ORIGINAL

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS
SUSAN BITTER SMITH - Chairman
BOB STUMP
BOB BURNS
DOUG LITTLE
TOM FORESE

IN THE MATTER OF THE APPLICATION OF LIBERTY UTILITIES (BLACK MOUNTAIN SEWER) CORP., AN ARIZONA CORPORATION, FOR AUTHORITY TO ISSUE EVIDENCE OF INDEBTEDNESS IN AN AMOUNT NOT TO EXCEED $3,400,000.	DOCKET NO. SW-02361A-15-0206
IN THE MATTER OF THE APPLICATION OF LIBERTY UTILITIES (BLACK MOUNTAIN SEWER) CORP., AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANTS AND PROPERTY AND FOR INCREASES IN ITS WASTEWATER RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO. SW-02361A-15-0207

STAFF'S NOTICE OF FILING DIRECT TESTIMONY

The Utilities Division ("Staff") of the Arizona Corporation Commission ("Commission") hereby files the Direct Testimony of Staff witnesses Crystal S. Brown and Dorothy Hains, P.E., in the above-captioned matter.

RESPECTFULLY SUBMITTED this 2nd day of December, 2015.

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DIRECT TESTIMONY OF

CRYSTAL S. BROWN

EXECUTIVE CONSULTANT III

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

DECEMBER 2, 2015

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Revenue Requirement

Liberty Utilities (Black Mountain Sewer), Corporation ("Black Mountain" or "Company") is a certificated Arizona public service corporation that provides wastewater utility service to approximately 2,100 customers primarily in the Town of Carefree, in unincorporated portions of Maricopa County and in portions of the City of Scottsdale. The current rates for Black Mountain were approved in Decision No. 71865, dated August 31, 2010.

On June 22, 2015, Black Mountain filed applications for a permanent rate increase and financing approval with the Arizona Corporation Commission ("Commission"). A Procedural Order, dated July 6, 2015, granted the Company's request to consolidate the permanent rate increase and financing applications.

Black Mountain proposed a $56,929, or 2.54 percent, revenue increase from $2,239,848 to $2,296,777. The proposed revenue increase would produce an operating income of $294,082 for an 8.62 percent rate of return on an original cost rate base ("OCRB") of $3,412,024.

Staff recommends a $171,514, or 7.66 percent, revenue decrease from $2,239,848 to $2,068,334. Staff's proposed revenue decrease would produce an operating income of $212,719 for a 7.08 percent rate of return on an OCRB of $3,004,503.

Staff's typical bill analysis information will be filed with Staff's rate design testimony.

Financing

Black Mountain is requesting approval to borrow an amount not to exceed $3,400,000 from Liberty Utilities Company ("Liberty Utilities") to rebalance its capital structure by replacing equity with debt. Staff recommends approval with conditions.

Cost of Capital

Black Mountain proposed an 8.62 percent rate of return. Black Mountain's proposed rate of return was calculated using a 10.8 percent cost of equity, a 3.53 percent cost of debt, and a capital structure consisting of 30 percent debt and 70 percent equity.

Staff recommends a 7.08 percent rate of return. Staff's recommended rate of return was calculated using an 8.60 percent cost of equity, a 3.53 percent cost of debt, and a capital structure consisting of 30 percent debt and 70 percent equity.

INTRODUCTION

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

A. My name is Crystal S. Brown. I am an Executive Consultant III employed by the Arizona Corporation Commission ("Commission") in the Utilities Division ("Staff"). My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

Q. Briefly describe your responsibilities as an Executive Consultant III.

A. I am responsible for the examination and verification of financial and statistical information included in utility rate applications and other financial matters, including performing studies to estimate the cost of capital component in rate filings and developing revenue requirements. In addition, I prepare written reports, testimonies, and schedules that include Staff recommendations to the Commission. I am also responsible for testifying at formal hearings on these matters.

Q. Please describe your educational background and professional experience.

A. I received a Bachelor of Science Degree in Business Administration from the University of Arizona and a Bachelor of Science Degree in Accounting from Arizona State University.

Since joining the Commission in August 1996, I have participated in numerous rate cases and other regulatory proceedings involving electric, gas, water, and wastewater utilities. I have testified on matters involving regulatory accounting and auditing. Additionally, I have attended utility-related seminars sponsored by the National Association of Regulatory Utility Commissioners ("NARUC") on ratemaking and accounting designed to provide continuing and updated education in these areas.

Q. What is the scope of your testimony in this case?

A. I am presenting Staff's analysis and recommendations in the areas of rate base, operating revenues, expenses, a financing request, and cost of capital regarding the Liberty Utility's (Black Mountain) Sewer, Corp. ("Black Mountain" or "Company") application for a permanent rate increase. I will present Staff's testimony regarding Staff's recommended rate design in a separate filing. Staff witness, Dorothy Hains, is presenting Staff's engineering analysis and recommendations.

Q. What is the basis of your recommendations?

A. I performed a regulatory audit of the Company's application to determine whether sufficient, relevant, and reliable evidence exists to support the Company's requested rate increase. The regulatory audit consisted of examining and testing the financial information, accounting records, and other supporting documentation and verifying that the accounting principles applied were in accordance with the Commission-adopted NARUC Uniform System of Accounts ("USoA").

BACKGROUND

Q. Please provide a brief description of Black Mountain and the service it provides.

A. Black Mountain is an Arizona Class C utility engaged in the business of providing wastewater service in portions of Maricopa County, Arizona. Black Mountain provided wastewater service to approximately 2,100 customers during the test year. The current rates for Black Mountain were approved in Decision No. 71865, dated August 31, 2010.

Q. What are the primary reasons for Black Mountain's requested permanent rate increase?

A. According to the Company, the primary reasons are to recover increased operating expenses and to earn its authorized rate of return. Further, in Decision No. 71865, the Commission ordered that Black Mountain, in its next rate case:

> "present evidence regarding alternative methods for calculating sewage flow assumptions used for billing commercial customers. The Company shall consider, at a minimum: contacting ADEQ regarding plans for revising Bulletin No. 12; other sewage flow data based on technological improvements and conservation assumptions; and whether it is possible to obtain actual water usage data from the water utilities in the Company's service area for purposes of calculating more accurate wastewater flows on its system."[1]

The Commission also made it to clear to the Company in a complaint proceeding involving the Venues Café that the Company should file a rate case and propose a new rate design, preferably based on actual water usage as soon as possible. Staff will address the Company's proposed rate design in its rate design testimony.

Black Mountain is ultimately owned by Algonquin Power & Utilities Corp. ("APUC"). Liberty Utilities Co. ("Liberty Utilities") is a Delaware corporation that operates regulated gas, water, sewer and electric utilities in ten states-Arizona, Arkansas, California, Iowa, Illinois, Missouri, Georgia, Massachusetts, New Hampshire and Texas. Liberty Utilities Co. is a subsidiary of Liberty Utilities (Canada) Corp. ("Liberty Utilities Canada"). The Arizona

[1] Decision No. 71865 at 67.

utilities are wholly owned subsidiaries of Liberty Utilities (Sub) Corp., which is a wholly owned subsidiary of Liberty Utilities.[2] APUC, a publicly traded member of the Toronto Stock Exchange and is a registrant with the U.S. Security and Exchange Commission.

APUC is a $4.1 billion electric generation, transmission and distribution utility company based in Oakville, Ontario. APUC subsidiaries own and operate regulated utilities in the United States, and own non-regulated generation facilities and regulated electric transmission and natural gas pipelines throughout the United States and Canada. The distribution business group operates in the United States as Liberty Utilities and provides rate regulated water, electricity and natural gas utility services to over 488,000 customers. The electric generation business group operates as Algonquin Power Co. and owns or has interests in a portfolio of North American based contracted wind, solar, hydroelectric and natural gas powered generating facilities representing more than 1,150 MW of installed capacity. The transmission business group invests in rate regulated electric transmission and natural gas pipeline systems in the United States and Canada.

CONSUMER SERVICE

Q. Please provide a brief history of customer complaints received by the Commission regarding Black Mountain.

A. Staff reviewed the history of customer complaints for Black Mountain for the period January 1, 2012 to November 3, 2015 is as follows:

2015 - Three complaints (three billing).

2014 - One complaint (billing)

2013 - Two complaints (two billing)

[2] The other Liberty utilities in Arizona are: Liberty Utilities (Bella Vista Water), Liberty Utilities (Litchfield Park Water and Sewer) Corp., Liberty Utilities (Rio Rico Water and Sewer) Corp, Gold Canyon Sewer Company, Entrada del Oro Sewer Company.

2012 - One complaint (billing)

One complaint remains open pending investigation; all others were resolved and closed.

COMPLIANCE

Q. Please provide a summary of the compliance status of Black Mountain.

A. A check of the Commission's Compliance database indicates that Black Mountain is currently in compliance.

ORDER OF TESTIMONY

Q. What is the order of your testimony?

A. I will first discuss my analysis, recommendations, and supporting schedules for the revenue requirement followed by Staff's financing and cost of capital recommendations. Staff's recommended rate design will be presented in a separate filing.

REVENUE REQUIREMENT

REVENUE REQUIREMENT

SUMMARY OF PROPOSED REVENUES

Q. Please summarize Black Mountain's filing.

A. The Company proposes total annual operating revenue of $2,296,777. This represents an increase of $56,929, or 2.54 percent, over test year revenue of $2,239,848. The proposed revenue increase would produce an operating income of $294,082 for an 8.62 percent rate of return on an original cost rate base of $3,412,024.

Q. Please summarize Staff's recommended revenue.

A. Staff recommends a $171,514, or 7.66 percent, revenue decrease from $2,239,848 to $2,068,334. Staff's proposed revenue decrease would produce an operating income of $212,719 for a 7.08 percent rate of return on an OCRB of $3,004,503.

Q. What test year did Black Mountain utilize in this filing?

A. Black Mountain's test year is based on the twelve months ended December 31, 2014.

Q. Please summarize Staff's rate base and operating income adjustments for Black Mountain.

A. Staff's adjustments to rate base and operating expenses address the following:

Rate Base Adjustments

Allocated Corporate Plant – This adjustment decreases plant in service by $97,465 to remove plant that the Company does not directly own.

Reclassified Plant and Not Used and Useful Plant – This adjustment decreases plant in service by $34,819 to reclassify plant assets to the proper plant accounts and to remove plant that is not used and useful.

Accumulated Depreciation – This adjustment increases accumulated depreciation by $92,332. The adjustment reflects Staff's calculation of accumulated depreciation based on Staff's adjustments to plant.

Advances In Aid of Construction ("AIAC") – This adjustment decreases AIAC by $1,574,594 to reflect Staff's reclassification of AIAC that was not fully refunded after ten years to CIAC, consistent with Company's tariff.

Contributions in Aid of Construction ("CIAC") and Accumulated Amortization of CIAC – This adjustment increases gross CIAC by $1,574,594 and accumulated amortization of CIAC by $31,131 as the result of transferring AIAC that was not fully refunded after ten years to the CIAC account.

Accumulated Deferred Income Taxes ("ADIT") – This adjustment increases the ADIT balance by $137,259 as the result of reflecting Staff's calculation of the ADIT using the Staff recommended plant, accumulated depreciation, CIAC, and AIAC balances as well as the Staff recommended income tax rates.

Cash Working Capital ("CWC") – This adjustment decreases cash working capital by $76,776 to reflect the inclusion of interest expense and the removal of rate case expense in the lead-lag study consistent with the Commission's treatment in the Company's last rate case.

Operating Income Adjustments

Reclassification and Expected 2015 & 2016 Affiliate Labor Increase – This adjustment decreases Salaries and Wages by $242,213 by (1) reclassifying $220,598 in expenses from the Salaries and Wages account to Contractual Services to reflect that the Company has no employees and (2) removing $21,615 in unsupported salary increases that were expected to occur in 2015 and 2016.

Contractual Services, Testing – This adjustment increases Contractual Services - Testing expense by $3,334 to reflect Staff's recommended annual testing costs.

Corporate Expense Allocation – This adjustment decreases the Company's proposed corporate expense allocation by $30,103 to reflect the calculation consistent with Decision No. 71865.

Depreciation Expense – This adjustment decreases depreciation expense by $97,831 to reflect Staff's calculation of depreciation expense using Staff's recommended depreciation rates and Staff's recommended plant and CIAC balances. This adjustment is in part based upon a Company acknowledgement that specific elements of its plant in service was fully depreciated as of the end of the test year.

Income Tax Expense – This adjustment increases income tax expense by $39,222 to reflect the income tax calculation on Staff's adjusted test year operating income.

RATE BASE

Fair Value Rate Base

Q. Did the Company prepare schedules showing the elements of Reconstruction Cost New Rate Base?

A. No, the Company did not. The Company's filing treats the OCRB the same as the fair value rate base.

Rate Base Summary

Q. Please summarize Staff's adjustments to Black Mountain's rate base shown on Schedules CSB-3 and CSB-4.

A. Staff's adjustments to Black Mountain's rate base resulted in a net decrease of $407,521 from $3,412,024 to a $3,004,503. This decrease was primarily due to (1) Staff's removal of plant that the Company does not own, (2) Staff's removal of not used and useful plant, (3) increases to the ADIT, and (4) decreases to cash working capital.

Rate Base Adjustment No. 1 – Allocated Corporate Plant

Q. What is the definition of a plant asset?

A. In general, it is an item of plant that a company directly owns or that it has acquired through a capital lease.

Q. Has Black Mountain made a pro forma adjustment to include plant allocated from its parent company?

A. Yes, Black Mountain has proposed to include $97,465 in plant allocated from its parent company.

Q. Does Black Mountain directly own the plant that has been allocated from its parent company?

A. No, the parent company owns the plant and utilizes a portion of the plant for Black Mountain's operations and for the operations of the 21 other regulated utilities that the parent company owns.

Q. How should the cost of the parent company's plant that is used to serve Black Mountain's customers be reflected in the revenue requirement?

A. Staff believes that the appropriate treatment for this operational support facilities cost is to include a reasonable portion of the related depreciation expense as an allocation in operating expense. Staff will address this issue in "Operating Income Adjustment No. 3, Corporate Expense Allocation."

Q. What is Staff recommending?

A. Staff recommends decreasing plant in service by $97,465 to remove plant that the Company does not directly own as shown on Schedules CSB-4 and CSB-5.

Rate Base Adjustment No. 2 – Reclassified Plant and Not Used and Useful Plant

Q. During the course of the audit, did Staff identify any plant that was not used and useful and/or incorrectly classified?

A. Yes.

Q. What was the basis of Staff's determination?

A. Dorothy Hains, Staff's Engineer, inspected the entire system and identified certain individual plant items that were not serving customers during the test year and/or that were improperly classified. Further, the NARUC USoA requires that plant costs be placed in the correct plant

account. Proper classification will ensure that depreciation expense will be calculated using the correct depreciation rates.

Q. What is Staff recommending?

A. Staff recommends decreasing plant in service by $34,819 as shown on Schedules CSB-4 and CSB-6.

Accumulated Depreciation – Background

Purpose of Recording Depreciation Expense

Q. What is the primary purpose of calculating and recording depreciation expense?

A. The primary purpose of calculating and recording depreciation expense is to allocate the cost of a plant asset over the asset's service (i.e. useful) life, so that by the time an asset is fully depreciated[3] it should have reached the end of its service life. This is consistent with the accounting matching principle.

Q. Is Staff's statement concerning the purpose of calculating and recording depreciation expense supported by the NARUC USoA and the Arizona Administrative Code?

A. Yes, it is supported by both. Definition 15 of the NARUC USoA for Class C Utilities defines depreciation as follows:

> "Straight-line method" as applied to depreciation accounting, means the plan under which **the service value of property is charged to operating expenses** (and to clearing accounts if used), and credited to the accumulated depreciation account **through equal annual charges during its *service life*** . . . (Emphasis added).

[3] The term "fully depreciated" as used here means the amount of accumulated depreciation for a plant assets equals its original costs less salvage value.

Where ***service life*** is defined as "**the period between the time of installation of utility plant and the time of its retirement.**[4]" Emphasis and footnote added.

Further, R14-2-102, paragraph (A) (3) of the Arizona Administrative Code defines depreciation as follows:

> "Depreciation " means an accounting process which will permit **the recovery of the original cost of an asset less its net salvage over the *service life*.** (Emphasis added).

Where ***service life*** is defined as "**the period between the date an asset is first devoted to public service and the date of its retirement from service.**"[5]

The Importance of Estimating and Using an Accurate Service Life

Q. How is the service life of an asset related to the calculation of the depreciation rate?

A. The depreciation rate is calculated by dividing one by the service life determined for that particular plant account. For example, if the service life of the pumping equipment account is determined to be eight years, then the **depreciation rate** for pumping equipment would be calculated as follows: 1 ÷ 8 years = 12.5%.

Q. Are there numerous methods of estimating the service life of a plant group?

A. Yes. However, not all methods will result in plant being fully depreciated by the time the underlying asset is to be retired.

Q. Can a retirement or survivor curve be used to obtain the service life of a plant group?

A. Yes. On page 67 of the NARUC's *Public Utility Depreciation Practices* publication, it states:

[4]Definition 12 of the NARUC USOA for Class C utilities
[5]R14-2-102, paragraph (A) (9)

> The survivor curve may be used to obtain an indication of the average of the lives of all the units, or dollars, in the group, i.e., the ***average life*** of the property

Q. What is the most reliable approach to determining a service life that is accurate and results in a depreciation rate that allows an asset to be fully depreciated at approximately the same time the asset is retired?

A. The most reliable approach is to periodically conduct a depreciation study because depreciation studies:

- Are company specific
- Have retirement rates, and hence, service lives, that vary by company due to the quality of plant materials used to construct plant assets, wear and tear and the regularity of maintenance performed on plant assets, and the environment in which the assets are operated.
- Are based upon the best information available
- Use survivor (Iowa) curves to plot data to determine survival rates and average service lives

Q. After an estimated service life has been determined and a depreciation rate has been calculated, is there a requirement to periodically review the rate?

A. Yes, Accounting Instruction No. 5 (c) of the NARUC USOA for Class C Utilities states:

> When the straight-line method is used, the rates **shall be reviewed periodically and adjusted as required**, so that the depreciation accrual **will bear a reasonable relationship to the service life**, the estimated net salvage, and the cost of the plant in service. (Emphasis added).

Q. Are depreciation studies expensive?

A. Yes, they can be relatively expensive to undertake, which is why most Class C, D, and E utility companies do not perform a new depreciation study to support their depreciation rates. However, without undertaking periodic depreciation studies to establish, or affirm, accurate service lives for a specific company's plant, companies will oftentimes have plant that is fully depreciated on its books but remains in service. Evidence of such plant remaining in service significantly past the point where the utility's original cost has been fully recovered through the recognition depreciation expense clearly indicates that the depreciation rate being used was **not** set to align with the actual service life of the asset. This situation violates the accounting matching principle and is inconsistent with the objectives of the NARUC USoA and the Administrative Code and results in numerous problems as discussed later.

Q. Did Black Mountain perform a depreciation study or similar type review to support its proposed depreciation rates in the instant case?

A. No, it did not. Black Mountain is proposing the same rates that Staff recommended in its prior rate case and were approved by the Commission.

Broad Group Depreciation – When and How It Is An Acceptable Approach To Calculating Depreciation

Q. What is the Broad Group approach to depreciation?

A. Under the Broad Group Method of depreciation, plant is not considered fully depreciated until it is retired.

Q. What is the underlying assumption in the Broad Group approach?

A. The underlying assumption, of course, is that the service lives used to depreciate the plant are accurate. Accurate services lives will result in the cost of the plant assets being allocated over the assets' useful life such that when the plant is fully depreciated, it is also retired because it is no longer working or providing service economically.

Q. Is the Broad Group Method an acceptable method to use if a company does not establish accurate service lives for the underlying assets?

A. No. As the Commission has seen in several recent rate cases, use of the Broad Group method without periodic review of the remaining service life of the asset group through a depreciation study results in excess depreciation expense being recovered, harms customers, and results in numerous other problems as will be discussed later in my testimony.

Q. Is the Broad Group Method an acceptable method to use if a company does not periodically review and request Commission authorization to change its depreciation rates when necessary?

A. As just noted, the Broad Group approach is not an acceptable approach when companies do not periodically review the estimated service lives used to determine their depreciation rates and request Commission authorization to change its depreciation rates when necessary. While Staff recognizes that the Broad Group Method is a generally accepted approach to recording depreciation expense for groups of homogeneous assets that could become administratively burdensome to depreciate as individual property units; it should <u>not</u> be used by companies that do not conduct periodic reviews of depreciation rates as required by the NARUC USoA.

Q. Ms. Brown, returning to the earlier question about it being expensive to undertake periodic depreciation studies. Would you agree that a regulated utility could ask that the cost of conducting such depreciation studies be normalized or otherwise amortized into its cost of service over a number of years?

A. Yes.

Q. What problems can occur when companies do not periodically review and obtain Commission authorization to update depreciation rates when necessary?

A. Under the broad group depreciation procedure, plant is not considered fully depreciated until it is retired. Therefore, an inaccurate estimated service life can result in plant that is fully depreciated but still remains in service. Keep in mind that the existence of plant still in service after the original cost has been passed through rates before the asset is scheduled for retirement, indicates that the matching principle has not been properly followed in the past. This situation can cause the following problems:

1. Excess depreciation – The calculation of excess depreciation caused by the continued depreciation of plant items that have been fully depreciated but remain in service. For example, consider a $10,000 pump with an estimated service life of eight years that actually stays in service for 11 years. The pump would be fully depreciated after eight years (i.e. there would be $10,000 in the accumulated depreciation account). However, for each year the pump remained in service, an additional $1,250 in depreciation expense per year totaling $3,750 would be added to the accumulated depreciation account. Total accumulated depreciation would be $13,750 ($10,000 + $3,750). Excess depreciation is inconsistent with the intent of the NARUC USOA and the Administrative Code.

2. Negative Net Plant Balances - Excess depreciation can cause negative net plant balances. Net plant can be defined as original cost less accumulated depreciation. Using the example above, net plant would be negative because the original cost of the asset has been over depreciated: $10,000 - $13,750 = ($3,750). Negative net plant balances are not consistent with the NARUC USoA.

3. Captive Customers Over Pay for Plant – Excess depreciation causes captive customers to pay more for the plant than what the company actually paid for it.

4. Questionable Financial Statements – Excess depreciation can cause financial statements to be inaccurate; jeopardizing the quality of the statements by providing a presentation of the financial position of the utility that is questionable.

Again Items No.3 and No. 4 suggest a past short coming in the Company's efforts to follow the accounting matching principle.

Q. Does Black Mountain use the Broad Group depreciation procedure?

A. Yes. However, the Company has modified the procedure such that the Company has stopped depreciation on some of its fully depreciated plant balances.

Q. Has the Company stopped depreciating all of its fully depreciated plant balances?

A. No, it has not. Therefore, excess depreciation continues to be calculated on fully depreciated plant.

Q. Has Staff found evidence of excess depreciation in Black Mountain's accumulated depreciation account?

A. Yes, Staff has found that Account No. 354, Structures and Improvements and Account No. 363, Services to Customers has fully depreciated plant that the Company continues to depreciate.

Q. What is Staff's recommendation concerning this plant?

A. Staff recommends that the Company discontinue calculating depreciation on the fully depreciated plant on a going forward basis.

Q. Has Staff addressed the issue in its depreciation expense adjustment?

A. Yes. Staff has made a prospective adjustment to address the problem which is discussed in the "Operating Expense Adj. No. 5, - Depreciation Expense" section of my testimony.

Q. Does Staff have another recommendation in this area?

A. Yes. Staff believes the Company should be directed to select an independent depreciation study expert to assess the reasonableness of its depreciation rates as part of its next full rate case filing.

Rate Base Adjustment No. 3 – Accumulated Depreciation

Q. What did the Company propose for Accumulated Depreciation?

A. The Company proposed accumulated depreciation in the amount $8,654,682.

Q. What adjustments did Staff make to Accumulated Depreciation?

A. Staff increased accumulated depreciation by $92,332 as shown on Schedule CSB-7. This adjustment is composed of (1) a $94,276 increase to reflect the change in accumulated

depreciation due to Staff's reclassification and removal of not used and useful plant as discussed in "Rate Base Adjustment No. 2" and (2) a $1,944 decrease related to the removal of plant that is owned by an affiliate as discussed in "Rate Base Adjustment No. 1."

Q. What is Staff recommending?

A. Staff recommends increasing accumulated depreciation by $92,332 as shown on Schedules CSB-4 and CSB-7.

Rate Base Adjustment No. 4 – Advances In Aid of Construction ("AIAC")

Q. What did the Company propose for AIAC?

A. The Company proposed $1,743,922 for AIAC.

Q. Did Staff make any adjustments to the Company proposed $1,743,922 amount?

A. Yes, Staff made two adjustments totaling $1,574,594. Staff removed $239,736 in unsupported AIAC and transferred $1,334,809 in AIAC to CIAC.

Q. Please discuss Staff's first adjustment to remove $239,736 in unsupported AIAC.

A. Staff asked the Company to provide all contracts in support of its proposed $1,743,922 in AIAC. The Company could only support $1,504,136 of the $1,743,922; a difference of $239,786 as shown on Schedule CSB-8, lines 1 through 3. Further, on the summary schedule provided in response to Staff data request BAB 1.15, the Company indicated that an AIAC contract was likely recorded twice.

Q. Please discuss the second adjustment to transfer $1,334,809 in AIAC to CIAC.

A. The $1,334,809 adjustment consists of two components ($1,343,824 - $9,015 = $1,334,809). It transfers $1,343,824 to AIAC and reflects $9,015 in pro forma refunds made on AIAC contracts that will expire within six months after the test year as shown on Schedule CSB-8.

In determining the $1,343,824 amount, Staff reviewed the contract dates and found that all of the contracts except the contract dated June 19, 2007 would expire in 2014 or within six months thereafter. Consequently, for ratemaking purposes, these contracts should be transferred to CIAC in accordance with the Company's AIAC tariff provided in response to Staff's data request 11.5. Staff's adjustment is consistent with the Arizona Administrative Code's (R14-2-103 A 3 i) definition of a pro forma adjustment which states:

> "Pro forma adjustments" – Adjustments to actual test year results and balances **to obtain a normal or more realistic relationship between revenues, expenses and rate base**. Emphasis added.

In determining the $9,015 amount, Staff reviewed the refund history of the Company and noted that for the years 2008 through 2014, the Company reported making only one refund for each of the AIAC contracts identified on Schedule CSB-8, Columns J, K, and L. For ratemaking purposes, Staff assumed that the Company would pay a refund, though based on its history, less than the amount paid during the test year. Therefore, Staff averaged the test year refund of $18,030 using two years and reflected $9,015 as refunds paid during 2015.

Q. What is Staff recommending?

A. Staff recommends decreasing AIAC by $1,574,594 as shown on Schedules CSB-4 and CSB-8.

Rate Base Adjustment No. 5 – Contributions In Aid of Construction ("CIAC") and Amortization of CIAC

Q. What did the Company propose for CIAC and Amortization of CIAC?

A. The Company proposed $5,461,736 for CIAC and $5,240,717 for Amortization of CIAC.

Q. What adjustment did Staff make to CIAC and Amortization of CIAC?

A. Consistent with Staff's Rate Base Adjustment No. 4, Staff transferred $1,574,594 from AIAC to CIAC and increased Amortization of CIAC to recognize the related $31,131 amortization expense as shown on Schedule CSB-9.

Q. What is Staff recommending?

A. Staff recommends increasing CIAC by $1,574,594 and amortization of CIAC by $31,131 as shown on Schedules CSB-4 and CSB-9.

Rate Base Adjustment No. 6 – Accumulated Deferred Income Taxes

Q. What are accumulated deferred income taxes ("ADITs")?

A. ADITs are the accumulated computed tax differences between income taxes calculated for book purposes and the actual income taxes that a company pays to the United States Treasury and the State of Arizona. By definition, these differences are temporary and reverse over time. The primary cause of the income tax difference is the straight line depreciation method used for rate-making purposes and accelerated depreciation method used for Federal and State income tax reporting purposes.

Q. What ADIT balance is the Company proposing to include in rate base?

A. Black Mountain proposes to include a $75,116 ADIT liability (i.e., a reduction) to rate base as shown on Schedules CSB-4 and CSB-10. This net ADIT liability is composed of a $308,931 ADIT liability resulting from federal taxes; a $36,113 ADIT asset resulting from state taxes;

and a $197,991 asset resulting from AIAC. The net result of these three amounts is a negative $75,000 (-$308,931 + $36,113 + $197,999 = -$75,116). Staff will discuss each separately.

Federal ADIT Component

Q. What amount is the Company proposing for the federal component of the ADIT?

A. For the federal component, the Company is proposing an ADIT liability of $308,931.

Q. What adjustments did Staff make?

A. Staff reflected the Staff recommended plant, accumulated depreciation, and CIAC balances as well as Staff's recommended federal tax rate. Staff also reflected the Company's updated tax plant cost and accumulated depreciation with the new information provided in response to Staff's data request DH 10.2

Q. What is Staff's recommendation for the federal ADIT component?

A. Staff recommends a federal ADIT of $222,160.

State ADIT Component

Q. Did Staff have any concerns about the state component of the ADIT?

A. Yes, Staff noted that the net plant calculated for *tax* purposes was **higher** than the net tax calculated for *book* purposes. However, the reverse is typically seen for an ADIT caused by using straight line depreciation for book purposes and accelerated depreciation for tax purposes.

Q. Can you provide an example?

A. Yes. The example below shows that accelerated depreciation (or a difference in plant lives) causes the accumulated depreciation balance to grow faster which results in a lower net plant for tax purposes.

Example

$3,000 Asset

Tax Life (Accelerated depreciation) = 3 Years ($1,000 per year depreciation expense)

Book Life (Straight Line Depr.) = 5 Years ($600 per year depreciation expense)

	Year 1		Year 2		**Year 3**	
	Tax	Book	Tax	Book	**Tax**	**Book**
Plant	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Accu Depr	($1,000)	($ 600)	($2,000)	($1,200)	($3,000)	($1,800)
Net Plant	$2,000	$2,400	$1,000	$1,800	**$ 0**	**$1,200**

Q. What was the Company's net plant calculated for tax and for book?

A. The Company's net plant for tax is $4,240,435[6] and the net tax for book is $3,503,443 as shown on the Company's Schedule B-2, page 7, line 11.

Q. Did Staff ask the Company why the tax net plant was higher than the book net plant?

A. Yes. The Company, in response to Staff data request DH 10.3, provided two reasons. The first reason is that the average depreciation rate for book was 4.6 whereas for tax it was 4.0 percent. The second reason was that the Company has a tax basis in some CIAC funded plant received from 1987 to 1996. The Company states:

> The net state tax balance is higher than the net book balance primary for two reasons. First, plant for book purposes has been depreciating

[6] In response to Staff Data Request DH 10.4, the Company updated the amount to $4,015,348.

at an average rate of about 4.6 percent (or about 22-year useful life on average) but for tax purposes the plant has been depreciating at around a 4% rate (about 25 years). Second, the Company has a tax basis in plant for some CIAC funded plant. CIAC received from 1987 to 1996 was treated as taxable income and therefore the Company has a tax basis in the plant and does not have a basis for book purposes.

Q. Does Staff have a basis for agreeing with the Company's first reason (i.e., that the average depreciation rate used for book purposes was 4.6 percent whereas for tax purposes it was 4.0)?

A. No, Staff does not. The Company provided no documentation showing that plant for book purposes has been depreciating at 4.6 percent whereas plant for tax purposes has been depreciating at 4 percent. Further, Staff notes that excessive depreciation caused by continuing to depreciate fully depreciated book plant could also cause the net plant for book purposes to be lower than the net plant for tax. Staff has found evidence of excess depreciation included in book accumulated depreciation as discussed in "Operating Income Adjustment No. 5 – Depreciation Expense."

Q. Does Staff agree with the Company's second reason (i.e., that the company has a tax basis in the CIAC received between 1987 to 1996)?

A. No, the tax basis difference that the Company refers to is a *permanent* difference which by definition is not an ADIT. ADIT's are *temporary* differences that reverse over time.

Q. Can you provide an example?

A. Yes. The following example, taken from page 24 of the NARUC's "Rate Case and Audit Manual" prepared by the NARUC Staff Subcommittee on Accounting and Finance, shows how the ADIT caused by the timing difference between using accelerated depreciation for book purposes and straight line depreciation for book purposes reverses over time:

Example

$3,000 Asset

Tax Life (Accelerated depreciation) = 3 Years ($1,000 per year depreciation expense)

Book Life (Straight Line Depr.) = 5 Years ($600 per year depreciation expense)

INCOME TAX EFFECT OF DEPRECIATION EXPENSE[7]			
[A]	[B]	[C]	[D]
IRS TAXES	BOOK TAXES	CURRENT YR. ADIT	ADIT BALANCE
$1,000 x 40% = $400	$600 x 40% = $240	$400 - $240 = $160	**$160**
$1,000 x 40% = $400	$600 x 40% = $240	$400 - $240 = $160	**$160 + $160 = $320**
$1,000 x 40% = $400	$600 x 40% = $240	$400 - $240 = $160	**$320 + $160 = $480**
$ 0 x 40% = $ 0	$600 x 40% = $240	$ 0 - $240 = ($240)	**$480 - $240 = $240**
$ 0 x 40% = $ 0	$600 x 40% = $240	$ 0 - $240 = ($240)	**$240 - $240 = $ 0**

Q. Does APUC, Black Mountain's ultimate parent company, include Black Mountain in its consolidated income tax return along with its approximately 70 other regulated and unregulated companies?

A. Yes, it does. Therefore, the state ADIT that the company estimated from the consolidated income tax return could include items that are not generally recognized by the Commission.

Q. Did the Company include a state component for the ADIT in its last rate case (Docket No. SW-02361A-08-0609)?

A. No, it did not.

Q. Is Staff recommending that the state component of the Company's ADIT be set to zero?

A. Yes. The Company's accumulated depreciation balance includes excess depreciation and could be a major factor that explains why the net plant for book purposes is higher than the net plant for tax purposes. Further, the Company admitted that it had included a *permanent*

[7] In this table, credits are shown as positive amounts, and debits are shown in parentheses.

timing difference in the calculation of the state component of the ADIT (ADIT's by definition are *temporary* timing differences that reverse). Moreover, the Company's income is included in the consolidated income tax return of the approximately 71 companies of its ultimate parent, APUC which may include items in the ADIT that are unallowable. Also, the state component of the ADIT was not included in the Company's last rate case. For all of the aforementioned reasons, Staff recommends that the state component of the ADIT be set to zero.

AIAC Component of the ADIT

Q. What amount is the Company proposing for the AIAC component of the ADIT?

A. For the AIAC component, the Company is proposing an ADIT asset of $197,991.

Q. What adjustments did Staff make?

A. Staff reflected the Staff recommended AIAC balance as well as Staff's recommended federal tax rate.

Q. What is Staff's AIAC component of the ADIT?

A. Staff recommended AIAC component of the ADIT is $9,784 as shown on Schedule CSB-10 page 2 of 2, line 17.

Staff's Recommended Overall ADIT

Q. What is Staff's recommendation for the ADIT balance?

A. Staff recommends an ADIT liability of $212,375.

Rate Base Adjustment No. 7 – Cash Working Capital

Q. What amount of cash working capital is Black Mountain proposing to include in rate base?

A. Black Mountain is proposing to include a negative $60,594 cash working capital in rate base.

Q. What adjustments did Staff make?

A. As shown on Schedule CSB-11, page 2, Staff reflected $60,012 in interest [Per Company's response to Residential Utility Consumer's Office ("RUCO") data request No. 2.01] on the Company proposed and Staff recommended with conditions $1,973,939 financing. Staff also removed rate case expense consistent with the removal of rate case expense in the lead lag study proposed in the Company's last rate case (Decision No. 71865, page 9, lines 24-25).

Q. What is Staff recommending for Cash Working Capital?

A. Staff recommends a negative $137,370 cash working capital, as shown on Schedules CSB-4 and CSB-11.

OPERATING INCOME

Operating Income Summary

Q. What are the results of Staff's analysis of test year operating income?

A. Staff's analysis resulted in test year revenues of $2,239,848, expenses of $1,924,241 and an operating income of $315,607 as shown on Schedules CSB-12 and CSB-13.

Operating Income Adjustment No. 1 – Reclassification and Affiliate Expected 2015 and 2016 Affiliate Labor Increase

Q. Did the Company make a pro forma adjustment to Salaries and Wages?

A. Yes, the Company made pro forma adjustments to increase Salaries and Wages expense by $242,213. This adjustment is composed of a $220,598 to reflect the actual test year labor expense of its unregulated affiliate and a $21,615 to reflect the post-test year affiliate labor increase expected in 2015 and 2016.

Q. Does Staff agree with the adjustments?

A. No, Staff does not agree as Black Mountain has no employees. The Company uses contract services for all operations and maintenance. Therefore, according to the NARUC USoA, the appropriate account to record the $220,598 expense is in Contract Services. The Company has changed its position on this issue (BAB 1.19) and is in agreement with Staff that the expense should be reclassified to Contract Services. Further, Staff does not agree with the $21,615 affiliate labor increase expected in 2015 and 2016. The 2016 expected increase is not known and measurable, and is too far past the test year to be considered an appropriate pro forma adjustment as the adjustment would not provide "a more realistic relationship between revenues, expenses, and rate base." Moreover, the Company has not provided any support evidencing the amount of the expected 2015 labor increase that has actually taken effect.

Q. What is Staff's recommendation?

A. Staff recommends decreasing Salaries and Wages expense by $242,213 and increasing the Contract Services – Other account by $220,598 as shown on Schedules CSB-12 and CSB-14.

Operating Income Adjustment No. 2 – Contractual Services, Testing

Q. What did the Company propose for Contractual Services, Testing?

A. The company is proposing $8,117.

Q. What adjustment did Staff make?

A. Staff increased the account by $3,334 to reflect Staff's recommended testing expense as discussed in greater detail in the direct testimony of Staff witness Dorothy Hains.

Q. What is Staff's recommendation?

A. Staff recommends increasing testing expense by $3,333 as shown on Schedules CSB-12 and CSB-15.

Operating Income Adjustment No. 3 – Corporate Expense Allocation

What is the Algonquin Power & Utilities Corp. ("APUC")?

A. The 2014 annual report for APUC, on page 85 of the Notes to the Consolidated Financial Statement, states:

> Algonquin Power & Utilities Corp. ("APUC" or the "Company") is an incorporated entity under the Canada Business Corporations Act. APUC is a diversified generation, transmission and distribution utility company. The distribution business group operates in the United States under the name of Liberty Utilities Co. ("Distribution Group") and provides rate regulated water, electricity and natural gas utility services. The non-regulated generation business group operates under the name Algonquin Power Co. ("Generation Group") and owns or has interests in a portfolio of North American based contracted wind, solar, hydroelectric and natural gas powered generating facilities. The transmission business group operates under the name Liberty Utilities (Pipeline & Transmission) ("Transmission Group") and invests in rate regulated electric transmission and natural gas pipeline systems in the United States and Canada.

Q. Please describe the position of Black Mountain within APUC's organizational structure.

A. According to the organizational chart provided in response to Staff data request CSB 6.2, Algonquin Power & Utilities Corp owns Liberty Utilities (Canada) Corp, who in turn, owns Liberty Utilities (America) Corp, who in turn, owns Liberty Utilities (America) Holdings, LLC, who in turn, owns Liberty Utilities Co., who in turn, owns Liberty Utilities (Sub) Corp., who in turn, owns Black Mountain Sewer Company.

Q. What is the primary goal of cost allocation between an unregulated affiliate and a regulated affiliate?

A. The primary goal is the fair distribution of costs between the unregulated and regulated affiliate through proper allocations.

Q. What effect could improperly allocated costs have on rate payers?

A. When costs incurred primarily for the benefit of an unregulated affiliate's business are allocated as overhead/common costs, then costs of the unregulated affiliate are shifted to the captive customers of the regulated utility. This cost shifting results in the captive customers of the regulated utility subsidizing the business operations of the unregulated affiliate. This harms customers by creating artificially higher rates.

Q. What amount was allocated from APUC to various companies that APUC owns during the test year?

A. The amount is $6,063,304.

Q. What portion of this $6,063,304 total was allocated from the APUC unregulated business operations to Black Mountain during the test year?

A. According to the Company's response to data request CSB 6.1, Black Mountain was allocated $37,844.84 during the test year.

Q. Does Staff agree with the Company's calculation of the methodology used to allocate the corporate costs?

A. No, Staff does not. The Commission, in Decision No. 71865, disallowed certain costs that were directly caused by APUC unregulated business activities and for which APUC would have continued to incur even if APUC did not own Black Mountain consistent with the NARUC Guidelines for Affiliate Transactions.

Q. Did Staff use the same methodology that was used in Decision No. 71865?

A. Yes. As shown on Schedule CSB-16, that methodology first allocates a portion of the allowable indirect corporate costs (i.e. $1,896,682 of the $6,063,304) to the regulated water and wastewater companies by calculating the ratio of the number of regulated water and wastewater companies that APUC owns (i.e. 13) to the total number of all companies that APUC owns (i.e. 71). For this proceeding, the ratio is 18.31 percent (i.e. 13 ÷ 71). The 18.31 percent is multiplied by $1,896,682 resulting in $347,280. A portion of this amount is then allocated to Black Mountain based upon the ratio of Black Mountain's customers (i.e., 2,121) to the total number of APUC's regulated water and wastewater customers (i.e. 95,145) which results in 2.23 percent (2,121 ÷ 95,145). This 2.23 percent is then multiplied by the $347,280 which results in a corporate allocation to Black Mountain of $7,741.66.

Q. Did Staff obtain support for all of the current information needed to evaluate the calculation?

A. No. Staff requested the Company to provide (1) the total number of companies that APUC owns or operates and (2) corporate depreciation expense but the Company did not provide the information. Due to time constraints, Staff utilized the information used in the last rate proceeding.

Q. Did Staff adjust any of the corporate amounts?

A. Yes, Staff removed $21,465 for general legal expense as it related to APUC's shareholders.

Q. What is Staff's recommendation for the corporate allocation?

A. Staff recommends corporate expense allocation of $7,742.

Operating Income Adjustment No. 4 – Rate Case Expense

Q. What did the Company propose for rate case expense?

A. The company is proposing $450,000 in total rate case expense. It proposes to recover $150,000 each year for approximately three years. The Company proposes to recover the rate case expense through a surcharge. Therefore, since the Company has proposed a separate surcharge it did not include any provision for rate case expense in operating expenses.

Q. Is Staff supporting the approval of a surcharge mechanism for recovery of rate case expense?

A. No, as discussed in greater detail in Staff's rate design testimony.

Q. What adjustment did Staff make to the Company's proposed level of rate case expense?

A. Staff compared the $450,000 in rate case expense to the $180,000 in rate case expense authorized in the Company's last rate case (which also included plant closure issues) and to the rate case expense of other companies and found that the proposed $450,000 was not reasonable. Based upon Staff's analysis, Staff decreased the $450,000 amount to $250,000. The test years used in the Company's past rate cases were 2004, 2008, and 2014. The average interval between rate cases was approximately five years. Therefore Staff normalized rate case expense using the average; five years as shown on Schedule CSB-17.

Q. What is Staff's recommendation?

A. Staff recommends increasing rate case expense by $50,000 as shown on Schedules CSB-12 and CSB-17.

Operating Income Adjustment No. 5 – Depreciation Expense

Background

Q. What is the Company proposing for depreciation expense?

A. The Company is proposing $484,271.

Q. **Does the Company use a modified version of the Group Depreciation Procedure?**

A. Yes, the Company has stopped depreciating most of its plant that has been fully depreciated.

Q. So, did the Company remove fully depreciated plant in its calculation of depreciation expense?

A. Yes, as shown on the Company's Schedule C-2, page 2, the Company removed $552,393 in fully depreciated pumping equipment; $124,527 in fully depreciated plant sewers; and $52,063

in fully transportation equipment. Also, in response to RUCO data request 3.12, the Company has agreed that $31,668 in fully depreciated flow measuring devices should be removed.

Q. Did Staff identify any other plant elements that were fully depreciated at the end of the test year?

A. Yes. Staff identified the following plant that has been in service since the end of 2004, but that the Company states continues to be in service at the end of the test year wherein more than the full original cost of the plant (i.e. excess cost recovery) has been recovered from customers through depreciation expense included in rates:

Calculation of Excess Depreciation on Fully Depreciated 2004 Plant						
(A)	(B)	(C)	(D)	(E)	(F)	(G)
Acct No	Plant Description	2004 Plant Balance Less Retirements	2004 Accumulated Depreciation Balance	Depreciation Accumulated from 2005 to 2014 Less Retirements	Total Accumulated Depreciation from 2004 to 2014 **Col D + Col E**	**Excess Cost Recovery of Plant** **Col C - Col F**
354	Structures and Improvements	$1,187,387	$888,015	$375,626	$1,263,641	($76,254)
363	Services to Customers	$151,507	$128,612	$30,392	$159,004	($7,497)

Q. What adjustment did Staff make to depreciation expense?

A. Staff adjusted depreciation expense to reflect Staff's calculation of depreciation expense using Staff's recommended depreciation rates, plant balances, fully depreciated plant balances (CSB 11.7), and CIAC balances. Staff's calculation is shown on Schedule CSB-18.

Q. What is Staff's recommendation?

A. Staff recommends decreasing pro forma depreciation expense by $97,831 as shown on Schedules CSB-12 and CSB-18.

Operating Income Adjustment No. 6 – Income Taxes

Q. What is the Company proposing for test year Income Tax Expense?

A. The Company is proposing $131,980.

Q. Did Staff make any adjustments to test year Income Tax Expense?

A. Yes. Staff's adjustment reflects Staff's calculation of the income tax expense based upon Staff's adjusted test year taxable income.

Q. What is Staff's recommendation?

A. Staff recommends increasing test year Income Tax Expense of by $39,222 as shown on Schedules CSB-12 and CSB-19.

Plant Documentation

Q. What type of auditable evidence is required to determine the existence of a plant asset?

A. In order to readily determine the existence of a plant asset, a company must document the physical location of each plant asset (with the exception of small tools). Documenting the location of each asset allows a physical inventory to be conducted of actual assets that can be reconciled to the assets recorded on the general ledger to help ensure that plant balances will not be over or under stated.

Q. Does the Company document the location of each plant asset (with the exception of small tools)?

A. No, according to its response to Staff data request CSB-6.20(b), it does not.

Q. As a result, can the Company provide reliable evidence that all of the plant recorded in its general ledger exists?

A. No, it cannot.

Q. Could the Company's inability to track and otherwise document the location of its plant assets (with the exception of small tools) potentially harm customers or otherwise expose them to risk?

A. Yes, as Staff, nor anyone else, can readily verify that the plant actually exists and that the plant balances reflected in rate base are not over-stated.

Q. What is Staff's recommendation?

A. Staff recommends that the Company perform a physical inventory which identifies the location of its plant assets. Staff also recommends that the Company file a plan that explains how it will update this inventory as plant is added and retired and how it will periodically reconcile the amounts on the inventory list to the general ledger. Staff also recommends that the inventory showing the actual location of plant assets along with the plan just noted be filed with Staff one year after the date of a decision resulting from this proceeding.

Q. Does this conclude Staff's direct testimony regarding the revenue requirement?

A. Yes, it does.

FINANCING

FINANCING

Q. Would you please provide a brief background of the Company's financing application?

A. On June 22, 2015, Black Mountain filed a financing application to incur long term debt, requesting Commission approval to borrow an amount not to exceed $3,400,000 from its parent company Liberty Utilities Co. ("Liberty Utilities). On September 22, 2015, the certification of publication and proof of mailing was filed.

Q. What is the purpose of the loan?

A. Black Mountain states that the purpose of the loan is to rebalance its capital structure from 100 percent equity capital structure to a 70 percent equity and 30 percent debt capital structure.

Q. What is the initial amount and terms of the loan?

A. The initial amount of the loan is currently estimated to be $1,973,939. In addition, the Company will enter into additional loan agreements every six months as necessary to maintain a capital structure consisting of 70 percent equity and 30 percent debt. However, at no time will the total debt amount exceed $3,400,000. The interest rate is equal to the United States 10 year Treasury bond rate plus 130 basis points. The length of the loan is 10 years after closing on the loan

Q. Did Staff perform a financial analysis?

A. Yes. Staff performed a general financial analysis to ensure that the Company will have the funds to make the required loan payments.

Staff's analysis is based on the Staff adjusted test year ending December 31, 2014. The financial analysis shown on Schedule CSB-1 presents selected financial information from the financial statements and the pro forma effect of the proposed debt amount.

Q. Did Staff examine the effects of the proposed financing on the Company's TIER and DSC?

A. Yes, Schedule CSB-1 also shows the debt service coverage ("DSC") and the times interest earned ("TIER") ratio. DSC represents the number of times internally generated cash (i.e. earnings before interest, income tax, depreciation and amortization expenses) cover required principle and interest payments on debt. A DSC greater than 1.0 means operating cash flow is sufficient to cover debt obligations.

TIER represents the number of times earnings before income tax expense covers interest expense on debt. A TIER greater than 1.0 means that operating income is greater than interest expense. A TIER less than 1.0 is not sustainable in the long term but does not necessarily mean that debt obligations cannot be met in the short term.

The Company's TIER and DSC resulting from Staff's recommended revenue requirement and fully drawing the loan in the amount of $3,400,000, taken over 10 years at 3.53 percent interest, results in a pro forma TIER and DSC of 2.88 and 1.76, respectively. The pro forma TIER and DSC show that Black Mountain would have adequate cash flows to meet all obligations including the proposed debt. Therefore, Staff concludes that the debt service on any authorized loan amounts should be funded via a loan surcharge mechanism.

Staff further concludes that issuance of the debt financing under the conditions recommended by Staff for the purposes stated in the application is within Black Mountain's

corporate powers, is compatible with the public interest, will not impair its ability to provide services and is consistent with sound financial practices provided Staff's recommended operating income and surcharge amounts are adopted.

Q. What are Staff's recommendations?

A. Staff recommends:

- That the Commission authorize Black Mountain to incur a 10-year loan in an amount not to exceed $3,400,000 and at an interest rate not to exceed that which is equal to the United States 10 year Treasury bond rate plus 130 basis points.
- That the Commission authorize Black Mountain to engage in any transaction and to execute any documents necessary to effectuate the authorizations granted.
- That Black Mountain be ordered to file with Docket Control, as a compliance item in this matter, copies of the loan documents within 60 days of the execution of any financing transaction authorized herein.

Q. Does this conclude Staff's direct testimony regarding the Company's requested financing approval?

A. Yes, it does.

COST OF CAPITAL

COST OF CAPITAL

Summary of Testimony and Recommendations

Q. Briefly summarize how Staff's cost of capital testimony is organized.

A. Staff's cost of capital testimony is presented in eight sections. Section I is this introduction. Section II discusses the concept of weighted average cost of capital ("WACC"). Section III presents Staff's cost of debt for Black Mountain. Section IV discusses the concepts of ROE and risk. Section V presents the methods employed by Staff to estimate Black Mountain's ROE. Section VI presents the findings of Staff's ROE analysis. Section VII discusses the financial risk and economic assessment adjustments. Section VIII presents Staff's ROR recommendation.

Q. Have you prepared any exhibits to accompany your testimony?

A. Yes. I prepared nine schedules (CSB-1 to CSB-9) in support Staff's cost of capital analysis.

Q. What is Staff's recommended rate of return for Black Mountain?

A. Staff recommends a 7.08 percent overall ROR, as shown in Schedule CSB-1. The ROR is calculated from the capital structure, ROE and cost of debt. Staff's capital structure is composed of 70 percent equity and 30 percent debt. Staff's estimated ROE for the Company is based on the results of its DCF and CAPM cost of equity methodology estimates for the sample companies of 8.6 percent for the capital asset pricing model ("CAPM") and 8.6 percent for the discounted cash flow method ("DCF").

Black Mountain's Proposed Overall Rate of Return

Q. Briefly summarize Black Mountain's proposed capital structure, cost of debt, ROE and overall ROR for this proceeding.

A. Table 1 summarizes the Company's proposed capital structure, cost of debt, ROE and overall ROR in this proceeding:

Table 1

	Weight	Cost	Weighted Cost
Long-term Debt	30.0%	3.53%	1.06%
Common Equity	70.0%	10.80%	7.56%
Cost of Capital/ROR			**8.62%**

Black Mountain is proposing an overall rate of return of 8.62 percent.

II. THE WEIGHTED AVERAGE COST OF CAPITAL

Q. Briefly explain the cost of capital concept.

A. The cost of capital is the opportunity cost of choosing one investment over others with comparable equivalent risk. In other words, the cost of capital is the return that stakeholders expect for investing their financial resources in a determined business venture over another alternative business venture.

Q. What is the overall cost of capital?

A. The overall cost of capital for a firm issuing a variety of securities (i.e., stock and indebtedness) represents an average of the various cost rates on all securities issued by the firm adjusted to reflect the relative weighting of each security within the firm's capital structure. Thus, for any given firm, the overall cost of capital is the firm's weighted average cost of capital ("WACC").

Q. How is the WACC calculated?

A. The WACC is calculated by adding the weighted expected returns of a firm's securities. The WACC formula is:

Equation 1.

$$WACC = \sum_{i=1}^{n} W_i * r_i$$

In this equation, W_i is the weight given to the i^{th} security (the proportion of the i^{th} security relative to the portfolio) and r_i is the expected return on the i^{th} security.

Q. Can you provide an example demonstrating application of Equation 1?

A. Yes. For this example, assume that an entity has a capital structure composed of 60 percent debt and 40 percent equity. Also, assume that the embedded cost of debt is 6.0 percent and the expected return on equity, i.e., the cost of equity, is 10.5 percent. Calculation of the WACC is as follows:

$$WACC = (60\% * 6.0\%) + (40\% * 10.5\%)$$

$$WACC = 3.60\% + 4.20\%$$

$$WACC = 7.80\%$$

The weighted average cost of capital in this example is 7.80 percent. The entity in this example would need to earn an overall rate of return of 7.80 percent to cover its cost of capital.

III. CAPITAL STRUCTURE

Background

Q. Please explain the capital structure concept.

A. The capital structure of a firm is the relative proportions of each type of security:--short-term debt, long-term debt (including capital leases), preferred stock and common stock--that are used to finance the firm's assets.

Q. How is the capital structure expressed?

A. The capital structure of a company is expressed as the percentage of each component of the capital structure (capital leases, short-term debt, long-term debt, preferred stock and common stock) relative to the entire capital structure.

As an example, the capital structure for an entity that is financed by $20,000 of short-term debt, $85,000 of long-term debt (including capital leases), $15,000 of preferred stock and $80,000 of common stock is shown in Table 2.

Table 2

Component			Percent
Short-Term Debt	$20,000	($20,000/$200,000)	10.0%
Long-Term Debt	$85,000	($85,000/$200,000)	42.5%
Preferred Stock	$15,000	($15,000/$200,000)	7.5%
Common Stock	$80,000	($80,000/$200,000)	40.0%
	$200,000		100.0%

The capital structure in this example is composed of 10.0 percent short-term debt, 42.5 percent long-term debt, 7.5 percent preferred stock and 40.0 percent common stock.

Black Mountain's Capital Structure

Q. What capital structure does Black Mountain propose?

A. The Company proposes a capital structure composed of 30 percent long-term debt and 70 percent common equity. Black Mountain's proposed capital structure reflects projected long-term debt and common equity balances as of December 31, 2014.

Q. How does Black Mountain's proposed capital structure compare to capital structures of publicly-traded water utilities?

A. Schedule CSB-4 shows the capital structures of six publicly-traded water companies ("sample water companies" or "sample water utilities") as of December 2014. The average capital structure for the sample water utilities is comprised of approximately 46.1 percent debt and 53.9 percent equity.

Staff's Capital Structure

Q. What is Staff's recommended capital structure for Black Mountain?

A. Staff recommends a pro forma capital structure composed of 30 percent debt and 70 percent equity. Effectively, Staff's recommended capital structure consists of $1,973,939 long-term debt and $4,605,858 common equity. Staff's long-term debt balance as of December 31, 2014, reflects Black Mountain's initial debt principal of $1,973,939.

IV. RETURN ON EQUITY

Background

Q. Please define the term "cost of equity capital."

A. The cost of equity is the rate of return that investors expect to earn on their investment in a business entity given its risk. In other words, the cost of equity to the entity is the investors' expected rate of return on other investments of similar risk. As investors have a wide

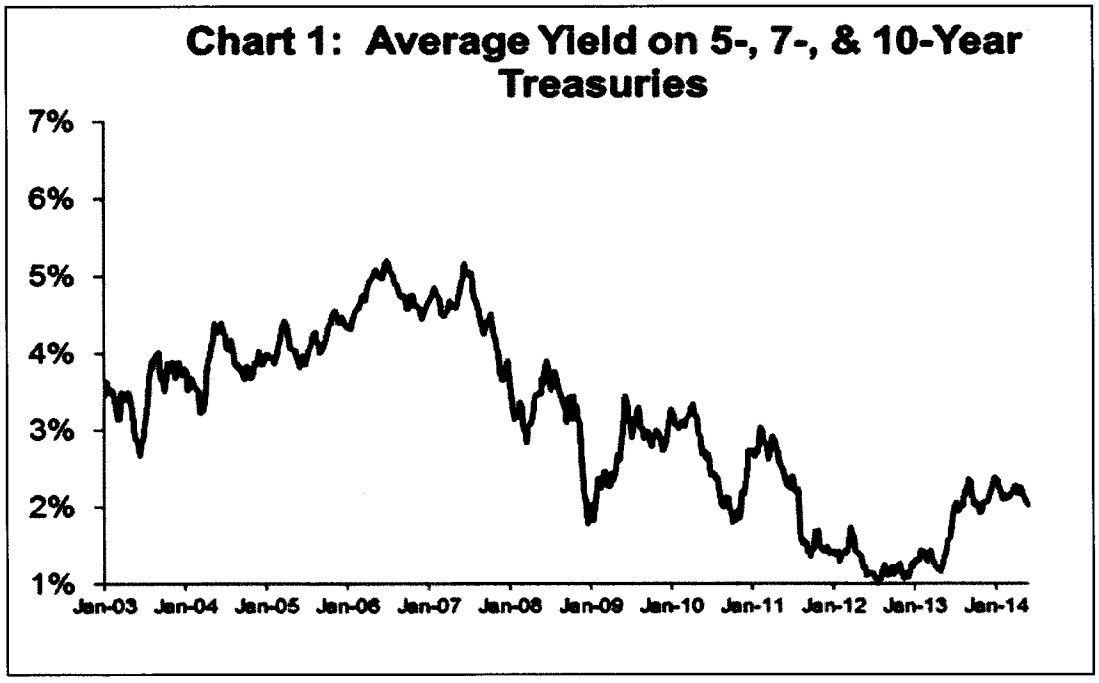
selection of investments to choose from, they will generally choose from investments with similar risks and similar returns. Therefore, the market determines the entity's cost of equity.

Q. Is there a correlation between interest rates and the cost of equity?

A. Yes, there is a positive correlation between interest rates and the cost of equity, as the two tend to move in the same direction. This relationship is reflected in the CAPM formula. The CAPM is a market-based model employed by Staff for estimating the cost of equity. The CAPM is further discussed in Section VI of this testimony.

Q. What has been the general trend of interest rates in recent years?

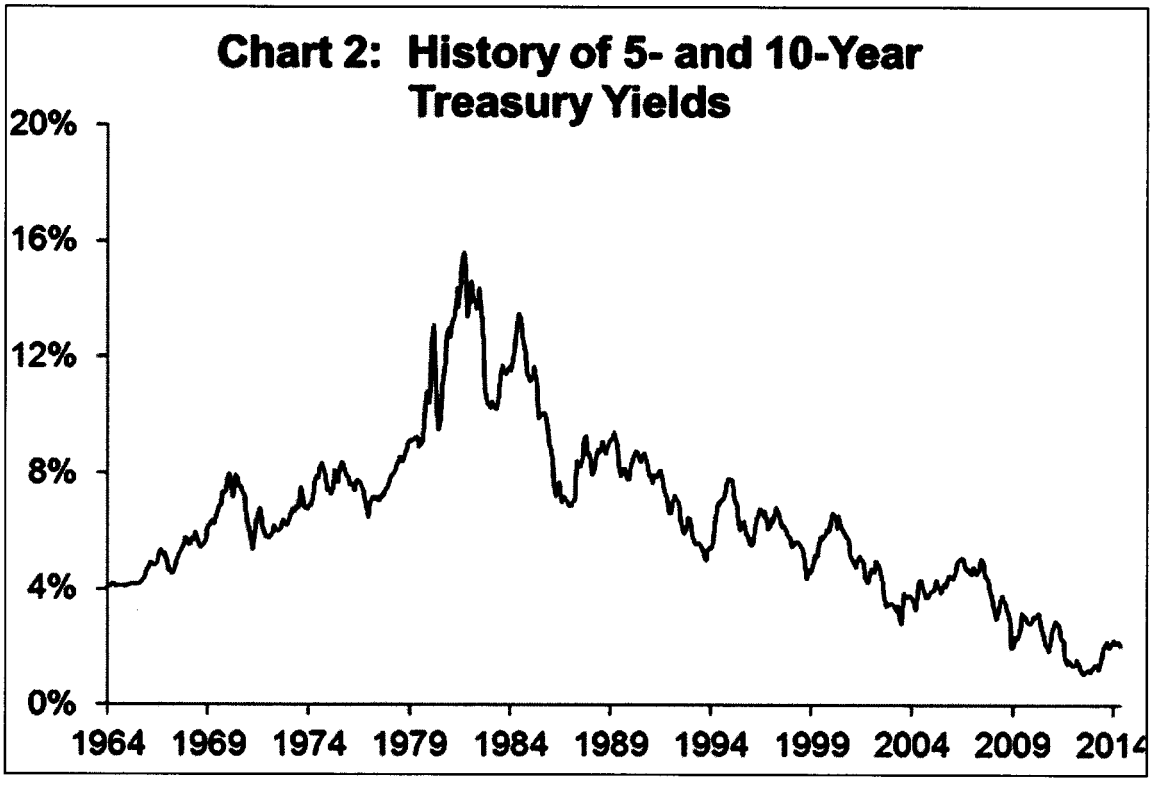
A. A chronological chart of interest rates is a good tool to show interest rate history and identify trends. Chart 1 graphs intermediate U.S. treasury rates from January 3, 2003, to May 30, 2014.



As shown in Chart 1, intermediate-term interest rates generally trended upward from 2003 to mid-2007, trended downward until late-2012, and have trended upward since that time.

Q. What has been the general trend in interest rates longer term?

A. U.S. Treasury rates from January 1964- May 2014 are shown in Chart 2. The chart shows that interest rates trended upward through the mid-1980s and have trended downward since that time.



Source: Federal Reserve

Q. Do these trends suggest anything in terms of cost of equity?

A. Yes. As previously noted, interest rates and the cost of equity tend to move in the same direction; therefore, the cost of equity has declined in the past 30 years.

Q. Do actual returns represent the cost of equity?

A. No. The cost of equity represents investors' *expected* returns and not realized returns.

Q. Is there any information available that leads to an understanding of the relationship between the equity returns required for a regulated water utility and those required in the market as a whole?

A. Yes. A comparison of betas, a component of the CAPM discussed in Section V, for the water utility industry and the market provide insight into this relationship. In theory, the overall market has a beta value of 1.0, with stocks bearing greater risk (less risk) than the market having beta values higher than (lower than) 1.0, respectively. Furthermore, in accordance with the CAPM, the cost of equity capital moves in the same direction as beta. Therefore, because the average beta value (0.73)[8] for a water utility is less than 1.0, the required return on equity for a regulated water utility is below that of the market as a whole.

Risk

Q. Please define risk in relation to cost of capital.

A. Risk, as it relates to an investment, is the variability or uncertainty of the returns on a particular security. Investors are risk averse and require a greater potential return to invest in opportunities with relatively greater risk, i.e., investors require compensation for taking on additional risk. Risk is generally separated into two components. Those components are market risk (systematic risk) and non-market risk (unsystematic risk, diversifiable risk or firm-specific risk).

[8] See Schedule CSB-7.

Q. What is market risk?

A. Market risk, or systematic risk, is the risk associated with an investment that cannot be reduced through diversification. Market risk stems from factors that affect all securities, such as possibilities of recession, war, inflation and high interest rates. Since these factors affect the entire market they cannot be eliminated through diversification. Market risk does not impact each security to the same degree. The degree to which a given security's return is affected by market fluctuations can be measured using Beta. Beta reflects the business risk and the financial risk of a security.

Q. Please define business risk.

A. Business risk is the potential fluctuation of earnings inherent in a firm's operations and environment, such as competition and adverse economic conditions that may impair its ability to provide returns on investment. Companies in the same industry or similar lines of business tend to experience the same fluctuations in business cycles.

Q. Please define financial risk.

A. Financial risk is the potential fluctuation of earnings, inherent in the use of debt financing, that may impair a firm's ability to provide adequate return; the higher the percentage of debt in a firm's capital structure, the greater its exposure to financial risk.

Q. Do business risk and financial risk affect the cost of equity?

A. Yes.

Q. Is a firm subject to any other risk?

A. Yes. Firms may also be subject to unsystematic or firm-specific risk. Examples of unsystematic risk include losses caused by labor problems, nationalization of assets, loss of a

big client or weather conditions. Investors can eliminate firm-specific risk by holding a diverse portfolio; thus, it is not of concern to diversified investors.

Q. How does Black Mountain's financial risk exposure compare to that of Staff's sample group of water companies?

A. CSB-4 shows the capital structures of Staff's six sample water companies as of December 30, 2014, and Black Mountain's adjusted capital structure as of the end of the test year, December 31, 2014. As shown, the sample water utilities were capitalized with approximately 46.1 percent debt and 53.9 percent equity, while Black Mountain's capital structure consists of approximately 30 percent debt and 70 percent equity. Thus, Black Mountain bears significantly less financial risk than does Staff's sample companies.

Q. Is firm-specific risk measured by beta?

A. No. Firm-specific risk is not measured by beta.

Q. Is the cost of equity affected by firm-specific risk?

A. No. Since firm-specific risk can be eliminated through diversification, it does not affect the determination of a reasonable cost of equity.

Q. Should investors expect additional returns for firm-specific risk?

A. No. Investors who hold diversified portfolios can eliminate firm-specific risk and, consequently, do not require any additional return. Since investors who choose to be less than fully-diversified must compete in the market with fully-diversified investors, the former cannot expect to be compensated for unique risk.

V. ESTIMATING THE COST OF EQUITY

Introduction

Q. Did Staff directly estimate the cost of equity for Black Mountain?

A. No. Black Mountain is not a publicly-traded company, and as such Staff is unable to directly estimate its market cost of equity due to the lack of firm-specific market data. Instead, Staff must estimate the Company's cost of equity indirectly, using a representative sample group of publicly traded water utilities as a proxy for Black Mountain. Use of a sample is appropriate, as it reduces the sample error resulting from random fluctuations in the market at the time the information is gathered.

Q. What water utilities did Staff select for its proxy group of sample companies?

A. Staff's sample consists of the following six publicly-traded water utilities: American States Water, California Water, Aqua America, Connecticut Water Services, Middlesex Water and SJW Corp. Staff chose these companies because they are publicly-traded and receive the majority of their earnings from regulated operations.

Q. What models did Staff implement to estimate Black Mountain's cost of equity?

A. Staff used two market-based models to estimate the cost of equity for Black Mountain: the DCF model and the CAPM.

Q. Please explain why Staff chose the DCF and CAPM models.

A. Staff chose to use the DCF and CAPM models because they are widely-recognized market-based models and have been used extensively to estimate the cost of equity. An explanation of the DCF and CAPM models follows.

Discounted Cash Flow Model Analysis

Q. Please provide a brief summary of the theory upon which the DCF method of estimating the cost of equity is based.

A. The DCF method of stock valuation is based on the theory that the value of an investment is equal to the sum of the future cash flows generated from the aforementioned investment discounted to the present time. This method uses expected dividends, market price and dividend growth rate to calculate the cost of capital. Professor Myron Gordon pioneered the DCF method in the 1960s. The DCF method has become widely used to estimate the cost of equity for public utilities due to its theoretical merit and its simplicity. Staff used the financial information for the relevant six sample companies in the DCF model and averaged the results to determine an estimated cost of equity for the sample companies.

Q. Does Staff use more than one version of the DCF?

A. Yes. Staff uses two versions of the DCF model: the constant-growth DCF and the multi-stage or non-constant growth DCF. The constant-growth DCF assumes that an entity's dividends will grow indefinitely at the same rate. The multi-stage growth DCF model assumes the dividend growth rate will change at some point in the future.

The Constant-Growth DCF

Q. What is the mathematical formula used in Staff's constant-growth DCF analysis?

A. The constant-growth DCF formula used in Staff's analysis is:

Equation 2 :

$$K = \frac{D_1}{P_0} + g$$

where : K = the cost of equity
D_1 = the expected annual dividend
P_0 = the current stock price
g = the expected infinite annual growth rate of dividends

Equation 2 assumes that the entity has a constant earnings retention rate and that its earnings are expected to grow at a constant rate. According to Equation 2, a stock with a current market price of $10 per share, an expected annual dividend of $0.45 per share and an expected dividend growth rate of 3.0 percent per year has a cost of equity to the entity of 7.5 percent reflected by the sum of the dividend yield ($0.45/ $10 = 4.5 percent) and the 3.0 percent annual dividend growth rate.

Q. How did Staff calculate the expected dividend yield (D_1/P_0) component of the constant-growth DCF formula?

A. Staff calculated the expected yield component of the DCF formula by dividing the expected annual dividend (D_1) by the spot stock price (P_0) after the close of market on November 4, 2015, as reported by *Yahoo Finance*.

Q. Why did Staff use the November 4, 2015, spot price rather than a historical average stock price to calculate the dividend yield component of the DCF formula?

A. The current, rather than historic, market price is used in order to be consistent with financial theory. In accordance with the Efficient Market Hypothesis, the current stock price is reflective of all available information relating to the stock, and as such reveals investors' expectations of future returns. Use of historical average stock prices illogically discounts the

most recent information in favor of less recent information. The latter is obviously stale and is representative of underlying conditions that may have changed.

Q. How did Staff estimate the dividend growth (g) component of the constant-growth DCF model represented by Equation 2?

A. The dividend growth component used by Staff is determined by the average of six different estimation methods, as shown in Schedule CSB-8. Staff calculated historical and projected growth estimates on dividend-per-share ("DPS"),[9] earnings-per-share ("EPS")[10] and sustainable growth bases.

Q. Why did Staff examine EPS growth to estimate the dividend growth component of the constant-growth DCF model?

A. Historic and projected EPS growth are used because dividends are related to earnings. Dividend distributions may exceed earnings in the short run, but cannot continue indefinitely. In the long term, dividend distributions are dependent on earnings.

Q. How did Staff estimate historical DPS growth?

A. Staff estimated historical DPS growth by calculating a compound annual DPS growth rate for each of its sample companies over the 10-year period, 2005-2014. As shown in Schedule CSB-5, the average historical DPS growth rate for the sample was 3.8 percent.

Q. How did Staff estimate projected DPS growth?

A. Staff calculated an average of the projected DPS growth rates for the sample water utilities from *Value Line* through the period, 2018-2020. The average projected DPS growth rate is 5.7 percent, as shown in Schedule CSB-5.

[9] Derived from information provided by *Value Line.*
[10] Derived from information provided by *Value Line.*

Q. How did Staff estimate historical EPS growth rate?

A. Staff estimated historical EPS growth by calculating a compound annual EPS growth rate for each of its sample companies over the 10-year period, 2005-2014. As shown in Schedule CSB-5, the average historical EPS growth rate for the sample was 7.1 percent.

Q. How did Staff estimate projected EPS growth?

A. Staff calculated an average of the projected EPS growth rates for the sample water utilities from *Value Line* through the period, 2018-2020. The average projected EPS growth rate is 5.1 percent, as shown in Schedule CSB-5.

Q. How does Staff calculate its historical and projected sustainable growth rates?

A. Historical and projected sustainable growth rates are calculated by adding their respective retention growth rate terms (br) to their respective stock financing growth rate terms (vs), as shown in Schedule CSB-6.

Q. What is retention growth?

A. Retention growth is the growth in dividends due to the retention of earnings. The retention growth concept is based on the theory that dividend growth cannot be achieved unless the company retains and reinvests some of its earnings. The retention growth is used in Staff's calculation of sustainable growth shown in Schedule CSB-6.

Q. What is the formula for the retention growth rate?

A. The retention growth rate is the product of the retention ratio and the book/accounting return on equity. The retention growth rate formula is:

Equation 3 :

$$\text{Retention Growth Rate} = br$$

where : b = the retention ratio (1 – dividend payout ratio)
r = the accounting/book return on common equity

Q. How did Staff calculate the average historical retention growth rate (br) for the sample water utilities?

A. Staff calculated the mean of the 10-year average historical retention rate for each sample company over the period, 2005-2014. As shown in Schedule CSB-6, the historical average retention (br) growth rate for the sample is 3.1 percent.

Q. How did Staff estimate its projected retention growth rate (br) for the sample water utilities?

A. Staff used the retention growth projections for the sample water utilities for the period, 2018-2020, from *Value Line.* As shown in Schedule CSB-6, the projected average retention growth rate for the sample companies is 4.6 percent.

Q. When can retention growth provide a reasonable estimate of future dividend growth?

A. The retention growth rate is a reasonable estimate of future dividend growth when the retention ratio is reasonably constant and the entity's market price to book value ("market-to-book ratio") is expected to be 1.0. The average retention ratio has been reasonably constant in recent years. However, the market-to-book ratio for the sample water utilities is 2.3, notably higher than 1.0, as shown in Schedule CSB-7.

Q. Is there any financial implication of a market-to-book ratio greater than 1.0?

A. Yes. A market-to-book ratio greater than 1.0 implies that investors expect an entity to earn an accounting/book return on its equity that exceeds its cost of equity. The relationship between required returns and expected cash flows is readily observed in the fixed securities market. For example, assume an entity contemplating issuance of bonds with a face value of $10 million at either 6 percent or 8 percent and, thus, paying annual interest of $600,000 or $800,000, respectively. Regardless of investors' required return on similar bonds, investors will be willing to pay more for the bonds if issued at 8 percent than if the bonds are issued at 6 percent. For example, if the current interest rate required by investors is 6 percent, then they would bid $10 million for the 6 percent bonds and more than $10 million for the 8 percent bonds. Similarly, if equity investors require a 9 percent return and expect an entity to earn accounting/book returns of 13 percent, the market will bid up the price of the entity's stock to provide the required return of 9 percent.

Q. How has Staff generally recognized a market-to-book ratio exceeding 1.0 in its cost of equity analyses in recent years?

A. Staff has assumed that investors expect the market-to-book ratio to remain greater than 1.0. Given that assumption, Staff has added a stock financing growth rate (vs) term to the retention ratio (br) term to calculate its historical and projected sustainable growth rates.

Q. Do the historical and projected sustainable growth rates Staff uses to develop its DCF cost of equity in this case continue to include a stock financing growth rate term?

A. Yes.

Q. What is stock financing growth?

A. Stock financing growth is the growth in an entity's dividends due to the sale of stock by that entity. Stock financing growth is a concept derived by Myron Gordon and discussed in his book *The Cost of Capital to a Public Utility.*[11] Stock financing growth is the product of the fraction of the funds raised from the sale of stock that accrues to existing shareholders (v) and the fraction resulting from dividing the funds raised from the sale of stock by the existing common equity (s).

Q. What is the mathematical formula for the stock financing growth rate?

A. The mathematical formula for stock financing growth is:

Equation 4:

$$\text{Stock Financing Growth} = vs$$

where: v = Fraction of the funds raised from the sale of stock that accrues to existing shareholders

s = Funds raised from the sale of stock as a fraction of the existing common equity

[11] Gordon, Myron J. *The Cost of Capital to a Public Utility.* MSU Public Utilities Studies, Michigan, 1974. pp 31-35.

Q. How is the variable *v* presented above calculated?

A. Variable *v* is calculated as follows:

Equation 5:

$$v = 1 - \left(\frac{book\ value}{market\ value} \right)$$

For example, assume that a share of stock has a $30 book value and is selling for $45. Then, to find the value of *v*, the formula is applied:

$$v = 1 - \left(\frac{30}{45} \right)$$

In this example, *v* is equal to 0.33.

Q. How is the variable *s* presented above calculated?

A. Variable *s* is calculated as follows:

Equation 6:

$$s = \frac{\text{Funds raised from the issuance of stock}}{\text{Total existing common equity before the issuance}}$$

For example, assume that an entity has $150 in existing equity, and it sells $30 of stock. Then, to find the value of *s*, the formula is applied:

$$s = \left(\frac{30}{150} \right)$$

In this example, *s* is equal to 20.0 percent.

Q. What is the *vs* term when the market-to-book ratio is equal to 1.0?

A. A market-to-book ratio of 1.0 reflects that investors expect an entity to earn a book/accounting return on their equity investment equal to the cost of equity. When the market-to-book ratio is equal to 1.0, none of the funds raised from the sale of stock by the entity accrues to the benefit of existing shareholders, i.e., the term *v* is equal to zero (0.0). Consequently, the *vs* term is also equal to zero (0.0). When stock financing growth is zero, dividend growth depends solely on the *br* term.

Q. What is the effect of the *vs* term when the market-to-book ratio is greater than 1.0?

A. A market-to-book ratio greater than 1.0 reflects that investors expect an entity to earn a book/accounting return on their equity investment greater than the cost of equity. Equation 5 shows that, when the market-to-book ratio is greater than 1.0, the *v* term is also greater than zero. The excess by which new shares are issued and sold over book value per share of outstanding stock is a contribution that accrues to existing stockholders in the form of a higher book value. The resulting higher book value leads to higher expected earnings and dividends. Continued growth from the *vs* term is dependent upon the continued issuance and sale of additional shares at a price that exceeds book value per share.

Q. What *vs* estimate did Staff calculate from its analysis of the sample water utilities?

A. Staff estimated an average stock financing growth of 1.7 percent for the sample water utilities, as shown in Schedule CSB-6.

Q. What would occur if an entity had a market-to-book ratio greater than 1.0 as a result of investors expecting earnings to exceed its cost of equity, and subsequently experienced newly-authorized rates equal only to its cost of equity?

A. Holding all other factors constant, one would expect market forces to move the company's stock price lower, closer to a market-to-book ratio of 1.0, to reflect investor expectations of reduced expected future cash flows.

Q. If the average market-to-book ratio of Staff's sample water utilities were to fall to 1.0 due to authorized ROEs equaling their cost of equity, would inclusion of the vs term be necessary to Staff's constant-growth DCF analysis?

A. No. As discussed above, when the market-to-book ratio is equal to 1.0, no portion of the funds raised from the sale of stock by the entity accrues to the benefit of existing shareholders because the *v* term is equal to zero; thus, the *vs* term is also equal to zero. When the market-to-book ratio equals 1.0, dividend growth depends solely on the *br* term. Staff's inclusion of the *vs* term assumes that the market-to-book ratio continues to exceed 1.0, and that the sample water utilities will continue to issue and sell stock at prices above book value with the effect of benefitting existing shareholders.

Q. What are Staff's historical and projected sustainable growth rates?

A. Staff's estimated historical sustainable growth rate is 4.9 percent based on an analysis of earnings retention for the sample water companies. Staff's projected sustainable growth rate is 6.3 percent based on retention growth projected by *Value Line*. Schedule CSB-6 presents Staff's estimates of the sustainable growth rate.

Q. What is Staff's expected infinite annual growth rate in dividends?

A. Staff's expected dividend growth rate (g) is 5.5 percent, which is the average of historical and projected DPS, EPS, and sustainable growth estimates. Staff's calculation of the expected infinite annual growth rate in dividends is shown in Schedule CSB-8.

Q. What is Staff's constant-growth DCF estimate for the sample utilities?

A. Staff's constant-growth DCF estimate is 8.2 percent, as shown in Schedule CSB-3.

The Multi-Stage DCF

Q. Why did Staff implement the multi-stage DCF model to estimate Black Mountain's cost of equity?

A. Staff generally uses the multi-stage DCF model to consider the assumption that dividends may not grow at a constant rate. The multi-stage DCF uses two stages of growth, the first stage (near-term) having a four-year duration, followed by the second stage (long-term) of constant growth.

Q. What is the mathematical formula for the multi-stage DCF?

A. The multi-stage DCF formula is shown in the following equation:

Equation 7 :

$$P_0 = \sum_{t=1}^{n} \frac{D_t}{(1+K)^t} + \frac{D_n(1+g_n)}{K-g_n}\left[\frac{1}{(1+K)}\right]^n$$

Where : P_0 = current stock price
D_t = dividends expected during stage 1
K = cost of equity
n = years of non – constant growth
D_n = dividend expected in year n
g_n = constant rate of growth expected after year n

Q. What steps did Staff take to implement its multi-stage DCF cost of equity model?

A. First, Staff projected future dividends for each of the sample water utilities using near-term and long-term growth rates. Second, Staff calculated the internal rate of return (cost of equity) which equates the present value of the forecasted dividends to the current stock price for each of the sample water utilities. Lastly, Staff calculated an overall sample average cost of equity estimate.

Q. How did Staff calculate near-term (stage-1) growth?

A. The stage-1 growth rate is based on *Value Lines*'s projected dividends for the next twelve months, when available, and on the average dividend growth (g) rate of 5.5 percent, calculated in Staff's constant DCF analysis for the remainder of the stage.

Q. How did Staff estimate long-term (stage-2) growth?

A. Staff calculated the stage-2 growth rate using the arithmetic mean rate of growth in Gross Domestic Product ("GDP") from 1929 to 2014.[12] Using the GDP growth rate assumes that the water utility industry is expected to grow at the same rate as the overall economy.

Q. What is the historical GDP growth rate that Staff used to estimate stage-2 growth?

A. Staff used 6.4 percent to estimate the stage-2 growth rate as shown on Schedule CSB-9.

Q. What is Staff's multi-stage DCF estimate for the sample utilities?

A. Staff's multi-stage DCF estimate is 9.0 percent, as shown in Schedule CSB-3.

Q. What is Staff's overall DCF estimate for the sample utilities?

A. Staff's overall DCF estimate is 8.6 percent. Staff calculated the overall DCF estimate by averaging the constant growth DCF (8.6 percent) and multi-stage DCF (8.6 percent) estimates, as shown in Schedule CSB-3.

Capital Asset Pricing Model

Q. Please describe the CAPM.

A. The CAPM is used to determine the prices of securities in a competitive market. The CAPM model describes the relationship between a security's investment risk and its market rate of return. Under the CAPM, an investor requires the expected return of a security to equal the rate on a risk-free security plus a risk premium. The model also assumes that investors will sufficiently diversify their investments to eliminate any non-systematic or unique risk.[13] In

[12] www.bea.doc.gov.
[13] The CAPM makes the following assumptions: 1) single holding period; 2) perfect and competitive securities market; 3) no transaction costs; 4) no restrictions on short selling or borrowing; 5) the existence of a risk-free rate; and 6) homogeneous expectations.

1990, Professors Harry Markowitz, William Sharpe, and Merton Miller earned the Nobel Prize in Economic Sciences for their contribution to the development of the CAPM.

Q. Did Staff use the same sample water utilities in its CAPM and DCF cost of equity estimation analyses?

A. Yes. Staff's CAPM cost of equity estimation analysis uses the same sample water companies as did its DCF cost of equity estimation analysis.

Q. What is the mathematical formula for the CAPM?

A. The mathematical formula for the CAPM is:

Equation 8:

$$K = R_f + \beta (R_m - R_f)$$

where:
R_f = risk free rate
R_m = return on market
β = beta
$R_m - R_f$ = market risk premium
K = expected return

The equation shows that the expected return (K) on a risky asset is equal to the risk-free interest rate (R_f) plus the product of the market risk premium ($R_m - R_f$) multiplied by the beta (β) coefficient, where beta represents the riskiness of the investment relative to the market.

Q. What is the risk-free rate?

A. The risk-free rate is the rate of return of an investment free of default risk.

Q. What does Staff use as surrogates to represent estimations of the risk-free rates of interest in its historical and current market risk premium CAPM methods?

A. As previously noted, Staff uses separate parameters as surrogates for the estimations of the risk-free rates of interest for the historical market risk premium CAPM cost of equity estimation and the current market risk premium CAPM cost of equity estimation. Staff uses the average of three (5-, 7-, and 10-year) intermediate-term U.S. Treasury securities' spot rates in its historical market risk premium CAPM cost of equity estimation, and the 30-year U.S. Treasury bond spot rate in its current market risk premium CAPM cost of equity estimation. Rates on U.S. Treasuries are largely verifiable and readily available.

Q. What does beta measure?

A. Beta is a measure of a security's price volatility, or systematic risk, relative to the market as a whole. Since systematic risk cannot be diversified away, it is the only risk that is relevant when estimating a security's required return. Using a baseline market beta of 1.0, a security having a beta value less than 1.0 will be less volatile (i.e., less risky) than the market. A security with a beta value greater than 1.0 will be more volatile (i.e., more risky) than the market.

Q. How did Staff estimate Black Mountain's beta?

A. Staff used the average of the *Value Line* betas for the sample water utilities as a proxy for the Company's beta. Schedule CSB-7 shows the *Value Line* betas for each of the sample water utilities. The 0.73 average beta for the sample water utilities is Staff's estimated beta for Black Mountain. A security having a beta value of 0.73 is less volatile than the market as a whole, and thus requires a lower return on equity than does the overall market.

Q. What is the market risk premium ($R_m - R_f$)?

A. The market risk premium is the expected return on the market, minus the risk-free rate. Simplified, it is the return an investor expects as compensation for market risk.

Q. What did Staff use for the market risk premium?

A. Staff uses separate calculations for the market risk premium in its historical and current market risk premium CAPM methods.

Q. How did Staff calculate an estimate for the market risk premium in its historical market risk premium CAPM method?

A. Staff uses the intermediate-term government bond income returns published in the Ibbotson Associates' *Stocks, Bonds, Bills, and Inflation 2015 Yearbook* to calculate the historical market risk premium. Ibbotson Associates calculates the historical risk premium by averaging the historical arithmetic differences between the S&P 500 and the intermediate-term government bond income returns for the period 1926-2014. Staff's historical market risk premium estimate is 7.6 percent, as shown in Schedule CSB-3.

Q. How did Staff calculate an estimate for the market risk premium in its current market risk premium CAPM method?

A. Staff solves equation 8 above to arrive at a market risk premium using a DCF-derived expected return (K) of 12.03 (2.30 + 9.73[14]) percent using the expected dividend yield (2.3 percent over the next twelve months) and the annual per share growth rate (12.03 percent) that *Value Line* projects for all dividend-paying stocks under its review[15] along with the current long-term risk-free rate (30-year Treasury note at 2.88 percent) and the market's

[14] The three to five year price appreciation is 45 percent. $1.45^{0.25} - 1 = 9.73\%$.
[15] November 4, 2015 issue date.

average beta of 1.0. Staff calculated the current market risk premium as 9.5 percent,[16] as shown in Schedule CSB-3.

Q. What is the result of Staff's historical market risk premium CAPM and current market risk premium CAPM cost of equity estimations for the sample utilities?

A. Staff's cost of equity estimates are 7.6 percent using the historical market risk premium CAPM and 9.5 percent using the current market risk premium CAPM as shown on Schedule CSB-3.

Q. What is Staff's overall CAPM estimate for the sample utilities?

A. Staff's overall CAPM cost of equity estimate is 8.6 percent which is the average of the historical market risk premium CAPM (7.6 percent) and the current market risk premium CAPM (9.2 percent) estimates, as shown in Schedule CSB-3.

VI. SUMMARY OF STAFF'S COST OF EQUITY ANALYSIS

Q. What is the result of Staff's constant-growth DCF analysis to estimate the cost of equity for the sample water utilities?

A. Schedule CSB-3 shows the result of Staff's constant-growth DCF analysis. The result of Staff's constant-growth DCF analysis is as follows:

$$k = 2.7\% + 5.5\%$$

$$k = \mathbf{8.2\%}$$

Staff's constant-growth DCF estimate of the cost of equity for the sample water utilities is 8.2 percent.

[16] 12.03% = 2.88% + (1) (9.15%).

Q. What is the result of Staff's multi-stage DCF analysis to estimate of the cost of equity for the sample utilities?

A. Schedule CSB-9 shows the result of Staff's multi-stage DCF analysis. The result of Staff's multi-stage DCF analysis is:

Company	Equity Cost Estimate (k)
American States Water	8.6%
California Water	9.3%
Aqua America	8.8%
Connecticut Water	9.3%
Middlesex Water	9.4%
SJW Corp	8.9%
York Water	9.0%
Average	**9.0%**

Staff's multi-stage DCF estimate of the cost of equity for the sample water utilities is 9.0 percent.

Q. What is Staff's overall DCF estimate of the cost of equity for the sample utilities?

A. Staff's overall DCF estimate of the cost of equity for the sample utilities is 8.6 percent. Staff calculated an overall DCF cost of equity estimate by averaging Staff's constant growth DCF (8.2 percent) and Staff's multi-stage DCF (9.0 percent) estimates, as shown in Schedule CSB-3.

Q. What is the result of Staff's historical market risk premium CAPM analysis to estimate of the cost of equity for the sample utilities?

A. Schedule CSB-3 shows the result of Staff's CAPM analysis using the historical risk premium estimate. The result is as follows:

$$k = 2.1\% + 0.73 * 7.6\%$$

$$k = 7.6\%$$

Staff's CAPM estimate (using the historical market risk premium) of the cost of equity for the sample water utilities is 7.6 percent.

Q. What is the result of Staff's current market risk premium CAPM analysis to estimate the cost of equity for the sample utilities?

A. Schedule CSB-3 shows the result of Staff's CAPM analysis using the current market risk premium estimate. The result is:

$$k = 2.9\% + 0.73 * 9.2\%$$

$$k = 9.5\%$$

Staff's CAPM estimate (using the current market risk premium) of the cost of equity to the sample water utilities is 9.5 percent.

Q. What is Staff's overall CAPM estimate of the cost of equity for the sample utilities?

A. Staff's overall CAPM estimate for the sample utilities is 8.6 percent. Staff's overall CAPM estimate is the average of the historical market risk premium CAPM (7.6 percent) and the current market risk premium CAPM (9.5 percent) estimates, as shown in Schedule CSB-3.

Q. Please summarize the results of Staff's cost of equity analysis for the sample utilities.

A. The following table shows the results of Staff's cost of equity analysis:

Table 2

Method	Estimate
Average DCF Estimate	8.6%
Average CAPM Estimate	8.6%
Overall Average	**8.6%**

Staff's average estimate of the cost of equity to the sample water utilities is 8.6 percent.

Q. Ms. Brown, in the recent past, Staff chose not to incorporate the results of its CAPM-based ROE in developing its overall ROE recommendation. Would you please explain why Staff has moved away from that previous position?

A. Yes. Staff has always calculated the CAPM Model-driven ROE range but effectively gave this result a zero weighting. The zero weighting approach was followed due to a noted divergence of the CAPM Model-driven results from the DCF Model-driven results.

As noted later in my cost-of-capital testimony, Staff is now analyzing two CAPM Models, giving equal weight to both and the result is a CAPM-driven ROE range that compliments the results of its DCF Model runs.

VII. FINANCIAL RISK AND ECONOMIC ASSESSMENT ADJUSTMENTS

Q. Has Staff discontinued the direct recognition of the financial risk and economic assessment adjustments in its cost of equity analysis?

A. Yes. Staff has moved to an approach to developing its ROE recommendation that it believes is more straight forward, conceptually sound, and simpler to understand.

At the outset, let me say that while Staff's recommended revenue requirement is based upon a specific ROE recommendation, Staff also believes that defining a point-in-time specific fair and reasonable ROE can only realistically be achieved to the point of establishing an ROE range of reasonableness. Therefore, while Staff retains the right to evaluate and/or to argue considerations of relevance that might support a more specifically defined ROE, Staff generally believes that any ROE falling within the ROE range it will discuss in specific rate case dockets would constitute an acceptable Commission decision. I will expand upon this statement as I progress through my explanation of Staff's current approach to developing its ROE recommendations.

Q. Ms. Brown, please continue with your explanation of the structure and conceptual support for Staff's current approach to developing its ROE recommendations.

A. In a very broad sense, there are two general steps to developing an estimate of Staff's recommended ROE. These two steps are the use of acceptable ROE models to establish the currently defined market-driven requirements for ROE, and determining how to appropriately give consideration to more specific risk factors (collectively referred to as "other factors" or "more specific risk factors") not directly given attention in these models.

The ROE models referred to would include the traditionally recognized DCF and CAPM Models and variations of assumptions within the use of these Models. Discussions regarding the results from such Models are placed into evidence in most rate cases for Class A and B utilities, including the pending rate application filed by Liberty Black Mountain Sewer. Parties take differing positions with regards to some of the assumptions to be built into these Model runs, but Staff and Mr. Bourassa on the part of Liberty, have already discussed these Model runs and the assumptions made, so I will not repeat that information here. How to appropriately given consideration to more specific risk factors is really where Staff's current approach to developing its recommended ROE takes a different direction.

Q. Ms. Brown, before discussing the details and reasonableness of Staff's current approach to giving consideration to these more specific risk factors, can you identify the type of factors you are referring to?

A. Yes. The factors would include separate ROE modifiers for such things as financial risk and the previous economic assessment adjustment.

I would note that Mr. Bourassa spends a great deal of time identifying and discussing such risk factors, specifically on page 42 through 44 of the cost-of-capital testimony he sponsors.

Mr. Bourassa then assigns specific ROE modifier to some of these factors, such as his financial risk which results in a 30 basis point reduction in ROE, but in general he recommends an arbitrary 100 basis point ROE upward adjustment to the conglomeration of all such risks he identifies and discusses. For the most part, as can be seen on Mr. Bourassa's Schedule D-4.1, the Model-driven results have all been and individually adjusted upward by 100 basis points.

Q. Does Staff believe that such other factors can exist that may not be addressed in the traditionally utilized ROE Models?

A. Yes.

Q. How does Staff's approach to giving consideration to such other factors differ from the approach taken by Mr. Bourassa?

A. First, let me say that instead of capturing ROE adders (or ROE reductions) related to these factors in an arbitrary manner as Mr. Bourassa does, Staff believes that it is reasonable for the Commission to conclude that by using the mid-point of Staff's ROE Model results, reasonable recognition is already being given to the collective spectrum of such other risks.

To be honest, it is a bit disingenuous to suggest to the Commission, as Mr. Bourassa has done, that an exact 30 basis point ROE modifier is required for Liberty Black Mountain due to financial risk. Arguably this could require a 29 basis point reduction, a 31 basis point reduction, or a 50 basis point reduction.

Staff's point here is really not to take issue with Mr. Bourassa's specific ROE basis point recommendations but to point out that when it comes to developing an ROE recommendation we are not dealing with an exact science and that Staff believes that its

approach is reasonable and will probably eliminate lengthy discussions and cross examination regarding issues without one correct answer.

Q. Ms. Brown, before discussing Staff's specific arguments regarding the reasonableness of accepting the mid-point of the Model-driven ROE range as a fair accommodation of these other risk factors, please explain how Staff believes the Commission should view the results of the ROE range established through use of the traditional ROE Models.

A. Staff believes that any ROE falling within the ROE Model-drive range could be considered to be a reasonable ROE for the underlying utility since this range represents market-defined returns for alternative investments. Or said another way, the lowest ROE resulting from the Model runs is just as valid or reasonable as any other ROE point defined by the Model runs.

Staff believes that its decision NOT to recommend using the lowest ROE defined by its ROE Model, but to recommend that the Commission use the mid-point of its ROE Model results, makes a reasonable acknowledgment of or concession to the other risk factors identified and discussed individually by Mr. Bourassa.

Q. Ms. Brown, just for sake of clarification what was the lowest ROE resulting from the Model runs made by Staff?

A. As can be seen on Staff Schedule, CSB-3, the lowest ROE resulting from Staff's Model runs is 7.6 percent resulting from the CAPM Historic Market Risk Premium run.

Q. And, Ms. Brown, again for clarification how much higher is Staff's overall ROE recommendation (used in Staff's revenue requirement schedules) above this ROE low point?

A. The ROE used in Staff's revenue requirement schedules is 8.6 percent, which in essence represents in a 100 basis point upward adjustment related to the other risk factors.

Q. Ms. Brown, what was the ROE adder recommended by Mr. Bourassa?

A. As seen on Mr. Bourassa's Schedule D-4.1, the ROE adder recommended by Mr. Bourassa was 100 basis points, before factoring in a 30 basis point reduction attributable to Mr. Bourassa's financial risk arguments.

Q. So would you agree that effectively, Staff's much simpler approach to making reasonable accommodation for these other risk factors aligns very closely with the results recommended by Mr. Bourassa?

A. Yes. And again, we do not want to lose sight of the fact that Mr. Bourassa's approach, while involving a lot of detailed analysis, still relies upon some very arbitrary ROE modification recommendations i.e., that required financial risk ROE modifier is exactly minus 30 basis points.

Q. Ms. Brown, are you aware of any other instances where Mr. Bourassa seems to suggest using an approach to giving consideration of these other risk factors that is very close to the manner being recommended by Staff?

A. Yes. In cost-of capital testimony filed in both the pending Liberty Bella Vista rate case (Docket No. 15-0367) and in the pending Liberty Rio Rico Water and Wastewater rate cases (Docket No. 15-0368), page 6 line 14 and going through page 7, line 5, Mr. Bourassa seems to be suggesting that he followed an approach very similar to the approach Staff is now

recommending. In response to a question regarding the "other risk factors" Mr. Bourassa considered in determining the appropriate ROE for these three utility divisions, Mr. Bourassa says.

> I considered explicit adjustments to my ROE estimate for these factors and I did take them into consideration when determining **where, within the reasonableness range of analytical results** from the DCF, CAPM, and RPM models, the required ROE for each of the two utilities rightfully falls.

Q. Ms. Brown, perhaps a question to address at this point would be, how the application of Staff's current approach to establishing a recommended ROE varies from utility to utility, if we assume that two rate filings were docketed, and processed pretty much simultaneously?

A. Staff's ROE recommendations, and the mid-point ROE utilized in Staff' revenue requirement schedules would be the same for both utilities.

Q. So would that suggest that Staff has not recognized that even minor variances in the size, structure and operating characteristics can and do exist?

A. No. Staff understands that minor differences will always exist. But the Commission should be unpersuaded by suggestions that a more detailed analysis (and perhaps more costly analysis) increases to any necessary degree, the precision of the results. Staff's approach is reasonable and is less burdened by unsubstantiated suggestions of preciseness that really do not exist.

Q. Ms. Brown, I would like to return to the initial caveat you expressed on behalf of Staff regarding the fact that:

> **"Staff also believes that defining a point-in-time specific fair and reasonable ROE can only realistically be achieved to the point of establishing an ROE range of reasonableness. Therefore, while Staff retains the right to evaluate and/or to argue considerations of relevance that might support a more specifically defined ROE, Staff generally believes that any ROE falling within the ROE range it will discuss in specific rate case dockets would constitute an acceptable Commission decision."**

Is Staff suggesting that the Commission should accept its approach to establishing an ROE but then continue to encourage parties to interject general arguments regarding the recognition of ROE adders to accommodate other general risk factors?

A. No. Regulated utilities, especially smaller utilities, often raise concerns about the complexities, cost, and lack of transparencies associated with the process employed to define a range of reasonableness for ROE. Staff shares, and understands these concerns and believes that steps to simplification should be given fair consideration. The caveat raised by Staff was really not meant to suggest that Staff was only interested in injecting yet another layer of complexity into the process. Staff's statement was made to acknowledge the broad discretion of the Commission to base its final ROE decision on the full range of evidence before it. On a case-by-case basis, any number of additional considerations, individually and collectively, could impact the Commission's ultimate ROE decision.

Q. Thank you Ms. Brown. Are there other modifications to Staff's development of its ROE recommendations that would like to note?

A. Yes. Staff has incorporated in its analysis two versions of the CAPM (a model which links the COE to risk). As discussed in Section V, the CAPM is composed of a risk free rate and a risk premium. The risk premium is the additional return an investor is paid for assuming all

types of risk above and beyond the risk free rate, which includes financial risk and all other compensation that was previously reflected by the economic assessment adjustment.

As shown on Schedule CSB-1, Staff's COE estimates a range from a low of 7.6 percent to a high of 9.5 percent. Staff believes that any point within this range is reasonable. However Staff believes that the midpoint provides the best balance for all of the various types of risk. Staff's methodology simplifies the COE analysis and recognizes that the Commission could choose to set the ROE anywhere with the Staff recommended range.

VIII. RATE OF RETURN RECOMMENDATION

Q. What overall rate of return did Staff determine for Black Mountain?

A. Staff determined a 7.08 percent ROR for the Company, as shown in Schedule CSB-1 and the following table:

Table 3

	Weight	Cost	Weighted Cost
Long-term Debt	30%	3.53%	1.06%
Common Equity	70%	8.60%	6.02%
Overall ROR			**7.08%**

Q. Does this conclude your direct testimony?

A. Yes, it does.

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Schedule CSB-1

REVENUE REQUIREMENT

LINE NO.	DESCRIPTION	(A) COMPANY FAIR VALUE	(B) STAFF FAIR VALUE
1	Adjusted Rate Base	$ 3,412,024	$ 3,004,503
2	Adjusted Operating Income (Loss)	$ 258,613	$ 315,607
3	Current Rate of Return (L2 / L1)	7.58%	10.50%
4	Required Rate of Return	8.62%	7.08%
5	Required Operating Income (L4 * L1)	$ 294,082	$ 212,719
6	Operating Income Deficiency (L5 - L2)	$ 35,469	$ (102,888)
7	Gross Revenue Conversion Factor	1.6050	1.6670
8	Required Revenue Increase/(Decrease) (L7 * L6)	$ 56,929	**$ (171,514)**
9	Adjusted Test Year Revenue	$ 2,239,848	$ 2,239,848
10	Proposed Annual Revenue (L8 + L9)	$ 2,296,777	$ 2,068,334
11	Required Increase in Revenue (%)	2.54%	-7.66%

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Schedule CSB-2

GROSS REVENUE CONVERSION FACTOR

LINE NO.	DESCRIPTION	(A)	(B)	(C)	(D)
	Calculation of Gross Revenue Conversion Factor:				
1	Revenue	100.0000%			
2	Uncollecible Factor (Line 11)	0.0000%			
3	Revenues (L1 - L2)	100.0000%			
4	Combined Federal and State Income Tax and Property Tax Rate (Line 2	40.0122%			
5	Subtotal (L3 - L4)	59.9878%			
6	**Revenue Conversion Factor (L1 / L5)**	1.667004			
	Calculation of Uncollecttible Factor:				
7	Unity	100.0000%			
8	Combined Federal and State Tax Rate (Line 23)	39.5668%			
9	One Minus Combined Income Tax Rate (L7 - L8)	60.4332%			
10	Uncollectible Rate	0.0000%			
11	Uncollectible Factor (L9 * L10)	0.0000%			
	Calculation of Effective Tax Rate:				
12	Operating Income Before Taxes (Arizona Taxable Income)	100.0000%			
13	Arizona State Income Tax Rate	5.5000%			
14	Federal Taxable Income (L12 - L13)	94.5000%			
15	Applicable Federal Income Tax Rate (Line 55)	36.0495%			
16	Effective Federal Income Tax Rate (L14 x L15)	34.0668%			
17	Combined Federal and State Income Tax Rate (L13 +L16)		39.5668%		
	Calculation of Effective Property Tax Factor				
18	Unity	100.0000%			
19	Combined Federal and State Income Tax Rate (L17)	39.5668%			
20	One Minus Combined Income Tax Rate (L18-L19)	60.4332%			
21	Property Tax Factor (CSB-16, L21)	0.7369%			
22	Effective Property Tax Factor (L20*L21)		0.4453%		
23	Combined Federal and State Income Tax and Property Tax Rate (L17+L22)				40.0122%
24	Required Operating Income (Schedule CSB-1, Line 5)	$ 212,719			
25	AdjustedTest Year Operating Income (Loss) (Schedule CSB-11, Line 34	315,607			
26	Required Increase in Operating Income (L24 - L25)		$ (102,888)		
27	Income Taxes on Recommended Revenue (Col. [E], L52)	$ 103,839			
28	Income Taxes on Test Year Revenue (Col. [B], L52)	171,202			
29	Required Increase in Revenue to Provide for Income Taxes (L27 - L28)		(67,363)		
30	Recommended Revenue Requirement (Schedule CSB-1, Line 10)	$ 2,068,334			
31	Uncollectible Rate (Line 10)	0.0000%			
32	Uncolllectible Expense on Recommended Revenue (L30*L31)	$ -			
33	Adjusted Test Year Uncollectible Expense	$ -			
34	Required Increase in Revenue to Provide for Uncollectible Exp. (L32-L33)		-		
35	Property Tax with Recommended Revenue (CSB-16, Col B, L16)	$ 48,214			
36	Property Tax on Test Year Revenue (CSB-16, Col A, L16)	49,478			
37	Increase in Property Tax Due to Increase in Revenue (L35-L36)		(1,264)		
38	Total Required Increase in Revenue (L26 + L29 + L34 + L37)		$ (171,514)		

	Calculation of Income Tax:	Test Year		Staff Recommended
39	Revenue (Schedule CSB-11, Col. [C], Line 5 & Sch. CSB-1, Col. [D] Line	$ 2,239,848	$ (171,514)	$ 2,068,334
40	Operating Expenses Excluding Income Taxes	$ 1,753,040	$ (1,264)	$ 1,751,776
41	Synchronized Interest (L56)	$ 31,848		$ 31,848
42	Arizona Taxable Income (L39 - L40 - L41)	$ 454,960		$ 284,710
43	Arizona State Income Tax Rate	5.5000%		5.5000%
44	Arizona Income Tax (L42 x L43)	$ 25,023		$ 15,659
45	Federal Taxable Income (L42 - L44)	$ 429,938		$ 269,051
46	Federal Tax on First Income Bracket ($1 - $50,000) @ 15%	$ 7,500		$ 7,500
47	Federal Tax on Second Income Bracket ($51,001 - $75,000) @ 25%	$ 6,250		$ 6,250
48	Federal Tax on Third Income Bracket ($75,001 - $100,000) @ 34%	$ 8,500		$ 8,500
49	Federal Tax on Fourth Income Bracket ($100,001 - $335,000) @ 39%	$ 91,650		$ 65,930
50	Federal Tax on Fifth Income Bracket ($335,001 -$10,000,000) @ 34%	$ 32,279		$ -
51	Total Federal Income Tax	$ 146,179		$ 88,180
52	Combined Federal and State Income Tax (L44 + L51)	$ 171,202		$ 103,839
53	Applicable Federal Income Tax Rate [Col. [E], L51 - Col. [B], L51] / [Col. [E], L45 - Col. [B], L45]			36.0495%
	Calculation of Interest Synchronization:			
54	Rate Base (Schedule CSB-3, Col. (C), Line 17	$ 3,004,503		
55	Weighted Average Cost of Debt (Schedule CSB-17, Col. [F], L1 + L2)	1.0600%		
56	Synchronized Interest (L45 X L46)	$ 31,848		

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Schedule CSB-3

RATE BASE - ORIGINAL COST

LINE NO.		(A) COMPANY AS FILED	(B) STAFF ADJUSTMENTS	Adj. No.	(C) STAFF AS ADJUSTED
1	Plant in Service	$ 14,166,434	$ (132,284)	1,2	$ 14,034,150
2	Less: Accumulated Depreciation	8,654,682	92,332	3	8,747,014
3	Net Plant in Service	$ 5,511,752	$ (224,616)		$ 5,287,136
4					
5	*LESS:*				
6					
7	Contributions in Aid of Construction (CIAC)	$ 5,461,736	$ 1,574,594		$ 7,036,330
8	Less: Accumulated Amortization	5,240,717	31,131		5,271,848
9	Net CIAC	$ 221,019	$ 1,543,463	5	$ 1,764,482
10					
11	Advances in Aid of Construction (AIAC)	1,743,922	(1,574,594)	4	169,328
12					
13	Service Line and Meter Advances (Meter Depo	8570	-		8,570
14					
15	Customer Security Deposits	-	-		-
16					
17	Accumulated Deferred Income Taxes (ADIT)	75,116	137,259	6	212,375
18					
19					
20	*ADD:*				
21					
22	Deferred Regulatory Assets	-	-		-
23	Prepayments	9,493			9,493
24	Cash Working Capital	(60,594)	(76,776)	7	(137,370)
25					
26					
27	**Original Cost Rate Base**	$ 3,412,024	$ (407,521)		$ 3,004,503

References:
Column (A), Company Schedule B-1
Column (B): Schedule CSB-4
Column (C): Column (A) + Column (B)

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Schedule CSB-4

SUMMARY OF ORIGINAL COST RATE BASE ADJUSTMENTS

LINE NO.	ACCT. NO.		[A] COMPANY AS FILED	[B] ADJ #1 Allocated Corporate Plant Ref: Sch CSB-5	[C] ADJ #2 Reclassified Plant & Not Used & Useful Plant Ref: Sch CSB-6	[D] ADJ #3 Accumulated Depreciation Ref: Sch CSB-7	[E] ADJ #4 AIAC Ref: Sch CSB-8	[F] ADJ #5 CIAC & Amort of CIAC Ref: Sch CSB-9	[G] ADJ #6 Accumulated Deferred Income Taxes Ref: Sch CSB-10	[H] ADJ #7 Cash Working Capital Ref: Sch CSB-11	[I] STAFF ADJUSTED
		PLANT IN SERVICE:									
1		DESCRIPTION									
2	351	Organization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	353	Land and Land Rights	471,024	-	1,500	-	-	-	-	-	472,524
4	354	Structures and Improvements	3,091,815	-	(163,446)	-	-	-	-	-	2,928,369
5	355	Power Generation Equipment	-	-	3,839	-	-	-	-	-	3,839
6	360	Collection Services - Force	1,130,090	-	1,602	-	-	-	-	-	1,131,692
7	361	Collection Services - Gravity	4,555,232	-	(2,370)	-	-	-	-	-	4,552,862
8	363	Services to Customers	260,442	-	-	-	-	-	-	-	260,442
9	364	Flow Measuring Devices	31,668	-	-	-	-	-	-	-	31,668
10	365	Flow Measuring Installations	180,051	-	-	-	-	-	-	-	180,051
11	370	Receiving Wells	1,028,182	-	-	-	-	-	-	-	1,028,182
12	371	Effluent Pumping Equipment	937,492	-	113,158	-	-	-	-	-	1,050,650
13	380	Treatment and Disposal Equipment	326,067	-	(5,782)	-	-	-	-	-	320,285
14	381	Plant Sewers	124,527	-	-	-	-	-	-	-	124,527
15	382	Outfall Sewer Lines	-	-	-	-	-	-	-	-	-
16	389	Other Plant & Misc. Equipment	992,742	-	(31,610)	-	-	-	-	-	961,132
17	390	Office Furniture & Equipment	289,536	-	-	-	-	-	-	-	289,536
18	391	Transportation Equipment	80,215	-	-	-	-	-	-	-	80,215
19	393	Tools, Shop & Garage Equipment	28,942	-	-	-	-	-	-	-	28,942
20	394	Labratory Equipment	10,683	-	-	-	-	-	-	-	10,683
21	395	Power Operated Equipment	-	-	-	-	-	-	-	-	-
22	396	Communication Equipment	43,968	-	48,289	-	-	-	-	-	92,256
23	398	Other Tangible Plant	486,294	-	-	-	-	-	-	-	486,294
24		Total Plant in Service	$ 14,068,969	$ -	$ (34,819)	$ -	$ -	$ -	$ -	$ -	$ 14,034,150
25	903	Allocated Corporate Plant - Land and Land Rights	8,429	(8,429)	-	-	-	-	-	-	-
26	904	Allocated Corporate Plant - Structures and Improvement	75,829	(75,829)	-	-	-	-	-	-	-
27	940.1	Allocated Corporate Plant - Computers and Software	13,207	(13,207)	-	-	-	-	-	-	-
28		Total Plant in Service Including Allocated Corporate Plant	14,166,434	$ (97,465)	$ (34,819)	$ -	$ -	$ -	$ -	$ -	14,034,150
29		Less: Accumulated Depreciation	8,654,682	-	-	92,332	-	-	-	-	8,747,014
31		Net Plant in Service (L 28 - L 29)	$ 5,511,752	$ (97,465)	$ (34,819)	$ (92,332)	$ -	$ -	$ -	$ -	$ 5,287,136
32											
33		*LESS:*									
34		Contributions in Aid of Construction (CIAC)	$ 5,461,736	$ -	$ -	$ -	$ -	$ 1,574,594	$ -	$ -	7,036,330
35		Less: Accumulated Amortization	5,240,717	-	-	-	-	31,131	-	-	5,271,848
36		Net CIAC (L34 - L35)	221,019	-	-	-	-	1,543,463	-	-	1,764,482
37		Advances in Aid of Construction (AIAC)	1,743,922	-	-	-	(1,574,594)	-	-	-	169,328
38		Service Line and Meter Advances (Meter Deposits)	8,570	-	-	-	-	-	-	-	8,570
39		Customer Security Deposits	-	-	-	-	-	-	-	-	-
40		Deferred Income Taxes	75,116	-	-	-	-	-	137,259	-	212,375
41											
42		*ADD:*									
43											
44		Prepayments	9,493	-	-	-	-	-	-	-	9,493
45		Cash Working Capital	(60,594)	-	-	-	-	-	-	(76,776)	(137,370)
46		**Original Cost Rate Base**	$ 3,412,024	$ (97,465)	$ (34,819)	$ (92,332)	$ 1,574,594	$ (1,543,463)	$ (137,259)	$ (76,776)	$ 3,004,503

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Schedule CSB-5

RATE BASE ADJUSTMENT NO. 1 - ALLOCATED CORPORATE PLANT

Line No.	Acct No.	Description	[A] COMPANY AS FILED	[B] ADJUSTMENTS	[C] STAFF AS ADJUSTED Col A - Col B
1	903	Allocated Corporate Plant - Land and Land Rights	$ 8,429	$ (8,429)	$ -
2	904	Allocated Corporate Plant - Structures and Improvements	75,829	(75,829)	-
3	940.1	Allocated Corporate Plant - Computers and Software	13,207	$ (13,207)	-
4		Total	$ 97,465	$ (97,465)	$ -

References:

Column A: Company Schedule B-2, Page 3
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

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Schedule CSB-6

RATE BASE ADJUSTMENT NO. 2 - RECLASSIFIED PLANT AND NOT USED & USEFUL PLANT

LINE NO.	Plant Account Number	Description	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED (Col A + Col B)
1	353	Land and Land Rights	$ 471,024	$ 1,500	$ 472,524
2	354	Structures and Improvements	$ 3,091,815	$ (163,446)	$ 2,928,369
3	355	Power Generation Equipment	$ -	$ 3,839	$ 3,839
4	360	Collection Sewers - Force	$ 1,130,090	$ 1,602	$ 1,131,692
5	361	Collection Sewers - Gravity	$ 4,555,232	$ (2,370)	$ 4,552,862
6	371	Effluent Pumping Equipment	$ 937,492	$ 113,158	$ 1,050,651
7	380	Treatment and Disposal Equipmen	$ 326,067	$ (5,782)	$ 320,285
9	389	Other Plant and Misc. Equipment	$ 992,742	$ (31,610)	$ 961,132
10	396	Communication Equipment	$ 43,968	$ 48,289	$ 92,256
11					
12		Total	$ 11,548,430	**$ (34,819)**	$ 11,513,611

References:

Column A: Company Schedule B-2, Page 3
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-7

RATE BASE ADJUSTMENT NO. 3 - ACCUMULATED DEPRECIATION

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED
1	Accumulated Depreciation	$8,654,682	$ -	$ 8,654,682
2	Adjustment Due to Reclass & Removal of Not Used & Useful Plant	-	94,276	94,276
3	Subtotal	$8,654,682	$ 94,276	$ 8,748,958
4	Adjustment Due to Removal of Allocated Corporate Plant	-	(1,944)	(1,944)
5	Total	$8,654,682	$ 92,332	$ 8,747,014

References:

Column A: Company Schedule B-2, Page 3
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
Docket No. SW-02361A-15-0207
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Schedule CSB-8

RATE BASE ADJUSTMENT NO. 4 - ADVANCES IN AID OF CONSTRUCTION ("AIAC")

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED
1	Advances in Aid of Construction	$ 1,743,922	$ -	$ 1,743,922
2	Unsupported AIAC		$ (239,786)	$ (239,786)
3	Amount Per Company Provided AIAC Agreements	$ 1,743,922	$ (239,786)	$ 1,504,136
4	Transfer to CIAC	$ -	$ (1,334,809)	$ (1,334,809)
5	**Net AIAC**	**$ 1,743,922**	**$ (1,574,594)**	**$ 169,328**

[D] AIAC Contract Date	[E] Expiration Date	[F] Development	[G] 2014 Ending Balance	[H] AIAC Transferred to CIAC
01/21/05	**2015**	**Studios at Carefree**	**$ 244,639**	**$ 244,639**
06/19/07	2017	Lowe's	$ 160,442	
11/10/04	**2015**	**Heritage Healthcare**	**$ 101,048**	**$ 101,048**
06/23/05	**2015**	**Carefree Ironwood Estates**	**$ 115,668**	**$ 115,668**
09/01/97	2009	Ridgeview Estates	$ 154,558	$ 154,558
11/17/97	2014	Winfield	$ 504,936	$ 504,936
	2014	Eckerd Drug Store	$ 222,975	$ 222,975
			$ 1,504,266	$ 1,343,824

Less: Estimated 2015 Refunds (From Line 36)	**$ (9,015)**
Net AIAC Transferred to CIAC (Line 18 - Line 20)	**$ 1,334,809**

	[I] Year of Refund	[J] Refunds: Studios at Carefree	[K] Refunds: Heritage Healthcare	[L] Refunds: Carefree Ironwood Estates	[M] Total Refunds
1	2009	0	0	0	$ -
2	2010	0	0	0	$ -
3	2011	0	0	0	$ -
4	2012	0	0	0	$ -
5	2013	0	0	0	$ -
6	2014	9612.36	$ 7,902.28	$ 10,128.19	$ 18,030
					$ 18,030
				Divided by 2 years	2
					$ 9,015.24

References:

Column A: Company Schedule B-2, Page 3
Column B: Testimony, CSB,
Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-9

RATE BASE ADJUSTMENT NO. 5 - CONTRIBUTIONS IN AID OF CONSTRUCTION ("CIAC") & AMORTIZATION OF CIAC

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED
1	CIAC	$ 5,461,736	$ -	$ 5,461,736
2	AIAC Converted to CIAC	$ -	$ 1,574,594	$ 1,574,594
3	Total CIAC	$ 5,461,736	$ 1,574,594	$ 7,036,330
4				
5				
6	Amortization of CIAC	$ 5,240,717	$ -	$ 5,240,717
7	Amortization of AIAC Converted to CIAC	$ -	$ 31,131	$ 31,131
8	Total Amortization of CIAC	$ 5,240,717	$ 31,131	$ 5,271,848
9				
10				
11	Net CIAC	$ 221,019	$ 1,543,463	$ 1,764,482
12				
13				
14			$ 1,574,594	
15			0.50	Half-year Convention
16			$ 787,297	
17		Amortization Rate	3.95%	
18			$ 31,131	

References:

Column A: Company Schedule B-1, Page 1
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

RATE BASE ADJUSTMENT NO. 6 - ACCUMULATED DEFERRED INCOME TAXES

		[A]	[B]	[C]
LINE NO.	DESCRIPTION	COMPANY AS FILED	STAFF ADJUSTMENTS	STAFF AS ADJUSTED
1	Accumulated Deferred Income Taxes	$ 75,116	$ 137,259	$ 212,375

References:

Column A: Company Schedule B-2
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

Deferred Income Tax as of December 31, 2014

Line No.			Water & Sewer Adjusted Book Value	Water & Sewer Tax Value	Probability of Realization of Future Tax Benefit	Deductible TD (Taxable TD) Expected to be Realized	Effective Tax Rate	Future Tax Asset Current	Future Tax Asset Non Current	Future Tax Liability Current	Future Tax Liability Non Current
1											
2											
3											
4											
5											
6		Plant-in-Service	$ 14,034,150								
7		Land & Land Rights	$ (472,524)								
8		Subtotal	$ 13,561,626								
9		Accum. Deprec.	(8,747,014)								
10		CIAC	(1,764,482)								
11	Fed.	Fixed Assets	$ 3,050,130	$ 2,433,867	100.0%	$ (616,263)	36.05%		-		(222,160)
12											
13	State	Fixed Assets	$ 3,050,130	$ 4,015,348							
14		Staff Adjustment	$ -	(965,218)							
15			$ 3,050,130	$ 3,050,130	100.0%	$ 0	5.500%		0		-
16											
17	Fed &State	AIAC	$ -	177,898	100.0%	$ 177,898	36.05%		9,784		
18											
19								$ -	$ 9,784	$ -	$ (222,160)
20											
21		Net Asset (Liability)						$ (212,375)			
22											
23		Allocated Corporate ADIT						-			
24											
25		Net Asset (Liability)						$ (212,375)			
26											
27		Allocation Factor						1.0000			
28											
29		Net Asset (Liability)						$ (212,375)			
30											
31		DIT Asset (Liability) per Books						$ -			
32											
33		Adjustment to DIT						$ 212,375			
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47											
48											

RATE BASE ADJUSTMENT NO. 7 - CASH WORKING CAPITAL

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED	
1	Cash Working Capital	$ (60,594)	$ (76,776)	$ (137,370)	Sch CSB-11, p. 2

References:

Column A: Company Schedule B-1
Column B: Testimony, CSB; Schedule CSB-11, Page 2 of 2
Column C: Column [A] + Column [B]

Lead-Lag Study

Line No.	Description	Proforma Test Year Amount[1]	Revenue Lag (Lead) Days	Expense Lag (Lead) Days	Net Lag (Lead) Days Col. C - Col. D	Lead/Lag Factor Col. E/365	Cash Working Capital Required Col. B * Col. F
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
7	OPERATING EXPENSES						
8	Salaries and Wages	$ -	0.56	20.00	(19.44)	(0.05326515)	$ -
9	Purchased Wastewater Treatment	5,647	0.56	28.22	(27.66)	(0.07578569)	(428)
10	Sludge Removal	-	0.56	-	0.56	0.00152937	-
11	Purchased Power	65,112	0.56	34.37	(33.81)	(0.09263501)	(6,032)
12	Fuel for Power Production	-	0.56	-	0.56	0.00152937	-
13	Chemicals	19,215	0.56	4.94	(4.38)	(0.01200487)	(231)
14	Materials and Supplies	23,875	0.56	(20.42)	20.98	0.05747458	1,372
15	Contractual Services - Professional	313,511	0.56	20.05	(19.49)	(0.05340213)	(16,742)
16	Contractual Services - Testing	11,451	0.56	27.61	(27.05)	(0.07411446)	(849)
17	Contractual Services - Other	552,350	0.56	46.68	(46.12)	(0.12636104)	(69,795)
18	Rents	23,807	0.56	27.28	(26.72)	(0.07321035)	(1,743)
19	Transportation	15,370	0.56	24.75	(24.19)	(0.06627884)	(1,019)
20	Insurance	11,720	0.56	(182.50)	183.06	0.50152937	5,878
21	Scottsdale Capacity (Operating Lease)	164,522	0.56	(15.00)	15.56	0.04262527	7,013
22	Miscellaneous	60,542	0.56	8.56	(8.00)	(0.02192268)	(1,327)
23	Interest Expense	60,012	0.56	91.25	(90.69)	(0.24847063)	(14,911)
24		1,327,134					
25							
26	TAXES						
27	General Taxes-Property[1]	$ 48,214	0.56	213.96	(213.40)	(0.58466241)	$ (28,189)
28	General Taxes-Other	-	0.56	-	0.56	0.00152937	-
29	Income Tax[1]	103,839	0.56	37.00	(36.44)	(0.09984049)	(10,367)
30							
31	OTHER						
32	Regulatory Commission Expense	-	0.56	-	0.56	0.00152937	-
33							
34	TOTAL	$ 1,479,187		WORKING CASH REQUIREMENT			$ (137,370)
35							
36							
37							
38	[1]At proposed rates.						
39							
40							

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-12

OPERATING INCOME STATEMENT - ADJUSTED TEST YEAR AND STAFF RECOMMENDED

LINE NO.	DESCRIPTION	[A] COMPANY ADJUSTED TEST YEAR AS FILED	[B] STAFF TEST YEAR ADJUSTMENTS	Adj. No.	[C] STAFF TEST YEAR AS ADJUSTED	[D] STAFF PROPOSED CHANGES	[E] STAFF RECOMMENDED
1	*REVENUES:*						
2	Flat Rate Revenues	$ 2,212,684	$ -		$ 2,212,684	$ (171,514)	$ 2,041,170
3	Measured Revenues	16,067	-		16,067	-	16,067
4	Other Wastewater Revenues	11,098	-		11,098	-	11,098
5		-	-		-	-	-
6	**Total Operating Revenues**	$ 2,239,848	$ -		$ 2,239,848	$ (171,514)	**$ 2,068,334**
7							
8	*OPERATING EXPENSES:*						
9	Salaries and Wages	$ 242,213	$ (242,213)	1	$ -	$ -	$ -
10	Purchased Wastewater Treatment	5,647	-		5,647	-	5,647
11	Sludge Removal Expense	-	-		-	-	-
12	Purchased Power	65,112	-		65,112	-	65,112
13	Fuel for Power Production	-	-		-	-	-
14	Chemicals	19,215	-		19,215	-	19,215
15	Materials & Supplies	23,875	-		23,875	-	23,875
16	Contractural Services, Professional	313,511	-		313,511	-	313,511
17	Contractural Services - Testing	8,117	3,334	2	11,451	-	11,451
18	Contractural Services - Other	361,855	190,495	1, 3	552,350	-	552,350
19	Rents	23,807	-		23,807	-	23,807
20	Transportation	15,370	-		15,370	-	15,370
21	Insurance	11,720	-		11,720	-	11,720
22	Reg Comm/Rate Case Expense	-	50,000	4	50,000	-	50,000
23	Scottsdale Cap (Operating Lease)	164,522	-		164,522	-	164,522
24	Miscellaneous Expense	60,542	-		60,542	-	60,542
25	Depreciation and Amortization	484,271	(97,831)	5	386,440	-	386,440
26	Taxes other than Income	-	-		-	-	-
27	Property Taxes	49,478	-		49,478	(1,264)	48,214
28	Income Taxes	131,980	39,222	6	171,202	(67,363)	103,839
29		-	-		-	-	-
30	**Total Operating Expenses**	$ 1,981,235	$ (56,994)		$ 1,924,241	$ (68,627)	$ 1,855,615
31	**Operating Income (Loss)**	$ 258,613	$ 56,994		$ 315,607	$ (102,888)	**$ 212,719**

References:
Column (A): Company Schedule C-1
Column (B): Schedule CSB-13
Column (C): Column (A) + Column (B)
Column (D): Schedules CSB-1 and CSB-2
Column (E): Column (C) + Column (D)

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-13

SUMMARY OF OPERATING INCOME STATEMENT ADJUSTMENTS - TEST YEAR

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] Reclassification and Expected 2015 & 2016 Affiliate Labor Increase ADJ No. 1	[C] Testing Expense ADJ No. 2	[D] Corporate Expense Allocation ADJ No. 3	[E] Rate Case Expense ADJ No. 4	[F] Depreciation Expense ADJ No. 5	[G] Income Tax Expense ADJ No. 6	[H] STAFF ADJUSTED
			Ref: Sch CSB-14	Ref: Sch CSB-15	Ref: Sch CSB-16	Ref: Sch CSB-17	Ref: Sch CSB-18	Ref: Sch CSB-19	
1	*REVENUES:*								
2	Flat Rate Revenues	$2,212,684	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,212,684
3	Measured Revenues	16,067	-	-	-	-	-	-	16,067
4	Other Wastewater Revenues	11,098	-	-	-	-	-	-	11,098
5		-	-	-	-	-	-	-	-
6	**Total Operating Revenues**	$2,239,848	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,239,848
7									
8	*OPERATING EXPENSES:*								
9	Salaries and Wages	$ 242,213	$ (242,213)	$ -	$ -	$ -	$ -	$ -	$ -
10	Purchased Wastewater Treatment	5,647	-	-	-	-	-	-	5,647
11	Sludge Removal Expense	-	-	-	-	-	-	-	-
12	Purchased Power	65,112	-	-	-	-	-	-	65,112
13	Fuel for Power Production	-	-	-	-	-	-	-	-
14	Chemicals	19,215	-	-	-	-	-	-	19,215
15	Materials & Supplies	23,875	-	-	-	-	-	-	23,875
16	Contractural Services, Professional	313,511	-	-	-	-	-	-	313,511
17	Contractural Services - Testing	8,117	-	3,334	-	-	-	-	11,451
18	Contractural Services - Other	361,855	220,598	-	(30,103)	-	-	-	552,350
19	Rents	23,807	-	-	-	-	-	-	23,807
20	Transportation	15,370	-	-	-	-	-	-	15,370
21	Insurance	11,720	-	-	-	-	-	-	11,720
22	Reg Comm/Rate Case Expense	-	-	-	-	50,000	-	-	50,000
23	Scottsdale Cap (Operating Lease)	164,522	-	-	-	-	-	-	164,522
24	Miscellaneous Expense	60,542	-	-	-	-	-	-	60,542
25	Depreciation and Amortization	484,271	-	-	-	-	(97,831)	-	386,440
26	Taxes other than Income	-	-	-	-	-	-	-	-
27	Property Taxes	49,478	-	-	-	-	-	-	49,478
28	Income Taxes	131,980	-	-	-	-	-	39,222	171,202
29									
30	**Total Operating Expenses**	$1,981,235	$ (21,615)	$ 3,334	$ (30,103)	$ 50,000	$ (97,831)	$ 39,222	$ 1,924,241
31	**Operating Income (Loss)**	$ 258,613	$ 21,615	$ (3,334)	$ 30,103	$ (50,000)	$ 97,831	$ (39,222)	$ 315,607

OPERATING INCOME ADJUSTMENT NO. 1 - RECLASSIFICATION AND EXPECTED 2015 & 2016 AFFILIATE LABOR INCREASE

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS (Col C - Col A)	[C] STAFF AS ADJUSTED
1	Salaries & Wages	$ 220,598	$ -	$ 220,598
2	To Transfer Salaries & Wages to Contr. Srvcs	-	(220,598)	(220,598)
3	To Remove Post Test Year Affiliate Increase	21,615	(21,615)	-
4	Total Salaries & Wages Transferred to Contr. Srvcs	$ 242,213	$ (242,213)	$ -
5				
6				
7	Contractural Services - Other	$ 361,855	$ -	$ 361,855
8	To Transfer Salaries & Wages to Contr. Srvcs	-	220,598	220,598
9		-	-	-
10	Total Contractural Services - Other	$ 361,855	$ 220,598	$ 582,453

References:

Column A: Company Schedule C-2, Page 8; RUCO Data Request Response 2.01

Column B: Testimony, CSB

Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-15

OPERATING INCOME ADJUSTMENT NO. 2 - TESTING EXPENSE

LINE NO.	DESCRIPTION	[A] COMPANY PROPOSED	[B] STAFF ADJUSTMENTS	[C] STAFF RECOMMENDED
1	Testing Expense	$ 8,117	$ 3,334	$ 11,451

References:
Column A: Company Schedule C-1
Column B: Testimony, CSB, Staff Engineering Report Executive Summary
Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-16

OPERATING INCOME ADJUSTMENT NO. 3 - CORPORATE EXPENSE ALLOCATION

LINE NO.	DESCRIPTION	[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS (Col C - Col A)	[C] STAFF AS ADJUSTED
1	Corporate Expense Allocation	$ 37,845	$ (30,103)	$ 7,742

	[D]	[E]	[F]	[G]	[H]	[I]	[J]
	COSTS TO BE ALLOCATED TO BLACK MOUNTAIN						
	Description		Amount	Allocation Percentage (13 Regulated Wtr & WWtr Co. ÷ 71 Total Companies)	Indirect Costs Allocated to Liberty Utilities	Allocation Percentage (2,121 Black Mtn Customers ÷ 95,145 Regulated Wtr & WW Cust)	Costs to be Allocated to Black Mtn (Col H x Col I)
11	Audit		$ 687,211	18.31%	$ 125,827	2.23%	$ 2,804.98
12	Tax Services		$ 637,076	18.31%	$ 116,648	2.23%	$ 2,600.34
13	Legal-General[1]		$ 368,153	18.31%	$ 67,408	2.23%	$ 1,502.68
14	Depreciation Expense[2]		$ 204,242	18.31%	$ 37,396	2.23%	$ 833.65
15			$ 1,896,682		$ 347,280		$ 7,741.66

Foot Note 1: Legal,General Expense - The Company proposed to allocated $389,618 in general legal costs.
Staff removed $21,465 in expenses related to APUC's shareholders ($389,618-$21,465=4368,153)

Foot Note 2: Depreciation - Staff utilized the depreciation expense for the last rate proceeding as the company did not provide it.

References:

Column A: Company Schedule C-1

Column B: Testimony, CSB, Company Data Request Responses CSB 6.1

Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-17

OPERATING INCOME ADJUSTMENT NO. 4 - RATE CASE EXPENSE

LINE NO.		[A] COMPANY AS FILED	[B] STAFF ADJUSTMENTS	[C] STAFF AS ADJUSTED
1	Rate Case Expense	$ -	$ 50,000	$ 50,000
2				
3				
4				
5				
6				
11	Rate Case Expense-Per Staff	$ 250,000		
12	Divided by	5		
13	**Normalized Rate Case Expense**	$ 50,000		
14				
15				

References:

Column A: Company Schedule C-1
Column B: Testimony, CSB
Column C: Column [A] + Column [B]

Liberty Utilities (Black Mountain Sewer) Corp.
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Schedule CSB-18

OPERATING INCOME ADJUSTMENT NO. 5 - DEPRECIATION EXPENSE ON TEST YEAR PLANT

LINE NO.	ACCT NO.	DESCRIPTION	[A] PLANT In SERVICE Per Staff	[B] NonDepreciable or Fully Depreciated PLANT	[C] DEPRECIABLE PLANT (Col A - Col B)	[D] DEPRECIATION RATE	[E] DEPRECIATION EXPENSE (Col C x Col D)
1	351	Organization	$ -	$ -	$ -	0.00%	$ -
2	353	Land and Land Rights	$ 472,524	$ 471,024	$ 1,500	0.00%	$ -
3	354	Structures and Improvements	$ 2,928,369	$ 1,073,762	$ 1,854,607	3.33%	$ 61,758
4	355	Power Generation Equipment	$ 3,839	$ -	$ 3,839	5.00%	$ 192
5	360	Collection Services - Force	$ 1,131,692	$ -	$ 1,131,692	2.00%	$ 22,634
6	361	Collection Services - Gravity	$ 4,552,862	$ -	$ 4,552,862	2.00%	$ 91,057
7	363	Services to Customers	$ 260,442	$ 151,507	$ 108,935	2.00%	$ 2,179
8	364	Flow Measuring Devices	$ 31,668	$ 31,668	$ -	10.00%	$ -
9	365	Flow Measuring Installations	$ 180,051	$ -	$ 180,051	10.00%	$ 18,005
10	370	Receiving Wells	$ 1,028,182	$ -	$ 1,028,182	3.33%	$ 34,238
11	371	Effluent Pumping Equipment	$ 1,050,650	$ 552,393	$ 498,257	12.50%	$ 62,282
12	380	Treatment and Disposal Equipment	$ 320,285	$ -	$ 320,285	5.00%	$ 16,014
13	381	Plant Sewers	$ 124,527	$ 124,527	$ -	5.00%	$ -
14	382	Outfall Sewer Lines	$ -	$ -	$ -	3.33%	$ -
15	389	Other Plant & Misc. Equipment	$ 961,132	$ -	$ 961,132	6.67%	$ 64,108
16	390	Office Furniture & Equipment	$ 289,536	$ -	$ 289,536	6.67%	$ 19,312
17	391	Transportation Equipment	$ 80,215	$ 52,063	$ 28,152	20.00%	$ 5,630
18	393	Tools, Shop & Garage Equipment	$ 28,942	$ -	$ 28,942	5.00%	$ 1,447
19	394	Labratory Equipment	$ 10,683	$ -	$ 10,683	10.00%	$ 1,068
20	395	Power Operated Equipment	$ -	$ -	$ -	5.00%	$ -
21	396	Communication Equipment	$ 92,256	$ -	$ 92,256	10.00%	$ 9,226
22	398	Other Tangible Plant	$ 486,294	$ -	$ 486,294	10.00%	$ 48,629
23		Total Plant	$14,034,150	$ 2,456,944	$ 11,577,206		$ 457,780
24							
25							
26		Gross CIAC:	$ 7,036,330				
27		Less: Fully Amortized CIAC	$ 5,232,139	From Company's Sch C-2, Page 2, Line 41			
28			$ 1,804,191				
29		Composite Depreciation Rate (Depr Exp / Depreciable Plant):	3.95%				
30		Amortization of CIAC (Line 28 x Line 29):	$ 71,340				
31							
32		Depreciation Expense Before Amortization of CIAC:	$ 457,780				
33		Less Amortization of CIAC:	$ 71,340				
34		**Test Year Depreciation Expense - Staff:**	**$ 386,440**				
35		Depreciation Expense - Company:	$ 484,271				
36		**Staff's Total Adjustment:**	**$ (97,831)**				

References:
Column [A]: Schedule CSB-4
Column [B]: From Column [A]
Column [C]: Column [A] - Column [B]
Column [D]: Engineering Staff Report
Column [E]: Column [C] x Column [D]

Liberty Utilities (Black Mountain Sewer) Corp.
Docket No. SW-02519A-06-0015
Test Year Ended October 31, 2005

Schedule CSB-19

OPERATING INCOME ADJUSTMENT NO. 6 - TEST YEAR INCOME TAXES

LINE NO.	DESCRIPTION	Test Year
	Calculation of Income Tax:	
1	Revenue (Schedule CSB-11)	$ 2,239,848
2	Operating Expenses Excluding Income Taxes	$ 1,753,040
3	Synchronized Interest (L17)	$ 31,848
4	Arizona Taxable Income (L1 - L2 - L3)	$ 454,960
5	Arizona State Income Tax Rate	5.5000%
6	Arizona Income Tax (L4 x L5)	$ 25,023
7	Federal Taxable Income (L4 - L6)	$ 429,938
8	Federal Tax on First Income Bracket ($1 - $50,000) @ 15%	$ 7,500
9	Federal Tax on Second Income Bracket ($51,001 - $75,000) @ 25%	$ 6,250
10	Federal Tax on Third Income Bracket ($75,001 - $100,000) @ 34%	$ 8,500
11	Federal Tax on Fourth Income Bracket ($100,001 - $335,000) @ 39%	$ 91,650
12	Federal Tax on Fifth Income Bracket ($335,001 -$10,000,000) @ 34%	$ 32,279
13	Total Federal Income Tax	$ 146,179
14	Combined Federal and State Income Tax (L44 + L51)	$ 171,202
	Calculation of Interest Synchronization:	
15	Rate Base (Schedule CSB-13, Col. (C), Line 16)	$ 3,004,503
16	Weighted Average Cost of Debt	1.06%
17	Synchronized Interest (L16 x L17)	$ 31,848
18	Income Tax - Per Staff	$ 171,202
19	Income Tax - Per Company	$ 131,980
20	**Staff Adjustment**	**$ 39,222**

Liberty Utilities (Black Mountain Sewer) Corp.
Docket No. SW-02361A-15-0207
Test Year Ended December 31, 2014

Schedule CSB-20

Property Tax Expense

LINE NO.	Property Tax Calculation	STAFF AS ADJUSTED	STAFF RECOMMENDED
1	Staff Adjusted Test Year Revenues	$ 2,239,848	$ 2,239,848
2	Weight Factor	2	2
3	Subtotal (Line 1 * Line 2)	4,479,696	$ 4,479,696
4	Staff Recommended Revenue, Per Schedule CSB-1	2,239,848	$ 2,068,334
5	Subtotal (Line 4 + Line 5)	6,719,544	6,548,030
6	Number of Years	3	3
7	Three Year Average (Line 5 / Line 6)	2,239,848	$ 2,182,677
8	Department of Revenue Mutilplier	2	2
9	Revenue Base Value (Line 7 * Line 8)	4,479,696	$ 4,365,353
10	Plus: 10% of CWIP -	-	-
11	Less: Net Book Value of Licensed Vehicles	3,531	$ 3,531
12	Full Cash Value (Line 9 + Line 10 - Line 11)	4,476,165	$ 4,361,822
13	Assessment Ratio	18.0%	18.0%
14	Assessment Value (Line 12 * Line 13)	805,710	$ 785,128
15	Composite Property Tax Rate (Per Company Schedule C-2, P	6.1409%	6.1409%
			$ -
16	Staff Test Year Adjusted Property Tax (Line 14 * Line 15)	$ 49,478	
17	Company Proposed Property Tax	49,478	
18	Staff Test Year Adjustment (Line 16-Line 17)	$ (0)	
19	Property Tax - Staff Recommended Revenue (Line 14 * Line 15)		$ 48,214
20	Staff Test Year Adjusted Property Tax Expense (Line 16)		$ 49,478
21	Increase in Property Tax Expense Due to Increase in Revenue Requirement		$ (1,264)
22	Increase to Property Tax Expense		$ (1,264)
23	Increase in Revenue Requirement		(171,514)
24	Increase to Property Tax per Dollar Increase in Revenue (Line22/Line 23)		0.736908%

BEFORE THE ARIZONA CORPORATION COMMISSION

SUSAN BITTER SMITH
Chairman
BOB STUMP
Commissioner
BOB BURNS
Commissioner
DOUG LITTLE
Commissioner
TOM FORESE
Commissioner

IN THE MATTER OF THE APPLICATION OF LIBERTY UTILITIES (BLACK MOUNTAIN SEWER) CORP., AN ARIZONA CORPORATION FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS WASTEWATER RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON	DOCKET NO. SW-02361A-15-0207
IN THE MATTER OF THE APPLICATION OF LIBERTY UTILITIES (BLACK MOUNTAIN SEWER) CORP., AN ARIZONA CORPORATION FOR AUTHORITY TO ISSUE EVIDENCE OF INDEBTEDNESS IN AN AMOUNT NOT TO EXCEED $3,400,000	DOCKET NO. SW-02361A-15-0206

DIRECT

TESTIMONY

OF

DOROTHY HAINS, P. E.

UTILITIES ENGINEER

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

DECEMBER 2, 2015

TABLE OF CONTENTS

EXHIBITS

INTRODUCTION

Q. Please state your name and business address.

A. My name is Dorothy Hains. My business address is 1200 West Washington Street, Phoenix, Arizona 85007.

Q. By whom and in what position are you employed?

A. I am employed by the Arizona Corporation Commission ("Commission" or "ACC") as a Utilities Engineer - Water/Wastewater in the Utilities Division.

Q. How long have you been employed by the Commission?

A. I have been employed by the Commission since January 1998.

Q. What are your responsibilities as a Utilities Engineer - Water/Wastewater?

A. My main responsibilities are to inspect, investigate and evaluate water and wastewater systems. This includes obtaining data, preparing reconstruction cost new and/or original cost studies, investigative reports, interpreting rules and regulations, and to suggest corrective action and provide technical recommendations on water and wastewater system deficiencies. I also provide written and oral testimony in rate cases and other cases before the Commission.

Q. How many companies have you analyzed for the Utilities Division?

A. I have analyzed more than 90 companies fulfilling these various responsibilities for Commission Utilities Division Staff ("Staff").

Q. Have you previously testified before this Commission?

A. Yes, I have testified on numerous occasions before this Commission.

Q. What is your educational background?

A. I graduated from the University of Alabama in Birmingham in 1987 with a Bachelor of Science degree in Civil Engineering.

Q. Briefly describe your pertinent work experience.

A. Before my employment with the Commission, I was an Environmental Engineer for the Arizona Department of Environmental Quality ("ADEQ") for ten years. Prior to that time, I was an Engineering Technician with C. F. Hains, Hydrology in Northport, Alabama for approximately five years.

Q. Please state your professional membership, registrations, and licenses.

A. I have been a registered Civil Engineer in Arizona since 1990. I am a member of the American Society of Civil Engineering, American Water Works Association and Arizona Water Association.

PURPOSE OF TESTIMONY

Q. What was your assignment in this rate proceeding?

A. My assignment was to provide Staff's engineering evaluations for the subject Liberty Utilities Black Mountain Sewer Corp. ("BMSC" or "Company") rate and financing proceedings.

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

A. To present the findings of Staff's engineering evaluation of the operations for BMSC. The findings are contained in the Engineering Report that I have prepared for this proceeding. The report is included as Exhibit DMH-1 in this pre-filed testimony.

ENGINEERING REPORT

Q. Would you briefly describe what was involved in preparing your Engineering Report for this rate proceeding?

A. After reviewing the application, I physically inspected the BMSC wastewater system to evaluate their operation and to determine if any plant items were not used and useful. I contacted ADEQ to determine if the wastewater system was in compliance with the monitoring and reporting requirements for the Aquifer Protection Permit. After I obtained information from BMSC regarding wastewater plant improvements, permits, chemical testing expenses, inflow/effluent discharge flow data, and tariff modifications, I analyzed that information. Based on all the above, I prepared the attached Engineering Report for BMSC.

Q. Please describe the information contained in your Engineering Report.

A. The Report is divided into three general sections: 1) *Executive Summary*, 2) *Engineering Report Discussion*, and 3) *Engineering Report Exhibits*. *The Engineering Report Discussion* can be further divided into eleven subsections: A) Location of the Company, B) Description of The Wastewater System; C) Wastewater Flow; D) Growth; E) ADEQ Compliance; F) ACC compliance; G) Depreciation Rates; H) Chemical Testing Expense; I) Financing Application (Docket NO. SW-02361A-15-0207), and J) Other Issues. These subsections provide information about the wastewater system serving BMSC.

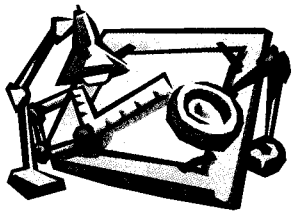
CONCLUSIONS AND RECOMMENDATIONS

Q. What are Staff's conclusions and recommendations regarding the operations of the wastewater systems?

A. Staff's conclusions and recommendations for the wastewater system are contained in the Executive Summary of the respective engineering report.

Q. Does this conclude your direct testimony?

A. Yes, it does.



Engineering Report for Liberty Utilities
Black Mountain Sewer
Docket No. SW-02361A-15-0207 (Rates)
Docket No. SW-02361A-15-0206 (Financing)
By Dorothy Hains, P. E. December 2, 2015

EXECUTIVE SUMMARY

CONCLUSIONS

1. Liberty Utilities Black Mountain Sewer Corp. ("BMSC", "Black Mountain" or "Company") is in full compliance with the Arizona Department of Environmental Quality ("ADEQ") for operation and maintenance, operator certification and discharge permit limit. (See §E of the report for discussion and details.)

2. Staff concludes that the Company has adequate capacity to serve its existing customers and projected growth through 2019. (See § C of the report for discussion and details.)

3. The Company currently is in compliance with the Arizona Corporation Commission ("ACC"); a check with the Utilities Division Compliance Section showed no delinquent compliance items. (See § F of the report for discussion and details.)

4. On June 22, 2015, BMSC filed a financing application requesting Commission authorization to borrow the amount necessary to achieve a capital structure consisting of 70 percent equity 30 percent debt. The total debt will not exceed $3,400,000. This application does not include any capital improvement; therefore, no engineering evaluation was needed.

RECOMMENDATIONS

1. It is recommended that Black Mountain use the depreciation rates as delineated in Figure 6. (See § G and Figure 6 of the report for discussion and details.)

2. Staff recommends 400 gallons per day (GPD) per Equivalent Residential Unit (ERU) and $1,700 per ERU be used in lieu of the numbers proposed by the Company. Further, Staff recommends approval of the Offsite Hookup Fee Tariff attached and labeled Figure 7. (See § H of the report for discussion and details.)

3. Staff recommends an annual testing expense of $11,452 be used for purposes of this proceeding. (See § H of the report for discussion and details.)

TABLE OF CONTENTS

A. LOCATION OF COMPANY

Liberty Utilities ("Liberty") Black Mountain Sewer Corp. ("BMSC", "Black Mountain" or "Company") provides service to an area of land approximately five square miles in size. The area is located within the vicinity of the Town of Cave Creek ("Cave Creek"), the Town of Carefree ("Carefree") and the City of Scottsdale ("Scottsdale") in Maricopa County. Figure 1 describes the CC&N area of Black Mountain, and Figure 2 describes the location of the Company within Maricopa County.

B. DESCRIPTION OF THE WASTEWATER SYSTEM

BMSC owns and operates Boulders Carefree ("Boulders") wastewater treatment plant ("WWTP"), and a sewer collection system that delivers raw sewage to both the Boulders WWTP and to a Scottsdale Measuring Station ("SMS") which connects to Scottsdale WWTP for treatment (further discussion follows). The BMSC sewer facilities were visited on September 18, 2015, by Dorothy Hains, Utilities Engineer, accompanied by Liberty's representative, Clint Arndt (Director for Operations in Arizona/Texas), Michelle Thompson (Boulders' On-site Operator) and Gilbert Grajeda (East Arizona Operation Manager for Liberty).

I. System Description

Boulders WWTP and North/West Collection System

The North/West Collection System consists of seven lift stations ("LS")[1] and the Boulders WWTP. Boulders WWTP is a 120,000 gallon per day ("GPD") extended aeration WWTP, which contains bar screen, four parallel trains of extended aeration basins, sand filter, disinfection device and effluent lift station. Final treated effluent is disposed in a golf course pond for irrigation use. When wastewater flow exceeds 120,000 GPD, excess wastewater capacity is diverted through a bypass line and discharges into a collection line that connects to the SMS. The wet sludge is disposed of in the SMS via a bypass line.

Scottsdale WWTP[2] and South Collection System[3]

The South System consists of seven lift stations[4] and the SMS.

On January 21, 1996, Scottsdale and BMSC signed a service agreement ("Scottsdale Agreement") that expires on December 31, 2016. In this agreement Scottsdale agrees to treat and to dispose of the wastewater from BMSC's CC&N area. In 1996 BMSC purchased 600,000 GPD of treatment capacity in the Scottsdale WWTP system. At present, Scottsdale agrees to treat a total maximum of 1,000,000 GPD for BMSC.

---

[1] The names of eight LS are Indian Rock LS, Sage Brush LS, Indian Basket LS, Peaceful Place LS, Commercial LS, Ridgeview LS and Trade Center LS.
[2] The City of Scottsdale owns and operates the Scottsdale WWTP.
[3] BMSC owns and operates the South Collection System.
[4] The names of the seven lift stations are New River (aka Canyon Crossings) LS, Sentinel Rock LS, Carefree Village LS, Sunset Trail LS, Stagecoach Pass LS, and El Pedregal LS.

II. System Analysis

BMS has experienced inflow/infiltration ("I/I") problems. BMSC made some repairs and replacements for its collection system during the test year in order to resolve the I/I issue, however, there is no data to demonstrate how much I/I reduction improvement has resulted.

In Decision No. 71865, the Commission ordered BMSC to close its Boulder Wastewater Treatment plant. BMSC does not know at this time when it will be able to close the Boulders plant and comply with Decision No. 71865.

A total of 2,098 Black Mountain customers were served by the Company during the 2014 test year. Staff concludes that Black Mountain has adequate capacity to serve existing customers and reasonable growth. Figures 3A through 3F are system schematic drawings of the BMSC system with detailed plant facility descriptions as follows:

Table 1 Wastewater Treatment Plant and Scottsdale Connection

Wastewater Treatment Plant

Name or Description	Plant Items	Location
Boulders WWTP	160,000 GPD extended aeration (designed). Operating at 120,000 GPD (permitted)	1038 Boulder Dr., Carefree
Scottsdale Measuring Station (Scottsdale WWTP)	Metered – could purchase up to 1.0 Million GPD	Scottsdale Road & Dove Valley Road

Active Lift Stations ("LS") Connects to Boulder Treatment Plant

Location	No. Pumps	Pump (in HP)	Capacity (in gallons per minute per pump)	Wet Well Capacity (in gallons)
Quartz Valley LS (@Quartz Valley & 1308 Boulder Dr., Carefree)	2	3	100	705
Indian Rock LS (@1508 Indian Rock 10950 W Union Hills)	2	6.5	100	470
Sage Brush LS (@2122 Sage Brush Ln, Carefree)	2	3	45	470
Indian Basket LS (@1256 E Indian Basket)	2	1	11	150
Peaceful Place LS (@36209 Peaceful Place, Carefree)	2	3	15	470
Commercial LS (@Spanish Village Tom Darlington Dr/E Cave Creek Rd,	2	23	200	1,130

Carefree)				
Ridgeview LS (@7044 Ridgeview, Carefree)	2	7.5	100	470
Trade Center LS (@7155 E Cave Creek Rd, Cave Creek)	2	10	174	200

Active LS Connects to Scottsdale Measuring Station

Location	No. Pumps	Pump (in HP)	Capacity (in gallons per minute per pump)	Wet Well Capacity (in gallons)
New River (Canyon Crossings) LS (@35798 N Cave Creek Rd, Cave Creek)	2	2	85	300
Sentinel Rock LS (@35425 N Cave Creek Rd, Cave Creek)	2	15	370	1,500
Carefree Village LS (@34802 N Cave Creek Rd, Cave Creek)	2	3	85	1,760
Sunset Trail LS (@35029 Sunset Trail, Cave Creek)	2	30	290	2,600
Carefree HWY LS (@6332 E Carefree HWY, Cave Creek)	2	20	350	1,525
Stagecoach Pass LS (@6800 E Stagecoach Pass, Carefree)	2	5	50	470
El Pedregal LS (@34217 N Scottsdale Rd, Scottsdale)	2	10	185	2,000

Other Plant

Name	No. Pumps	Flow metering device
Scottsdale Rd Metering Station (33295 N Scottsdale Rd., Scottsdale, AZ)	no	yes

Force Mains

Size (in inches)	Material	Length (in feet)
1¼	polyvinyl chloride ("PVC")	443
1½	PVC	5,384
2	PVC	5,155
3	Asbestos Cement Pipe ("ACP"),	915
4	PVC	2,390
4	ACP	9,366
4	Ductile Iron pipe ("DIP")	3,000
6	ACP	7,460
6	PVC	10,353
6	DIP	1,135
8	PVC	10,426

Collection Mains

Size (in inches)	Material	Length (in feet)
4	Acrylonitrile Butandiene Styrene ("ABS")	1,263
6	Vitrified Clay pipe ("VCP")	12,760
6	PVC	3,046
6	DIP	85
8	VCP	71,673
8	PVC	90,912
8	DIP	1,320
10	VCP	7,675
10	PVC	3,455
12	ABS	9,346
12	PVC	565
15	VCP	1,900
15	PVC	6,735
15	DIP	165
18	Cast Iron Pipe ("CIP")	130
21	CIP	74

Manholes ("MH") & Cleanouts

Type	Quantity
Standard MH	1,028
Drop MH	14
Cleanouts	30

Service Laterals

Diameter	Material	Length (Feet)
4-inch		2,002
6-inch	:	131
	Total	2,133

C. WASTEWATER FLOW

Table 2 below summarizes the BMSC wastewater flow data during the test year of 2014 (from January to December), and Figure 4 is a graphic illustration of the same flow data. The daily average flow for the peak month was 430,871 GPD in March and the peak day flow occurred in January when 397,000 GPD flow was recorded.

Table 2 Wastewater Flow (in BMSC service area)

Month	Number of Customers (C)	Treated by Boulder WWTP (1,000 gallons/month)	Treated by City of Scottsdale WWTP (1,000 gallons/month)	Daily Average Flow (GPD)	Peak Day flow (GPD)*	Daily Average Flow (GPD/C)	Peak Day flow (GPD/C)
Jan 14	2,056	3,440	8,429	382,871	397,000	186	193
Feb 14	2,069	3,163	7,825	392,429	329,000	190	159
Mar 14	2,061	3,720	9,637	430,871	369,000	209	179
Apr 14	2,072	3,600	8,913	417,100	344,000	200	166
May 14	2,083	3,462	7,312	347,548	289,000	167	139
Jun 14	2,077	3,451	6,562	333,767	253,000	160	122
Jul 14	2,084	3,663	6,393	324,548	242,000	156	116
Aug 14	2,080	3,234	7,097	333,258	331,000	160	159
Sep 14	2,085	3,586	7,590	372,538	349,000	178	167
Oct 14	2,094	3,691	8,199	383,548	300,000	183	143
Nov 14	2,094	3,282	8,139	380,700	330,000	181	158
Dec 14	2,098	3,270	8,079	366,097	326,000	180	155
Avg				372,106		179	

Note: 1. Staff recognizes that daily average flow was higher than peak day flow in several months. However, data is provided by the Company, Staff just makes an observation note here.

Staff concludes that the Company has adequate capacity to serve its existing customers and projected growth through 2019.

D. GROWTH

Based on the service connection data in the Company's annual reports, the number of customers served by BMSC increased from 1,295 to 2,176 between December 1999 and December 2011, afterward negative growth occurred until 2014 with an average growth rate of 5 customers per year from 1999 through 2014. The following table summarizes actual and projected growth in the Company's existing certificated service area.

Table 4 Actual and Projected Growth in BMSC Service Area

Year	Nos. of Customers	
1999	1,295	Reported
2000	1,429	Reported
2001	1,672	Reported
2002	1,730	Reported
2003	1,794	Reported
2004	1,923	Reported
2005	2,043	Reported
2006	2,020	Reported
2007	2,111	Reported
2008	2,130	Reported
2009	2,138	Reported
2010	2,173	Reported
2011	2,176	Reported

2012	2,176	Reported
2013	2,061	Reported
2014	2,098	Reported
2015	2,135	Estimated
2016	2,140	Estimated
2017	2,145	Estimated
2018	2,150	Estimated
2019	2,154	Estimated

E. ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ("ADEQ") COMPLIANCE

Black Mountain Sewer Systems

ADEQ regulates the BMSC system under Aquifer Protection Permit ("APP") No. 11175. Per the July 2, 2015, Compliance Status Report issued by ADEQ, the Boulders WWTP is in full compliance with agency requirements for operation and maintenance, operator certification and discharge permit limits.

Scottsdale WWTP

ADEQ regulates the Scottsdale WWTP under APP Permit No. 102633. Per the July 2, 2015, Compliance Status Report issued by ADEQ, the Scottsdale WWTP was not in violation at a level at which ADEQ will take an action or issue a Notice of Opportunity to Correct or Notice of Violation and/or is in compliance with the Order/Judgment for the review period of January 1, 2014 to January 31, 2015.

F. ARIZONA CORPORATION COMMISSION ("ACC") COMPLIANCE

A check with the Utilities Division Compliance Section dated October 27, 2015, showed no delinquent compliance items.

G. DEPRECIATION RATES

Staff recommends that the depreciation rates presented in Figure 6 by individual National Association of Regulatory Utility Commissioners category be used on a going forward basis.

H. ANNUAL TESTING EXPENSES

Tables 5 and 6 below are Staff's calculation of annual test expenses excluding wet sludge testing cost[5] on the basis of the Company's APP monitoring requirements and the monitoring requirements in the Scottsdale Agreement. Staff's total estimated testing expense is $11,452.

[5] All wet sludge had been disposed of in the SMS; no sludge testing has been required.

Table 5 Wastewater Testing Cost for Boulders WWTP (per Permit Monitoring Requirement in APP No. P11175)

	Cost per test	No. of tests per year	Annual Cost
Fecal Coliform – daily	$15	365	$5,475
Enteric Virus[1] – monthly	$460	12	$0[2]
Turbidity	$0	365	$0[3]
BOD_5 - 7 samples	$32	36	$1,152
TSS - 7 samples	$12	36	$432
Chemical Oxygen Demand	$38.4	14	$537.6
Total Nitrogen (effluent) - monthly	$48	12	$576
Fluoride (effluent) - quarterly	$15	4	$60
Cyanide (effluent) – quarterly	$44	4	$176
Antimony (effluent) – quarterly	$14	4	$56
Arsenic (effluent) – quarterly	$14	4	$56
Turbidity - daily	$0[4]	365	$0
Barium (effluent) – quarterly	$9	4	$36
Beryllium (effluent) – quarterly	$9	4	$36
Cadmium (effluent) – quarterly	$14	4	$56
Chromium (effluent) – quarterly	$9	4	$36
Lead (effluent) – quarterly	$14	4	$56
Mercury (effluent) – quarterly	$32	4	$128
Nickel (effluent) – quarterly	$9	4	$36
Selenium (effluent) – quarterly	$14	4	$64
Thallium (effluent) – quarterly	$14	4	$64
VOCs	$160	2	$320
Chlorinated Herbicides/acids	$175	2	$175
SOC	$290	2	$290
ICP digestion	$16	1	$16
ICP-MS digestion	$0	1	$0
Total			**$10,298**

Note: 1. Enteric virus sampling only required when two consecutive turbidity limits are exceeded.
2. Historically, the Company has not been required to perform this test. Therefore, Staff adjusted this cost to zero.

3. The Company uses on-site auto turbidity meter to measure this parameter.
4. The Company uses on-site auto turbidity meter to measure this parameter.

Table 6 Wastewater Testing Cost per Service Agreement Monitoring Requirement (Scottsdale – Agreement No.960058)

	Cost per test	No. of tests per year	Annual Cost
BOD_5 - 7 samples/quarterly	$32	14	$448
TSS - 7 samples/quarterly	$12	14	$168
Chemical Oxygen Demand	$38.40	14	$537.6
Total			**$1,153.6**

Staff recommends water quality testing expenses be adjusted for purposes of this rate case to Staff's estimated annual expense amount of $11,452.

I. FINANCING APPLICATION (DOCKET NO. SW-02361A-15-0207)

On June 22, 2015, BMSC filed a financing application requesting Commission authorization to borrow the amount necessary to achieve a capital structure consisting of 70 percent equity 30 percent debt. The total debt will not exceed $3,400,000. This application does not include any capital improvement; therefore, no engineering evaluation was needed.

J. OTHER ISSUES

1. Offsite Hookup Fee Tariff ("HUF Tariff")

BMSC seeks to standardize all of the tariffs for Liberty Utilities' operating subsidiaries in Arizona. In order to do so, BMSC requests that the Commissions approve its proposed changing existing HUF modification. BMSC requests to use water usage of 320 GPD as one Equivalent Residential Unit ("ERU") and cost of one ERU is $1,800 for each new residential service lateral.

Based on the definition, ERU is determined by actual daily average water usage from one single family residence with a 5/8" x 3/4" meter. It is important to recognize that the quantity of water associated with an ERU is system specific, ERU level for one system may not apply to another system due to different demographics or water use patterns in each system. The "level of service" for ERU may change yearly as water use patterns change for various reasons such as demographics, conservation activities, etc. Therefore, Staff disagrees with Liberty Utilities' approach to standardize its tariffs in Arizona. However, Staff does not object to use ERU calculation method to determine the HUF Tariff charge fees.

Via the Response to Staff Data Request ("DR") No. DH2.1, BMSC assumes 3.2 persons averaging 100 gallons of water use per day and derives 320 GPD/ERU. In the Response to DR No. DH4.3, BMSC states:

Scottsdale (GPD/dwelling house)	Carefree (GPD/dwelling house)	Cave Creek (GPD/dwelling house)
250	446	472

There are three water providers, Scottsdale, Carefree and Cave Creek in BMSC's service area. However, BMSC did not use water usage data from these water providers, Staff disagrees with the Company's standardized approach and believes that the ERU should be typical of the entire area served. The service area map shows that Carefree covers approximately 73 percent of BMSC's service area, and Scottsdale covers approximately 27 percent of BMSC's service area[6]. Based on its analysis Staff recommends 400 [7]GPD/ERU in lieu of the numbers proposed by the Company.

BMSC provided no supporting documentation that indicates how it calculated the $1,800. Because 6-inch service laterals are usually used for most commercial customers and the Commissions approved $3,901 for 6-inch service laterals for BMSC, Staff used the known data to calculate the cost of 1 ERU. According to the 2014 EQUIVALENT RESIDENTIAL UNIT FACTORS by Florida State Broward County's Water and Wastewater Engineering Division, fast food service has 2.375 ERU/1,000 square feet. Therefore, Staff recommends $1,700[8] as the estimated cost for one ERU.

Staff recommends BMSC's HUF's Tariff is in Figure 7.

2. Disallowed Plant Items

BMSC agrees with Staff that the plant items listed in the Table below were not for BMSC. Therefore, they should be disallowed for purposes of this application.

Acct #	date	description	Amount ($)	Vendor	Invoice #
361	10-26-11	A 5'-Di Manhole for Gold Canyon Sewer ("Gold Canyon")	2,577.68	JPCI Services ("JPCI")	PO0010017
354	7-29-11	88-HP pump service for Peralta Lift Station in Gold Canyon	360	James, Cooke & Hobson ("JCH")	340693

3. Reclassified Plant Items

BMSC agrees with Staff that the plant items listed in the Table blow should be reclassified to the recommended accounts shown in right column of the Table.

Date	Acct #	Vendor	Amount ($)	Item object	Invoice #	Reclassified to Acct #
7-20-11	380 (Treatment	Siemens	7,142.78	Replace 2,500 lbs active carbon in vessel in	900272509	O&M expense

[6] Cave Creek covers less than 1% of BMSC's service area.
[7] 250 GPD x 27% + 446 GPD x 73 % = 393 GPD, round up to 400 GPD.
[8] $3,901/2.375 ERU = $1,643/ERU, round up to $1,700/ERU.

	Plant & Disposal)			Boulder WWTP		
9-22-10[3]	354	Cummins Rocky Mountain	1,202.09	Cooling system (Coolant leakage in engine) for emergency generator	600-20615	O&M expense
8-17-10	354 (structure and improvement	Consulting Land Surveyors	1,500	Survey for APN #211-28-099	6123	353 (land and land right)
4-16-14	396	Freeman Transportation	454.50	Fuel surcharge & rip rocks	n/a	354
9-29-14	380	GAD	1,238.13	Insulation on exterior wall and door at scrubber building at Boulder WWTP	2014616	354
9-26-14	380	GAD	1,020.00	Insulation a 4'x4'x8' tool shed at Boulder WWTP	2014613	354
12-8-14	371	GAD	1,755.00	Insulation, sliding door at scrubber building at Boulder WWTP	2014639	354
2-25-12	354	Rocky Mtn	824.15	Portable emergency generator	600-26995	355
2-23-12	354	Rocky Mtn	743.25	Portable emergency generator	600-26917	355
2-23-12	354	Rocky Mtn	744.28	Portable emergency generator (40 KW) at Commercial LS	600-26990	355
2-23-12	354	Rocky Mtn	743.25	Portable emergency generator (25 KW) at new Trade Center LS	600-26963	355
2-23-12	354	Rocky Mtn	784.37	100 gallons diesel	600-27329	355
2-10-14	371	J & H	1,601.96	Remove and replace check valve in dry well at Sunset LS	7-14	360
2-18-14	371	J & H	567.84	Remove air relief valve, inspect rolling seal at Carefree Village LS	9-14	361 (Sewer Collection)

5-7-10	354	Grainger	672.48	3/10 HP pump & blower	9254364434	371
7-1-10	354	Grainger	623.66	3/10 HP pump & blower	9289909559	371
9-1-10	354	Grainger	184.20	blower	9332518217	371
5-20-10	354	JCH	135.04	gasket	338192	371
5-6-10	354	JPCI	5,152.56	Pump replacement in Peaceful Place LS	10-046-AWS	371
5-6-10	354	JPCI	11,300.07	Valves replacement & spool work in Carefree HWY LS	10-048-AWS	371
7-15-10[2]	354	GHD	19,747.19	Replacing wires, control panel, transformers in Sunset LS	865787	371
10-15-10	354	GHD	15,700	Install control panel & connection box	8606826	371
12-10-10	354	GHD	2,850	Install 2 relays/alternators at Peaceful Place LS	8607492	371
11-19-10	354	GHD	742	Install 2 timer/alternators at El Patragal LS	8607258	371
1-20-11	354	GHD	1,505	Install disconnect for control power for pump at El Patragal LS	8607890	371
3-1-11	354	J & H	566.28	Pump removal at New River	n/a	371
3-6-11	354	J & H	566.28	Install new pump at New River	n/a	371
2-27-11	354	J & H	849.42	Install temp pump, auto dialer and relay	n/a	371
4-17-11	354	J & H	1,105.34	Install new alternator at New River	n/a	371
5-1-13	354	J & H	1,274.13	Install new pump at Commercial LS and Indian Rock LS	n/a	371
6-4-11	354	J & H	424.71	Install transfer pump at Boulder WWTP	n/a	371
6-18-11	354	J & H	833.09	Install new panel at New River LS	n/a	371
6-18-11	354	J & H	775.37	Starter replacement at New River LS	n/a	371
7-16-11	354	J & H	871.20	Install amp meter in panel at Carefree HWY LS	n/a	371
6-24-12	354	JCH	3,448	Omnisite crystal ball w	342345	371

				120 vac & NEMA 4x enclosure, currental clamps to monitor pump amperage w crystal ball		
9-28-12	354	JCH	5,726.72	Control panel , alarm , motor, circuit breaker at El Pedregal LS	342896	371
4-15-12	354	J & H	1,492.22	New pump at 3 LSs, check pumps at Peaceful Place LSs	n/a	371
7-28-12	354	J & H	978.41	Starters at Ridge View LS	n/a	371
9-16-12	354	J & H	9,485	Install new pump control panel	n/a	371
1-18-13	354	GAD Constructing ("GAD")	1,080	Outdoor GFCI connections, indoor junction box, rewire	2013386	371
5-9-13	354	J & H	1,111.87	New contact for pump at Ridge View LS	25-13	371
4-14-13	354	J & H	1,135.68	Motor, impellor, amp rings at Ridge View LS & Indian Rock LS	20-13	371
7-14-13	354	J & H	780.78	New pump at Sentinal Rock LS	32-13	371
9-16-13	354	J & H	2,175.91	pump motor removal at Ridge View LS	41-13	371
10-18-13	354	J & H	390	alarm at Carefree HWY LS	43-13	371
10-25-13	354	J & H	13,015.23	2" Conduit for control panel at Carefree HWY LS	44-13	371
10-26-14	396	J & H	851.76	Replace contact chamber pump	14-63	371
11-9-14	354	Bastel Cox Industries	2,060.00	Install new pump panel in LS	221	371
8-4-14	354	JCH	4,627.67	Control duplex, paint control panel, motor starter, alarm systems, circuit in Sagebrush LS	347486	371
11-30-14[4]	354	Bastel Cox Industries	2,262.21	Install j box, panel, din rail, terminal blocks, wires in LS	228	371
2-14-12[1]	371	Sound Solutions Acoustical	2,100	Noise control, field inspection	12002-01	380

		Consulting				
2-8-13	371	J & H	1,518.97	Replace probes on sand filter at Boulder WWTP	10-13	380
10-12-10	354	GHD	4,200	Installed & programed alarm systems	8606791	396
11-19-10	354	GHD	742	Install Bluetooth Device	8607259	396
12-10-10	354	GHD	975	Install antenna at Indian Rock LS	8607493	396
2-10-11	354	JCH	3,246	Omnisite crystal ball for monitoring pump amps at Commercial LS	339666	396
2-2-11	354	JCH	2,886	Omnisite crystal ball at Indian Rock LS	339661	396
7-29-11	354	JCH	3,344	Omnisite crystal ball at Carefree LS	340693	396
3-1-11	354	OmniSite	727.30	3 years wireless service (2/9/11-12/31/14)	29463	396
1-6-11	354	J & H	1,796.85	Auto dialer (Omnisite crystal ball, electric hookup, relay)	n/a	396
7-31-11	354	J & H	952.88	Install crystal ball & program at Carefree HWY LS	n/a	396
8-5-11	354	J & H	566.28	Replace micro tell for omini site monitoring at Carefree LS	n/a	396
4-25-12	354	JCH	3,448	Omnisite crystal ball at Peaceful Place LS	339661	396
9-27-12	354	JCH	3,448	Omnisite crystal ball, current clamps at El Pedregal LS	342889	396
2-6-12	354	J & H	707.85	Auto dialer phone replacement in 5 LSs	n/a	396
2-7-12	354	J & H	1,796.85	New Omni Site system and 2 new amp meters at Sunset LSs	n/a	396
2-11-12	354	J & H	1,350.36	New auto dialer, new Microtell at Peaceful Place LSs	n/a	396
4-29-12	354	J & H	3,607.56	New Omni Site & program at Sentinal Rock LS & Peaceful Place LSs	n/a	396
5-25-12	354	J & H	639.52	New program phone,	n/a	396

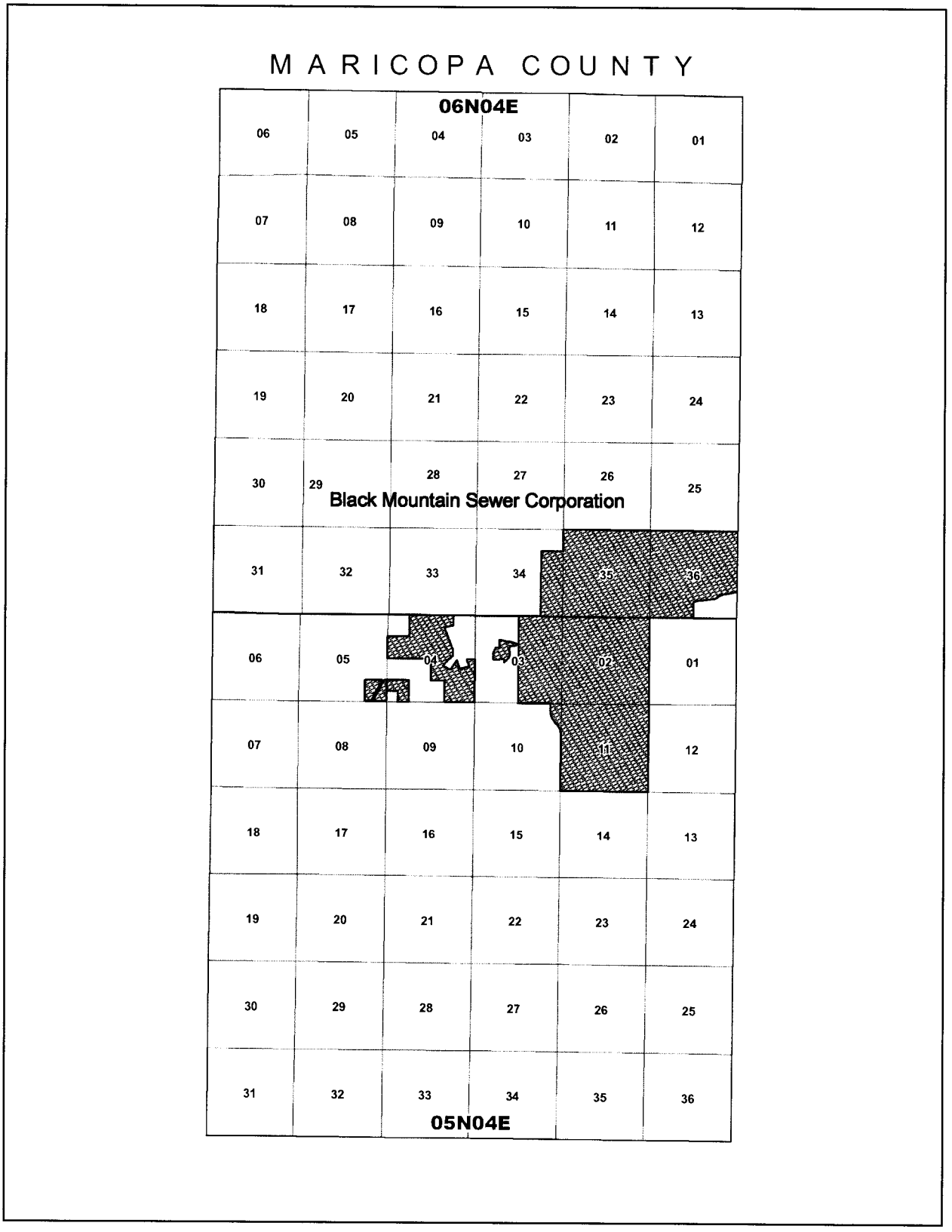
				rewire Omni, starter, check pumps at El Pedregal LS, Sentinal Rock LS & Peaceful Place LSs		
7-21-12	354	J & H	710.58	Wire, program alarm, control New program phone, rewire Omni, starter, Sentinal Rock LS	n/a	396
4-8-13	354	JCH	950	Omnisite CDMA radio	344362	396
8-8-13	354	JCH	950	Omnisite CDMA radio, upgrade firmware	345159	396
9-16-14	371	JCH	3,249.00	Upgrade radio, replace batteries in LS	347887	396
10-31-14	371	J & H	718.54	Replace alternating relay/selector switch at Sentinal Rock LS	14-66	396
4-27-14	371	J & H	1,201.20	Install new alternating relays in LS	14-21	396
9-16-14	354	JCH	4,061.25	Omnisite crystal ball, NEMA 4x enclosure in Sagebrush LS	347604	396
12-23-14	354	JCH	756	Omnisite service in Sagebrush LS	n/a	396
11-07-14	354	JCH	1,306.62	Metal data plate	348067	396
8-13-10	354	JPCI	4,405.44	Replace alarms, float controls, auto dialers in Carefree LS, Peaceful Place LS, Stage Coach LS, Sagebrush LS, Carefree Village LS, Sentinel Rock LS, Petragel LS, New River LS	10-089-AWS	396 (communications)
1-19-11[1]	389	Grainger	1,300	N/A	8607787	371
11-26-10[2]	389	GHD	1,850	preparing bottom of dry well	8607467	354

Notes: 1. Based on the Response to Staff DR #3.5.
2. Based on the Response to Staff DR #3.6.
3. Based on the Response to Staff DR #3.10.
4. Based on the Response to Staff DR #3.31.

FIGURES

Figure 1

BLACK MOUNTAIN SEWER CERTIFICATED AREA



LOCATION OF BLACK MOUNTAIN SEWER COMPANY

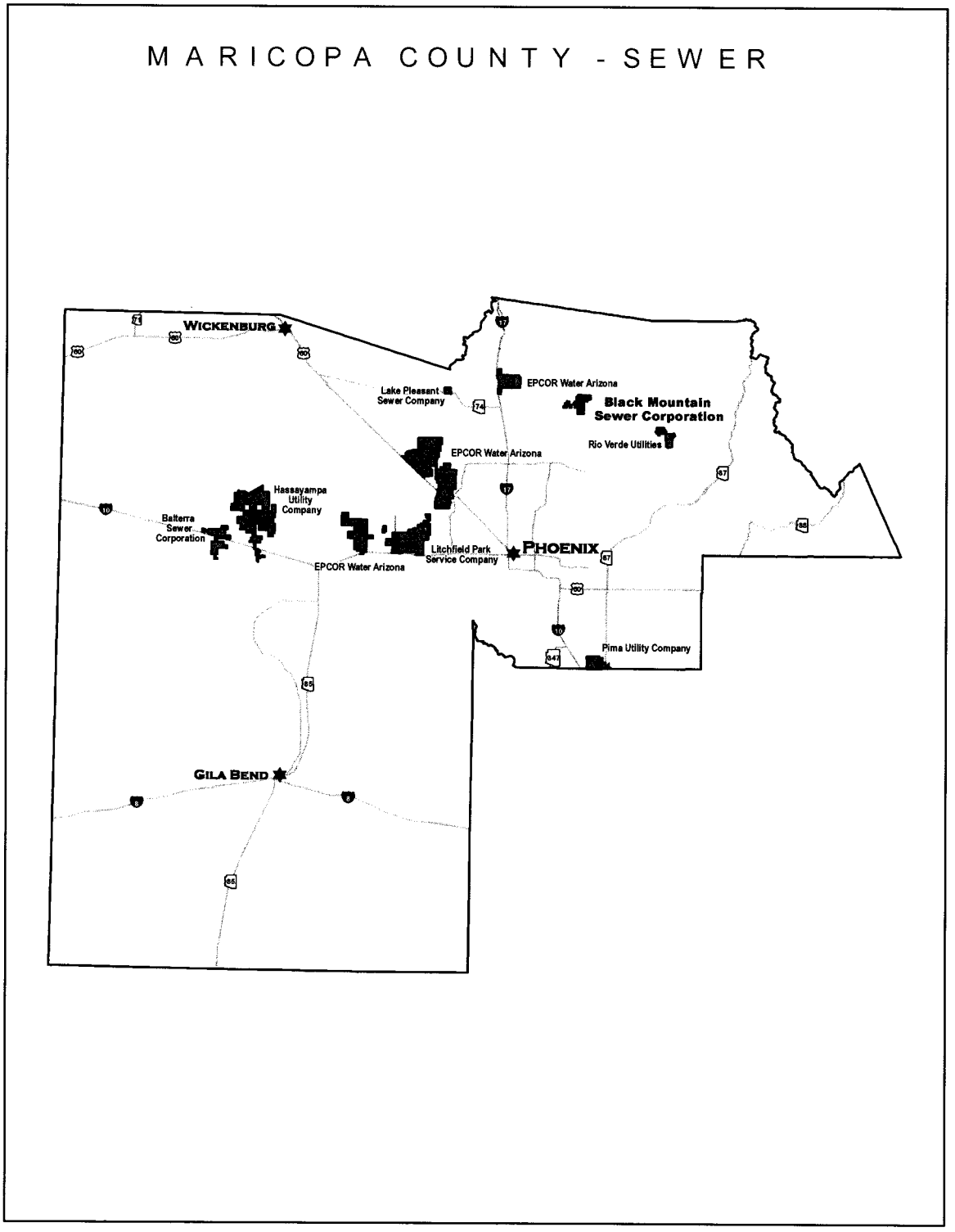


FIGURE 3A

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM

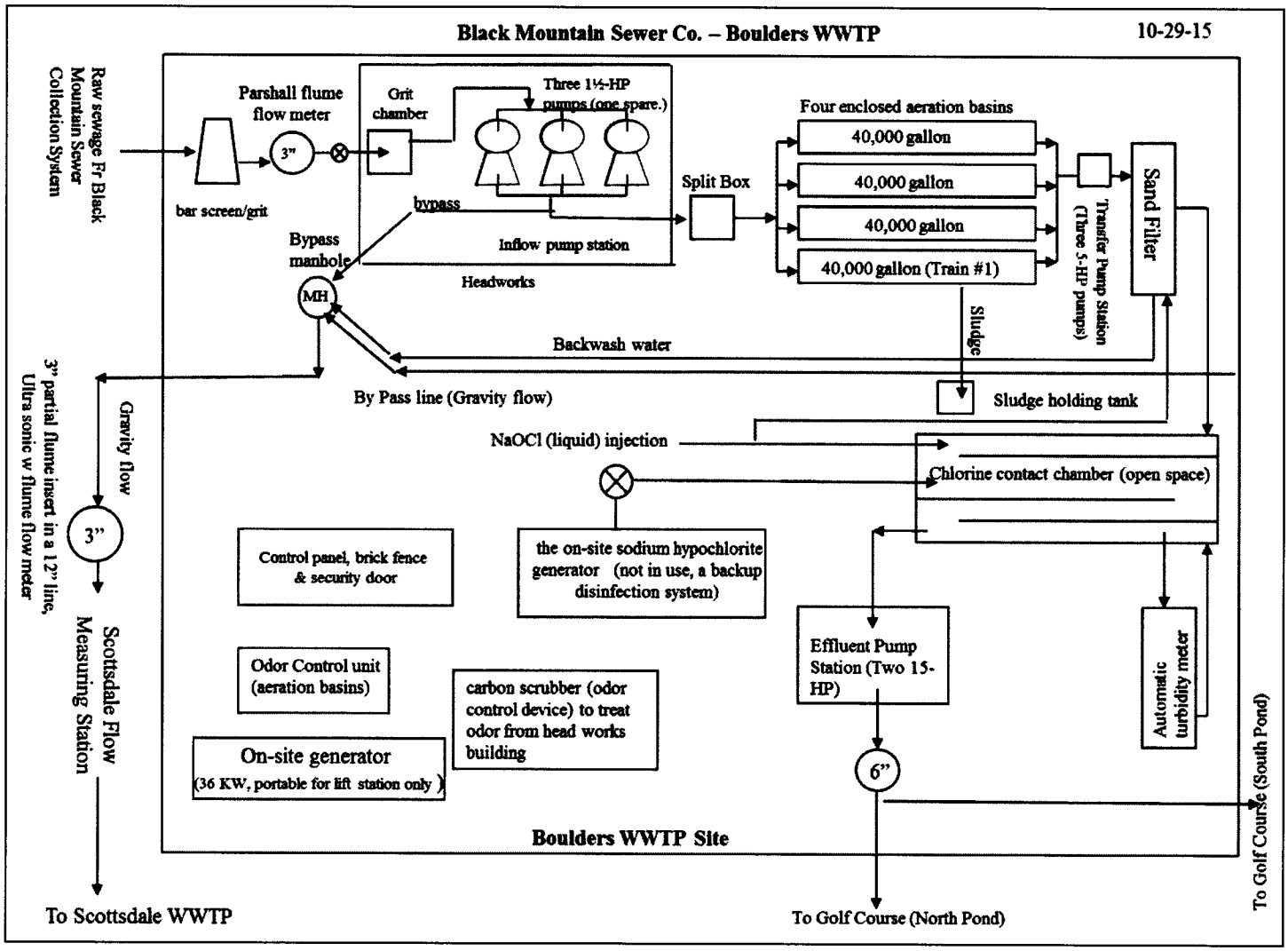
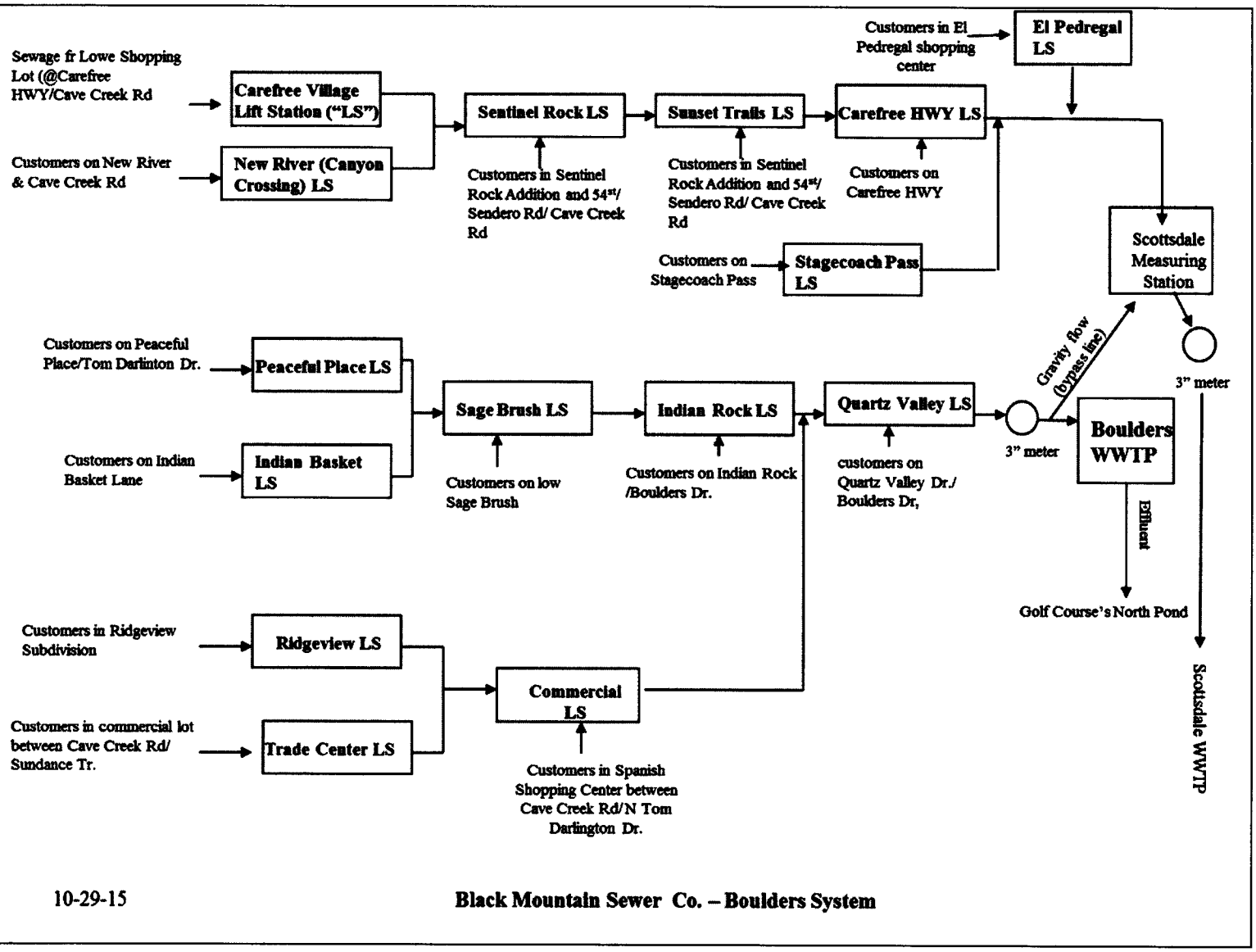


FIGURE 3B

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM



10-29-15

Black Mountain Sewer Co. – Boulders System

FIGURE 3C

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM

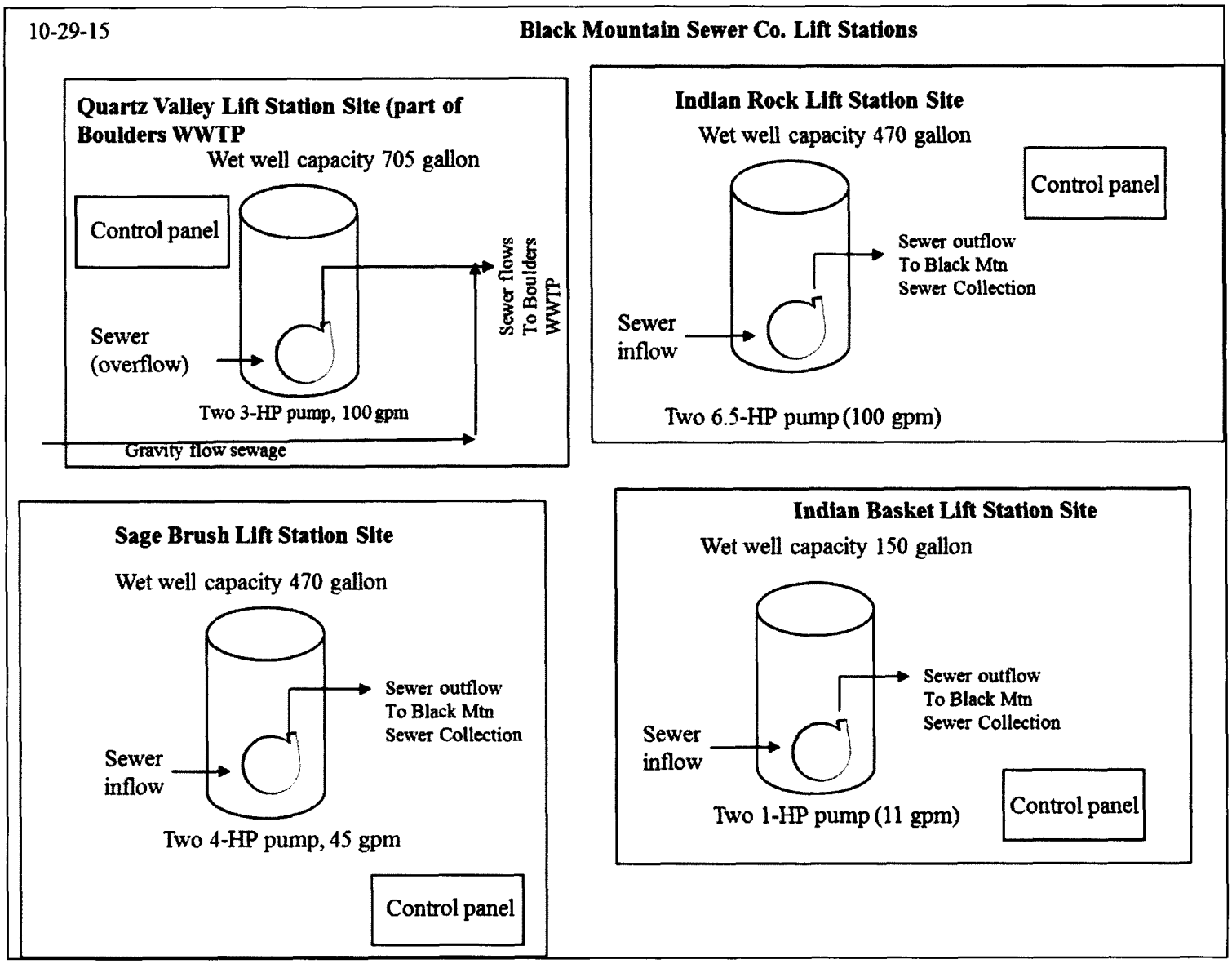


FIGURE 3 D

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM

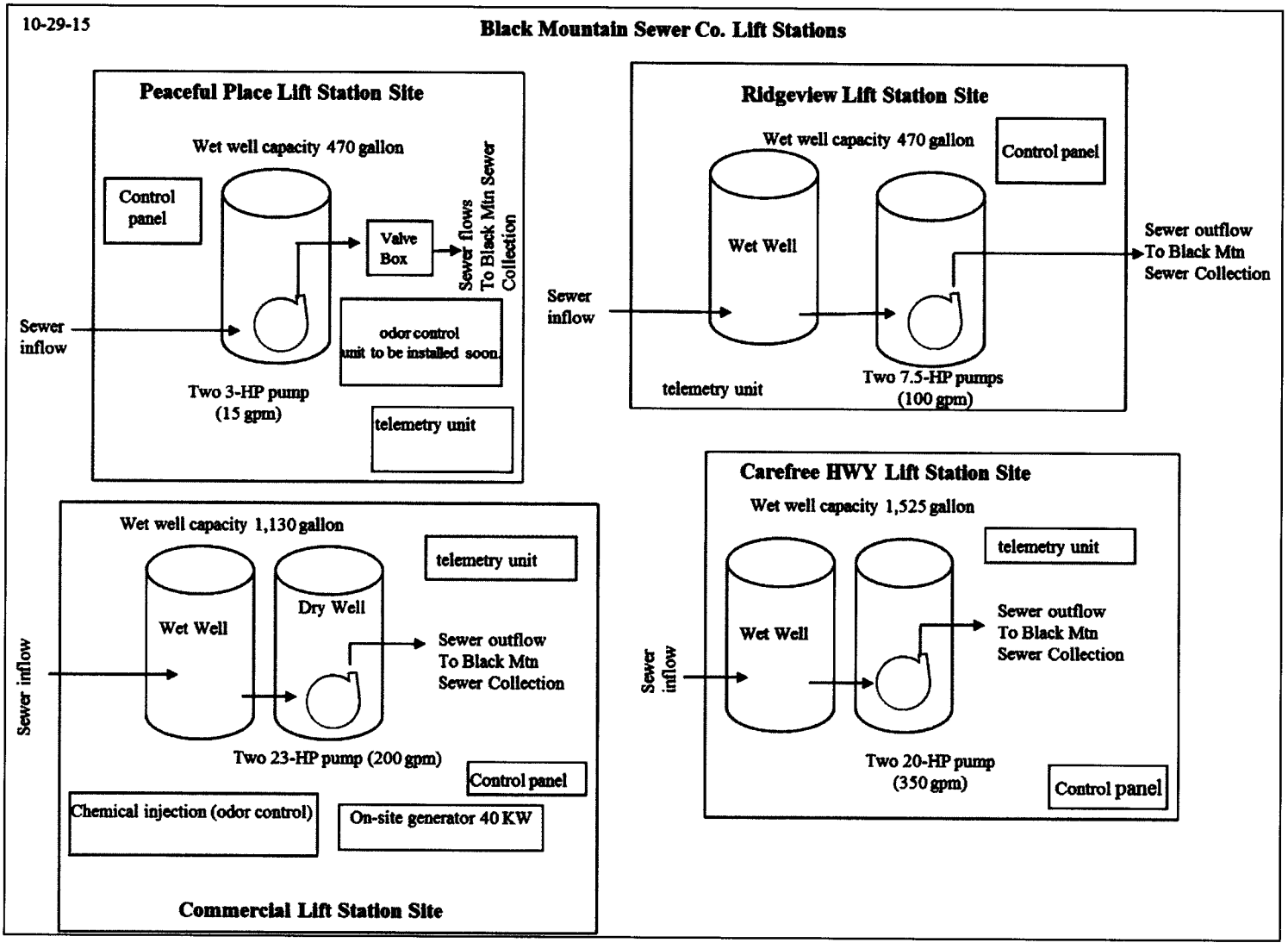


FIGURE 3 E

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM

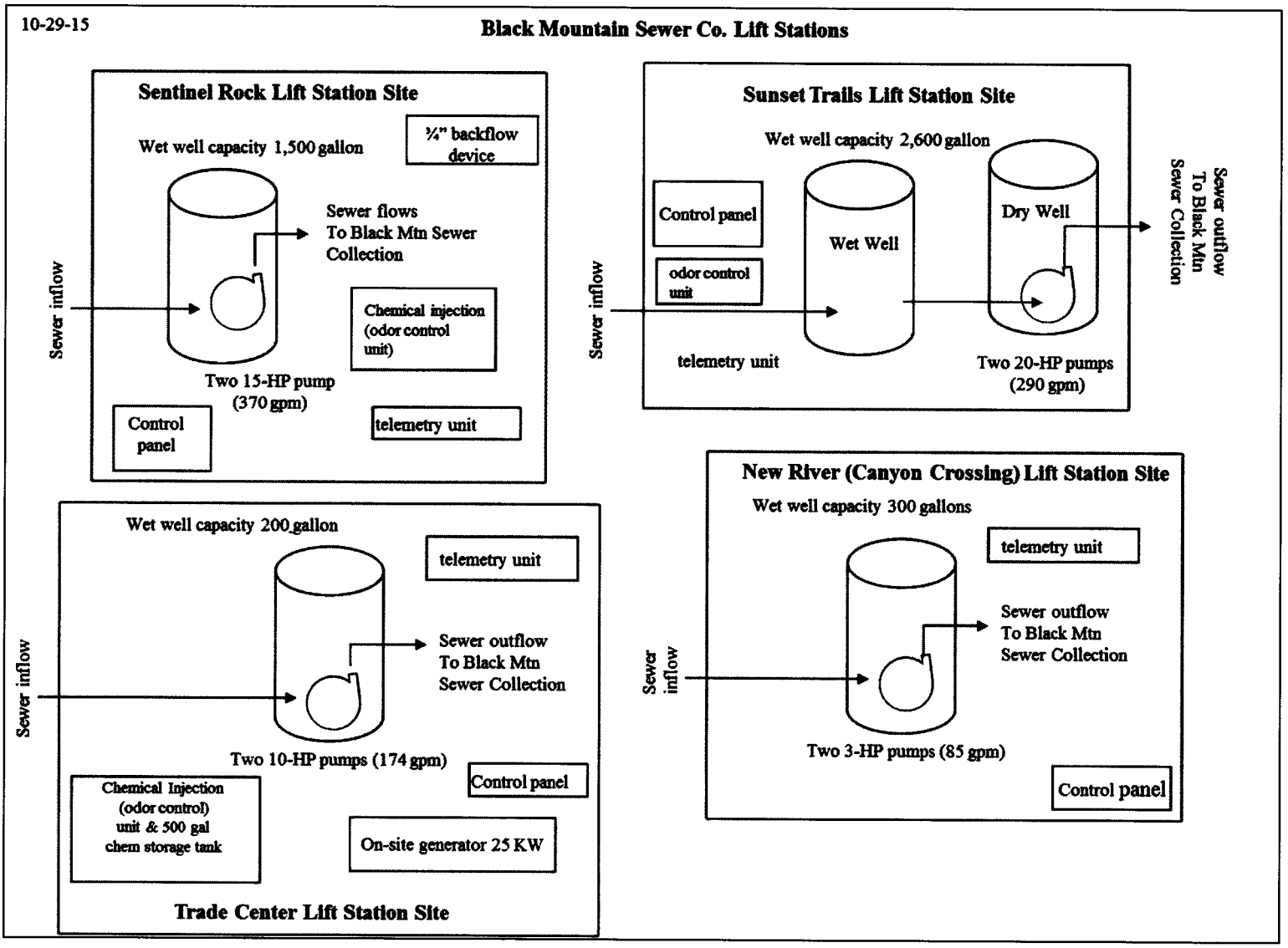


FIGURE 3 F

BLACK MOUNTAIN SEWER SYSTEMATIC FLOW DIAGRAM

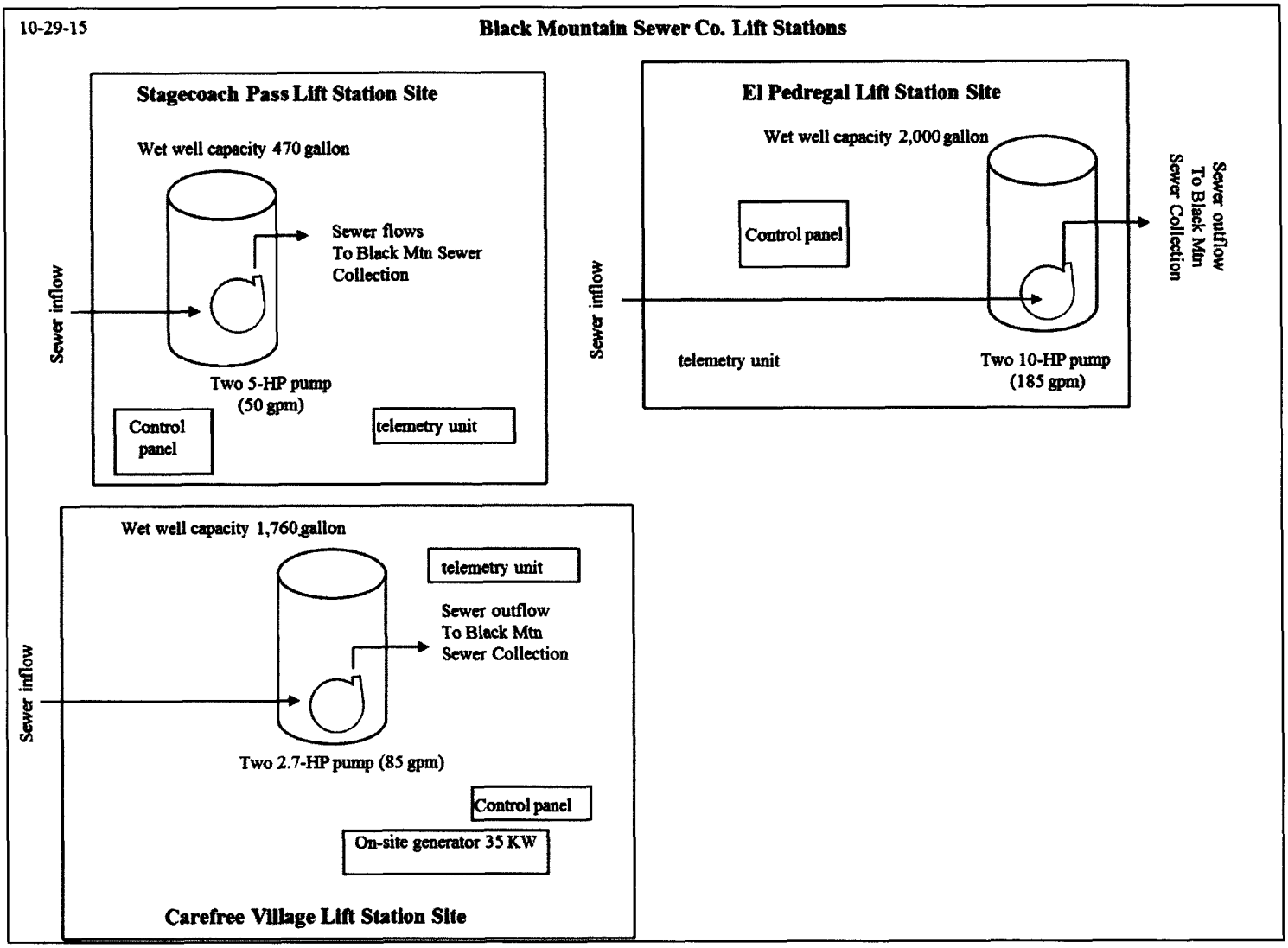


FIGURE 4

WASTEWATER FLOW IN BLACK MOUNTAIN SEWER SERVICE AREA

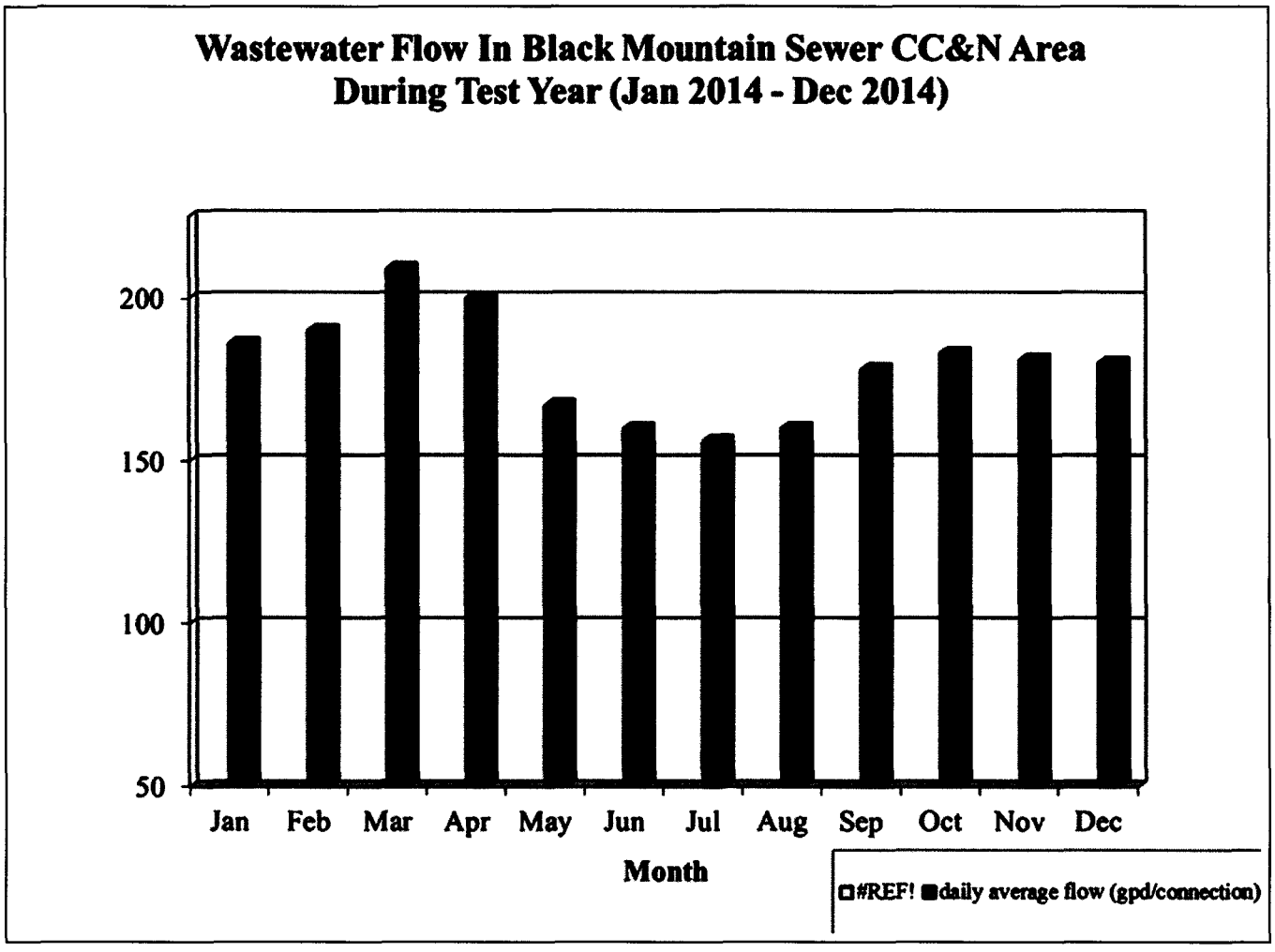


FIGURE 5

PROJECTED AND ACURATE GROWTH IN BLACK MOUNTAIN SEWER SERVICE AREA

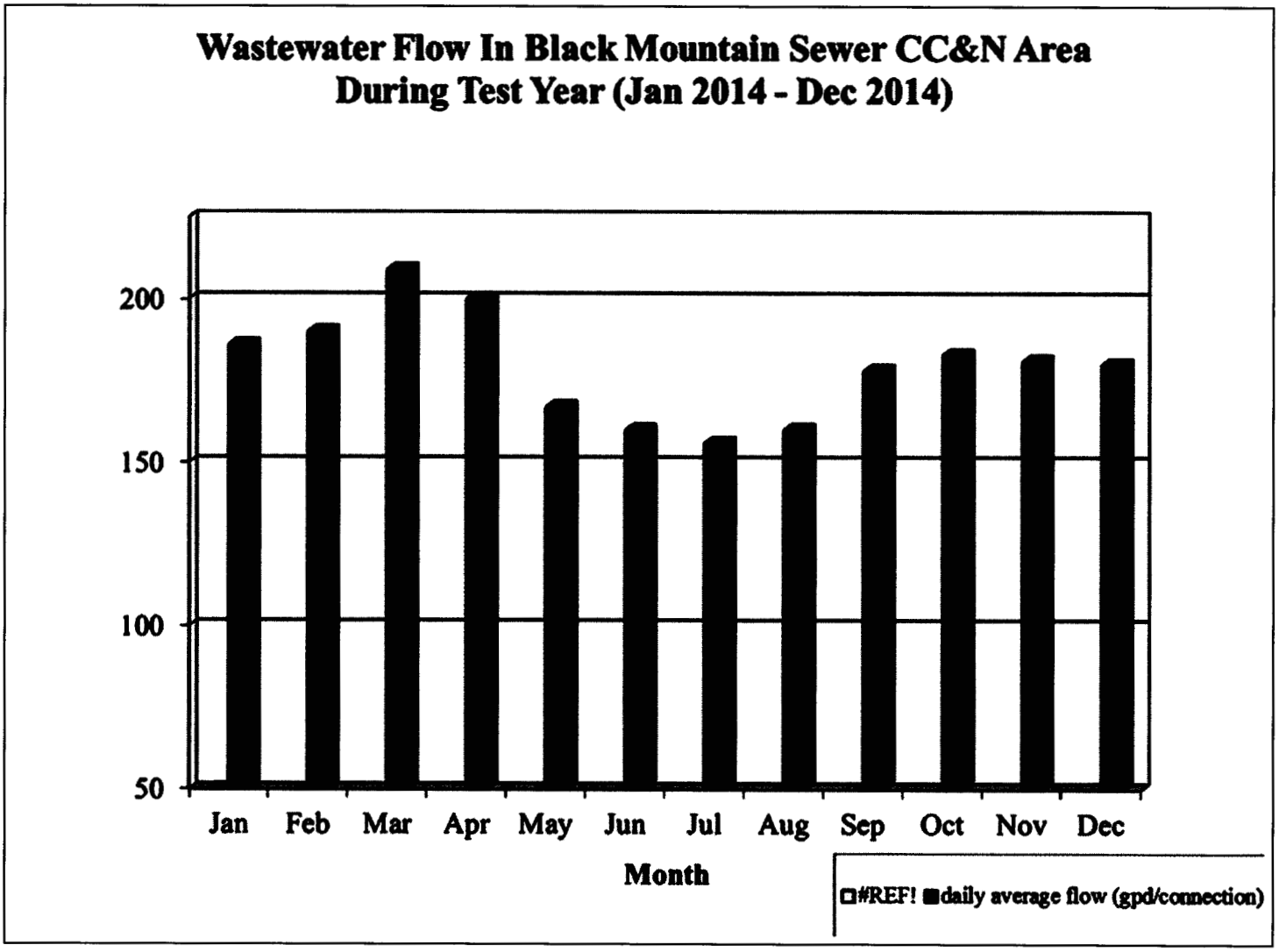


Figure 6 Depreciation Rates for Black Mountain Sewer Co.

NARUC Acct #	Depreciable Plant	Decision #71865	Co. Proposed Rate (%)	**Staff Recommended Rate (%)**
351	**Organization**	0	0	0
352	**Franchises**	0	0	0
353	**Land & Land Rights**	0	0	0
354	**Structure & Improvements**	3.33	3.33	3.33
355	**Power Generation Equipment**	5.00	5.00	5.00
360	**Collection Sewers – Force**	2.00	2.00	2.00
361	**Collection Sewers – Gravity**	2.00	2.00	2.00
362	**Special Collection Structures**	2.00	2.00	2.00
363	**Service to Connections**	2.00	2.00	2.00
364	**Flow Measuring Devices**	10.00	10.00	10.00
365	**Flow Measuring Installations**	10.00	10.00	10.00
366	**Reuse Services**	2.00	2.00	2.00
367	**Reuse Meters & Meter Installations**	8.33	8.33	8.33
370	**Receiving Wells**	3.33	3.33	3.33
371	**Pump Equipment**	12.50	12.50	12.50
374	**Reuse Distribution Reservoirs**	2.50	2.50	2.50
375	**Reuse Transmission and Distribution System**	2.00	2.50	2.00
380	**Treatment & Disposal Equipment**	5.00	5.00	5.00
381	**Plant Sewers**	5.00	5.00	5.00
382	**Outfall Sewer Lines**	3.33	3.33	3.33
389	**Other Plant & Misc Equipments**	6.67	6.67	6.67
390	**Office Furniture & Equipments**	6.67	6.67	6.67
390.1	**Computer & Software**	20.00	20.00	20.00
391	**Transportation Equipments**	20.00	20.00	20.00
392	**Store Equipment**	4.00	4.00	4.00
393	**Tools, Shop, Garage Equipments**	5.00	5.00	5.00
394	**Lab Equipments**	10.00	10.00	10.00
395	**Power Operated Equipment**	5.00	5.00	5.00
396	**Communication Equipment**	10.00	10.00	10.00
397	**Miscellaneous Equipment**	10.00	10.00	10.00
398	**Other plants (related to the City of Scottsdale connection only)**	10.00	10.00	10.00

Figure 7 Offsite Hookup Fee Tariff (Revised)

TARIFF SCHEDULE

UTILITY: Liberty Utilities (Black Mountain Sewer) Corp DECISION NO._____
DOCKET NO.:SW-02361A-15-0207 EFFECTIVE DATE: _____

OFF-SITE FACILITIES HOOK-UP FEE

I. Purpose and Availability

The purpose of the off-site facilities hook-up fees payable to **Liberty Utilities (Black Mountain Sewer) Corp.** ("Company") pursuant to this tariff is to equitably apportion the costs of constructing additional off-site facilities to provide wastewater treatment and disposal facilities among all new service laterals. These charges are applicable to all new service laterals undertaken via Collection Main Extension Agreements, or requests for service not requiring a Collection Main Extension Agreement, entered into after the effective date of this tariff. The charges are one-time charges and are payable as a condition to Company's establishment of service, as more particularly provided below.

II. Definitions

Unless the context otherwise requires, the definitions set forth in R-14-2-601 of the Arizona Corporation Commission's ("Commission") rules and regulations governing sewer utilities shall apply interpreting this tariff schedule.

"Applicant" means any party entering into an agreement with Company for the installation of wastewater facilities to serve new service laterals, and may include Developers and/or Builders of new residential subdivisions, and industrial or commercial properties.

"Company" means Liberty Utilities (Black Mountain Sewer) Corp.

"Collection Main Extension Agreement" means an agreement whereby an Applicant, Developer and/or Builder agrees to advance the costs of the installation of wastewater facilities necessary to serve new service laterals, or install wastewater facilities to serve new service laterals and transfer ownership of such wastewater facilities to Company, which agreement does not require the approval of the Commission pursuant to A.A.C. R-14-2-606, and shall have the same meaning as "Wastewater Facilities Agreement."

"Off-Site Facilities" means the wastewater treatment plant, sludge disposal facilities, effluent disposal facilities and related appurtenances necessary for proper operation, including engineering and design costs. Off-site facilities may also include lift stations, force mains, transportation mains and related appurtenances necessary for proper operation if these facilities are not for the exclusive use of the Applicant and benefit the entire wastewater system.

"Service Lateral" means and includes all service laterals for single-family residential, commercial, industrial or other uses.

III. Wastewater Hook-up Fee

For each new residential service lateral, Company shall collect a Hook-Up Fee of $1,700 based on the Equivalent Residential Unit ("ERU") of 400 gallons per day. Non-residential applicants shall pay based on the total ERUs of their development calculated by dividing the

estimated total daily wastewater capacity usage needed for service using standard engineering standards and criteria by the ERU factor of 400 gallons per day.

IV. Terms and Conditions

(A) Assessment of One Time Off-Site Facilities Hook-up Fee: The off-site facilities hook-up fee may be assessed only once per parcel, service lateral, or lot within a subdivision (similar to a service lateral installation charge). If a development or subdivision is upsized or expanded by Applicant, Builder and/or Developer after assessment of Hook-Up Fees by Company, Company may charge additional Hook-Up Fees for such upsizing or expansion by Applicant based on the calculation set forth above.

(B) Use of Off-Site Facilities Hook-up Fee: Off-site facilities hook-up fees may only be used to pay for capital items of off-site facilities, or for repayment of loans obtained to fund the cost of installation of off-site facilities. Off-site hook-up fees shall not be used to cover repairs, maintenance, the cost of closing wastewater treatment plant, including lift stations, or other operational purposes. Company shall record amounts collected under the tariff as CIAC; however, such amounts shall not be deducted from rate base until such amounts have been expended for plant.

(C) Time of Payment:

(1) For those requiring a Collection Main Extension Agreement: In the event that the Applicant is required to enter into a Collection Main Extension Agreement, whereby Applicant agrees to advance the costs of on-site improvements or construct such improvements, payment of the fees required hereunder shall be made by the Applicant when payment is made for the on-site improvements or 30 days after the Collection Main Extension Agreement is executed, whichever is later.

(2) For those connecting to an existing main: In the event that the Applicant, Developer or Builder for service is not required to enter into a Collection Main Extension Agreement, the hook-up fee charges hereunder shall be due and payable at the time wastewater service is requested for the property.

(D) Off-Site Facilities Construction by Developer: Company and Applicant, Developer, or Builder may agree to construction of off-site facilities necessary to serve a particular development by Applicant, Developer or Builder, which facilities are then conveyed to Company. In that event, Company shall credit the total cost of such off-site facilities as an offset to off-site hook-up fees due under this Tariff. If the total cost of the off-site facilities constructed by Applicant, Developer or Builder and conveyed to Company is less than the applicable off-site hook-up fees under this Tariff, Applicant, Developer or Builder shall pay the remaining amount of off-site hook-up fees owed hereunder. If the total cost of the off-site facilities contributed by Applicant, Developer or Builder and conveyed to Company is more than the applicable off-site hook-up fees under this Tariff,

Developer or Builder shall be refunded the difference upon acceptance of the off-site facilities by the Company.

(E) Failure to Pay Charges; Delinquent Payments: Company will not be obligated to make an advance commitment to provide or actually provide wastewater service to any Applicant, Developer or Builder has not paid in full all charges hereunder. Under no circumstances will Company connect service or otherwise allow service to be established if the entire amount of any payment has not been paid.

(F) Large Subdivision and/or Development Projects: In the event that the Applicant is engaged in the development of a residential subdivision and/or development containing more than 150 lots, the Company may, in its discretion, agree to payment of off-site hook-up fees in installments. Such installments may be based on the residential subdivision and/or development's phasing, and should attempt to equitably apportion the payment of charges hereunder based on the Applicant's construction schedule and wastewater service requirements. In the alternative, the Applicant shall post an irrevocable letter of credit in favor of the Company in a commercially reasonable form, which may be drawn by the Company consistent with the actual or planned construction and hook up schedule for the subdivision and/or development.

(G) Off-Site Hook-Up Fees Non-refundable: The amounts collected by Company as hook-up fees pursuant to the off-site facilities hook-up fee tariff shall be non-refundable contributions in aid of construction ("CIAC").

(H) Use of Off-Site Hook-Up Fees Received: All funds collected by Company as off-site facilities hook-up fees shall be deposited into a separate account and bear interest and shall be used solely for the purposes of paying for the costs of installation of off-site facilities, including repayment of loans obtained for the installation of off-site facilities.

(I) Off-Site Facilities Hook-Up Fee in Addition to On-site Facilities: The off-site facilities hook-up fee shall be in addition to any costs associated with the construction of on-site facilities under a Collection Main Extension Agreement.

(J) Disposition of Excess Funds: After all necessary and desirable off-site facilities are constructed utilizing funds collected pursuant to the off-site facilities hook-up fees, or if the off-site facilities hook-up fee has been terminated by order of the Arizona Corporation Commission, any funds remaining in the bank account shall be refunded. The manner of the refund shall be determined by the Commission at the time a refund becomes necessary.

(K) Status Reporting Requirements to the Commission: Company shall submit a calendar year Off-Site Facilities Hook-Up Fee status report each January 31st to Docket Control for the prior twelve (12) month period, beginning January 31, 2017, until the hook-up fee tariff is no longer in effect. This status report shall contain a list of all customers that have paid the hook-up fee tariff, the amount each has paid, the physical location/address of the property in respect of which such fee was paid, the amount of money spent from the account, the amount of interest earned on the funds

within the tariff account, and a list of all facilities that have been installed using the tariff funds during the 12 month period.