APPENDIX B

DOCKET NO. W-274, SUB 59

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Heater Utilities, Inc., Post Office Drawer 4889, Cary, North Carolina, for Authority to Increase Rates for Water Utility Service in All Its Service Areas in North Carolina	)	NOTICE TO CUSTOMERS

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an order authorizing Heater Utilities, Inc., to charge increased rates for water service to most of its customers in North Carolina. Since the Heater customers formerly served by Glendale Water, Inc., were paying rates slightly higher than those approved by the Commission in this proceeding, then these customers will receive a slight rate decrease. The rates are shown in Appendix A attached.

The Commission issued its decision following public hearings in Raleigh on October 1 and 2 at which a number of customers appeared and offered testimony. The Public Staff also offered testimony on this matter. The Commission found that the service provided by Heater is generally adequate but noted that problems do exist on several of the Company's systems. The Commission has required Heater to file quarterly status reports on the progress of correcting these problems.

ISSUED BY ORDER OF THE COMMISSION.
This the 20th day of December 1990.

(SEAL)

NORTH CAROLINA UTILITIES COMMISSION
Sandra J. Webster, Chief Clerk

DOCKET NO. W-354, SUB 74
DOCKET NO. W-354, SUB 79
DOCKET NO. W-354, SUB 81

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Carolina Water Service, Inc., of North Carolina, 2335 Sanders Road, Northbrook, Illinois 60062, for Authority to Increase Rates for Providing Water and Sewer Utility Service in Its Service Areas in North Carolina	)	ORDER GRANTING PARTIAL RATE INCREASE

HEARD IN: Courtroom #1, Watauga County Courthouse, 403 West King Street, Boone, North Carolina, on Monday, February 5, 1990, at 7 p.m.

District Courtroom #1, 7th Floor, Buncombe County Courthouse, 60 Court Plaza, Asheville, North Carolina, on Tuesday, February 6, 1990, at 7 p.m.

Commissioners' Board Room, Room 204, Buncombe County Courthouse, 60 Court Plaza, Asheville, North Carolina, on Wednesday, February 7, 1990, at 9 a.m.

Room 267, 2nd Floor, Charlotte Mecklenburg Government Center, 600 East 4th Street, Charlotte, North Carolina, on Thursday, February 8, at 7 p.m., and Friday, February 9, 1990, at 9 a.m.

Council Chambers, 2nd Floor, City Hall, 101 North Main Street, Winston-Salem, North Carolina, on Tuesday, February 13, 1990, at 7 p.m.

Superior Courtroom #317, New Hanover County Courthouse, Fourth and Princess Streets, Wilmington, North Carolina, on Thursday, February 15, 1990, at 7 p.m.

Carthage Agricultural Extension Auditorium, Pinehurst Avenue, Carthage, North Carolina, on Monday, February 19, 1990, at 7 p.m.

Board Room, City Hall, 214 Center Street, Goldsboro, North Carolina, on Tuesday, February 20, 1990, at 7 p.m.

Superior Courtroom, 2nd Floor, Craven County Courthouse, Broad Street, New Bern, North Carolina, on Wednesday, February 21, 1990, at 7 p.m.

Pine Knoll Shores Meeting Room, Town Hall, Municipal Circle, Pine Knoll Shores, North Carolina, on Thursday, February 22, 1990, at 7 p.m.

Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina, on Monday, March 19, 1990, at 7 p.m.; Tuesday, March 20, 1990, at 9 a.m.; Wednesday, March 21, 1990, at 9:30 a.m.; Thursday, March 22, 1990, at 9 a.m.; Wednesday, April 11, 1990, at 9:30 a.m.; Tuesday, April 17, 1990, at 2 p.m.; Wednesday, April 18, 1990, at 9 a.m.; and Thursday, April 19, 1990, at 9:30 a.m.

BEFORE: Commissioner Robert O. Wells, Presiding, and Commissioners Charles H. Hughes and Laurence A. Cobb

APPEARANCES:

For the Applicant:

Edward S. Finley, Jr., Attorney at Law, Hunton & Williams, Post Office Box 109, Raleigh, North Carolina 27602

For the Using and Consuming Public:

Antionette R. Wike, Chief Counsel, Robert B. Cauthen, Jr., and David T. Drooz, Staff Attorneys, Public Staff--North Carolina Utilities Commission, Post Office Box 29520, Raleigh, North Carolina 27626-0520

Jo Anne Sanford, Special Deputy Attorney General, Lorinzo Joyner, Lemuel Hinton, Karen E. Long, and Richard L. Griffin, Assistant Attorneys General, North Carolina Department of Justice, Post Office Box 629, Raleigh, North Carolina 27602

For the Village of Whispering Pines:

W. Lamont Brown, Attorney at Law, Brown, Robbins, May, Pate, Rich, Scarborough & Burke, 10 Turnberry Wood, Post Office Box 370, Pinehurst, North Carolina 28373

For the Town of Pine Knoll Shores, Inc., The Town of Atlantic Beach, and Brandywine Bay Homeowners Association

Theodore C. Brown, Jr., Attorney at Law, Fruitt & Brown, 1042 Washington Street, Post Office Box 72547, Raleigh, North Carolina 27605-2547

BY THE COMMISSION: This matter was initiated with the filing of an application by Carolina Water Service, Inc., of North Carolina (Carolina Water Service, CWS, Company, or Applicant) on October 25, 1989, seeking authority to increase its rates and charges for providing water and sewer utility service in all of its service areas in North Carolina. On November 3, 1989, the Applicant filed a motion requesting interim approval of its requested rates. On November 20, 1989, the rate increase application and motion for interim rates were brought before the Commission. The Public Staff and Attorney General opposed the interim rates requested. CWS offered support for its motion for interim rates. On November 22, 1989, the Commission issued an Order declaring this matter to be a general rate case and suspending the proposed rates for up to 270 days. On November 29, 1989, the Commission issued an Order which reaffirmed its Order of November 22, 1990, and established the test period as the 12-month period ended June 30, 1989, set the matter for public hearing, required public notice, and denied the motion for interim rates.

On January 11, 1990, the Public Staff filed a motion in which it requested the Commission to issue an Order requiring CWS to provide the Public Staff copies of certain documents. On January 16, 1990, CWS filed its response to the Public Staff's motion in which it moved the Commission to deny said motion.

By motion filed on January 22, 1990, CWS informed the Commission that it had inadvertently neglected to notify customers in Powder Horne Subdivision of the rate increase application and requested that it be allowed to give late notice of the rate increase and hearings. CWS also requested that, because of the negotiations for the sale of the Beatties Ford and Hyde Park East Subdivisions (hereinafter referred to collectively as Beatties Ford) to the Charlotte Mecklenburg Utility Department (CMUD), it be allowed to exclude those

customers from the notice requirements of the Commission November 22, 1989, Order.

On January 23, 1990, the Attorney General filed it's Notice of Intervention in this matter. The Public Staff intervention is deemed appropriate pursuant to G.S. § 62-15(d).

On January 23, 1990, the Public Staff filed its response to CWS' motion of January 22, 1990, in which it agreed with CWS that the customers in Powder Horne Subdivision should be given public notice but requested additional time to file its response to the Beatties Ford matter.

On January 23, 1990, CWS filed its response to the Public Staff motion of January 11, 1990, concerning the filing of certain documents.

On January 25, 1990, the Public Staff filed its response to the Beatties Ford matter in which it moved the Commission to include Beatties Ford in this rate case. Also on January 25, 1990, the Public Staff filed a motion for an additional hearing in the Wilmington area which was approved by Order of January 29, 1990.

On January 29, 1990, the Commission issued an Order requiring public notice of the rate increase application to the customers in Powder Horne Subdivision.

On January 30, 1990, the Commission issued an Order which allowed the Public Staff Motion of January 11, 1990, pertaining to CWS filing of certain documents. Said Order also required the confidentiality of certain of these documents as agreed to by the parties.

By Motion filed on January 30, 1990, CWS renewed its previous motion to exclude Beatties Ford from the rate increase proceeding.

By Order issued on February 2, 1990, the Commission allowed the Company's request to exclude Beatties Ford Subdivision from the notice requirements in this proceeding, fixed the time for the filing of rebuttal testimony, and scheduled a further hearing in Winston-Salem.

On February 9, 1990, the Village Council of the Village of Whispering Pines filed a Petition to Intervene. This was allowed by Order issued on February 16, 1990.

On February 9, 1990, the Applicant filed the testimony of Patrick J. O'Brien, the Vice President and Treasurer of the Company.

By Petition filed on February 9, 1990, the Town of Pine Knoll Shores, Inc., moved to intervene in this proceeding. Said intervention was allowed by Commission Order of February 21, 1990.

By Motion filed on February 26, 1990, the Town of Pine Knoll Shores filed a motion to expand its intervention to include the Town of Atlantic Beach and Brandywine Bay Homeowners Association and requesting permission to file expert testimony on March 8, 1990. Both the Public Staff and the Company filed responses on February 28, 1990. The Commission in its Order of March 1, 1990,

allowed the expanded intervention but set the date of filing of expert testimony at March 5, 1990.

On March 2, 1990, the Public Staff filed the testimony and exhibit of Andy R. Lee, Director, Water Division; Linda Petrie Haywood, Staff Accountant, Accounting Division; Fredrick W. Hering, Staff Accountant, Accounting Division; and Kevin W. O'Donnell, Financial Analyst, Economic Research Division. The Town of Pine Knoll Shores, et. al., filed the testimony and exhibits of Jocelyn M. Perkerson, CPA, on March 5, 1990.

On March 6, 1990, CWS filed a letter from Mr. James Camaren, Vice President, Business Development, in Docket No. W-354, Sub 74 (the application of CWS for a Certificate of Public Convenience and Necessity to provide water utility service in Raintree Subdivision in Wayne County). Docket No. W-354, Sub 74, has been consolidated with Docket No. W-354, Sub 81, for hearing and consideration. On March 8, 1990, the Public Staff filed a motion in reply to the letter of March 6, 1990, requesting the opportunity to file rebuttal testimony and to cross-examine Mr. Perry Owens, Chairman and Chief Executive Officer of CWS, and Mr. Camaren, regarding the letter and related matters. On March 15, 1990, the Commission issued an Order permitting the Public Staff to file rebuttal testimony and requiring Mr. Owens and Mr. Camaren to appear at a hearing on April 11, 1990, for cross examination on the matters alleged in the March 6, 1990, motion of the Public Staff. Pursuant to the Order of March 15, 1990, the Public Staff filed the testimony of Andy Lee on April 4, 1990. At a hearing on April 11, 1990, the Commission heard the testimony of Messrs. Camaren, Owens, and Lee, and received into evidence the affidavit of Mr. Tyndall Lewis.

On March 13, 1990, CWS filed a motion seeking extension of time to file rebuttal testimony and asking that the issue of refund of deferred revenues related to the Tax Reform Act of 1986 be severed from this proceeding. The Public Staff and Intervenors Town of Pine Knoll Shores, et al., filed responses to this Motion on March 14 and 16, 1990, respectively. The Commission issued an Order on March 16, 1990, granting an extension of time to file rebuttal testimony and denying the motion of severance of the deferred revenues issue.

On April 6, 1990, CWS filed the rebuttal testimony of Patrick J. O'Brien, David H. Demaree, Carl J. Wenz, Carl Daniel, Dr. Edward W. Erickson, Benjamin A. McKnight, and Dale C. Stewart.

Public hearings were held as scheduled. The following public witnesses appeared and offered testimony and exhibits at the various hearings.

Boone February 5	Barry Noll, Bill Crawford, George McLaney, Randy Carter, Robert Durant, Ed Laughlin, Bob Stephenson, Fraser Manis, Marjorie Unrath, and George Scheitlin
Asheville February 6	Steve Clark, Gene Rainey, Jesse Ledbetter, Burley Tipton, Tim Erwin, Les Churchill, E.B. Trueblood, Grady Balentine, Jack Babb, Rita Large, Rosa Shade, William McLoughlin, David Harwood, David Martin, Becky Martin, Arthur McNatt, Jo Ann Goforth, James T. Tanner, Jr., H.K. Pohlman, Iona Young, Thomas Simmons, and Aubry Wooten

Asheville February 7	Marion Hawkins, Donald Downs, John Zgavec, Wilhemina Milam, Jerry Allison, and Curtis Solomon
Charlotte February 8	Robert L. John, Fenton N. Gravely, Charles Jenkins, Ed Spooner, Rembert Sessions, Debra Forbes, Gwen Jones, Cathy McGinn, Doug Fink, Thelma Luckie, Nancy Lynch, Joe Marks, Debbie Cochran, Stephen Smith, Dorothy Hyatt, Clifford Crocker, Richard Casas, Perry Hancock, Bernice Nix, and Robert Broome
Charlotte February 9	Nancy Runnion, Russ Ford, Ann Robey, Steve Caldwell, Harry Lerner, and Jim Adams
Winston-Salem February 13	Randolph Yanagawa, Donald Guthrie, Perry Mixter, Charles Bumgarner, Keith Bess, Mike Rowe, David Wade, Rosa Keatts, Paul Grubb, Richard Stewart, Richard Williams, Harry Martin, and Randy Melton
Wilmington February 15	William D. Bailey, R.M. Fitzpatrick, Howard Sterne, and J.L. Peters
Carthage February 19	George Reaves, Bruce Wiesly, George Simpson, Phil Jones Durwood Epps, and Bob Yager
Goldsboro February 20	Jim Barnwell and Moses Almond, Sr.
New Bern February 21	Robert Morra and Stuart Miller
Pine Knoll Shores February 22 Raleigh March 19	Robert Grady, Ken Hanan, Barney Zmoda, Clyde Lynn, Paul B. Maxson, Charles S. Allen, and John Chapin Alan McKenzie, Byron Harris, Scott Smith, Maggie Wellbrock, Marian Johnson, William Bailey, Crissty Martin, Terry Hawley, Harvey Bauman, Bill DeTamble, Jane Diedrick, Mike Ledford, Richard Gamble, Mike Marvel, Robert Thornburg, Arthur Curtis, and Charles Tomlinson
Raleigh March 20	O. W. Godwin, Jr.

CWS presented the testimony and exhibits of: Patrick J. O'Brien, Vice President and Treasurer of CWS, and the rebuttal testimony and exhibits of the following witnesses: Patrick J. O'Brien; David H. Demaree, Vice President of Operations and Secretary of CWS; Carl Daniel, Vice President and Regional Director of Operations of CWS; Carl J. Wenz, Director of Regulatory Accounting of CWS; Dr. Edward W. Erickson, Professor of Economics and Business at North Carolina State University and Director of the NCSU Center for Economic and Business Studies; Benjamin A. McKnight, partner in the firm of Arthur Andersen & Company; and Dale C. Stewart, P.E. of LandDesign Engineering Services.

The Public Staff presented the testimony and exhibits of Andy R. Lee, Linda Petrie Haywood, Fredrick W. Hering, and Kevin W. O'Donnell.

The Intervenors, Town of Atlantic Beach, et al., presented the testimony and exhibits of Jocelyn M. Perkerson.

On May 15, 1990, the parties submitted proposed orders and briefs. On May 25, 1990, CWS filed a Reply Brief addressing the Public Staff's proposed order.

Based on the foregoing, the verified application, the testimony and exhibits received into evidence at the hearings, the proposed orders submitted by the parties, and the entire record in this proceeding, the Commission makes the following

FINDINGS OF FACT

1. CWS is a corporation duly organized under the laws of, and authorized to do business in, the State of North Carolina. It is a franchised public utility providing water and/or sewer service to customers in North Carolina. CWS is properly before the Commission, pursuant to Chapter 62 of the General Statutes of North Carolina, for a determination of the justness and reasonableness of its proposed rates and charges.

2. Brandywine Bay Utility Company, Belvedere Utility Company, C.W.S. Systems, Inc., Queens Harbor Utility, Watauga Vista Water Corporation and Riverpointe Utilities, Inc., are also wholly owned subsidiaries of Utilities, Inc., and are duly franchised by this Commission to operate as public utilities providing water and/or sewer service to customers residing in their various North Carolina service areas.

3. Carolina Water Service, Inc., Brandywine Bay Utility Company, Belvedere Utility Company, C.W.S. Systems, Inc., Queens Harbor Utility, Watauga Vista Water Corporation, and Riverpointe Utilities, Inc., are all operated under Carolina Water Service, Inc., of North Carolina. In 1989, Brandywine Bay Utilities Company, Belvedere Utility Company, and Queens Harbor Utility merged their accounting books and records into CWS. Only CWS Systems, Inc., Riverpointe Utilities, Inc., and Watauga Vista Water Corporation keep separate accounting records. However, all share operating personnel and common plant, including transportation and office equipment. Reference to Carolina Water Service, CWS, Company, or Applicant in this Order is to the joint operation of these seven affiliated companies.

4. The test period appropriate for use in this proceeding is the 12 months ended June 30, 1989.

5. The Applicant provides water and/or sewer utility service to approximately 23,000 customers in more than 80 service areas located within the State of North Carolina.

6. The Applicant's present rates are as follows:

WATER RATES

RESIDENTIAL (Monthly charges):

(A) Base facility charge: $8.00 per dwelling unit. This $8.00 facility charge shall also apply where the service is provided through a master meter and each individual dwelling unit is being billed individually.

(B) Base facility charge: $7.30 per dwelling unit when service is provided through a master meter and a single bill is rendered for the master meter, as in condominium complexes.

(C) Commodity charge: $2.30/1,000 gallons ($1.25 for untreated irrigation water in Brandywine Bay).

(D) Flat rate for unmetered single-family residences: $15.50.
Flat rate for unmetered commercial customers: $15.50/single family equivalent.

COMMERCIAL AND OTHER (Monthly charges):

(A) Base facility charge:

5/8" x 3/4" meter	$ 8.00
1" meter	20.00
1½" meter	40.00
2" meter	64.00
3" meter	120.00
4" meter	200.00
6" meter	400.00

(B) Commodity charge: $2.30/1,000 gallons.

AVAILABILITY RATES: Monthly charge/customer: $2.00

Applicable only to property owners in Carolina Forest and Woodrun Subdivisions.

CONNECTION CHARGE: $100.00 for 5/8" meter ($300 in Hound Ears Subdivision). Meters larger than 5/8" - actual cost of meter and installation.

PLANT IMPACT: $400 for 5/8" meter

Multifamily or commercial customers - to be negotiated on basis of equivalence to a number of single-family customers, but not less than $400 payable by developer or builder.

NEW WATER CUSTOMER CHARGE: $22.00

RECONNECTION CHARGE:

If water service cut off by utility for good cause: $22.00
If water service discontinued at customer's request: $22.00
(Customers who ask to be reconnected within nine months of disconnection will be charged the base facility charge for the service period they were disconnected.)

SEWER RATES

RESIDENTIAL:

Flat rate/month/dwelling unit: $20.50

COMMERCIAL AND OTHER:

100% for water service subject to a minimum rate of $20.50 per month. Customers who do not take water service will pay $20.50 per single family equivalent.

NEW WATER AND SEWER CUSTOMER CHARGES:

New Sewer Customer Charge: $16.50
(If customer also receives water service, this charge will be waived.)

CONNECTION CHARGE :

Residential: $100/single family dwelling unit. ($300.00 in Hound Ears Subdivision and $700.00 in Corolla Light Subdivision).

Commercial: Actual cost of connection

PLANT IMPACT FEES: $1,000 for single family customers
$1,456 in Brandywine Bay

Multifamily or commercial customers: to be negotiated on the basis of equivalence to a number of single family customers, but not less than $1,000 (payable by developer or builder).

RECONNECTION CHARGE:

If sewer service is cut off by utility for good cause, the actual cost of disconnection and reconnection will be charged.
(This charge will be waived if customer also receives water service from Carolina Water Service.)

FINANCE CHARGE FOR LATE PAYMENT: 1% per month for balance due 25 days after billing date.

CHARGE FOR PROCESSING OF NSF CHECK: $7.00

7. The Applicant's proposed rates are as follows:

METERED WATER RATES

RESIDENTIAL:

(A) Base Facility Charge: $9.00 per dwelling unit. This $9.00 facility charge shall also apply where the service is provided through a master meter and each individual dwelling unit is being billed individually.

(B) Base Facility Charge: $8.30 per month per dwelling unit when service is provided through a master meter and a single bill is rendered for the master meter, as in condominium complexes.

(C) Commodity Charge: $2.90 per 1,000 gallons for all metered water usage. ($2.00 for untreated irrigation water in Brandywine Bay).

(D) Flat rate for unmetered single-family residence: $20.00

Flat rate for unmetered single-family residence: $20.00 per single family equivalent.

COMMERCIAL AND OTHER:

(A) Base Facility Charge:

5/8" x 3/4" meter	$ 9.00
1" meter	22.50
1 1/2" meter	45.00
2" meter	72.00
3" meter	135.00
4" meter	225.00
6" meter	450.00

(B) Commodity Charge: $2.90 per 1,000 gallons, or 134 cubic feet.

AVAILABILITY RATES: $2.00 monthly charge/customer.

Applicable only to property owners in Carolina Forest and Woodrun Subdivisions.

CONNECTION CHARGE : 5/8" meter - $100

($300 in Hound Ears Subdivision, $950 in Sherwood Forest Subdivision, and $925 in Wolf Laurel Subdivision).

Meters larger than 5/8" - actual cost of meter and installation.

PLANT IMPACT FEE: $400 for 5/8" meter

Multifamily or commercial customers - to be negotiated on basis of equivalence to a number of single-family customers, but not less than $400, payable by developer or builder.

NEW WATER CUSTOMER CHARGE: $22.00

RECONNECTION CHARGE:

If water service cut is off by the utility for good cause: $22.00

If water service is discontinued at the customer's request: $22.00
(Customers who ask to be reconnected within nine months of disconnection will be charged the base facility charge for the service period they were disconnected.)

SEWER RATES

RESIDENTIAL:

Flat rate per month per dwelling unit: $29.00

Dwelling unit shall exclude any unit which has not been sold, rented, or otherwise conveyed by the developer or contractor erecting the unit.

COMMERCIAL AND OTHER:

150% for water service subject to a minimum rate of $29.00 per month. Customers who do not take water service will pay $29.00 per single family equivalent.

NEW WATER AND SEWER CUSTOMER CHARGES:

New Sewer Customer Charge: $16.50
(If customer also receives water service, this charge will be waived.)

CONNECTION CHARGE (tap on fee):

Residential: $100 per single family dwelling unit. ($300.00 in Hound Ears Subdivision and $700.00 in Corolla Light Subdivision, however, no impact fees in these subdivisions).

Commercial: Actual cost of connection

PLANT IMPACT FEES: $1,000 for single family customers
$1,456 in Brandywine Bay Subdivision

Multifamily or commercial customers: to be negotiated on the basis of equivalence to a number of single family customers, but not less than $1,000, payable by developer or builder.

RECONNECTION CHARGE:

If sewer service is cut off by utility for good cause, the actual cost of disconnection and reconnection will be charged. The utility will itemize the estimated cost of disconnecting and reconnecting service and will furnish this estimate to customers with cut-off notice.
(This charge will be waived if customer also receives water service from Carolina Water Service.)

FINANCE CHARGE FOR LATE PAYMENTS: 1% per month for balance due 25 days after billing date.

CHARGE FOR PROCESSING OF NSF CHECK: $7.00

8. The Company did not give notice of its proposed rate increase to the customers in Beatties Ford Park and Hyde Park East subdivisions (sometimes hereinafter cited collectively as Beatties Ford), as ordered by the Commission. The Beatties Ford area has been annexed into the City of Charlotte, which is committed to provide municipal services to the residents of the area. The Charlotte Mecklenburg Utility District (CMUD) and CWS have been negotiating for the sale of CWS's water and sewer facilities to CMUD; however, as of the issuance of this Order, no agreement has been reached. CWS has stated to the Commission in Docket No. W-354, Sub 82, that it may decline to sell the facilities to CMUD if the Commission refuses to permit CWS to retain the gain on sale for the benefit of its stockholders. The Commission has scheduled a hearing on this issue for July 18, 1990. As of the issuance of this Order, CWS continues to own the water and sewer facilities serving Beatties Ford and continues to serve the Beatties Ford customers, and CWS's franchise for the Beatties Ford area remains in effect. Beatties Ford should be included in this proceeding for purposes of calculating revenues, expenses, and rate base, but the rate increase ordered herein will not be imposed on the customers of Beatties Ford because CWS failed to give notice of this rate case to those customers.

9. The level of water and/or sewer utility service being provided by CWS is basically adequate; however, several systems have experienced some degree of service problems and significant problems exist in the Mt. Carmel/Lee's Ridge service area (sometimes hereinafter referred to collectively as Mt. Carmel). The Company has adequately addressed these problems or is taking steps to correct the problems in all areas except the Mt. Carmel service area.

10. It is appropriate in this proceeding to allow the Company's investment in rate base related to the plant capacity utilized fully at the end of the test year as a percentage of the total capacity of certain items of plant in service. Any disallowance resulting from such percentage utilization methodology will be reduced by 35 percent which the Commission concludes to be a reasonable capacity allowance in this proceeding. Such capacity allowance takes into consideration engineering, construction, and maintenance efficiencies which are inherent in meeting reasonably anticipated growth.

11. It is appropriate to utilize a standard of 400 gallons per day per connection in determining the design capacity of elevated storage tanks and sewage treatment plants.

12. The net investment of the Company in the Cabarrus Woods elevated storage tank is $164,780. The appropriate reduction in rate base for this facility, based on the Commission's percentage utilization method, would be $72,767. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $47,299. The net investment to include in rate base is $117,481.

13. The net investment of the Company in the Cabarrus Woods sewage treatment plant is $228,203. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $129,003. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $83,852. The net investment to include in rate base is $144,351. The Company's net investment in the Cabarrus Woods sewer lift station is $138,000. This entire investment should be included in rate base.

14. The investment of the Company in four wells drilled in or near Cabarrus Woods is $174,428. This entire investment should be included in rate base.

15. The investment of the Company in water softeners for the Cabarrus Woods Subdivision is $22,000. This entire investment should be included in rate base.

16. The net investment of the Company in water softening equipment for the Emerald Point Subdivision is $31,190. This entire investment should be included in rate base.

17. The Company has proposed to include in rate base $72,365 for the cost of installing meters in the Hound Ears Subdivision. This entire cost should be excluded from rate base because these meters were not used and useful by the close of the hearings in this proceeding.

18. The Company has proposed to include in rate base an investment of $100,000 in a well and tanks installed in the Wolf Laurel Subdivision. This entire investment should be allowed in rate base.

19. The net investment of the Company in the Brandywine Bay elevated storage tank is $250,000. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $160,000. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $104,000. The net investment to include in rate base is $146,000.

20. The net investment of the Company in the Brandywine Bay sewage treatment plant is $408,738. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $260,489. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $169,318. The net investment to include in rate base is $239,420.

21. The net investment of the Company in the Danby wastewater treatment plant is $209,000. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $123,728. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $80,423. The net investment to include in rate base is $128,577.

22. The net investment of the Company in the Queens Harbor water and sewage system is $70,000. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $66,605. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $43,294. The net investment to include in rate base is $26,706.

23. The net investment of the Company in the Riverpointe water and sewage system is $35,000. The appropriate reduction in rate base for this facility based upon the Commission's percentage utilization method, would be $32,375. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $21,044. The net investment to include in rate base is $13,956.

24. The net investment of the Company in the Sherwood Forest water system is $26,500. The appropriate reduction in rate base for the water mains associated with this facility, based upon the Commission's percentage utilization method, would be $22,421. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $14,574. The net investment to include in rate base is $11,926.

25. The net investment of the Company in the TET sewage system is $9,327. The appropriate reduction in rate base for this facility, based upon the Commission's percentage utilization method, would be $7,661. However, this reduction should be offset for a reasonable capacity allowance of 35 percent, as set forth in Finding of Fact No. 10, which results in a total reduction in the amount to be included in rate base of $4,980. The net investment to include in rate base is $4,347.

26. The Applicant's total original cost of its plant in service is $40,168,215.

27. The appropriate amount for the debit balance in deferred taxes is $406,919.

28. The appropriate level of accumulated depreciation is $3,007,709.

29. The appropriate level of the plant acquisition adjustment account is $2,608,030.

30. The appropriate level of customer deposits is $100,861.

31. The appropriate level of contributions in aid of construction is $17,795,400.

32. The appropriate level of deferred taxes is $852,599.

33. The appropriate amortization period for rate case expenses is three years.

34. The beginning point of the rate case amortization period should be the date the related order is issued approving rates that include said costs.

35. The rate case costs found to be proper for the Company's previous general rate case in Docket No. W-354, Sub 69, should not be updated in this proceeding.

36. The unamortized balance of the Sub 69 rate case costs to be included in deferred charges is $37,923, and the annual amortization of the Sub 69 rate case costs is $18,961.

37. The appropriate amortization period for Docket No. M-100, Sub 113, costs and Docket No. W-354, Sub 69, appeal costs is five years.

38. The unamortized balance of Docket No. M-100, Sub 113, costs to be included in deferred charges is $9,071 and the annual amortization of Docket No. M-100, Sub 113, costs is $2,474.

39. The appropriate level of unamortized Docket No. W-354, Sub 69, appeal costs to be included in deferred charges is $37,498, and the annual amortization of Docket No. W-354, Sub 69, appeal costs is $9,375.

40. The appropriate level of total Docket No. W-354, Sub 81, costs to be recovered from the Company's ratepayers is $158,611. This amount consists of legal expenses of $50,914, water service personnel of $39,119, customer notices of $26,783, travel of $16,956, outside witnesses of $20,700, and audit and filing fees of $4,139.

41. The appropriate level of unamortized Docket No. W-354, Sub 81, costs to be included in deferred charges is $105,741, and the annual amortization of said costs is $52,870.

42. The total Hugo costs included for recovery should be reduced by the regular pay related to out-of-state affiliated personnel.

43. The proper level of Hugo costs to be included in deferred charges are $67,226, and the appropriate amortization level, based on a 6 year amortization period, is $13,445.

44. The total deferred charges for inclusion in rate base is $404,509.

45. The appropriate working capital allowance to be included in the Company's rate base is $425,333.

46. The Applicant's original cost rate base is $12,320,548. Such amount is determined by adding plant in service of $40,168,215, debit balance in

deferred taxes of $406,919, deferred charges of $404,509, and working capital allowance of $425,333 and deducting accumulated depreciation of $3,007,709, plant acquisition adjustment of $2,608,030, customer deposits of $100,861, advances in aid of construction of $257,020, contributions in aid of construction of 17,795,400, excess book value of $4,462,809, and deferred taxes of $852,599.

47. The Applicant's net revenues for the year under present rates after accounting and pro forma adjustments are $5,298,878. After giving effect the Company's proposed rates, such gross revenues are $6,998,108.

48. The salaries and related expenses of 1.5 sewer operators should be allocated to the Company's contract sewer operations.

49. The salary of the plant manager excluded by the Public Staff should be included in the Company's cost of service.

50. The proper level of end-of-period operator salaries to be included in the Company's cost of service is $1,067,272.

51. The transportation, maintenance and repair, office supplies and other office expenses, and telephone expenses should be adjusted for customer growth.

52. The methodology proposed by the Public Staff to reflect expenses charged to plant is appropriate.

53. The appropriate depreciation rate to be applied to plant offsets is the composite depreciation rate computed excluding computers and transportation equipment.

54. The appropriate level of depreciation expense based on Commission approved end-of-period plant is $434,514.

55. The reasonable level of operating revenue deductions, after accounting and pro forma adjustments, is $4,741,687.

56. The reasonable capital structure to be used herein is as follows:

Long term debt	59.7%
Common Equity	40.3%
Total	100.0%

57. The Applicant's embedded cost of long term debt is 10.25%.

58. The reasonable rate of return on common equity to be allowed the Company is 13.45%.

59. The Applicant should be allowed an increase in approved rates which, if fully implemented, would produce an increase in annual gross service revenues of $1,497,467. This increase would allow the Applicant the opportunity to earn an 11.54% overall rate of return on its rate base, which the Commission finds to be reasonable in this proceeding.

60. In order to refund to customers the currently estimated tax savings plus interest related to the Tax Reform Act of 1986 (TRA-86), the Applicant should reduce the rates approved herein by $331,686 for a period of one year.

61. The Company's rates should be established under a uniform, statewide rate structure in this case. However, a separate investigation should be initiated to consider the reasonableness of ordering system-separate accounting for purposes of future rate cases.

62. The Company's rates approved herein shall apply to the Powder Horn Mountain Subdivision.

63. There is no need to further address the issues raised in Docket No. W-354, Sub 74, regarding the provision of water service to the Raintree Subdivision.

64. It is appropriate to include language in the rate schedules allowing different water tap fees for the Hound Ears, Sherwood Forest, and Wolf Laurel Subdivisions.

65. It is appropriate to include language in the rate schedules allowing different sewer tap-on fees for the Hound Ears and Corolla Light Subdivisions.

66. The Applicant should be allowed to increase its annual gross service revenues for water by $975,937 and to sewer by $521,530. The rates contained in Appendix A will allow this increase, should enable the Applicant the opportunity to earn an 11.54% return on rate base, and is fair to the Applicant and its customers. These rates also reflect the one year flow through to customers of tax savings and interest related to TRA-86. Accordingly, the rates set forth in Appendix A are approved as the proper rates in this proceeding.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NOS. 1 - 7

The evidence supporting these Findings of Fact is contained in the verified application; the Commission files and records regarding this proceeding; the Commission Orders scheduling hearings; the Company's last general rate case, Docket No. W-354, Sub 69; and the testimony and exhibits of the witnesses. These findings are essentially informational, procedural, and jurisdictional in nature, and the matters which they involve are essentially uncontroverted.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 8

The evidence for this finding of fact is contained in the testimony and exhibits of Company witnesses O'Brien and Owens and the supplemental testimony and revised exhibit of Public Staff witness Haywood. Additional support is found in the February 1, 1990, oral argument in this docket and in Docket No. W-354, Sub 82.

Many of the differences between the Public Staff and the Company, regarding the correct level of expenses, revenues, and rate base, result from a disagreement between the parties over the inclusion of the Beatties Ford systems in this case. The Company recommends that the systems be excluded.

Although the Public Staff initially accepted the exclusion of the systems, the Public Staff now urges the Commission to include the systems.

Counsel for CWS stated in oral argument on February 1 that "What I was told is that the Company feels about 90 percent sure that soon, and certainly by the time the hearing is closed, they will have a deal with CMUD under which the facilities serving Beatties Ford/Hyde Park East area will be transferred to CMUD, and CMUD will then take over to provide service under the rates that CMUD charges." Company President, Perry Owens, testified at the April 11, 1990, hearing, "It has already, the area, been annexed by CMUD and their policy is that they will condemn the property. We have no choice. We're out whether we like it or not."

CWS filed an application to relinquish its franchise to serve the Beatties Ford Subdivision in Docket No. W-354, Sub 82, on April 10, 1990. CWS alleged that the Beatties Ford area had been annexed into the City of Charlotte, which was committed to provide municipal services to the residents, and that the CMUD and CWS have been negotiating a contract under which CMUD would acquire the water and sewer facilities that CWS owns in the area. In its application, the Company states "CWS deems it imperative that it learn from the Commission what regulatory treatment the Commission will order and whether it will permit CWS to retain the gain on sale for the benefit of its stockholders. If the Commission declines to permit CWS to retain the gain on sale, CWS may decline to execute the contract and will retain the facilities." On May 3, 1990, the Commission issued an Order authorizing CWS to transfer its water and sewer facilities to CMUD and providing that CWS's franchise in the area would be deemed cancelled upon receipt of notice that such a sale and transfer has been completed. However, the Commission deferred ruling on the issue of who shall retain the gain on such a sale. By Order of May 23, 1990, the Commission scheduled a hearing on this issue for July 18, 1990.

The Public Staff proposed that the revenues, expenses, and rate base for the Beatties Ford systems be included in determining the appropriate rates in this rate proceeding. The Public Staff based this request on the uncertainty surrounding the proposed sale of Beatties Ford. Public Staff witness Haywood testified at the hearing that she received the following response to a data request:

> CWS and the Charlotte Mecklenburg Utility District (CMUD) have had several discussions concerning the sale of the Beatties Ford water and sewer system at prices ranging from $350,000 to $850,000. No agreement has been prepared or signed by either party. We are currently exploring the cost of removal of the existing sewage treatment plant and elevated water tank. We would expect a written offer from the District within the next 30 to 60 days, but cannot be assured that the terms and conditions will be acceptable.

Witness Haywood also testified that CWS continues to incur the cost of operating these systems, and it continues to receive revenues from customers on these systems. She also testified that no time frame has been established as to when this will cease.

As of the issuance of this Order, no signed contract for the sale of these systems has been filed with the Commission. CWS continues to own the water and

sewer facilities serving Beatties Ford and continues to serve the customers in the area. Its franchise for this area remains in effect.

Having carefully examined the evidence regarding the Beatties Ford Subdivision, the Commission has determined that these systems should be included in this case for purposes of calculating revenues, expenses and rate base. G.S. § 62-133(c) states in part as follows:

> . . . the Commission shall consider such relevant, material and competent evidence as may be offered by any party to the proceeding tending to show actual changes in costs, revenues or the cost of the public utility's property used and useful, or to be used and useful within a reasonable time after the test period . . .

There has been no actual change in the ownership of the water and sewer facilities serving the Beatties Ford Subdivision. CWS continues to provide utility service in the area, and its franchise in the area has not been cancelled. Although earlier in this proceeding, CWS expressed a certainty of concluding a deal with CMUD, no such deal has yet been concluded, and CWS's filing in Docket No. W-354, Sub 82, indicates that CWS may refuse to transfer the facilities if the Commission does not rule favorably on the "gain on sale" issue, which will not be decided until after the hearing scheduled for July 1990. The Commission concludes that there has been no "actual change" which would justify the exclusion of the expenses, revenues, and rate base treatment of the Beatties Ford system.

Although the Beatties Ford area will be considered for purposes of setting rates, the rate increase ordered herein will not be imposed upon the Beatties Ford customers because CWS failed to give notice of this rate case to those customers. G.S. 62-134(a) requires that a utility proposing a change in rates "shall also give such notice . . . of the proposed changes to other interested persons as the Commission may direct." By our Order of November 29, 1989, the Commission required of CWS that notice "be mailed with sufficient postage or hand delivered by the Applicant to all of its customers affected by the proposed new rates; that said Notice to the Public be mailed or hand delivered no later than 30 days after the date of this Order. . . " CWS did not give notice to the customers of Beatties Ford as ordered. The Commission held an oral argument on this matter on February 1, during which CWS counsel stated,

> [CWS] decided without getting the Commission's approval, as it should have done, to go ahead and send the notice out but not send the notice to the Beatties Ford/Hyde Park customers. . . The feeling of the Company was that the chances were so great that the rate ultimately approved in this case would not affect those customers that the better procedure to follow would be to just exempt them from the case. . . I would argue to the Commission that the Company chose not to send them notice. And I would certainly argue--and I don't think there would be much disagreement on this point--failure to have sent them notice would mean that you can't charge them the increased rates because by statute they have not been informed of it.

CWS decided not to notify the Beatties Ford customers of this rate case. By doing so, CWS assumed the risk that it would still be serving those customers when increased rates were approved, but would not be able to charge those

customers the increased rates due to the lack of notice. CWS felt the likelihood of this happening to be remote, but this is the very event that has now come to pass.

At the oral argument of February 1, the Public Staff expressed concern that other customers might be required to make up the shortfall resulting from the Beatties Ford customers not being charged the increased rates. The Commission has not allowed this. CWS counsel himself recognized at the February 1 oral argument that the lack of notice to Beaties Ford

> would not foreclose, in my opinion, the Commission including the cost and expenses to serve those two subdivisions and simply attributing revenues from those customers even though they would not be paying them because they didn't receive notice. That would--and the rates that are set, that would not seem to me, affect the other customers. It would certainly affect what the Company earned and what it was able to realize from the rate increase. But the Company having made that decision, it would--the penalty would fall on the Company.

The Commission's accounting treatment herein imputes increased revenues from the Beatties Ford customers, even though these customers are not being required to pay increased rates, so that the other customers will not be required to make up the shortfall.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 9

The evidence for this Finding of Fact is found in the testimony of the customers testifying at the public hearings; of Department of Environment, Health and Natural Resources (DEHNR) witnesses Adams and Higdon; of Public Staff witness Lee; and of Company witnesses Demaree, Daniel and O'Brien. Public hearings were held in Boone, Asheville, Charlotte, Winston-Salem, Wilmington, Carthage, Goldsboro, New Bern, Pine Knoll Shores, and Raleigh. Approximately 120 customers testified at the hearings about quality, service, and rates. Company witness Daniel submitted testimony relative to the Company's actions and plans for dealing with service problems. Following is a discussion of the problems testified to by the customers and of witness Daniel's testimony of activities taken by CWS.

Boone Area
Hound Ears/Powder Horn/Ski Mountain

Five customers testified from Hound Ears. They opposed the rate increase and inquired as to progress in installing water meters. There were no complaints about water quality or service. In rebuttal testimony, Company witness Daniel stated that this system was under a DEH moratorium when purchased because of insufficient water supply for expansion. Witness Daniel testified further that the Company has since spent $150,380 drilling wells in order to meet DEH requirements. At a contract price of $72,365, the Company has also begun installing meters. It anticipates completion of the metering project by mid-spring. This Commission previously ordered placement of the meters by December 31, 1990.

Three customers testified from the Powder Horn water system. None complained about quality of service; they were concerned with the proposed rate

increase and the lifting of the DEH moratorium on the system at a time prior to the Company's ownership. The president of the property owners' association testified that his group was pleased that Carolina Water Service now owned the system. At the time of purchase, the developer was bankrupt and there was a DEH moratorium because of storage tank problems and lack of water. Witness Daniel stated that, at a cost of approximately $100,000, Carolina Water Service has begun constructing a new well and a new storage tank. It has also installed new blow-offs and upgraded well houses and booster stations.

Two of the 1400 water and 1172 sewer customers from the Sugar Mountain system testified. Both opposed the rate increase, but neither related complaints about quality of service or water. Over the past year, according to witness Daniel, the Company has spent over $28,000 in capital improvements for the system.

One of the 140 water customers at Ski Mountain appeared. He opposed the rate increase. Company witness Daniel responded that during the past year the Company replaced a potentially unsafe tank at a cost of $12,294. He added that the Company plans to spend another $7,000 for improvements to the system's ground-level storage tank.

In sum, 11 of the more than 2,000 customers in the Boone area testified. No one complained of service or water quality problems. The Company introduced evidence that it has spent over $300,000 in these systems improving service and correcting conditions created by previous operators.

Asheville Area
Mount Carmel/Lee's Ridge/Bent Creek/Bear Paw/
Wolf Laurel/Wood Haven/Watauga Vista

Twenty-one of the Mount Carmel/Lee's Ridge 312 water and sewer customers testified. They identified various water quality problems, including sewage odor, bad taste, water odor, discoloring, staining, and low pressure. Company witness Daniel indicated that over the past several years Carolina Water Service has spent over $30,000 to correct these problems, including rebuilding iron removal filters and improving flushing procedures and facilities. Yet, he also indicated that because of the Company's consistent inability to satisfactorily resolve the iron problem, and in response to the Commission's order in Docket No. W-354, Sub 69, the Company is now negotiating to sell the system to the Asheville-Buncombe County Water Authority, which is able to provide another source of water. In order to eliminate sewage problems, the Company has already reached an agreement and has implemented a plan to deliver the system's sewage to the Buncombe County Wastewater Treatment Facility.

Of the more than 1,000 customers in the Bent Creek, Bear Paw, Wolf Laurel, Wood Haven and Watauga Vista systems, 16 testified at the Asheville hearing. Two, one each from Bear Paw and Wolf Laurel, had complaints about water quality. The others opposed the proposed rate increase.

Company witness Daniel described CWS's work in these systems. First, at Bent Creek, the Company has improved filtering and flushing capabilities. Second, witness Daniel noted that in response to a customer's complaint at the hearing about water quality at Bear Paw, the Company visited the customer's home and helped flush her hot water heater. The Company has otherwise begun

procedures to reduce system problems with high iron levels there. Third, at Wolf Laurel, partly in response to concerns about water pressure at higher elevations, the Company has installed two additional ground-level storage tanks and drilled a new well. It has also undertaken a feasibility study for metering all mountain systems.

Charlotte Area
Forest Ridge/Forest Crossing/Southwoods/Danby/
Lamplighter Village South/Woodside Falls/Woodside

Seven of the 220 customers from the Forest Ridge/Forest Crossing/ Southwoods systems testified regarding quality of water and water pressure problems. Since the last rate hearing, according to the rebuttal testimony of Company witness Daniel, the Company has increased flushing capability and has worked to reduce discoloration. The Company increased water pressure at one customer's home in direct response to concerns expressed at the February hearing.

Five of the 510 customers from the Danby/Lamplighter Village South/ Woodside Falls/Woodside Village systems made complaints relative to water and service quality. The Company introduced rebuttal testimony that, since the last rate hearings, the Company had hired a consulting engineer and had spent more than $30,000 to reduce odor and hardness. According to the Company, samples taken from this system since the hearing indicate that water quality is within all state and federal guidelines.

Seven of the more than 700 customers in the Steeplechase, College Park, Lamplighter Village East, and Cabarrus Woods/Victoria Park systems criticized service or water quality. The quality complaints, none of which came from Steeplechase, arose from concerns about hardness and iron content. According to rebuttal testimony of witness Daniel, the Company has addressed the problems in these systems. It conducted tests at College Park. The tests showed that water there meets all EPA and state standards. In Lamplighter Village East, Company witness Daniel testified that the Company replaced a gate valve for one customer who had complained about inadequate pressure, and that it conducted tests for suitable pressure, hardness, iron, and manganese content. The tests indicated that the water was within state and federal guidelines. In Cabarrus Woods/Victoria Park, the Company drilled a new well. The well improved water quality. Several additional major capital expenditures, especially for storage tanks, are planned for the Charlotte area in 1990.

Raleigh Area
Kings Grant/White Oak/Willowbrook/Ashley Hills

Of more than 140 water and 305 sewer customers in this area, eleven raised various service complaints at the Raleigh hearing. The four customers from Kings Grant who testified were most concerned with administrative problems, particularly improper billing. In response, according to rebuttal testimony of witness Daniel, the Company has updated records and corrected the customer billing list. Four customers from White Oak testified to problems with water quality, inconsistent meter readings, and rude office personnel. Witness Daniel noted that the system was not in compliance with environmental regulations at the time of Carolina Water Service's purchase, but that several improvements, including rebuilt filters and new pumps, have since brought the

system within regulations. Three persons made comments about water quality or poor service in Willowbrook. According to witness Daniel, the Company promptly sampled the water at the residence of one of the witnesses who complained about quality and found iron and manganese levels within state and federal requirements.

Winston-Salem Area
Abington/Sequoia Place

Five customers from the Abington system complained about hard water. According to witness Daniel, the Company has traced the problem to water coming from one well and has discontinued use of that well except during emergency conditions. This has significantly reduced the hardness problem. No customers from Sequoia Place complained about service problems, although one objected to having to make a long distance call to the customer service office. Witness Daniel testified that the Company has a toll-free number which is listed on customer bills.

Altogether, six of the Company's more than 360 Winston-Salem area customers voiced complaints about quality or service, and witness Daniel testified that the Company has taken steps to resolve these problems.

Wilmington Area
Belvedere

Four customers out of the 231 water and 133 sewer customers at Belvedere testified. Of these, only one offered a service or quality complaint, which was an objection to hard water. Company witness Daniel responded in his rebuttal testimony by indicating that when the system was purchased, the water softeners at both wells were inoperable. They were repaired by Carolina Water Service, and recent hardness tests showed an acceptable level of hardness. Since purchasing the system, the Company has also installed blow-offs and rebuilt well houses. It plans to replace two tanks this year. The cost of these improvements, according to the Company, will be approximately $23,000.

Carthage Area
Woodrun/Whispering Pines

Six of the more than 1500 area customers testified at the Carthage hearing. Three lived in Woodrun; the others reside in the Village of Whispering Pines. The Woodrun residents expressed concerns about both the quality and quantity of their water. Follow-ups by the Company, according to the rebuttal testimony of witness Daniel, revealed that none of those who complained about quality were experiencing problems after the hearing. The quantity concerns involve worries about the Company's ability to meet future needs. Witness Daniel indicated that the Company was hesitant to make capital expenditures, particularly those for future development, because of the likely exclusion of funds spent for future service from rate base.

Three customers from Whispering Pines indicated problems. Two complained about water quality. According to the Company, its follow-up indicated that these customers were no longer experiencing any difficulties. Concern was also expressed about water quantity. Company witness Daniel stated that surveys of future well sites have been conducted in conjunction with the town. Current

wells are adequate to serve 1330 connections, and there are 844 connections now. One Whispering Pines resident wanted the Company to go ahead with earlier plans to construct additional mains linking all of the town's available lots. But, according to witness Daniel, the town is currently unwilling to forward to the utility the cost of such expansion, as provided in North Carolina Utility Commission Rule No. R7-16. Witness Daniel stated that the Company is afraid that, if it constructs the system with its own capital, it will be unable to include such costs in rate base. There was considerable testimony to show that the Company and representatives of the customers were involved in a close working relationship and that the Company was making efforts in cooperation with the customers to solve the water quality problems at the Company's main source of supply.

Goldsboro Area
Foxfire Estates/Rollingwood

Two of the more than 820 customers from the Goldsboro area, one from Foxfire Estates, the other from Rollingwood, expressed concerns about water or service quality. Company rebuttal testimony indicated that Carolina Water Service has increased flushing capability and has addressed concerns about iron by adding an EPA approved sequestering agent at Foxfire Estates. The Company represents that it has spent approximately $26,000 on wells, well house improvements, and a new tank there. A follow-up to the residence of the person who claimed poor quality at Rollingwood revealed that he no longer experienced problems. Witness Daniel testified that the water supply system at Rollingwood was within acceptable limits as of a recent inspection on November 27, 1989.

New Bern Area
Riverbend

There were no service complaints from customers that reside in this service area. Company witness Daniel attributed the lack of criticism to the fact that the Company has recently installed iron filters at each of the system's wells. Also, since its purchase of the system, the Company has installed stand-by power for wells, rebuilt iron filters, increased well production, and made other improvements at a cost of roughly $124,000.

Pine Knoll Shores Area
Brandywine Bay/Pine Knoll Shores

Of 225 water and 136 sewer customers in Brandywine Bay, two witnesses presented testimony relative to water quality and service. One complained about the Company's repair and excavation practices. In response, witness Daniel promised that in the future the Company would provide notice as to excavations and would make any necessary road repairs on a timely basis. Two customers complained about water quality. Although Company witness Daniel stated that these persons had not made any previous complaints, he promised that the Company would address their concerns. He also stated that the water supply at Brandywine Bay meets all state and EPA recommendations. One Brandywine Bay customer praised the Company's quick response to a water problem during a recent snowstorm.

Of more than 2610 water customers in Pine Knoll Shores, only one issued a quality complaint. This witness testified that there was discolored water in

the annual filling of the Beacon's Reach development swimming pool. Witness Daniel's rebuttal testimony indicated that the Company believed the problem resulted from infrequent use. The pool is located at the end of a main and is inactive for up to eight months a year. The Company has installed a blow-off within the main and has made this blow-off a part of the flushing schedule.

Response to Commission's Statements and Last General Rate Order

The Company has also introduced testimony relative to its response to the Commission's concerns as expressed in its most recent general rate case, Docket No. W-354, Sub 69. In regard to complaints about water quality in Cabarrus Woods, witness Daniel indicated in rebuttal testimony that the Company has added softeners, has added a new well, and has completed a new elevated storage tank. No Cabarrus Woods customer testified at the February 1990, Charlotte hearings.

The Commission was also concerned about hardness and odors in the Courtney water system. According to witness Daniel, the Company has since installed water softeners at a cost of $30,000. No resident from Courtney complained about quality problems at the Charlotte hearings.

In the last docket, the Commission noted complaints about discoloration and sewer odors in the Forest Ridge and Forest Crossing systems. Company witness Daniel testified that the Company now adds a sequestering agent to the water in order to remove iron and to reduce discoloration. He also indicated that flushing capabilities, with new blow-offs, and flushing frequency have been improved. As for the sewer odors, witness Daniel stated that the treatment plant has been expanded. He testified that water quality meets state and federal standards.

Also in Docket No. W-354, Sub 69, the Commission ordered the Company to address hardness and odor problems caused by hydrogen sulfide in the Danby water system. Witness Daniel, in his rebuttal testimony, noted that a new chlorination system, at a cost of $27,000, has been installed to deal with the hydrogen sulfide that has since significantly reduced odors. A sequestering agent has also been added to reduce the staining problems. Daniel testified that water quality at Danby meets federal and state requirements.

The Commission also ordered the Company to install filters at Emerald Point in order to reduce hardness. According to witness Daniel, the softeners have been installed at a cost of $45,000, and water hardness has been reduced to 60 ppm. No customers from Emerald Point appeared at the Charlotte hearings.

Finally, the Commission Order, in Docket No. W-354, Sub 69, addressed persistent quality problems at Mt. Carmel and Bent Creek. The principal difficulties in these systems have been high iron levels. Since that last Order, the Company at Bent Creek has rebuilt the iron filters and increased flushing capabilities, at a cost of $20,000. No customer from Bent Creek appeared and complained about water quality at the February 1990 Asheville hearings. Company witness Daniel admitted that iron problems remain in the Mt. Carmel system despite improvements in flushing capability. As a result, the Commission believes that the Company should continue to negotiate with the Asheville-Buncombe Water Authority to purchase water on a bulk basis or to sell the system to the Asheville-Buncombe Water Authority

The Company's general pattern of responsiveness to quality concerns was confirmed by testimony from engineers from the Division of Environmental Health at the Charlotte and Goldsboro hearings. At the Goldsboro hearing, witness Jim Higdon testified that all of the Company's water systems in his Eastern North Carolina territory were in compliance with DEH regulations. He also indicated that the Company consistently made system quality improvements when necessary to ensure continued compliance.

At the Charlotte hearing, Jim Adams, an engineer with the Public Water Supply branch of the Department of Environment, Health and Natural Resources, also testified to the Company's diligence and commitment. Adams indicated that he was a 13 year employee of the health service, that he worked primarily in Mecklenburg and Gaston counties, and that his responsibilities included monitoring water systems to determine if they are in compliance with state environmental and health regulations.

Witness Adams stated that Carolina Water does a "good job" in complying with the state's reporting requirements. He added:

> They do follow-up work that we request they do based on complaints that we receive in our office and information that we share with them and pass along with them to follow up. They monitor, on a regular basis, several times a week, water systems depending on the water system. The ones with problems, usually its more often.

Witness Adams indicated that his division rarely received quality complaints about Carolina Water Service systems. He noted that when they did, he "always had a real good response from them" and his office usually got feedback from the Company the same day. He testified that the Company takes a "somewhat progressive role in trying to look to the future," and that it makes a effort to employ only certified operators in its systems. Witness Adams also noted that the Company was normally "quite receptive to listening to what alternatives" were necessary to solve water quality problems. He testified that the Company had a history of bringing up to state standards those systems that were out of compliance when purchased.

With the exception of the Mt. Carmel service area, the Commission commends CWS on its efforts in satisfying the complaints in this proceeding. The Commission notes that the Company has recognized that improvements or changes in service should be made and has made or is in the process of making these improvements.

The Commission concludes that CWS should continue the service improvements it has undertaken. The Commission further concludes that CWS should make monthly program reports of its efforts in completing these improvements, especially those in Mt. Carmel Subdivision. The first report shall be filed on or before August 31, 1990.

In supplemental testimony, Public Staff witness Lee asked the Commission to withhold implementation of rates in this docket in several service areas until the Company has demonstrated adequate service. Witness Lee identified the systems and their problems as Whispering Pines (hard water), Mt. Carmel (high iron levels), Bent Creek (high iron levels), Forest Ridge/Forest Crossing

(stain and sediments due to high iron levels), Lamplighter Village East (staining caused by high iron levels), Woodside Village (hardness, stains and deposits), and Abington Forest (high iron and manganese levels). After considering the evidence presented by the customers, the Public Staff, and the Company, the Commission concludes that except for the Mt. Carmel water system, it should reject this recommendation and should not withhold implementation of the rates approved in this docket in these systems.

First, the evidence indicated that two customers from Whispering Pines complained about quality at the hearings. A Company follow-up, however, revealed that the customers' problems no longer existed. Second, we have already recommended that the Company continue to negotiate with the Asheville-Buncombe Water Authority for a new source of water for the Mt. Carmel system. Third, at Bent Creek, the Company has rebuilt iron filters and has increased flushing. Because of this and because no customer from Bent Creek appeared to complain about water quality at the hearings, we reject witness Lee's contention that water quality conditions at Bent Creek require a withholding of the implementation of new rates. Fourth, at Forest Ridge/Forest Crossing, the Company has added a sequestering agent, increased flushing, and has expanded sewage treatment capacity. Water quality there now meets all federal and state standards, including those for minerals. Fifth, in Lamplighter Village East, the Company has conducted an extensive renovation of facilities. It plans $25,000 to $30,000 in additional improvements for 1990. Although a few customers from this system complained about quality at the hearings, test results indicated that all metal and hardness levels are in compliance with regulations. Sixth, in Woodside Village, the Company has made improvements costing more than $30,000. The improvements have satisfactorily reduced hydrogen sulfide odors and hardness. Also, tests indicate that the water supply there meets all federal and state health requirements. Finally, in Abington Forest, the Company has discontinued the general use of a well that was discovered to be the source of mineral problems.

Based on the above, the Commission finds no basis on which to deny the rates approved in this Order in any of the service areas discussed herein except the Mt. Carmel water system.

In the last rate proceeding, Docket No. W-354, Sub 69, the Commission denied rate relief in the Mt. Carmel and Bent Creek Subdivisions. The Commission ordered that the existing rates were to remain in effect until certain improvements were made or until the systems were connected to the Asheville-Buncombe Water System.

It appears from the evidence presented that CWS has successfully upgraded the service in Bent Creek Subdivision. However, as noted above, the Mt. Carmel water system still have the same problems as before.

The Commission concludes that the Company should continue to negotiate with the Asheville-Buncombe Water Authority to purchase water on a bulk basis. The Commission would further advise the Company that if Asheville Buncombe Water Authority is unwilling to sell them water, the Company would be well-advised to seek another source of water. This may include negotiating with Asheville-Buncombe Water Authority for the sell of these systems.

The Commission also concludes that the existing water rates should remain in effect in Mt. Carmel Subdivision until this system is either connected to the Asheville-Buncombe Water System or the Company has upgraded the system to provide an acceptable quality of water service.

By Order issued on April 7, 1989, in Docket No. W-354, Sub 69, the Commission ordered "That Carolina Water Service shall undertake a feasibility study of metering its remaining unmetered customers. This study shall be filed with the Commission by September 1, 1989, and shall indicate the name and location of each unmetered system, the age and material of the water laterals, whether or not there are cut off valves and/or meter boxes on the customers' lines, the number of present and potential customers in each system, and the estimated cost of metering each system." A review of the Commission files show that the required reports have not been filed. Neither is there any indication that CWS has requested an extension of time to file this report.

While the Commission has earlier commended CWS on its effort to satisfy the complaints of the customers, the Commission finds here that CWS has not responded to an Order of the Commission as should be expected of a company with CWS's experience and knowledge. This blatant disregard of the Commission Order is intolerable. Therefore, the Commission once again finds that CWS should file a report on the feasibility of metering its unmetered systems.

Also in Docket No. W-354, Sub 69, the Commission required the Company to file ". . .a copy of each of its present contracts and a report specifying the amount of tap on fees and/or plant impact fees that can be charged in each system 60 days after the date of this Order." On the matter of the contracts, witness Lee, in his supplemental testimony, testified that the Public Staff had been unable to locate or identify all of the needed contracts. Witness O'Brien, in rebuttal testimony, stated that "All (contracts) are now filed."

The Commission is of the opinion that CWS should contact witness Lee and determine which contracts the Public Staff has been unable to locate or identify. CWS should them provide a copy of any missing contract or assist the Public Staff in identifying any contract that the Public Staff is unable to identify.

The Commission will address the matter of the report of tap-on fee and/or plant impact fees in its discussion for Finding of Fact Nos. 64 and 65.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NOS. 10 - 46

The evidence for Findings of Fact Nos. 10 - 46 is found in the testimony and exhibits of Company witnesses Demaree, Stewart, McKnight, Wenz, and O'Brien; Public Staff witnesses Lee, Hering, and Haywood; and prior Orders of the Commission.

The Public Staff and the Company differ on the level of all elements of rate base except the level of advances in aid of construction and excess book value. Many of these differences result from the parties' disagreement over the inclusion of the Beatties Ford systems in this case. As discussed in the Evidence and Conclusions for Finding of Fact No. 8, the Commission has determined that the Beatties Ford systems should be included in this case. As a result, all of the differences regarding elements of rate base resulting from

the Public Staff's inclusion of the Beatties Ford systems are decided in favor of the Public Staff. The Commission, therefore, need only address those rate base differences which remain between the Company and the Public Staff other than those associated with Beatties Ford. The chart below summarizes the rate base differences between the parties as set forth in Schedule II of each parties' proposed order.

Item	Company	Public Staff	Difference
1) Plant in Service	$39,942,773	$39,071,973	$ (870,800)
2) Debit Balance in Deferred Taxes	825,598	406,919	(418,679)
3) Accumulated Depreciation	(2,962,730)	(3,007,709)	(44,979)
4) Plant Acquisition Adjustment	(2,355,018)	(2,701,730)	(346,712)
5) Customer Deposits	(97,695)	(100,861)	(3,166)
6) Advances in Aid of Construction	(257,020)	(257,020)	0
7) Contributions in Aid of Construction	(17,180,633)	(17,798,850)	(618,217)
8) Excess Book Value	(4,462,809)	(4,462,809)	0
9) Deferred taxes	(818,928)	(852,599)	(33,671)
10) Subtotal	12,633,538	10,297,314	(2,336,224)
11) Working Capital Allowance	406,581	394,234	(12,347)
12) Deferred Charges	586,140	343,278	(242,862)
13) Total Original Cost Rate Base	$13,626,259	$11,034,826	$(2,591,433)

Plant in Service

The Company and the Public Staff disagree on the amount of plant in service that should be included in rate base. The Company proposes to include $39,942,773, whereas the Public Staff proposes to include $39,026,973, for a difference of $915,800. It is noted that the $39,026,973 proposed by the Public Staff is less than the amount shown on the foregoing chart due to the exclusion by the Public Staff of its proposed adjustment of $45,000 for the Emerald Point softeners as set forth in Schedule II of its proposed order. Several of the differences between the parties regarding the level of plant in service result from disagreements over issues of unused capacity and the design criteria relied upon in installing such capacity. The Commission will address these two issues generically before addressing each of the specific items of plant in service.

Public Staff witness Lee recommends that the Commission apply the principle of matching revenues and investment. Witness Lee advocates the inclusion in rate base of only investment related to the percent of plant capacity utilized fully at the end of the test year as a percentage of the total capacity of the plant (percentage utilization method). The formula supported by the Public Staff neither allows for capacity not fully utilized at the end of the test year nor takes into account growth that is likely to occur. Also, it does not consider any engineering efficiencies or a utility's obligation to serve.

Carolina Water Service advocates the inclusion in rate base of reasonable capacity margin that anticipates future growth. In rebuttal testimony, Company witness Benjamin McKnight testified that it is virtually impossible for a utility's investment in service capacity to be equal to current customer demand as recommended by the Public Staff. Witness McKnight stated that unused capacity results in part from the fact that utilities must have adequate capacity to meet peak demands. He noted that unused capacity also results from the general policy requirement that a public utility have the necessary capacity to meet reasonably anticipated increases in demand.

Witness McKnight stated that the Public Staff failed to distinguish between reasonable capacity margin and excess capacity. Witness McKnight stressed that well managed utilities always maintain reasonable capacity margins and that the key issue faced by regulators is when capacity margin becomes excess capacity. Witness McKnight stated that plant investment, if prudent and does not result in unreasonable capacity margin, should be included in rate base.

Company witness David Demaree also rejected the percentage utilization method emphasizing that economies of scale are available when evaluating the cost per gallon of sewage treatment plants and elevated storage tanks. Witness Demaree advocated inclusion of prudent capacity margins and recommended a minimum of five years as the growth projection time frame in evaluating the reasonableness of capacity margins. He stressed that most major facilities take at least one year to design, obtain approval, construct and place into service and that most developments have a five to ten year sales plan. In addition, witness Demaree noted that the United States Environmental Protection Agency uses five years as its standard time period for NPDES permits. Witness

Demaree states that to project less than five years into the future would be extremely shortsighted and lead to higher rates for customers.

Based upon a thorough analysis of the evidence presented on the issue of capacity margin to include in rate base, the Commission has determined that the Public Staff's proposed percentage utilization method should be modified as hereinafter set forth. The percentage utilization method as advocated by the Public Staff excludes all capacity margin regardless of whether it is needed for reasonably anticipated growth or is truly excess capacity and ignores the time interval necessary to design and construct facilities. Under the percentage utilization method of the Public Staff, the utility is subjected to economic losses by foregoing the return on and depreciation of plant investment that has been reasonably incurred but excluded from rate base. The Commission agrees with the Company that these losses would hinder the utility's ability to attract capital and thus would raise costs for ratepayers.

The Commission recognizes that the Company has a duty to meet peak demand and to anticipate the demands to be placed upon it in the foreseeable future. The North Carolina Supreme Court addressed this issue in State ex rel. Utilities Commission v. General Telephone Company of the Southeast 281 N.C. 318, 189 S.E.2d 705 (1972):

> ...a public utility is under a present duty to anticipate, within reason, demands to be made upon it for service in the near future. (citations omitted) Substantial latitude must be allowed the directors of the utility in making the determination as to what plant is presently required to meet the service demand of the immediate future, since construction to meet such demand is time consuming and piecemeal construction programs are wasteful and not in the best interest of either the ratepayers or the stockholders.

Id. at 352. The court in General Telephone held that the obligation to invest capital to ensure continuous, reliable service rests in the first instance with the utility's management, which is responsible to its shareholders. Id. at 352-53. See, also State ex rel. Utilities Commission v. Haywood Electric Membership Corp., 260 N.C. 59, 131 S.E.2d 865 (1963) (In exchange for franchise from the state, the utility assumes the obligation to meet the growth in demand for utility service within its service area). The percentage utilization method advocated by the Public Staff ignores this duty to anticipate future demands and will lead to shortsighted investment decisions that ultimately will result in higher rates for customers.

The Public Staff argues that the percentage utilization principle should be applied in determining the amount of water and sewer plant to include in rate base, irrespective of the rules established for other utilities that permit inclusion of capacity for reasonably anticipated growth. The Public Staff argues that rules for the other utilities are premised on the concept that such utilities have an obligation to serve all consumers who apply within a geographically defined service area. The Public Staff contends that where a water or sewer company expands beyond the initial boundaries of a franchised subdivision or acquires a new franchise service area, such acquisition is a discretionary decision and not an extension of service arising from the public utility obligation to serve. The Public Staff argues that unless the water or sewer utility receives the full contribution from a third party for all the

facilities needed to serve in these instances, the service extension is "at the risk of the investor."

The Commission finds it must reject this reasoning. Water and sewer utilities are not free to expand anywhere beyond the existing service boundaries, as though they are competitive enterprises, free from regulation. Under G.S. § 62-110, they may only expand into areas contiguous to franchised areas where there is no preexisting alternative service. This type of expansion requires an existing certificate of convenience and necessity, just like the expansion of any other utility. Likewise, water and sewer utilities are not free to acquire new systems without Commission approval under G.S. § 62-110 and 111.

Any expansion by a water and sewer utility, therefore, is with specific Commission authorization and without such authorization, the expansion cannot be made. There is no rule that requires, as a condition precedent to such expansion, that capital be provided cost-free from outside sources. The Commission's water main and sewer line extension rules, sometimes cited by the Public Staff, certainly contain no such requirement. These rules, with respect to tanks, treatment plants, and wells, are permissive. Furthermore, they permit the water and sewer utility to obtain contributions before expansion but provide that the utility reimburse the initial provider of the cost-free capital with tap fees subsequently obtained. There are similar rules for lengthy service extensions by electric utilities that do have a geographically defined service area.

Once the water and sewer utility obtains an addition to its franchised area under Sections 62-110 and 111, the regulatory compact referred to by Company witnesses McKnight and O'Brien becomes effective, and the utility is required to provide service to all within the expanded area. Capital for such service obligation is the responsibility of the franchise holder not the developer. If any deviation from this rule is to apply, this deviation should be adopted before the franchised area is expanded, not after the authorization is obtained and the funds actually have been expended.

Indeed, the Public Staff acknowledges that historically the Public Staff and the Commission have encouraged the type of expansion that has resulted in the expenditures at issue here. The Commission on many occasions has approved Carolina Water Service's expansion into new areas and has cited, as a reason for such approval, Carolina Water Service's demonstrated financial strength and ability to make the capital additions to ensure adequate service. Implicit in these statements is the Commission's recognition that prudent expenditures of capital for expansion would be includable within the Company's rate base so as to be recovered through depreciation expense and so as to permit the investor to earn on the unrecovered balance.

The Commission agrees with the Company that, if there is a reasonable belief that customer demand will increase in the foreseeable future and if significant economies of scale in construction costs exist, cost savings can be attained by building or expanding to an optimum plant size. The Commission recognizes that, due to the length of time generally necessary to install new or expanded water or sewer facilities, a reasonable capacity allowance for system demands resulting from projected connections should be allowed.

A good example of the dangers that would arise if the Commission adopted the specific Public Staff recommendation was illustrated during the cross-examination of Public Staff witness Lee. Under the percentage utilization concept, only a percentage of the utility's investment, based on the ratio of end of test period customers to the total number of customers a plant will serve at full capacity, is includable in rate base. In the hypothetical example, the utility added a 250,000 gallon tank to meet future anticipated growth. Because there were only 285 customers on line at the end of the test year, rather than the 1,250 customers that could be served by the tank at full capacity, only 22.8 percent of the investor-supplied cost was included in rate base.

Under the percentage utilization theory, had the utility installed a much smaller 60,000 gallon tank, 95 percent of the cost would have been included in rate base. If rates are set by reliance on the percentage utilization principle as proposed by the Public Staff, in order to recoup their investment economically, utilities will be forced to make imprudent engineering decisions that, in the long run, will cost the customers more. In the hypothetical example, at the time the development is fully built out, the utility will have constructed four 60,000 gallon tanks instead of one 250,000 gallon tank, all at greater cost per gallon and with a requirement of greater maintenance and operating expense.

In assessing the adjustments to rate base in this case, the Commission concludes that it is appropriate to make an adjustment for a reasonable capacity allowance for system demands. The Commission will include in rate base the investment by the Company in certain facilities which were either constructed or purchased which are determined to have been prudently incurred and do not result in an unreasonable capacity margin. In determining whether capacity margin constitutes a reasonable investment, the Commission has looked at factors such as foreseeable customer growth and benefits resulting to ratepayers from the additional capacity. The Commission has determined that the percentage utilization method advocated by the Public Staff is too rigid in that it is based upon the premise that a utility's investment in service capacity would be exactly equal to current customer demand. Such premise ignores any engineering, construction and maintenance efficiencies which exist in designing and constructing water and sewer plant facilities to meet reasonably anticipated growth.

In assessing its adjustments to certain items of rate base, based upon the evidence of record in this docket, the Commission concludes that it is appropriate, for the purposes of this proceeding, to make a reasonable capacity allowance which incorporates a percentage utilization concept as well as an allowance for engineering, construction, and maintenance efficiencies which exist in the designing and construction of water and sewer facilities to meet anticipated customer growth. In making its rate base adjustments for certain items of plant in this proceeding, the Commission will allow the Company's investment in rate base related to the percent of plant capacity utilized fully at the end of the test year as a percentage of the total capacity of the plant. Any disallowance resulting from such methodology will be reduced by 35 percent which the Commission concludes to be a reasonable capacity allowance based upon the evidence in this proceeding. Such capacity allowance takes into consideration engineering, construction, and maintenance efficiencies which are inherent in meeting reasonably anticipated growth.

Another point of disagreement between the Company and the Public Staff relating to unused capacity determinations is the design criteria for elevated storage tanks. In contrast to his testimony in the Company's last rate case, Public Staff witness Lee argued that the design capacity for elevated storage tanks is 200 gallons per day (gpd). In support of this altered position, witness Lee stated that the state design criteria require one day's use as storage capacity for elevated tanks and that the average residential customer uses 200 gpd. Witness Lee noted that state standards require well design capacity, rather than storage tank capacity, to be 400 gpd.

In rebuttal, Company witness Dale S. Stewart testified that DEHNR recommends that elevated storage tanks meet the Fire Insurance Rating Bureau's requirements or a minimum capacity of 75,000 gallons in a small municipality or one day's supply of water, whichever is greater. Witness Stewart testified that systems must be capable of supplying a minimum 400 gpd per connection and that a one day supply thus would equal 400 multiplied by the number of connections. On redirect examination, witness Stewart distinguished as exceptional situations those instances in which DEHNR has allowed 200 gpd per connection.

Section .02005 of Title 10 of the North Carolina Administrative Code, in the section on rules governing public water supplies, sets forth the minimum design criteria for elevated storage. Subsection (b) states, "The minimum capacity of elevated storage in a small municipality shall be 75,000 gallons or a one day's supply, whichever is greater." One day's supply is not defined under the section on elevated storage. However, Section .002(f)(3) under the Water Supply Design Criteria states, "The combined yield of all wells of a water system shall provide in 12 hours' pumping time the average daily demand as determined in subsection (f)(7)."

The pertinent language of Subsection (f)(7) is, "the well or wells serving residences shall be capable of supplying an average daily demand of 400 gallons per day per connection." Thus, the only definition of one day's supply indicates that it equals 400 gallons per day.

There seems to be some dispute as to how DEHNR now interprets these regulations on the minimum design criteria. Nevertheless, the regulations themselves suggest 400 gallons per day as the minimum design criteria for elevated storage. Carolina Water Service would be remiss in gambling on a lesser criteria for the design of tanks. As expert engineering witness Stewart stated:

> It seems to me that if a one day supply in one part of the Green Book is interpreted to be 400 gallons per day in this case in terms of the well, it doesn't make any sense to me that a one day supply with respect to storage would be different from that. One day supply is a one day supply. If the 200 gallons per day is to be considered, I think that one of the things that I would emphasize is that there are no systems that I'm aware of on a regular basis that only use 200 gallons per day or less in terms of a day supply. It is consistently higher than that. (Tr. Vol. XXIV, p. 70.)

The 400 gallon per day is the minimum design criteria. Wise planning suggests that greater capacity than the minimum is appropriate in many

circumstances. For example, where there is lawn watering or car washing over weekend periods in areas where there are the maximum connections for the installed elevated storage, the tanks often become depleted so that pressure is reduced and fire protection capabilities are diminished. Also, the state subsequently may deny expansion or refuse to permit the addition of future anticipated connections if the demand is higher than expected. As witness Stewart stated, "If you would get into a project or get into a situation of committing to service only to have them deny you that ability [to rely upon 200 gpd], I think it would be prudent planning to go ahead and base it on the 400 gallons per day as a minimum." Tr. Vol. XXIV, p. 69. Witness Stewart also stated, "What I've tried to point out in my testimony is that whether 200 or 400 is the minimum, good engineering practice says you also evaluate the other factors with respect to that particular situation." Id. Stewart also stated on redirect examination that where there is doubt or confusion as to which to use, the safest for the Commission to use is the published standard.

DEHNR witness Adams testified that DEHNR encourages water utilities to build with the specific anticipated needs of the subdivision in question in mind. This need includes both growth potential and peak demand.

Carolina Water Service has constructed its tanks by reliance upon the 400 gallon per day minimum criteria. There is no evidence that reliance upon the 400 gallon per day is imprudent. The Public Staff and the Commission itself accepted this design criteria in the past. There is no suggestion that the Company was imprudent, only that the 200 gallons per day minimum is possibly permissible under current DEHNR interpretations. This is no basis for penalizing the Company for its reliance on a standard of 400 gallons per day.

Furthermore, with the uncertainty that seems to exist, as to what the criteria is or should be, the Commission finds that Carolina Water Service would have been remiss in constructing tanks with less than the 400 gallons per day capacity. It is far more advisable from the customer's perspective to plan so as to err on the side of over-capacity instead of under-capacity.

A review of the testimony and exhibits presented by the Public Staff and the Company and the rules of the North Carolina Department of Environment, Health and Natural Resources, therefore, persuades the Commission that the proper capacity measurement criteria to determine whether or not investment in elevated storage tanks and sewage treatment facilities is to be disallowed for rate base purposes is 400 gpd. The Commission recognizes that valid disagreement may exist regarding what the minimum requirement is since the rules are not entirely clear on this point.

As David Demaree acknowledges in his rebuttal testimony for the Company, the DEHNR standards allow for occasional exceptions to the elevated storage capacity requirements. Nevertheless, no evidence has been presented that would warrant such an exception in this case.

It is important to note that Public Staff witness Lee admitted in his testimony that in the Company's previous rate case the Public Staff and Company agreed to use the 400 gpd requirement for elevated storage tanks. The Company justifiably has relied upon this standard in adding plant since that case. The Public Staff clearly thought that this standard was correct less than two years ago and has presented no convincing evidence demonstrating that the standard

has changed. The Commission, therefore, finds no reason to penalize the Company by using a different gpd number in designing and installing tanks.

Having addressed some of the excess capacity issues that pertain to many of the rate base disagreements between the Company and the Public Staff, the Commission will now examine each of the specific plant in service rate base adjustments. The Company proposes to include in rate base investments in numerous plant additions, many of which the Public Staff has recommended either be reduced or entirely eliminated from rate base. This difference in plant in service is composed of the following items:

Item	Amount
Inclusion of Beatties Ford	$ 880,401
Cabarrus Woods:	
Elevated Storage Tank	(156,384)
Wastewater Treatment Plant	(342,997)
Well	(45,000)
Well	(83,000)
Well	(20,586)
Water Softeners	(25,842)
Lift Station	(22,000)
Emerald Point Softeners	(138,000)
Hound Ears Meters	(45,000)
Wolf Laurel Well and Tank	(72,365)
Brandywine Bay:	(100,000)
Elevated Storage Tank	
Wastewater Treatment Plant	(205,000)
Danby Wastewater Treatment Plant	(287,915)
Queens Harbor - Water and Sewer System	(209,000)
Riverpointe - Water and Sewer System	(66,605)
Sherwood Forest - Water Mains	(32,375)
TET Utility - Sewer System	(22,421)
Zemosa Acres	(7,661)
Transportation Equipment	93,700
	(7,750)
Total	$ (915,800)

Inasmuch as the Commission has concluded to include the Beatties Ford system, no further discussion for this item is warranted.

Cabarrus Woods Elevated Tank

With regard to the 250,000 gallon elevated storage tank in Cabarrus Woods, Public Staff witness Lee recommends exclusion of $156,384 as excess plant of what he claims to be the Company's $216,959 investment. Because the tank was not fully utilized at the end of the test year, the Public Staff, using a 200 gpd capacity standard, determined the percentage utilization of the tank. The Public Staff multiplied the resulting percentage by the Company's total investment and recommends that the Commission include only the resulting $60,575 in rate base. During cross-examination, Public Staff witness Lee espoused the view that a utility should not invest in a plant to serve a new area unless developers advance funds to cover the entire cost of the plant.

In rebuttal, Company witness David Demaree advocated inclusion of Carolina Water Service's $164,780 investment in rate base. The total cost of the tank was $367,459. Witness Demaree testified that the Company had paid for 59% of the tank and that developers had contributed 41%. Carolina Water Service negotiated with the developers and obtained the best terms possible. The Company had installed the tank in 1988 to serve customers and anticipated growth in Victoria Park, Stonehedge and Cabarrus Woods Subdivision. Under the 400 gpd standard, witness Demaree calculated that Carolina Water Service had paid for 368 single family equivalents. At the end of the test year, the tank was serving 349 single family equivalents. Witness Demaree estimated that the tank would serve the 368 single family equivalents paid for by the Company within the very first year of growth and that the tank would be fully utilized in 1994. The Company's growth projections are set forth on Demaree Rebuttal Exhibit 1. Historical growth rates for Victoria Park, Cabarrus Woods and Stonehedge were relied upon to project growth through June 30, 1994.

Company witness Demaree also testified that the Public Staff in calculating the amount of Company investment to include in rate base had based its utilization percentage on the wrong investment amount. The Company had received and booked $52,179 in net water tap fees related to the elevated tank. According to witness Demaree, the Public Staff failed to subtract this amount from the Company's total investment of $216,959. Correction for this leaves a total Company investment that it proposes of $164,780 in rate base and the Commission so concludes.

As discussed earlier, the Commission will apply a percentage utilization method which allows for a reasonable capacity allowance. In making this assessment, the Commission will use the 400 gpd standard for elevated storage tank capacity.

Having thoroughly examined the evidence presented by the Public Staff and the Company regarding investment in the Cabarrus Woods elevated storage tank, the Commission is persuaded that a portion of the Company's $164,780 investment in the tank should be included in rate base. As Public Staff witness Lee acknowledged on cross-examination, existing customers clearly benefit from elevated storage tanks. With an elevated storage tank in place, fire protection can be provided more readily. This lowers annual fire insurance premiums for customers. In addition, an elevated storage tank will help reduce fluctuations in pressure. The tank will enable the Company to meet more adequately service demands during peak periods. The elevated tank also will provide greater reserve capacity so that service disruptions from main breaks and construction will be reduced. The Commission itself reached these same conclusions in evaluating this plant addition in its order in Docket No. W-354, Sub 69.

The Public Staff's position that developers must contribute the entire cost of plant to serve a new area is without merit. As witness Demaree pointed out in rebuttal testimony, neither the Commission's rules nor economic reality supports this position. The unrebutted evidence is that there were no additional contributions to be obtained. Commission Rule R7-16 states that, with regard to a main extension to serve a new subdivision, the utility shall require a developer to advance funds for installation of mains. Nevertheless, the rule states that such advances "will be subject to refund by the utility as customers are added" and that the utility, with Commission approval, may

include the cost of other facilities in the advance. The rule clearly indicates that a utility may have an investment in its source of supply storage and treatment facilities.

The Commission agrees with the Company that the Commission's precedent and rules allow a utility to invest in plant at a reasonable level to serve new customers. Indeed, under Carolina Water Service's customary practice, the Company obtains a contribution from developers up front. Carolina Water Service subsequently receives tap fees but usually does not flow these through to the developer. Carolina Water Service's practice results in more cost free capital than that envisioned by the rules.

It is economically unrealistic to assume, as the Public Staff does, that developers will provide all funds necessary for capacity to serve new areas. As indicated by Company witness Demaree, the Company often has no clear opportunity to obtain contributions in advance of construction. Witness Lee has made no allegation that additional contributions were available here. Moreover, even when funds are provided by developers, it may prove difficult for a utility to plan and fulfill its service obligations with such a restricted source of capital. The Commission recognizes that the utility bears the ultimate responsibility for meeting the needs and demands of its customers and that a policy penalizing the utility for making investment to meet these demands would be counterproductive. If a utility has only minimal investment in a system and the system requires an extraordinary investment to comply with a law such as the Safe Drinking Water Act, the utility will have little economic incentive to remain with the system. For the foregoing reasons, the Commission deems it inadvisable to exclude plant in service merely because it was financed by capital provided by the utility instead of by third parties.

The evidence in this proceeding reflects that the tank was serving 349 single family equivalents at the end of the test year. Under the 400 gpd standard, the Cabarrus Woods elevated storage tank is capable of serving 625 single family equivalents. By using the ratio of the customers on line at the end of the test year to the total number of customers which can be served by this tank, the Commission concludes that the appropriate reduction in rate base for this tank under its percentage utilization method would be $72,767. However, as discussed elsewhere herein, the Commission further concludes that this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for this item of $47,299. Therefore, the amount that should be included in rate base for the Cabarrus Woods elevated storage tank is $117,481 ($164,780 - $47,299).

Cabarrus Woods Sewage Facilities

Another area of disagreement between the Public Staff and Company involves the sewage treatment plant expansion and a sewer lift station in Cabarrus Woods. Public Staff witness Lee has advocated the removal of $342,997 from rate base for the wastewater treatment expansion in the Cabarrus Woods Subdivision and the removal of $138,000 for the sewer lift station in Cabarrus Woods. Witness Lee justified the proposed removals by stating that contracts relating to the Cabarrus Woods expansion require developers to make a contribution in the form of tap fees to cover the cost of expanding the sewer plant facilities. In his testimony, witness Lee argued that the pre-expansion

plant had adequate capacity to handle customers on line at the end of the test year and that any cost related to expansion required for existing customers already should have been recovered.

Regarding the wastewater treatment plant expansion, witness Demaree's rebuttal testimony revealed that the plant expansion cost $626,597. The developer had invested $283,600 and the Company had paid $342,997 (55 percent of the plant). Witness Demaree testified that the Company had received and booked $114,794 in net sewer tap fees related to the facility so that $228,203 of the Company's investment should be included in rate base. According to witness Demaree, the original 150,000 gallon capacity plant was sufficient for 375 single family equivalents, and the new plant, with 300,000 gpd capacity, will be able to treat an additional 750 single family equivalents. Since 55 percent of the new plant was paid for by the Company, witness Demaree testified that 412 additional single family equivalents may be served from the Company's investment. Therefore, according to witness Demaree, a total of 787 single family equivalents would be served from the Company's investment.

Witness Demaree testified that the Cabarrus Woods sewage treatment system serves a total of 489 single family equivalents. The original 150,000 gallon capacity plant would have been too small to meet this need. Witness Demaree testified that in 1992 the plant will be serving enough customers to utilize the Company's 55 percent investment in plant. He estimated that in 1994 the plant will be serving 978 single family equivalents and capacity for only 147 additional connections with sewer. Growth projections for Victoria Park, Cambridge, and Stonehedge Subdivision are detailed on Demaree Rebuttal Exhibit 3.

Witness Demaree faulted the Public Staff's calculation of its $342,997 adjustment to rate base related to the Cabarrus Woods wastewater treatment plant. Witness Demaree noted that the Public Staff, in making this calculation, had failed to take into account the $114,794 in net sewer tap fees that related to the facility which were received and booked by the Company. The Public Staff's recommended adjustment would thus exclude from rate base more than the Company's investment. The Commission concludes that the Company's investment in this plant is $228,203.

The evidence in this proceeding reflects that the Cabarrus Woods sewage treatment plant expansion is serving 489 single family equivalents. Using the 400 gpd standard, the sewage treatment facilities are capable of serving 1,125 single family equivalents. By using the ratio of the customers on line at the end of the test year to the total number of customers which can be served by these facilities, the Commission concludes that the appropriate reduction in rate base for these facilities, under its percentage utilization method, would be $129,003. However, as discussed elsewhere herein, the Commission further concludes that this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for this item of $83,852. Therefore, the amount that should be included in rate base for the Cabarrus Woods sewage treatment facilities is $144,351 ($228,203 - $83,852).

Witness Demaree's rebuttal testimony also revealed that the Cabarrus Woods lift station was constructed to carry sewage from the Steeplechase sewage

treatment plant and to serve customers in the Cambridge Subdivision. The Company invested $138,000 in the lift station and collected $250,000 from the developers. Witness Demaree testified that the Company made this investment because it was using the lift station to bring wastewater from the 140 Steeplechase customers to the Cabarrus Woods plant and felt that the cost of the station should be shared. Company witness O'Brien testified that the wastewater treatment plant at Steeplechase Subdivision was not meeting state environmental standards and would have to be upgraded at a substantial cost. Further, the Commission has noted in prior cases the customer dissatisfaction with odors from the Steeplechase plant. Taking the plant out of service will alleviate that problem. According to witness Demaree, using the lift station to take sewage from Steeplechase to Cabarrus Woods will eliminate the need to install a force main on a stand alone basis. As a result, the Company will save $86,089. Witness Demaree stressed that since the Company would have had to invest the bulk of the $138,000 in any case, the $138,000 should be allowed in rate base.

Regarding the sewer lift station, the Commission is persuaded that the station is necessary for the Company to provide sewage service to the customers in both Steeplechase and Cambridge Subdivision. The Company has built the sewer lift station to meet the demand of current customers. The lift station will alleviate the need to install a force main at a cost of $86,000. By constructing a lift station, the Company has prudently engaged in least cost planning and should not be penalized for such actions. The Commission, therefore, finds that the $138,000 investment should be allowed.

Wells

Another rate base difference between the Company and the Public Staff relates to wells drilled in or near Cabarrus Woods. The Public Staff has recommended the removal of a $45,000 investment in a well that witness Lee testified was associated with expansion of the Victoria Park and Stonehedge Subdivisions. Witness Lee also testified that a contract, which he had assumed related to Stonehedge Subdivision required that wells be installed to serve the subdivision at the cost of the developer.

Company witness Demaree testified in rebuttal testimony that the well at issue (well No. 1) was drilled to supply service to the Cambridge Subdivision and that it is not in any way related to the service of the Stonehedge or Victoria Park Subdivisions. According to witness Demaree, the Cambridge water system will not be interconnected with the Cabarrus system. Witness Demaree testified that the Cambridge system soon will be serving 50 customers and that well No. 1 was drilled to comply with state regulations which require that two wells be in place once the fiftieth customer is on line.

The Commission has analyzed the conflicting evidence presented by the Public Staff and the Company regarding well No. 1. We are persuaded that the Public Staff has misunderstood the anticipated use for the contested well. The well was drilled to meet a current need in the Cambridge Subdivision. Contracts relating to the Stonehedge and Cabarrus Subdivisions have no bearing on the well's installation. The well was drilled to comply with state regulations. The Commission finds that this well is used and useful and concludes that the Company's $45,000 investment in the well should be included in rate base.

The Public Staff also has recommended removal of $83,000, $20,586, and $25,842 related to three wells drilled in or near the Cabarrus Subdivision. A portion of this adjustment was for two dry wells drilled in the Cabarrus Subdivision. The testimony of Public Staff witness Lee indicates that he believed that the wells were drilled to meet a need in Stonehedge Subdivision and that the developer should have paid for the cost of the wells.

In rebuttal testimony, Company witness Demaree testified that the two dry wells and the third successful well were drilled to serve customers in the Cabarrus Subdivision. Witness Demaree stated that the wells were drilled in response to a moratorium placed on the Company by the Department of Environmental Health. Although Cabarrus had 349 single family equivalents on line at the end of the test year, witness Demaree testified that the Company only had capacity to serve 288 single family equivalents. The Company initially drilled the first two wells in search of water but was unable to obtain any. The Company later successfully drilled the third well on land supplied free of charge by the developers of Stonehedge Subdivision. Demaree testified that the Company paid for the entire cost of the wells because the developers who had substantially contributed to the sewage treatment plant and elevated storage tank refused to contribute more funds for the well.

The Commission has carefully weighed the arguments of the Public Staff and the Company regarding inclusion of the three Cabarrus wells and has determined that the investment in all three should be included in rate base. The Public Staff apparently has misunderstood the nature of the functioning well.

The Commission deems significant the events surrounding the drilling of the functioning well. In the Company's previous rate case, Docket No. W-354, Sub 69, the Commission explicitly ordered the Company to install a well to serve the Cabarrus Subdivision. The Company has presented persuasive evidence that construction was necessary to meet the needs of the existing customers within the Cabarrus Subdivision and that the well reasonably anticipates future growth in the subdivision. In addition, there is uncontradicted evidence that the Company made a good faith effort to secure funds for the well from developers but was unable to do so. It would be unfair to exclude from rate base the cost of the well which the Commission ordered the Company to install.

The Commission finds that the two dry wells drilled by the Company were unforeseeable but necessary steps in installing the well to serve the Cabarrus Subdivision. Disallowance of the costs of drilling these wells would, in effect, penalize the Company for complying with the Commission's mandate to meet the needs of the Company's current customers. Therefore, the Commission concludes that the entire $129,428 investment covering all three Cabarrus wells should be included in rate base.

Cabarrus Woods Water Softeners

Another point of disagreement among the parties involves treatment of investment in water softeners for the Cabarrus Subdivision. The Public Staff has recommended that the Commission exclude from rate base the Company's $22,000 investment for water softening equipment installed in this subdivision because the developers should have paid the cost of installation.

In rebuttal testimony, Company witness Demaree stressed that the Commission had ordered the Company to install the softeners on the well being drilled in the Cabarrus area or that an additional supply of water be located. Witness Demaree testified that because the water is extremely difficult to locate in the Cabarrus area, the Company felt that the most economical solution was to install water softeners.

Based upon the evidence presented, the Commission is convinced that the $22,000 investment in the water softening equipment should be included in rate base. In response to testimony presented in the Company's previous rate case, the Commission explicitly ordered the Company to install water softeners in the Cabarrus Subdivision or else find another water source. The water softeners were necessary for providing an adequate water supply and merely constitute an additional cost of the source of supply. It would be unfair to penalize the Company for acting under Commission order to improve its water supply by excluding the cost of the improvement from rate base. Moreover, the Commission has already determined that the cost of the Cabarrus well should be included in rate base and sees no reason to treat the cost of softening equipment for the well differently.

Emerald Point Water Softeners

The Company has sought to include in rate base a $31,190 investment for water softening equipment at Emerald Point Subdivision. Company witness Demaree testified that the Commission had ordered the Company to install the softeners if the developer refused to install them. The Company presented testimony that the developer did indeed refuse to install the equipment. Recognizing the cost of a potential lawsuit, witness Demaree testified that the Company convinced the developer to split the $45,000 cost of installing the water softening equipment. The Company advocates inclusion of $31,190 in rate base for the softening equipment ($45,000 cost minus CIAC of $22,500 plus CIAC tax of $8,690). In contrast, the Public Staff recommends that the Commission exclude the entire $45,000 cost from rate base on the theory that the developer was responsible for installing the equipment.

The Commission has carefully reviewed the evidence presented by the Public Staff and the Company and finds that the Company's $31,190 investment should be included in rate base. By settling the case with the developer, the Company avoided the high costs that a lawsuit would have entailed. The Company acted prudently in negotiating a settlement under which the developer would pay for one half of the cost of the plant. This Commission previously recognized the Company's dispute with the developer regarding installation of the softening equipment and ordered the Company to install the softeners if the developers refused to do so. It would be inequitable now to penalize the Company for obtaining only part of the cost of the mandated equipment when the developers refused to pay for its installation. The Commission, therefore, finds it appropriate to include $31,190 in rate base for the Emerald Point softening equipment. However, the Commission has determined that the amount which is included by the Company for the softener in its total amount for plant in service is $45,000 rather than the $31,190 which it proposes. Accordingly, to correct this oversight, the Commission finds it appropriate to reduce the total level of plant in service proposed by the Company by $13,810.

Hound Ears Meters

Another rate base issue involves the cost of meters for the Hound Ears Subdivision. Public Staff witness Lee recommended that the $72,365 cost of these meters be excluded from rate base on the grounds that they were not installed yet and would not be used and useful by the close of hearing.

Company witness O'Brien observed that the Commission had ordered meters to be installed in Hound Ears Subdivision in the Company's last rate case and that, as of two months prior to hearing in this rate case, CWS had begun installing the meters. He anticipated the job would be complete by the end of 1990. In rebuttal testimony, Company witness Wenz went even further. He stated that all the meters would be installed by the time of the Order in this proceeding and that the "expenditure is known, fixed, and measurable." Yet on cross-examination he admitted that the dollar figure for the meters could change. He also conceded that there was a possibility that the Company's expected completion date for this project -- a date on which he and witness O'Brien differed in their testimony -- could be delayed if unforeseen events happened. Witness Wenz testified that the Company wanted to put the cost of these meters in rate base in this case even though they were not actually operating and were not being used at the time he testified.

The evidence demonstrates that the Hound Ears meters are not used and useful by the close of hearing. Moreover, some uncertainty exists as to both the final cost and completion date of the meters. Accordingly, the Commission concludes that the $72,365 cost of the Hound Ears meters should not be allowed in rate base as proposed by the Company.

Wolf Laurel Well and Tanks

The next items of disagreement between the Public Staff and the Company relate to the well and tanks installed in the Wolf Laurel Subdivision. The Public Staff has recommended that the Commission disallow the $100,000 cost of installation of the well and tanks. Public Staff witness Lee testified that the well and tanks were being installed to serve a new section of Wolf Laurel Subdivision and that pursuant to the contract with the developer in the subdivision, the developer must install this plant at no cost to the utility.

The Company urges inclusion of the entire cost of the well and tanks in rate base. Witness Demaree, in his rebuttal testimony, stressed that the new well was drilled under order of the North Carolina Department of Human Resources because the number of existing customers in the Wolf Laurel Subdivision exceeded the number allowable under DHR rules. Wade C. Knox, Environmental Engineer of DHR, informed the Company by letter dated May 26, 1989, "the total number of approved connections to the water system was...360.... There are presently in excess of 360 connections to the system." Demaree Rebuttal Exhibit 11. Witness Demaree emphasized that it was the Company's responsibility to add the well and that the well was drilled on free land.

According to witness Demaree, DEHNR also required the Company to replace existing concrete tanks as soon as possible. According to DEHNR's May 26, 1989, letter, the Company was instructed that "[t]his project should proceed as soon as possible." Witness Demaree noted that the Company had acquired the

system, which was severely degraded and that the customers were receiving substandard service. He also stressed that the Company had acquired the system for $50,000 and had paid $100,000 to upgrade it.

Having carefully weighed the evidence, the Commission concludes that the cost of the well and tanks in the Wolf Laurel Subdivision should be included in rate base. The Company has presented persuasive evidence that this additional equipment was necessary to serve existing customers and was the responsibility of the Company and not the developer. The Company installed the equipment under order of DEHNR. The Company's investment per customer in the Wolf Laurel Subdivision is only $375, including upgrading, as compared to the Company's overall investment of about $550 per customer.

The Commission acknowledges that there are many water systems in North Carolina operated by owners with limited financial resources and utility training and expertise. In many cases, these owners have little incentive or desire to provide adequate service. Acquisition of these systems by professional utility owners such as Carolina Water Service provides a solution to the threat to service that exists in small water systems. The Commission reiterates its wish to encourage such acquisitions in cases such as this. To exclude the Company's $100,000 investment in the well and storage tanks at Wolf Laurel Subdivision would instead penalize the Company for correcting the deplorable situation that existed in that subdivision. The Commission, therefore, finds that the entire $100,000 should be allowed in rate base.

Brandywine Bay Elevated Tank

The next disagreement between the Company and the Public Staff regarding plant in service involves inclusion in rate base of the Company's investment in the elevated storage tank constructed in the Brandywine Bay Subdivision. The Public Staff has recommended that $205,000 of the Company's $250,000 cost basis in the tank be excluded from rate base. The Public Staff reduced the investment amount by determining percentage utilization of the tank using a 200 gpd design capacity standard. In determining the percentage utilization, the Public Staff compared the number of customers on line at the end of the test year (225) to the maximum number of single family equivalents that the tank could serve (1,250).

The Company challenged the Public Staff's exclusion on several grounds. The Company received a $200,000 contribution in aid of construction from Walmart to build the tank. In rebuttal testimony, Company Witness Demaree stressed that growth must be considered in evaluating unused capacity. Witness Demaree stated that a 400 rather than a 200 gpd standard should be used. He emphasized that the Company had used the 400 gpd standard in designing the tank. Witness Demaree also noted that because it is extremely difficult to obtain zoning for an elevated tank after a development is almost completed, it is better to build an elevated tank before houses are constructed and purchased especially if one will be needed shortly to meet residential customer needs. The Company was advised by DEM to begin construction of a tank as indicated by CWS Cross-Examination Exhibit 4.

Witness Demaree stated in his rebuttal testimony that using a 400 gpd standard, 73% of the tank would be utilized by June 30, 1994. The historical growth experience and the method relied upon for projecting future growth were

set forth in Demaree Rebuttal Exhibit 12. The 27% of remaining capacity margin would equal $67,500 of original cost. However, witness Demaree noted that the Company would collect tap fees within the next five years that would net $90,044. Therefore, the entire capacity margin would be paid for by tap fees within five years.

Having reviewed the evidence and arguments of the Public Staff and the Company regarding treatment of the investment in the Brandywine Bay elevated storage tank, the Commission is persuaded that $146,000 of the Company's investment in the Brandywine Bay elevated tank should be allowed in rate base. No argument has been made that the elevated tank was unnecessary. DEH wrote the Company a letter (Witness Lee Cross-Examination Exhibit 4) on December 19, 1988 stating: "Currently the Brandywine Bay system of water supply is restricted to not more than 229 service connections. As Brandywine Bay appears to be a popular location for new home construction over the past four years, we recommend that you proceed immediately with plans to provide the elevated storage so as not to restrict development." The elevated tank provides current customers with several benefits including reduction in pressure fluctuation, greater emergency reserve capacity, and more readily available fire protection.

In concluding that $146,000 should be allowed in rate base for this elevated storage tank, the evidence in this proceeding indicates that the tank was serving 225 customers at the end of the test year. Using the 400 gpd standard that the Commission has found to be appropriate in this proceeding, this facility is capable of serving 625 single family equivalents. By using the ratio of the customers on line at the end of the test year to the total number of customers which can be served by this facility, the Commission concludes that the appropriate reduction in rate base for this tank under its percentage utilization method would be $160,000. However, as discussed elsewhere herein, the Commission further concludes that this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for this item of $104,000. Accordingly, the amount that should be included in rate for the Brandywine Bay elevated storage tank is $146,000 ($250,000 - $104,000).

Brandywine Bay Sewage Treatment Plant

The Company also has urged the Commission to include the $408,738 cost for expansion of the Brandywine Bay sewage treatment plant in rate base. The Public Staff has recommended that the Commission allow only $120,823 of this amount in rate base.

Public Staff witness Lee testified that although the correct design capacity for wastewater treatment plants is 400 gpd, the state allows reevaluation of design capacity based on historical usage data. The Public Staff employed such an historical usage figure, rather than a 400 gpd standard, in determining the capacity currently used in the Brandywine Bay sewage treatment plant.

The Public Staff estimated that Brandywine Bay sewer customers use an average of 150 gallons of water per day. The Public Staff multiplied this number by the 136 end of test year customers to get 20,400 gallons per day. The Public Staff then subtracted the 20,400 from the 150,000 gallon per day capacity of the plant to arrive at 129,600 gallons of unused capacity. Using a

400 gpd standard, the Public Staff calculated that there were 324 potential additional connections to the plant. The Public Staff then added the 324 to the existing 136 end of test year customers to arrive at the total capacity of 460 single family equivalents. The Public Staff then recommended allowing 29.56 percent of the cost of the facility by dividing the number of end of test year customers by the 460 single family equivalents maximum capacity of the plant.

In rebuttal testimony, Company witness Demaree argued that the Public Staff's methodology and calculation were incorrect. Witness Demaree testified that, because sewage treatment plants are specifically designed to handle a certain amount of infiltration, historical water usage is not an accepted method to determine sewage treatment capacity. Witness Demaree testified that the Public Staff's formula is erroneous because it does not allow for infiltration or high-usage and completely ignores peak-flow months.

On cross-examination of Public Staff witness Lee, the Company introduced a letter (Lee Cross-Examination Exhibit 3) in which the Company had requested a reduction of the 400 gpd design capacity requirement for the Parks Farm sewer treatment plant based upon the average monthly flow for the plant. The Division of Environmental Management (DEM), by letter dated December 20, 1988, rejected the Company's request. The DEM letter stated in part:

> The Division bases any request for flow reduction on the highest average month not on the average for all months for the period of record. This figure is certainly in excess of actual water consumption rates, but it is used to allow a measure of safety in the design of wastewater treatment facilities. This allows for infiltration/inflow, surge protection, etc. (Lee Cross-Examination Exhibit 3 (emphasis added)).

Witness Demaree faulted the Public Staff for suggesting that since the plant by the Public Staff's calculation is processing less than design capacity, the Commission should deduct an amount from rate base. Witness Demaree argued that it is wrong for the Public Staff to change the rules after the plant has been constructed, permitted, and has begun operation under a 400 gpd design.

Witness Demaree also challenged the Public Staff's failure to account for growth in its methodology. He argued that it is economically impractical to build a plant designed only for customers on-line at the end of the test year. Witness Demaree testified that the plant will be fully utilized within five years.

Having thoroughly weighed the evidence presented by both parties, the Commission concludes that $239,420 of the Company's investment in the Brandywine Bay sewage treatment plant expansion should be allowed. The Commission is persuaded that, in assessing sewage treatment plant capacity, allowance for infiltration or high usage must be recognized. As evidenced by Lee Cross-Examination Exhibit 3, the state will not normally grant capacity reductions, especially when such reductions do not allow for infiltration and high usage.

The Brandywine Bay sewage treatment plant was constructed, permitted, and began operating under a 400 gpd design. Reliance upon the 150 gpd usage to calculate the existing usage of capacity attributes to the Company knowledge it could not possibly have had when it made the plant expansion. It would have been imprudent to assume usage of 150 gpd when the undisputed design criteria is 400 gpd. It would be inherently unfair to reevaluate the unused capacity under a lesser standard as the Public Staff advocates. Furthermore, the 150 gpd is the measurement of water flowing into homes, not wastewater flowing into the plant. The prudence of the decision to construct the expansion must be judged by examining facts known at the time the expansion was made. The Company is not free to eliminate part of the plant after construction if usage proves to be less than anticipated at the time of construction.

If the Commission were to permit the adjustment advocated by the Public Staff, to be nondiscriminatory, it would have to reexamine on a regular basis every sewage facility in the state. The Commission would then have to analyze the change in flow to determine and apply a percent utilization. This process would be both impractical for the Commission and unfair to the utilities who constructed their facilities under a specific design standard. The Commission, therefore, rejects the Public Staff's reevaluation of capacity using an historical usage figure.

In approving the transfer of the Brandywine Bay system to the Company, the Commission explicitly acknowledged the need for the expansion of the facility, and Public Staff witness Lee concurred in this acknowledgement. The Commission recognizes that the cost of the sewage treatment plant was higher than originally expected because the State required the Company to construct a 30-day holding pond for effluent. The Company should not be penalized for this unanticipated rise in costs.

In concluding that $239,420 should be allowed in rate base for this sewage treatment facility, the evidence in this proceeding indicates that the facility was serving 136 customers at the end of the test year. Using the 400 gpd standard that the Commission has found to be appropriate in this proceeding, the facility is capable of serving 375 single family equivalents. By using the ratio of the customers on line at the end of the test year to the total number of customers which can be served by this facility, the Commission concludes that the appropriate reduction in rate base for the plant under its percentage utilization method would be $260,489. However, as discussed elsewhere herein, the Commission further concludes that this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for this item $169,318. Accordingly, the amount that should be included in rate base for the Brandywine Bay sewage treatment plant is $239,420 ($408,738 - $169,318).

Danby Wastewater Treatment Plant

An additional plant adjustment to rate base recommended by the Public Staff involves the Danby wastewater treatment plant expansion. In his testimony, Public Staff witness Lee urged the Commission to disallow the Company's $209,000 investment in the plant expansion from rate base. Witness Lee testified that, based upon the number of customers at the end of the test year, approximately $300,000 in developer tap-on fees should have been paid.

In rebuttal, Company witness Demaree testified that $250,000 of the $459,000 total cost of the 500,000 gpd facility was collected from developers. Witness Demaree stressed that the Company had located and installed a used plant at a substantial cost per gallon savings to the Company. The Company submitted an exhibit that showed that the construction costs of a new 200,000 gpd plant would be $235,000 and that the construction costs of a new 500,000 gpd treatment plant would be $416,000. Witness Demaree testified that the costs of yard piping, electrical equipment, a blower building, and all other necessities to tie the new plant to existing facilities would have to be added to the new plant construction costs estimated by Davco. Witness Demaree stated that as a rule of thumb the prices should be doubled to calculate accurately the entire costs of installing a new plant. Witness Demaree thus estimated that the cost of installing a new 200,000 gpd tank would be approximately $450,000 and concluded that the cost of installing the 500,000 gpd used plant was equal to the cost of a new 200,000 gallon plant.

According to Witness Demaree, the 200,000 gpd new plant would only serve approximately 500 single family equivalents which represented the approximate number of customers on-line at the end of the test year. Witness Demaree testified that the Company needed a larger plant at that point in time to reflect anticipated growth.

A thorough examination of the evidence regarding the Danby sewage treatment plant expansion persuades the Commission that $128,577 of the Company's entire $209,000 investment should be allowed in rate base.

In concluding that $128,577 should be allowed in rate base for this sewage treatment facility, the evidence in this proceeding indicates that the facility was serving 510 customers at the end of the test year. Using the 400 gpd standard that the Commission has found to be appropriate in this proceeding, the facility is capable of serving 1,250 single family equivalents. By using the ratio of the customers on line at the end of the test year to the total number of customers which can be served by this facility, the Commission concludes that the appropriate reduction in rate base for the plant under its percentage utilization method would be $123,728. However, as discussed elsewhere herein, the Commission further concludes that this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for this item of $80,423. Accordingly, the amount that should be included in rate base for the Danby wastewater treatment plant expansion is $128,577 ($209,000 - $80,423).

Excess Plant

The parties also disagree as to the amount of purchase price that should be included in rate base for four other systems: Queens Harbor, Riverpointe, Sherwood Forest, and TET Utility. The Company recently purchased these systems which have not been included in rate base prior to this proceeding. According to Public Staff witnesses Lee and Hering, using its percentage utilization method that it proposes, the Commission should only include the percentage of plant capacity that is actually used at the end of the test year. Carolina Water Service, on the other hand, proposes that all of its investments producing a reasonable capacity margin that will accommodate future growth should be included in rate base.

The Public Staff determined a ratio of utilization by dividing the number of current customers by the number of customers that the system was designed to serve. This procedure was said to indicate "excess capacity." The percentage was then multiplied by the purchase price of each system in order to determine the amount of "non-excess" plant that could be included in rate base. The results are displayed in the following chart:

Item	Company (Purchase Price)	Public Staff	Difference
Queens Harbor	$ 70,000	$ 3,395	$ (66,605)
Riverpointe	35,000	2,625	(32,375)
Sherwood Forest	26,500	4,079	(22,421)
TET Utility	9,327	1,666	(7,661)
Total:	$ 140,827	$ 11,765	$(129,062)

The Company's position is that this methodology is contrary to sound regulatory policy. As indicated by the chart above, it argues that the full purchase price should be included in rate base. First, the purchase price for each of the systems was substantially less than the net original cost. Company witness Demaree's rebuttal testimony indicated that the Company paid approximately $140,000 for systems that cost over $1.2 million to construct. The following chart quantifies this difference:

System	Net Original Cost	Purchase Price
Queens Harbor	$419,372	$70,000
Riverpointe	$795,417	$35,000
Sherwood Forest	$ 85,000	$26,500
TET Systems	$122,534	$ 9,327

Second, the prices for these systems were negotiated at arm's length and directly reflected the fact that the facilities were not fully utilized. Company witness Demaree added that, even if the smallest system (wells, mains, treatment plants, etc.) was designed to serve only the existing customers, it could not have been built for the amounts that Carolina Water Service paid for these systems. The Company also maintains that acceptance of the Public Staff's analysis would encourage small, less efficient systems, while deterring investment by companies able to accomplish economies of scale. It would also force certain economic loss on utility shareholders, since the Company could never buy a system not fully built out without having a part of its investment denied in rate base until it is fully built out, regardless of how small the purchase price.

After considering the contentions of both parties, the Commission concludes that $56,935 of the $140,827 purchase price for all four systems should be included in rate base.

The Commission has indicated that, in making its adjustments to rate base, it would consider factors such as anticipated customer growth and benefits resulting to ratepayers from additional capacity. In applying these criteria to the sales transactions at issue here, it is apparent that the full purchase

prices should not be included in rate base. As previously discussed, by using the ratio of customers on line at the end of the test year to the total number of customers which can be served by each of these four systems, the Commission concludes that the appropriate reduction in rate base for the purchase price for these four systems under its percentage utilization method would be $129,062, which is identical to the reduction proposed by the Public Staff. However, as discussed elsewhere herein, the Commission further concludes that such reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base for these four systems of $83,892. Accordingly, the amount that should be included in rate base for these four systems is $56,935 ($140,827 - $83,892).

On a system-by-system basis, the Commission's adjustments are as follows:

Queens Harbor Subdivision

The evidence in this proceeding reflects that the Company paid $70,000 for a complete water and sewer system designed to serve approximately 206 customers in Queens Harbor Subdivision. The Company purchased this system in June 1987 when it had five customers. By June 1989, this system had 10 water and sewer customers. The Company is not expecting any additional customers in the near future.

The Commission concludes that the appropriate reduction in rate base for Queens Harbor system under its percentage utilization method would be $66,605. However, this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base of $43,294. Accordingly, the amount that should be included in rate base for Queens Harbor is $26,706 ($70,000 - $43,294).

Riverpointe Subdivision

Public Staff witness Hering testified that the Riverpointe systems are similar to Queens Harbor. The Riverpointe water system also has multiple wells, treatment equipment and water mains to serve 200 customers. The sewer system consists of a 100,000 gallon per day treatment plant and mains to serve 200 customers. These systems currently serve 15 customers.

The Commission concludes that the appropriate reduction in rate base for Riverpointe system, under its percentage utilization method would be $32,375. However, this reduction should be offset for a reasonable capacity allowance of 35 percent which results in a total reduction in the amount to be included in rate base of $21,044. Accordingly, the amount that should be included in rate base for Riverpointe system, is $13,956 ($35,000 - $21,044).

Sherwood Forest Subdivision

Public Staff witness Hering noted that the Commission made an adjustment for overbuilt mains in the last rate case (W-706, Sub 3) for the prior owner of Sherwood Forest Subdivision. Since the Docket No. W-706, Sub 3, rate case, additional mains have been added to the system. According to witness Hering, the mains can now serve 950 customers but only 186 customers are on the system.