture and Equipment	52,588	42,070	10,518	-	-	-	21
14	Transportation	356,571	285,257	71,314	-	-	-	21
15	Tools and Laboratory Equipment	225,807	-	-	-	-	225,807	25
16	General Plant	28,141	22,513	5,628	-	-	-	21
17	Asset Retirement Obligation	199,236	75,391	18,648	64,473	-	40,525	47
18	Hawaii Water GO Allocation	51,423	51,423	-	-	-	-	20
19	Big Island Allocation	365,150	365,150	-	-	-	-	20
	Total Plant in Service	27,774,049	25,843,667	1,599,579	64,473	-	266,332	
	(Percent Code 20)	100.00 %	93.05 %	5.76 %	0.23 %	0.00 %	0.96 %	
Exhibit WHUC - Water 7.5	**Pro Forma Depreciation Reserve**							
5	Intangible	(3,954)	$ (3,954)	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	0	0	0	0	0	33
7	Structures and Improvements	(901,027)	(720,822)	(180,205)	-	-	-	21
8	Pumping Equipment	(1,834,234)	(1,834,234)	-	-	-	-	20
9	Treatment Equipment	(3,482)	(3,482)	-	-	-	-	20
10	Transmission & Distribution Plant	(2,258,238)	(2,258,238)	-	-	-	-	20
11	Reservoirs	(3,309,110)	(3,309,110)	-	-	-	-	20
12	Wells	(1,432,640)	(1,146,112)	(286,528)	-	-	-	21
13	Office Furniture and Equipment	(52,588)	(42,070)	(10,518)	-	-	-	21
14	Transportation	(322,082)	(257,666)	(64,416)	-	-	-	21
15	Tools and Laboratory Equipment	(184,157)	-	-	-	-	(184,157)	25
16	General Plant	(28,141)	(22,513)	(5,628)	-	-	-	21
17	Global Settlement	(96,421)	(96,421)	-	-	-	-	20
18	Hawaii Water GO Allocation	(34,992)	(34,992)	-	-	-	-	20
19	Big Island Allocation	(108,622)	(108,622)	-	-	-	-	20
	Total Pro Forma Depr. Reserve	$ (10,569,689)	$ (9,838,236)	$ (547,295)	$ -	$ -	$ (184,157)	
	Total Depreciation Reserve %	100.00 %	93.08 %	5.18 %	0.00 %	0.00 %	1.74 %	
	Depreciated Plant	$ 17,204,360	$ 16,005,431	$ 1,052,284	$ 64,473	$ -	$ 82,175	
	(Percent Code 27)	100.00 %	93.03 %	6.12 %	0.37 %	0.00 %	0.48 %	

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West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Rate Base

Acct. No.	Description	Total Investment	Base Invest.	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
Exhibit WHUC - Water 7.16	***Rate Base Additions***							
16	Working Capital	$245,727	$ 169,299	$ 24,811	$ 43,929	$ -	$ 7,667	46
	Contruction Work in Progress							
	Total Additions	$ 245,727	$ 169,299	$ 24,811	$ 43,929	$ -	$ 7,667	46
	Rate Base Deductions							
	CAC & CIAC Plant:							
Exhibit WHUC - Water 7.8								
5	Intangible	$ -	$ -	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	-	-	-	-	-	33
7	Structures and Improvements	(950,341)	(760,273)	(190,068)	-	-	-	21
8	*Pumping Equipment*	(303,223)	(303,223)	-	-	-	-	20
9	Treatment Equipment	-	-	-	-	-	-	20
10	Transmission & Distribution Plant	(5,650,133)	(5,650,133)	-	-	-	-	20
11	Reservoirs	(3,506,384)	(3,506,384)	-	-	-	-	20
12	Wells	(2,092,755)	(1,674,204)	(418,551)	-	-	-	21
13	Office Furniture and Equipment	-	-	-	-	-	-	21
14	Transportation	-	-	-	-	-	-	21
15	Tools and Laboratory Equipment	-	-	-	-	-	-	25
16	General Plant	-	-	-	-	-	-	21
17	*Global Settlement*	-	-	-	-	-	-	20
18	Hawaii Water GO Allocation	-	-	-	-	-	-	20
19	Big Island Allocation	-	-	-	-	-	-	20
	Total CIAC	$ (12,502,836)	$ (11,894,217)	$ (608,619)	$ -	$ -	$ -	
Exhibit WHUC - Water 7.9								
5	Intangible	-	$ -	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	-	-	-	-	-	33
7	Structures and Improvements	555,348	444,278	111,070	-	-	-	21
8	Pumping Equipment	300,278	300,278	-	-	-	-	20
9	Treatment Equipment	-	-	-	-	-	-	20
10	Transmission & Distribution Plant	1,397,999	1,397,999	-	-	-	-	20
11	Reservoirs	1,599,362	1,599,362	-	-	-	-	20
12	Wells	715,043	572,034	143,009	-	-	-	21
13	Office Furniture and Equipment	-	-	-	-	-	-	21
14	Transportation	-	-	-	-	-	-	21
15	Tools and Laboratory Equipment	-	-	-	-	-	-	25
16	General Plant	-	-	-	-	-	-	21
17	Global Settlement	-	-	-	-	-	-	20
18	Hawaii Water GO Allocation	-	-	-	-	-	-	20
19	Big Island Allocation	-	-	-	-	-	-	20
	Total Accum. Depreciation	4,568,029	4,313,951	254,079	-	-	-	
	Total CAC & CIAC	$ (7,934,807)	$ (7,580,266)	$ (354,540)	$ -	$ -	$ -	

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Federal and State Income Tax

Exhibit WHUC - Water 7.10 **ADIT Federal and State**

Federal ADIT

5	Intangible	5,799	$ 5,799	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	-	-	-	-	-	33
7	Structures and Improvements	472,072	377,658	94,414	-	-	-	21
8	Pumping Equipment	1,684,662	1,684,662	-	-	-	-	20
9	Treatment Equipment	2,698	2,698	-	-	-	-	20
10	Transmission & Distribution Plant	1,468,752	1,468,752	-	-	-	-	20
11	Reservoirs	2,940,449	2,940,449	-	-	-	-	20
12	Wells	1,352,494	1,081,995	270,499	-	-	-	21
13	Office Furniture and Equipment	52,588	42,070	10,518	-	-	-	21
14	Transportation	332,735	266,188	66,547	-	-	-	21
15	Tools and Laboratory Equipment	225,807	-	-	-	-	225,807	25
16	General Plant	66,970	53,576	13,394	-	-	-	21
17	Global Settlement	158,619	158,619	-	-	-	-	20
18	Hawaii Water GO Allocation	49,816	49,816	-	-	-	-	20
19	Big Island Allocation	259,793	259,793	-	-	-	-	20
20	Total Federal ADIT	$ 9,073,253	$ 8,392,076	$ 455,372	$ -	$ -	$ 225,801	
21	Accumulated Book Depreciation	$ 6,001,660	$ 5,583,344	$ 367,302	$ 22,206	$ -	$ 28,808	27
22	ADIT Balance	$ (991,024)	$ (922,148)	$ (57,083)	$ (2,279)	$ -	$ (9,508)	29

Exhibit WHUC - Water 7.12 State ADIT

5	Intangible	5,567	$ 5,567	$ -	$ -	$ -	$ -	20
6	Land and land rights	-	-	-	-	-	-	33
7	Structures and Improvements	453,189	362,551	90,638	-	-	-	21
8	Pumping Equipment	1,617,275	1,617,275	-	-	-	-	20
9	Treatment Equipment	2,590	2,590	-	-	-	-	20
10	Transmission & Distribution Plant	1,410,002	1,410,002	-	-	-	-	20
11	Reservoirs	2,822,831	2,822,831	-	-	-	-	20
12	Wells	1,298,395	1,038,716	259,679	-	-	-	21
13	Office Furniture and Equipment	50,484	40,387	10,097	-	-	-	21
14	Transportation	319,426	255,541	63,885	-	-	-	21
15	Tools and Laboratory Equipment	216,775	-	-	-	-	216,775	25
16	General Plant	27,016	21,612	5,403	-	-	-	21
17	Global Settlement	87,983	87,983	-	-	-	-	20
18	Hawaii Water GO Allocation	47,823	47,823	-	-	-	-	20
19	Big Island Allocation	249,401	249,401	-	-	-	-	20
	Place Holder	-	-	-	-	-	-	
	Place Holder	-	-	-	-	-	-	
	Place Holder	-	-	-	-	-	-	
20	Total State ADIT	$ 8,608,756	$ 7,962,279	$ 429,702	$ -	$ -	$ 216,775	
21	Accumulated Book Depreciation	6,001,660	5583344	367302	22206	0	28808	27
22	ADIT Balance	$ (156,817)	$ (145,918)	$ (9,033)	$ (361)	$ -	$ (1,497)	29
	Total Federal and State ADIT	$ 17,682,008	$ 16,354,355	$ 885,074	$ -	$ -	$ 442,576	
	Total Federal and State ADIT Balances	$ (1,147,841)	$ (1,068,066)	$ (66,116)	$ (2,640)	$ -	$ (11,005)	
Exhibit WHUC - Water 7.14	Unamortized Hawaii General Excise Tax Credit	(248,022)	(230,784)	(14,286)	(570)	-	(2,381)	29
Exhibit WHUC - Water 7.6	Net Salvage Adjustment	(426,610)	(398,822)	(24,686)	(988)	-	(4,115)	29
	Total Deductions	(9,759,280)	(9,277,938)	(459,630)	(4,198)	-	(17,501)	
	Total Pro Forma Rate Base	7,690,807	6,896,792	617,465	104,206	-	72,341	
	Rate Base % (Percent Code 33)	99.99 %	89.68 %	8.03 %	1.35 %	(0.01) %	0.94 %	

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West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Operation and Maintenance Expense

No.	Description	Total Cost	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
	Historic Operations & Maintenance Expense							
	Pumping Taxes							
7030XX	Pumping Taxes	-	-	-	-	-	-	41
	Total Pumping Taxes Operations	$ -	$ -	$ -	$ -	$ -	$ -	
	Purchased Water							
7040XX	Purchased Water	-	-	-	-	-	-	43
	Total Purchased Water Operations	$ -	$ -	$ -	$ -	$ -	$ -	
	Purchasing Power							
7262XX	Purchased Power	$ 1,777,349	$ 1,510,747	$ 177,735	$ 88,867	$ -	$ -	43
	Total Purchasing Power Operations	$ 1,777,349	$ 1,510,747	$ 177,735	$ 88,867	$ -	$ -	
	Source of Supply Operations Expense							
701001	Source of Supply Wages	$ 531	$ 531	$ -	$ -	$ -	$ -	20
701000	Supervision & Engineering	-	-	-	-	-	-	20
702000	Operation Expense	-	-	-	-	-	-	20
702010	Contract Services - Engineering	-	-	-	-	-	-	20
703002	Miscellaneous - Other	19	19	-	-	-	-	20
703010	Allocation of Payroll	-	-	-	-	-	-	20
703020	Allocation of Transportation	-	-	-	-	-	-	20
703030	Allocation of Miscellaneous Entries	-	-	-	-	-	-	20
	Total Source of Supply Operations	$ 550	$ 550	$ -	$ -	$ -	$ -	
	Source of Supply Maintenance Expense							
706001	Source of Supply Maintenance Wages	$ -	-	-	-	-	-	20
706000	Supervision & Engineering	-	-	-	-	-	-	20
707000	Structures & Improvements	-	-	-	-	-	-	20
708000	Coll & Impound Reservoirs	-	-	-	-	-	-	20
709000	Lake, River, Other Intake	-	-	-	-	-	-	20
711000	Wells	1,564	1,564	-	-	-	-	20
712000	Supply Mains	-	-	-	-	-	-	20
	Total Source of Supply Maintenance	$ 1,564	$ 1,564	$ -	$ -	$ -	$ -	
	Water Treatment and Water Quality Oper. Exp.							
741001	Water Treatment Wages	$ 20,846	$ 16,676	$ 4,169	$ -	$ -	$ -	21
741000	Supervision & Engineering	8,175	6,540	1,635	-	-	-	21
742000	Oporation Labor & Expense	1	1	-	-	-	-	21
742001	Sampling at Wells	13	11	3	-	-	-	21
742002	Inorganic Laboratory Expense	52	42	10	-	-	-	21
742003	Organic Laboratory Expense	-	-	-	-	-	-	21
742004	Bacterial Laboratory Expense	783	627	157	-	-	-	21
742005	Laboratory Administration Expense	-	-	-	-	-	-	21
742006	Outside Lab Fees	-	-	-	-	-	-	21
743000	Miscellaneous	4,415	3,532	883	-	-	-	21
744000	Chemical & Filter Material	14,447	11,558	2,889	-	-	-	21
745000	Water Trmt Allocation In/Out	-	-	-	-	-	-	21
745010	Allocation of Payroll	-	-	-	-	-	-	21
745020	Allocation of Transportation	-	-	-	-	-	-	21
745030	Allocation of Miscellaneous Entries	-	-	-	-	-	-	21
	Total Water Treatment and Water Quality Oper.	$ 48,733	$ 38,987	$ 9,746	$ -	$ -	$ -	

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	Water Treatment and Water Quality Maint. Exp.											
746001	Water Treatment Maintenance Wages	$	17,856	$	14,309	$	3,577	$ -	$ -	$ -		21
746000	Supervision & Engineering		11,874		9,499		2,375	-	-	-		21
747000	Structures & Improvement		-		-		-	-	-	-		21
748000	Water Treatment Equipment		774		619		155	-	-	-		21
748003	Bacterial Laboratory Equipment		-		-		-	-	-	-		21
	Total Water Treatment and Water Quality Maint. E	$	30,533	$	24,427	$	6,107	$ -	$ -	$ -		
	Treatment and Disposal											
746111	Treatment & Disposal Wages	$	12,385	$	9,916	$	2,470	$ -	$ -	$ -		21
746100	Supervision & Engineering		927		741		185	-	-	-		21
746110	Operations Expense		-		-		-	-	-	-		21
746200	Purchased Wastewater Treatment		-		-		-	-	-	-		21
746300	Sludge Removal Expense		32		26		6	-	-	-		21
746400	Chemicals		-		-		-	-	-	-		21
746500	Materials & Supplies		330		264		66	-	-	-		21
746600	Contractual Svcs - Engineering		-		-		-	-	-	-		21
746610	Contractual Svcs - Testing		-		-		-	-	-	-		21
746620	Contractual Svcs - Other		-		-		-	-	-	-		21
746700	Equipment Rental		-		-		-	-	-	-		21
746800	Transportation Expense		-		-		-	-	-	-		21
746900	Miscellaneous Expense		22		17		4	-	-	-		21
748000	Trmt & Disp Allocation In/Out		-		-		-	-	-	-		21
	Total Treatment and Disposal	$	13,705	$	10,964	$	2,740	$ -	$ -	$ -		
	Water Treatment and Disposal Maint. Exp											
766101	Treatment and Disposal Maintenance Wages	$	-	$	-	$	-	$ -	$ -	$ -		21
766100	Maintenance Expense		-		-		-	-	-	-		21
766500	Materials & Supplies		50		40		10	-	-	-		21
766610	Contractual Svc - Testing		-		-		-	-	-	-		21
760900	Miscellaneous Expense		-		-		-	-	-	-		21
	Total Water Treatment and Disposal Maint. Exp		50		40		10	-	-	-		
	Reclaimed Water Treatment											
747111	Reclaimed Water Treatment Wages	$	531	$	425	$	106	$ -	$ -	$ -		21
747100	Supervision & Engineering		-		-		-	-	-	-		21
747110	Operations Expense		-		-		-	-	-	-		21
747200	Chemicals		-		-		-	-	-	-		21
747500	Materials & Supplies		-		-		-	-	-	-		21
747610	Contractual Svcs - Testing		-		-		-	-	-	-		21
747620	Contractual Svcs - Other		-		-		-	-	-	-		21
747700	Equipment Rental		-		-		-	-	-	-		21
747800	Transportation Expense		-		-		-	-	-	-		21
747900	Miscellaneous Expense		-		-		-	-	-	-		21
	Total Reclaimed Water Treatment	$	531	$	425	$	106	$ -	$ -	$ -		
	Reclaimed Water Treatment Maint.											
767101	Reclaimed Water Trmnt Maint Wages	$	-	$	-	$	-	$ -	$ -	$ -		21
767100	Maintenance Expense		-		-		-	-	-	-		21
767000	Materials & Supplies		-		-		-	-	-	-		21
767900	Contractual Svc - Testing		-		-		-	-	-	-		21
	Total Reclaimed Water Treatment Maint.	$	-	$	-	$	-	$ -	$ -	$ -		
	Reclaimed Water Distribution											
757101	Reclaimed Water Distrb Wages	$	-	$	-	$	-	$ -	$ -	$ -		21
757100	Supervision & Engineering		-		-		-	-	-	-		21
757110	Operations Expense		-		-		-	-	-	-		21
757500	Materials & Supplies		-		-		-	-	-	-		21
757600	Contractual Svcs - Engineering		-		-		-	-	-	-		21
757620	Contractual Svcs - Other		-		-		-	-	-	-		21
757700	Equipment Rental		-		-		-	-	-	-		21
757800	Transportation Expense		-		-		-	-	-	-		21
757000	Reclaimed Water Dist Allocation In/Out		-		-		-	-	-	-		21
	Total Reclaimed Water Distribution	$	-	$	-	$	-	$ -	$ -	$ -		
	Reclaimed Water Distribution Maint.											
768101	Reclaimed Water Distrb Maint Wages	$	444	$	355	$	89	$ -	$ -	$ -		21
768100	Maintenance Expense		-		-		-	-	-	-		21
768500	Materials & Supplies		-		-		-	-	-	-		21
	Total Reclaimed Water Distribution Maint.	$	444	$	355	$	89	$ -	$ -	$ -		
	Transmission and Distribution - Operation Exp											
751001	Water Treatment Wages	$	86,972	$	28,144	$	7,036	$ 51,792	$ -	$ -		44
751000	Supervision & Engineering		2,763		894		224	1,645	-	-		44
752000	Storage Facilities		8,881		2,877		719	5,284	-	-		44
753100	Flushing		-		-		-	-	-	-		44
753200	Trans & Distrib Lines		393		127		32	234	-	-		44
753201	Sampling In System		-		-		-	-	-	-		44
753300	Cross Connection Control		2,084		674		169	1,241	-	-		44
753301	Cross Connection Control Wages		163		53		13	97	-	-		44
754100	Turn On's and Turn Off's		-		-		-	-	-	-		44
754200	Other Meter Expenses		-		-		-	-	-	-		44
755000	Customer Installation exp		-		-		-	-	-	-		44
756000	Miscellaneous		15,380		4,977		1,244	9,159	-	-		44
756010	Allocation of Payroll		-		-		-	-	-	-		44
756020	Allocation of Transportation		-		-		-	-	-	-		44
756030	Allocation of Miscellaneous Entries		-		-		-	-	-	-		44
	Total Trans. & Dist. - Operation Expense	$	116,645	$	37,746	$	9,437	$ 69,462	$ -	$ -		

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758001	Trans. & Dist. Maint. Wages	$ 6,875	$ 2,225	$ 556	$ 4,094	$ -	$ -		44
758000	Supervision & Engineering	-	-	-	-	-	-		44
759000	Structures & Improvements	-	-	-	-	-	-		44
760000	Reservoirs & Tanks	2,849	922	230	1,697	-	-		44
761000	Mains	11,894	3,849	962	7,083	-	-		44
763000	Services	244	79	20	145	-	-		44
764000	Meters	-	-	-	-	-	-		44
765000	Hydrants	724	234	59	431	-	-		44
	Total Trans. & Dist. - Maintenance Expense	$ 22,586	$ 7,309	$ 1,827	$ 13,450	$ -	$ -		
	Total T & D Maintenance % (Percent Code 38)	100.00 %	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %		
	Total Trans. and Dist. O&M	$ 139,231	$ 45,055	$ 11,264	$ 82,912	$ -	$ -		
	Total Trans. and Dist. O&M %	100.00 %	32.36 %	8.09 %	59.55 %	0.00 %	0.00 %		

West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Operation and Maintenance Expense

Acct. No	Description	Total Cost	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
	Historic Operations Expense (continued)							
	Pumping							
721001	Pumping Wages	$ 17,109	$ 5,537	$ 1,384	$ 10,189	$ -	$ -	41
721000	Supervision & Engineering	119,849	38,783	9,696	71,370	-	-	41
722000	Power Prod Exp	-	-	-	-	-	-	41
723000	Fuel For Power Production	-	-	-	-	-	-	41
724000	Pumping Expense	8,398	2,718	679	5,001	-	-	41
725000	Miscellaneous	7,388	2,391	598	4,400	-	-	41
725010	Allocation of Payroll	-	-	-	-	-	-	41
725020	Allocation of Transportation	-	-	-	-	-	-	41
725030	Allocation of Miscellaneous Entries	-	-	-	-	-	-	41
726100	Fuel For Pumping	-	-	-	-	-	-	41
	Total Pumping Operating Expense	$ 152,745	$ 49,429	$ 12,357	$ 90,960	$ -	$ -	
729001	Pumping & Maintenance Wages	$ 898	$ 291	$ 73	$ 535	$ -	$ -	41
729000	Supervision & Engineering	17,697	5,727	1,432	10,539	-	-	41
730000	Structures & Improvements	774	250	63	461	-	-	41
732000	Pumping Equipment	4,568	1,478	370	2,720	-	-	41
733000	Other Pumping Plant	-	-	-	-	-	-	41
	Total Pumping Maintenance Expense	$ 23,936	$ 7,746	$ 1,938	$ 14,255	$ -	$ -	
	Pumping for Wastewater							
727101	Pumping for Wastewater Wages	$ 2,401	$ 777	$ 194	$ 1,430	$ -	$ -	41
727100	Supervision & Engineering	-	-	-	-	-	-	41
727110	Operations Expenses	-	-	-	-	-	-	41
727300	Fuel For Power Production	-	-	-	-	-	-	41
727310	Contractual Svcs - Testing	247	80	20	147	-	-	41
727320	Equipment Rental	-	-	-	-	-	-	41
727900	Miscellaneous	417	135	34	249	-	-	41
728000	Pumping for Wastewater Allocation In/Out	-	-	-	-	-	-	41
	Total Pumping for Wastewater Operations	$ 3,065	$ 992	$ 248	$ 1,826	$ -	$ -	
728101	Pumping for Wastewater Wages	2,096	$ 678	$ 170	$ 1,248	$ -	$ -	41
728100	Maintenance Expense	-	-	-	-	-	-	41
728500	Materials & Supplies	11	4	1	7	-	-	41
728610	Contractual Svc - Testing	-	-	-	-	-	-	41
728900	Miscellaneous Expensee	8	3	1	5	-	-	41
	Total Pumping for Wastewater Maintenance	$ 2,115	$ 685	$ 172	$ 1,260	$ -	$ -	
	Collection							
704101	Collection Wages	$ 531	$ 172	$ 43	$ 316	$ -	$ -	41
704100	Supervision & Engineering	-	-	-	-	-	-	41
704110	Operations Expense	-	-	-	-	-	-	41
704120	Chemicals	-	-	-	-	-	-	41
704900	Miscelleneous Expenses	17	6	1	10	-	-	41
	Total Collection	$ 548	$ 178	0 44	326	0	$ -	
	Collection Maint.							
713101	Collection Maint Wages	$ 54	$ 17	$ 4	$ 32	$ -	$ -	41
713100	Maintenance Expense	-	-	-	-	-	-	41
713000	Materials & Supplies	-	-	-	-	-	-	41
713900	Miscellaneous Expense	19	6	2	11	-	-	41
	Total Collection Maint.	$ 73	$ 23	6 0	43	0	$ -	

	Customer Account Expenses							
771001	*Customer Accounts Wages*	$ 11,994	$ -	$ -	$ -	$ -	$ 11,994	25
771000	Supervision	-	-	-	-	-	-	25
772000	Meter Reading	137	-	-	-	-	137	25
773000	Laboratory Misc	-	-	-	-	-	-	25
773100	Office Salaries	-	-	-	-	-	-	25
773201	Collecting Expense	-	-	-	-	-	-	25
773202	Collection Agency Fees	-	-	-	-	-	-	25
773300	Postage	1,927	-	-	-	-	1,927	25
773400	Cust. Records - Supplies & Exp	1,528	-	-	-	-	1,528	25
773401	Cust. Records - Equip. Rentals	547	-	-	-	-	547	25
773402	Cust. Records - Equip. Maint.	-	-	-	-	-	-	25
773403	Cust. Records - Software Maint.	-	-	-	-	-	-	25
774100	Other Stationery & Print	-	-	-	-	-	-	25
774200	Telephone	-	-	-	-	-	-	25
774201	Telephone - General	192	-	-	-	-	192	25
774202	Telephone - Cellular	8,730	-	-	-	-	8,730	25
774203	Telephone - Telemeter	3,304	-	-	-	-	3,304	25
774204	Telephone - Leased Lines	286	-	-	-	-	286	25
774300	Other Utilities & Janitor	68	-	-	-	-	68	25
774400	Flat Rate Inspections	43	-	-	-	-	43	25
774500	Conservation Expense	22,500	-	-	-	-	22,500	25
774501	Conservation Wages	-	-	-	-	-	-	25
774600	Leak Adjustment Expense	-	-	-	-	-	-	25
775000	*Uncollectible Accounts*	864	-	-	-	-	864	25
776000	Cust Acct Allocation In/Out	-	-	-	-	-	-	25
776010	Allocation of Payroll	-	-	-	-	-	-	25
776020	*Allocation of Transportation*	-	-	-	-	-	-	25
776030	Allocation of Miscellaneous Entries	0	-	-	-	-	-	25
	Total Customer Account Expense	$ 52,120	$ -	$ -	$ -	$ -	$ 52,120	
	Subtotal, Operation & Maintenance Without Power, Chemicals, & Purchased Water	$ 256,221	$ 96,951	$ 24,238	$ 82,912	$ -	$ 52,120	
	Subtotal O&M % (Percent Code 47)	100.00 %	37.84 %	9.46 %	32.36 %	0.00 %	20.34 %	
	Office Expense							
791001	Administrative & General Wages	$ 93,084	$ 35,223	$ 8,806	$ 30,122	$ -	$ 18,933	47
791000	Admin & Gen Salary	37	14	4	12	-	8	47
792100	Employees Dues	927	351	88	300	-	189	47
792200	Postage	1,524	577	144	493	-	310	47
792300	Telephone	5,188	1,963	491	1,679	-	1,055	47
792301	Telephone - General	19	7	2	6	-	4	47
792302	Telephone - Cellular	31	12	3	10	-	6	47
792303	Telephone - Answering Service	216	83	21	71	1	45	47
792304	Telephone - leasing Lines	250	95	24	81	-	51	47
792400	*Stationery and Printing*	37	14	3	12	-	7	47
792500	Office Supplies & Expense	1,664	630	157	538	-	338	47
792501	Office Supplies	1,443	546	137	467	-	294	47
792502	*Temporary Labor*	-	-	-	-	-	-	47
792505	Bank Fees	5,087	1,925	481	1,646	-	1,035	47
792600	Travel & Incidental Exp	8,357	3,162	791	2,704	-	1,700	47
792601	Travel - Meals	2,743	1,038	259	888	-	558	47
792602	Meals at CWS	193	73	18	63	-	39	47
792603	Training & Seminars	3,523	1,333	333	1,140	-	717	47
792604	Conferences	126	48	12	41	-	26	47
792605	Interal Projects	-	-	-	-	-	-	47
792606	Community Service	4	2	-	1	-	1	47
792700	G.O. Building Expense	5,867	2,220	555	1,899	-	1,193	47
	Total Office Expense	$ 130,323	$ 49,316	$ 12,329	$ 42,173	$ 1	$ 26,509	

	Injuries and Damages							
793000	Property Insurance	$ -	$ -	$ -	$ -	$ -	$ -	48
794100	Compensation Insurance	12,679	5,894	1,461	5,322	-	-	48
794200	Occupational Sick Leave	-	-	-	-	-	-	48
794300	Safety Training	-	-	-	-	-	-	48
794400	Liability Insurance	12,263	5,701	1,413	5,148	-	-	48
	Total Injury & Damages	$ 24,942	$ 11,595	$ 2,874	$ 10,470	$ -	$ -	
	Empl Pension & Benefits							
795101	Savings Plan	$ -	$ -	$ -	$ -	$ -	$ -	48
795102	Retirement Fund Expense	114,851	53,394	13,241	48,214	-	-	48
795103	Other Benefits	-	-	-	-	-	-	48
795104	Trasop Expenses	-	-	-	-	-	-	48
795200	Group Insuance	-	-	-	-	-	-	48
795201	Retiree Group Heal & Life Ins	-	-	-	-	-	-	48
795260	PBOP Amortization	-	-	-	-	-	-	48
795300	Employees Welfare Admin	-	-	-	-	-	-	48
795309	Employees Welfare Admin transferred In/Out	-	-	-	-	-	-	48
795400	Company Sponsored Benefits - Allocation In/Out	131,837	61,304	15,188	55,345	-	-	48
795501	Off-Duty Time - Sick Leave	-	-	-	-	-	-	48
795502	Disability Benefits - Recd	-	-	-	-	-	-	48
795504	Disability Benefits - Employer	957	445	110	402	-	-	48
795099	Off Duty Time - Allocations In/Out	-	-	-	-	-	-	48
795600	Off Duty Time - All Other	51,239	23,830	5,903	21,510	-	-	48
907100	Vacation	-	-	-	-	-	-	48
908000	Floating Holiday	-	-	-	-	-	-	48
	Total Employee Benefits	$ 298,884	$ 138,973	$ 34,442	$ 125,471	$ -	$ -	
	Outside Services Employed							
797000	Regulatory Commission Expense	$ 69,167	$ 32,156	$ 7,968	$ 29,036	$ -	$ -	48
798100	Legal Expense	-	-	-	-	-	-	48
798200	Other Outside Services	4,565	2,122	526	1,917	-	-	48
798201	Training Consultants	-	-	-	-	-	-	48
798202	Auditors & Accountants	579	269	67	243	-	-	48
798203	Engineering Consultants	-	-	-	-	-	-	48
	Total Outside Services	$ 74,311	$ 34,547	$ 8,561	$ 31,196	$ -	$ -	
	Misc General Expenses							
796000	Franchise Requirements	$ -	$ -	$ -	$ -	$ -	$ -	47
797001	PUC Reimbursement Fees	-	-	-	-	-	-	47
799100	Company Dues	1,503	569	142	486	-	306	47
799200	Institutional Advertising	115	44	11	37	-	23	47
799300	Fee Of Fiscal Agents	-	-	-	-	-	-	47
799400	General Corporate Expense	387	146	37	125	-	79	47
799500	Miscellaneous General Exp	28,020	10,603	2,651	9,067	-	5,699	47
799501	Moving Cost-Employee	735	278	70	238	-	150	47
799502	Merger Related Expenses	-	-	-	-	-	-	47
799503	Charitable contributions	-	-	-	-	-	-	47
799600	Accrued Payroll Distrib	-	-	-	-	-	-	47
799700	G&A Allocation In/Out	-	-	-	-	-	-	47
799710	Allocation of Payroll	-	-	-	-	-	-	47
799720	Allocation of Transportation	-	-	-	-	-	-	47
799730	Allocation of Miscellaneous Entries	-	-	-	-	-	-	47
	Total Misc General Expense	$ 30,761	$ 11,640	$ 2,911	$ 9,953	$ -	$ 6,257	
	Admin & General Maintenance							
805100	General Struct & Improv	3,360	$ 1,271	$ 318	$ 1,087	$ -	$ 683	47
805200	General Equipment	1,136	430	107	368	-	231	47
805300	Accrued Payroll Distribution	-	-	-	-	-	-	47
805410	Allocation of Payroll	-	-	-	-	-	-	47
805420	Allocation of Transportation	-	-	-	-	-	-	47
805430	Allocation of Miscellaneous Entries	-	-	-	-	-	-	47
	Total Admin & General Maintenance	$ 4,496	$ 1,701	$ 425	$ 1,455	$ -	$ 914	
	Rent							
8110XX	Rent Expense	10,449	$ 3,954	$ 988	$ 3,381	$ -	$ 2,125	47
	Total Rent Operations	$ 10,449	$ 3,954	$ 988	$ 3,381	$ -	$ 2,125	
	Total Admin. and General	$ 563,717	$ 247,772	$ 61,542	$ 220,718	$ 1	$ 33,680	
	Total Pro Forma O&M Expense	$ 2,821,459	$ 1,943,893	$ 285,092	$ 504,548	$ 1	$ 87,925	
	Total Pro Forma O&M Expense % (Percent Code 46)	100.00 %	68.90 %	10.10 %	17.88 %	0.00 %	3.12 %	
	Total Labor Expense	$ 133,110	$ 61,885	$ 15,338	$ 55,886	$ -	$ -	
	Total Labor Expense %	99.98 %	46.48 %	11.52 %	41.98 %	0.00 %	0.00 %	

Schedule 1

West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Depreciation Expense

Acct. No.	Description	Total Cost	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
Exhibit WHUC - Water 7.6	**Pro Forma Depreciation Expense**							
103030	Intangibles	2,636 0	$ 2,636	$ -	$ -	$ -	$ -	20
103061	Land	-	-	-	-	-	-	20
103110	Structures & Improvement - Supply Plant	4,692	4,692	-	-	-	-	20
103210	Structures & Improvement - Pumping Plant	27,565	27,565	-	-	-	-	20
103310	Structures & Improvement - Treatment Plant	2,787	2,787	-	-	-	-	20
103410	Structures & Improvement - Transmission & Distril	6,116	6,116	-	-	-	-	20
103411	Structures & Improvement - Pavement	2,057	2,057	-	-	-	-	20
103710	Structures & Improvement - General Plant	22,255	22,255	-	-	-	-	20
103240	Pumping Equipment	113,860	113,860	-	-	-	-	20
103241	System Control Computer Equipment	11,691	11,691	-	-	-	-	20
103320	Treatment & Disposal Equipment	204	204	-	-	-	-	20
103431	A.C.	51,685	51,685	-	-	-	-	20
103435	Ductile Iron Pipe	4,692	3,754	938	-	-	-	21
103450	Services	62,390	49,912	12,478	-	-	-	21
103460	Meters & Meter Boxes	14,553	-	-	-	14,553	-	24
103480	Hydrants	179	143	36	-	-	-	21
103420	Reservoirs & Tanks	184,968	147,974	36,994	-	-	-	21
103421	Tank Painting	-	-	-	-	-	-	21
103150	Wells	200,963	160,770	40,193	-	-	-	21
103720	Office Furn & Equip	-	-	-	-	-	-	21
103721	Electronic Equipment/Computers	-	-	-	-	-	-	21
103730	Transportation Equipment	(9,389)	(7,511)	(1,878)	-	-	-	21
103750	Laboratory Equipment	40	32	8	-	-	-	21
103770	Power Operated Equipment	4,045	3,236	809	-	-	-	21
103780	Tools, Shop, Garage Equipment	78	62	16	-	-	-	21
103790	General Plant	-	-	-	-	-	-	21
103925	Asset Retirement Obligation	6,641	2,513	628	2,149	-	1,351	47
Exhibit WHUC - Water 7.4	Global Settlement	-	-	-	-	-	-	20
Exhibit WHUC - Water 7.4	Hawaii Water GO Allocation	1,119	423	106	362	-	228	47
Exhibit WHUC - Water 7.4	Big Island Allocation	23,624	8,939	2,235	7,645	-	4,805	47
	Subtotal Depreciation Expense	$ 739,451	$ 615,795	$ 92,563	$ 10,156	$ 14,553	$ 6,384	
Exhibit WHUC - Water 7.9								
4	Intangible	$-	$ -	$ -	$ -	$ -	$ -	20
5	Land and land rights	-	-	-	-	-	-	33
6	Structures and Improvements	(46,490)	(37,192)	(9,298)	-	-	-	21
7	Pumping Equipment	(2,779)	(2,779)	-	-	-	-	20
8	Treatment Equipment	-	-	-	-	-	-	20
9	Transmission & Distribution Plant	(115,105)	(115,105)	-	-	-	-	20
10	Reservoirs	(89,735)	(89,735)	-	-	-	-	20
11	Wells	(69,758)	(55,806)	(13,952)	-	-	-	21
12	Office Furniture and Equipment	-	-	-	-	-	-	21
13	Transportation	-	-	-	-	-	-	21
14	Tools and Laboratory Equipment	-	-	-	-	-	-	25
15	General Plant	-	-	-	-	-	-	21
16	Global Settlement	-	-	-	-	-	-	20
17	Hawaii Water GO Allocation	-					-	20
18	Big Island Allocation	-					-	20
	Subtotal CIAC Depreciation Expense	$ (323,867)	$ (300,617)	$ (23,250)	$ -	$ -	$ -	
	Pro Forma Depr. Exp.	$ 415,584	$ 315,178	$ 69,313	$ 10,156	$ 14,553	$ 6,384	
	Depreciation Exp. %	100.00 %	75.84 %	16.68 %	2.44 %	3.50 %	1.54 %	

Schedule 1
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West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Allocation of Pro Forma Revenue Requirement

	Description	Total Cost	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
	Pro Forma Revenue Requirement							
	Operation & Maintenance Expenses	$ 2,821,469	$ 1,943,903	$ 285,092	$ 504,548	$ 1	$ 87,925	
	Depreciation & Amortization Expenses	415,584	315,178	69,313	10,156	14,553	6,384	
Exhibit WHUC - Water 8.21	Taxes Other Than Income Taxes	289,505	259,646	23,251	3,912	(29)	2,725	33
799998	PubCo Allocation In/out	127,259	114,127	10,223	1,722	(13)	1,200	33
	Total Operating Expenses Before Income Taxes	$ 3,653,817	$ 2,632,854	$ 387,879	$ 520,338	$ 14,512	$ 98,234	
Exhibit WHUC - Water 8.22	State Income Taxes	25,366	22,752	2,037	342	(3)	238	33
Exhibit WHUC - Water 8.22	Federal Income Taxes	258,915	232,215	20,791	3,495	(26)	2,440	33
Exhibit WHUC - Water 8 28	Utility Operating Income	$ 596,038	$ 534,582	$ 47,866	$ 8,047	$ (60)	$ 5,603	33
	Total Revenue Requirement	$ 4,534,136	$ 3,422,403	$ 458,573	$ 532,222	$ 14,423	$ 106,515	
	Total Revenue Requirement %	99.99 %	75.48 %	10.11 %	11.74 %	0.32 %	2.34 %	
	Other Revenues	-	-	-	-	-	-	33
	Net Revenue Requirement	$ 4,534,136	$ 3,422,403	$ 458,573	$ 532,222	$ 14,423	$ 106,515	

Schedule 1
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West Hawaii Utility Company - Water

Test Period Ending December 31, 2018
Development of Labor Allocator

Description	Total Cost	Base Cost	Extra Cap Max Day	Extra Cap Max Hour	Customer Meters	Customer Services	Code
Labor Expenses							
Supply	$ 531	$ 531	$ -	$ -	$ -	$ -	
Water Treatment	38,732	30,985	7,746	-	-	-	
T&D Operation	86,972	28,144	7,036	51,792	-	-	
T&D Maintenance	6,875	2,225	556	4,094	-	-	
Subtotal Above	133,110	61,885	15,338	55,886	-	-	
Code 48	99.99 %	46.49 %	11.52 %	41.98 %	0 %	0.00 %	
Benefits Labor	-	-	-	-	-	-	
Total Labor	133,110	61,885	15,338	55,886	-	-	
Percents	99.99 %	46.49 %	11.52 %	41.98 %	0 %	0.00 %	

Schedule 2

West Hawaii Utility Company - Water

Summary of Water Customer Class Allocation Factors

Allocation Code	Description	Residential	Multifamily	Non-Residential	Check Total
60	Base Cost	2.94 %	44.93 %	52.14 %	100.01 %
61	Maximum Day	2.17 %	49.75 %	48.09 %	100.01 %
62	Maximum Hour	2.47 %	42.98 %	54.55 %	100.00 %
64	Meters	4.90 %	51.26 %	43.84 %	100.00 %
65	Services	13.61 %	39.78 %	46.61 %	100.00 %

West Hawaii Utility Company - Water

Customer Class Allocation
Water Pro Forma Net Revenue Requirement

	Total	Residential	Multifamily	Non-Residential			Allocation Code
Base Cost	$ 3,422,403	$ 100,619	$1,537,344	$ 1,784,440			60
Maximum Day	458,573	9,951	228,094	220,528			61
Maximum Hour	532,222	13,146	228,749	290,327			62
Meters	14,423	707	7,393	6,323			64
Services	106,515	14,497	42,371	49,647			65
Total	$ 4,534,136	$ 138,920	$2,043,951	$ 2,351,265	$ -	$ -	
	99.99 %	3.05 %	45.08 %	51.86 %	0.00 %	%	

Schedule 2
Page 2 of 3

West Hawaii Utility Company - Water

Water Customer Class Allocation Factors

	Annual Consumption			Maximum Day				Maximum Hour				Customer Costs		Meters		Services	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Customer Class	Thousand Gallons	MGD	%	% of AvDay	Amount MGD	Excess (5)-(2)	%	% of AvDay	Amount MGD	Excess (9)-(5)	%	Bills	%	Equiv Units	%	Equiv Units	%
Residential	32,867	0.090	2.94	160	0.144	0.054	2.17	300	0.270	0.126	2.47	276	25.27	72.5	4.90	50.2	13.61
Multifamily	502,961	1.378	44.93	190	2.618	1.240	49.75	350	4.823	2.205	42.98	276	25.27	760.0	51.26	146.7	39.78
Non-Residential	583,654	1.599	52.14	175	2.798	1.199	48.09	350	5.597	2.799	54.56	540	49.45	650.0	43.84	171.9	46.61
Grand Total	1,119,482	3	100.01	525	5.560	2.493	100.01		10.690	5.130	100.01	1,092	99.99	1,483	100.00	368.8	100.00
	Allocation Code		60				61				62				64		65

West Hawaii Utility Company - Water

Development of Equivalent Water Meters and Equivalent Services

Residential

Meter Size	Number of Meters	Eq. Meter Ratio	Equiv. Meters	Eq. Svc Ratio	Equiv. Services	Number of Bills
1"	17	2.50	42.5	2.0	34.0	204
1 1/2"	6	5.00	30.0	2.7	16.2	72
Total	23		72.5		50.2	276

Multifamily

Meter Size	Number of Meters	Eq. Meter Ratio	Equiv. Meters	Eq. Svc Ratio	Equiv. Services	Number of Bills
2"	10	8.00	80.0	4.0	40.0	120
6"	12	50.00	600.0	8.0	96.0	144
8"	1	80.0	80.0	10.7	10.7	12
Total	23		760.0		146.7	276

Non-Residential

Meter Size	Number of Meters	Eq. Meter Ratio	Equiv. Meters	Eq. Svc Ratio	Equiv. Services	Number of Bills
5/8"	6	1.0	6.0	1.0	6.0	72
3/4"	0	1.5	0.0	1.3	0.0	0
1"	4	2.5	10.0	2.0	8.0	48
1 1/2"	13	5.0	65.0	2.7	35.1	156
2"	13	8.0	104.0	4.0	52.0	156
3"	3	15.0	45.0	4.0	12.0	36
6"	2	50.0	100.0	8.0	16.0	24
8"	4	80.0	320.0	10.7	42.8	48
Total	45		650		172	540
Grand Totals	91		1,483		369	1,092

Schedule 3
Page 1 of 1

West Hawaii Utility Company - Water
Comparison Between Water Revenue from Existing Rates, the Indicated Cost of Service Revenues and Revenues at Proposed Rates

Class	Test Year Revenue (no adjustments)	Percent	Indicated Cost of Service Revenues	Percent	At Proposed Rates	Percent
Residential	$126,991	3.00%	138,920	3.06%	$138,774	3.06%
Multifamily	1,904,877	45.04%	2,043,951	45.08%	2,046,740	45.14%
Non-Residential	2,197,242	51.96%	2,351,265	51.86%	2,348,622	51.80%
Total Customer Class Revenue	4,229,110		4,534,136		4,534,136	
Other Revenue	0	0.00%	0	0.00%	0	0.00%
Total Customer Class Revenue	4,229,110	100.00%	4,534,136	100.00%	4,534,136	100.00%

WEST HAWAII UTILITY COMPANY
SEWER

2018 TEST YEAR
COST OF SERVICE STUDY

by

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2018 TEST YEAR
COST OF SERVICE STUDY
WEST HAWAII UTILITY COMPANY
SEWER

INTRODUCTION

This report sets forth the procedures, findings, and results of a cost of service allocation study for the West Hawaii Utility Company - Sewer. The cost of service allocation study developed herein is based on the financial and operating parameters developed by the Company for use in a rate filing.

A discussion of the rationale employed for cost of service allocation studies, including a description of the allocations, together with illustrative tables and a general discussion of rate and tariff design follows.

GENERAL

The total cost of service is a utility's revenue requirement. This amount is determined by establishing the revenues needed from all customers, in total, to permit the utility to recover its expenses and taxes and to produce a fair return on its rate base. The determination of the Company's revenue requirement involves the issues pertaining to revenues, expenses, taxes, rate of return and rate base that are typically raised in a rate proceeding.

A sewer system cost of service allocation study provides the cost information necessary to develop appropriate fixed (or customer) charges and volumetric usage charges. A cost of service allocation study is one of a number of factors that may be considered in developing a schedule of rates and charges that will produce the required revenues if actual sewer flows are equal to estimated test year flows. We have allocated the annual revenue requirement based on a cost-causative basis using wastewater flows. Wastewater flows are usually calculated on the basis of estimated daily flows by customer and class using metered water use data obtained from the Company. Metered water use data provides an accurate basis for the cost allocations and the

customer tariff rate designs. Using metered water used by customer class, we have accurately allocated the costs to customers based upon the level of service provided. Having metered water use data and basing the cost allocations on that data is a benefit to both the customers and the utility.

The method employed in wastewater cost allocation studies is the classification of the system's total annual revenue requirements according to cost-causative operations performed by the wastewater collection and treatment facilities. Costs are categorized to be flow or volume-related, BOD related, suspended solids-related or customer-related. Costs related to the collection system are segregated and treated separately in the allocation process. In this study, the cost allocation process is based upon an adaptation of an allocation methodology originally developed for use in water utility cost allocation studies. Costs are identified and allocated to the functional cost categories of flow, demand, customer accounting, and customer facilities costs, then such functionalized costs are allocated to customer classes. An explanation will follow below in this report regarding the other cost-causative elements normally considered in the allocation process.

FUNCTIONAL COSTS

Flow costs include those costs which vary with the amount of wastewater collected in the sewerage system. These costs include power and fuel for pumping and other collecting, pumping, and transmission expenses under average sewage flow conditions.

Demand costs include those costs related to the facilities which meet the peak rates of use, or demands, placed on the sewerage system by the users of the service. These costs include capital costs for plant facilities designed to meet peak requirements and the related operation and maintenance expenses under flow conditions greater than average.

Customer costs include those costs associated with connecting and serving customers independent of the volume of sewage contributed or the demand requirements imposed upon the

system. Customer costs have been subdivided into customer accounting costs and customer facilities costs. Customer accounting costs include the commercial operations related to billing and collecting activities while customer facilities costs include capital and operating costs related to service connections.

The costs of the sewerage utility are assigned to the various functional cost categories through the use of allocation factors which are developed for each item of capital investment, operating expense, taxes, and other items. Certain costs, such as power and fuel for pumping, are assigned entirely to the flow cost function. Other costs, such as the commercial expenses related to billing and collecting, are assigned directly to the customer accounting function. Many cost elements, however, are not specifically related to a single cost function and are therefore allocated on the basis of other relevant factors. For example, collecting system operation and maintenance expenses are allocated to the flow cost function and the demand cost function on the basis of the ratio of maximum to average flows.

A wastewater cost of service study should also consider other cost-causative factors such as infiltration/inflow (I/I) volumes, strength of wastewater and the quantity of sludge produced through the treatment process. The use of cost-causing factors in the allocation process should be limited to those factors for which information is available or determined with reasonable effort. In an effort to understand the wastewater system's dynamics, the authors of this report and study visited the wastewater plants, pumping stations and toured the service territory.

We determined that I/I should not be assigned to a specific class of customers since no determinations of I/I flows or studies have been performed. Therefore, I/I costs will be treated as normal flows in the rate design process. It was also determined that no additional allocations would be required to segregate costs associated with strength of wastewater or the quantity of sludge. The customer base indicates that the wastewater flows would be described as domestic

and would not contain flow characteristics requiring additional treatment processes or would result in abnormal quantities of sludge.

Finally, when summarized, the flow, the demand, the customer accounting, and the customer facilities costs define the total cost of service and provide guidelines for the development of a schedule of rates and charges which allows for the recovery of the sewerage system costs from the users of the service.

CUSTOMER COSTS

The next step in the allocation process is a distribution of the functional costs to the customer classes. For the purpose of this study, the distribution of the annual revenue requirements is based upon the total annual wastewater flows by customer class and maximum-to-average daily demand by customer class. The volume related costs are allocated to the customer classes in proportion to the total flow for the system. The demand related costs are allocated based on maximum-to-average daily flows on the system by class. Customer service and billing related costs are allocated based upon the customer units and billing requirements.

Wastewater flow data include average day flow by customer class and maximum day flow systems. We used the monthly metered water use data provided by Company's water utility, West Hawaii Utility Company - Water.

All of the estimates discussed in this section were used to obtain the estimated wastewater flows for the entire system and the volume allocation of costs between residential, multifamily, non-residential and public authority. The estimated-to-actual ratio, using plant data for treated wastewater, is 1.23, meaning that the estimated flows are 23% higher than the actual plant flow data.

The maximum-to-average ratios for the residential and non-residential classes for allocating demand related costs use secondary information for a similar system in Maui owned by the Hawaii Water Services Company, from the 2012 Pukulani Hydraulic Model and Capital

Report Improvement Plan for the residential and commercial diurnal curves as shown that Report.

Customer related costs have been treated separately in this study and include customer billing, collection and customer service related expenses.

REVENUE REQUIREMENT

As previously discussed, the total cost of service is synonymous with a utility's revenue requirement. The total revenue requirement for a sewerage utility should be sufficient to ensure the provision of adequate sewerage service and to ensure the maintenance, development, and perpetuation of the sewerage system. The principal components of the revenue requirement for an investor-owned sewerage utility comprise operation and maintenance expenditures; depreciation requirements; income and other taxes; and, operating income or return on investment. Cost of service studies for investor-owned sewerage utilities reporting to a regulatory authority are often prepared in conjunction with the processing of a rate relief application and the concurrent development of a pro forma revenue requirement. This particular study is based on a revenue requirement of $5,742,316 as developed by the Company within the context of the current rate proceeding.

This revenue requirement provides for the following expense categories:

Operating and Maintenance	$1,898,360
Depreciation	1,007,099
Taxes Other Than Income Tax	366,647
Public Company Allocation	174,277
Income Taxes	753,267
Net Operating Income	1,542,666
Total Revenue Requirement	$5,742,316

As subsequently discussed herein, this study results in the allocation of the $5,742,316 annual revenue requirement to the functional cost components. This functional cost allocation

then becomes an input in the development of a schedule of rates and charges for sewerage service.

PLANT INVESTMENT/RATE BASE

The Company maintains its plant investment in fixed capital accounts by plant function. Under this system, the original cost and the related depreciation reserve for utility plant in service as of December 31, 2018 has been projected as follows:

Functional Plant Account	Original Cost	Depreciation Reserve
Land and Land Rights	$1,078,437	$0
Structures and Improvements	9,451,785	374,269
Pumping Equipment	3,410,222	1,369,258
Treatment Equipment	8,161,889	1,351,045
Transmission & Distribution	10,632,892	2,324,217
Source of Supply	1,042,048	189,559
Office Furniture	7,341	781
Power Generation Equipment	560,696	317,902
Transportation	267,684	134,346
Tools and Laboratory Equipment	178,377	156,471
General Plant	1,679,656	355,298
Hawaii Water GO Allocation	70,422	47,920
Big Island Allocation	484,685	144,181
Wastewater Administration	366	158
Totals	$37,026,498	$6,765,405

The combination of the original cost and the depreciation reserve results in the net utility plant in service. This is an important input in the development of the net investment rate base which also includes contributions in aid of construction, deferred taxes from depreciation, excess reserve, and excess deferred tax liability.

The pro forma rate base used in this study may be summarized as follows:

Original Cost Utility Plant in Service	$37,026,499
Depreciation Reserve	(6,765,405)
Contributions in Aid of Construction	(7,532,954)
Deferred Taxes from Depreciation	(1,755,857)
General Excise Tax Credit	(686,298)
Working Capital	172,717
Net Salvage Adjustment	(553,078)
Total Pro Forma Rate Base	$19,905,624

The rate base is allocated to the several functional cost categories in accordance with the methodology previously described. The results of the rate base allocation are then subsequently used to allocate investment related revenue requirement items such as income taxes and utility operating income.

FUNCTIONAL COST OF SERVICE ALLOCATION

The allocation of the Company's cost of service to the previously defined functional cost components is set forth on a series of three schedules contained in Schedule 1. Descriptions of the individual schedules are given herein.

Schedule No. 1, pages 1 to 4 presents the details, in tabular form, of the allocation of the original cost of plant in service and rate base to the previously defined cost functions. Columns (1) and (2) on Schedule No. 1 sets forth an account number and a description of the item being allocated. The allocations to the several cost functions are shown in Columns (4) through (7), while the right-most column, i.e. Column (8), indicates an allocation code for the specific allocation factor used to assign each cost element to the cost functions. The allocations set forth on Schedule No. 1 utilize the utility plant in service and depreciation reserve data that were previously summarized in an earlier section of this report. The allocations to the cost functions were made in accordance with the concepts which were previously described.

Schedule 1, pages 5 to 7 is constructed in a format which is similar to that of the previous pages. It sets forth the details of the allocation of the operation and maintenance expense, the annual depreciation expense, the amortization expense, taxes other than income taxes, income taxes, and utility operating income as adjusted and projected by the Company for the twelve months ending December 31, 2018. The data utilized on Schedule No. 1, pages 5 to 7 were previously summarized in the Revenue Requirement discussion in this report.

The allocation codes mentioned above are simply reference characters which designate groups of percentages that are used to allocate the total amount of any given cost element to the several cost functions. Page 8 through 13 of Schedule No. 1 describe the codes and illustrate their development.

COST OF SERVICE ALLOCATION RESULTS

The functional cost of service allocation results may be summarized as follows:

Cost Function	Amount
Flow Costs	$4,104,080
Demand Costs	1,059,039
Total Customer Costs – Commercial	50,524
Total Customer Costs - Service	528,673
Total Revenue Requirement	$5,742,316

The allocated costs by function are further allocated to each customer class in proportion to the total flow for the system.

CUSTOMER COST OF SERVICE ALLOCATION

The allocation to customer class or group employs the results from the functional allocation of the annual revenue requirement $5,742,316 by flow, demand and commercial, and

assigns those costs to the residential, multifamily, non-residential and public authority based upon cost causative factors. Schedule No. 2, pages 1 to 6 contains the results of those allocations. The allocations to customer class employs four (4) allocation factors that are set forth and described on Schedule No. 2, pages 2 to 6.

Page 2 of Schedule No. 2 summarizes the allocation process to customer class as follows:

	Residential	Multi-Family	Non-Residential
Flow	$106,704	$2,209,228	$1,788,148
Demand	13,979	577,601	467,459
Commercial	9,129	14,000	27,395
Services	71,634	210,624	246,415
	$201,446	$3,011,453	$2,529,417

Schedule 2, page 4 shows the development and analysis of the estimated customer class wastewater flows used to allocate flow related costs. The demand-related costs are allocated by the customer class maximum-to-average day ratios that represent the relative peak demand placed on the system by each customer class. These ratios for residential and non-residential classes were obtained from the 2012 Pukalani Hydraulic Model and Capital Improvement Plan. They are specifically located in Figures 3 and 4, or, the diurnal curves for the residential and commercial customer classes. The ratios for multifamily and public authority are based on a combination of reference to other studies and subjective judgement.

REVENUES FROM PRESENT RATES

A comparison was made of revenues by customer class at present rates, cost of service allocations of revenue requirement and the revenues at proposed rates. Present rates and proposed rates generate the same proportions of revenues for each class as they based on the same rate design. The relevant comparison is between revenues at present rates and cost of service indicated revenues as forth on Schedule No. 3. The results show that there is somewhat

of a difference between the present revenues and what the cost of service study shows. Residential revenue is 2 percent versus cost of service at 3.5 percent, multifamily is 48 and 52 percent and non-residential is 50 and 44 percent.

Although all classes except non-residential could be assigned more revenues by a pure cost of service approach, we do not find a compelling reason to re-structure rate design at this time. This is the first cost of service ever done for the Company. Our additional reasoning is discussed in the following section.

CONCLUSION

The studies discussed in this report have allocated the revenue requirement of the Company to a series of functional cost classifications that were allocated to customer class. The results of the studies discussed herein can provide reasonable guidelines to be utilized in restructuring the Company's rates and charges for service. It must be noted that seldom, if ever, are rates exactly in line with the cost of service indications at any given time. Generally, minor differences will exist just as a matter of normal circumstances. Cost of service allocations are the products of analyses based in part on judgment and experience and their results provide a substantial aid in the design of rates.

Attempts to exactly meet cost of service indications in one rate adjustment can impose large and undue burdens on individual customer groups. Rather than impose large changes in one step, most rate analysts favor a process of gradually bringing revenue generation in line with cost of service indications so as to avoid or ameliorate undue or abrupt changes in rate structure.

Actual tariff design, in addition to relying on the results of cost of service analyses, should also include consideration of policy matters, impact of rate changes, future planning, special customer characteristics, and judicial, regulatory, and contract requirements.

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West Hawaii Utility Company - Sewer

Summary of Functional Cost Allocation Factors

Allocation Code	Description	Flow Cost	Demand Cost	Customer Related Commercial Cost	Customer Related Services Cost	Check Total
A	Flow Costs	100.00	0.00	0.00	0.00	100.00 %
B	Demand Costs	0.00	100.00	0.00	0.00	100.00 %
C	Customer Costs - Commercial	0.00	0.00	100.00	0.00	100.00 %
D	Customer Costs - Services	0.00	0.00	0.00	100.00	100.00 %
E	Average Day Flow to Maximum Day Flow	81.30	18.70	0.00	0.00	100.00 %
F	G&A Salaries & Wages, Employee Benefits & Worker's Comp.	71.20	11.14	0.20	17.46	100.00 %
G	Administrative and General	68.95	10.95	0.00	20.10	100.00 %
H	Office Rent and Furniture and Equipment	70.93	11.10	0.58	17.39	100.00 %
I	Other Rate Base Costs	51.98	46.07	0.00	1.95	100.00 %
J	Other Insurance and G&A Miscellaneous Expense	71.06	11.13	1.38	16.43	100.00 %
K	Income Taxes	64.21	34.19	0.00	1.59	99.99 %
L	Revenue Related Taxes, Expenses & Net Income	71.47	18.44	0.88	9.20	99.99 %

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West Hawaii Utility Company - Sewer

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Utility Plant in Service:							
Exhibit WHUC - Sewer 7.2							
5	Intangible	0	0	0	0	0	B
6	Land and land rights	1,078,437	876,769	201,668	0	0	E
7	Structures and Improvements	9,451,785	7,684,301	1,767,484	0	0	E
8	Pumping Equipment	3,410,222	0	3,410,222	0	0	B
9	Treatment Equipment	8,161,889	6,635,616	1,526,273	0	0	E
10	Transmission & Distribution Plant	10,632,891	0	10,632,891	0	0	B
11	Source of Supply	1,042,048	0	1,042,048	0	0	B
12	Office Furniture and Equipment	7,341	5,207	815	43	1,277	H
13	Power Generation Equipment	560,696	560,696	0	0	0	A
14	Transportation	267,684	184,568	29,311	0	53,804	G
15	Tools and Laboratory Equipment	178,377	122,991	19,532	0	35,854	G
16	General Plant	1,679,656	1,158,123	183,922	0	337,611	G
17	Hawaii Water GO Allocation	70,422	48,556	7,711	0	14,155	G
18	Big Island Allocation	484,685	334,180	53,073	0	97,422	G
19	Wastewater Administration	366	252	40	0	74	G
	Total Utility Plant In Service	37,026,498	17,611,269	18,874,990	43	540,197	

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West Hawaii Utility Company - Sewer

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Accumulated Depreciation Reserve:							
Exhibit WHUC - Sewer 7.4							
5	Intangible	0	0	0	0	0	B
6	Land and land rights	0	0	0	0	0	E
7	Structures and Improvements	374,269	304,280	69,988	0	0	E
8	Pumping Equipment	1,369,258	0	1,369,258	0	0	B
9	Treatment Equipment	1,351,045	1,098,400	252,645	0	0	E
10	Transmission & Distribution Plant	2,324,220	0	2,324,220	0	0	B
11	Source of Supply	189,559	0	189,559	0	0	B
12	Office Furniture and Equipment	781	554	87	5	136	H
13	Power Generation Equipment	317,902	317,902	0	0	0	A
14	Transportation	134,346	92,631	14,711	0	27,003	G
15	Tools and Laboratory Equipment	156,471	107,886	17,134	0	31,451	G
16	General Plant	355,298.00	244,978	38,905	0	71,415	G
17	Hawaii Water GO Allocation	47,920	33,041	5,247	0	9,632	G
18	Big Island Allocation	144,181	99,412	15,788	0	28,980	G
19	Wastewater Administration	158	109	17	0	32	G
	Total Accumulated Depreciation Reserve	6,765,405	2,299,193	4,297,559	5	168,649	
	Net Plant in Service	30,261,093	15,312,076	14,577,431	38	371,548	

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West Hawaii Utility Company - Sewer

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Other Rate Base Items:							
Exhibit WHUC - Sewer 7.8							
Exhibit WHUC - Sewer 7.9							
	Net Contributions in Aid of Construction						
5	Intangible	0	0	0	0	0	B
6	Land and land rights	0	0	0	0	0	E
7	Structures and Improvements	(1,052,432)	(855,627)	(196,805)	0	0	E
8	Pumping Equipment	(1,285,667)	0	(1,285,667)	0	0	B
9	Treatment Equipment	(15,088)	(12,266)	(2,821)	0	0	E
10	Transmission & Distribution Plant	(4,034,328)	0	(4,034,328)	0	0	B
11	Source of Supply	(950,177)	0	(950,177)	0	0	B
12	Office Furniture and Equipment	0	0	0	0	0	H
13	Power Generation Equipment	(35,147)	(35,147)	0	0	0	A
14	Transportation	0	0	0	0	0	G
15	Tools and Laboratory Equipment	(157)	(108)	(17)	0	(31)	G
16	Global Settlement	(159,960)	(159,960)	0	0	0	A
17	Hawaii Water GO Allocation	0	0	0	0	0	G
18	Big Island Allocation	0	0	0	0	0	G
19	Wastewater Administration	0	0	0	0	0	G
	Total Net Contributions in Aid of Construction	(7,532,954)	(1,063,108)	(6,469,815)	0	(31)	
8	Customer Advances	0	0	0	0	0	I
9	Customer Deposits	0	0	0	0	0	I
Exhibit WHUC - Sewer 7.10	Accumulated Deferred Taxes: Federal	(1,492,135)	(775,812)	(687,427)	0	(29,097)	I
Exhibit WHUC - Sewer 7.12	Accumulated Deferred Taxes: State	(263,722)	(137,083)	(121,497)	0	(5,143)	I
Exhibit WHUC - Sewer 7.14	Unamortized Hawaii Capital Goods Excise Tax Credit	(686,298)	(356,738)	(316,177)	0	(13,383)	I
Exhibit WHUC - Sewer 7.6	Net Salvage Adjustment	(553,078)	(287,490)	(254,803)	0	(10,785)	I
Exhibit WHUC - Sewer 7.15	Working Capital	172,717	89,778	79,571	0	3,368	I
	Total Other Rate Base Items	(10,355,470)	(2,530,253)	(7,770,148)	0	(55,071)	
	Total Pro Forma Rate Base	19,905,624	12,781,823	6,807,283	38	316,477	

West Hawaii Utility Company - Sewer

Test Year Ending December 31, 2018
Allocation of Pro Forma Operating & Maintenance Expenses

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
	Pumping Expenses						
O&M Exp. Worksheet	Salaries & Wages	90,817	90,817	0	0	0	A
O&M Exp. Worksheet	Purchased Power	178	178	0	0	0	A
O&M Exp. Worksheet	Miscellaneous Expense	48,414	48,414	0	0	0	A
	Total Pumping Expenses	139,409	139,409	0	0	0	
	Treatment & Disposal Expenses						
O&M Exp. Worksheet	Salaries & Wages - Operating (Collection 25%)	68,121	0	0	0	68,121	D
O&M Exp. Worksheet	Salaries & Wages - Operating (Treatment 75%)	232,455	188,986	43,469	0	0	E
O&M Exp. Worksheet	Salaries & Wages - Maint. (Collection 25%)	1,495	0	0	0	1,495	D
O&M Exp. Worksheet	Salaries & Wages - Maint. (Treatment 75%)	5,100	4,146	954	0	0	E
O&M Exp. Worksheet	Purchased Power	367,465	367,465	0	0	0	A
O&M Exp. Worksheet	Chemicals	22,854	22,854	0	0	0	A
O&M Exp. Worksheet	Materials & Supplies (Collection 25%)	15,300	0	0	0	15,300	D
O&M Exp. Worksheet	Materials & Supplies (Treatment 75%)	45,900	37,317	8,583	0	0	E
O&M Exp. Worksheet	Contractual Services - Testing	14,060	0	0	0	14,060	D
O&M Exp. Worksheet	Misc. Expense - Operating (Collection 25%)	50,836	0	0	0	50,836	D
O&M Exp. Worksheet	Misc. Expense - Operating (Treatment 75%)	152,547	124,021	28,526	0	0	E
O&M Exp. Worksheet	Misc. Expense - Maint. (Collection 25%)	2,780	0	0	0	2,780	D
O&M Exp. Worksheet	Misc. Expense - Maint. (Treatment 75%)	8,342	6,782	1,560	0	0	E
	Total Treatment & Disposal Expenses	987,255	751,571	83,092	0	152,592	
	Customer Accounts Expenses						
O&M Exp. Worksheet	Salaries & Wages	799	0	0	799	0	C
O&M Exp. Worksheet	Bad Debt Expense	0	0	0	0	0	C
O&M Exp. Worksheet	Miscellaneous Expenses	21,064	0	0	21,064	0	C
	Total Customer Accounts Expenses	21,863	0	0	21,863	0	
	General & Administrative Expenses						
O&M Exp. Worksheet	Salaries & Wages	210,561	149,919	23,456	421	36,765	F
O&M Exp. Worksheet	Employee Pensions & Benefits	342,623	243,948	38,168	685	59,822	F
O&M Exp. Worksheet	Materials & Supplies	4,338	2,991	475	872	0	G
O&M Exp. Worksheet	Contractual Services - Legal	3,060	2,110	335	615	0	G
O&M Exp. Worksheet	Contractual Services - Other	12,175	8,395	1,333	2,447	0	G
O&M Exp. Worksheet	Building / Property Rental	14,310	10,150	1,588	83	2,489	H
O&M Exp. Worksheet	Insurance - General Liability	16,794	11,579	1,839	3,376	0	G
O&M Exp. Worksheet	Insurance - Worker's Compensation	15,947	11,354	1,776	32	2,785	F
O&M Exp. Worksheet	Insurance - Other	0	0	0	0	0	J
O&M Exp. Worksheet	Regulatory Commission Expense	69,167	49,150	7,698	955	11,364	J
O&M Exp. Worksheet	Miscellaneous Expense	60,808	43,210	6,768	839	9,991	J
	Total General & Administrative Expenses	749,783	532,806	83,436	10,325	123,216	
	Total Operation & Maintenance Expense	1,898,310	1,423,786	166,528	32,188	275,808	

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West Hawaii Utility Company - Sewer

Pro Forma Test Year Ending December 31, 2018
Allocation of Depreciation Expense

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Customer Related: Demand Cost (5)	Customer Related: Commercial Cost (6)	Customer Related: Services Cost (7)	Allocation Code (8)
103,061	Land	0	0	0	0	0	E
103,540	Structures & Improvement	296,943	241,415	55,528	0	0	E
103,701	Pumping Equipment	85,989	0	85,989	0	0	B
103,801	Treatment & Disposal Equipment	374,941	304,827	70,114	0	0	E
103,600	Collection Sewers Force	55,132	38,014	6,037	0	11,082	G
103,610	Collection Sewers Gravity	59,986	41,360	6,568	0	12,057	G
103,620	Special Collecting Structure	46,011	31,725	5,038	0	9,248	G
103,640	Flow Measuring Devices	5,263	3,629	576	0	1,058	G
103,820	Outfall Sewer Lines	8,967	6,183	982	0	1,802	G
103,850	Reuse Transmission & Distribution System	6,478	4,467	709	0	1,302	G
103,890	Other Equipment	131	90	14	0	26	G
103,550	Power Generation Equipment	(12,404)	(12,404) 0	0 0	0 0	0	A
103,700	Receiving Wells	12,479	0	12,479	0	0	B
103,955	Office Furn & Equip	0	0	0	0	0	H
103,965	Transportation Equipment	56,045	38,643	6,137	0	11,265	G
103,940	Laboratory Equipment	5,795	5,795	0	0	0	A
103,950	Power Operated Equipment	0	0	0	0	0	A
103,960	Communication Equipment	1,867	1,287	204	0	375	C
103,975	Stores Equipment	1,345	927	147	0	270	G
103,980	General Plant	(30,829)	(21,257)	(3,376)	0	(6,197)	G
17	Hawaii Water GO Allocation	1,531	1,056	168	0	308	G
18	Big Island Allocation	31,356	21,620	3,433	0	6,303	G
19	Wastewater Administration	73	50	8	0	15	G
	Total Depreciation Expense	1,007,099	707,427	260,755	0	48,914	

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West Hawaii Utility Company - Sewer

Pro Forma Test Year Ending December 31, 2018
Allocation of Total Revenue Requirement

Account Number (1)		Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
		Total Revenue Requirement						
		Operation and Maintenance Expense	1,898,360	1,423,786	166,528	32,188	275,808	
		Depreciation Expense	1,007,099	707,430	250,755	0	48,914	
Exhibit WHUC - Sewer 8.11								
2		PubCo Allocation	174,277	124,556	32,137	1,534	16,050	I
Exhibit WHUC - Sewer 8.20		Taxes Other Than Income Taxes						
5		Public Company Service Tax	337,935	241,522	62,315	2,974	31,124	L
7		Public Utility Fee	28,712	20,520	5,294	253	2,645	L
		Total Taxes Other Than Income Taxes	366,647	262,042	67,609	3,227	33,769	
		Total Operating Expenses Before Income Taxes	3,446,383	2,517,814	517,029	36,949	374,541	
Exhibit WHUC - Sewer 8.21								
		Income Taxes						
11,12,13	x	State	83,136	53,382	28,424	0	1,330	K
17 - 20	x	Federal	670,131	430,291	229,118	0	10,722	K
22		Total Income Taxes	753,267	483,673	257,542	0	12,052	
Exhibit WHUC - Sewer 6								
28		Operating Income	1,542,666	1,102,543	284,468	13,575	142,080	L
		Total Revenue Requirement	5,742,316	4,104,030	1,059,039	50,524	528,673	
		Total Revenue Requirement %	100.00 %	71.47 %	18.44 %	0.88 %	9.21 %	

West Hawaii Utility Company - Sewer

Development of Functional Cost Allocation Factors

Factor A - Allocation of Costs Which Vary with Total Flow

Costs which vary with the volume of sewage collected and treated are allocated 100% to the flow cost function.

Factor B - Allocation of Costs Related to Demand

Costs which are related to the users' capacity requirements for maximum flow conditions are allocated 100% to the demand cost function.

Factor C - Allocation of Costs Related to Customer - Commercial

Costs that are allocated 100% to the customer - commercial cost function.

Factor D - Allocation of Costs Related to Customer - Service

Costs that are allocated 100% to the customer - service cost function.

Factor E - Allocation of Costs Related to Average Day Flow to Maximum Day Flow

Cost that are allocated to the flow cost function and to the demand cost function on the basis of the average day flow to maximum day flow as follows:

Cost Function	Ratio	Allocation %
(1)	(2)	(3)
Base	1.00	81.30
Extra Capacity	0.23	18.70
Maximum Day	1.23	100.00

Factor F - Allocation of General & Administrative Salaries and Wages, Employee Benefits, and Worker's Compensation Insurance

General & administrative salaries and wages, employee benefits, and worker's compensation insurance are allocated to the cost function in accordance with the composite allocation of all other salaries & wages as follows:

Cost Function	Allocated Collecting System Maintenance Expenses	Allocation %
(1)	(2)	(3)
Base	$ 283,949	71.20
Extra Capacity	44,423	11.14
Customer - Commercial	799	0.20
Customer - Services	69,616	17.46
	$ 398,787	100.00

West Hawaii Sewer Company

Development of Functional Cost Allocation Factors

Factor G - Allocation of Administrative and General Expenses

Certain administrative and general expenses are allocated to the cost functions in accordance with the composite allocation of operation and maintenance expenses with the exception of power and fuel as follows:

Cost Function (1)	Allocated Operation and Maintenance Expenses (2)	Allocation % (3)
Base	$ 282,651	66.01
Extra Capacity	51,904	12.12
Customer - Commercial	0	0.00
Customer - Services	93,663	21.87
	$ 428,218	100.00

Factor H - Allocation of Office Rent and Office Furniture and Equipment

Office rent and the capital costs related to office furniture and equipment are allocated to the cost functions in accordance with the composite allocation of customer and general and administrative salaries and labor costs as follows:.

Cost Function (1)	Allocated Customer/ and G&A Labor (2)	Allocation % (3)
Base	$ 67,766	57.58
Extra Capacity	13,437	11.42
Customer - Commercial	12,121	10.30
Customer - Services	24,360	20.70
	$ 117,684	100.00

Factor I - Allocation of Other Rate Base Costs

Other rate base costs are allocated to the cost functions in accordance with the composite allocation of the total rate base costs as follows:

Cost Function (1)	Allocated Rate Base (2)	Allocation % (3)
Base	$ 643,538	43.67
Extra Capacity	738,652	50.12
Customer - Commercial	0	0.00
Customer - Services	91,315	6.20
	$ 1,473,505	99.99

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West Hawaii Utility Company - Sewer

Development of Functional Cost Allocation Factors

Factor G - Allocation of Administrative and General Expenses

Certain administrative and general expenses are allocated to the cost functions in accordance with the composite allocation of operation and maintenance expenses with the exception of power and fuel as follows:

Cost Function	Allocated Operation and Maintenance Expenses	Allocation %
(1)	(2)	(3)
Base	$ 523,337	68.95
Extra Capacity	83,092	10.95
Customer - Commercial	0	0.00
Customer - Services	152,592	20.10
	$ 759,021	100.00

Factor H - Allocation of Office Rent and Office Furniture and Equipment

Office rent and the capital costs related to office furniture and equipment are *allocated to the cost functions in accordance with the composite allocation of customer* and general and administrative salaries and labor costs as follows:.

Cost Function	Allocated Customer/ and G&A Labor	Allocation %
(1)	(2)	(3)
Base	$ 149,919	70.93
Extra Capacity	23,456	11.10
Customer - Commercial	1,220	0.58
Customer - Services	36,765	17.39
	$ 211,360	100.00

Factor I - Allocation of Other Rate Base Costs

Other rate base costs are allocated to the cost functions in accordance with the composite allocation of the total rate base costs as follows:

Cost Function	Allocated Rate Base	Allocation %
(1)	(2)	(3)
Base	$18,847,354	51.98
Extra Capacity	16,702,734	46.07
Customer - Commercial	48	0.00
Customer - Services	708,815	1.95
	$36,258,951	100.00

West Hawaii Utility Company - Sewer

Elements for Development Factor F

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
O&M Exp. Worksheet	Salaries & Wages	90,817	90,817	0	0	0
O&M Exp. Worksheet	Salaries & Wages - Operating (Collection 25%)	68,121	0	0	0	68,121
O&M Exp. Worksheet	Salaries & Wages - Operating (Treatment 75%)	232,455	188,986	43,469	0	0
O&M Exp. Worksheet	Salaries & Wages - Maint. (Collection 25%)	1,495	0	0	0	1,495
O&M Exp. Worksheet	Salaries & Wages - Maint. (Treatment 75%)	5,100	4,146	954	0	0
O&M Exp. Worksheet	Salaries & Wages	799	0	0	799	0
	Total Above Expenses	398,787	283,949	44,423	799	69,616
		100.00 %	71.20 %	11.14 %	0.20 %	17.46 %

Elements for Development Factor G

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Pumping Expenses					
O&M Exp. Worksheet	Salaries & Wages	90,817	90,817	0	0	0
O&M Exp. Worksheet	Miscellaneous Expense	48,414	48,414	0	0	0
	Treatment & Disposal Expenses					
O&M Exp. Worksheet	Salaries & Wages - Operating (Collection 25%)	68,121	0	0	0	68,121
O&M Exp. Worksheet	Salaries & Wages - Operating (Treatment 75%)	232,455	188,986	43,469	0	0
O&M Exp. Worksheet	Salaries & Wages - Maint. (Collection 25%)	1,495	0	0	0	1,495
O&M Exp. Worksheet	Salaries & Wages - Maint. (Treatment 75%)	5,100	4,146	954	0	0
O&M Exp. Worksheet	Chemicals	22,854	22,854	0	0	0
O&M Exp. Worksheet	Materials & Supplies (Collection 25%)	15,300	0	0	0	15,300
O&M Exp. Worksheet	Materials & Supplies (Treatment 75%)	45,900	37,317	8,583	0	0
O&M Exp. Worksheet	Contractual Services - Testing	14,060	0	0	0	14,060
O&M Exp. Worksheet	Misc. Expense - Operating (Collection 25%)	50,836	0	0	0	50,836
O&M Exp. Worksheet	Misc. Expense - Operating (Treatment 75%)	152,547	124,021	28,526	0	0
O&M Exp. Worksheet	Misc. Expense - Maint. (Collection 25%)	2,780	0	0	0	2,780
O&M Exp. Worksheet	Misc. Expense - Maint. (Treatment 75%)	8,342	6,782	1,560	0	0
	Total Above Expenses	759,021	523,337	83,092	0	152,592
		100.00 %	68.95 %	10.95 %	0.00 %	20.10 %

Elements for Development Factor H

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Customer Accounts Expenses					
O&M Exp. Worksheet	Salaries & Wages	799	0	0	799	0
	General & Administrative Expenses					
O&M Exp. Worksheet	Salaries & Wages	210,561	149,919	23,456	421	36,765
	Total Above Expenses	211,360	149,919	23,456	1,220	36,765
		100.00 %	70.93 %	11.10 %	0.58 %	17.39 %

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West Hawaii Utility Company - Sewer

Elements for Development Factor I

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Total Utility Plant In Service	37,026,498	17,611,269	18,874,990	43	540,197
	Total Accumulated Depreciation Reserve	6,765,405	2,299,193	4,297,559	5	168,649
	Total Net Contributions in Aid of Construction	(7,532,954)	(1,063,108)	(6,469,815)	0	(31)
	Net Salvage Adjustment	0	0	0	0	0
	Total Above Expenses	36,258,949	18,847,354	16,702,734	48	708,815
		99.99 %	51.98 %	46.06 %	0.00 %	1.95 %

Elements for Development Factor J

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
O&M Exp. Worksheet	Salaries & Wages	210,561	149,919	23,456	421	36,765
O&M Exp. Worksheet	Employee Pensions & Benefits	342,623	243,948	38,168	685	59,822
O&M Exp. Worksheet	Materials & Supplies	4,338	2,991	475	872	0
O&M Exp. Worksheet	Contractual Services - Legal	3,060	2,110	335	615	0
O&M Exp. Worksheet	Contractual Services - Other	12,175	8,395	1,333	2,447	0
O&M Exp. Worksheet	Building / Property Rental	14,310	10,150	1,588	83	2,489
O&M Exp. Worksheet	Insurance - General Liability	16,794	11,579	1,839	3,376	0
O&M Exp. Worksheet	Insurance - Worker's Compensation	15,947	11,354	1,776	32	2,785
	Total Above Items	619,808	440,446	68,970	8,531	101,861
		100.00 %	71.06 %	11.13 %	1.38 %	16.43 %

Elements for Development Factor K

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Total Rate Base	19,905,624	12,781,823	6,807,283	38	316,477
		100.00 %	64.21 %	34.19 %	0.00 %	1.59 %

Elements for Development Factor L

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Total Operation & Maintenance Expense	1,898,310	1,423,786	166,528	32,188	275,808
	Depreciation Expense	1,007,099	707,430	250,755	0	48,914
	Income Taxes					
	State	83,136	53,382	28,424	0	1,330
	Federal	670,131	430,291	229,118	0	10,722
	Total Above Items	3,658,676	2,614,889	674,825	32,188	336,774
		99.99 %	71.47 %	18.44 %	0.88 %	9.20 %

West Hawaii Utility Company - Sewer

Depreciation Expense
Test Year Ending December 31, 2018

Account Title (2)			2017 Depr Exp (3)	Inc. Tax Credit (4)	Net Depr Exp (5)
Exhibit WHUC - Sewer 7.6					
Exhibit WHUC - Sewer 7.9					
Non Dep Plant					
103061	x	Land	0	0	0
		Total Non Depreciable Plant	0	0	0
Structure & Improv.					
103540	x	Structures & Improvement	296,943	0	296,943
		Total Structures and Imrpovements	296,943	0	296,943
Pumping Equip					
103701	x	Pumping Equipment	85,989	0	85,989
		Total Pumping Equipment	85,989	0	85,989
Treatment Equipment					
103801	x	Treatment & Disposal Equipment	374,941	0	374,941
		Total Treatment	374,941	0	374,941
T&D Plant					
103600	x	Collection Sewers Force	55,132	0	55,132
103610	x	Collection Sewers Gravity	59,986	0	59,986
103620	x	Special Collecting Structure	46,011	0	46,011
103640	x	Flow Measuring Devices	5,263	0	5,263
103820	x	Outfall Sewer Lines	8,967	0	8,967
103850	x	Reuse Transmission & Distribution System	6,479	0	6,479
103890	x	Other Equipment	132	0	132
		Total Transmission & Distribution Plant	181,970	0	181,970
Power Gen. Equip					
103550	x	Power Generation Equipment	(12,404)	0	(12,404)
		Total Power Generation Equipment	(12,404)	0	(12,404)
Source of Supply					
103700	x	Receiving Wells	12,479	0	12,479
		Total Source of Supply	12,479	0	12,479
Office Furniture & Equip					
103955	x	Office Furn & Equip	0	0	0
		Total Office Furn & Equip	0	0	0
Transportation					
103965	x	Transportation Equipment	56,045	0	56,045
		Total Transportation Equipment	56,045	0	56,045
Tools and Lab Equip.					
103940	x	Laboratory Equipment	5,796	0	5,796
103950	x	Power Operated Equipment	0	0	0
103960	x	Communication Equipment	1,868	0	1,868
103975	x	Stores Equipment	1,345	0	1,345
		Total Tools and Laboratory Equipment	9,009	0	9,009
General Plant					
103980	x	General Plant	(30,829)	0	(30,829)
		Total General Plant	(30,829)	0	(30,829)
Exhibit WHUC - Sewer 7.5					
Other					
17	x	Hawaii Water GO Allocation	1,532	0	1,532
18	x	Big Island Allocation	31,357	0	31,357
19	x	Wastewater Administration	73	0	73
			32,962	0	32,962
		Total	1,007,105	0	1,007,105

Schedule 2
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West Hawaii Utility Company - Sewer

Allocation Codes For Customer Groups

Alloc. Code	Description	Residential	Multi-Family	Non-Residential	Check Total
60	Flow Cost	2.60 %	53.84 %	43.57 %	100.01 %
61	Demand Cost	1.32 %	54.54 %	44.14 %	100.00 %
62	Customer Costs - Commercial	18.07 %	27.71 %	54.22 %	100.00 %
63	Customer Costs - Services	13.55 %	39.84 %	46.61 %	100.00 %

West Hawaii Utility Company - Sewer

Allocation To Customer Groups

	Total Cost $	Residential $	Mutli-Family $	Non-Residential $	AC
Operation & Maintenance Expense:					
Flow Cost	1,423,786	37,018	766,424	620,344	60
Demand Cost	166,528	2,198	90,825	73,505	61
Customer Cost - Commercial	32,188	5,816	8,919	17,453	62
Customer Cost - Services	275,808	37,372	109,882	128,554	63
Total Operation & Maintenance Expense	1,898,310	82,404	976,050	839,856	
	100.00%	4.34%	51.42%	44.24%	
Depreciation Expense:					
Flow Cost	707,427	18,393	380,808	308,226	60
Demand Cost	250,755	3,310	136,762	110,683	61
Customer Cost - Commercial	0	0	0	0	62
Customer Cost - Services	48,914	6,628	19,487	22,800	63
Total Depreciation Expense	1,007,096	28,331	537,057	441,709	
	100.00%	2.81%	53.33%	43.86%	
Amortization Expense:					
Flow Cost	124,556	3,238	67,049	54,269	60
Demand Cost	32,137	424	17,528	14,185	61
Customer Cost - Commercial	1,534	277	425	832	62
Customer Cost - Services	16,050	2,175	6,394	7,481	63
Total Amortization Expense	174,277	6,114	91,396	76,767	
	100.00%	3.51%	52.44%	44.05%	
Taxes Other Than Income Taxes:					
Flow Cost	262,042	6,813	141,057	114,172	60
Demand Cost	67,609	892	36,874	29,843	61
Customer Cost - Commercial	3,227	583	894	1,750	62
Customer Cost - Services	33,769	4,576	13,454	15,740	63
Total Taxes Other Than Income Taxes	366,647	12,864	192,279	161,505	
	100.00%	3.51%	52.44%	44.05%	
Miscellaneous Non-Utility Expenses:					
Flow Cost	0	0	0	0	60
Demand Cost	0	0	0	0	61
Customer Cost - Commercial	0	0	0	0	62
Customer Cost - Services	0	0	0	0	63
Total Miscellaneous Non-Utility Expenses	0	0	0	0	

Schedule 2
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West Hawaii Utility Company - Sewer

Allocation To Customer Groups

	Total Cost $	Residential $	Mutli-Family $	Non-Residential $	AC
Income Taxes:					
Flow Cost	483,673	12,575	260,362	210,736	60
Demand Cost	257,542	3,400	140,463	113,679	61
Customer Cost - Commercial	0	0	0	0	62
Customer Cost - Services	12,052	1,633	4,802	5,617	63
Total Income Taxes	753,267	17,608	405,627	330,032	
	100.00%	2.34%	53.85%	43.81%	
Net Income:					
Flow Cost	1,102,596	28,667	593,528	480,401	60
Demand Cost	284,468	3,755	155,149	125,564	61
Customer Cost - Commercial	13,575	2,453	3,762	7,360	62
Customer Cost - Services	142,080	19,252	56,605	66,223	63
Total Net Income	1,542,719	54,127	809,044	679,548	
	100.00%	3.51%	52.44%	44.05%	
Total Cost of Service	**5,742,316**	**201,446**	**3,011,453**	**2,529,417**	
	100.00%	**3.51%**	**52.44%**	**44.05%**	
Total Flow Cost	**4,104,080**	**106,704**	**2,209,228**	**1,788,148**	
	100.00%	**2.60%**	**53.83%**	**43.57%**	
Total Demand Cost	**1,059,039**	**13,979**	**577,601**	**467,459**	
	100.00%	**1.32%**	**54.54%**	**44.14%**	
Total Customer Cost - Commercial	**50,524**	**9,129**	**14,000**	**27,395**	
	100.00%	**18.07%**	**27.71%**	**54.22%**	
Total Customer Cost - Services	**528,673**	**71,634**	**210,624**	**246,415**	
	100.00%	**13.55%**	**39.84%**	**46.61%**	

West Hawaii Utility Company - Sewer

Development of Customer Group Factors

Factor 60 - Allocation of Base Costs

Costs are allocated to Base Cost to the Customer Groups in accordance with the percentage of wastewater flows by each individual customer group.

Factor 61 - Allocation of Maximum Day Costs

Costs are allocated to Maximum Day Cost to the Customer Groups in accordance with the ratio of the excess maximum day demand of each individual customer group to the total non-coincident excess daily demand for all customer groups.

Factor 62 - Allocation of Costs Related to Customer - Commercial

Costs are allocated to Customer Cost - Commercial to the Customer Groups in accordance with the percentage of bills issued to each individual customer group.

Factor 63 - Allocation of Costs Related to Customer - Services

Costs are allocated to Customer Cost - Services to the Customer Groups in accordance with the percentage of equivalent services of each individual customer group.

Schedule 2
Page 4 of 6

West Hawaii Utility Company - Sewer

Development of Allocation Factors to Customer Groups

		Annual Flows			Maximum Day		
Customer Group	1000 Gal.	1000 Gal. Per Day	%	% of Average	Amount	Excess	%
Residential	24,202.0	66.307	2.60	150	99.461	33.154	1.32
Multi-Family	501,880.0	1,375.014	53.84	200	2,750.028	1,375.014	54.54
Non-Residential	406,162.0	1,112.773	43.57	200	2,225.546	1,112.773	44.14
Grand Total	932,244.0	2,554.094	100.01		5,075.035	2,520.941	100.00
Allocation Code			60				61

Schedule 2
Page 5 of 6

Development of the Equivalent Meters and Services Factors
and the Factor Based on the Number of Bills

Customer Group	Number of Bills	%	Equiv. Services	%		Equiv. Meters	%
Residential - Monthly	180	18.07	50	13.55	18.07229	73	4.92
Multi Family - Monthly	276	27.71	147	39.84	27.71084	760	51.25
Non-Residential - Mor	540	54.22	172	46.61	54.21687	650	43.83
Grand Total	996	100	369	100		1,483	100
Allocation Code		62		63			63

Schedule 2
Page 6 of 6

West Hawaii Utility Company - Sewer

Development of Equivalent Services

Customer Group	Customer Name	Meter Size	Number of Meters	Service Size	Eq. Svc. Ratio	Equiv. Services	Percent	Eq. Meter Ratio	Equiv. Meters	Percent
Residential		1"	17		2.0	34		2.5	43	
		1 1/2"	6		2.7	16		5.0	30	
			23			50	13.55 %		73	4.92 %
Multi-Family		2"	10		4.0	40		8.0	80	
		6"	12		8.0	96		50.0	600	
		8"	1		10.7	11		80.0	80	
			23			147	39.84 %		760	51.25 %
Non-Residential		5/8"	6		1.0	6		1.0	6	
		3/4"	0		1.3	0		1.5	0	
		1"	4		2.0	8		2.5	10	
		1 1/2"	13		2.7	35		5.0	65	
		2"	13		4.0	52		8.0	104	
		3"	3		4.0	12		15.0	45	
		6"	2		8.0	16		50.0	100	
		8"	4		10.7	43		80.0	320	
			45			172	46.61 %		650	43.83 %
Grand Total			91			369	100.00 %		1,483	100.00 %

Schedule 3
Page 1 of 1

West Hawaii Utility Company - Sewer

Revenue Comparison Between Customer Groups
Revenues at Present Rates vs. Indicated Cost of Service

	---- Present Rates ----		---------- Indicated Cost of Service ----------				---- Proposed Rates ----	
Customer Group	Total	Percent	Total	Effluent Rev.	Adj. Total	Percent	Total	Percent
Residential	$74,172	2.01%	$201,446	$0	$201,446	3.51%	$111,405	1.94%
Multi-family	1,759,088	47.60%	3,011,453	0	$3,011,453	52.44%	2,692,550	46.89%
Non-Residential	1,862,466	50.40%	2,529,417	0	$2,529,417	44.05%	2,938,361	51.17%
Totals	$3,695,726	100.01%	$5,742,316	$0	$5,742,316	100.00%	$5,742,316	100.00%

WEST HAWAII UTILITY COMPANY
IRRIGATION

2018 TEST YEAR
COST OF SERVICE STUDY

by

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December 15, 2017

2018 TEST YEAR
COST OF SERVICE STUDY
WEST HAWAII UTILITY DISTRICT
IRRIGATION

INTRODUCTION

This report sets forth the procedures, findings, and results of a cost of service allocation study for the West Hawaii Utility Company – Irrigation. The cost of service allocation study developed herein is based on the financial and operating parameters developed by the Company for use in a rate filing.

A discussion of the rationale employed for cost of service allocation studies, including a description of the allocations, together with tables of results and a general discussion of rate and tariff design follows.

GENERAL

The total cost of service is a utility's revenue requirement. This amount is determined by establishing the revenues needed from all customers, in total, to permit the utility to recover its expenses and taxes and to produce a fair return on its rate base. The determination of the Company's revenue requirement involves the issues pertaining to revenues, expenses, taxes, rate of return and rate base that are typically raised in a rate proceeding.

The cost of service study approach that provides the cost information necessary to develop appropriate fixed (or customer) charges and volumetric usage charges. A cost of service allocation study is one of a number of factors that may be considered in developing a schedule of rates and charges that will produce the required revenues if actual effluent flows are equal to estimated test year flows. We have allocated the annual revenue requirement based on a cost-causative basis using wastewater effluent volumes to each of two customers of this utility.

These effluent flows are metered for each of the two accounts. Having volume data and basing the cost allocations on that data is a benefit to both the customers and the utility.

In this study, the cost allocation process is based upon an adaptation of an allocation methodology originally developed for use in sewer and water utility cost allocation studies. Costs are usually identified and allocated to the functional cost categories of volume or flow, demand, customer accounting, and customer facilities costs, then such functionalized costs are allocated to customers or classes. An explanation will follow later in this report regarding the other cost-causative elements normally considered in the allocation process.

FUNCTIONAL COSTS

Flow costs include those costs which vary with the amount of effluent volumes produced and sold by the sewerage system. These costs include power and fuel for pumping and transmission expenses under average volume flow conditions and storage.

Demand costs include those costs related to the facilities which meet the peak rates of use, or demands, placed on the effluent system by the users of the service. These costs include capital costs for plant facilities designed to meet peak requirements and the related operation and maintenance expenses under flow conditions greater than average. Since there are only two customers for this study, all costs are functionalized with one allocator except for customer expenses.

Customer costs include those costs associated with connecting and serving customers independent of the volume contributed or the demand requirements imposed upon the system. Customer costs have been subdivided only into customer accounting. Customer facilities costs are functionalized the same as all other costs. Customer accounting costs include the commercial operations related to billing and collecting activities and are functionalized separately from all

other costs while customer facilities costs include capital and operating costs related to service connections.

The costs of the irrigation utility are assigned to the various functional cost categories through the use of two sets of allocation factors. All costs in this very specific case, except for commercial expenses related to billing and collecting, are assigned to the same function as all other cost categories. That cost function is average day flow and maximum day flow which allocates most costs to flow (approximately 81%) and some to demand (approximately 19%). In an effort to understand the effluent irrigation system's dynamics, the authors of this report and study visited the wastewater plants, pumping stations, effluent-holding reservoir, and toured the service territory.

Finally, when summarized, the flow, the demand, the customer accounting, define the total cost of service and provide guidelines for the development of a schedule of rates and charges which allows for the recovery of the irrigation system costs from the users of the service.

CUSTOMER COSTS

The next step in the allocation process is a distribution of the functional costs to the two customers. For the purpose of this study, the distribution of the annual revenue requirements is based upon the total annual volumes by the two customers except for customer related expenses that are accounted equally among the two customers. The volume related costs are allocated to the customers in proportion to the total volumes for the system as are the demand related costs.

As previously discussed, the total cost of service is synonymous with a utility's revenue requirement. The total revenue requirement for any utility should be sufficient to ensure the provision of adequate (in this case) irrigation service and to ensure the maintenance, development, and perpetuation of that system. The principal components of the revenue requirement for an investor-owned irrigation-effluent utility comprise operation and maintenance expenditures, depreciation requirements, income and other taxes; and, operating income or return on investment. Cost of service studies for investor-owned utilities reporting to a regulatory authority are often prepared in conjunction with the processing of a rate relief application and the concurrent development of a pro forma revenue requirement. This particular study is based on a revenue requirement of $356,954 as developed by the Company within the context of the current rate proceeding.

This revenue requirement provides for the following expense categories:

Operating and Maintenance	$261,191
Depreciation	30,588
Taxes Other Than Income Tax	22,792
Public Company Allocation	6,990
Income Taxes	12,091
Net Operating Income	23,302
Total Revenue Requirement	$356,954

As subsequently discussed herein, this study results in the allocation of the $356,954 annual revenue requirement to the functional cost components. This functional cost allocation then becomes an input in the development of a schedule of rates and charges for irrigation service.

PLANT INVESTMENT/RATE BASE

The Company maintains its plant investment in fixed capital accounts by plant function. Under this system, the original cost and the related depreciation reserve for utility plant in service as of December 31, 2018 has been projected as follows:

Functional Plant Account	Original Cost	Depreciation Reserve
Wells	$744,697	$436,921
Pumping Equipment	90,701	90,701
Transmission & Distribution	149,892	82,962
Reservoirs	109,812	109,812
Asset Retirement Obligation	48,924	13,682
Hawaii Water GO Allocation	2,893	1,969
Big Island Allocation	19,426	5,779
Totals	$1,166,345	$741,824

The combination of the original cost and the depreciation reserve results in the net utility plant in service. This is an important input in the development of the net investment rate base which also includes contributions in aid of construction, deferred taxes from depreciation, excess reserve, and excess deferred tax liability.

The pro forma rate base used in this study may be summarized as follows:

Original Cost Utility Plant in Service	$1,166,345
Depreciation Reserve	(741,824)
Contributions in Aid of Construction	0
Deferred Taxes from Depreciation	(134,961)
General Excise Tax Credit	(631)
Working Capital	22,349
Net Salvage Adjustment	(10,612)
Total Pro Forma Rate Base	$300,666

The rate base is allocated to the functional cost categories in accordance with the methodology previously described. The results of the rate base allocation are then subsequently

used to allocate investment related revenue requirement items such as income taxes and utility operating income.

FUNCTIONAL COST OF SERVICE ALLOCATION

The allocation of the Company's cost of service to the previously defined functional cost components is set forth on Schedule 1. Descriptions of the individual schedules are given herein.

Schedule No. 1, pages 1 to 4 presents the details, in tabular form, of the allocation of the original cost of plant in service and rate base to the previously defined cost functions. Columns (1) and (2) on Schedule No. 1 sets forth an account number and a description of the item being allocated. The allocations to the several cost functions are shown in Columns (4) through (7), while the right-most column, i.e. Column (8), indicates the functional allocation code for the specific allocation factor used to assign each cost element to the cost functions. The allocations set forth on Schedule No. 1 utilize the utility plant in service and depreciation reserve data that were previously summarized in an earlier section of this report. The allocations to the cost functions were made in accordance with the concepts which were previously described.

Schedule 1, pages 5 to 7 is constructed in a format which is similar to that of the previous pages. It sets forth the details of the allocation of the operation and maintenance expense, the annual depreciation expense, the amortization expense, taxes other than income taxes, income taxes, and utility operating income as adjusted and projected by the Company for the twelve months ending December 31, 2018. The data utilized on Schedule No. 1, pages 5 to 7 were previously summarized in the Revenue Requirement discussion in this report.

The allocation codes mentioned above are simply reference characters which designate groups of percentages that are used to allocate the total amount of any given cost element to the several cost functions. Page 8 through 10 of Schedule No. 1 describe the codes and illustrate their development.

COST OF SERVICE ALLOCATION RESULTS

The functional cost of service allocation results may be summarized as follows:

Cost Function	Amount
Flow Costs	$289,436
Demand Costs	66,586
Total Customer Costs – Commercial	932
Total Customer Costs - Service	0
Total Revenue Requirement	$356,954

The allocated costs by function are further allocated to each customer class in proportion to the total flow for the system.

CUSTOMER COST OF SERVICE ALLOCATION

The allocation to customer class or group employs the results from the functional allocation of the annual revenue requirement ($356,954) by flow, demand and commercial, and assigns those costs to the two customers based upon cost causative factors. Schedule No. 2 pages 1 to 6 contains the results of those allocations. The allocation to the two customers employ four (4) allocation factors that are set forth and described on Schedule No. 2, pages 2 to 6.

Page 2 of Schedule No. 2 summarizes the allocation process to customers as follows:

	WDC Effluent	WDC Nursery
Flow	$199,549	$89,887
Demand	45,912	20,674
Commerical	466	466
	$245,927	$111,027

Pages 3 and 6 of Schedule 2 shows the development and analysis of the customers' volumes used to allocate all costs except customer expenses.

REVENUES FROM PRESENT RATES

A comparison was made of revenues by customers at present rates and as developed from the cost of service allocations. This comparison is set forth on Schedule No. 3. That comparison shows that present and proposed revenue allocations are almost exactly the same and there is no need to consider a re-structure of rate design.

CONCLUSION

The studies discussed in this report have allocated the revenue requirement of the Company to a series of functional cost classifications that were allocated to the two customers. The results of the studies discussed herein can provide reasonable guidelines to be utilized in restructuring the Company's rates and charges for service. It must be noted that seldom, if ever, are rates exactly in line with the cost of service indications at any given time. This cost of service study shows that they are almost exactly in line with present revenues at present rates and there is no compelling reason to re-structure rate design based on the results of these studies. Generally, minor differences will exist just as a matter of normal circumstances. Cost of service allocations are the products of analyses based in part on judgment and experience and their results provide a substantial aid in the design of rates.

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West Hawaii Utility Company - Irrigation

Functionalization Allocation Not Relevant: All Costs Functionalized By Allocator E Except Customer Account Expense

Summary of Functional Cost Allocation Factors

Allocation Code	Description	Flow Cost	Demand Cost	Customer Related Commercial Cost	Customer Related Services Cost	Check Total
A	Flow Costs	100.00	0.00	0.00	0.00	100.00 %
B	Demand Costs	0.00	100.00	0.00	0.00	100.00 %
C	Customer Costs - Commercial	0.00	0.00	100.00	0.00	100.00 %
D	Customer Costs - Services	0.00	0.00	0.00	100.00	100.00 %
E	Average Day Flow to Maximum Day Flow	81.30	18.70	0.00	0.00	100.00 %
F	G&A Salaries & Wages, Employee Benefits & Worker's Comp.	81.12	18.65	0.23	0.00	100.00 %
G	Administrative and General	81.30	18.70	0.00	0.00	100.00 %
H	Office Rent and Furniture and Equipment	80.87	18.59	0.54	0.00	100.00 %
I	Other Rate Base Costs	81.30	18.69	0.00	0.00	99.99 %
J	Other Insurance and G&A Miscellaneous Expense	81.31	18.69	0.00	0.00	100.00 %
K	Income Taxes	81.30	18.69	0.00	0.00	99.99 %
L	Revenue Related Taxes, Expenses & Net Income	81.05	18.64	0.31	0.00	100.00 %

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West Hawaii Utility Company - Irrigation

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Utility Plant in Service:							
Exhibit WHUC - Irrigation 7.2							
4	Intangible	0	0	0	0	0	E
5	Land and land rights	0	0	0	0	0	E
6	Wells	744,697	605,439	139,258	0	0	E
7	Pumping Equipment	90,701	73,740	16,961	0	0	E
8	Treatment Equipment	0	0	0	0	0	E
9	Transmission & Distribution Plant	149,892	121,862	28,030	0	0	E
10	Reservoirs	109,812	89,277	20,535	0	0	E
11	Tools and Laboratory Equipment	0	0	0	0	0	E
12	Asset Retirement Obligation	48,924	39,775	9,149	0	0	E
13	Hawaii Water GO Allocation	2,893	2,352	541	0	0	E
14	Big Island Allocation	19,426	15,793	3,633	0	0	E
	Total Utility Plant In Service	1,166,345	948,238	218,107	0	0	

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West Hawaii Utility Company - Irrigation

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Accumulated Depreciation Reserve:							
Exhibit WHUC - Irrigation 7.4							
4	Intangible	0	0	0	0	0	E
5	Land and land rights	0	0	0	0	0	E
6	Wells	436,921	355,216	81,704	0	0	E
7	Pumping Equipment	90,701	73,740	16,961	0	0	E
8	Treatment Equipment	0	0	0	0	0	E
9	Transmission & Distribution Plant	82,962	67,448	15,514	0	0	E
10	Reservoirs	109,812	89,277	20,535	0	0	E
11	Tools and Laboratory Equipment	0	0	0	0	0	E
12	Asset Retirement Obligation	13,682	11,123	2,559	0	0	E
13	Hawaii Water GO Allocation	1,969	1,600	368	0	0	E
14	Big Island Allocation	5,779	4,698	1,081	0	0	E
	Total Accumulated Depreciation Reserve	741,824	603,102	138,722	0	0	
	Net Plant in Service	424,521	345,136	79,385	0	0	

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West Hawaii Utility Company - Irrigation

Test Year Ending December 31, 2018
Allocation of Pro Forma Rate Base

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Other Rate Base Items:							
Exhibit WHUC - Irrigation 7.8							
Exhibit WHUC - Irrigation 7.9							
	Net Contributions in Aid of Construction						
5	Intangible	0	0	0	0	0	E
6	Land and land rights	0	0	0	0	0	E
7	Structures and Improvements	0	0	0	0	0	E
8	*Pumping Equipment*	0	0	0	0	0	E
9	Treatment Equipment	0	0	0	0	0	E
10	Transmission & Distribution Plant	0	0	0	0	0	E
11	Source of Supply	0	0	0	0	0	E
12	Power Generation Equipment	0	0	0	0	0	E
13	Transportation	0	0	0	0	0	E
14	Tools and Laboratory Equipment	0	0	0	0	0	E
15	Global Settlement	0	0	0	0	0	E
16	Hawaii Water GO Allocation	0	0	0	0	0	E
17	Big Island Allocation	0	0	0	0	0	E
18	Wastewater Administration	0	0	0	0	0	E
	Total Net Contributions in Aid of Construction	0	0	0	0	0	
8	Customer Advances	0	0	0	0	0	E
9	Customer Deposits	0	0	0	0	0	E
Exhibit WHUC - Irrigation 7.10	Accumulated Deferred Taxes: Federal	(115,954)	(94,271)	(21,683)	0	0	E
			0	0	0	0	E
Exhibit WHUC - Irrigation 7.12	Accumulated Deferred Taxes: State	(19,007)	(15,453)	(3,554)	0	0	E
			0	0	0	0	E
Exhibit WHUC - Irrigation 7.14	Unamortized Hawaii Capital Goods Excise Tax Credit	(631)	(513)	(118)	0	0	E
			0	0	0	0	E
Exhibit WHUC - Irrigation 7.6	Net Salvage Adjustment	(10,612)	(8,628)	(1,984)	0	0	E
			0	0	0	0	E
Exhibit WHUC - Irrigation 7.15	Working Capital	22,349	18,170	4,179	0	0	E
	Total Other Rate Base Items	(123,855)	(100,695)	(23,160)	0	0	
	Total Pro Forma Rate Base	300,666	244,441	56,225	0	0	

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West Hawaii Utility Company - Irrigation

Test Year Ending December 31, 2018
Allocation of Pro Forma Operating & Maintenance Expenses

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
	Pumping Expenses						
O&M Workpaper	Salaries & Wages	5,275	4,289 0	986 0	0 0	0	E
O&M Workpaper	Purchased Power	0	0 0	0 0	0 0	0	E
O&M Workpaper	Miscellaneous Expense	7,781	6,328 0	1,455 0	0 0	0	E
	Total Pumping Expenses	13,056	10,615	2,441	0	0	
	Treatment & Disposal Expenses						
O&M Workpaper	Salaries & Wages - Operating (Collection 25%)	1,303	1,059	244	0	0	E
O&M Workpaper	Salaries & Wages - Operating (Treatment 75%)	4,286	3,485	801	0	0	E
O&M Workpaper	Salaries & Wages - Maint. (Collection 25%)	1,294	1,052	242	0	0	E
O&M Workpaper	Salaries & Wages - Maint. (Treatment 75%)	4,257	3,461	796	0	0	E
O&M Workpaper	Purchased Power	135,387	110,070	25,317	0	0	E
O&M Workpaper	Chemicals	0	0	0	0	0	E
O&M Workpaper	Materials & Supplies (Collection 25%)	0	0	0	0	0	E
O&M Workpaper	Materials & Supplies (Treatment 75%)	0	0	0	0	0	E
O&M Workpaper	Contractual Services - Testing	0	0	0	0	0	E
O&M Workpaper	Misc. Expense - Operating (Collection 25%)	1,618	1,315	303	0	0	E
O&M Workpaper	Misc. Expense - Operating (Treatment 75%)	4,859	3,950	909	0	0	E
O&M Workpaper	Misc. Expense - Maint. (Collection 25%)	414	337	77	0	0	E
O&M Workpaper	Misc. Expense - Maint. (Treatment 75%)	1,242	1,010	232	0	0	E
	Total Treatment & Disposal Expenses	154,660	125,739	28,921	0	0	
	Customer Accounts Expenses						
O&M Workpaper	Salaries & Wages	38	0	0	38	0	C
O&M Workpaper	Bad Debt Expense	0	0	0	0	0	C
O&M Workpaper	Miscellaneous Expenses	894	0	0	894	0	C
	Total Customer Accounts Expenses	932	0	0	932	0	
	General & Administrative Expenses						
O&M Workpaper	Salaries & Wages	7,002	5,693 0	1,309 0	0	0	E
O&M Workpaper	Employee Pensions & Benefits	13,733	11,165 0	2,568 0	0	0	E
O&M Workpaper	Materials & Supplies	242	197 0	45 0	0	0	E
O&M Workpaper	Contractual Services - Legal	0	0 0	0 0	0	0	E
O&M Workpaper	Contractual Services - Other	195	159 0	36 0	0	0	E
O&M Workpaper	Building / Property Rental	588	478 0	110 0	0	0	E
O&M Workpaper	Insurance - General Liability	690	561 0	129 0	0	0	E
O&M Workpaper	Insurance - Worker's Compensation	612	498 0	114 0	0	0	E
O&M Workpaper	Insurance - Other	0	0 0	0 0	0	0	E
O&M Workpaper	Regulatory Commission Expense	63,500	51,626 0	11,875 0	0	0	E
O&M Workpaper	Miscellaneous Expense	6,039	4,910 0	1,129 0	0	0	E
	Total General & Administrative Expenses	92,601	75,287	17,315	0	0	
	Total Operation & Maintenance Expense	261,249	211,641	48,677	932	0	

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West Hawaii Utility Company - Irrigation

Test Year Ending December 31, 2018
Allocation of Depreciation Expense

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
Exhibit WHUC - Irrigation 7.6							
103,061	Land	0	0	0	0	0	E
103,150	Wells- Supply Plant	25,543	20,766	4,777	0	0	E
103,240	Pumping Equipment	0	0	0	0	0	E
103,801	Land & Land Rights	0	0	0	0	0	E
103,434	Transmission and Distribution Mains	2,095	1,703	392	0	0	E
103,460	Meters and Meter Boxes	320	260	60	0	0	E
103,120	Collection & Impound Reservoirs	0	0	0	0	0	E
103,700	Receiving Wells	0	0	0	0	0	E
103,810	Plant Sewers	0	0	0	0	0	E
103,965	Asset Retirement Obligation	1,310	1,065	245	0	0	E
103,780	Tools, Shop, & Garage Equipment	0	0	0	0	0	E
103,980	*General Plant*	0	0	0	0	0	E
16	Hawaii Water GO Allocation	63	51	12	0	0	E
17	Big Island Allocation	1,257	1,022	235	0	0	E
	Total Depreciation Expense	30,588	24,867	5,721	0	0	

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West Hawaii Utility Company - Irrigation

Pro Forma Test Year Ending December 31, 2018
Allocation of Total Revenue Requirement

Account Number (1)	Account Title (2)	Total Cost (3)	Flow Cost (4)	Demand Cost (5)	Customer Related Commercial Cost (6)	Customer Related Services Cost (7)	Allocation Code (8)
	Total Revenue Requirement						
	Operation and Maintenance Expense	261,249	211,641	48,677	932	0	
	Depreciation Expense	30,588	24,867	5,721	0	0	
Exhibit WHUC - Irrigation 8.11 2	PubCo Allocation	6,990	5,683	1,307	0	0	F
Exhibit WHUC - Irrigation 8.20	Taxes Other Than Income Taxes						
5	Public Company Service Tax	21,007	17,079	3,928	0	0	E
7	Public Utility Fee	1,785	1,451	334	0	0	E
	Total Taxes Other Than Income Taxes	22,792	18,530	4,262	0	0	
	Total Operating Expenses Before Income Taxes	321,619	260,721	59,967	932	0	
Exhibit WHUC - Irrigation 8.21	Income Taxes						
11,12,13	State	4,591	3,732 0	859 0	0 0	0	E
17 - 21	*Federal*	7,500	6,098 0	1,403 0	0 0	0	E
22	Total Income Taxes	12,091	9,830	2,262	0	0	
Exhibit WHUC - Irrigation 6 27	Operating Income	23,302	18,945 0	4,357 0	0 0	0	E
	Total Revenue Requirement	356,954	289,496	66,586	932	0	
	Total Revenue Requirement %	100.00 %	81.10 %	18.65 %	0.26 %	0.00 %	

West Hawaii Utility Company - Irrigation

Development of Functional Cost Allocation Factors

Factor A - Allocation of Costs Which Vary with Total Flow

Costs which vary with the volume of sewage collected and treated are allocated 100% to the flow cost function.

Factor B - Allocation of Costs Related to Demand

Costs which are related to the users' capacity requirements for maximum flow conditions are allocated 100% to the demand cost function.

Factor C - Allocation of Costs Related to Customer - Commercial

Costs that are allocated 100% to the customer - commercial cost function.

Factor D - Allocation of Costs Related to Customer - Service

Costs that are allocated 100% to the customer - service cost function.

Factor E - Allocation of Costs Related to Average Day Flow to Maximum Day Flow

Cost that are allocated to the flow cost function and to the demand cost function on the basis of the average day flow to maximum day flow as follows:

Cost Function	Ratio	Allocation %
(1)	(2)	(3)
Base	1.00	81.30
Extra Capacity	0.23	18.70
Maximum Day	1.23	100.00

Factor F - Allocation of General & Administrative Salaries and Wages, Employee Benefits, and Worker's Compensation Insurance

General & administrative salaries and wages, employee benefits, and worker's compensation insurance are allocated to the cost function in accordance with the composite allocation of all other salaries & wages as follows:

Cost Function	Allocated Collecting System Maintenance Expenses	Allocation %
(1)	(2)	(3)
Base	$ 13,346	81.12
Extra Capacity	3,069	18.65
Customer - Commercial	38	0.23
Customer - Services	0	0.00
	$ 16,453	100.00

West Hawaii Utility Company - Irrigation

Development of Functional Cost Allocation Factors

Factor G - Allocation of Administrative and General Expenses

Certain administrative and general expenses are allocated to the cost functions in accordance with the composite allocation of operation and maintenance expenses with the exception of power and fuel as follows:

Cost Function	Allocated Operation and Maintenance Expenses	Allocation %
(1)	(2)	(3)
Base	$ 26,284	81.30
Extra Capacity	6,045	18.70
Customer - Commercial	0	0.00
Customer - Services	0	0.00
	$ 32,329	100.00

Factor H - Allocation of Office Rent and Office Furniture and Equipment

Office rent and the capital costs related to office furniture and equipment are allocated to the cost functions in accordance with the composite allocation of customer and general and administrative salaries and labor costs as follows:.

Cost Function	Allocated Customer/ and G&A Labor	Allocation %
(1)	(2)	(3)
Base	$ 5,693	80.87
Extra Capacity	1,309	18.59
Customer - Commercial	38	0.54
Customer - Services	0	0.00
	$ 7,040	100.00

Factor I - Allocation of Other Rate Base Costs

Other rate base costs are allocated to the cost functions in accordance with the composite allocation of the total rate base costs as follows:

Cost Function	Allocated Rate Base	Allocation %
(1)	(2)	(3)
Base	$ 594,474	81.30
Extra Capacity	136,738	18.69
Customer - Commercial	0	0.00
Customer - Services	0	0.00
	$ 731,212	99.99

West Hawaii Utility Company - Irrigation

Development of Functional Cost Allocation Factors

Factor J - Allocation of Other Insurance and G&A Miscellaneous Costs

Other insurance and G&A miscellaneous costs are allocated to the cost functions in accordance with the composite allocation of all other G&A costs as follows:

Cost Function	Depreciated Original Cost	Allocation %
(1)	(2)	(3)
Base	$ 18,751	81.31
Extra Capacity	4,311	18.69
Customer - Commercial	0	0.00
Customer - Services	0	0.00
	$ 23,062	100.00

Factor K - Allocation of Operating Income and Income Taxes

Operating income and income taxes are allocated to the cost functions in accordance with the composite allocation of all rate base items as follows:

Cost Function	Rate Base	Allocation %
(1)	(2)	(3)
Base	$ 244,441	81.30
Extra Capacity	56,225	18.69
Customer - Commercial	0	0.00
Customer - Services	0	0.00
	$ 300,666	99.99

Factor L - Allocation of Revenue Related Taxes, Expenses & Net Income

Regulatory commission expenses, amortization expense, other income taxes, and net income are allocated to the cost functions in accordance with the composite allocation of all other cost of service elements as follows:

Cost Function	Cost of Service	Allocation %
(1)	(2)	(3)
Base	$ 246,338	81.05
Extra Capacity	56,660	18.64
Customer - Commercial	932	0.31
Customer - Services	0	0.00
	$ 303,930	100.00

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West Hawaii Utility Company - Irrigation

Elements for Development Factor F

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
O&M Workpaper	Salaries & Wages	5,275	4,289	986	0	0
O&M Workpaper	Salaries & Wages - Operating (Collection 25%)	1,303	1,059	244	0	0
O&M Workpaper	Salaries & Wages - Operating (Treatment 75%)	4,286	3,485	801	0	0
O&M Workpaper	Salaries & Wages - Maint. (Collection 25%)	1,294	1,052	242	0	0
O&M Workpaper	Salaries & Wages - Maint. (Treatment 75%)	4,257	3,461	796	0	0
O&M Workpaper	Salaries & Wages	38	0	0	38	0
	Total Above Expenses	16,453	13,346	3,069	38	0
		100.00 %	81.12 %	18.65 %	0.23 %	0.00 %

Elements for Development Factor G

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Pumping Expenses					
O&M Workpaper	Salaries & Wages	5,275	4,289	986	0	0
O&M Workpaper	Miscellaneous Expense	7,781	6,326	1,455	0	0
	Treatment & Disposal Expenses					
O&M Workpaper	Salaries & Wages - Operating (Collection 25%)	1,303	1,059	244	0	0
O&M Workpaper	Salaries & Wages - Operating (Treatment 75%)	4,286	3,485	801	0	0
O&M Workpaper	Salaries & Wages - Maint. (Collection 25%)	1,294	1,052	242	0	0
O&M Workpaper	Salaries & Wages - Maint. (Treatment 75%)	4,257	3,461	796	0	0
O&M Workpaper	Chemicals	0	0	0	0	0
O&M Workpaper	Materials & Supplies (Collection 25%)	0	0	0	0	0
O&M Workpaper	Materials & Supplies (Treatment 75%)	0	0	0	0	0
O&M Workpaper	Contractual Services - Testing	0	0	0	0	0
O&M Workpaper	Misc. Expense - Operating (Collection 25%)	1,618	1,315	303	0	0
O&M Workpaper	Misc. Expense - Operating (Treatment 75%)	4,859	3,950	909	0	0
O&M Workpaper	Misc. Expense - Maint. (Collection 25%)	414	337	77	0	0
O&M Workpaper	Misc. Expense - Maint. (Treatment 75%)	1,242	1,010	232	0	0
	Total Above Expenses	32,329	26,284	6,045	0	0
		100.00 %	81.30 %	18.70 %	0.00 %	0.00 %

Elements for Development Factor H

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Customer Accounts Expenses					
O&M Workpaper	Salaries & Wages	38	0	0	38	0
	General & Administrative Expenses					
O&M Workpaper	Salaries & Wages	7,002	5,693	1,309	0	0
	Total Above Expenses	7,040	5,693	1,309	38	0
		100.00 %	80.87 %	18.59 %	0.54 %	0.00 %

Schedule 1

West Hawaii Utility Company - Irrigation

Elements for Development Factor I

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Tools and Laboratory Equipment	0	0	0	0	0
	Total Accumulated Depreciation Reserve	741,824	603,102	138,722	0	0
	Total Net Contributions in Aid of Construction	0	0	0	0	0
	Net Salvage Adjustment	(10,612)	(8,628)	(1,984)	0	0
	Total Above Expenses	731,212	594,474	136,738	0	0
		99.99 %	81.30 %	18.69 %	0.00 %	0.00 %

Elements for Development Factor J

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
O&M Workpaper	Salaries & Wages	7,002	5,693	1,309	0	0
O&M Workpaper	Employee Pensions & Benefits	13,733	11,165	2,568	0	0
O&M Workpaper	Materials & Supplies	242	197	45	0	0
O&M Workpaper	Contractual Services - Legal	0	0	0	0	0
O&M Workpaper	Contractual Services - Other	195	159	36	0	0
O&M Workpaper	Building / Property Rental	588	478	110	0	0
O&M Workpaper	Insurance - General Liability	690	561	129	0	0
O&M Workpaper	Insurance - Worker's Compensation	612	498	114	0	0
	Total Above Items	23,062	18,751	4,311	0	0
		100.00 %	81.31 %	18.69 %	0.00 %	0.00 %

Elements for Development Factor K

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Total Rate Base	300,666	244,441	56,225	0	0
		100.00 %	81.30 %	18.69 %	0.00 %	0.00 %

Elements for Development Factor L

Account Number (1)	Account Title (2)	Total Costs (3)	Flow Costs (4)	Demand Costs (5)	Customer Related Commercial Costs (6)	Customer Related Services Costs (7)
	Total Operation & Maintenance Expense	261,249	211,641	48,677	932	0
	Depreciation Expense	30,588	24,867	5,721	0	0
	Income Taxes					
	State	4,591	3,732	859	0	0
	Federal	7,500	6,098	1,403	0	0
	Total Above Items	303,928	246,338	56,660	932	0
		100.00 %	81.05 %	18.64 %	0.31 %	0.00 %

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West Hawaii Utility Company - Irrigation

Depreciation Expense
Test Year Ending December 31, 2018

		Account Title (2)	2017 Depr Exp (3)	Inc. Tax Credit (4)	Net Depr Exp (5)
Exhibit WHUC - Irrigation 7.5					
Exhibit WHUC - Irrigation 7.6					
Non Dep Plant					
103061	x	Land	0	0	0
		Total Non Depreciable Plant	0	0	0
Wells					
103150	x	Wells- Supply Plant	27,414	0	27,414
		Total Wells	27,414	0	27,414
Pumping Equip					
103240	x	Pumping Equipment	0	0	0
		Total Pumping Equipment	0	0	0
Treatment Equipment					
103801	x	Land & Land Rights	0	0	0
		Total Treatment	0	0	0
T&D Plant					
103434	x	Transmission and Distribution Mains	2,114	0	2,114
103460	x	Meters and Meter Boxes	298	0	298
		Total Transmission & Distribution Plant	2,412	0	2,412
Reservoirs					
103120	x	Collection & Impound Reservoirs	0	0	0
		Total Reservoirs	0	0	0
Source of Supply					
103700	x	Receiving Wells	0	0	0
103810	x	Plant Sewers	0	0	0
		Total Source of Supply	0	0	0
ARO					
103985	x	Asset Retirement Obligation	1,310	0	1,310
		Total Asset Retirement Obligation	1,310	0	1,310
Tools and Lab Equip.					
103780		Tools, Shop, & Garage Equipment	0	0	0
		Total Tools and Laboratory Equipment	0	0	0
General Plant					
103980	x	General Plant	0	0	0
		Total General Plant	0	0	0
Exhibit WHUC - Irrigation 7.4					
Other					
16		Hawaii Water GO Allocation	63	0	63
17		Big Island Allocation	1,257	0	1,257
			1,320	0	1,320
		Total	32,456	0	32,456

Schedule 2
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West Hawaii Utility Company - Irrigation

Allocation Codes For Customer Groups

Alloc. Code	Description	WDC Effluent	WDC Nursery	Check Total
60	Flow Cost	68.94 %	31.06 %	100.00 %
61	Demand Cost	68.95 %	31.05 %	100.00 %
62	Customer Costs - Commercial	50.00 %	50.00 %	100.00 %
63	Customer Costs - Services	50.00 %	50.00 %	100.00 %

West Hawaii Utility Company - Irrigation

Allocation To Customer Groups

	Total Cost $	WDC Effluent $	WDC Nursery $	AC
Operation & Maintenance Expense:				
Flow Cost	211,641	145,905	65,736	60
Demand Cost	48,677	33,563	15,114	61
Customer Cost - Commercial	932	466	466	62
Customer Cost - Services	0	0	0	63
Total Operation & Maintenance Expense	261,250	179,934	81,316	
	100.00%	68.87%	31.13%	
Depreciation Expense:				
Flow Cost	24,867	17,143	7,724	60
Demand Cost	5,721	3,945	1,776	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Depreciation Expense	30,588	21,088	9,500	
	100.00%	68.94%	31.06%	
Amortization Expense:				
Flow Cost	5,683	3,918	1,765	60
Demand Cost	1,307	901	406	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Amortization Expense	6,990	4,819	2,171	
	100.00%	68.94%	31.06%	
Taxes Other Than Income Taxes:				
Flow Cost	18,530	12,775	5,755	60
Demand Cost	4,262	2,939	1,323	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Taxes Other Than Income Taxes	22,792	15,714	7,078	
	100.00%	68.95%	31.05%	
Miscellaneous Non-Utility Expenses:				
Flow Cost	0	0	0	60
Demand Cost	0	0	0	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Miscellaneous Non-Utility Expenses	0	0	0	

West Hawaii Utility Company - Irrigation

Allocation To Customer Groups

	Total Cost $	WDC Effluent $	WDC Nursery $	AC
Income Taxes:				
Flow Cost	9,830	6,777	3,053	60
Demand Cost	2,262	1,560	702	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Income Taxes	12,092	8,337	3,755	
	100.00%	68.95%	31.05%	
Net Income:				
Flow Cost	18,945	13,061	5,884	60
Demand Cost	4,357	3,004	1,353	61
Customer Cost - Commercial	0	0	0	62
Customer Cost - Services	0	0	0	63
Total Net Income	23,302	16,065	7,237	
	100.00%	68.94%	31.06%	
Total Cost of Service	**356,954**	**245,957**	**111,057**	
	100.01%	**68.90%**	**31.11%**	
Total Flow Cost	**289,496**	**199,579**	**89,917**	
	100.00%	**68.94%**	**31.06%**	
Total Demand Cost	**66,586**	**45,912**	**20,674**	
	100.00%	**68.95%**	**31.05%**	
Total Customer Cost - Commercial	**932**	**466**	**466**	
	100.00%	**50.00%**	**50.00%**	
Total Customer Cost - Services	**0**	**0**	**0**	

West Hawaii Utility Company - Irrigation

Development of Customer Group Factors

Factor 60 - Allocation of Base Costs

Costs are allocated to Base Cost to the Customer Groups in accordance with the percentage of wastewater flows by each individual customer group.

Factor 61 - Allocation of Maximum Day Costs

Costs are allocated to Maximum Day Cost to the Customer Groups in accordance with the ratio of the excess maximum day demand of each individual customer group to the total non-coincident excess daily demand for all customer groups.

Factor 62 - Allocation of Costs Related to Customer - Commercial

Costs are allocated to Customer Cost - Commercial to the Customer Groups in accordance with the percentage of bills issued to each individual customer group.

Factor 63 - Allocation of Costs Related to Customer - Services

Costs are allocated to Customer Cost - Services to the Customer Groups in accordance with the percentage of equivalent services of each individual customer group.

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West Hawaii Utility Company - Irrigation

Development of Allocation Factors to Customer Groups

Customer Group	Annual Flows 1000 Gal.	Annual Flows 1000 Gal. Per Day	Annual Flows %	% of Average	Maximum Day Amount	Maximum Day Excess	Maximum Day %
WDC Share 14 Effluent	771,655	2,114.123	68.94	100	2,114.334	0.211	68.95
WDC Pump Share Nursery	347,708	952.625	31.06	100	952.720	0.095	31.05
Grand Total	1,119,363	3,066.748	100.00		3,067.054	0.306	100.00
Allocation Code			60				61

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West Hawaii Utility Company - Irrigation

Development of the Equivalent Meters and Services Factors
and the Factor Based on the Number of Bills

Customer Group	Number of Bills	%	Equiv. Services	%		Equiv. Meters	%
WDC Nursery	1	50	1	50	50	1	50
WDC Effluent	1	50	1	50	50	1	50
Grand Total	2	100	2	100		2	100
Allocation Code		62		63			63

West Hawaii Utility Company - Irrigation

Development of Equivalent Services

Customer Group	Customer Name	Meter Size	Number of Meters	Service Size	Eq. Svc. Ratio	Equiv. Services	Percent	Eq. Meter Ratio	Equiv. Meters	Percent
Irrigation	WDC Effluent	1	1	1	1.0	1		1.0	1	
			1			1	50.00 %		1	50.00 %
Irrigation	WDC Nursery	1	1	1	1.0	1		1.0	1	
			1			1	50.00 %		1	50.00 %
Grand Total			2			2	100.00 %		2	100.00 %

Schedule 3
Page 1 of 1

West Hawaii Utility Company - Irrigation

Revenue Comparison Between Customer Groups
Revenues at Present Rates vs. Indicated Cost of Service

	---- Present Rates ----		---------- Indicated Cost of Service ----------				---- Proposed Rates ----	
Customer Group	Total	Percent	Total		Adj. Total	Percent	Total	Percent
WDC Effluent	$212,302	68.94%	$245,897	$0	$245,897	68.89%	$246,084	68.94%
WDC Nursery	95,664	31.06%	111,057	0	111,057	31.11%	110,870	31.06%
Totals	$307,966	100.00%	$356,954	$0	$356,954	100.00%	$356,954	100.00%

Exhibit WHUC-T-200
Direct Testimony of Anthony Carrasco

West Hawaii Utility Company General Rate Case
Docket No. 2017-0350
December 2017

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WEST HAWAII UTILITY COMPANY GENERAL RATE CASE
DIRECT TESTIMONY OF ANTHONY CARRASCO

Introduction

Q. Please state your name, position, and business address.

A. My name is Anthony Carrasco. My business mailing address is PO Box 384809 Waikoloa, Hawaii, 96738. I am the General Manager of Hawaii Water Service Company, Inc. ("Hawaii Water").

Q. Please summarize your educational background and professional experience.

A. I have attended numerous courses in water treatment, water distribution and utility management at the University of California, Sacramento. My Operators Certifications include: Hawaii Department of Health Water Distribution Operator IV and Treatment Operator IV certifications. I also have California State Water Resource Control Board Distribution Operator V and Treatment Operator IV certifications.

I am a veteran who served in the United States Navy Seabees from January 1983 to 1986, receiving an Honorable Discharge with an R-1 reenlistment rating. From 1986 to 1989, I worked as a Construction Foreman for an underground utility construction company. I worked for California Water Service Company ("Cal Water") as an Operator from 1989 to 2000, a Superintendent from 2000 to 2004, a District Manager from 2004 to 2016, and Director of Field Operations in 2016.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to explain the details of the 2018 test year expense estimates and inflation methodology for West Hawaii Utility Company ("WHUC").

Q. Please describe the general methodology in determining test year expense estimates.

A. An average of the most recent three-year actual recorded expenses (2015-2017) was used as the basis for most administrative, operational, and maintenance expenses in the test year. Since recorded expense data for 2017 was only available through June at the time the application

was prepared, all 2017 expenses have been annualized. The annualized 2017 expenses will be updated with actuals when recorded 2017 expenses become available.

A 3 year average from 2015 to 2017 is a reasonable starting point to forecast test year expenses and reflects normal operations of the district. Payroll, employee benefits, rents, insurance, and regulatory expenses have been estimated using different methodologies, as described in more detail in my testimony.

In addition, certain expenses include both direct charges and allocated expenses. Hawaii Water has nine business units, some of which are directly owned by Hawaii Water and some of which are owned by subsidiaries of Hawaii Water. Each business unit is treated separately for rate making purposes. For the most part, each business unit functions independently from one another. However, there are several functions which are shared among the local business units to maximize economies of scale. These functions include project engineering work, operations and business management, and customer service management. Prior to 2013, expenses for Hawaii Water were allocated to each business unit using the 4-factor allocation method and recorded as an expense in each business unit under the corresponding expense category. Beginning in 2013, certain expenses that were allocated to specific administrative, operational, and maintenance accounts from Hawaii Water General Office ("Hawaii Water GO"), Big Island operations, and Wastewater Administration were allocated as a single line item. For trending and analysis purposes, expenses that were allocated to WHUC from Hawaii Water GO, Big Island, and Wastewater Administration from 2015 to 2017 are shown as separate line items and then added to expenses directly charged to WHUC. An average of the sum of direct and allocated charges was used to determine test year expenses.

Recorded expenses were adjusted with a Consumer Price Index ("CPI") factor to account for changes in prices of goods and services from the averaging period up to the test year. This was done using a two-step process. First, the annual recorded expenses were adjusted to 2018 dollars using Honolulu CPI and then a 3 year average of the adjusted figures was calculated. Published U.S. Department of Labor Bureau of Labor and Statistics data was used to adjust recorded expenses.[1] Since federal CPI data is not available for neighbor islands, the best

[1] http://data.bls.gov/pdq/SurveyOutputServlet?series_id=CUURA426SA0,CUUSA426SA0

available data which was for Honolulu was used.[2] This is an appropriate index for Hawaii Island and Maui operations. Details of inflation factors are shown on Exhibits WHUC Water 8.4, WHUC Sewer 8.3, and WHUC Irrigation 8.3.[3]

The methodology of adjusting certain recorded expenses by CPI is reasonable for rate making because it better represents forecasted costs during the test year. If a CPI factor was not used to adjust recorded expenses, obsolete costs would be used to determine test year expenses and there would not be a reasonable opportunity to recover forecasted expenses during the test year. This is amplified since a phase-in period of the test year revenue requirement is proposed for WHUC Sewer.

Estimated operating and maintenance expenses for the test year are described and discussed below.

Labor

Hawaii Water's labor costs are shared among the various companies and systems operated by Hawaii Water in Hawaii, and each system's share of the labor cost is based on a 4-factor allocation methodology. The 4-factor allocation methodology is discussed in more detail in the Direct Testimony of Robert Stout (Exhibit WHUC-T-100). Labor expense is based on the cost of total labor, including wages, benefits and payroll taxes. The complete breakdown of Hawaii Water's payroll expense as allocated by the proposed 4-factor percentages is shown on Confidential Exhibit WHUC-T-201. As this exhibit contains employee names and payroll, this exhibit is submitted subject to protective order. Payroll for 2018 was calculated by escalating the estimated 2017 payroll by 2.7%, which is the expected increase in payroll. In order to reflect actual operating costs, the estimated 2017 payroll figures will be updated with actual 2017 payroll figures once they become available.

WHUC plans to add 4 new employees in the test year consisting of two full time positions and two part time positions. The full time positions are a Cross Connection Control Specialist and Electrical Mechanical Technician. The Cross Connection Control Specialist will support Big Island operations (720). The Electrical Mechanical Technician will support both Big

[2] http://dbedt.hawaii.gov/economic/library/faq/faq03/
[3] The exhibits contain identical information.

Island and Maui operations (790). The part time positions are Utility Worker and Customer Service Representative. The Utility Worker will support Big Island operations and the Customer Service Representative will support Big Island and Maui operations. WHUC is also planning to create two foreman positions that support only the Waikoloa Utilities.[4] Only internal candidates are being considered for the positions; the number of employees will not be increased as a result of the new positions. Allocated costs related to the additional positions are included in Applicants' labor expense. Details of the six positions are shown in confidential Exhibit WHUC-T-201.

Consistent with Hawaii Water's and its subsidiaries recent rate cases, WHUC accepts the Consumer Advocate's position that pension costs should be included in test year expenses, but 401k employer matching expenses should be excluded.[5] Although WHUC believes that 401k employer matching expenses are appropriate to be recovered in rates as a part of total compensation costs for its employees, consistent with Hawaii Water's acceptance of the Consumer Advocate's position in the recent rate cases for Hawaii Water and its subsidiaries, WHUC is including pension costs and excluding 401k expenses. The total labor estimate for WHUC is summarized in the table below:

Division	Payroll	Benefits	Taxes	Total	Exhibit Reference
WHUC Water	$ 448,004	$ 260,324	$ 34,360	$ 742,688	Exhibit WHUC Water 8.6
WHUC Sewer	$ 563,489	$ 358,570	$ 48,985	$ 971,044	Exhibit WHUC Sewer 8.5
WHUC Irrigation	$ 21,610	$ 14,345	$ 1,897	$ 37,852	Exhibit WHUC Irrigation 8.5

Table 201. Labor Expense.

Details of labor expense for each division can be found in the corresponding Exhibits listed in the table above.

Benefits expense is based on a study conducted by the Milliman Group regarding estimates for Pension and Retiree Healthcare, and is exclusive of 401k. Active employee healthcare is based on actual healthcare premiums for Hawaii Water's employees. The portion

[4] The Waikoloa Utilities are WHUC, West Hawaii Water Company ("WHWC") and West Hawaii Sewer Company ("WHSC").

[5] In re Hawaii Water Service Company, Inc., Docket No. 2009-0310. Hawaii Water's subsidiaries have also accepted this position in their recent rate cases. See, e.g., In re Kona Water Service Company, Inc., Docket No. 2013-0375.

allocated to WHUC is estimated using a 4-factor allocation method. The test year calculation is based on the 2017 figures for pension and benefits because 2018 figures were not available at the time it prepared its application. The calculation will be updated with 2018 figures once they are available.

Fuel & Power

Purchased power expense varies with the amount of water pumped from wells or the amount of wastewater pumped from lift stations and treated at the wastewater treatment plant ("WWTP"). This expense was estimated by calculating a unit cost [$ / kWh] of power for the test year and multiplying it by the expected kWh usage in the test year. A unit cost for purchased power was calculated by taking the ratio of recorded power cost and recorded power use for each year. The unit cost for the test year was estimated by taking a three year average from 2015 to 2017 of the calculated unit cost. Projected power use for the test year was estimated by taking a three year average from 2015 to 2017 of recorded power use. Fuel for power production expense was estimated by taking a three year average of recorded fuel for production. This expense reflects the cost of fuel used for the emergency generators. The generators need to be run periodically to ensure they run properly in case of emergency. The following table summarizes the projected unit cost of power, power consumption, power expense, and fuel for power production expense for the test year for WHUC:

Division	Unit Cost [$ / kWh]	Power Consumption [kWh]	Power Expense [$]	Fuel for Power Production	Total Fuel & Power Expense	Exhibit Reference
WHUC Water	$ 0.2641	10,712,765	$ 1,777,349	$ -	$ 1,777,349	Exhibit WHUC Water 8.7
WHUC Sewer	$ 0.2884	1,272,853	$ 367,121	$ 345	$ 367,465	Exhibit WHUC Sewer 8.6
WHUC Irrigation	$ 0.2847	475,599	$ 135,387	$ -	$ 135,387	Exhibit WHUC Irrigation 8.6

Table 202. Fuel and Power Expense.

Details of fuel and power expense for each division can be found in the corresponding Exhibits listed in the table above.

Chemicals

Chemicals are purchased for water operations to treat and disinfect water in the water distribution system. Chemicals are purchased for wastewater operations to treat wastewater pumped to the WWTP. Chemical purchased include hypochlorite, sodium carbonate, and flocculants for both water and wastewater operations, and other materials relating to the WWTP.

The test year chemical expense was estimated by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. The following table summarizes chemical expense for WHUC:

Division	Chemical Expense	Exhibit Reference
WHUC Water	$ 14,421	Exhibit WHUC Water 8.9
WHUC Sewer	$ 34,421	Exhibit WHUC Sewer 8.8
WHUC Irrigation	$ -	Exhibit WHUC Irrigation 8.8

Table 203. Chemical Expense.

Details of chemicals expense for each division can be found in the corresponding Exhibits listed in the table above.

Materials & Supplies

Materials and supplies expense is grouped using the following categories: treatment & disposal, water treatment & water quality, transmission & distribution, collection, and pumping. The test year materials & supplies expense for WHUC is calculated by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. The following table summarizes materials & supplies expense for WHUC:

Division	Materials & Supplies Expense	Exhibit Reference
WHUC Water	$ 391	Exhibit WHUC Water 8.10
WHUC Sewer	$ 65,711	Exhibit WHUC Sewer 8.9
WHUC Irrigation	$ -	Exhibit WHUC Irrigation 8.9

Table 204. Materials & Supplies Expense.

Details of materials & supplies expense for each division can be found in the corresponding Exhibits listed in the table above.

Waste Disposal

Waste disposal expense consists of fees for the removal and disposal of dewatered sludge from the WWTP. The test year waste disposal expense was estimated by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. No waste disposal expense is anticipated for WHUC Water or WHUC Irrigation. The following table summarizes waste disposal expense for WHUC:

Division	Waste Disposal Expense	Exhibit Reference
WHUC Water	$ -	Exhibit WHUC Water 8.11
WHUC Sewer	$ 59,220	Exhibit WHUC Sewer 8.10
WHUC Irrigation	$ -	Exhibit WHUC Irrigation 8.10

Table 205. Waste Disposal Expense.

Details of waste disposal expense for each division can be found in the corresponding Exhibits listed in the table above.

Affiliated Charges

California Water Service Group ("CWSG") includes several subsidiaries which include Hawaii Water, Cal Water, Washington Water Service Company ("WWSC"), and New Mexico Water Service Company ("NMWSC"). CWSG's expenses are allocated to its subsidiaries based on relative proportions of work being performed. A large portion of the work resides in Customer Support Services ("CSS") of Cal Water. Within CSS, there are a number of departments that provide support services for its subsidiaries. These include corporate governance (CEO, CFO, Corporate Secretary, etc.), audit, accounting and finance, information technology, human resources, and communications. These functions are provided centrally at CSS because it is more cost effective to do so than to hire the specific expertise needed for each

particular subsidiary. This centralized service model has been shown in to be lower in cost to customers than staffing up locally for all necessary back office expertise such as noted above.

CSS departments incur capital project and operating costs each month. These costs are allocated to the appropriate business units each month to determine the business units' operating results, plant in service, regulatory assets, regulatory liabilities, and other balance sheet accounts. CSS department costs are allocated to business units using one of two methods: 1) direct charge method or 2) pooled cost method.

The direct charge method is used whenever CSS employees are assigned to specific business unit capital or operating projects. Using the direct charge method, CSS department employees' direct labor, benefits, business travel, and/or any other costs incurred are charged directly to business unit capital and expense projects each month. However, when it is not possible to use the direct charge method, the pooled cost method is used. The direct charge method cannot be used for services provided by CSS department employees that benefit two or more business units. These indirect CSS department costs are allocated to business units using the 4-factor allocation method.

Prior to 2013, the 4-factor cost (non-direct charged) affiliated expenses were allocated to the respective business units on a department by department basis. Thus, there were allocations from each of the shared functions departments previously mentioned. Beginning in 2013 a department called Public Company ("Pubco") was created to accumulate the respective expenses of the different CSS departments which are then allocated as a line item to the respective business units. Thus, the Pubco department provides the line item detail visibility while Hawaii Water receives one monthly expense entry. This is allocated to the individual business units using the 4-factor allocation method.

The CSS departments' whose expenses are allocated through PubCo to the Group's subsidiaries provide a direct benefit to the subsidiaries by reducing overall operating costs. The centralized functions that are shared among the subsidiaries are shown on the table below:

Group Functions/Departments	Group's Corporate and/or Shared Service Function Responsibility
General Office	Corporate costs including BOD fees, property & liability insurance, audit fees, RSA, SEC, common stock fees, etc.
Treasurer, CFO	Establishes, maintains and enforces Corporate Financial Governance including strategy, policy, standards, practices and programs as well as Investor Relations, Internal and Management Reporting, Financial Planning and Forecasting, Corporate Policy for Treasury, Cash Management, Risk Management, Corp Borrowings, Stock, Pensions, Process Improvement, etc. All corporations must have a Treasurer.
Internal Audit	Establishes, maintains and enforces Corporate Audit Governance including audit policy and procedures, SOX Compliance and reporting, coordination of all external and 3rd party audit services for entire enterprise. Provides a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.
Legal	Establishes, maintains and enforces various legal activities including budget, strategy, and case management for the entire enterprise.
Controller & Financial Reporting and Accounting shared services	Establishes, maintains and enforces External Financial Reporting Governance including Corporate Policy and Controls, Enterprise Accounting Operations, Corporate Consolidations, SEC Reporting, External Audit coordination, Payroll, etc.
CEO, President, COO	Sets and oversees the execution the Corporate vision and strategy, Corporate governance and plans, Investor Relations. Manages Corporate Directors, Subsidiary General Managers, etc. All corporations must have a President.
Corporate Secretary	Leads the Company's compliance efforts with respect to legislative and regulatory developments affecting corporate governance. Responsible for anticipating and addressing corporate governance/reputation risks, develops independent standards for the Board of Directors and their committees, develops Company's governance principles and policies. All corporations must have a Corporate Secretary.
Continuous Improvement	Supports the Continuous Improvement process for the entire enterprise.
IT Security and Compliance	Responsible for all IT cyber security, SOX compliance, Data Room configurations, and ensuring company is compliance with various standards such as NIST, PCI, etc.
IT Infrastructure	Responsible for all IT network architecture to ensure goal of 99.999% uptime of hardware, servers, phone lines, etc.
Finance	Supports the enforcement of Corporate Financial Governance, includes risk management, treasury, planning and analysis activities.
Management Development	Establishes, maintains and enforces Management Development governance including strategy, policy, standards, practices and programs for entire enterprise. Ensures the enterprise has active program that identifies or attracts, develops and retains resources for future key position within the enterprise.
IT Technical Support	Responsible for IT User trouble shooting, help desk, phones, websites, etc.
Human Resource Administration	Establishes, maintains and enforces Human Resource governance including policy, standards, practices and programs for entire enterprise.
IT Governance /Administration	Establishes, maintains and enforces IT Governance policy, standards, practices and programs for the entire enterprise.
Corp Communications	Establishes, maintains and enforces all Corporate Communication governance including policy, standards and procedures leading to the design, development and approval of content whether verbal, written or display material for entire enterprise.

In Hawaii Water's most recent case for its Ka'anapali and Pukalani districts, Hawaii Water and the Consumer Advocate agreed to remove incentive compensation as well as certain other expenses from account 791000 from the overall allocation of affiliated charges to the

district.[6] While WHUC believes that incentive compensation is a part of a regular compensation package that retains talented individuals in a competitive market, this adjustment was applied to affiliated charges that are allocated to WHUC, consistent with the stipulation that the Commission adopted from the Ka'anapali and Pukalani cases.

The test year affiliated charges expense is based on a three year average from 2015 – 2017 of the adjusted allocation. The following table summarizes affiliated charges expense for WHUC:

Division	Affiliated Charges Expense	Exhibit Reference
WHUC Water	$ 127,259	Exhibit WHUC Water 8.12
WHUC Sewer	$ 174,277	Exhibit WHUC Sewer 8.11
WHUC Irrigation	$ 6,990	Exhibit WHUC Irrigation 8.11

Table 206. Affiliated Charges Expense.

Details of affiliated charges expense for each division can be found in the corresponding Exhibits listed in the table above.

Outside Services

Outside services expense is organized using the following categories: legal expense, other outside services, and training consultants. Outside services is comprised of technical fees, legal fees, and other consulting services. Outside services expense was estimated for the test year by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. The following table summarizes outside services expense for WHUC:

Division	Outside Services Expense	Exhibit Reference
WHUC Water	$ 4,994	Exhibit WHUC Water 8.13
WHUC Sewer	$ 11,583	Exhibit WHUC Sewer 8.12
WHUC Irrigation	$ 195	Exhibit WHUC Irrigation 8.12

[6] Decision and Order No. 33908 filed on September 12, 2016 in Docket No. 2015-0230 at 32; Stipulation of the Parties for Full Settlement filed on July 22, 2016 in Docket No. 2015-0230 at 26 – 27. Proposed Decision and Order No. 34822 filed on September 15, 2017 in Docket No. 2015-0236 at 31-32.

Table 207. Outside Services Expense.

Details of outside services expense for each division can be found in the corresponding Exhibits listed in the table above.

Repairs & Maintenance

Repairs & maintenance expense is organized using the following categories: source of supply, pumping, water treatment, transmission & distribution, other production & distribution, and administrative & general. In Hawaii Water's accounting system, certain expenses are grouped with repairs and maintenance: chemicals, materials & supplies, waste disposal. These amounts are deducted from the total repairs & maintenance expense so that these expenses are not double counted. Repairs & maintenance expense is estimated for the test year by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. The following table summarizes outside services expense for WHUC:

Division	Repairs & Maintenance Expense	Exhibit Reference
WHUC Water	$ 99,545	Exhibit WHUC Water 8.14
WHUC Sewer	$ 213,567	Exhibit WHUC Sewer 8.13
WHUC Irrigation	$ 16,364	Exhibit WHUC Irrigation 8.13

Table 208. Repairs & Maintenance Expense.

Details of repairs & maintenance expense for each division can be found in the corresponding Exhibits listed in the table above.

Rents

Rents expense consists of expenses related to existing leases. The actual amounts payable under existing property leases for the administrative offices in the Waikoloa Highlands Shopping Center in Waikoloa and the Waikoloa Base yard were allocated to WHUC. The following table summarizes rents expense for WHUC:

Division	Rents Expense	Exhibit Reference
WHUC Water	$ 10,449	Exhibit WHUC Water 8.15
WHUC Sewer	$ 14,310	Exhibit WHUC Sewer 8.14
WHUC Irrigation	$ 588	Exhibit WHUC Irrigation 8.14

Table 209. Rents Expense.

Details of rental expense for each division can be found in the corresponding Exhibits listed in the table above.

Insurance

Insurance expense is estimated using costs allocated from Cal Water to Hawaii Water GO Department 790. These costs are then allocated to the Hawaii business units using the 4-factor methodology. The test year insurance expense is based on a quote from Marsh Insurance for 2016/17. The 2017/18 quote was not available when the application was prepared. The test year insurance estimate will be revised once the 2017/18 figure is available. The following table summarizes insurance expense for WHUC:

Division	Insurance Expense	Exhibit Reference
WHUC Water	$ 12,263	Exhibit WHUC Water 8.16
WHUC Sewer	$ 16,794	Exhibit WHUC Sewer 8.15
WHUC Irrigation	$ 690	Exhibit WHUC Irrigation 8.15

Table 210. Insurance Expense.

Details of insurance expense for each division can be found in the corresponding Exhibits listed in the table above.

Regulatory

Regulatory expense includes expected work and activities related to completing this rate case. These functions include preparation & filing expense, discovery & settlement expense, and hearings & briefing expense. Regulatory expense also includes the cost of the cost of service

studies and depreciation studies. The total rate case expense is estimated to be $207,500 for each division with the exception of WHUC Irrigation.[7] In order to plan and make the best use of their resources, WHUC proposes a 3 year amortization period for regulatory expenses and intends to file a general rate case every 3 years. The following table summarizes rents expense for WHUC:

Division	Regulatory Expense	Exhibit Reference
WHUC Water	$ 69,167	Exhibit WHUC Water 8.17
WHUC Sewer	$ 69,167	Exhibit WHUC Sewer 8.16
WHUC Irrigation	$ 63,500	Exhibit WHUC Irrigation 8.16

Table 211. Regulatory Expense.

Details of regulatory expense for each division can be found in the corresponding Exhibits listed in the table above.

General & Administrative

General & administrative expense is organized using the following categories: office expense and miscellaneous general & administrative expense. Office supplies expense consists of expenses related to postage, telephone expenses, stationary & printing, bank fees, travel & incidental expense, meals during travel, training & seminars, conferences, and internal projects. Test year general & administrative expense was estimated by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses. The following table summarizes general & administrative expense for WHUC:

Division	General & Administrative Expense	Exhibit Reference
WHUC Water	$ 50,067	Exhibit WHUC Water 8.19
WHUC Sewer	$ 53,985	Exhibit WHUC Sewer 8.18
WHUC Irrigation	$ 5,761	Exhibit WHUC Irrigation 8.18

Table 212. General & Administrative Expense.

[7] The total rate case expense for WHUC Irrigation is estimated to be $190,500 due to a lower estimated costs of the cost of service and depreciation studies.

Details of general & administrative expense for each division can be found in the corresponding Exhibits listed in the table above.

Customer Accounts

Customer accounts expenses includes customer records, other stationary & print, telephone expenses, other utilities & janitor expense, and uncollectible accounts expense. The test year customer accounts expense was estimated by taking a three year average from 2015 – 2017 of CPI adjusted recorded expenses.

WHUC is also proposing to include a conservation budget in customer accounts expense in this case. Conservation expenses are designed to address efforts identified by the Hawaii Water Service Conservation Master Plan completed in March 2017. The focus will be on the items included for implementation over the next two to four years, as well as potential program pilots. Specific costs may include items such as: cost-effectiveness analysis, customer consumption analysis, public information development, and water loss program development. Conservation expenses are designed to be inclusive of all expenses associated with the conservation program. The following table summarizes customer accounts expense for WHUC:

Division	Customer Accounts Expense	Exhibit Reference
WHUC Water	$ 40,126	Exhibit WHUC Water 8.20
WHUC Sewer	$ 21,064	Exhibit WHUC Sewer 8.19
WHUC Irrigation	$ 856	Exhibit WHUC Irrigation 8.19

Table 213. Customer Accounts Expense.

Details of customer accounts expense for each division can be found in the corresponding Exhibits listed in the table above.

Q. Does this conclude your testimony?

A. Yes, it does.

CONFIDENTIAL INFORMATION
Deleted Pursuant to Protective Order No. 35113

CONFIDENTIAL EXHIBIT WHUC-T-201
DOCKET NO. 2017-0350
5 PAGES

Exhibit WHUC-T-300
Direct Testimony of Stephen Green

West Hawaii Utility Company General Rate Case
Docket No. 2017-0350
December 2017

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WEST HAWAII UTILITY COMPANY GENERAL RATE CASE
DIRECT TESTIMONY OF STEPHEN GREEN

Introduction

Q. Please state your name, position, and business address.

A. My name is Stephen Green. My business mailing address is PO Box 384809 Waikoloa, Hawaii, 96738. I am the Engineering Manager of Hawaii Water Service Company, Inc. ("Hawaii Water"). My responsibilities include overseeing capital projects of West Hawaii Utility Company ("WHUC").

Q. Please summarize your educational background, professional certifications, and professional experience.

A. I am a licensed professional engineer (Hawaii PE license #6009) with Hawaii Water, and have over 30 years' experience in design review, start-up, and operation of public drinking water systems and wastewater collection and treatment systems. I have a Bachelor of Science degree in Mechanical Engineering from the University of Hawaii. I have been employed for 25 years at WHUC as Chief Engineer, and presently for 9 years at Hawaii Water as Engineering Manager. WHUC was purchased by Hawaii Water in 2008. I've served 8 years on the Board of Certification of Public Water System Operators for the Safe Drinking Water Branch, Department of Health of Hawaii. I've been President of the Hawaii Society of Professional Engineers, Kona-Kohala Chapter and Student Chapter President of the American Society of Mechanical Engineers. I hold Drinking Water Distribution System Operator Grade 4 Certification (D4-79) and Wastewater Treatment Plant Operator Grade 4 Certification (#515).

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony in this proceeding is to support capital investment projects that WHUC has completed since its last rate case and plans to complete in 2018. Additionally, I will discuss the Waikoloa water loss control program. Finally, I will discuss and describe the capacity of WHUC's Waikoloa Beach Resort Water Reclamation Plant (the "R-Plant). I will address whether there is any capacity in the R-Plant that is not required to treat existing and

committed users. In summary and as further detailed below, my professional opinion is that all of the present capacity of the R-Plant is required to treat existing and committed customers.

Capital Improvements

Q. Please describe the capital improvements that have been completed since the last general rate case in the Waikoloa Resort divisions.

A. Exhibit WHUC-T-301 lists and describes the capital improvements for the Waikoloa Resort area with a cost of $25,000 or more since 2013, all of which have been placed in service or will be placed in service during the 2018 test year.

Waikoloa Water Loss Control Plan

Q. Please discuss WHWC's water loss control program.

A. WHUC and West Hawaii Water Company ("WHWC") jointly own, operate and maintain a potable water system that serves both of their service areas. In WHWC's last rate case, and Consumer Advocate and the Commission noted that WHWC appeared to experience high levels of water loss, and the Commission concurred with the Consumer Advocate's recommendation that WHWC continue to investigate the cause of the Village water loss and take appropriate, corrective action. The Commission also ordered WHWC to file with the commission a report that identified: (A) actual causes of water loss for the Village water system; and (B) corrective action taken by WHWC.[1] In accordance with the Commission's order, WHWC filed its Water Loss Report on September 15, 2015 in Docket No. 2012-0148, which included the 2015 Waikoloa Water Loss Control Plan (collectively, the "2015 Water Loss Report"). Since that time, WHWC conducted a water audit consistent with AWWA Standard M-36 in 2014, with technical assistance from the Hawaii Commission on Water Resources Management, updated the 2015 Water Loss Report, and completed AWWA M-36 water audits in 2015 and 2016. Although these reports and audits focus primarily on WHWC, both WHWC and WHUC intend to implement the recommendations in the reports. The water loss control plan and reports, as well as the initial water loss capital projects that WHUC intends to implement in 2018, are

[1] Decision and Order No. 32685 filed on February 19, 2015 in Docket No. 2012-0148 at 83.

described in more detail in the project justifications attached as Exhibit WHUC-T-301 at pages 28 and 31.

Waikoloa Beach Resort Water Reclamation Plant Capacity

Q. Please describe the capacity of the R-Plant.

A. The R-Plant is a membrane bioreactor wastewater treatment plant which presently has a capacity of 1,000,000 GPD and can be expanded to 2,000,000 GPD. It was designed to be constructed in two phases. Phase 1, which has a capacity of 1,000,000 GPD, was completed in 2013. Phase 2 will include additions to increase treatment capacity to 2,000,000 GPD, and has been deferred until it is needed. The R-Plant is owned by WHUC and receives wastewater from the Waikoloa Beach Resort which includes two large hotels, single family and multi-family residential units, two commercial centers and a golf course club house.

Q. Please describe what capacity is required for existing and committed users of the WWTP.

A. In general, the sizing of a WWTP is governed by the Hawaii Administrative Rules ("HAR") section 11-62. For treatment plants with an average design flow at or greater than 100,000 gallons per day ("GPD"), the sizing requirements are specified by the county. Hawaii County follows the design standards of the City and County of Honolulu ("C&C"). The C&C has published design standards which provide guidelines for sizing the flow to a wastewater treatment plant based on historic flows and per capita projections (Division of Wastewater Management Design Standards (the "Design Standards"), Vol. 2, Sec. 43.2; Vol. 1, Sec. 22; Vol. 1, Sec. 11.1.5). Furthermore, HAR section 11-62-23.1(h)(i) states:

> For public wastewater treatment works a facility plan shall be initiated when the actual wastewater flow reaches 75% of the design capacity of the wastewater treatment works. Implementation of the facility plan shall be initiated when the actual wastewater flow reaches 90% of the design capacity of the wastewater treatment works.

Therefore, the sizing of a WWTP is based upon the existing flow, calculated base flow load, and calculated projections of increased wastewater flow due to population growth and expansion. Due to the lead time in constructing or modifying a WWTP, the design must be

based upon future flow projections; otherwise, the plant will be undersized by the time the design, permit, construct and commission cycle is completed. There are two methods used to identify appropriate capacity of WWTPs: A) calculated flows; and B) historical flows. These methods are discussed in the following two sections.

A. R-Plant Capacity Based On Calculated Flow for Existing Customers

Chapter 20 of the Design Standards defines per capita flow factors to be taken into consideration for wastewater treatment facility design.[2] Poe Tyler of WSI International completed design flow calculations for the R-Plant in WHUC's most recent general rate case[3] in accordance with the requirements set forth in Chapter 20 of the Design Standards. Those calculations are attached hereto as Exhibit WHUC-T-303. Exhibit WHUC-T-303 shows that the design flows for WHUC's current and committed customers served by the R-Plant are 1,418,300 GPD and 241,400 GPD, respectively. The total flow from current and committed customers is 1,659,700 GPD. Thus, according to Design Standards, if the R-Plant were sized to treat only the existing and committed customers, it would be sized to treat 1,659,700 GPD. This is in comparison to the actual hydraulic capacity of 1,000,000 GPD.

B. Existing Plant Capacity Required Based on Historical Flows from Existing Customers

Another method of determining the appropriate capacity for the existing customers served by the R-Plant is through evaluation of the historical daily flows of existing users. Chapter 40, Section 43 of the Design Standards[4] includes the following language:

> Design flows for wastewater treatment facilities shall be modified as appropriate and as approved by the Division based on field monitoring data for existing service areas, anticipated changes in wastewater generation patterns, and the performance related impacts of significant flow variations. Flow variations stemming from diurnal variation, seasonal variation, and variations due to nondomestic consumption and influent pump cycling shall be carefully evaluated and documented.

[2] An excerpt of Chapter 20 the Design Standards is attached as Exhibit WHUC-T-302.
[3] See Stipulation of the Parties for Full Settlement filed on March 18, 2014 in Docket No. 2011-0331 (the "WHUC Stipulation"), Exhibit B, Schedule 5A, Attachment 2.
[4] An excerpt of Chapter 40, Section 43 of the Design Standards is attached as Exhibit WHUC-T-302.

This means that the design capacity of a treatment plant must incorporate field monitoring data for existing service areas. Additionally Chapter 40, Section 43 of the Design Standards expands on the definitions regarding the flows included in Chapter 20 for the purpose of "evaluating field monitoring data." According to the Design Standards the expanded definitions are as follows:

- **Design Average Flow** is "the average wastewater flow rate during a 24-hour period or shorter significant period during a prolonged period of dry weather." The Design Average Flow for the existing A-Plant is 1,000,000 GPD. In layman's terms, this is the maximum continuous treatment capacity of the wastewater plant during a 24 hour period as currently constructed.

- **Design Maximum Flow** is the "highest average wastewater flow rate during a 1-hour period during a prolonged period of dry weather." In layman's terms, this is the maximum hourly peak of dry weather wastewater flow.

- **Design Peak Flow** is the "highest instantaneous wastewater flow rate during a prolonged period of wet weather." In layman's terms, this is the maximum instantaneous flow rate into the plant consisting of both wastewater and infiltrated storm water.

The design flow that is most significant in determining capacity of a wastewater plant is the Design Average Flow. As noted in the definition quoted above, this represents the flow in a time period of 24-hours or less, meaning daily, rather than weekly, monthly, or annually. In my professional opinion, even if there were no room for growth, the plant would have to be sized so that it would treat the highest recorded daily flow over the last few years. Exhibit WHUC-T-304 shows the R-Plant influent flows over the two year period from October 2015 through October 2017. As shown on the exhibit, the highest recorded daily flow during that period was 942,147 GPD. The average flow into the plant during the same period was 734,386 GPD. However, this average cannot be used to determine the capacity required for existing customers. During that period, flows to the plant exceeded the average on 384 of the 732 days or 53% of the time. If the

R-Plant was sized only to treat the average flows, it would not have sufficient capacity on one-half of the days during this two year period. The chart below graphically represents influent flows during this time frame.

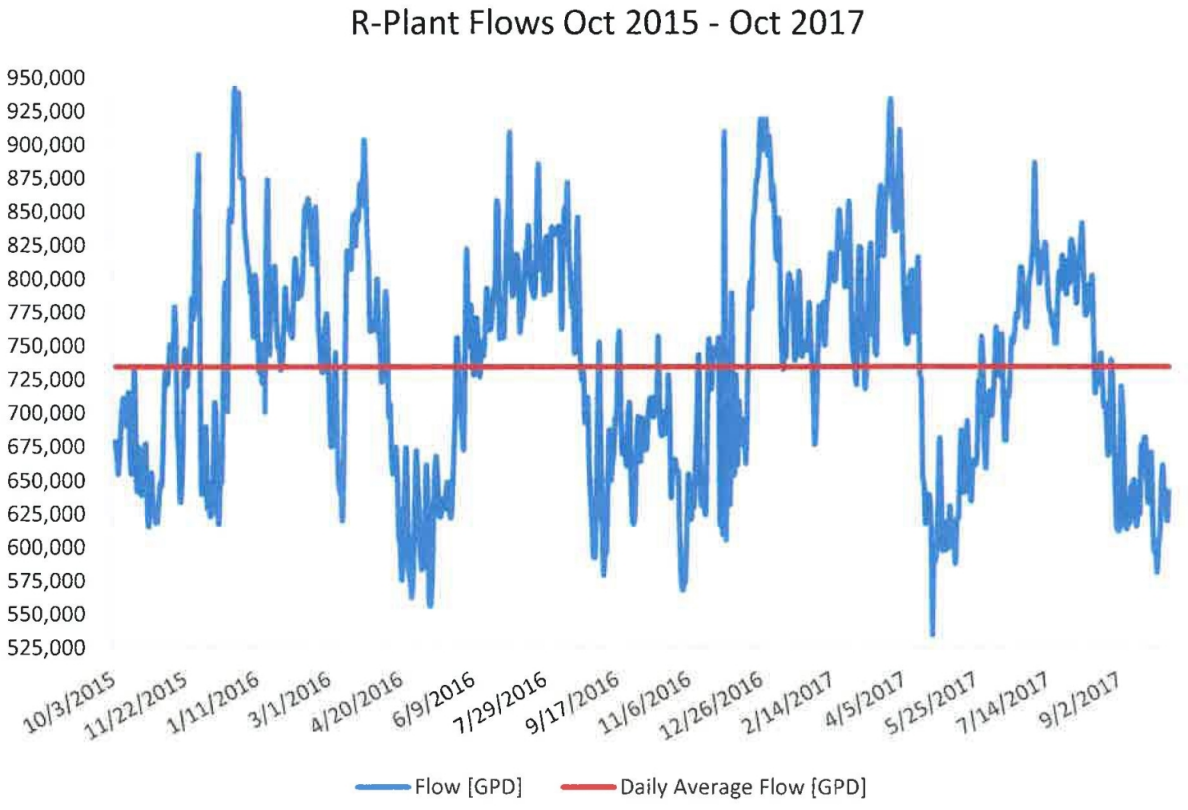

Figure 1. R-Plant Daily flow from October 2015 through October 2017.

In addition, WHUC has received CIAC from developers who will be served by the R-Plant, but who have not yet begun to receive service. Because this CIAC will be included in the calculation of rate base, the committed capacity associated with that CIAC should normally be considered in determining the presently required capacity.[5] The committed capacity for the R-Plant is approximately 241,400 GPD, as shown on Exhibit WHUC-T-303.

Since the maximum flow exceeded the design flow on the highest flow day, WHUC has not included the committed capacity in its calculation of required capacity. For the same reason,

[5] This is consistent with the agreement between the parties in WHUC's last rate case. See WHUC Stipulation at 52-53.

it has not added a 10% factor for unexpected flow increases.[6] The following table summarizes the calculations discussed above:

Max Flow [GPD][7]	942,147
Total	942,147
Plant Capacity [GPD]	1,000,000
Actual to Design Flow	94.2%

This data demonstrates that the R-Plant is operating at a capacity that has exceeded the 90% threshold for implementation of a facility expansion in accordance with the Design Standards. If the committed capacity for the R-Plant were included in the calculation above, the flows into the plant would be over the current design flow of the plant. Therefore, in my opinion, based on historic flows, all of the present capacity of the R-Plant is required to treat existing customers.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes, it does.

[6] In WHUC's most recent rate case, the Consumer Advocate included a 10% safety factor to account for unexpected flow increases in its calculation of "excess" capacity of the R Plant. See Division of Consumer Advocacy's Direct Testimony and Exhibits filed on August 30, 2013 in Docket No. 2011-0311, CA-T-3 at 45

[7] As used in the calculation of "excluded" capacity, "Max Flow" means the highest daily flow.

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Big Island Project Justifications

For projects completed from 2013 through 2017 and projects planned to be in service in 2018

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00068103 and 00083857

Project Description: Big Island SCADA upgrade 2012 and 2013

SCADA System - Upgrade Waikoloa & Kukio (Kona); New Big Island Central Office & Engineering.

The Supervisory Control and Data Acquisition ("SCADA") system for Waikoloa and Kukio needed to be upgraded and replaced to match the systems in California Water Service ("Cal Water") to allow ease of maintenance and improved operations. This project entailed the addition of central office and Engineering office SCADA to monitor all of Hawaii Water Service Company, Inc.'s ("Hawaii Water") Big Island operations.

The scope of the project was to install SCADA equipment to communicate with the water system and wastewater system from a central location. The water SCADA system includes well and tank site data transmission to the field office. The wastewater system includes wastewater treatment plant and wastewater lift station data transmission to the field office. The existing telemetric equipment was outdated and in need of replacement, having been in service more than 20 years. In addition, the upgraded SCADA equipment provides more accurate information and has the ability to report emergency levels and variances to the operator. It gives the operator the ability to check the system remotely by laptop. All tanks, pump stations, wastewater treatment plants, and wastewater lift stations are connected to the system.

A fully functional SCADA system provides: remote monitoring, operational control, historic data collection, and data reporting. The SCADA data provides the opportunity to implement a water management and wastewater management system. On the potable water side, the benefits include decreasing the number of service interruptions and a strategy to measure and reduce

water loss. On the wastewater side, the benefits include decreasing the likelihood of a sewer overflow. The SCADA system helps reduce the number of after hour call outs, which can reduce labor cost. Additionally, the SCADA system provides advanced warning of potential problems so that corrective action can be implemented to increase operational reliability.

The existing SCADA system in Waikoloa was originally installed in 1991 and was expanded a few years later. The Waikoloa SCADA system was a stand-alone system accessed through a single Human-Machine-Interface ("HMI") computer in the Engineer's office in Waikoloa with Remote Telemetry Units ("RTU") linked by radio to the Waikoloa Engineering office. Kona Water had a similar antiquated SCADA system that was based at the Kukio Wastewater Treatment Plant using a different radio frequency than Waikoloa. Alarms and limited remote access were only available through a telephone dialer. The system was inadequate and antiquated and did not match Hawaii Water's parent company's SCADA technology. The new SCADA system was integrated into a single SCADA system and allows remote access by Virtual Local Area Network ("VLAN") through the company secure intra-net allowing operators, managers, and SCADA technicians' access to both Waikoloa and Kona Water's SCADA system through their computer. This was accomplished by installing a radio network with a radio repeater that reaches from Waikoloa to Kukio (about 18 miles). Programming of RTUs and HMIs and design of wiring schematics were accomplished with in-house personnel, the Electro-Mechanical Technician ("EMT"), and installation was completed by the EMT and outside electrical contractors based on their lower rates. Replacements and new installations of the equipment installed are shown in the table below.

The Big Island SCADA Upgrade in 2013 (Project 83857) was part of the scope of Project 68103. The second project included the addition of 12 RTUs at the four Waikoloa Sewer pump stations, Waikoloa Resort wastewater treatment plant, Waikoloa Village A-Plant, and Waikoloa Village K-Plant.

1

WAIKOLOA DISTRICT:		
RTU	SCADAPACK32	WELL DW1
RTU	SCADAPACK32	WELL DW2
RTU	SCADAPACK32	WELL DW3
RTU	SCADAPACK32	WELL DW4
RTU	SCADAPACK32	WELL DW5
RTU	SCADAPACK32	WELL DW6
RTU	SCADAPACK32	WELL DW7
RTU	SCADAPACK32	WELL DW8
RTU	SCADAPACK32	TANK 1200S
RTU	SCADAPACK32	TANK 1200N
RTU	SCADAPACK32	TANK 300
RTU	SCADAPACK32	SPS1
RTU	SCADAPACK32	SPS2
RTU	SCADAPACK32	SPS3
RTU	SCADAPACK32	SPS4 (Napaka)
RTU	SCADAPACK32	SPS5 (Beach)
HMI	MAPLE SYSTEMS HMI5100T	WELL DW1
HMI	MAPLE SYSTEMS HMI5100T	WELL DW2
HMI	MAPLE SYSTEMS HMI5100T	WELL DW3
HMI	MAPLE SYSTEMS HMI5100T	WELL DW4
HMI	MAPLE SYSTEMS HMI5100T	WELL DW5
HMI	MAPLE SYSTEMS HMI5100T	WELL DW6
HMI	MAPLE SYSTEMS HMI5100T	WELL DW7
HMI	MAPLE SYSTEMS HMI5100T	WELL DW8
HMI	MAPLE SYSTEMS HMI5100T	TANK 1200S
HMI	MAPLE SYSTEMS HMI5100T	TANK 1200N
HMI	MAPLE SYSTEMS HMI5100T	TANK 300

HMI	MAPLE SYSTEMS HMI5100T	SPS1
HMI	MAPLE SYSTEMS HMI5100T	SPS2
HMI	MAPLE SYSTEMS HMI5100T	SPS3
HMI	MAPLE SYSTEMS HMI5100T	SPS4 (Napaka)
HMI	MAPLE SYSTEMS HMI5100T	SPS5 (Beach)
SCADA RADIO	MDS INET900II	WELL DW1
SCADA RADIO	MDS INET900II	WELL DW2
SCADA RADIO	MDS INET900II	WELL DW3
SCADA RADIO	MDS INET900II	WELL DW4
SCADA RADIO	MDS INET900II	WELL DW5
SCADA RADIO	MDS INET900II	WELL DW6
SCADA RADIO	MDS INET900II	WELL DW7
SCADA RADIO	MDS INET900II	WELL DW8 (Master 1)
SCADA RADIO	MDS INET900II	TANK 1200S
SCADA RADIO	MDS INET900II	TANK 1200N
SCADA RADIO	MDS INET900II	TANK 300
SCADA RADIO	MDS INET900II	R-Plant (Master 2)
SCADA RADIO	MDS INET900II	SPS1
SCADA RADIO	MDS INET900II	SPS2
SCADA RADIO	MDS INET900II	SPS3
SCADA RADIO	MDS INET900II	SPS4 (Napaka)
SCADA RADIO	MDS INET900II	SPS5 (Beach)
SPT4	ASE SPT4	ENG OFFICE

KUKIO DISTRICT:

RTU	SCADAPACK	WELL HR1
RTU	SCADAPACK	WELL HR2
RTU	SCADAPACK	WELL HR3
RTU	SCADAPACK	WELL HR4
RTU	SCADAPACK	WELL HR5
RTU	SCADAPACK	TANK A
RTU	SCADAPACK	TANK B
RTU	SCADAPACK	TANK C
RTU	SCADAPACK	TANK 312

RTU	SCADAPACK	SPS1
RTU	SCADAPACK	SPS2
RTU	SCADAPACK	SPS3
RTU	SCADAPACK	SPS4
RTU	SCADAPACK	SPS5
RTU	SCADAPACK	SPS6
RTU	SCADAPACK	SPS7
HMI	MAPLE SYSTEMS HMI5100T	WELL HR1
HMI	MAPLE SYSTEMS HMI5100T	WELL HR2
HMI	MAPLE SYSTEMS HMI5100T	WELL HR3
HMI	MAPLE SYSTEMS HMI5100T	WELL HR4
HMI	MAPLE SYSTEMS HMI5100T	WELL HR5
HMI	MAPLE SYSTEMS HMI5100T	TANK A
HMI	MAPLE SYSTEMS HMI5100T	TANK B
HMI	MAPLE SYSTEMS HMI5100T	TANK C
HMI	MAPLE SYSTEMS HMI5100T	TANK 312
HMI	MAPLE SYSTEMS HMI5100T	SPS1
HMI	MAPLE SYSTEMS HMI5100T	SPS2
HMI	MAPLE SYSTEMS HMI5100T	SPS3
HMI	MAPLE SYSTEMS HMI5100T	SPS4
HMI	MAPLE SYSTEMS HMI5100T	SPS5
HMI	MAPLE SYSTEMS HMI5100T	SPS6
HMI	MAPLE SYSTEMS HMI5100T	SPS7
SCADA RADIO	MDS INET900II	WELL HR1
SCADA RADIO	MDS INET900II	WELL HR2
SCADA RADIO	MDS INET900II	WELL HR3

SCADA RADIO	MDS INET900II	WELL HR4
SCADA RADIO	MDS INET900II	WELL HR5
SCADA RADIO	MDS INET900II	TANK A
SCADA RADIO	MDS INET900II	TANK B
SCADA RADIO	MDS INET900II	TANK C (Master 3)
SCADA RADIO	MDS INET900II	TANK 312
SCADA RADIO	MDS INET900II	RO Plant (Master 4)
SCADA RADIO	MDS INET900II	SPS1
SCADA RADIO	MDS INET900II	SPS2
SCADA RADIO	MDS INET900II	SPS3
SCADA RADIO	MDS INET900II	SPS4
SCADA RADIO	MDS INET900II	SPS5
SCADA RADIO	MDS INET900II	SPS6
SCADA RADIO	MDS INET900II	SPS7

Cost Breakdown of Projects 68103 and 83857:

Big Island SCADA upgrade 2012 (Project 68103)	$308,926.21
Capitalized Interest	$17,889.50
Overhead	$71,138.52
Labor	$68,582.67
Other	$28,781.71
Total	$495,318.67

Big Island SCADA upgrade 2013 (Project 83857)	$58,277.64
Capitalized Interest	$1,720.69
Overhead	$6,015.70
Labor	$25,944.95
Other	$5,731.08
Total	$97,690.06

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00093652

Project Description: 4-door, 4x4 truck

Project 93652 replaces a 2008 Nissan Frontier 4x4 truck with a 2014 Nissan Frontier 4x4 truck. The 2008 Nissan Frontier has high mileage at 199,941 miles. It is still in the fleet as a floater vehicle, but used only when absolutely necessary.

The newer 2014 Nissan Frontier 4x4 truck is needed to service the Waikoloa water and wastewater systems. It is assigned to a Superintendent who is tasked with supervising both potable water and wastewater operations. For the water system, the truck is required for the Superintendent to supervise day to day operations of the wells, tanks, transmission and distribution system. It is also used for routine maintenance, customer meter reading, response to water main breaks, and service calls. For the wastewater system, the truck is required for the Superintendent to supervise day to day operations of the collection systems and treatment plants, routine maintenance, manhole inspection, and service calls.

Replacing the company's vehicles on a regular basis benefits the company's customers through increased safety and reliability of company employees, and keeping drivers on the road and able to perform their jobs.

Cost Breakdown:

4-door, 4x4 truck	$35,121.71
Total	$35,121.71

Waikoloa GRC

Capital Project Justification

Project ID/WO: 106178

Project Description: EMT Service Truck

Project 106178 consists of purchase and specialized modification of a work truck for the company's second EMT. Usually working independently to address distributed demands, the two EMTs perform vital electrical and mechanical repairs on the company's pumps, motors, electrical systems, computer systems, and communication systems for the water and wastewater systems. The EMTs also perform necessary preventative maintenance on the pumps, motors, electrical systems, computer systems, and communication systems for the water and wastewater systems. The EMT positions are also vital to maintaining and troubleshooting the SCADA system. The EMT positions are based on the Big Island as the EMTs are responsible for all of Hawaii Water's in-house repairs and maintenance. Furthermore, their preventative maintenance on pumps, motors, electrical systems, computer systems, and communication systems reduces reactive repairs and increases reliability of the systems. Although the EMTs frequently travel from the Big Island to work on repair and maintenance issues on Maui, this truck is for Big Island operations.

The truck for the EMT is equipped with a service truck body containing numerous compartments to store the necessary tools and supplies of the trade. These include specialized tools for the EMT to perform the wide range of specialized duties including electrician, electronics technician, and mechanical repairman. Before the first EMT truck was purchased, the specialized EMT equipment, tools and supplies had to be first loaded onto a standard pickup, driven to the site to perform the work, driven back and finally unloaded. The effort of loading and unloading requires valuable mobilizing and demobilizing time that could instead be more efficiently utilized for repair and maintenance work. The mobilization and demobilization time results in a decrease in response time and a loss in efficiency of the EMT position. It is now standard to

equip a utility truck with the necessary tools, equipment and supplies to maximize the EMT's efficiency.

A competitive bid process was used to solicit bids for the EMT service body truck. Bids were received from Orchid Isle Auto Center and Midpac Auto. Orchid Isle Auto Center was selected based on cost. Purchase Order No. 5134 for $48,318.90 was executed on April 13, 2017 for the purchase of the 2017 Ford F-250 truck. The truck has been equipped with the specialized service body by Knapheide Company in Tracy California. It is presently in transit to Hawaii for anticipated delivery in December 2017 or January 2018.

Cost Breakdown:

EMT Service Truck	$73,507.15
Overhead	$1,224.21
Total	$74,731.36

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00111877

Project Description: 720-Itron Handheld Meter Readers

The Itron Handheld meter readers make the meter reading process more efficient and accurate by implementing a semi-automation process. Currently, meter boxes are opened and meters are read manually. The Itron Handheld units store the water use from a specific meter by using a unique meter number. The data stored in the Itron Handheld meter readers is then downloaded for integration into Hawaii Water's billing system.

This project replaces six (6) FC200 Itron Handheld meter readers and docking stations with FS400 Itron Handheld meter readers and docking stations at Waikoloa Village office. Replacement of old FC200 Itron Handhelds is required because the units are obsolete and they are no longer supported by Itron. For example, replacement parts or repairs are no longer available for the FC200 model. Currently, the batteries are not charging and one of the handheld units does not turn on. The next best Itron handheld model is the FS300. However, this model is not available for purchase and support, replacement, and repair will end in 2021. This project improves efficiency by reducing the amount of time an operator spends reading meters, writing on paper, and completing manual rereads. The project is expected to be placed in service in 2018. The estimated cost of the project is $26,765.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00112028

Project Description: 720-2018 Toyota 4Runner 4x4

This project replaces a 2007 Nissan XTerra (HKA780-V208221) with a 2018 Toyota 4Runner. The 2007 Nissan XTerra has high mileage at 121,732 and requires mechanical repairs. These repairs are more expensive than the value of the vehicle. The main problem with the 2007 Nissan XTerra is the automatic transmission sometimes drops in to the neutral position while driving.

The 2018 Toyota 4Runner vehicle is for the Engineering Project Manager, and will be used to inspect existing infrastructure, provide tours for consulting engineers, inspect new construction projects, inspect developer construction projects, attend meeting and training, provide operational support, and respond to emergencies,

Replacing the company's vehicles on a regular basis benefits the company's customers through increased safety and reliability of company employees, and keeping drivers on the road and able to perform their jobs. This project is expected to be placed in service during 2018. The estimated cost of the project is $42,925.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00112029

Project Description: 720-2018 Toyota Tacoma TRD 4x4

This project replaces a 2006 Ford F-150 (220HDH-V208204) with a 2018 Toyota Tacoma TRD 4x4. The 2006 Ford F-150 has high mileage at 98,624 and requires body work and front end repairs. These repairs are more expensive than the value of the vehicle. An additional problem with the 2006 Ford F-150 is a knocking sound in the engine, which is indicative of a failing motor.

The new 2018 Toyota Tacoma TRD 4x4 truck is necessary to service the Waikoloa water and wastewater systems. For the water system, the truck is required for day to day operations, routine maintenance, meter reading, water main breaks, and service calls. For the wastewater system, the truck is required for day by day operations, routine maintenance, manhole inspections, and service calls.

Replacing the company's vehicles on a regular basis benefits the company's customers through increased safety and reliability of company employees, and keeping drivers on the road and able to perform their jobs. This project is expected to be placed in service during 2018. The estimated cost of the project is $40,602.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 0093544

Project Description: 720-SCADA Report Writer System

The SCADA system for Waikoloa and Kukio needs to be upgraded and replaced where necessary to match the systems in Cal Water to allow ease of maintenance and improved operations. This project consists of the acquisition of the equipment and software necessary for real-time energy efficiency reporting and creation of monthly production reports. This also requires the installation of well level transducers, program updates for the RTUs, and some master computer programming.

The SCADA Report Writer System upgrade will enable the SCADA system to produce DOH reports, spreadsheets, and trending plots automatically. This information is vital for operators to complete their daily rounds. This project is expected to be placed in service during 2018. The estimated cost of this project is $42,691.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 0097976

Project Description: 720-Fuel Station

Project 97976 is the design and construction of an above-ground gasoline and diesel fuel storage and dispensing system. It is proposed for installation at the centrally-located Waikoloa Resort Waste Water Reclamation Facility for the benefit of all Hawaii Water's Big Island Operations. Hawaii Water presently does not have gasoline and diesel fuel storage with pumps for filling of company vehicles or equipment. Currently, Hawaii Water Operators have to travel to retail stations in Waikoloa Village (gasoline only), Waikoloa Beach Resort (gasoline only), Waimea-Kamuela, Kawaihae, and Kailua-Kona for gasoline and diesel fuel. These retail fueling stations are all subject to running out of fuel, potentially for an extended time after a foreseeable natural disaster such as a hurricane. Having access to gasoline and diesel fuel is critical to day to day operations and fulfilling the responsibilities of supplying clean potable drinking water and providing quality treatment of wastewater.

Hawaii Water does not have the equipment and Department of Transportation HazMat certifications to transport fuel on the public roads. Without fuel storage capability, Hawaii Water is as vulnerable to quickly running out of fuel during an emergency. A self-sufficient fuel supply during an emergency would offer resiliency and allow Hawaii Water operations to continue for an extended amount of time during an emergency fuel shortage or supply interruption event on the Big Island.

The project involves engineering design, obtaining necessary permitting approvals and construction of the approved design. The project was awarded to Hawaii Petroleum Company, as they are the primary petroleum supply vendor for the diesel fuel at the various backup

emergency generators for Hawaii Water. The facility under design will include a two-chamber ConVault aboveground storage tank with integral secondary containment, fill ports, fuel gages, fuel dispenser pumps, hoses, nozzles, and protective traffic bollards around the tank. This project is currently open and scheduled for completion in 2018. This project is expected to be placed in service during 2018. The estimated cost of the project is $183,000.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 0083938

Project Description: 720-SCADA Radio Data Link

The SCADA system for Waikoloa and Kukio needs to be upgraded to match the standards of Cal Water. An integral component of the SCADA system is the communication system. Part of the current communication system does not meet security requirements and is vulnerable to cyber security threats. This project entails enhancing the security requirements of the communication system by replacing outdated parts of the existing communication systems with high-speed radio data links. The existing A-Plant SCADA and monitoring communication connection is through cell phone internet and will be replaced with a high speed radio data link.

This project also includes a data link to the Kukio WWTP and RO water treatment plant which were on a non-secure DSL line which did not meet security requirements. These will be replaced with company standard high-speed radio data links. This project is expected to be placed in service during 2018. The estimated cost of this project is $53,201.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 0102600

Project Description: 720-Big Island Radio Communication

This project will upgrade existing radio system to a digital radio network. The existing analog system is in need of repair and is unlicensed. Repairs to the existing system would be costly and would require additional maintenance. Additionally, the existing radios are not compatible with the radios recently purchased for Hawaii Water's Maui Operations.

Radio communication improves daily operational efficiency and the district's ability to communicate while also not relying on another utility's networks. This radio system can also be used in emergency situations where cell phone and other communication are lost. Examples include hurricanes or other disasters. One of the issues Hawaii Water faces during a natural disaster or island wide emergency is the failure of cellular service. It is vital to be able to communicate during these emergencies not only intra-island but inter-island as well. In this project, Hawaii Water will purchase (14) mobile 2-way radios, (5) handheld 2-way radios, and (1) base station 2-way radio. The new digital radios are compatible with the radios recently purchased for Hawaii Water's Maui Operations. This project is expected to be placed in service during 2018. The estimated cost of this project is $50,000.

Waikoloa Water System Project Justifications

For projects completed from 2013 through 2017 and projects planned to be in service in 2018

Waikoloa Village and Resort Water Systems

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00087077

Project Description: DW-3 Pump Replacement

There are currently four wells in the North Well Field and three completed wells in the South Well Field that obtain the source water for Waikoloa Village and Waikoloa Beach Resort. Waikoloa Deep Well Number Three ("DW-3") (State Well No. 5546-02) is located in the South Well field above Waikoloa Village at an approximate elevation of 1,219 feet. Waikoloa DW-3 was drilled in 1991 to a depth of 1,330 feet. It was put into service in 1991 with a 16-inch diameter casing. Other wells in the South Well Field consist of DW-2, DW-6 and DW-8, although DW-8 is not yet outfitted and operational (See Project 24927). Waikoloa's DW-2, DW-3, and DW-6 have the same rated production capacity in the South Well Field with a rating of 1,000 gallons per minute (GPM). All wells in the South Well Field (and North Well Field) draw water from the Waimea Aquifer.

Project 87077 consisted of replacing the pump at Waikoloa DW-3. The pump failed after one year of operation. After removal, the pump was inspected and appeared to have failed mechanically, with the impellors and pump bowls damaged. Several of the oil tube sections appeared to have unscrewed far up above the pump which could have created the pump bowl/impellor interference. The oil tube and shaft were newly installed in 2011. Due to their familiarity with the Waikoloa System wells and limited number of available drillers, Beylik was awarded a sole-source contract on August 13, 2012. On August 16, 2012, Beylik commenced pump removal at DW-3. Beylik replaced the pump with a new Goulds 11CHC-LL 20 stage pump rated for 800 GPM at 1,300 feet of Total Dynamic Head. For timeliness, the pump installed was a standby pump for DW-4/DW-5 that Hawaii Water already had on hand. Although rated for 800 GPM, the replacement pump used actually performed at closer to 900 GPM once it

was placed into operation. The pump replacement project was placed in service on September 4, 2012.

Cost Breakdown:

DW-3 Pump	$61,747.78
Capitalized Interest	$642.48
Overhead	$12,349.56
Total	$74,739.82

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00087079

Project Description: DW-1 Pump Replacement

There are currently four wells in the North Well Field and three completed wells in the South Well Field that obtain the source water for Waikoloa Village and Waikoloa Beach Resort. Waikoloa Deep Well Number One ("DW-1") (State Well No. 5745-03) is located in the North Well field above Waikoloa Village at an approximate elevation of 1,196 feet. Waikoloa DW-1 was drilled in 1988 to a depth of 1,333 feet. It was put into service in 1989 with a 16-inch diameter casing. Other wells in the North Well Field consist of DW-4, DW-5 and DW-7, although at the time of Project 87079, DW-7 was not yet constructed. Waikoloa's DW-1 had by far the highest production capacity of the wells in the North Well Field at the time with a capacity rating of 1,350 gallons per minute (GPM), compared with capacities of 800 GPM each for DW-4 and DW-5 (DW-4 and DW-5 (casing diameters are each 12 inches). All wells in the North Well Field (and South Well Field) draw water from the Waimea Aquifer.

Project 87079 consisted of replacing the pump at Waikoloa DW-1. When the pump within Waikoloa DW-1 failed on July 24, 2012 (see the green line on the graph below for DW-1 pump rate failing), well DW-3 in the South Well Field was already out of service (See Project 87077). Having both DW-1 and DW-3 off line concurrently created an emergency water supply situation. With both DW-1 and DW-3 offline, all the other operable Waikoloa system wells in the North Well Field and South Well Field had to be run 24 hours a day, seven days a week in order to meet water demand. Even then, Water Conservation Notices had to be submitted to the major irrigation customers so as to ensure potable demands for drinking, cooking and sanitation purposes were met. With all other operable wells running at capacity 24/7, the total electricity costs were increased by not being able to run during times with lower rates.

While Beylik Well Drilling was already working on repairing Waikoloa DW-3, it was decided to issue an emergency no-bid purchase order to Water Resources International (WRI) to repair the failed pump within Waikoloa DW-1. The Notice to proceed was issued soon after pump failure to WRI on August 10, 2012. Using a specialized drilling rig, WRI pulled out all of the suspended piping in the well to reach the pump at the bottom. The pump that was removed had been installed one year previous and had failed catastrophically. The failed pump was purchased as a standby pump for DW-1 and was in storage for nearly a decade because the pump that failed in 2011 had lasted nearly 20 years. WRI was able to locate a rush manufactured pump with a ready to air ship in one week. The new pump was attached to the string of suspended piping and reinstalled down the well. The new pump was put into service on September 12, 2012.

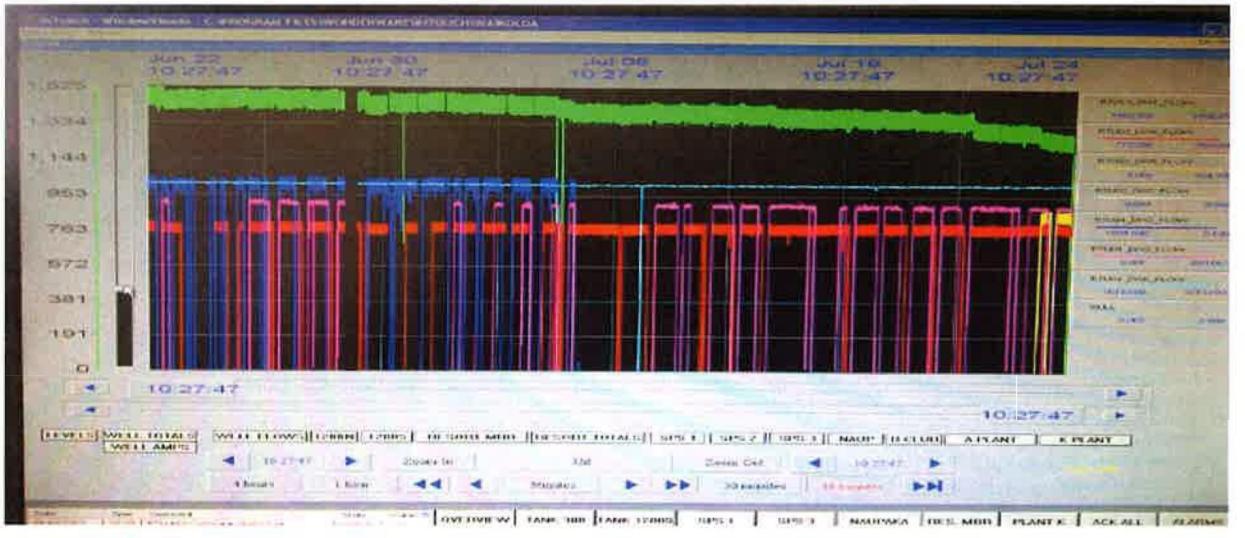

Figure 1. DW-1 Pump Rate Failure.

Cost Breakdown:

DW-1 Pump	$108,725.00
Capitalized Interest	$2,925.45
Overhead	$21,745.00
Total	$133,395.45

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00097171

Project Description: 721-Well 1 Pump Replacement

There are currently four wells in the North Well Field and three completed wells in the South Well Field that obtain the source water for Waikoloa Village and Waikoloa Beach Resort. Waikoloa DW-1 (State Well No. 5745-03) is located in the North Well field above Waikoloa Village at an approximate elevation of 1,196 feet. Waikoloa DW-1 was drilled in 1988 to a depth of 1,333 feet. It was put into service in 1989 with a 16-inch diameter casing. Other wells in the North Well Field consist of DW-4, DW-5 and DW-7. Waikoloa's DW-1 had by far the highest production capacity of the wells in the North Well Field at the time with a capacity rating of 1,350 gallons per minute (GPM), compared with capacities of 800 GPM each for DW-4 and DW-5 (DW-4 and DW-5 casing diameters are 12 inches each). All wells in the North Well Field (and South Well Field) draw water from the Waimea Aquifer.

Project 97171 consists of replacement of the pump in well DW-1. The DW-1 pump that failed in 2012 was replaced by a fast tracked manufactured pump (Project 87079) supplied by WRI and was air freighted to the Big Island due to the emergency situation of having to issue the water conservation notice. After installation the pump was put into service and the emergency water conservation notice was lifted after one month. In February 2014, Well DW-1 was taken out of service to install a new Motor Control Center (MCC). This work was done by in house personnel. During the same period, the construction of the MCC/Electrical Building (Project 97172) was contracted to Isemoto Contracting Co., Ltd. ("Isemoto"). After the building was completed, the pump was put back into service on October 5, 2017, but the pump failed a few days later. The

failed pump is scheduled to be removed in December 2017. A special rig is required to lift the approximately 1,200 feet long column pipe, oil tube and shafting which weighs approximately 50 tons. A new pump will be purchased after the old pump is removed and evaluated. This project is expected to be placed in service during 2018. The estimated cost of the project is $150,656.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00097172

Project Description: 721-DW1 Electrical Building

Project 97172 consisted of constructing a new building enclosure for the electrical controls of Waikoloa DW-1. Waikoloa DW-1 is located on TMK 6-8-002-019-0000 in the north well field at an approximate elevation of 1,200 feet. The electrical controls for this well are housed in a nearby metal Motor Controls Cabinet. Although rated as weatherproof, this MCC has still allowed dust and moisture to degrade the electrical components contained inside, causing numerous failures and repairs totaling over $100,000. Safety was also a major concern as there have been numerous occasions when emergency work had to be performed on the medium electrical voltage (4,160 volts) equipment while it was raining, placing operators at significant safety risk.

In 2012, West Hawaii Water Company ("WHWC") commissioned John Parazette Architect to design a building over the MCC. A standard metal building using a package design by Butler Manufacturing over a slab foundation was proposed to the Hawaii County Department of Public Works Building Division in design plans dated February 22, 2012. The design was approved and resulted in a Hawaii County Building Permit dated May 3, 2012. In May of 2016, WHWC solicited a proposal from Isemoto to construct the building. A decision by WHWC to sole-source award Isemoto was made in June 2016 based on the following factors: Isemoto is the only licensed full-service contractor for Butler brand metal buildings on Hawaii, the County Building Permit was applied by and paid for by Isemoto, and the County Building Permit names Isemoto as the Builder. On September 30, 2016, WHWC executed a construction agreement contract with Isemoto. Following receipt of Payment and Performance Bonds from sureties backing Isemoto,

construction of the slab foundation and building commenced in October 2016. The building was completed and placed in service on January 2, 2017. The final approved Occupancy Permit was received from the Hawaii County Department of Public Works Building Division in September 2017. The estimated cost of the project is $261,222.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00106179

Project Description: 721-Replace (3) Cla-vals

Project 106179 consists of replacing three Cla-Val brand automatic pressure control valves in the water system network above Waikoloa Village at the 1200 North well field location. The 1200 North well field location consists of Deep Well 1 (DW-1), Deep Well 4 (DW-4), Deep Well 5 (DW-5), and Deep Well 7 (DW-7). The wells of the 1200 North well field range in depth from 1,231 feet below ground surface at DW-4, to 1,346 feet below ground surface at DW-7. These four wells all pump to the two potable water storage tanks at the 1200 North location. Each of the two potable water storage tanks at the 1200 North location have a capacity of one million gallons (1 MG).

The main transmission pipeline from the 1200 North location has a pressure reducing valve arrangement consisting of three parallel valves: one is 8-inch diameter, one is 6-inch diameter, and one is 2-inch diameter in size. These three existing pressure reducing valves drop the water pressure approximately 20 pounds per square inch (psi) from the spillway elevation of the 1200 North water storage tanks into the upper Waikoloa Village potable water distribution system. The existing three pressure reducing valves were installed in the 1970's during the original construction. They are worn out and overdue to be replaced. This project is expected to be placed in service during 2018. The estimated cost to complete the project is $26,434.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00106180 and 106183

Project Description: 721-Water Loss Control, Meter box installation

Water Loss Control Program and Reports.

Hawaii Water is committed to water loss control as demonstrated by the development of WHWC's Water Loss Report filed September 30, 2015 with the Hawaii Public Utilities Commission in Docket No. 2012-0148 (the "2015 Water Loss Report"). Additionally, Hawaii Water conducted water audits consistent with AWWA Standard M-36 in 2014, with technical assistance from the Hawaii Commission on Water Resources Management. The technical assistance included a training workshop on how to perform a water audit consistent with the AWWA Standard M-36 audit and auditing of the 2014 M-36 water audit. The outcome of the technical assistance was the "Waikoloa Water Audit Technical Assistance Outcome," which in addition to the 2015 Water Loss Report is the blueprint to implement the AWWA M-36 program. In 2017, Hawaii Water updated the 2015 Water Loss Report (the "2017 Water Loss Report"). Among other things, the 2017 Water Loss Report specifically updated Table 4, The Action Plan for Implementation Water Loss Control Program, documented the Water Audit Training, and documented the completion of AWWA M-36 water audits from 2015 and 2016.

The water audits focus on the data validation score, which measures the quality of the data in the AWWA M-36 audit. Water loss control projects can have a high cost to implement and at some point the cost to reduce water loss will exceed the benefit, which is why the focus of a water loss program is to ensure the data in the AWWA M-36 is continually improved. The short term focus of the water loss control program is to improve the data in the AWWA M-36 water loss audit and implement easily obtainable projects such as meter replacement and meter calibration. The next steps to implementing a water loss control program are to deliverer specific projects. Two

specific water loss projects that the Waikoloa Utilities intend to implement in 2018 are the installation of meter boxes (Projects 00106180 and 106183) and meter replacement (Projects 00112042 and 11043).

Installation of meter boxes.

Because each well production flow meter should be calibrated annually, Hawaii Water developed a project to measure the well flow downstream of the wells by installation of meter boxes in stable hydraulic environments. The meter boxes will provide a safe, easy to access place for installation of strap-on temporary water meters for the annual calibration test.

The AWWA M-36 Planning Matrix (2015 Water Loss Report, Table 1) is AWWA's M-36 Standard Water Loss Control Program. This specific project is from the 2017 Water Loss Report, Table C, Action Plan for Implementation Water Loss Control Program. The project to calibrate production flow meters was also recommended in the 2015Waikoloa Water Loss Reduction Report, Table 1, Action Plan for Implementation Water Loss Control Program, Item 1. The estimated cost of each of the projects (i.e. for WHUC and WHWC) is $34,481.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00106441

Project Description: 721-Upgrade DW2 Starter

The motor starter for Waikoloa Well #2 (DW-2) was installed in 1992 which makes it 25 years old. It uses reduced voltage transformer switchgear, which is an older technology. All of the controls and protective relays are electrical-mechanical components. Parts are very difficult to obtain for this type of technology. The old motor starter and controls will be replaced with an up to date soft starter. A soft starter is a solid-state device that protects AC electric motors from damage caused by sudden influxes of power by limiting the large initial inrush of current associated with motor startup. They provide a gentle ramp up to full speed and are used only at startup (and stop, if equipped). Ramping up the initial voltage to the motor produces this gradual start. This in turn reduces the wear and tear the motor experiences upon start-up.

Replacement of the old reduced voltage starter will reduce voltage drops in the electrical distribution system. Instead of using the old control circuits which use mechanical-electrical relays the new motor starter will use the existing SCADA RTU PLC. This will allow more input data to be relayed into the SCADA system and inform the operator of status and problems to the motor and well operation. This project will be contracted out to an electrical contractor in 2018 and is expected to be placed in service the same year. The estimated cost of the project is $130,715.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00112042 and 11043

Project Description: 721-Water Loss Control, Meter Replacement

Hawaii Water's water loss control program and reports are described in the discussion of Projects 00106180 and 106183. This specific project is for meter replacements and is listed as Item 1.3A in Table C of the 2017 Action Plan.

The AWWA Standards for meters are in the AWWA M-6 Manual. The AWWA Standard for the intervals between replacement/testing/calibration meters is not established for meters due many factors, such as to the variations in the physical and chemical characteristics of water throughout the country as well as flow rates through the meters. Table 5-2 in the AWWA M-6 Manual contains the states' public service commission regulations for periodic testing of water meters. The table indicates Hawaii currently does not have a regulation for periodic testing. The testing periods shown on the Manual for California and Illinois are shown as follows:

Table A: Summary Table 5-2 in the AWWA M-6 Manual:

Meter Size	Activity	California Years	Illinois Years
5/8"	Testing	20	6
¾"	Testing	20	6
1"	Testing	15	4
1.5"	Testing	10	4
2"	Testing	10	4

For older meters (reference Table A California), meter replacement is more cost effective than meter testing/rebuilding/calibration, because the age of the meters is considered beyond the

useful life. For meter testing, the Company must remove the meter, test the meter, rebuild the meter, and calibrate the meter. This is compared to the cost of replacing the meter at an approximate cost of $100 for a new ¾-inch meter, $190 for a new 1-inch meter, $390 for a new 1½-inch meter, and $560 for a new 2-inch meter. The new meters are much more reliable than a rebuilds and come with a manufacturer's warranty. This project is expected to be placed in service in 2018. The estimated cost of each project (i.e. for WHUC and WHWC) is $41,589.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 024927

Project Description: Waikoloa DW-8

Waikoloa presently has seven wells, four in the Waikoloa North Well Field (DW-1, DW-4, DW-5, and DW-7) and three wells in the Waikoloa South Well Field (DW-2, DW-3, and DW-6). Both well fields supply water to both Waikoloa Village and Waikoloa Beach Resort.

Project 24927 consists of adding a fourth well, Waikoloa DW-8, in the South Well Field. In accordance with the 2002 State of Hawaii Water System Standards Section 111.08, water systems must meet several criteria in regards to pump capacity. Section 111.01 states that these standards of planning shall be viewed as the minimum limits in design criteria and that the water system shall be designed to meet the needs of the community for a reasonable number of years in the future. For the Island of Hawaii, Section 111.01 states that the Total Pump Capacity of a water system shall:

> ...meet average day demand with an operating time of 16 hours or meet maximum day demand with an operating time of 24 hours with larger pump unit on standby and not contributing to flow requirements.

The Waikoloa Potable Water Master Plan ("WPWMP") dated October 2013 states that with the seven existing wells and the largest well out of service (DW-1), the continuous nominal pumping capacity is 8.424 million gallons per day (MGD). The pump capacity for all wells operating 16 hours is 6.82 MGD. The addition of DW-8 would coincide with changing the standby requirement of having enough pumping capacity to meet water demands with the largest well in each well field being out of service per the WPWMP (page 11). Therefore the safe capacity would still be 8.424 MGD with the largest pump on standby or out of service in each well field (North and South). As

stated above this would be the minimum limit for providing reasonable water service to our customers.

As witnessed in 2017 in other water systems, even this minimum standard is no assurance that water service will not be interrupted or curtailed by pump failures above and beyond the minimum standard. The Hawaii County Department of Water Supply ("HCDWS") has issued various degrees of water conservation mandates for most of 2017 in their North Kona district. In June 2017 the HCDWS had 5 wells that were inoperative and had to issue emergency restrictions on water use to only health and sanitation purposes. This was more severe than the 25% mandatory restriction in place most of 2017 in the North Kona District. Another example of this is in Kohala Ranch (a privately owned public water system). In 2017, Kohala Ranch had both of its wells fail at the same time which meant they had no water source for their customers. These 2 examples show the dire consequences of pump failures to public health and welfare, including loss of economic value of landscaping that could not be irrigated, potential loss of other economic activity, and the loss of confidence by the public in their public water system. It is prudent and wise for a public water system to stay well ahead of the minimum standards in fulfilling its responsibility to protect public health and welfare. A utility must also maintain operational reliability at all times.

The process of bringing a new water source on-line is long and expensive. First, a suitable site must be identified. Next, agreements and easements from landowners need to be obtained prior to the exploration for water. Permits from the Commission on Water Resource Management are required. Exploratory drilling and final well development must be pursued. Well outfitting must be designed and the site must be developed. Finally, approval must be obtained from the Safe Drinking Water Branch stating that the water is safe for public consumption. This process takes many years and must be undertaken in anticipation of development and growth.

Average water demand in the Waikoloa system was 5.09 MGD in 2013, 4.93 MGD in 2014, 5.09 MGD in 2015, and 5.59 MGD in 2016. Per the WPWMP, a growth rate of 3.5% was calculated using actual data from 1993 to 2012 and used for growth projections (page 1). The maximum day

demand for 2016 is calculated to be 8.39 MGD using the maximum day demand factor of 1.5 from the 2002 State of Hawaii Water Systems Standards Section 111.05. The WPWMP uses a maximum day factor of 1.25 based on Waikoloa system operations. However, the company believes that for prudent planning, and given the history of well failures that have occurred in the past year in other water systems, the more conservative maximum day factor from the State of Hawaii Water System Standards should be used. Water demand in the Waikoloa system for 2017 through October was 5.50 MGD. Therefore the maximum day demand for 2017 is calculated to be 8.25 MGD using the Hawaii Water system standards. The average demand in 2017 is expected to be greater in 2017 than in 2016. Therefore, the maximum day demand is expected to be greater. Additionally, recorded data demonstrates that the demand in the area is increasing. The criteria of all wells meeting the average day demand over 16 hours can be met with 7 wells. However, the company believes that the critical criteria to meet is the maximum day demand of 8.25 MGD (2017) or 8.39 MGD (2016) with the largest well in each well field being off-line or out of service and the remaining wells running 24 hours a day.

Without the development of DW-8, WHWC and WHUC expect the demand on the Waikoloa Water system will be beyond safe capacity by the end of 2018. Using the 3.5 percent growth rate and assuming that 5.50 MGD as the starting point for 2017, the demand will exceed the safe well pumping capacity in 2018 using the 1.5 maximum day criteria. If the maximum day criteria of 1.25 is used, demand will exceed safe well pumping capacity in 2023. Given the long lead time of getting water sources on-line, the addition DW-8 is not excess capacity, but rather is required to meet expected demand and provide necessary reliability.

In 2009, Waikoloa DW-8 was drilled and flow tested; a well casing was also installed. Well outfitting was designed by Tom Nance Water Resource Engineering and put out to bid in October 2017. Bids were received in December 2017 and the contract will be awarded to the lowest bidder. Once the contract is awarded, work will be authorized to proceed. A requirement of the contract is a 270 calendar day execution time. Therefore, the well is anticipated to be in service and pumping before the end of 2018. The estimated cost of the project is $4,732,300

Waikoloa Resort Project Justifications

For projects completed from 2013 through 2017 and projects planned to be in service in 2018

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00031969

Project Description: 723-24" Water Main Valve

Project 31969 consisted of installing a 24-inch ductile iron butterfly valve on the potable water transmission main pipeline entering into the Waikoloa Beach Resort at the southern entrance of Waikoloa Beach Drive. In the area where the valve was installed there were no functional valves that could isolate the transmission main should a repair or installation need to be made. If a repair or installation needed to be made without the valve, the entire transmission main would have to be drained in the Waikoloa Resort area. Several existing 12-inch diameter gate valves in the area were no longer functional. Gate valves are notorious for being difficult to operate with the pressure of the water against the valve gate pressing it against the gate slides. A butterfly valve was chosen to be installed as that is now the current industry standard design. A butterfly valve is able to open and close more easily because there is an equal force applied by the water against either half side of the valve face.

Project plans dated September 12, 2014 were prepared in house by the Hawaii Water Engineering Department. A formal RFP was submitted to three licensed construction firms. A pre-bid meeting at the site was subsequently held on October 30, 2014. Proposals were received from the three firms on November 19, 2014. Competitive bids were received from Goodfellow Brothers Inc. ("Goodfellow") for $201,500.00, Isemoto for $207,835.00 (notably without chlorination disinfection which had been requested), and Nan Inc. for $241,783.00. Purchase Order 3968 dated December 30, 2014 was issued to Goodfellow. Construction work was performed on April 15-16, 2014.

Difficulties were encountered in the field during execution of the work. Work was initially started on April 15, 2014. Upon belief that the system was looped, a subcontractor began to

install the second of two 24-inch line stops with specialized equipment when a large water hammer event occurred, damaging the equipment in the line. This "hammer" was allegedly caused by the high flow through the line stop due to valves on the loop being closed. After several hours of standby during the day on April 15, a decision was made to drain the system and return to work later that night when usage was expected to be lower. Contractors returned to the work site at 10:00 p.m. as agreed, however the waterline had not sufficiently drained until 3:00 a.m. on April 16.

Goodfellow later submitted a significant change order for additional fees to cover its costs and the costs of the assembled subcontractors, claiming the delays were caused by the improper shutdown of the Resort water system. However, upon negotiation, Unitek, the hazardous waste contractor for handling the asbestos-cement pipe material, agreed to waive standby charges. Similarly, the subcontractor Pural, which was responsible for chlorination disinfection of the new materials in the work area waived a portion of its standby charges. The line stop specialist subcontractor waived the $700 repair charges for damages done to his equipment. The change order reflected the additional time for Goodfellow labor and a portion of its equipment, Pural labor, and line stop specialist expenses. The change order costs did not include additional time for demobilization of the line stop equipment on the Big Island or consolidation that became required in Honolulu because of a missed date for barge transportation. Nor did the Change Order include the standby expense for a majority of Goodfellow's or Pural's equipment or the additional costs for direct supervision by Goodfellow Goodfellow and Hawaii Water subsequently negotiated the change order down from $36,873.38 to $27,964.00, bringing the total contract value to $229,464.00.

Cost Breakdown:

24" Water Main Valve	$229,464.00
Capitalized Interest	$135.77
Labor	$31,242.27
Total	$260,842.04

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00102579

Project Description: 723-Replace 24" Valve Tank 300

Project 102579 consists of replacing a large valve in the 24-inch diameter potable water transmission main loop that serves the Waikoloa Resort. This project is required in order to isolate the south end of the transmission main loop serving Waikoloa Resort. The location of the valve replacement project is makai of the Tank 300 site but slightly mauka of the Queen Kaahumanu Highway, just south of the heliport for Blue Hawaiian Helicopters and north of the Waikoloa Resort Wastewater Reclamation Facility. The originally installed and existing gate valve does not fully turn off.

The existing gate valve that was originally installed in the 1970's is past its useful life, and unable to fully close and seal the pipe to water passage. The gate valve is an older design that allowed water pressure on the gate valve face to bind the moving gate within the immobile slides of the valve body assembly. The only way to complete the valve replacement is to drain the transmission system above the repair site instead of by isolating the transmission system in the area of the repair job. The existing 24-inch diameter ductile iron gate valve is being replaced by a new 24-inch diameter ductile iron butterfly valve on an anchor block as this is the new standard industry design. A butterfly valve is able to open and close more easily because there is an equal force applied by the water against either half side of the valve face.

The replacement valve is will be a 24-inch diameter Lineseal valve manufactured by Mueller Company, LLC of Atlanta Georgia. This new valve meets American Water Works Association C504-94 Standard for Rubber-Seated Butterfly Valves.

The valve replacement project will be completed by general contractor Goodfellow. A

competitive bidding process was employed for this project between Isemoto and Goodfellow. A request for proposals was provided to both contracting firms, however only Goodfellow was able to submit a proposal within the specified timeframe. Isemoto was considered non-responsive in this instance. This project is expected to be placed in service during 2018. The estimated cost to complete the project is $180,583.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00033910

Project Description: SPS#2 Force Main Relocation (SPS#1 Force Main Relocation)

Project 33910 consisted of relocating the alignment of a portion of the sewage force main pipeline coming from Sewer Pump Station Number One (SPS#1), not Sewer Pump Station Number Two (SPS#2) as it was incorrectly named. The originally installed SPS#1 sewage force main pipeline was being damaged repeatedly by the growing roots from numerous large landscape trees. In years past, the trees were planted by the Waikoloa Resort Association too close to the alignment of the sewage force main pipeline in the vicinity of the King's Shops in Waikoloa Resort. Several unsuccessful requests were made by Hawaii Water to the Waikoloa Resort Association to cut the trees down to prevent continuation of this ongoing damage. The repeated and ongoing tree root damage to the force main resulted in four separate wastewater spills in the years before this project.

The project entailed construction of a new force main pipeline within the center of Waikoloa Beach Drive approximately equidistant from the existing landscape trees in the center median and the problem trees along the north side of the roadway. Once the new parallel force main pipeline was installed parallel to the old pipeline and tied into the old pipeline at either end, the old force main pipeline could be abandoned in place. Engineering design for the work was conducted by Brown and Caldwell, an engineering consultant Hawaii Water had worked with numerous times in the past and was concurrently working with on other issues at SPS#1. Purchase Order No. 855, dated January 3, 2011 was let to Brown and Caldwell. Plans were prepared and submitted by Brown and Caldwell to Hawaii Water for approval. After internal review, Hawaii Water submitted the engineering plans to the Waikoloa Resort Association,

which passed them on to their consultant Garduque Architects LLC for review. Waikoloa Resort Association subsequently approved the engineering plans provided by Hawaii Water and Brown and Caldwell.

A competitive bid process was used to select the contractor for the project. Competitive bids were received on August 9, 2013 from GW Construction at $614,380, from Isemoto at $364,375, from Kahanakoa Construction at $360,000, and from Goodfellow at $291,500. The bid from Goodfellow was selected based on being the lowest bidder. Purchase Order No. 3270 was let to Goodfellow on September 17, 2013. Construction commenced on October 23, 2013 and was completed on November 8, 2013. The purchase order amount was amended by $6,050.14 on November 15, 2013 to a revised total amount of $297,550.14 due to additional unanticipated costs. Waikoloa Resort Association required WHUC to repave the entire north lane of Waikoloa Beach Drive instead of just the trench cut.

Cost Breakdown:

SPS#2 Force Main Relocation	$443,312.61
Capitalized Interest	$15,642.26
Overhead	$97,669.76
Labor	$56,919.34
Total	$613,543.96

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00097290

Project Description: 724-SPS#1 Piping

Project 97290 consists of replacing the highly corroded discharge piping in the wet well of Sewage Pump Station Number One (SPS#1) in the Waikoloa Resort wastewater system. Using a wet well equipped with three submersible pumps and three 8-inch diameter vertical discharge pipes, SPS#1 pumps sewage through one 12-inch diameter force main across the Queen Kaahumanu Highway/State Highway 19 to the Waikoloa Resort Water Reclamation Facility. This project is critical as there is no backup or alternative pumping of sewage to the Resort Wastewater Reclamation Facility from the Resort area.

The environment within a sewage pump station like SPS#1 is highly corrosive due to the nature of the gases emanating from the sewage (i.e. hydrogen sulfide). In 2014, Hawaii Water retained V&A Consulting Engineers to perform a condition assessment of SPS#1 (WO#93677). The results of the corrosion study were presented to Hawaii Water by VA& Consulting Engineers in a Technical Memorandum entitled "Hawaii Water Service Company Waikoloa Resort Sewage Pump Station No.1 Corrosion Investigation." The evaluation focused on the corrosion to the concrete surfaces of the wet well and the surfaces of the exposed metal discharge piping. Evaluation methods consisted of documenting visual observations with digital photographs, and rating metal surface pitting with the VANDA Metal Condition Index Rating System. The iron discharge pipes were previously coated with an apparent coal tar epoxy. The coating has reportedly failed on the pipes and has exposed the metal substrate to corrosion. Exposed metal surfaces are now severely pitted and exfoliated. The report recommended replacement of the discharge piping with fusion-bonded epoxy coated and lined piping, abrasive blasting of the pipe wall penetrations and recoating with an anti-corrosion coating, replacement of the pipe hangers with stainless steel hangers, and replacement of the corroded fiberglass grating over the wet well.

The report recommended the above work be completed by 2017.

In April 2017, Hawaii Water issued an RFP to Isemoto for execution of the work described above. Due to a heavy workload, Isemoto was unable to provide a price proposal until August 18, 2017. The sole source award is justified based on the following factors: Isemoto is familiar with SPS#1 as their company originally constructed it; Isemoto has worked on discharge piping replacement projects at other sewer pump stations for Hawaii Water; Isemoto is familiar with the critical sewer bypass operations needed to prevent a sewage spill violation, along with associated fines, and adverse effects on our customers; and Hawaii Water feels that the project timeline necessitates selection of a local/island-based contractor capable of performing the work without taking a long time to mobilize from the mainland and because Isemoto already has detailed knowledge and work experience of this sewer pump station and has performed sewer pump station bypass working with local pumper truck contractors. This project expected to be placed in service in 2018. The estimated cost to complete the project is $252,120.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 00112048 and 00112049

Project Description: Resort Backhoe

This project will replace the 1998 580K case back hoe in the Resort that is used in the Water and Wastewater operations. It is almost 20 years old and is exceeding it useful life.

The existing 1998 580K Backhoe is being used in all areas of the Waikoloa Resort operations. This machine is used for trenching, pipe repairs, road maintenance, moving sludge and sludge bins at the Resort plant, lifting large meter vault covers that weigh up to 300 lbs., and hauling gravel and sand on roadways to backfill main repairs.

The 1998 580K backhoe is starting to have major part failures such as the injectors and the fuel pump. Leaks on the hydraulic system cause the swing on the backhoe end to drift when swinging left to right. On the stick and foot paddle controls there is a delayed reaction during operations of the hydraulics. All of this is an indication of a hydraulic pump issue. The four in-one front loader bucket opens with or without a load. All safety lights do not work (four flashers, head lights and blinkers making this backhoe unsafe to operate during night emergency call out). The electric clutch button for shifting is not working, the engine hood cover is loose and needs to be strapped down with cords. These identified issues are unsafe for WHUC employees. Repairing all of these identified issues will increase the repair cost if the machine continues to be used. The backhoe is still being used in the Resort at this time to do small jobs in the plant only.

The main reason the 1998 580K is starting have a lot of mechanical problems is due to the age of this backhoe. The parts and cost for repairs will exceed the resale value of the machine. Some of the parts are becoming difficult to find due to the age of the backhoe and for that reason are also more expensive. The shipping cost to Hawaii adds to the cost. An example of increasing repair

costs is the injector fuel pump replacement cost of $3,344.72; the back hoe needed to be hauled to the Allied Machinery shop to for this repair at a cost of $791.30.

This project is expected to be placed in service during 2018. The total combined cost of the project is $119,180 and is being split between Waikoloa Resort Water and Waikoloa Resort Sewer.

Waikoloa GRC

Capital Project Justification

Project ID/WO: 93545

Project Description: SPS Pump Control Replacement

The collection system in a wastewater utility collects the wastewater effluent from residential homes and business and delivers the wastewater stream to the wastewater treatment plant via gravity flow pipelines and force mains from sewer pump stations ("SPS"). This project upgrades the Waikoloa Resort WWTP Sewage Pump Station Pump Control at SPS #1, SPS #2, SPS #3, and the Naupaka SPS. The upgraded controls will be Program Logic Control devices that will allow direct communication with the SCADA system for monitoring and reporting. The upgraded controls will reduce the potential for wastewater spills, as well as trouble calls and station failures. The estimated cost of the project is $32,242.

CHAPTER 20

DESIGN OF SEWERS

21. General

21.1 Type of System: All sewers shall be designed as Sanitary Sewers.

21.2 Ordinance Requirements: The wastewater from industrial or commercial plants should be thoroughly evaluated. Provisions of the City Ordinance (Sec. 14-1.6, Revised Ordinances of Honolulu, 1990, as amended) impose certain restrictions on the quantity, strength and character of industrial wastewater which may be discharged into public sewers.

22. Quantity of Wastewater

22.1 Design Period: In general, sewer systems should be designed for the estimated ultimate tributary equivalent population, except for systems that can be readily increased in capacity. Where Federal or other legal requirement dictates the use of other specific design period, the design period required by them may be used, unless modified by the City.

22.2 Design Flows: In determining the required capacities of sanitary sewers, the following factors shall be considered:

22.2.1 Average Daily per Capita Flow: New sewer systems shall be designed on the basis of an average per capita flow of wastewater of 80 gallons per day, unless other current data has been established by the City. Densities of residential occupancy shall be assumed to be 4 persons per home and 2.8 persons per apartment unit.

22.2.2 Other Average Flows: Other wastewater flows shall be based on land use or best available data, whichever is higher. Considerations shall be given for high wastewater generation for particular types of industries. The following equivalent populations or average flow data shall be used for the various land uses:

a. Central Business 300 cpa.*

b.	Community Business	140 cpa.
c.	Neighborhood Business	40 cpa.
d.	Resort	400 cpa.
e.	Apartment (high density)	390 cpa.
f.	Apartment (medium density)	250 cpa.
g.	Apartment (low density)	85 cpa.
h.	General Industry	100 cpa.
i.	Waterfront Industry	40 cpa.
j.	School	25 gpcd.**
k.	Institution (hospital, etc.)	200 gpcd.

* cpa. = capita per acre
** gpcd. = gallon per capita per day

22.2.3 Average Wastewater Flow: The average wastewater flow is the sum of the applicable wastewater flow obtained in Sections 22.2.1 and 22.2.2 above.

22.2.4 Maximum Wastewater Flow: The maximum wastewater flow is obtained by multiplying the average flow by a flow factor. Except as noted in Section 11.1.5, Figure 22.2.4 shall be used to obtain the flow factor for the maximum rate of wastewater flows.

22.2.5 Dry Weather Infiltration/Inflow (I/I): The following rates of dry weather I/I shall be used in the design of sewers:

a. 35 gpcd - sewers laid below the normal ground water table.

b. 5 gpcd - sewers laid above the normal ground water table.

22.2.6 Design Average Flow: The design average flow is the sum of the average wastewater flow and the applicable dry weather infiltration/inflow rate.

22.2.7 Design Maximum Flow: The design maximum flow is the sum of the maximum flow and the applicable dry weather infiltration/inflow rate.

22.2.8 Wet Weather Infiltration/Inflow: The following rates shall be used in the design of sewers:

a. 2750 gad* - sewers laid below the normal ground water table.

b. 1250 gad - sewers laid above the normal ground water table.

* gad = Gallon Per Acre Per Day

22.2.9 Design Peak Flow: The design peak flow of wastewater is the sum of the applicable quantities obtained from Sections 22.2.7 and 22.2.8.

22.2.10 Organization of Computation: Figure 22.2.10 shows the format desired for tabulating the results of computations for the design of sewers.

23. Hydraulics of Sewers

All gravity sewers shall be designed to carry the peak flow of wastewater without surcharging and to transport suspended solids in such a manner that deposits in sewers and odor nuisances therefrom are kept to a minimum.

23.1 Formula and "n" Values: All sewer design shall be based on the Manning Formula ($V = \frac{1.486}{n} r^{2/3} s^{1/2}$) using the "n" values given below:

23.1.1 0.015 - All pipes up to and including 18 inches in diameter.

23.1.2 0.013 - All pipes larger than 18 inches in diameter.

23.1.3 0.015 - Cast-in-place reinforced concrete conduit.

23.2 Velocities: All sewers shall be designed to give mean velocities of not less than 2.0 feet per second when flowing full. The following minimum slopes are to be

be provided. In no case shall any inhabitable building be allowed above the treatment facility. Access hatches, which are large enough to remove equipment from the facility, shall be provided above all equipment not accessible from the maintenance gallery. Ventilation systems for underground installations shall conform to requirements of Section 123.4.

42.7 Takeover of Existing Private Treatment Facilities

At the discretion of the Director, the Department may agree to operate and maintain existing private treatment plants and associated pumping and sewerage facilities serving 10 or more lots in remote areas or 40 or more lots in any area if the facilities are upgraded to conform to Department standards and requirements. Facilities to be taken over shall be in good repair, capable of reliable performance, and have adequate and satisfactory means for disposal of effluent and waste sludge. The rate of infiltration/inflow of the collection system shall not be excessive. The owner shall be responsible for arranging for a detailed engineering evaluation of the facilities to provide the required information as described in Appendix C.

Should the Director agree to accept the facilities based upon the findings and recommendations of the engineering evaluation, the owner shall be required to provide for the engineering and construction services for the necessary corrective, upgrading, or repair work. The owner shall bear all costs associated with the purchase of any required spare parts and materials. Both the design and the completed construction shall be acceptable to the Director.

43.0 BASIS OF DESIGN

43.1 Design Period

In general, treatment plant layout shall be based upon the ultimate service area, or a 50-year design period. Installed units and facilities should be capable of being expanded to accommodate the future

ultimate design flows. Installed treatment units and mechanical equipment shall generally have a capacity suitable for a 20-year design period. Design periods specified by Federal or other legal requirements may be utilized as approved by the Department.

The design period for temporary facilities shall be as approved by the Director.

43.2 Population and Flow Projections

Population projections shall be based on available census data; the extent of existing industrial, commercial, resort, and institutional development; and documented projections for anticipated service area increases throughout the design period. Documentation of the projection shall include reference to all zoning ordinances, sewerage system planning, and other relevant development planning documents addressing the design service area.

Design average, maximum, and peak wastewater flows shall be determined in accordance with Section 22, "Quantity of Wastewater," in Chapter 20 of Volume I. Design flows for wastewater treatment facilities shall be modified as appropriate and as approved by the Division based on field monitoring data for existing service areas, anticipated changes in wastewater generation patterns, and the performance related impacts of significant flow variations. Flow variations stemming from diurnal variation, seasonal variation, and variations due to nondomestic consumption and influent pump cycling shall be carefully evaluated and documented. In evaluating field monitoring data, pump cycling effects, and impacts to downstream treatment units, definitions for the design flows specified in Chapter 20 of Volume I shall be expanded as follows:

1) "Design average flow" shall mean the average wastewater flow rate during a 24-hour period or shorter significant period during a prolonged period of dry weather.

2) "Design maximum flow" shall mean the highest average wastewater flow rate during a 1-hour period during a prolonged period of dry weather.

3) "Design peak flow" shall mean the highest instantaneous wastewater flow rate during a prolonged period of wet weather.

Wastewater flow rates in the above definitions shall be the flow rates downstream of influent pumping facilities whenever such facilities are employed.

43.3 Waste Characterization

Determination of wastewater strengths and characteristics shall be based on field sampling and monitoring data for existing service areas, allowances for anticipated changes in existing service areas, and allowances for contributions from new service areas. The allowances for newly-served domestic contributors shall be not less than:

Biochemical Oxygen Demand (BOD_5): 0.20 pounds per capita per day

Suspended Solids (SS): 0.20 pounds per capita per day

Projected nondomestic waste characterization shall be estimated based upon the nature of the projected commercial/industrial developments and estimates of water usage and process requirements.

The influent wastewater characterization (IWWC) should include evaluation and quantification of wastewater BOD_5, SS, temperature, pH, and constituents such as chlorides, nitrogen, phosphorus, and sulfides. Whenever possible, septicity of influent waters shall be analyzed by sampling. The IWWC program shall be subject to approval by the Director prior to implementation. A report on the findings of the IWWC program shall be submitted to the City no later than two months after completion of sampling and analyses.

TABLE 1
COMPUTATION OF WASTEWATER FLOW
CONNECTED DEMAND

WWTP:	Waikoloa Resort Plant	Page:	1
District:	Waikoloa, Hawaii	Computed By:	Poe Tyler
Reference Maps:		Date:	October 25, 2013

			TRIBUTARY AREA		TRIBUTARY EQUIVALENT POPULATION						WASTEWATER FLOW COMPUTATION							
					RESIDENTIAL		OTHER		TOTAL									
SOURCE	TYPE	Qty	INCR. (Acre)	TOTAL (Acre)	INCR. (Capita)	TOTAL (Capita)	INCR. (Capita)	TOTAL (Capita)	INCR. (Capita)	TOTAL (Capita)	AVE WWF @ 80 GPCD (MGD)	MAX FLOW FACTOR [1]	MAX FLOW (MGD) [2]	DRY WEATH INFIL. (MGD) [3&4]	DES. AVE. FLOW (MGD) [5]	DES MAX. FLOW (MGD) [6]	WET WEATH INFIL (MGD) [7&8]	DESIGN PEAK FLOW (MGD) [9]
Hilton Waikoloa, TMK (3)6-9-07: 14	Hotel	1,241		61.354	2.8	3,474.8			2.8	3,474.8	0.27798	1.6	0.44477	0.01737	0.29536	0.46215	0.07669	0.53884
Fairway Villas, TMK (3)6-9-08: 3	MF	165		9.796	2.8	462.0			2.8	462.0	0.03696	1.6	0.05914	0.00231	0.03927	0.06145	0.01225	0.07369
Bay Club I (HGV), TMK (3)6-9-07: 31	MF	172		15.000	2.8	481.6			2.8	481.6	0.03853	1.6	0.06164	0.00241	0.04094	0.06405	0.01875	0.08280
Vistas, TMK (3)6-9-07: 9	MF	122		8.717	2.8	341.6			2.8	341.6	0.02733	1.6	0.04372	0.00171	0.02904	0.04543	0.01090	0.05633
Colony Villas, TMK (3)6-9-07: 35	MF	168		22.034	2.8	470.4			2.8	470.4	0.03763	1.6	0.06021	0.00235	0.03998	0.06256	0.02754	0.09011
Kings Shops, TMK (3)6-9-08: 5	Com.			9.312			300	2,793.6	300.0	2,793.6	0.22349	1.6	0.35758	0.01397	0.23746	0.37155	0.01164	0.38319
Marriott Waikoloa, TMK (3)6-9-07: 8	Hotel	543		15.735	2.8	1,520.4			2.8	1,520.4	0.12163	1.6	0.19461	0.00760	0.12923	0.20221	0.01967	0.22188
Beach GC Clubhouse, TMK (3)6-9-07: 17	Com.			2.101			300	630.3	300.0	630.3	0.05042	1.6	0.08068	0.00315	0.05358	0.08383	0.00263	0.08646
Shores, TMK (3)6-9-07: 19	MF	120		11.402	2.8	336.0			2.8	336.0	0.02688	1.6	0.04301	0.00168	0.02856	0.04469	0.01425	0.05894
Kolea, TMK (3)6-9-07: 10, 12	SF	17		42.359	4.0	68.0			4.0	68.0	0.00544	1.6	0.00870	0.00034	0.00578	0.00904	0.05295	0.06199
Kolea, TMK (3)6-9-07: 10, 12	MF	126			2.8	352.8			2.8	352.8	0.02822	1.6	0.04516	0.00176	0.02999	0.04692	0.00000	0.04692
Naupaka Place, TMK (3)6-9-07: 18	SF	11		20.059	4.0	44.0			4.0	44.0	0.00352	1.6	0.00563	0.00022	0.00374	0.00585	0.02507	0.03093
Halii Kai, TMK (3)6-9-07: 34	SF	1		29.730	4.0	4.0			4.0	4.0	0.00032	1.6	0.00051	0.00002	0.00034	0.00053	0.03716	0.03769
Halii Kai, TMK (3)6-9-07: 34	MF	192			2.8	537.6			2.8	537.6	0.04301	1.6	0.06881	0.00269	0.04570	0.07150	0.00000	0.07150
Bay Club II (HGV), TMK (3)6-9-07: 32	MF	150		9.539	2.8	420.0			2.8	420.0	0.03360	1.6	0.05376	0.00210	0.03570	0.05586	0.01192	0.06778
Beach Club - TMK (3) 6-9-07: 15	MF	4		10.070	2.8	11.2			2.8	11.2	0.00090	1.6	0.00143	0.00006	0.00095	0.00149	0.01259	0.01408
Beach Club - TMK (3) 6-9-07: 15	Com.			0.400			300	120.0	300.0	120.0	0.00960	1.6	0.01536	0.00060	0.01020	0.01596	0.00050	0.01646
Hilton Grand Vacations, Kings GC / Lands:																		
Site I (TMK (3) 6-9-08: 12)	MF	179		29.722	2.8	501.2			2.8	501.2	0.04010	1.6	0.06415	0.00251	0.04260	0.06666	0.03715	0.10381
Site J (TMK (3) 6-9-08: 23)	MF	94		13.366	2.8	263.2			2.8	263.2	0.02106	1.6	0.03369	0.00132	0.02237	0.03501	0.01671	0.05171
Waikoloa Beach Villas (TMK (3)6-9-08: 14)	MF	120		13.695	2.8	336.0			2.8	336.0	0.02688	1.6	0.04301	0.00168	0.02856	0.04469	0.01712	0.06181
Queens Marketplace (TMK (3)6-9-08: 16)	Com.			11.724			300	3,517.2	300.0	3,517.2	0.28138	1.6	0.45020	0.01759	0.29896	0.46779	0.01466	0.48244
Total						9,624.8		7061.1		16,685.9	1.33487		2.13580	0.08343	1.41830	2.21922	0.42014	2.63937

Docket No. 2017-0350
Exhibit WHUC-T-303
R-Plant Design and Commited Flows
Witness: Green

TABLE 1
COMPUTATION OF WASTEWATER FLOW
CONNECTED DEMAND

Notes:
1) Max flow factor derived from normalized typical 24-hour flow profile per "Design Standards of the Department of Wastewater Management" § 11.1.5 "Field Survey Data"
2) Max Flow is equal to Average flow times Max Flow Factor
3) Dry Weather I/I assumes sewers located above water table: 5 gpcd per "Design Standards of the Department of Wastewater Management" § 22.2.5 "Dry Weather Infilitration/Inflow (I/I)"
4) Dry Weather I/I is equal to Total Capita times 5 gpcd per "Design Standards of the Department of Wastewater Management" § 22.2.5 "Dry Weather Infilitration/Inflow (I/I)"
5) Design Average Flow is equal to the sum of the average flow and applicable dry weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.6 "Design Average Flow"
6) Design Maximum Flow is the sum of the maximum flow and applicable dry weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.7 "Design Maximum Flow"
7) Wet Weather I/I assumes sewers laid above the normal ground water table: 1,250 gad per "Design Standards of the Department of Wastewater Management" § 22.2.8 "Wet Weather Infilitration/Inflow (I/I)"
8) Wet Weather Infliltration/Inflow is equal to the tributary area times the infiltration rate per "Design Standards of the Department of Wastewater Management" § 22.2.8 "Wet Weather Infilitration/Inflow (I/I)"
9) Design Peak Flow is the sum of the Design Maximum Flow and Wet Weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.9 "Design Peak Flow"
10) Commercial usage at 300 capita per acre (central business) per "Design Standards of the Department of Wastewater Management" § 22.2.2(a)

Docket No. 2017-0350
Exhibit WHUC-T-303
R-Plant Design and Commited Flows
Witness: Green

TABLE 1
COMPUTATION OF WASTEWATER FLOW
CIAC DEMAND

WWTP:	Waikoloa Resort Plant	Page:	1
District:	Waikoloa, Hawaii	Computed By:	Poe Tyler
Reference Maps:		Date:	October 25, 2013

			TRIBUTARY AREA		TRIBUTARY EQUIVALENT POPULATION						WASTEWATER FLOW COMPUTATION							
					RESIDENTIAL		OTHER		TOTAL									
SOURCE	TYPE	Qty	INCR. (Acre)	TOTAL (Acre)	INCR. (Capita)	TOTAL (Capita)	INCR. (Capita)	TOTAL (Capita)	INCR. (Capita)	TOTAL (Capita)	AVE WWF @ 80 GPCD (MGD)	MAX FLOW FACTOR [1]	MAX FLOW (MGD) [2]	DRY WEATH INFIL. (MGD) [3&4]	DES. AVE. FLOW (MGD) [5]	DES MAX. FLOW (MGD) [6]	WET WEATH INFIL (MGD) [7&8]	DESIGN PEAK FLOW (MGD) [9]
Elleaire Condo Units	SF	500		13.456	4.0	2000			4.0	2000	0.16000	1.6	0.25600	0.01000	0.17000	0.26600	0.01682	0.28282
Elleaire Hotel Rooms	Hotel	300		12.782	2.8	840			2.8	840	0.06720	1.6	0.10752	0.00420	0.07140	0.11172	0.01598	0.12770
Total						2,840.0		0		2,840.0	0.22720		0.36352	0.01420	0.24140	0.37772	0.03280	0.41052

Notes:
1) Max flow factor derived from normalized typical 24-hour flow profile per "Design Standards of the Department of Wastewater Management" § 11.1.5 "Field Survey Data"
2) Max Flow is equal to Average flow times Max Flow Factor
3) Dry Weather I/I assumes sewers located above water table: 5 gpcd per "Design Standards of the Department of Wastewater Management" § 22.2.5 "Dry Weather Infilitration/Inflow (I/I)"
4) Dry Weather I/I is equal to Total Capita times 5 gpcd per "Design Standards of the Department of Wastewater Management" § 22.2.5 "Dry Weather Infilitration/Inflow (I/I)"
5) Design Average Flow is equal to the sum of the average flow and applicable dry weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.6 "Design Average Flow"
6) Design Maximum Flow is the sum of the maximum flow and applicable dry weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.7 "Design Maximum Flow"
7) Wet Weather I/I assumes sewers laid above the normal ground water table: 1,250 gad per "Design Standards of the Department of Wastewater Management" § 22.2.8 "Wet Weather Infilitration/Inflow (I/I)"
8) Wet Weather Infiltration/Inflow is equal to the tributary area times the infiltration rate per "Design Standards of the Department of Wastewater Management" § 22.2.8 "Wet Weather Infilitration/Inflow (I/I)"
9) Design Peak Flow is the sum of the Design Maximum Flow and Wet Weather I/I per "Design Standards of the Department of Wastewater Management" § 22.2.9 "Design Peak Flow"

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
10/5/2015	679,074	0.679
10/6/2015	666,983	0.667
10/7/2015	655,298	0.655
10/8/2015	675,829	0.676
10/9/2015	696,037	0.696
10/10/2015	710,458	0.710
10/11/2015	711,069	0.711
10/12/2015	703,911	0.704
10/13/2015	690,548	0.691
10/14/2015	715,237	0.715
10/15/2015	671,666	0.672
10/16/2015	655,153	0.655
10/17/2015	676,723	0.677
10/18/2015	734,884	0.735
10/19/2015	686,043	0.686
10/20/2015	641,649	0.642
10/21/2015	674,576	0.675
10/22/2015	655,063	0.655
10/23/2015	639,285	0.639
10/24/2015	668,006	0.668
10/25/2015	667,550	0.668
10/26/2015	676,618	0.677
10/27/2015	631,669	0.632
10/28/2015	615,538	0.616
10/29/2015	637,108	0.637
10/30/2015	656,111	0.656
10/31/2015	630,294	0.630
11/1/2015	630,119	0.630
11/2/2015	618,524	0.619
11/3/2015	619,134	0.619
11/4/2015	631,122	0.631
11/5/2015	648,076	0.648
11/6/2015	645,977	0.646
11/7/2015	670,798	0.671
11/8/2015	722,129	0.722
11/9/2015	733,769	0.734
11/10/2015	721,416	0.721
11/11/2015	735,935	0.736
11/12/2015	751,332	0.751
11/13/2015	739,758	0.740
11/14/2015	737,237	0.737
11/15/2015	778,978	0.779

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
11/16/2015	755,439	0.755
11/17/2015	688,456	0.688
11/18/2015	670,566	0.671
11/19/2015	634,274	0.634
11/20/2015	643,512	0.644
11/21/2015	682,278	0.682
11/22/2015	745,874	0.746
11/23/2015	731,756	0.732
11/24/2015	720,081	0.720
11/25/2015	739,964	0.740
11/26/2015	738,009	0.738
11/27/2015	784,880	0.785
11/28/2015	769,657	0.770
11/29/2015	791,027	0.791
11/30/2015	850,513	0.851
12/1/2015	855,591	0.856
12/2/2015	889,100	0.889
12/3/2015	738,755	0.739
12/4/2015	640,441	0.640
12/5/2015	646,444	0.646
12/6/2015	664,178	0.664
12/7/2015	689,264	0.689
12/8/2015	630,245	0.630
12/9/2015	643,475	0.643
12/10/2015	623,525	0.624
12/11/2015	625,900	0.626
12/12/2015	655,348	0.655
12/13/2015	707,323	0.707
12/14/2015	697,756	0.698
12/15/2015	629,335	0.629
12/16/2015	617,750	0.618
12/17/2015	648,053	0.648
12/18/2015	648,741	0.649
12/19/2015	718,560	0.719
12/20/2015	794,200	0.794
12/21/2015	797,154	0.797
12/22/2015	701,667	0.702
12/23/2015	840,109	0.840
12/24/2015	852,529	0.853
12/25/2015	843,535	0.844
12/26/2015	902,482	0.902
12/27/2015	942,147	0.942

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
12/28/2015	916,823	0.917
12/29/2015	909,956	0.910
12/30/2015	937,882	0.938
12/31/2015	875,204	0.875
1/1/2016	875,134	0.875
1/2/2016	874,522	0.875
1/3/2016	834,827	0.835
1/4/2016	826,622	0.827
1/5/2016	811,851	0.812
1/6/2016	805,379	0.805
1/7/2016	789,825	0.790
1/8/2016	787,034	0.787
1/9/2016	756,860	0.757
1/10/2016	802,212	0.802
1/11/2016	793,789	0.794
1/12/2016	760,400	0.760
1/13/2016	730,340	0.730
1/14/2016	751,656	0.752
1/15/2016	722,076	0.722
1/16/2016		-
1/17/2016	700,562	0.701
1/18/2016	836,913	0.837
1/19/2016	871,794	0.872
1/20/2016	745,482	0.745
1/21/2016	794,504	0.795
1/22/2016	802,181	0.802
1/23/2016	804,546	0.805
1/24/2016	809,257	0.809
1/25/2016	766,581	0.767
1/26/2016	748,940	0.749
1/27/2016	747,757	0.748
1/28/2016	732,074	0.732
1/29/2016	734,601	0.735
1/30/2016	762,428	0.762
1/31/2016	793,158	0.793
2/1/2016	777,284	0.777
2/2/2016	763,432	0.763
2/3/2016	768,185	0.768
2/4/2016	759,075	0.759
2/5/2016	756,265	0.756
2/6/2016	794,872	0.795
2/7/2016	815,060	0.815

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
2/8/2016	797,509	0.798
2/9/2016	785,232	0.785
2/10/2016	799,325	0.799
2/11/2016	787,590	0.788
2/12/2016	797,537	0.798
2/13/2016	833,544	0.834
2/14/2016	853,664	0.854
2/15/2016	848,888	0.849
2/16/2016	859,762	0.860
2/17/2016	846,575	0.847
2/18/2016	828,183	0.828
2/19/2016	811,055	0.811
2/20/2016	816,517	0.817
2/21/2016	853,419	0.853
2/22/2016	831,072	0.831
2/23/2016	766,856	0.767
2/24/2016	752,771	0.753
2/25/2016	732,382	0.732
2/26/2016	730,362	0.730
2/27/2016	742,555	0.743
2/28/2016	767,611	0.768
2/29/2016	773,025	0.773
3/1/2016	740,566	0.741
3/2/2016	694,591	0.695
3/3/2016	675,097	0.675
3/4/2016	677,610	0.678
3/5/2016	694,770	0.695
3/6/2016	745,124	0.745
3/7/2016	699,646	0.700
3/8/2016	653,849	0.654
3/9/2016	642,806	0.643
3/10/2016	638,072	0.638
3/11/2016	621,197	0.621
3/12/2016	674,494	0.674
3/13/2016	754,230	0.754
3/14/2016	820,489	0.820
3/15/2016	817,506	0.818
3/16/2016	810,236	0.810
3/17/2016	807,411	0.807
3/18/2016	844,613	0.845
3/19/2016	847,916	0.848
3/20/2016	824,306	0.824

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
3/21/2016	851,011	0.851
3/22/2016	843,794	0.844
3/23/2016	870,988	0.871
3/24/2016	854,438	0.854
3/25/2016	867,290	0.867
3/26/2016	903,506	0.904
3/27/2016	873,122	0.873
3/28/2016	835,850	0.836
3/29/2016	811,989	0.812
3/30/2016	761,219	0.761
3/31/2016	764,357	0.764
4/1/2016	761,362	0.761
4/2/2016	764,784	0.765
4/3/2016	773,168	0.773
4/4/2016	799,929	0.800
4/5/2016	761,628	0.762
4/6/2016	750,092	0.750
4/7/2016	723,048	0.723
4/8/2016	727,840	0.728
4/9/2016	762,727	0.763
4/10/2016	790,791	0.791
4/11/2016	761,932	0.762
4/12/2016	697,651	0.698
4/13/2016	706,494	0.706
4/14/2016	668,218	0.668
4/15/2016	655,311	0.655
4/16/2016	656,968	0.657
4/17/2016	674,865	0.675
4/18/2016	651,337	0.651
4/19/2016	608,967	0.609
4/20/2016	600,802	0.601
4/21/2016	575,964	0.576
4/22/2016	598,547	0.599
4/23/2016	641,574	0.642
4/24/2016	674,445	0.674
4/25/2016	630,391	0.630
4/26/2016	582,623	0.583
4/27/2016	574,613	0.575
4/28/2016	562,551	0.563
4/29/2016	581,416	0.581
4/30/2016	627,264	0.627
5/1/2016	671,624	0.672

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
5/2/2016	649,352	0.649
5/3/2016	629,425	0.629
5/4/2016	594,642	0.595
5/5/2016	583,594	0.584
5/6/2016	590,930	0.591
5/7/2016	608,340	0.608
5/8/2016	661,341	0.661
5/9/2016	636,905	0.637
5/10/2016	558,678	0.559
5/11/2016	556,321	0.556
5/12/2016	574,230	0.574
5/13/2016	621,265	0.621
5/14/2016	660,624	0.661
5/15/2016	667,971	0.668
5/16/2016	648,166	0.648
5/17/2016	624,453	0.624
5/18/2016	622,956	0.623
5/19/2016	635,527	0.636
5/20/2016	628,767	0.629
5/21/2016	633,251	0.633
5/22/2016	644,866	0.645
5/23/2016	648,656	0.649
5/24/2016	626,939	0.627
5/25/2016	622,495	0.622
5/26/2016	637,947	0.638
5/27/2016	667,023	0.667
5/28/2016	700,077	0.700
5/29/2016	755,009	0.755
5/30/2016	746,478	0.746
5/31/2016	714,354	0.714
6/1/2016	701,644	0.702
6/2/2016	682,806	0.683
6/3/2016	673,440	0.673
6/4/2016	756,645	0.757
6/5/2016	822,075	0.822
6/6/2016	774,343	0.774
6/7/2016	749,369	0.749
6/8/2016	780,478	0.780
6/9/2016	739,098	0.739
6/10/2016	728,366	0.728
6/11/2016	748,629	0.749
6/12/2016	770,634	0.771

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
6/13/2016	744,798	0.745
6/14/2016	726,987	0.727
6/15/2016	743,989	0.744
6/16/2016	753,172	0.753
6/17/2016	742,943	0.743
6/18/2016	768,840	0.769
6/19/2016	792,953	0.793
6/20/2016	774,609	0.775
6/21/2016	762,018	0.762
6/22/2016	763,732	0.764
6/23/2016	777,736	0.778
6/24/2016	791,394	0.791
6/25/2016	797,820	0.798
6/26/2016	857,929	0.858
6/27/2016	852,237	0.852
6/28/2016	756,980	0.757
6/29/2016	775,100	0.775
6/30/2016	757,996	0.758
7/1/2016	756,196	0.756
7/2/2016	794,062	0.794
7/3/2016	836,996	0.837
7/4/2016	858,543	0.859
7/5/2016	908,778	0.909
7/6/2016	815,425	0.815
7/7/2016	787,151	0.787
7/8/2016	804,012	0.804
7/9/2016	806,736	0.807
7/10/2016	818,359	0.818
7/11/2016	809,106	0.809
7/12/2016	760,824	0.761
7/13/2016	775,762	0.776
7/14/2016	771,599	0.772
7/15/2016	793,799	0.794
7/16/2016	820,860	0.821
7/17/2016	823,021	0.823
7/18/2016	839,199	0.839
7/19/2016	808,044	0.808
7/20/2016	793,959	0.794
7/21/2016	788,852	0.789
7/22/2016	786,357	0.786
7/23/2016	801,638	0.802
7/24/2016	859,652	0.860

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
7/25/2016	883,921	0.884
7/26/2016	808,569	0.809
7/27/2016	821,032	0.821
7/28/2016	817,738	0.818
7/29/2016	788,067	0.788
7/30/2016	829,872	0.830
7/31/2016	831,651	0.832
8/1/2016	828,274	0.828
8/2/2016	791,255	0.791
8/3/2016	838,275	0.838
8/4/2016	837,123	0.837
8/5/2016	833,115	0.833
8/6/2016	835,630	0.836
8/7/2016	834,940	0.835
8/8/2016	838,772	0.839
8/9/2016	813,546	0.814
8/10/2016	762,790	0.763
8/11/2016	827,630	0.828
8/12/2016	852,726	0.853
8/13/2016	845,039	0.845
8/14/2016	871,335	0.871
8/15/2016	822,521	0.823
8/16/2016	801,110	0.801
8/17/2016	778,652	0.779
8/18/2016	780,196	0.780
8/19/2016	744,444	0.744
8/20/2016	791,691	0.792
8/21/2016	845,795	0.846
8/22/2016	793,625	0.794
8/23/2016	737,540	0.738
8/24/2016	724,291	0.724
8/25/2016	731,718	0.732
8/26/2016	693,479	0.693
8/27/2016	708,010	0.708
8/28/2016	711,259	0.711
8/29/2016	664,376	0.664
8/30/2016	638,009	0.638
8/31/2016	617,027	0.617
9/1/2016	593,251	0.593
9/2/2016	592,936	0.593
9/3/2016	627,185	0.627
9/4/2016	711,911	0.712

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
9/5/2016	752,147	0.752
9/6/2016	680,932	0.681
9/7/2016	626,484	0.626
9/8/2016	580,533	0.581
9/9/2016	595,665	0.596
9/10/2016	595,665	0.596
9/11/2016	648,913	0.649
9/12/2016	687,650	0.688
9/13/2016	650,879	0.651
9/14/2016	661,755	0.662
9/15/2016	670,338	0.670
9/16/2016	695,954	0.696
9/17/2016	699,288	0.699
9/18/2016	747,738	0.748
9/19/2016	759,923	0.760
9/20/2016	701,406	0.701
9/21/2016	670,151	0.670
9/22/2016	681,285	0.681
9/23/2016	675,289	0.675
9/24/2016	661,663	0.662
9/25/2016	697,313	0.697
9/26/2016	706,847	0.707
9/27/2016	656,166	0.656
9/28/2016	620,255	0.620
9/29/2016	617,448	0.617
9/30/2016	627,466	0.627
10/1/2016	673,470	0.673
10/2/2016	696,961	0.697
10/3/2016	684,411	0.684
10/4/2016	664,471	0.664
10/5/2016	696,170	0.696
10/6/2016	673,189	0.673
10/7/2016	676,234	0.676
10/8/2016	673,025	0.673
10/9/2016	696,494	0.696
10/10/2016	709,188	0.709
10/11/2016	711,232	0.711
10/12/2016	702,412	0.702
10/13/2016	697,339	0.697
10/14/2016	712,131	0.712
10/15/2016	707,855	0.708
10/16/2016	757,166	0.757

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
10/17/2016	704,171	0.704
10/18/2016	683,957	0.684
10/19/2016	683,853	0.684
10/20/2016	700,453	0.700
10/21/2016	695,481	0.695
10/22/2016	686,202	0.686
10/23/2016	728,268	0.728
10/24/2016	702,488	0.702
10/25/2016	638,645	0.639
10/26/2016	660,444	0.660
10/27/2016	665,263	0.665
10/28/2016	665,432	0.665
10/29/2016	656,906	0.657
10/30/2016	657,793	0.658
10/31/2016	609,192	0.609
11/1/2016	576,870	0.577
11/2/2016	568,271	0.568
11/3/2016	572,597	0.573
11/4/2016	575,684	0.576
11/5/2016	615,173	0.615
11/6/2016	654,802	0.655
11/7/2016	637,611	0.638
11/8/2016	621,196	0.621
11/9/2016	640,376	0.640
11/10/2016	631,020	0.631
11/11/2016	669,513	0.670
11/12/2016	699,870	0.700
11/13/2016	743,560	0.744
11/14/2016	693,560	0.694
11/15/2016	632,925	0.633
11/16/2016	645,739	0.646
11/17/2016	629,385	0.629
11/18/2016	625,225	0.625
11/19/2016	686,096	0.686
11/20/2016	753,795	0.754
11/21/2016	732,136	0.732
11/22/2016	717,823	0.718
11/23/2016	744,500	0.745
11/24/2016	748,312	0.748
11/25/2016	746,265	0.746
11/26/2016	742,152	0.742
11/27/2016	755,093	0.755

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
11/28/2016	618,975	0.619
11/29/2016	642,045	0.642
11/30/2016	612,655	0.613
12/1/2016	909,432	0.909
12/2/2016	611,505	0.612
12/3/2016	663,048	0.663
12/4/2016	714,593	0.715
12/5/2016	632,835	0.633
12/6/2016	788,400	0.788
12/7/2016	697,357	0.697
12/8/2016	654,898	0.655
12/9/2016	728,404	0.728
12/10/2016	661,716	0.662
12/11/2016	708,740	0.709
12/12/2016	679,808	0.680
12/13/2016	676,583	0.677
12/14/2016	695,321	0.695
12/15/2016	689,141	0.689
12/16/2016	663,423	0.663
12/17/2016	719,209	0.719
12/18/2016	782,995	0.783
12/19/2016	797,961	0.798
12/20/2016	779,144	0.779
12/21/2016	842,446	0.842
12/22/2016	850,941	0.851
12/23/2016	869,590	0.870
12/24/2016	876,876	0.877
12/25/2016	889,049	0.889
12/26/2016	918,838	0.919
12/27/2016	896,630	0.897
12/28/2016	899,770	0.900
12/29/2016	907,364	0.907
12/30/2016	918,706	0.919
12/31/2016	891,881	0.892
1/1/2017	906,797	0.907
1/2/2017	890,412	0.890
1/3/2017	858,914	0.859
1/4/2017	870,026	0.870
1/5/2017	843,463	0.843
1/6/2017	815,369	0.815
1/7/2017	814,029	0.814
1/8/2017	844,173	0.844

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
1/9/2017	777,742	0.778
1/10/2017	742,502	0.743
1/11/2017	732,455	0.732
1/12/2017	747,751	0.748
1/13/2017	741,992	0.742
1/14/2017	789,342	0.789
1/15/2017	803,826	0.804
1/16/2017	798,010	0.798
1/17/2017	797,235	0.797
1/18/2017	774,378	0.774
1/19/2017	739,618	0.740
1/20/2017	744,139	0.744
1/21/2017	752,538	0.753
1/22/2017	805,296	0.805
1/23/2017	774,464	0.774
1/24/2017	742,815	0.743
1/25/2017	752,965	0.753
1/26/2017	746,768	0.747
1/27/2017	747,279	0.747
1/28/2017	752,293	0.752
1/29/2017	782,614	0.783
1/30/2017	756,114	0.756
1/31/2017	735,294	0.735
2/1/2017	709,028	0.709
2/2/2017	677,150	0.677
2/3/2017	696,370	0.696
2/4/2017	739,705	0.740
2/5/2017	779,479	0.779
2/6/2017	755,756	0.756
2/7/2017	763,432	0.763
2/8/2017	782,214	0.782
2/9/2017	750,272	0.750
2/10/2017	775,693	0.776
2/11/2017	787,596	0.788
2/12/2017	800,278	0.800
2/13/2017	819,105	0.819
2/14/2017	807,293	0.807
2/15/2017	810,919	0.811
2/16/2017	798,343	0.798
2/17/2017	813,754	0.814
2/18/2017	835,082	0.835
2/19/2017	851,558	0.852

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
2/20/2017	836,654	0.837
2/21/2017	822,786	0.823
2/22/2017	822,497	0.822
2/23/2017	793,741	0.794
2/24/2017	818,557	0.819
2/25/2017	842,334	0.842
2/26/2017	856,359	0.856
2/27/2017	804,888	0.805
2/28/2017	750,538	0.751
3/1/2017	739,877	0.740
3/2/2017	732,283	0.732
3/3/2017	721,928	0.722
3/4/2017	791,358	0.791
3/5/2017	823,916	0.824
3/6/2017	822,532	0.823
3/7/2017	756,206	0.756
3/8/2017	740,798	0.741
3/9/2017	717,698	0.718
3/10/2017	737,786	0.738
3/11/2017	782,351	0.782
3/12/2017	816,978	0.817
3/13/2017	825,327	0.825
3/14/2017	759,726	0.760
3/15/2017	770,748	0.771
3/16/2017	744,905	0.745
3/17/2017	743,311	0.743
3/18/2017	836,336	0.836
3/19/2017	861,289	0.861
3/20/2017	868,228	0.868
3/21/2017	824,600	0.825
3/22/2017	817,194	0.817
3/23/2017	850,291	0.850
3/24/2017	863,807	0.864
3/25/2017	882,094	0.882
3/26/2017	923,857	0.924
3/27/2017	933,026	0.933
3/28/2017	880,100	0.880
3/29/2017	837,853	0.838
3/30/2017	835,396	0.835
3/31/2017	841,386	0.841
4/1/2017	861,914	0.862
4/2/2017	910,888	0.911

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
4/3/2017	878,347	0.878
4/4/2017	826,758	0.827
4/5/2017	785,559	0.786
4/6/2017	760,325	0.760
4/7/2017	751,430	0.751
4/8/2017	753,242	0.753
4/9/2017	801,333	0.801
4/10/2017	806,051	0.806
4/11/2017	806,091	0.806
4/12/2017	761,159	0.761
4/13/2017	776,298	0.776
4/14/2017	797,873	0.798
4/15/2017	814,329	0.814
4/16/2017	729,143	0.729
4/17/2017	725,630	0.726
4/18/2017	655,028	0.655
4/19/2017	646,039	0.646
4/20/2017	618,038	0.618
4/21/2017	638,202	0.638
4/22/2017	639,886	0.640
4/23/2017	636,988	0.637
4/24/2017	611,749	0.612
4/25/2017	534,765	0.535
4/26/2017	595,654	0.596
4/27/2017	590,261	0.590
4/28/2017	600,332	0.600
4/29/2017	639,071	0.639
4/30/2017	681,954	0.682
5/1/2017	646,700	0.647
5/2/2017	598,648	0.599
5/3/2017	604,618	0.605
5/4/2017	598,654	0.599
5/5/2017	619,699	0.620
5/6/2017	599,377	0.599
5/7/2017	630,858	0.631
5/8/2017	613,487	0.613
5/9/2017	601,436	0.601
5/10/2017	604,079	0.604
5/11/2017	588,701	0.589
5/12/2017	621,887	0.622
5/13/2017	621,881	0.622
5/14/2017	658,795	0.659

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
5/15/2017	687,355	0.687
5/16/2017	650,248	0.650
5/17/2017	641,139	0.641
5/18/2017	659,520	0.660
5/19/2017	693,974	0.694
5/20/2017	666,553	0.667
5/21/2017	642,129	0.642
5/22/2017	635,067	0.635
5/23/2017	662,399	0.662
5/24/2017	665,477	0.665
5/25/2017	661,930	0.662
5/26/2017	671,445	0.671
5/27/2017	723,504	0.724
5/28/2017	724,766	0.725
5/29/2017	756,950	0.757
5/30/2017	737,443	0.737
5/31/2017	679,176	0.679
6/1/2017	659,467	0.659
6/2/2017	691,743	0.692
6/3/2017	711,542	0.712
6/4/2017	715,990	0.716
6/5/2017	697,747	0.698
6/6/2017	711,542	0.712
6/7/2017	731,460	0.731
6/8/2017	763,723	0.764
6/9/2017	747,819	0.748
6/10/2017	742,819	0.743
6/11/2017	727,905	0.728
6/12/2017	758,756	0.759
6/13/2017	712,700	0.713
6/14/2017	680,328	0.680
6/15/2017	680,340	0.680
6/16/2017	715,365	0.715
6/17/2017	711,956	0.712
6/18/2017	734,569	0.735
6/19/2017	756,053	0.756
6/20/2017	751,524	0.752
6/21/2017	760,019	0.760
6/22/2017	773,321	0.773
6/23/2017	770,274	0.770
6/24/2017	787,522	0.788
6/25/2017	808,315	0.808

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
6/26/2017	808,386	0.808
6/27/2017	784,523	0.785
6/28/2017	779,924	0.780
6/29/2017	763,728	0.764
6/30/2017	770,433	0.770
7/1/2017	797,348	0.797
7/2/2017	804,432	0.804
7/3/2017	815,604	0.816
7/4/2017	833,445	0.833
7/5/2017	886,524	0.887
7/6/2017	835,234	0.835
7/7/2017	822,626	0.823
7/8/2017	796,943	0.797
7/9/2017	803,909	0.804
7/10/2017	819,602	0.820
7/11/2017	808,091	0.808
7/12/2017	827,275	0.827
7/13/2017	817,387	0.817
7/14/2017	792,607	0.793
7/15/2017	777,211	0.777
7/16/2017	775,092	0.775
7/17/2017	765,073	0.765
7/18/2017	770,720	0.771
7/19/2017	751,685	0.752
7/20/2017	752,100	0.752
7/21/2017	786,933	0.787
7/22/2017	805,223	0.805
7/23/2017	792,572	0.793
7/24/2017	817,101	0.817
7/25/2017	806,515	0.807
7/26/2017	807,654	0.808
7/27/2017	788,215	0.788
7/28/2017	813,142	0.813
7/29/2017	796,644	0.797
7/30/2017	828,993	0.829
7/31/2017	827,088	0.827
8/1/2017	820,406	0.820
8/2/2017	802,754	0.803
8/3/2017	781,718	0.782
8/4/2017	809,814	0.810
8/5/2017	807,690	0.808
8/6/2017	829,804	0.830

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
8/7/2017	840,613	0.841
8/8/2017	805,646	0.806
8/9/2017	772,744	0.773
8/10/2017	772,744	0.773
8/11/2017	784,347	0.784
8/12/2017	795,628	0.796
8/13/2017	777,296	0.777
8/14/2017	802,264	0.802
8/15/2017	757,163	0.757
8/16/2017	715,263	0.715
8/17/2017	731,217	0.731
8/18/2017	721,347	0.721
8/19/2017	729,230	0.729
8/20/2017	744,624	0.745
8/21/2017	726,114	0.726
8/22/2017	704,771	0.705
8/23/2017	706,861	0.707
8/24/2017	691,748	0.692
8/25/2017	668,663	0.669
8/26/2017	694,672	0.695
8/27/2017	739,188	0.739
8/28/2017	726,667	0.727
8/29/2017	684,546	0.685
8/30/2017	646,864	0.647
8/31/2017	615,689	0.616
9/1/2017	612,416	0.612
9/2/2017	613,080	0.613
9/3/2017	718,463	0.718
9/4/2017	705,738	0.706
9/5/2017	670,421	0.670
9/6/2017	617,668	0.618
9/7/2017	613,770	0.614
9/8/2017	625,870	0.626
9/9/2017	618,635	0.619
9/10/2017	646,083	0.646
9/11/2017	647,078	0.647
9/12/2017	650,499	0.650
9/13/2017	627,641	0.628
9/14/2017	616,334	0.616
9/15/2017	638,638	0.639
9/16/2017	626,311	0.626
9/17/2017	675,492	0.675

R-Plant Influent Flows

Date	Flow [GPD]	Flow [MGD]
9/18/2017	663,724	0.664
9/19/2017	682,161	0.682
9/20/2017	682,161	0.682
9/21/2017	649,798	0.650
9/22/2017	633,961	0.634
9/23/2017	668,745	0.669
9/24/2017	670,684	0.671
9/25/2017	620,688	0.621
9/26/2017	597,097	0.597
9/27/2017	600,540	0.601
9/28/2017	581,803	0.582
9/29/2017	601,768	0.602
9/30/2017	611,166	0.611
10/1/2017	648,735	0.649
10/2/2017	661,416	0.661
10/3/2017	630,924	0.631
10/4/2017	642,736	0.643
10/5/2017	620,007	0.620
10/6/2017	641,796	0.642

VERIFICATION OF PAUL TOWNSLEY

STATE OF California)
) SS.
COUNTY Santa Clara)

PAUL TOWNSLEY, being first duly sworn, deposes and says:

1. That he is the Vice President-Regulatory Matters of WAIKOLOA RESORT UTILITIES, INC., dba WEST HAWAII UTILITY COMPANY, ("WHUC") and is the duly appointed representative of WHUC in the above matter;

2. That he has read the foregoing Application and exhibits, and knows the contents thereof; and

3. That he is authorized by WHUC to verify, and he does verify, that the contents of the foregoing Application are true to the best of his knowledge, information, and belief.

FURTHER AFFIANT SAYETH NAUGHT.

DATED: Dec 19, _____, _____, 2017.

PAUL TOWNSLEY

Subscribed and sworn to before me
this 19 day of Dec 2017

Notary Public, State of California
My commission expires: 1-21-2021

LINA JO DISTEFANO
Notary Public - California
Santa Clara County
Commission # 2176986
My Comm. Expires Jan 21, 2021

CERTIFICATE OF SERVICE

I hereby certify that on this date, copies of the foregoing document were duly served on the following, by having said copies delivered as set forth below:

DIVISION OF CONSUMER ADVOCACY DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS 335 Merchant Street, Room 326 Honolulu, Hawaii 96813	3 COPIES VIA HAND-DELIVERY
THE HONORABLE HARRY KIM Mayor County of Hawaii 25 Aupuni Street Hilo, Hawaii 96720	1 COPY VIA U.S. MAIL

DATED: Honolulu, Hawaii, December 29, 2017.

J. DOUGLAS ING
PAMELA J. LARSON
DAVID Y. NAKASHIMA
Attorneys for Applicant
WAIKOLOA RESORT UTILITIES, INC., dba
WEST HAWAII UTILITY COMPANY