RATE CASE HANDBOOK

FOR SMALL WATER AND
SEWER UTILITIES

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HOW RATES ARE DETERMINED

Rates are set to cover: (1) reasonable operating expenses, including depreciation expense; and (2) a fair return, i.e. net operating income. That is to say:

Reasonable Expenses
PLUS
Reasonable Return (Net Operating Income)
SHOULD EQUAL
Revenues from All Sources

For ratemaking purposes, the revenues from all sources are referred to as the revenue requirement. As shown above, this is the amount of revenues that need to be generated from all sources (service rates, late payment charges, returned check charges, reconnection charges, etc.) so that a utility can pay its reasonable expenses and have the opportunity to earn a reasonable return.

In North Carolina, there are two methods of determining the reasonable return for water and sewer companies: the return on rate base method and the operating ratio method.

Return on Rate Base Method - Under the return on rate base method, a utility is allowed a return on its rate base, i.e., its investment in the utility system. Rate base, in general, consists of the following:

Utility plant in service that is used and useful
Less: accumulated depreciation
Less: contributions in aid of construction
Plus: cash working capital
Less: average tax accruals

Under the return on rate base method, the reasonable return (or net operating income), which the company is allowed an opportunity to earn, is then calculated as follows:

Rate Base
TIMES
Reasonable Rate of Return
EQUALS
Reasonable Return (Net Operating Income)

Operating Ratio Method - Under the operating ratio method, a utility is allowed a return on its operating revenue deductions. Operating revenue deductions requiring a return, in general, consist of the following:

- Operation and maintenance expenses such as salaries and wages, administrative and office expense, maintenance and repairs, purchased power, etc.
- Depreciation expense
- Payroll taxes
- Property taxes

Operating revenue deductions requiring a return do not include gross receipts tax, regulatory fee, and state and federal income taxes.

Under the operating ratio method, the net operating income, which a company is allowed an opportunity to earn, is then calculated as follows:

Operating Revenue Deductions Requiring a Return
TIMES
Reasonable Return on Operating Revenue Deductions
EQUALS
Reasonable Return (Net Operating Income)

Since there are two methods for determining the net income, or reasonable return, in North Carolina, the overall ratemaking formula can be expanded as follows:

Reasonable Expenses of the Utility
PLUS
Reasonable Return on Rate Base OR
Operating Revenue Deductions
SHOULD EQUAL
Revenues from All Sources

The first step in preparing a rate increase application is establishing the period of time to be used in determining the amounts for the items listed above. This twelve month historical period is called the test year. Since the test year is being used as a basis for setting ongoing rates, it should be as current as possible. However, for small water and sewer utilities, especially those with little growth and no significant capital improvements, it is common for the company to use the last available calendar year. Since water and sewer utilities are required to file annual reports with the Utilities Commission, calendar year information should be readily available. Sometimes due to changes since the end of the calendar year, such as significant customer growth/loss or major capital improvements, it may be necessary for the company to use a test year that is more current than the last available calendar year.

Once the test year is determined, the rate increase application can be prepared using the following steps:

STEP 1 – Determine the level of rate base for the test year.

STEP 2 – Determine the level of revenues under present rates for the test year.

STEP 3 – Determine the level of operating expenses.

STEP 4 – Determine the rate of return and the method to be used.

STEP 5 – Calculate the return or net income amount.

STEP 6 – Calculate the overall revenue requirement.

STEP 7 – Determine the rates necessary to generate the revenue requirement.

Problem

Water Utility, Inc. has the following investment and revenues & expenses for the calendar year 1996 under its present rates:

	Amount
Utility plant in service	$100,000
Accumulated depreciation	(20,000)
Contributions in aid of construction	(60,000)
Cash working capital	3,788
Average tax accruals	(783)
Total rate base	$ 23,005
Revenues under present rates	$ 30,000
Operating and Maintenance Expenses:	
Salaries and wages	20,000
Purchased power	7,000
Transportation expense	500
Testing fees	2,000
Chemicals	250
Permit fees	150
Rate case expense	100
Miscellaneous expense	300
Total operation and maintenance expenses	30,300
Depreciation expense	1,500
Payroll taxes	2,000
Property taxes	500
Gross receipts tax	1,200
Regulatory fee	30
State income tax	0
Federal income tax	0
Total expenses	35,530
Net income (loss) under present rates	$ (5,530)

Water Utility, Inc. has 125 customers and its present rate is a flat rate of $20 per month. The current return that water utilities are being allowed to earn is 10%.

Questions

1. What is the amount of rate base?

2. What is the amount of operating revenue deductions requiring a return?

3. What is the return based on the rate base method?

4. What is the return based on the operating ratio method?

Discussion

The net income produced under the two methods for Water Utility, Inc. is as follows:

Rate base method	
Rate base	$23,005
Return percentage	x 10.0%
Net income using the rate base method	$ 2,301
Operating ratio method	
Operating revenue deductions requiring a return:	
Operation and maintenance expenses	$30,300
Depreciation expense	1,500
Payroll taxes	2,000
Property taxes	500
Operating revenue deductions requiring a return	34,300
Return %	x 10.0%
Net income using the operating ratio method	$ 3,430

As shown above, the operating ratio method produces a higher net income. Therefore, Water Utility, Inc. chooses this method to use in establishing rates.

RATE BASE

As previously discussed, in general rate base consists of the following:

Utility plant in service that is used and useful
Less: accumulated depreciation
Less: contributions in aid of construction
Plus: cash working capital
Less: average tax accruals

Plant in service

In preparing a rate increase application, a company should prepare a detailed list of plant in service as of the end of the test year, including for each plant item a description of that item, the year it was placed in service, and its cost. This information should be available from the company's books and records, including its depreciation schedule. When the Public Staff audits plant in service, we start with the plant in service amounts found reasonable in the company's last rate case. To this, we add the additions and retirements since that case to arrive at an amount for plant in service at the end of the test year. The Public Staff typically requests a description of each plant addition or retirements since the test year of the last rate case, its cost and year placed in service, along with supporting documentation (invoices, etc.) The most common adjustments made to plant in service are as follows:

1. **Proforma adjustments to reclassify items from expenses.** For example, during its review of maintenance and repair expense, Water Utility, Inc. finds that it included in maintenance and repairs the costs to replace a chemical feed pump, which has a life of three years. This item should have been included in plant in service since it has a life of more than one year. Therefore, an adjustment is made to remove it from maintenance and repair expense and include it in plant in service. NOTE: These items should also be material. There is no point in making an adjustment to capitalize a $5 dollar item.

2. **Proforma adjustments to remove items which lack supporting documentation.** Plant in service items should be based on actual costs that are supported by documentation, such as invoices. **THEREFORE, IT IS VERY IMPORTANT THAT YOU KEEP ADEQUATE RECORDS, INCLUDING SUPPORTING DOCUMENTATION (INVOICES).**

3. **Proforma adjustments for acquisition adjustments related to the sale of utility systems.** There are two types of acquisition adjustments. A credit acquisition adjustment occurs when one utility buys assets from another utility at a purchase price less than the net book value of the acquired facilities in the hands of the seller. In that instance, the credit acquisition adjustment is recognized so that only the purchase price is included in rate base. The theory behind this is that the investor in utility property should only be entitled to recover his own investment.

A debit acquisition adjustment occurs when a utility buys assets from another utility at a purchase price greater than the net book value of the acquired facilities. Whether a debit acquisition adjustment is recognized so that the full purchase price is included in rate base is an issue that is looked at on a case by case basis. In determining whether the excess purchase price should be included in rate base, the Commission considers several factors, including (1) whether there are service improvements that would have gone unaddressed if not for the transfer, (2) whether the purchase price is prudent, (3) benefits to the acquired and acquiring customers, and (4) costs to the acquired and acquiring customers.

In most cases, whether or not an acquisition adjustment is allowed is established in the transfer case, so that it is not an issue in most rate increases.

4. **Proforma adjustments to include post test year additions.** Sometimes a utility makes an adjustment to include plant additions after the end of the test year. However, these additions must be related to the provision of service to the customers at the end of the test year. Also, any plant items that are replaced should be removed from plant in service.

Example

Water Utility, Inc. is preparing a rate increase application based on a test year ended December 31, 1996. In 1997, Water Utility, Inc. replaced its tank. The new tank cost $20,000. The old tank was placed in service years ago and is fully depreciated. The company has had no customer growth since the December 31, 1996. Water Utility, Inc. makes an adjustment to include the $20,000 tank in plant in service. Water Utility, Inc. also removes the cost of the old tank and the related accumulated depreciation.

Contributions in aid of construction

Contributions in aid of construction (CIAC) are money, services, or property contributed to a utility to cover the cost of property, facilities, or equipment. The two main types of CIAC for water and sewer companies are tap or connection fees and contributed plant. In preparing a rate increase application, a company should prepare a detailed list of the CIAC collected by year. As with plant in service, the Public Staff typically starts with the amount found reasonable for CIAC in the company's last rate case. To this, we add the CIAC that has been collected or should have been collected since then. When the Public Staff audits CIAC, it typically requests a list of all CIAC collected since the last rate case.

Accumulated depreciation and depreciation expense

Once the levels of plant in service and CIAC are determined as of the end of the test year, the appropriate amounts for accumulated depreciation and depreciation expense can be

calculated. The most common proforma adjustments to accumulated depreciation and depreciation expense are as follows:

1. **Proforma adjustments to reflect accumulated depreciation and depreciation expense based on straight line depreciation over the useful life of the plant items.** Accumulated depreciation and depreciation expense should **not** be calculated based on tax lives. The Public Staff typically reviews the company's prior rate case and uses the depreciation lives established in that proceeding.

2. **Proforma adjustments to remove any depreciation and plant paid for by contributions in aid of construction.** It is long standing policy of this Commission **not** to allow companies a return on plant that was paid for by contributions in aid of construction (CIAC). Therefore, CIAC should be deducted in determining the amount of depreciable plant.

3. **Proforma adjustments to reflect a full year of depreciation in depreciation expense and accumulated depreciation for plant items added during or after the test year.** This adjustment is necessary to reflect an ongoing level in depreciation expense and to make a matching adjustment to accumulated depreciation.

Example

XYZ Company's plant in service additions for each year are as follows:

Item	Year Acquired	Cost
Well lot	1984	$ 1,000
Well	1984	8,000
Mains	1984	25,000
Meters	1984	2,500
Chemical feed pump	1994	300
Pump	1996	700
Total plant in service		$37,500

XYZ Company is authorized to collect a $500 tap fee, which is a form of CIAC. XYZ has 25 customers, and therefore, has collected $12,500 of tap fees. Also, the developer contributed the well lot to XYZ Company. The amount of CIAC collected by year by XYZ Company is as follows:

Item	Year Collected	Amount
Contributed well lot	1984	$ 1,000
Tap fees	1984	5,000
Tap fees	1985	2,500
Tap fees	1986	5,000
Total CIAC		$13,500

In its last general rate case, the Commission authorized the following depreciation lives for XYZ Company:

Well and well house	25 years
Mains	35 years
Meters	25 years
Pump	5 years
Chemical feed pump	3 years

Solution

Based on the plant in service amounts, CIAC amounts, and depreciation lives, XYZ Company calculates the following amounts for accumulated depreciation and depreciation expense for the test year ended 12/31/96.

Item	Year Acquired	Cost	Depr. Life/Rate	Depr. Exp.	Accum. Depr.
(A)	(B)	(C)	(D)	(E)	(F)
Well lot	1984	$0	None	$0	$0
Well	1984	8,000	25 years	320	4,000
Mains	1984	25,000	35 years	714	8,925
Meters	1984	2,500	25 years	100	1,250
Ch. pump	1994	300	3 years	100	250
Pump	1996	700	5 years	140	140
Subtotals		36,500		1,374	14,565
Tap fees	1984	(5,000)	3.76%	(188)	(2,350)
Tap fees	1985	(2,500)	3.76%	(94)	(1,081)
Tap fees	1986	(5,000)	3.76%	(188)	(1,974)
Totals				**$904**	**$9,160**

Therefore, the amounts for plant in service, CIAC, accumulated depreciation, and depreciation expense for the test year ended December 31, 1996 are as follows:

Plant in service	$37,500
CIAC	(13,500)
Accumulated depreciation	(9,160)

Discussion

XYZ Company calculated the amounts in the above schedule as follows:

The amounts for plant in service in Column (C) are based on the Company's list of plant in service additions. Since the developer contributed the well lot, the actual cost to the company is zero. The amount of tap fees collected each year are also based on the company's list of CIAC collections.

The depreciation lives for the plant in service items are the lives authorized by the Commission. These lives should be based on the estimated useful life of the plant item.

The amounts for depreciation expense in Column (E) are based on the straight line method. Therefore, the cost of the plant item divided by its useful life should equal depreciation expense [Column (C) divided by Column (D) equals Column (E)].

CIAC should be amortized over the life of the plant that is associated with it. For illustration purposes, it has been assumed that the CIAC is to cover all plant. Therefore, the depreciation rate for tap fees of 3.76% was calculated as follows:

$$\text{CIAC Amortization Rate} = \frac{\text{Depreciation expense for plant in service}}{\text{Cost of plant in service}}$$

Therefore, XYZ Company's amortization rate for CIAC was 3.76%, which was $1,374 divided by $36,500. XYZ will amortize 3.76% of the tap fees each year until they are fully amortized.

Accumulated depreciation was calculated based on the years in service using the half year convention except for items that were added during the test year. Under the half year convention, a half year of depreciation is taken in the year acquired. For example, the well was placed in service in 1984, therefore, based on the half year convention, it has been in service for 12.5 years as of 12/31/96, which is the end of the test year. Therefore, accumulated depreciation is the amount of annual depreciation times 12.5 years ($320 x 12.5 = $4,000). For the pump that was placed in service in 1996, which is the test year, a full year of accumulated depreciation s shown. This is a proforma adjustment that is only done for ratemaking purposes. On the books, the pump should only have a half year of depreciation.

Cash working capital

Cash working capital, net of average tax accruals, provides the company with the funds necessary to carry on the day-to-day operations of the company. In North Carolina, cash working capital is typically calculated for water and sewer companies using the following formula:

Cash working capital = 1/8 of operating and maintenance expenses excluding purchased water and sewage treatment expense

The amounts used in the above formula for cash working capital should be the amounts under present rates after adjustments.

Average tax accruals

There are certain taxes that companies collect in rates but do not pay to the governmental agency every month, such as property taxes. In order to reflect the fact that the utility has the use of this money until it has to be paid to the governmental agency, average tax accruals are deducted from rate base. The formula for average tax accruals is as follows:

Average tax accruals = 1/6 of gross receipts and payroll taxes plus 1/2 of property taxes

Problem

Water Utility, Inc. is preparing a rate increase application. Based on its analysis, its expenses under present rates after adjustments are as follows:

Salaries and wages	$20,000
Administrative and office	1,000
Maintenance and repairs	1,700
Purchased power	4,000
Transportation expense	500
Testing fees	2,000
Chemicals	250
Permit fees	150
Rate case expense	100
Miscellaneous expense	300
Total operation and maintenance expense	30,000
Depreciation expense	1,500
Payroll taxes	2,100
Property taxes	500
Gross receipts tax	1,200
Regulatory fee	30
State income tax	0
Federal income tax	0
Total expenses	35,330

Questions

1. What is the amount of cash working capital for Water Utility, Inc.?

2. What is the amount of average tax accruals for Water Utility, Inc.?

Discussion

Cash working capital for Water Utility, Inc. is $3,750. This is calculated as follows:

Total operation and maintenance expense	$30,000
Divided by 8	÷ 8
Cash working capital	$ 3,750

Average tax accruals for Water Utility, Inc. are $800. This is calculated as follows:

Payroll taxes	
Payroll taxes	$ 2,100
Divided by 6	÷ 6
Average tax accruals - payroll taxes	$ 350
Property taxes	
Property taxes	$ 500
Divided by 2	÷ 2
Average tax accruals - property taxes	$ 250
Gross receipts tax	
Gross receipts tax	$ 1,200
Divided by 6	÷ 6
Average tax accruals - gross receipts tax	$ 200
Total average tax accruals	$ 800

Therefore, Water Utility, Inc. would include the following amounts for cash working capital and average tax accruals in total rate base:

Cash working capital	$ 3,750
Average tax accruals	(800)

REVENUES

The next step in preparing an application is to determine the level of revenues under present rates. Revenues, in general, consist of service revenues and miscellaneous revenues, such as late payment fees.

Service revenues

The first step in determining service revenues is to compute the annual revenues for the test year using the customer billing data. First determine the number of customer bills for the test year and multiply that number times the minimum charge allowed per bill. Second, determine the amount of water sold that was not covered in the minimum charges and multiply that amount times the approved usage charge. Next add the minimum charge revenues with the usage charge revenues and compare the total amount with the amount of service revenues collected. The amount of actual service revenues collected should be within one percent the amount of revenues billed. This is referred to as testing the billing data. If these two revenue amounts are not close, the billing data and/or the revenues booked should be reviewed for errors. The following is an example of computing revenues using billing data:

Given Data

Existing rates are $8.00 base charge plus $2.00 per 1,000 gallons.
Total bills during test year were 1,129.
Total consumption billed was 6,209,500 gallons.
Actual service revenues collected during the test year were $21,207.

Computing Test Year Revenues

Revenues that should have been billed during the test year are determined as follows:

Total billings during test year	1,129	
Base charge under present rates	x 8.00	
Revenues from base charge	$ 9,032	
Gallons sold during test year	6,209,500	gallons
Usage charge per 1,000 gallons	x 2.00	per 1,000 gallons
Revenues from usage charge	$ 12,419	
Total revenues under present rates	$ 21,451	

Comparing actual service revenues collected of $21,207 with service revenues computed using billing data shows a difference of only $244, which is very close. Therefore, it can be concluded that the billing data is correct and can be used for projecting revenues.

The next step is to adjust the service revenues to account for customer growth that occurred during the test year. The customer growth factor is determined by multiplying the number of customer bills sent out in the last month of the test year by twelve and then dividing by the actual total number of customer bills sent out for the entire test year. The growth factor is then used to adjust revenues to an end of test period level. An example would be as follows:

Adjusting Revenues to End of Period Level

Customer growth factor is calculated as follows:

Customer bills during the test year - 1129
Number of bills in last month - 100
Total annual bills going forward at end of test period = 100 x 12 = 1200
Growth factor to adjust revenues to EOP level = 1200 divided by 1129 = 1.063

End of period revenues at present rates are calculated as follows:

End of period annualized bills	1,200
Base charge under present rates	x 8.00
Revenues from base charge	$ 9,600
Gallons sold during test year	6,209,500
Customer growth factor	x 1.063
End of period annualized gallons	6,600,699 gallons
Usage charge per 1,000 gallons	x 2.00 per 1,000 gallons
Revenues from usage charge	$ 13,201
Total EOP revenues at present rates	$ 22,801

Miscellaneous revenues

Miscellaneous revenues include revenues from miscellaneous charges such as reconnect fees. **NOTE: TAP ON FEES SHOULD BE INCLUDED IN CIAC IN THE CALCULATION OF RATE BASE, NOT IN MISCELLANEOUS REVENUES.** The most common adjustment to miscellaneous revenues is to reflect any proposed increases in miscellaneous charges. For example, ABC Company has miscellaneous revenues of $100, which consists of 25 reconnects at $4 each. ABC is proposing to increase its reconnection charge to $15.

Therefore, ABC would make an adjustment to increase miscellaneous revenues by $275, which was calculated as follows:

Number of reconnects	25
Proposed reconnection charge	$ 15
Adjusted reconnection fees	375
Reconnection fees per books	100
Adjustment to reconnection fees	$ 275

OPERATING EXPENSES

The first step in determining the level of operating expenses to include on your rate increase application is obtaining the actual level of expenses for your test year. If you are using a calendar year, these amounts should be readily available on your annual report. These actual expenses should be supported by adequate documentation, such as invoices. If a company is unable to provide an invoice or other supporting documentation for an item, the Public Staff will typically make an adjustment to remove that cost. **THEREFORE, IT IS VERY IMPORTANT THAT YOU KEEP ADEQUATE RECORDS AND SUPPORTING DOCUMENTATION (INVOICES).** Once the actual expenses for the test year are determined, the next step is to review each expense item to determine if any proforma adjustments should be made. Proforma adjustments are adjustments made to expenses to reflect an ongoing, representative level. They should be based on actual, known data.

As a utility company, you could file your application based on actual test year data. The Public Staff would then audit your actual expense data and make the proforma adjustments it believes are necessary. There are several problems with this approach:

(1) The rates that you requested may not be supported on an ongoing basis based on actual data. Because of this, you may upset your customers unnecessarily by noticing them of a rate increase that cannot be supported.

(2) You might have been able to justify higher rates than those you requested.

(3) The Public Staff will make an adjustment which it feels is appropriate, but we do represent the using and consuming public, and there may be adjustments that you would propose which we will not make.

The first step in reviewing operating expenses for any potential proforma adjustment is to compare the test year amounts to amounts for prior years. Any expenses that had major fluctuations should be investigated and/or adjusted.

Example

Company A's maintenance and repair expense for the last three years is as follows:

1994	$1,200
1995	900
1996	5,000

Based on this information, the expense level for 1996 needs to be investigated. It appears that $5,000 is abnormally high based on prior years. It may be that the company expensed an item, such as replacing a pump, which has a life of more than one year and should have been capitalized.

For each type of operating expense, such as testing fees, the Public Staff will discuss the most common proforma adjustments made for that expense item and how the Public Staff typically analyzes and calculates its adjustments for that item.

Salaries and wages

Salaries and wages includes the compensation paid or accrued to employees of the water and sewer utility for work related to the provision of utility service. For a small water and sewer utility, the Public Staff typically requests for each employee the number of regular and overtime hours worked, the annual compensation paid to that employee, and the duties of that employee. This information is then reviewed for reasonableness.

The most common proforma adjustments for salaries and wages are as follows:

1. **Proforma adjustments to reflect change in personnel.** For example, Water Utility Inc.'s test year is 1996. During 1996, Water Utility, Inc.'s operator left the company, and a new operator was hired at a different salary level. Water Utility, Inc. makes an adjustment to remove the salaries related to the operator who left the company and to include a full year of salary for the new operator.

When adjustments are being made to recognize change in personnel, these adjustments should be related to the customers at the end of the test year. For example, in 1997, Water Utility, Inc. hired a new operator due to the addition of a new service area in 1997. However, Water Utility's rate case is based on a 1996 test year and does not include any customers in the new service area. It would be inappropriate to include the operator hired in 1997 since the customers that are being served by that operator are not included in the rate case.

2. **Proforma adjustments to reflect changes in salary levels.** For example, during the test year, Water Utility, Inc. gave its operator a 3% raise effective July 1, 1996. Water Utility, Inc. makes an adjustment to reflect an annualized level of salaries based on this raise.

Administrative and office expense

Administrative and office expense includes costs such as postage, office supplies, office utilities, and office rent. For a small water and sewer utility, the Public Staff requests a list of the transactions comprising the administrative and office expense and reviews the supporting documentation, such as invoices, for each transaction. Based on its review, the Public Staff will make any necessary adjustments. The most common adjustment made by the Public Staff for small water and sewer companies is to remove items which lack supporting documentation. Therefore, you need to keep invoices, etc. supporting all your expenses.

Maintenance and repair expense

Maintenance and repair expense includes all costs, including materials and labor, associated with maintaining and repairing the water and sewer systems. Materials and supplies related to the office should be included in administrative and office expense. Contract labor paid to a contract operator should be included in other expenses. In most cases, the Public Staff reclassifies contract operator costs to a separate line item. For a small water and sewer utility, the Public Staff requests a list of the transactions comprising the maintenance and repair expense and reviews the supporting documentation, such as invoices, for each transaction. The most common proforma adjustments for maintenance and repair expense are as follows:

1. **Proforma adjustments to capitalize items with a life longer than one year.** For example, during its review of maintenance and repair expense, Water Utility, Inc. finds that it included in maintenance and repairs the costs to replace a chemical feed pump, which has a life of three years. This item should have been included in plant in service and an adjustment is made to remove it from maintenance and repair expense and include it in plant in service. NOTE: These items should also be material. There is no point in making an adjustment to capitalize a $5 dollar item.

2. **Proforma adjustments to normalize a maintenance and repair item that does not occur every year.** For example, during the test year, Water Utility, Inc. painted its well house. Water Utility, Inc. expects the well house to not need painting again for another ten years. Since this cost only occurs every ten years, it would be inappropriate to include the total amount as an annual expense. Therefore, Water Utility, Inc. amortizes the cost over ten years, and only includes one-tenth of it as an annual expense.

Transportation expense

Transportation expense for small water and/or sewer utility companies are accounted for in one of two methods. One method is to compute transportation expense using the IRS mileage allowance for vehicle use associated with utility operations. This method is

frequently used by the Public Staff when evaluating transportation expense for small companies that are not large enough to justify a vehicle solely for utility use or where vehicle use is commingled with nonutility business. Using the IRS allowance method is simple and eliminates the need to account for insurance, licensing fees, fuel, oil, and vehicle repair and maintenance expenses. Obviously, the company needs to keep a daily log of mileage driven for utility purposes. The second method is to keep account of fuel, oil, and vehicle repair and maintenance expenses. This method is normally used by utility companies that are large enough to require vehicles used solely for regulated utility operations. Only fuel, oil, and vehicle repair and maintenance expenses should be included in transportation expenses. The capital cost of the vehicles would be booked in general plant with associated depreciation included in depreciation expense. Vehicle liability and collision insurance costs should be included under insurance expense. Please note that transportation expenses incurred by contract certified operators using their own vehicles should not be included in transportation expenses. It is normal procedure for contract certified operators to include their transportation expense in the contract operation amount agreed to with the utility company; therefore it is not necessary to break out the contract operators transportation expense.

1. **Proforma adjustments to the IRS mileage method.** A proforma adjustment may be necessary to reflect changes made by the IRS in the amount to be allowed per mile such as a decision by the IRS to increase the amount to be allowed per mile. A proforma adjustment may also be needed to reflect known changes in the amount of mileage required for utility operations. An example would be the case where the utility owner has become a certified operator and is now operating the system thereby replacing the need for a contract operator. Since the owner will now be driving additional miles that were included in the test year under contract operations expense, a proforma adjustment would be needed to increase the transportation expense.

2. **Proforma adjustments to normalize a vehicle maintenance and repair item that does not occur every year.** For example, during the test year, Water Utility, Inc., replaced or overhauled the engine in its service truck and expects the new engine to last five years. Since this cost only occurs every five years, it would be inappropriate to include the total amount as an annual expense. Therefore, Water Utility, Inc., amortizes the cost over five years, and only includes one-fifth of it as an annual expense.

Electric power for pumping

Electric power for pumping should include electrical costs related to operation of the systems, such as electric bills for pumps at well houses, sewer treatment plants, lift stations, etc. Electric power expense related to office buildings should be included in administrative and office expense. As with other expense items, the Public Staff requests a list of the transactions comprising the electric power expense and reviews the supporting documentation (power bills) for each transaction. The Public Staff also typically requests a list of electric meters and their locations. The most common proforma adjustments for electric power expense are as follows:

1. **Proforma adjustments to reflect an annual level of power bills.** For small water and sewer utilities who are on a cash basis, it is not unusual for the Public Staff to find that there are eleven months or thirteen months of power bills included on the books due to when the bills are paid. Therefore, it is necessary to make an adjustment to reflect twelve months of data. For small water and sewer utilities, the Public Staff often prepares a workpaper that details the power bills by meter number, as shown in the format below. This aids the Public Staff in evaluating the reasonableness of the purchased power expense.

Service Period	Meter No. 1	Meter No. 2	Meter No. 3
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
Total			

2. **Proforma adjustment for customer growth.** As discussed under revenues, a proforma adjustment is made to service revenues to calculate them based on the end of period number of customers. If the company had growth in the number of customers during the test year, and service revenues do need to be calculated based on an end of period number of customers, it is also necessary to adjust customer growth related expenses, such as purchased power related to wells and lift stations, to bring them to an end of period level as well. This is done by applying the customer growth factor to purchased power expense. Purchased power for sewer treatment plants is not customer growth related and, therefore, is not adjusted for customer growth.

Example

Water Utility, Inc. had 4% customer growth in the test year. Its per books electric power expense related to its wells was $5,000. Therefore, in order to recognize this customer growth so that purchased power expense is at an end of period level, Water Utility, Inc. makes the following proforma adjustment for this customer growth:

Purchased power expense	$5,000
Customer growth factor	x 4%
Adjustment for customer growth	$ 200
Proforma purchased power expense	$5,200

Chemicals

Chemical expense includes costs of all chemicals used in the water and/or wastewater treatment process. Chemicals used in the water treatment process usually include chlorine, polyphosphates, and soda ash or caustic soda. Chlorine is usually the only chemical used in the wastewater treatment process. The most common proforma adjustments for chemical expenses are as follows:

1. **Proforma adjustments to reflect changes in unit cost of chemicals.** For example, the unit cost of chlorine has increased during or since the test year. A proforma adjustment would be made to reflect the annual expense based on the new unit price cost.

2. **Proforma adjustments for customer growth.** The amount of chemicals used for treating water or wastewater should vary with the amount of total water usage, which should increase with customer growth. It is appropriate to adjust chemical expenses to bring it to an end of test period level of customers to reflect customer growth that occurred during the test year. This is done by applying the customer growth factor to chemicals using the same method as that for purchased power, which was previously discussed.

Testing fees

The testing expense for the test year may not accurately reflect the ongoing expense level because not all tests are required to be done each year. The actual testing expenses experienced during the test year may over or understate the ongoing annualized level. To determine the total ongoing testing expense level, the annualized cost of each type of test should be determined and added together. An example is as follows:

CALCULATION OF ANNUAL TESTING FEES					
Test	Frequency	Entry Points	Number Needed	Unit Cost	Total

CALCULATION OF ANNUAL TESTING FEES					
Coliform Bacteria	Monthly	1	12.00	$13.00	$156.00
Lead & Copper	Annual	1	5.00	30.00	150.00
Radiological	Every 4 yrs	1	0.25	50.00	12.50
Trihalomethanes	Annual	1	1.00	50.00	50.00
Inorganics	Every 3 yrs	1	0.33	225.00	75.00
Nitrates	Annual	1	1.00	15.00	15.00
Pesticides, PCBs, SOCs	Every 3 yrs	1	0.33	760.00	250.80
VOCs	Annual	1	1.00	125.00	125.00
Annual testing fees					**$834.30**

The above chart illustrates how the Public Staff calculates testing fees. If you do not feel comfortable with attempting such an analysis, you can take an average of the last three years of testing fees to get a ballpark estimate for testing costs.

Wastewater testing fees are not as complicated, so it is easier to determine an annual level. Wastewater testing fees are set by the Division of Water Quality for a plant based on the requirements for that discharge point. Wastewater fees do not vary in frequency from year to year as water testing fees do. Wastewater testing fees paid during the test year are normally representative of the ongoing level.

Permit fees

Permit fees are fairly straight forward. DEH requires annual fees based on the size of the water system. These fees have to be paid annually and do not vary in frequency from year to year. Fees paid during the test year should be representative of the ongoing level.

Purchased water and sewer treatment

Some utility companies purchase water from municipalities or counties and resale the water to their customers. Purchased water expense should be adjusted to reflect customer growth and any increase in costs from the provider. If a cost increase occurred during the test year or since the test year, an adjustment should be made by recomputing the bills from the provider at the new rates. The new total cost should then be adjusted for customer growth as was purchased power. The same adjustments would apply for purchased sewer treatment.

Depreciation expense

Depreciation expense has already been discussed under accumulated depreciation.

Other expenses

Other expenses includes all expenses not includable in other operating expense accounts. Examples of other expenses are rate case expense, contract labor, insurance, and miscellaneous expenses.

Rate case expense Rate case expense consists of the cost to prepare the rate case, such as the filing, postage costs for notices, legal costs, and accounting costs. Since rate cases do not occur every year, a reasonable level of rate case costs are amortized over a period of time. For small water and sewer companies, they are generally amortized over three years on the assumption that on average, most small water and sewer companies come in every three years.

Example

Water Utility, Inc. has the following costs related to its rate increase application:

Filing fee	$ 100
Customer notices	80
Total rate case costs	180
Number of years	÷ 3
Rate case expense	$ 60

Therefore, Water Utility, Inc. includes $60 of rate case expense in other expenses on its application.

Contract labor In some cases, small water and sewer utilities hire contract operators to operate the system. This cost should be included in other expenses as contract labor. Typically, the Public Staff will request a copy of the contract covering the service. The Public Staff reviews these costs for reasonableness and to understand what the duties are of the contract operator versus any company personnel. Also, if the contract covers any other costs, such as maintenance and chemicals, that needs to be reviewed also. The most common adjustment for contract labor is to reflect the current contract. However, in doing so, any adjustments to reflect the current contract should be coordinated with the customers at the end of the test year, similar to salaries and wages.

Insurance Some small water and sewer companies have insurance costs. The Public Staff reviews the policies covering each type of insurance, and any other supporting documentation such as bills, in evaluating the reasonableness of this item. The most common adjustments for insurance are as follows:

1. **Proforma adjustments to allocate costs between utility and nonutility operations.** In some cases, the insurance policy covers items that are not utility related. In these cases, the Public Staff reviews the policy to determine an appropriate allocation factor/method.

2. **Proforma adjustments to reflect current insurance premiums.** Some companies make adjustments to reflect current insurance premiums. If this is done, it needs to be coordinated with the test period. For example, it would not be appropriate to include insurance for a plant item that was installed after the end of the test year and is related to customer growth that is not reflected in the rate case. Also, the current premiums need to be reviewed to see if they are reasonable and an ongoing, representative level.

Miscellaneous expense Miscellaneous expense includes all other expense items. The most common adjustment to miscellaneous expense is to remove costs not necessary for the provision of utility service. It has been long established policy of the Commission to not include costs not necessary for the provision of utility service. The most common examples of these costs are charitable contributions, flowers, and Christmas party costs.

Payroll taxes

In general, payroll taxes are adjusted to reflect any adjustments to salaries and wages and tax rates.

Property taxes

In auditing property taxes, the Public Staff will review the property tax bills comprising the test year amount. The most common adjustments to property taxes are as follows:

1. **Proforma adjustments to remove costs related to nonutility property.** In some cases, the property tax bills include nonutility property. In those cases, the Public Staff reviews the property tax bill to determine the most reasonable allocation factor or method for allocating the property taxes between utility and nonutility operations.

2. **Proforma adjustments to reflect current property tax bills.** In some cases, adjustments are made to reflect any increases or decreases in the property tax bills since the end of the test year. When making this adjustment, it is necessary to make sure that the property included on the current bill is included in the rate case.

Regulatory fee and gross receipts tax

In general, a proforma adjustment is made to regulatory fee and gross receipts tax to reflect levels based on the statutory rates and the adjusted level of revenues under present rates.

Example

Water Utility, Inc. has calculated revenues based on an end of period level of customers under present rates. Water Utility, Inc. also makes an adjustment to recalculate the regulatory fee and gross receipts tax based on these adjusted revenues, as shown below:

	Per Books	Proforma Adjustments	As Adjusted
Revenues	$25,000	$3,000	$28,000
Regulatory fee	25	3	28
Gross receipts tax	1,000	120	1,120

Water Utility, Inc. calculated its adjusted level of regulatory fee based on the statutory rate of 0.1%. $28,000 x 0.001 = $28.

Water Utility, Inc. calculated its adjusted level of gross receipts tax based on the statutory rate of 4% for water companies. $28,000 x 0.04 = $1,120. It should be noted that the statutory rate for gross receipts tax for sewer companies is 6%.

State and federal income taxes

In general, a proforma adjustment is made to state and federal income taxes to reflect levels based on C corporation tax rates and the adjusted levels of revenues under present rates. The current **state** income tax for corporations is 6.9%. The current **federal** income tax rates for C Corporations with taxable income of less than $10,000,000 are as follows:

First $50,000 of taxable income	15%
Next $25,000 of taxable income	25%
Next $25,000 of taxable income	34%
From $100,00 to $335,000 of taxable income	39%
Over $335,000 of taxable income	34%

Also, a proforma adjustment is made for companies using the rate base method to include the proforma interest expense as a deduction in calculating income taxes. The proforma amount of interest expense used in calculating taxes for a rate base company is the amount of the calculated net operating income associated with debt. Exactly how the interest amount is calculated will be discussed later. For operating ratio companies, the interest deducted in calculating income taxes is zero.

Example

ABC Water Company is preparing a rate increase application based on the operating ratio method and has arrived at the following proforma levels of revenues and revenues after its adjustments:

	Per Books	Proforma Adjustments	As Adjusted
Revenues	$ 36,000	$ 2,000	$ 38,000
Total O&M expenses	27,500	2,800	30,300
Depreciation expense	4,000	(2,500)	1,500
Payroll taxes	2,000	0	2,000
Property taxes	500	0	500
Gross receipts tax	1,440	80	1,520
Regulatory fee	36	2	38

Based on the foregoing revenues and expenses, ABC Water Company calculates the following amounts for state and federal income taxes after adjustments:

Line No.	Item	Amount
1.	Revenues	$ 38,000
2.	Expenses:	
3.	O&M expenses	30,300
4.	Depreciation expense	1,500
5.	Payroll taxes	2,000
6.	Property taxes	500
7.	Gross receipts taxes	1,520
8.	Regulatory fee	38
9.	Interest expense	0
10.	Total expenses (Sum of Lines 3-9)	35,858
11.	State taxable income (Line 1 - Line 10)	2,142
12.	Less: State income tax (Line 11 x 6.9%)	$ 148
13.	Federal taxable income (Line 11 - Line 12)	1,994
14.	Federal income tax (Line 13 x 15%)	$ 299

RATE OF RETURN

The rate of return or margin that is used in most water and sewer rate cases is based on a precedent setting case - Montclair Water Company, Inc. (Montclair), Docket No. W-173, Sub 14 (1981). The Montclair Case set guidelines for: (1) how the rate of return should be calculated, (2) factors to be used in judging the reasonableness of the rate of return, and (3) how the rate of return should be applied in a general rate case.

The rate of return percentage is derived by combining a risk-free rate with a risk factor. The risk-free rate is the simple average of US Treasury Notes for an appropriate historical period of time. An average for a period of time is used to smooth out any extraordinary short-term movements in interest rates. This provides a more representative rate. The risk factor is set at 3.0% and is intended to provide the water and sewer utility company operator with adequate coverage of risks that he or she may face in a regulated environment. Currently, the risk-free rate is 5.5%. When combined with the risk factor of 3.0%, the overall or total rate of return is 8.5%. Again, this rate will fluctuate over time as the underlying interest rates change.

Four factors are used by the financial analyst to evaluate the reasonableness of the rate of return. First, the return or margin must provide sufficient revenues for the firm to cover or pay its reasonable level of interest expenses. Second, in addition to the interest expenses, the return should provide a return to stockholders or a margin to protect against variability in operations and maintenance expense. This determination is based largely on the financial analyst's judgment of competing returns and the potential variations in expenses. Third, the return or margin should reflect current market conditions including investor expectations of inflation. Expectations regarding inflation are reflected in the rates for five-year US Treasuries. And fourth, quality of service and efficiency of operation should be considered in determining the reasonableness of the rate of return. Generally, the quality of service for water and sewer utility companies is within the adequate range for general rate case purposes and is not a major consideration. A reduction in the rate of return for less than adequate quality of service is rare.

The application of the rate of return for the rate base method and the operating ratio method in general rate cases was discussed earlier.

CALCULATION OF NET OPERATING INCOME

As discussed previously, once the rate of return is established, the reasonable return, or net operating income, can be calculated by either using the operating ratio method or by using the rate base method.

Operating Ratio Method

Under the operating ratio method, the net operating income is equal to the operating revenue deductions requiring a return times the reasonable rate of return.

Example

The reasonable rate of return is 8.5%. Based on its operating expenses, ABC calculates is net operating income, or return, as follows:

CALCULATION OF NET OPERATING INCOME OPERATING RATIO METHOD	
Item	Amount
Operating revenue deductions requiring a return:	
Operation & maintenance expenses	$85,000
Depreciation	5,000
Payroll taxes	8,000
Property taxes	2,000
Total operating expenses requiring a return	$100,000
Rate of return %	8.5%
Net operating income for a return	**$8,500**

Rate base method

Under the rate base method, net operating income is equal to the original cost rate base times the reasonable rate of return. When the rate base method is used, the portions of the net operating income related to debt and equity are calculated based on the capital structure and cost rates. For small water and sewer companies, it has been long standing practice of this Commission to assume the following capital structure and cost rates:

	Capital Structure	Cost Rate
Debt	50%	Overall return minus 3%
Equity	50%	Overall return plus 3%

Example

The reasonable rate of return is 8.5%. Based on its original cost rate base of $100,000, XYZ Company's net operating income would be $8,500. The detail calculation of the net operating income, including the breakdown between debt and equity is as follows:

CALCULATION OF NET OPERATING INCOME
RATE BASE METHOD

Item	Capital Structure	Original Cost Rate Base	Cost Rate	Embedded Cost	Net Operating Income
	(A)	(B)	(C)	(D)	(E)
Debt	50.00%	$50,000	5.50%	2.75%	$2,750
Equity	50.00%	50,000	11.50%	5.75%	5,750
Total	100.00%	$100,000		8.50%	**$8,500**

NOTES:
Column (A) is the assumed capital structure.

Column (B) is the total rate base amount of $100,000 times the capital structure percentage in Column (A).

Column (C) is the assumed cost rates based on an overall return of 8.5%.

Column (D) is equal to Column (A) times Column (C).

Column (E) is equal to Column (B) times Column (C).

REVENUE REQUIREMENT CALCULATION

As discussed previously, rates are set to cover (1) reasonable operating expenses and (2) a reasonable return, or net operating income. We have already discussed operating expenses, and how to calculate the return. The next step is to determine the level of revenues that will cover the expenses and generate the calculated return. This is called the revenue requirement.

The revenue requirement can be calculated through the use of retention factors. Retention factors take into account regulatory fees, gross receipts taxes, and state and federal income taxes related to each type of item. For example, if a water utility had $30,000 of expenses, it would need more than $30,000 of revenues to cover the expenses due to the fact that it has to pay regulatory fees and gross receipts taxes on the revenues. In fact, the water utility would need $31,283 to cover the expenses and pay the gross receipts and regulatory fees. Furthermore, in order to calculate the revenues necessary to generate the calculated return, or net operating income, the retention factor must also take into account state and federal income taxes associated with the net income.

The retention factors are calculated as follows for water and sewer companies:

CALCULATION OF RETENTION FACTORS			
Line No.	Item	Water	Sewer
1.	Revenues	1.000000	1.000000
2.	Less: NCUC regulatory fee at 0.1%	0.001000	0.001000
3.	Less: gross receipts tax	0.040000	0.060000
4.	**Expense retention factor (Line 1 - Line 2 - Line 3)**	**0.959000**	**0.939000**
5.	Less: state income tax (Line 4 x 6.9%)	0.066171	0.064791
6.	Balance (Line 4 - Line 5)	0.892829	0.874209
7.	Less: federal income tax (Line 6 x 15%)	0.133924	0.131131
8.	**Net income retention factor (Line 6 - Line 7)**	**0.758905**	**0.743078**

Two retention factors are calculated in the above chart: one for expenses and one for net income. The expense retention factor is used to calculate the revenues necessary to cover expenses and the net income factor is used to calculate the revenues necessary to cover net income. The revenue requirement calculation varies for the operating ratio and the rate base methods.

Operating ratio method

Revenue requirement = (Operating expenses requiring a return ÷ expense retention factor) + (Return ÷ net income retention factor)

For example, XYZ Water Utility is an operating ratio company. Its operating revenue deductions requiring a return are as follows:

O&M expenses	$35,000
Depreciation expense	500
Payroll taxes	1,000
Property taxes	500
Operating revenue deductions requiring a return	$37,000

The return is 10%, resulting in net operating income for XYZ under the operating ratio method of $3,700. XYZ's revenue requirement is $43,457, calculated as follows:

CALCULATION OF REVENUE REQUIREMENT
OPERATING RATIO METHOD

Item	Amount	Retention Factor	Revenue Requirement
	(A)	(B)	(C)
Operating expenses:			
O & M expenses	$35,000		
Depreciation expense	500		
Payroll taxes	1,000		
Property taxes	500		
Total operating expenses	$37,000	.959000	**[1]** $38,582
Net operating income	$3,700	.758905	**[1]** $4,875
Total revenue requirement			**$43,457**

NOTES:
[1] Column (A) divided by Column (B).

The revenue requirement calculated for XYZ of $43,457 can be checked as follows:

INCOME STATEMENT WITH PROPOSED INCREASE OPERATION RATIO METHOD	
Item	After Proposed Increase
Revenues	$43,457
Expenses:	
O & M expenses	35,000
Depreciation expense	500
Payroll taxes	1,000
Property taxes	500
NCUC regulatory fee	**[1]** 43
Gross receipts tax	**[2]** 1,738
State income tax	**[3]** 323
Federal income tax	**[3]** 653
Total expenses	39,757
Net operating income for a return	**$3,700**

NOTES:

[1] The NCUC regulatory fee was calculated based on proposed revenues:
$43,457 x 0.10% = $43.

[2] Gross receipts tax was calculated based on the proposed revenues:
$43,457 x 4% = $1,738.

[3] State and federal income taxes were calculated based on the proposed revenues and expenses as follows:

INCOME TAXES UNDER PROPOSED REVENUES OPERATING RATIO METHOD		
Line No.	Item	Amount
1.	Revenues	$43,457
2.	Deductions:	
3.	O & M expenses	35,000
4.	Depreciation expense	500
5.	Payroll taxes	1,000
6.	Property taxes	500
7.	NCUC regulatory fee	43
8.	Gross receipts tax	1,738
9.	Interest expense	0
10.	Total deductions (Sum of Lines 3 - 9)	38,781
11.	State taxable income (Line 1 - Line 10)	4,676
12.	**State income tax at 6.9% (Line 11 x 6.9%)**	**323**
13.	Federal taxable income (Line 11 - Line 12)	4,353
14.	**Federal income tax at 15% (Line 13 x 15%)**	**653**

Rate base method

Revenue requirement = (Operating expenses ÷ expense retention factor) + (Debt portion of return ÷ expense retention factor) + (Equity portion of return ÷ net income retention factor)

For example, ABC Water Utility is a rate base company. Its operating expenses, not including gross receipts tax, regulatory fee, and state and federal income taxes, are as follows:

O&M expenses	$35,000
Depreciation expense	3,500
Payroll taxes	1,000
Property taxes	500
Operating expenses	$40,000

ABC's rate base is $100,000, and the return is 10%. Therefore, ABC's return on rate base is $10,000, calculated as follows:

CALCULATION OF NET OPERATING INCOME
RATE BASE METHOD

Item	Capital Structure	Original Cost Rate Base	Cost Rate	Embedded Cost	Net Operating Income
	(A)	(B)	(C)	(D)	(E)
Debt	50.00%	$50,000	7.00%	3.50%	$3,500
Equity	50.00%	50,000	13.00%	6.50%	6,500
Total	100.00%	$100,000		10.00%	**$10,000**

ABC's revenue requirement is $53,925, calculated as follows:

CALCULATION OF REVENUE REQUIREMENT RATE BASE METHOD			
Item	Amount	Retention Factor	Revenue Requirement
	(A)	(B)	(C)
Operating expenses:			
O & M expenses	$35,000		
Depreciation expense	3,500		
Payroll taxes	1,000		
Property taxes	500		
Total operating expenses	$40,000	.959000	**[1]** $41,710
Net operating income:			
Debt portion	$3,500	.959000	**[1]** $3,650
Equity portion	$6,500	.758905	**[1]** $8,565
Total revenue requirement			**$53,925**

NOTES:
[1] Column (A) divided by Column (B).

The revenue requirement calculated for ABC of $53,925 can be checked as follows:

INCOME STATEMENT WITH PROPOSED INCREASE RATE BASE METHOD	
Item	After Proposed Increase
Revenues	$53,925
Expenses:	
O & M expenses	35,000
Depreciation expense	3,500
Payroll taxes	1,000
Property taxes	500
NCUC regulatory fee	**[1]** 54
Gross receipts tax	**[2]** 2,157
State income tax	**[3]** 567
Federal income tax	**[3]** 1,147
Total expenses	43,925
Net operating income for a return	**$10,000**

NOTES:

[1] The NCUC regulatory fee was calculated based on proposed revenues:
$53,925 x 0.10% = $54.

[2] Gross receipts tax was calculated based on the proposed revenues:
$53,925 x 4% = $2,157.

[3] State and federal income taxes were calculated based on the proposed revenues and expenses as follows:

INCOME TAXES UNDER PROPOSED REVENUES RATE BASE METHOD		
Line No.	Item	Amount
1.	Revenues	$53,925
2.	Deductions:	
3.	O & M expenses	35,000
4.	Depreciation expense	3,500
5.	Payroll taxes	1,000
6.	Property taxes	500
7.	NCUC regulatory fee	54
8.	Gross receipts tax	2,157
9.	Interest expense	3,500
10.	Total deductions (Sum of Lines 3 - 9)	45,711
11.	State taxable income (Line 1 - Line 10)	8,214
12.	**State income tax at 6.9% (Line 11 x 6.9%)**	**567**
13.	Federal taxable income (Line 11 - Line 12)	7,647
14.	**Federal income tax at 15% (Line 13 x 15%)**	**1,147**

Please note that the retention factors calculated and used in the above examples are based on the following tax rates:

NCUC regulatory fee	0.10%
Gross receipts tax	4% for water and 6% for sewer
State income tax	6.9%
Federal income tax	15%

If the tax rates change, then the retention factors would have to be recalculated based on the new tax rates. Also, the federal income tax rate of 15% is only for the first $50,000 of taxable income. If your company has a calculated return, or net operating income, greater than $42,500, please contact Katherine Fernald at the Public Staff - Accounting Division at (919) 733-0949 and we will assist you in calculating the revenue requirement. The examples in this presentation assume that the company is a small utility company and has a taxable income of less than $50,000.

RATE DESIGN

Once the revenue requirement has been determined, the next step is to design rates that will generate that amount of revenue. The billing and consumption data adjusted to the end of test period level should be used to design rates. The following is an example of determining a rate design using billing date adjusted to an end of period level.

Given Data

Annualized number of bills based on EOP customers	1,200 bills
Annualized consumption based on EOP customers	6,600,699 gallons
Base Charge at present rates	$8.00 per bill
Usage charge at present rates	$2.00 per 1,000 gallons
EOP adjusted revenues at present rates	$22,801
Assumed New Revenue Requirement Needed	$26,000

Design Rates

Percent of increase needed:

Revenues required	$26,000
Revenues at present rates	22,801
Increase needed	$ 3,199

Percent of increase: $3,199 ÷ $22,801 = .1403 or 14.03%

Increase present base charge by 14.03%: $8.00 x 1.1403 = $9.1224

Round off base charge to $9.00 and calculate revenues: 1,200 bills at $9.00 = $10,800

Determine remaining new revenue requirement to be generated by usage:

New revenue requirement	$26,000
Less base charge revenues	- 10,800
Remaining revenues	$15,200

Calculate the new usage charge by dividing remaining revenues by total usage:

Remaining revenues	$ 15,200
Divided by usage	÷ 6,600,699 gallons
New usage charge	$0.0023028 per gallons or $2.3028 per 1,000

Round off new usage charge to $2.31 per 1,000 gallons and check revenues:

Revenues at base charge (1,200 bills at $9.00)	=	$10,800
Revenues at usage charge (6,600.699 x $2.31)	=	15,248
Total Revenues at New Rates		$26,048

RATE CASE PROCEDURE

Rate increase forms may be obtained from the Public Staff - Water Division. The Public Staff - Water Division can be reached at:

Public Staff - Water Division
4326 Mail Service Center
Raleigh, North Carolina 27699-4326
Phone number: (919) 733-5610

The filing instructions are detailed on the last page of the rate case form. For Class C companies, seven copies of the application should be filed with the Chief Clerk of the Utilities Commission. Also, a filing fee of $100 for Class C companies must be enclosed.

Once the rate case application is filed, the typical time frame for processing an application is as follows:

Action	Date
Order establishing rate case, requiring customer notice and suspending rates	Within 30 days from filing date
Public Staff testimony filed	20 days before hearing date
Hearing date	4 ½ to 5 months from filing date
Proposed orders due	To be established by hearing examiner - generally approximately 30 days from hearing date
Date on which rates may be put into effect under bond	6 months after proposed effective date of new rates
Date on which 270-day suspension period runs out	270 days after proposed effective date of new rates
Order issued	
Date by which exceptions to recommended order must be filed	15 days after order is issued
Date by which notice of exception and appeal, or motion for extension of time to file exceptions and notice of appeal, must be filed	30 days after order is issued

A company may request that the Commission allow it to charge interim rates when it files for a rate increase. As a general policy, it has been the Public Staff's position that interim

rates are intended to cope with a financial emergency defined as an actual cash flow deficit prohibiting payment of ongoing normal operating expenses. Interim rates that are approved by the Commission are subject to an undertaking by the company to refund to customers at 10% interest, any portion of the interim rates that are ultimately found to be excessive.