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S.C. Supreme Court

THE STATE OF SOUTH CAROLINA
In The Supreme Court

APPEAL FROM THE PUBLIC SERVICE COMMISSION

Docket No. 2011-47-WS

Case Tracking No. 2012-208126

Carolina Water Service, Inc., ... Appellant,

v.

South Carolina Office of Regulatory Staff, Forty Love Point Homeowners' Association, and Midlands Utility, Inc., ... Respondents.

RECORD ON APPEAL
VOLUME 6 OF 7

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Utilities, Inc.®

Carolina Water Service Inc of SC
Collections: (800) 367-4314
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www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
03/01/2010	[redacted]	3/22/2010	$ 85.33

Name [redacted] Primary Telephone # [redacted]
Service Address [redacted] LAKE WYLIE, SC, 29710

Activity Since Last Bill

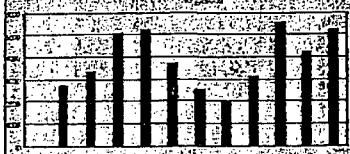
Previous Balance	$76.45	
Payments received as of 03/01/2010	$-76.45	
Balance as of 03/01/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,230 gallons at $2.03 per 1,000 gallons	$10.62	
Water Supply Charge of 5,230 gallons at $0.00341 per gallon	$17.83	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$40.27
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 5,230 gallons	$19.04	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$45.06
Total Amount Due		$85.33

Summary of Service

Meter Reading	Meter #	29037466
Current	658910	02/27/2010
Previous	653680	01/23/2010
Usage	5,230 Gallons	
Number of Days	35	
Average Daily Use	149 Gallons	
Average Daily Cost	$ 2.44	

Billing History

Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
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Bill Date	Account Number	Due Date	Please Pay:
03/30/2010	[redacted]	4/20/2010	$ 59.17

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted] LAKE WYLIE, SC, 29710

Activity Since Last Bill

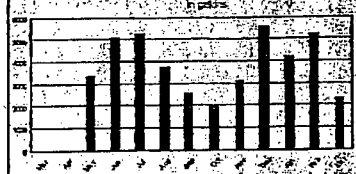
Previous Balance	$85.33	
Payments received as of 03/30/2010	$-85.33	
Balance as of 03/30/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,350 gallons at $2.03 per 1,000 gallons	$4.77	
Water Supply Charge of 2,350 gallons at $0.00341 per gallon	$8.01	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$24.60
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,350 gallons	$8.55	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$34.57
Total Amount Due		$59.17

Summary of Service

Meter Reading	Meter #	29037466
Current	661260	03/26/2010
Previous	658910	02/27/2010
Usage	2,350 Gallons	
Number of Days	27	
Average Daily Use	87 Gallons	
Average Daily Cost	$ 2.19	

Billing History
in gallons

Consumption History
in gallons



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Bill Date	Account Number	Due Date	Please Pay:
04/29/2010	[redacted]	5/24/2010	$ 68.35

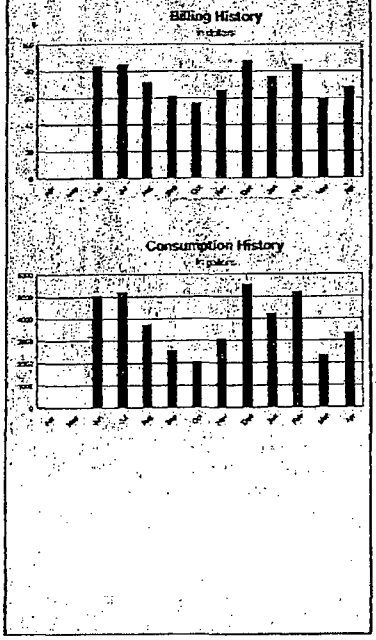
Name [redacted] Primary Telephone # [redacted]

Service Address [redacted] LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$59.17	
Payments received as of 04/29/2010	$-59.17	
Balance as of 04/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,360 gallons at $2.03 per 1,000 gallons	$6.82	
Water Supply Charge of 3,360 gallons at $0.00341 per gallon	$11.46	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$30.10
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 3,360 gallons	$12.23	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$38.25
Total Amount Due		$68.35

Summary of Service

Meter Reading	Meter # 29037466
Current	664620 04/25/2010
Previous	661260 03/26/2010
Usage	3,360 Gallons
Number of Days:	30
Average Daily Use:	112 Gallons
Average Daily Cost:	$ 2.28



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Bill Date	Account Number	Due Date	Please Pay:
06/02/2010	[redacted]	6/28/2010	$ 43.20

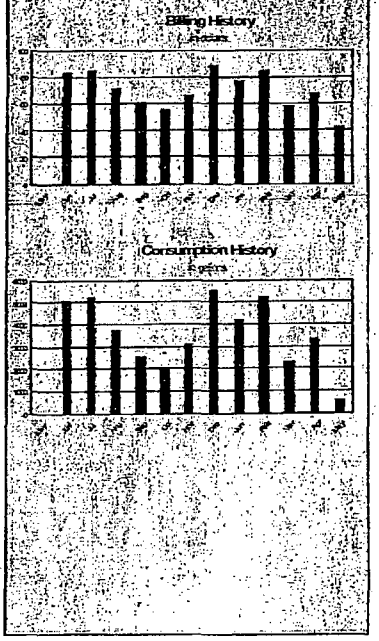
Name [redacted] Primary Telephone # [redacted]
Service Address [redacted] *LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$68.35	
Payments received as of 06/02/2010	$-68.35	
Balance as of 06/02/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 590 gallons at $2.03 per 1,000 gallons	$1.20	
Water Supply Charge of 590 gallons at $0.00341 per gallon	$2.01	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$15.03
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 590 gallons	$2.15	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$28.17
Total Amount Due		**$43.20**

Summary of Service

Meter Reading	Meter # 29037466	
Current	665210	05/30/2010
Previous	664620	04/25/2010
Usage	590 Gallons	
Number of Days	35	
Average Daily Use	17 Gallons	
Average Daily Cost	$ 1.23	



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Bill Date	Account Number	Due Date	Please Pay:
06/29/2010	[redacted]	7/26/2010	$ 84.97

Name [redacted] Primary Telephone [redacted]
Service Address [redacted] LAKE WYLIE, SC, 29710

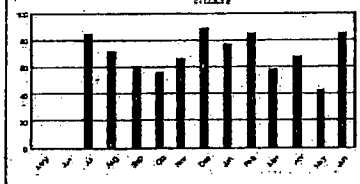
Activity Since Last Bill

Previous Balance	$43.20	
Payments received as of 06/29/2010	$-43.20	
Balance as of 06/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,190 gallons at $2.03 per 1,000 gallons	$10.54	
Water Supply Charge of 5,190 gallons at $0.00341 per gallon	$17.70	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$40.06
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 5,190 gallons	$18.89	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$44.91
Total Amount Due		**$84.97**

Summary of Service

Meter Reading	Meter #	29037466
Current	670400	06/27/2010
Previous	665210	05/30/2010
Usage	5,190 Gallons	
Number of Days:	28	
Average Daily Use:	185 Gallons	
Average Daily Cost:	$ 3.03	

Billing History
in dollars



Consumption History
in gallons

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Bill Date	Account Number	Due Date	Please Pay:
07/29/2010	[redacted]	8/23/2010	$ 66.25

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted], LAKE WYLIE, SC, 29710

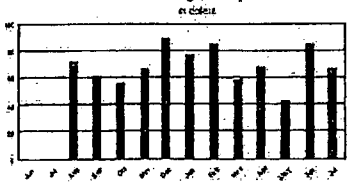
Activity Since Last Bill

Previous Balance	$84.97	
Payments received as of 07/29/2010	$-84.97	
Balance as of 07/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,130 gallons at $2.03 per 1,000 gallons	$6.35	
Water Supply Charge of 3,130 gallons at $0.00341 per gallon	$10.67	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$28.84
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 3,130 gallons	$11.39	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$37.41
Total Amount Due		$66.25

Summary of Service

Meter Reading	Meter #	29037466
Current	673530	07/27/2010
Previous	670400	06/27/2010
Usage	3,130 Gallons	
Number of Days:	30	
Average Daily Use:	104 Gallons	
Average Daily Cost:	$ 2.21	

Billing History



Consumption History

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Bill Date	Account Number	Due Date	Please Pay:
08/30/2010	[redacted]	9/24/2010	$ 77.88

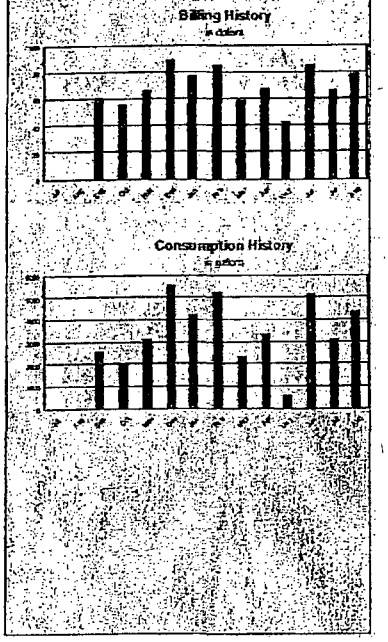
Name [redacted] Primary Telephone [redacted]
Service Address [redacted], LAKE WYLIE, SC, 29710

Activity Since Last Bill

Previous Balance	$66.25	
Payments received as of 08/30/2010	$-66.25	
Balance as of 08/30/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 4,410 gallons at $2.03 per 1,000 gallons	$8.95	
Water Supply Charge of 4,410 gallons at $0.00341 per gallon	$15.04	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$35.81
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 4,410 gallons	$16.05	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$42.07
Total Amount Due		**$77.88**

Summary of Service

Meter Reading	Meter #	29037466
Current	677940	08/29/2010
Previous	673530	07/27/2010
Usage	4,410 Gallons	
Number of Days:	33	
Average Daily Use:	134 Gallons	
Average Daily Cost:	$ 2.36	



A fee of 1.5% per month will be added if unpaid by the due date.
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Messages

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Customer Service: (800) 367-4314
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Bill Date	Account Number	Due Date	Please Pay:
09/29/2010	[redacted]	10/25/2010	$ 61.27

Name [redacted] Primary Telephone #[redacted]

Service Address [redacted], LAKE WYLIE, SC, 29710

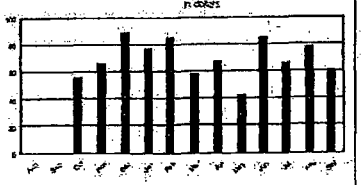
Activity Since Last Bill

Previous Balance	$77.88	
Payments received as of 09/29/2010	$-77.88	
Balance as of 09/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,580 gallons at $2.03 per 1,000 gallons	$5.24	
Water Supply Charge of 2,580 gallons at $0.00341 per gallon	$8.80	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$25.86
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,580 gallons	$9.39	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$35.41
Total Amount Due		$61.27

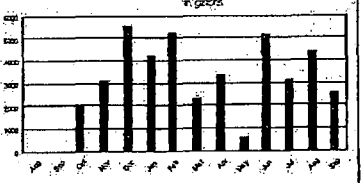
Summary of Service

Meter Reading	Meter # 29037466
Current	680520 09/27/2010
Previous	677940 08/29/2010
Usage	2,580 Gallons
Number of Days:	29
Average Daily Use:	89 Gallons
Average Daily Cost:	$ 2.11

Billing History
in dollars



Consumption History
in gallons



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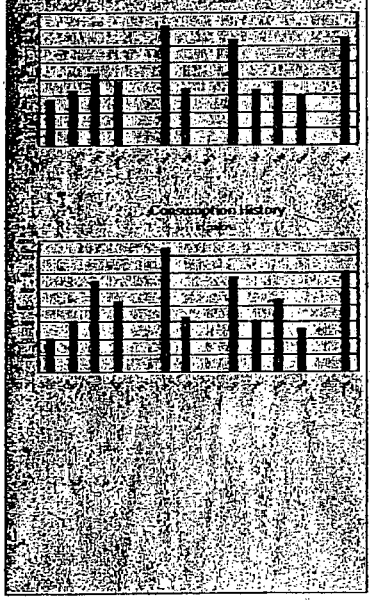
Bill Date	Account Number	Due Date	Please Pay
11/29/2010	[redacted]	12/24/2010	$ 61.21

Name [redacted] Primary Telephone # [redacted]
Service Address [redacted] LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$69.25	
Payments received as of 11/29/2010	$-69.25	
Balance as of 11/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,600 gallons at $2.03 per 1,000 gallons	$5.28	
York County Supply Charge	$8.63	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$25.73
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,600 gallons	$9.46	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$35.48
Total Amount Due		**$61.21**

Summary of Service

Meter Reading	Meter # 29037466
Current	686620 11/29/2010
Previous	684020 10/30/2010
Usage	2,600 Gallons
Number of Days	30
Average Daily Use	87 Gallons
Average Daily Cost	$ 2.04



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We are pleased to announce the launch of our new Web Self-Service site. The site will allow you to obtain current and historical account information. The site may be accessed by going to http://www.uiwater.com/myaccount.

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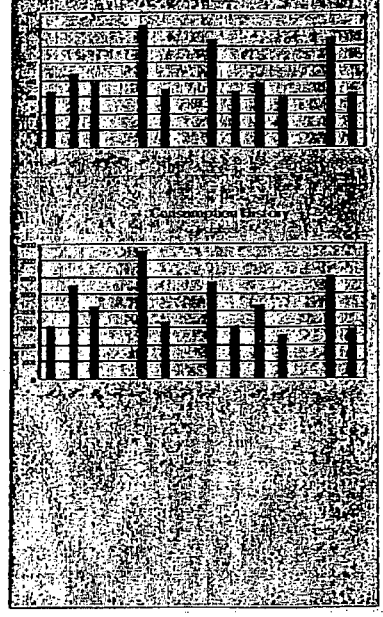
Bill Date	Account Number	Due Date	Please Pay
12/30/2010	[redacted]	1/24/2011	$ 64.07

Name [redacted] Primary Telephone #[redacted]
Service Address [redacted]

Activity Since Last Bill		
Previous Balance	$61.21	
Payments received as of 12/30/2010	$-61.21	
Balance as of 12/30/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,920 gallons at $2.03 per 1,000 gallons	$5.93	
York County Supply Charge	$9.67	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$27.42
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,920 gallons	$10.63	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$36.65
Total Amount Due		**$64.07**

Summary of Service

Meter Reading Meter # 29037466
Current 889540 12/29/2010
Previous 886620 11/29/2010
Usage 2,920 Gallons
Number of Days 30
Average Daily Use 97 Gallons
Average Daily Cost $ 2.14



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Bill Date	Account Number	Due Date	Please Pay
01/30/2011	[redacted]	2/24/2011	$63.08

Name [redacted] Primary Telephone # [redacted]

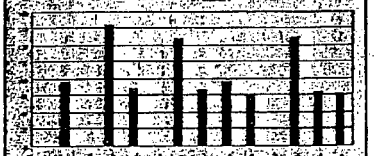
Service Address [redacted]0

Activity Since Last Bill		
Previous Balance	$64.07	
Payments received as of 01/30/2011	$-64.07	
Balance as of 01/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,810 gallons at $2.03 per 1,000 gallons	$5.70	
York County Supply Charge	$9.31	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$26.83
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,810 gallons	$10.23	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$36.25
Total Amount Due		**$63.08**

Summary of Service

Meter Reading	Meter # 29037466	
Current	692350	01/25/2011
Previous	689540	12/29/2010
Usage	2,810 Gallons	
Number of Days	27	
Average Daily Use	104 Gallons	
Average Daily Cost	$2.34	

Billing History



Consumption History

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Bill Date	Account Number	Due Date	Please Pay:
02/28/2011	[redacted]	3/25/2011	$67.11

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted]

Activity Since Last Bill

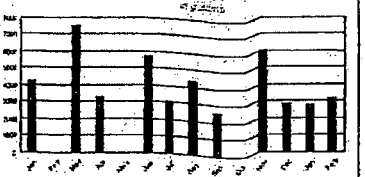
Previous Balance	$63.08	
Payments received as of 02/28/2011	$-63.08	
Balance as of 02/28/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,260 gallons at $2.03 per 1,000 gallons	$6.62	
York County Supply Charge	$10.78	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$29.22
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 3,260 gallons	$11.87	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$37.89
Total Amount Due		$67.11

Summary of Service

Meter Reading	Meter #	29037466
Current	695610	02/27/2011
Previous	692350	01/25/2011
Usage	3,260 Gallons	
Number of Days:	33	
Average Daily Use:	99 Gallons	
Average Daily Cost:	$2.03	

Billing History

Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
03/30/2011	[redacted]	4/25/2011	$63.36

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted]

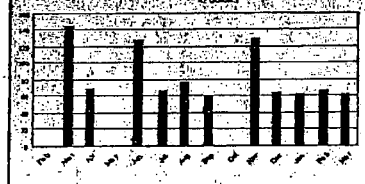
Activity Since Last Bill

Previous Balance	$67.11	
Payments received as of 03/30/2011	$-67.11	
Balance as of 03/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,840 gallons at $2.03 per 1,000 gallons	$5.77	
York County Supply Charge	$9.41	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$27.00
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,840 gallons	$10.34	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$36.36
Total Amount Due		**$63.36**

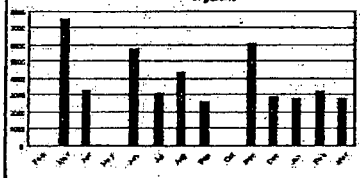
Summary of Service

Meter Reading	Meter # 29037466	
Current	698450	03/28/2011
Previous	695610	02/27/2011
Usage	2,840 Gallons	
Number of Days	29	
Average Daily Use	98 Gallons	
Average Daily Cost	$2.18	

Billing History
in dollars



Consumption History
in gallons



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
04/30/2011	[redacted]	5/25/2011	$71.03

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted]

Activity Since Last Bill

Previous Balance	$63.36	
Payments received as of 04/30/2011	$-63.36	
Balance as of 04/30/2011		$0.00

Residential Purchased Water

Water Distribution Base Charge	$11.09	
Distribution Usage of 3,700 gallons at $2.03 per 1,000 gallons	$7.51	
York County Supply Charge	$12.21	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$31.54

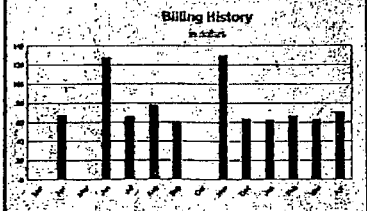
York County Residential Wastewater Treatment

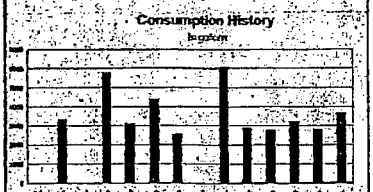
Wastewater Collection	$25.70	
Usage of 3,700 gallons	$13.47	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$39.49

Total Amount Due $71.03

Summary of Service

Meter Reading	Meter #	29037466
Current	702150	04/30/2011
Previous	698450	03/28/2011
Usage	3,700 Gallons	
Number of Days:	33	
Average Daily Use:	112 Gallons	
Average Daily Cost:	$2.15	





A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.®

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
05/31/2011	[redacted]	6/27/2011	$56.56

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted]

Activity Since Last Bill

Previous Balance	$71.03	
Payments received as of 05/31/2011	$-71.03	
Balance as of 05/31/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,080 gallons at $2.03 per 1,000 gallons	$4.22	
York County Base Charge	$0.15	
Water Supply Charge of 2,080 gallons at $0.00326 per gallon	$6.78	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$22.97
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,080 gallons at $3.64 per1000 gallons	$7.57	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$33.59
Total Amount Due		$56.56

Summary of Service

Meter Reading	Meter #	29037466
Current	704230	05/29/2011
Previous	702150	04/30/2011
Usage	2,080 Gallons	
Number of Days:	29	
Average Daily Use:	72 Gallons	
Average Daily Cost:	$1.95	

Billing History

Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

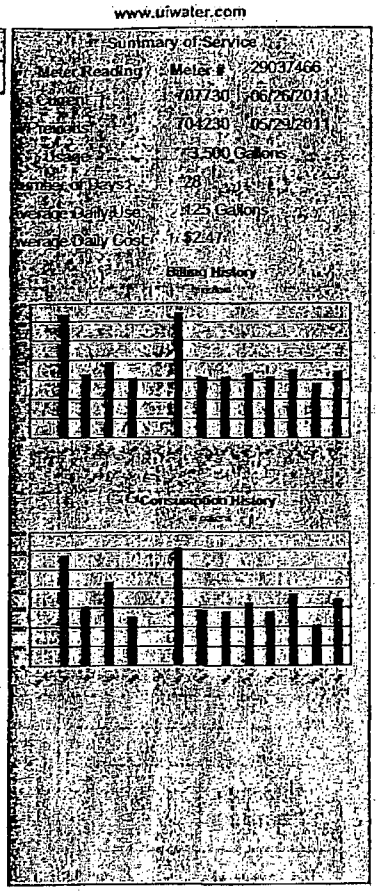
Bill Date	Account Number	Due Date	Please Pay
06/29/2011	[redacted]	7/25/2011	$69.25

Name [redacted] Primary Telephone # [redacted]

Service Address [redacted] LAKE WYLIE, SC, 29710

Activity Since Last Bill

Previous Balance	$56.56	
Payments received as of 06/29/2011	$-56.56	
Balance as of 06/29/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,500 gallons at $2.03 per 1,000 gallons	$7.11	
York County Base Charge	$0.15	
Water Supply Charge of 3,500 gallons at $0.00326 per gallon	$11.41	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$30.49
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 3,500 gallons at $3.64 per1000 gallons	$12.74	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$38.76
Total Amount Due		$69.25



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
07/01/2011		7/26/2011	$61.57

Name JAY F MOORE
Primary Telephone # (803) 831-7346
Service Address 23 TURTLE LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill

Previous Balance	$59.87	
Payments received as of 07/01/2011	$-59.87	
Balance as of 07/01/2011		$0.00

Residential Purchased Water

Water Distribution Base Charge	$11.09	
Distribution Usage of 2,640 gallons at $2.03 per 1,000 gallons	$5.36	
York County Base Charge	$0.15	
Water Supply Charge of 2,640 gallons at $0.00326 per gallon	$8.61	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$25.94

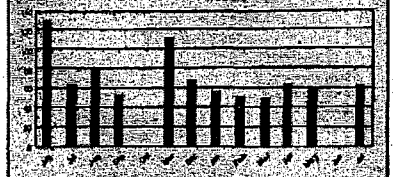
York County Residential Wastewater Treatment

Wastewater Collection	$25.70	
Usage of 2,640 gallons at $3.64 per1000 gallons	$9.61	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$35.63
Total Amount Due		**$61.57**

Summary of Service

Meter Reading	Meter #
Current	524510 06/28/2011
Previous	521870 05/29/2011
Usage	2,640 Gallons
Number of Days:	28
Average Daily Use:	94 Gallons
Average Daily Cost:	$2.20

Billing History
in gallons



Consumption History
in gallons

READ METER AT 523,000
Called Mindy W/- will check meter + send for Labor Tues 7/5 - Dont bill
Mail the 5th week
Tues 7/12 - Dont charge for Gone to Mtr. 523000 - Moving meter
was Read wrong. Bill will Arrive to night I say a new meter - check bill.

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing.
The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 7/26/2011
Please Pay: **$61.57**

Amount Paid
AUTOPAY

UTI0705A AUTO SCH 3-DIGIT 280
7000001779 01.0007.0349 1779/1

JAY F MOORE
23 TURTLE LN
LAKE WYLIE SC 29710-8934

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

EXHIBIT
17
2011-47-WS

Utilities, Inc.

Late-filed portion of exhibit - this page

Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
07/31/2011		8/25/2011	$101.34

Name **JAY F MOORE** Primary Telephone # **(803) 831-7346**

Service Address *23 TURTLE LN, LAKE WYLIE, SC, 29710*

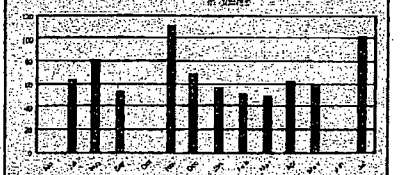
Activity Since Last Bill

Previous Balance	$61.57	
Payments received as of 07/31/2011	$0.00	
Balance as of 07/31/2011		$61.57
Adjustments		
Bill Corrections		$-17.33
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 2,140 gallons at $2.03 per 1,000 gallons	$4.34	
York County Base Charge	$0.15	
Water Supply Charge of 2,140 gallons at $0.00326 per gallon	$6.98	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$23.29
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 2,140 gallons at $3.64 per1000 gallons	$7.79	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$33.81
Total Amount Due		**$101.34**

Summary of Service

Meter Reading	Meter #	
Current	524710	07/24/2011
Previous	522570	06/26/2011
Usage	2,140 Gallons	
Number of Days:	28	
Average Daily Use:	76 Gallons	
Average Daily Cost:	$2.04	

Billing History



Consumption History

RECEIVED
AUG 12 2011
PSC
CLERK'S OFFICE

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Our records indicate the prior balance remains unpaid and your account may be subject to disconnection. Please note the due date on this bill refers to the current bill amount and does not extend the time allowed for payment of the prior balance.
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 8/25/2011
Please Pay: **$101.34**

Amount Paid
AUTOPAY

UTI0801C AUTO 5-DIGIT 29710
7000002986 01.0011.0348 2986/1

JAY F MOORE
23 TURTLE LN
LAKE WYLIE SC 29710-8934

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349
[1/1]

Let me first say to Mr. Elliott that in response to your having representatives here to listen to complaints we all would have benefited if they would actually respond to complaints that come into their office on a daily basis.

An irrigation / separate meter isn't allowed as u don't pay sewer. Nor will they allow a well which can cause water make problems to develop to not have wells

Abigail M. Myers
403 Terrapin Ln.
Lake Wylie, SC 29710
803-831-8065
704-913-7138

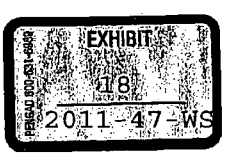
Tuesday, Nov. 18, 2008

To Tom Smith: I do have a husband and 2 sons and instead of choosing a movie as family, this actually took priority to be heard tonight!

I would like to start on a good note and hope that you are doing well. As I hate my frustration has come to this I must share it with you regarding *Utilities Inc.* also known as *Carolina Water* previously.

I do hope this letter will help in addressing the ongoing problem with this company.

In the 2 years I have lived in Carolina Coves I have experienced the most difficult company to talk to, work with, or get any customer service out of. I requested 3 different times that my meter be tested to make sure it was working properly as my water usage was unreal. In the month that I first filled my pool, I used a total of 23000 gallons of water, totally understandable. However, in the 2 months following I used a lot less. Then I got a bill for 80,000 gallons, 120,000 gallons and so on. When I called to discuss this I was told "I could go to the local church in my area, probably River Hills, and they had funds set aside for people who couldn't pay their bills." I was appalled! I told them that that was not a solution to the problem of my water usage and it was not their place to recommend people to go to the church to pay their bills, that money was set aside for people who had lost jobs, etc. and were struggling, not to pay astronomical water bills. I was told that someone had to check for leaks, if none were found they couldn't test the meter. If the meter was tested I had to pay the fee if nothing was found to be wrong. What kind of service is this? Someone came out and found no leaks. However, my landscaper noticed the side of my house was a mud hole. There was a huge leak as the main water line had been cut by Bell South or the people they contract out. The main line had to be fixed and reburied as it was only buried 1 ¼ " below the surface. The builder took care of this as this was their mistake. However NO one would take care of the water bills. I wanted to know how it passed inspection, but that's done and it's been fixed. However, I am still receiving bills sometimes none one month and two(2) the next. *Utilities, Inc.* say that they forgot to send the bills one month and then send an adjusted amount with no explanation. When I call to get an explanation, I'm told it's on a variable rate every month and they have to see what they are charged first. Then they send a bill and if not correct, they send the adjusted amount. Another reason I've been given for my most recent bill for



September was that I used the same amount this time last year. I told Vivian that I also had several cuts in my main water line that her techs could not find which was the reason for the major leaks or did they just look at what you were charged the same month the previous year and decide that is what they would bill out. Her response to that is even better: Well most people are in a pattern and tend to use the same amounts the same time of year! I told her that sounded like a trained response to a question and problem that a lot of customers are asking.

These and more (too many to share today) are the most absurd excuses for billing I have ever experienced. I'm also told that the Customer Service Rep. can't explain the billing she just works there and has to listen to complaints all day. Still not a good answer.

What in the world can we do about this as a community that has fallen victim to a greedy, unfair, and rude water company.

It bothers me that a company we all need and depend on can be so careless and helpless to their customers, but quick to ruin a community that we all love.

To close the letter on a postive note, I am pleased with our decision to move to the Lake Wylie /Clover area. The schools are Top Notch and my husband and I could not be any happier with the school system.

Sincerely,

Missy Myers

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
12/31/2009	[redacted]	1/21/2010	$ 45.43

Name **MISSY MYERS** Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

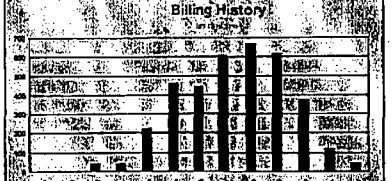
Activity Since Last Bill

Previous Balance	$123.38	
Payments received as of 12/31/2009	$-123.38	
Balance as of 12/31/2009		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 6,160 gallons at $2.03 per 1,000 gallons	$12.50	
Water Supply Charge of 6,160 gallons at $0.00341 per gallon	$21.01	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$45.43
Total Amount Due		$45.43

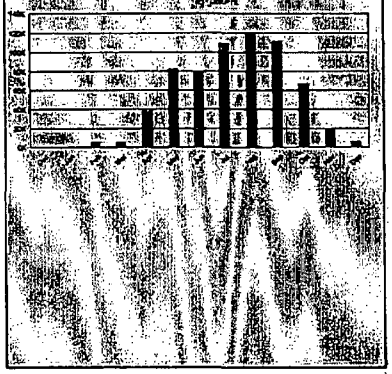
Summary of Service

Meter Reading	Meter #	
Current	1509320	12/28/2009
Previous	1503160	11/29/2009
Usage	6,160 Gallons	
Number of Days:	29	
Average Daily Use:	212 Gallons	
Average Daily Cost:	$ 1.57	

Billing History



Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO Box 4509
West Columbia SC 29171-4509

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

1/21/10
Elect.

Account Number: [redacted]

~~1/21/2010~~
Please Pay $ 45.43
$45.43

Amount Paid

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

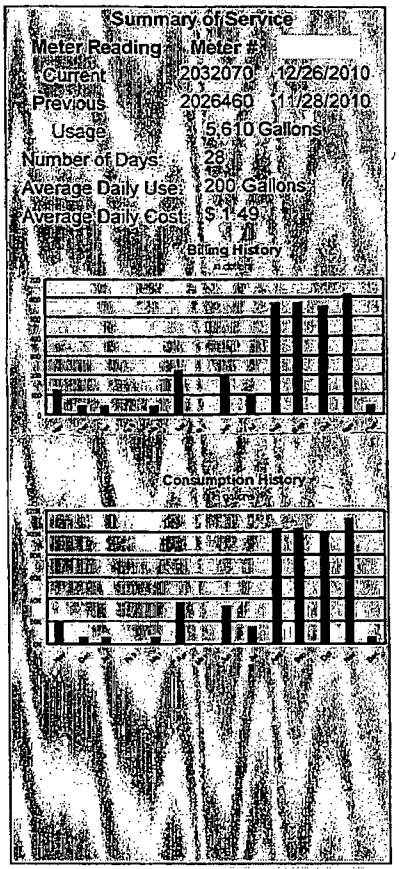
Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
12/30/2010		1/24/2011	$ 31.11

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$88.14	
Payments received as of 12/30/2010	$-100.00	
Balance as of 12/30/2010		$-11.86
Adjustments		
Late Payment Charge		$1.32
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,610 gallons at $2.03 per 1,000 gallons	$11.39	
York County Supply Charge	$18.44	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$41.65
Total Amount Due		**$31.11**



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Messages
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Utilities, Inc.
PO BOX 160609
Altamonte Springs, FL 32716

Account Number: 3
Due Date: 1/24/2011
Please Pay: $31.11

Amount Paid

1/20/11
1101130646

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

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Utilities, Inc.®

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.ulwater.com

Bill Date	Account Number	Due Date	Please Pay:
01/31/2010		2/22/2010	$ 31.26

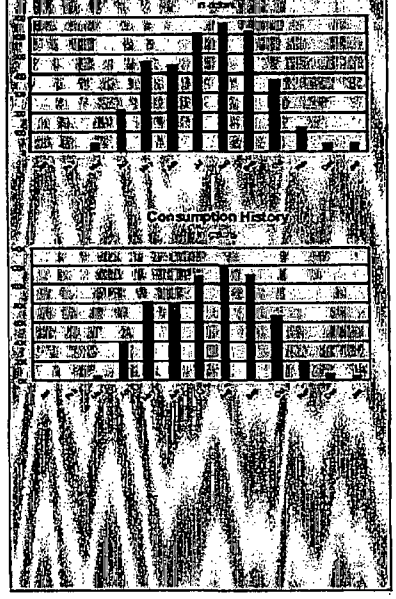
Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$45.43	
Payments received as of 01/31/2010	$-55.43	
Balance as of 01/31/2010		$-10.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,410 gallons at $2.03 per 1,000 gallons	$10.98	
Water Supply Charge of 5,410 gallons at $0.00341 per gallon	$18.45	
SC DHEC Fee	$0.08	
SC DHEC Fee	$0.66	
Total Residential Purchased Water		$41.26
Total Amount Due		**$31.26**

Summary of Service

Meter Reading	Meter #	
Current	514730	01/28/2010
Previous	509320	12/28/2009
Usage	5,410 Gallons	
Number of Days	31	
Average Daily Use	175 Gallons	
Average Daily Cost	$1.33	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 2/22/2010
Please Pay: $ 31.26
Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
01/30/2011		2/24/2011	$47.41

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**

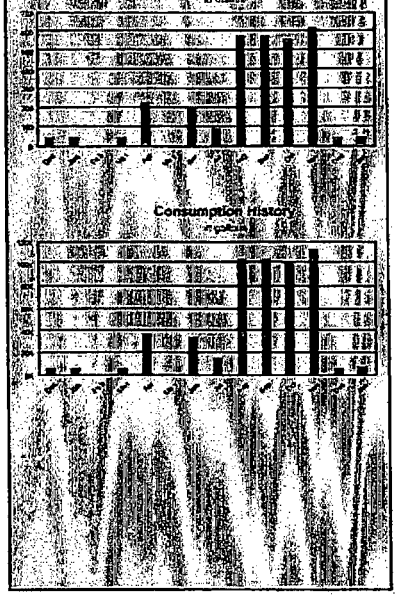
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$31.11	
Payments received as of 01/30/2011	$-31.11	
Balance as of 01/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 6,700 gallons at $2.03 per 1,000 gallons	$13.60	
York County Supply Charge	$21.99	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$47.41
Total Amount Due		**$47.41**

Summary of Service

Meter Reading	Meter #	
Current	2038770	01/28/2011
Previous	2032070	12/26/2010
Usage	6,700 Gallons	
Number of Days:	33	
Average Daily Use:	203 Gallons	
Average Daily Cost:	$1.44	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 2/24/2011
Please Pay: **$47.41**

Amount Paid
50.00 2/15/11

UTI0131A AUTO 5-DIGIT 29710
7000007177 01.0025.0225 7177/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349
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Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
03/01/2010		3/22/2010	$ 46.56

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

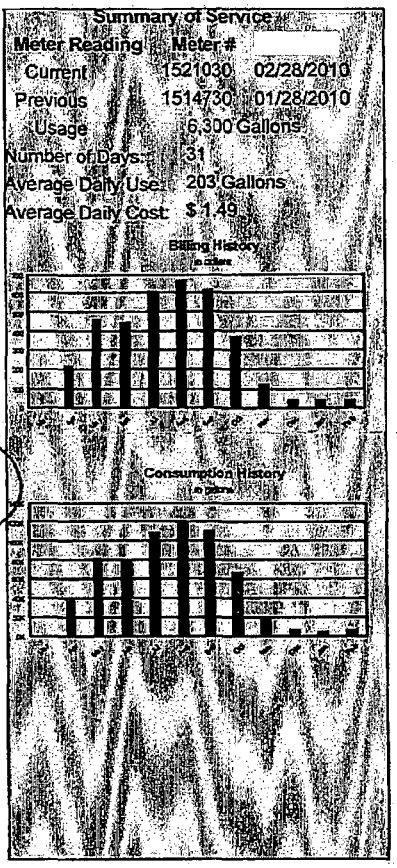
Activity Since Last Bill

Previous Balance	$31.26	
Payments received as of 03/01/2010	$-31.26	
Balance as of 03/01/2010		$0.00
Adjustments		
Late Payment Charge on 02/23/2010		$0.47
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 6,300 gallons at $2.03 per 1,000 gallons	$12.79	
Water Supply Charge of 6,300 gallons at $0.00341 per gallon	$21.48	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$46.09
Total Amount Due		$46.56

3/9/10
$46.56

Summary of Service

Meter Reading	Meter #	
Current	1521030	02/28/2010
Previous	1514730	01/28/2010
Usage	6,300 Gallons	
Number of Days:	31	
Average Daily Use:	203 Gallons	
Average Daily Cost:	$1.49	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 3/22/2010
Please Pay: **$ 46.56**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
02/28/2011		3/25/2011	$38.48

Name MISSY MYERS
Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$47.41	
Payments received as of 02/28/2011	$-50.00	
Balance as of 02/28/2011		$-2.59
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,500 gallons at $2.03 per 1,000 gallons	$11.17	
York County Supply Charge	$18.08	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$41.07
Total Amount Due		**$38.48**

#40.
3/15/11

Summary of Service

	Meter Reading	Meter #
Current	2044270	02/26/2011
Previous	2038770	01/28/2011
Usage	5,500 Gallons	
Number of Days	29	
Average Daily Use	190 Gallons	
Average Daily Cost	$1.42	

Billing History

Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
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Utilities, Inc.
PO Box 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 3/25/2011
Please Pay: **$38.48**

Amount Paid

UTI0301A AUTO 5-DIGIT 29710
7000007360 01.0026.0137 7360/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349
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Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
04/01/2010		4/22/2010	$ 36.85

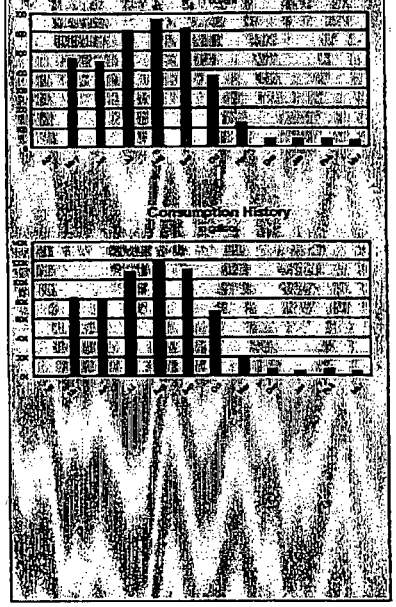
Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$46.56	
Payments received as of 04/01/2010	$-46.56	
Balance as of 04/01/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 4,600 gallons at $2.03 per 1,000 gallons	$9.34	
Water Supply Charge of 4,600 gallons at $0.00341 per gallon	$15.69	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$36.85
Total Amount Due		**$36.85**

Summary of Service

Meter Reading	Meter #	
Current	1525630	03/27/2010
Previous	1521030	02/28/2010
Usage	4,600 Gallons	
Number of Days:	27	
Average Daily Use:	170 Gallons	
Average Daily Cost:	$1.36	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 4/22/2010
Please Pay: **$ 36.85**

Amount Paid
50.00

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC 4/12/10
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
03/30/2011		4/25/2011	$45.16

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

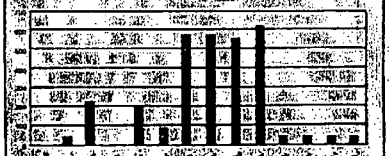
Activity Since Last Bill

Previous Balance	$38.48	
Payments received as of 03/30/2011	$-40.00	
Balance as of 03/30/2011		$-1.52
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 6,560 gallons at $2.03 per 1,000 gallons	$13.32	
York County Supply Charge	$21.54	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$46.68
Total Amount Due		**$45.16**

Summary of Service

Meter Reading	Meter #	
Current	2050830	03/29/2011
Previous	2044270	02/26/2011
Usage	6,560 Gallons	
Number of Days	31	
Average Daily Use	212 Gallons	
Average Daily Cost	$1.51	

Billing History



Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl

Account Number:
Due Date: 4/25/2011
Please Pay: **$45.16**

Amount Paid

$50.00
4/22/11

UTI0331C AUTO 5-DIGIT 29710
70000C1925 01.0003.0140 1925/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349
[1/1]

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
04/29/2010		5/24/2010	$ 167.67

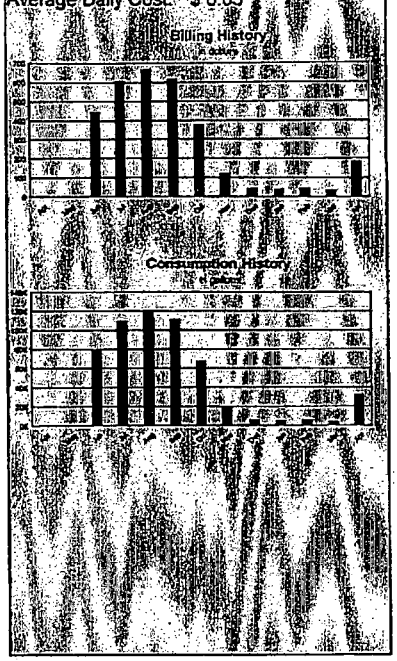
Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**

Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$36.85	
Payments received as of 04/29/2010	$-50.00	
Balance as of 04/29/2010		$-13.15
Adjustments		
Base Charge Adjustment for Prorated 2008 Billing		$-6.66
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 32,290 gallons at $2.03 per 1,000 gallons	$65.55	
Water Supply Charge of 32,290 gallons at $0.00341 per gallon	$110.11	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$187.48
Total Amount Due		**$167.67**

Summary of Service

Meter Reading	Meter #	
Current	1557920	04/27/2010
Previous	1525630	03/27/2010
Usage	32,290 Gallons	
Number of Days:	31	
Average Daily Use:	1,042 Gallons	
Average Daily Cost:	$ 6.05	



5/20/10
$167.67

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 5/24/2010
Please Pay: **$ 167.67**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
04/30/2011		5/25/2011	$165.94

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

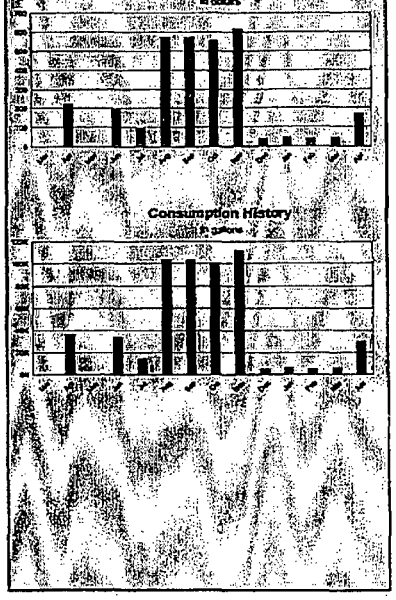
Activity Since Last Bill		
Previous Balance	$45.16	
Payments received as of 04/30/2011	$-50.00	
Balance as of 04/30/2011		$-4.84
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 30,020 gallons at $2.03 per 1,000 gallons	$60.94	
York County Supply Charge	$98.02	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$170.78
Total Amount Due		$165.94

$170.78

5/24/11

Summary of Service

Meter Reading	Meter #	
Current	2080850	04/30/2011
Previous	2050830	03/29/2011
Usage	30,020 Gallons	
Number of Days:	32	
Average Daily Use:	938 Gallons	
Average Daily Cost:	$5.34	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
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Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 5/25/2011
Please Pay: **$165.94**

Amount Paid

UTI0502B AUTO 5-DIGIT 29710
7000001337 01.0005.0135 1337/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349
[1/1]

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
06/02/2010	[illegible]	6/28/2010	$ 196.73

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

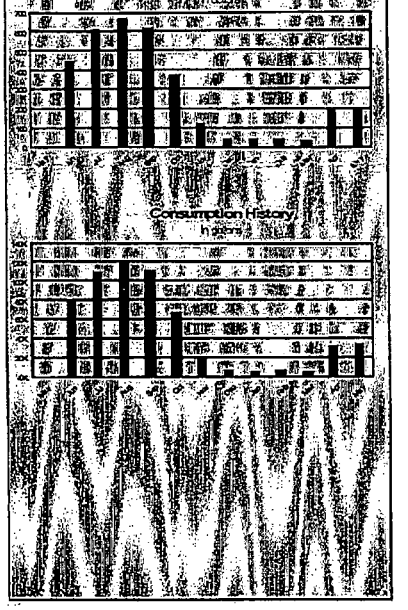
Previous Balance	$167.67	
Payments received as of 06/02/2010	$-167.67	
Balance as of 06/02/2010		$0.00

Residential Purchased Water

Water Distribution Base Charge	$11.09	
Distribution Usage of 33,990 gallons at $2.03 per 1,000 gallons	$69.00	
Water Supply Charge of 33,990 gallons at $0.00341 per gallon	$115.91	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$196.73
Total Amount Due		**$196.73**

Summary of Service

Meter Reading	Meter #	
Current	1591910	05/30/2010
Previous	1557920	04/27/2010
Usage	33,990 Gallons	
Number of Days:	33	
Average Daily Use:	1,030 Gallons	
Average Daily Cost:	$ 5.96	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 6/28/2010
Please Pay: **$ 196.73**

Amount Paid 6/24
196.73

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
05/31/2011		6/27/2011	$320.18

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**

Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

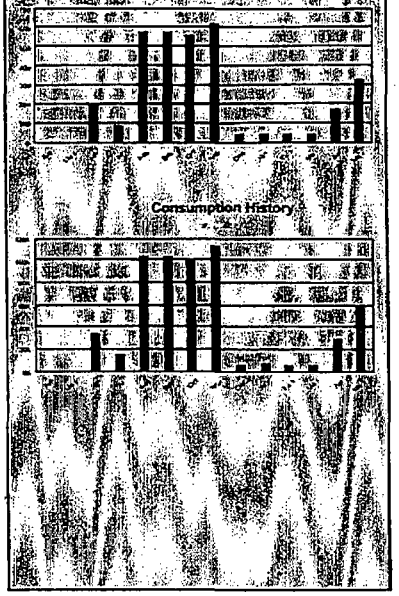
Activity Since Last Bill

Previous Balance	$165.94	
Payments received as of 05/31/2011	$-170.00	
Balance as of 05/31/2011		$-4.06
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 59,030 gallons at $2.03 per 1,000 gallons	$119.83	
York County Base Charge	$0.15	
Water Supply Charge of 59,030 gallons at $0.00326 per gallon	$192.44	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$324.24
Total Amount Due		**$320.18**

Summary of Service

Meter Reading	Meter #
Current	2139880 05/29/2011
Previous	2080850 - 04/30/2011
Usage	59,030 Gallons
Number of Days:	29
Average Daily Use:	2,036 Gallons
Average Daily Cost:	$11.18

Billing History



Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing.
The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

$400. 6/27/11

Account Number:
Due Date: 6/27/2011
Please Pay: **$320.18**

Amount Paid

UTI0602C
2000002934 1144/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349
[1/2]

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

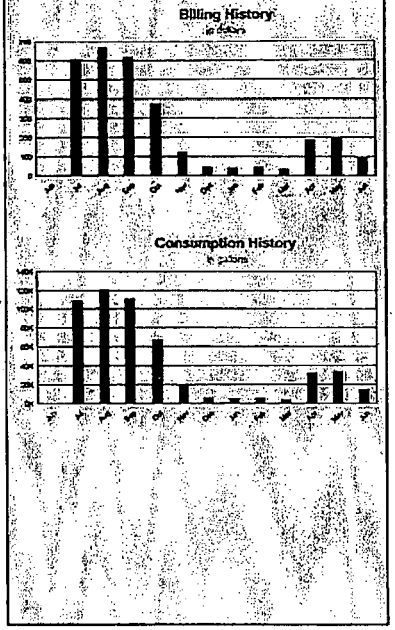
Bill Date	Account Number	Due Date	Please Pay
07/02/2010		7/27/2010	$ 92.27

Name **MISSY MYERS** Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$196.73	
Payments received as of 07/02/2010	$-196.73	
Balance as of 07/02/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 14,790 gallons at $2.03 per 1,000 gallons	$30.02	
Water Supply Charge of 14,790 gallons at $0.00341 per gallon	$50.43	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$92.27
Total Amount Due		$92.27

Summary of Service

	Meter Reading	Meter #
Current	1606700	05/28/2010
Previous	1591910	05/30/2010
Usage	14,790 Gallons	
Number of Days:	29	
Average Daily Use:	510 Gallons	
Average Daily Cost:	$ 3.18	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO BOX 160609
Altamonte Springs, FL 32716

7/23/10
$100.00

Account Number:
Due Date: 7/27/2010
Please Pay: **$ 92.27**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

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349

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
06/29/2011		7/25/2011	$306.63

Name MISSY MYERS Primary Telephone # (803) 831-8065

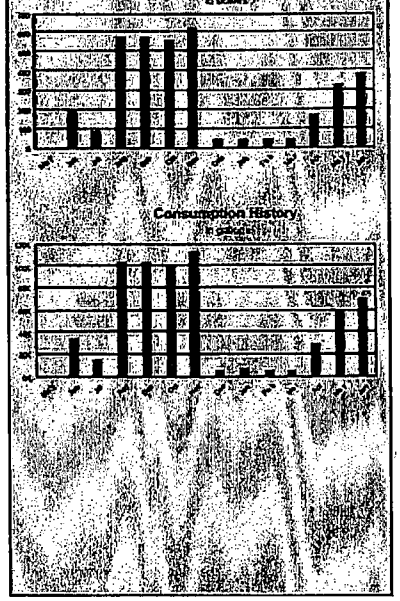
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$320.18	
Payments received as of 06/29/2011	$-400.00	
Balance as of 06/29/2011		$-79.82
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 70,790 gallons at $2.03 per 1,000 gallons	$143.70	
York County Base Charge	$0.15	
Water Supply Charge of 70,790 gallons at $0.00326 per gallon	$230.78	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$386.45
Total Amount Due		**$306.63**

Summary of Service

Meter Reading	Meter #	
Current	2210670	06/25/2011
Previous	2139880	05/29/2011
Usage	70,790 Gallons	
Number of Days:	27	
Average Daily Use:	2,622 Gallons	
Average Daily Cost:	$14.31	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing.
The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

2/21/11
306.63

Account Number:
Due Date: 7/25/2011
Please Pay: $306.63

Amount Paid

UTI0630A AUTO 5-DIGIT 29710
7000001973 01.0009.0030 1973/1

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710-0015

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

Utilities, Inc.

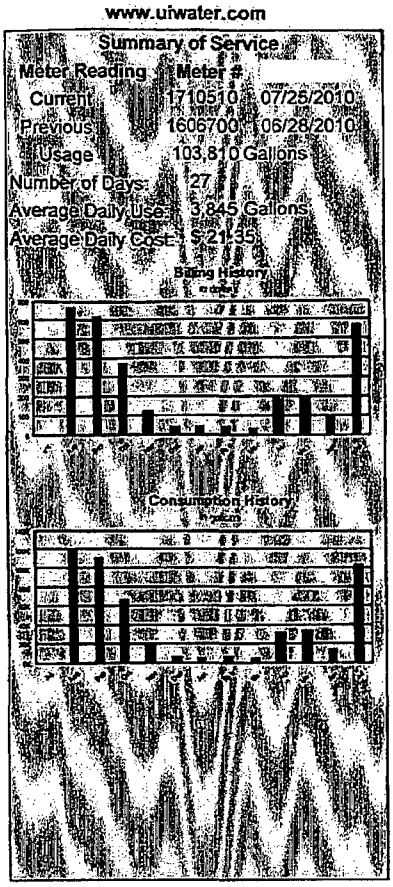
Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
08/03/2010		8/30/2010	$ 568.81

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$92.27	
Payments received as of 08/03/2010	$-100.00	
Balance as of 08/03/2010		$-7.73
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 103,810 gallons at $2.03 per 1,000 gallons	$210.73	
Water Supply Charge of 103,810 gallons at $0.00341 per gallon	$353.99	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$576.54
Total Amount Due		**$568.81**



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO BOX 160609
Altamonte Springs, FL 32716

Account Number:
Due Date: 8/30/2010
Please Pay: **$ 568.81**

Amount Paid

8/27/10
PD

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

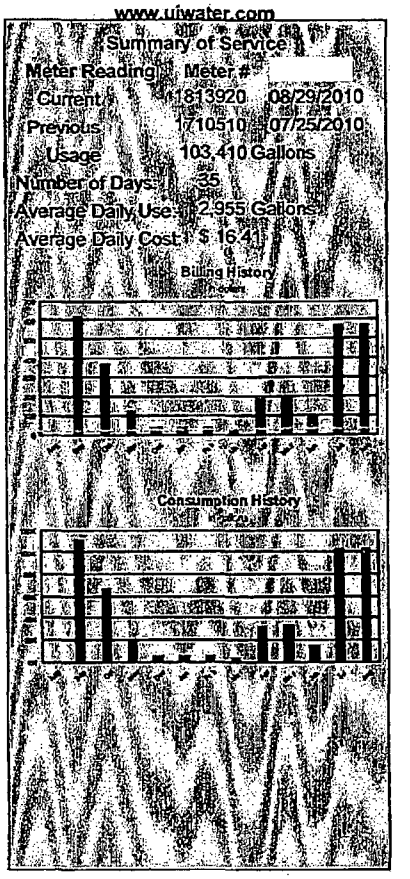
Bill Date	Account Number	Due Date	Please Pay
09/01/2010		9/27/2010	$ 573.18

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**

Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$568.81	
Payments received as of 09/01/2010	$-570.00	
Balance as of 09/01/2010		$-1.19
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 103,410 gallons at $2.03 per 1,000 gallons	$209.92	
Water Supply Charge of 103,410 gallons at $0.00341 per gallon	$352.63	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$574.37
Total Amount Due		**$573.18**



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO BOX 160609
Altamonte Springs, FL 32716

Account Number:
Due Date: 9/27/2010
Please Pay: **$ 573.18**

Amount Paid
573.18

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.®

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
10/01/2010	[illegible]	10/26/2010	$ 557.34

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

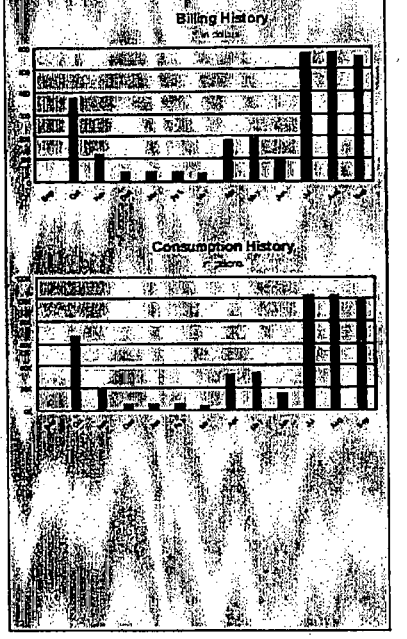
Activity Since Last Bill

Previous Balance	$573.18	
Payments received as of 10/01/2010	$-573.18	
Balance as of 10/01/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 100,280 gallons at $2.03 per 1,000 gallons	$203.57	
Water Supply Charge of 100,280 gallons at $0.00341 per gallon	$341.95	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$557.34
Total Amount Due		$557.34

10/21/10

Summary of Service

Meter Reading	Meter #	
Current	1914200	09/29/2010
Previous	1813920	08/29/2010
Usage	100,280 Gallons	
Number of Days	31	
Average Daily Use	3,235 Gallons	
Average Daily Cost	$ 17.98	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO BOX 160609
Altamonte Springs, FL 32716

Account Number:
Due Date: 10/26/2010
Please Pay: **$ 557.34**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
11/03/2010		11/29/2010	$ 529.65

Name **MISSY MYERS** Primary Telephone # **(803) 831-8065**

Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

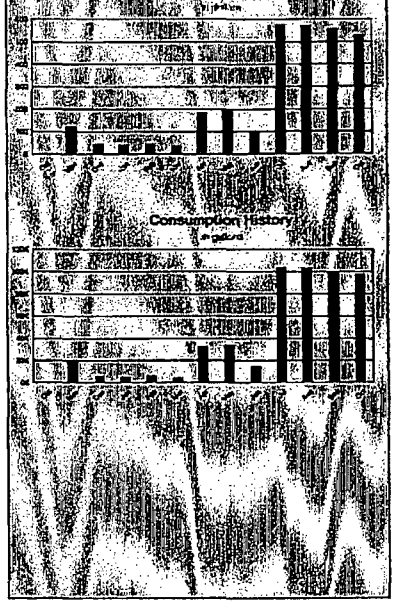
Activity Since Last Bill

Previous Balance	$557.34	
Payments received as of 11/03/2010	$-557.34	
Balance as of 11/03/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 97,860 gallons at $2.03 per 1,000 gallons	$198.66	
York County Supply Charge	$319.17	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$529.65
Total Amount Due		$529.65

11-24-10

Summary of Service

Meter Reading	Meter #	
Current	2012060	10/31/2010
Previous	1914200	09/29/2010
Usage	97,860 Gallons	
Number of Days	32	
Average Daily Use	3,058 Gallons	
Average Daily Cost	$ 16.55	



A fee of 1.5% per month will be added if unpaid by the due date.
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Messages
We are pleased to announce the launch of our new Web Self-Service site. The site will allow you to obtain current and historical account information. The site may be accessed by going to http://www.uiwater.com/myaccount.

349

Utilities, Inc.

PO BOX 160609
Altamonte Springs, FL 32716

Account Number:
Due Date: 11/29/2010
Please Pay: **$ 529.65**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Utilities, Inc.®

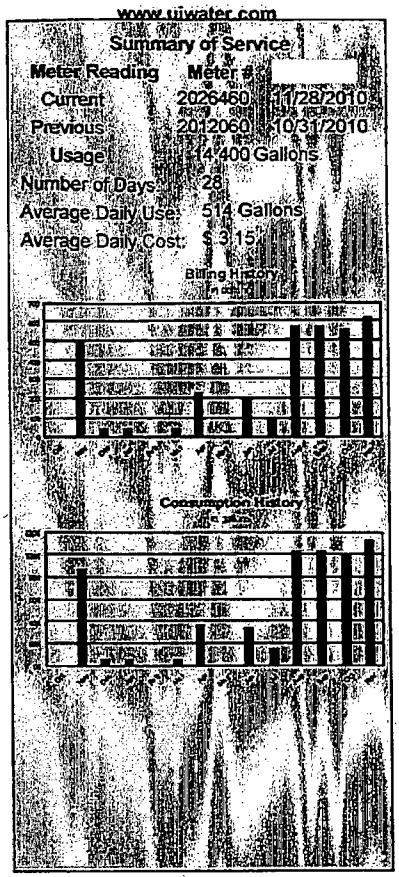
Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
11/29/2010		12/24/2010	$ 88.14

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$529.65	
Payments received as of 11/29/2010	$-529.65	
Balance as of 11/29/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 14,400 gallons at $2.03 per 1,000 gallons	$29.23	
York County Supply Charge	$47.09	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$88.14
Total Amount Due		**$88.14**



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Utilities, Inc.

PO BOX 160609
Altamonte Springs, FL 32716

$100.00
12/23/10

Account Number:
Due Date: 12/24/2010
Please Pay: **$ 88.14**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

349

Late-filed continuation of
Hearing Exhibit 18

From: missy myers [mailto:missy403@gmail.com]
Sent: Thursday, August 11, 2011 4:49 PM
To: Wheat, Jo
Subject: Carolina Water bills for Abigial "Missy" Myers

Hello Mrs. Wheat,

I hope you are doing well.

I have attached my water bills for 2007-2009 for your records and I would like for them to be entered with the ones I gave you at the hearing for Utilities Inc. on August 4th, 2011 at River Hills Community Church. As you will see, I'm paying more for water per year than my property taxes, which are right at $3000.00/yr., My water is more than my electric bills. If I actually could use the stated amounts I'm being charged for, I would live in a river by now. There isn't an ounce of doubt that I have been being overcharged tremendously, on a regular basis. I do hope these will help with the decision in saying NO to any increase for this company. If you have any questions, please feel free to call or email me anytime. Thank you again for hearing my complaints and for your dedicated time and efforts.

Sincerely,

Missy Myers
704-913-7138 cell
missy@csmotorsportsnc.com
missy403@gmail.com

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information			Description of Charges	
Account #			PRIOR BALANCE	$0.00
Service Addr.	403 TERRAPIN LN		WATER BASE/DISTRBUT'N CHG	$12.34
Bill Date	12/12/06 Due Date 01/06/07		COUNTY WATER SUPPLY CHG	$3.59
			SC DHEC FEE	$0.83
Prior Read	11/17/06	29340	ACCT SET UP CHG	$13.50
Current Read	11/30/06	30440	COUNTY WATER BASE CHARGE	$0.16
Usage		1100		
# of days this period		13		
Average daily usage		85		
Average daily water cost		$1.01		
Average daily sewer cost		$0.00		
Last Payment				

Ck ... $30.42 1/2/07

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $30.42

********** IMPORTANT CUSTOMER INFORMATION **********

PLEASE BE ADVISED OF THE PHONE NUMBERS TO OUR CUSTOMER SERVICE DEPARTMENT:
800-367-4314 OR 803-796-9545.
OUR OFFICE IS OPEN MONDAY THROUGH FRIDAY FROM 8:30 A.M. TO 5:00 P.M.

****

IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE AND ARE NOT FULLY SATISFIED WITH OUR RESPONSE, YOU MAY CONTACT THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS:

STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF
PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

****

TO PAY BY CREDIT OR DEBIT CARD, CALL 1-877-527-7852. PAYMENTS MADE ON VISA DEBIT/CREDIT CARDS WILL BE PROCESSED AS A DEBIT CARD. TO PAY OVER THE INTERNET, ACCESS PAYBYINTERNET.COM. TO PAY OVER THE INTERNET, YOU MUST INDICATE THAT YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES INC. A CONVENIENCE FEE WILL BE CHARGED FOR DEBIT/CREDIT AND INTERNET PAYMENTS.

********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information		
Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	01/12/07 Due Date	02/06/07
Prior Read	11/30/06	30440
Current Read	12/26/06	38940
Usage		8500
# of days this period		26
Average daily usage		327
Average daily water cost		$1.05
Average daily sewer cost		$0.00
Last Payment	01/05/07	$30.42

Description of Charges	
PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$26.40
COUNTY WATER SUPPLY CHG	$27.71
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.16

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $55.10

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********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	02/12/07 Due Date	03/09/07
Prior Read	12/26/06	38940
Current Read	01/31/07	48250
Usage		9310
# of days this period		36
Average daily usage		259
Average daily water cost		$0.80
Average daily sewer cost		$0.00
Last Payment	01/23/07	$55.10

Description of Charges

PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$27.94
COUNTY WATER SUPPLY CHG	$30.35
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.16

$110.00 2/5/07 #

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $59.28

********** IMPORTANT CUSTOMER INFORMATION **********

PLEASE BE ADVISED OF THE PHONE NUMBERS TO OUR CUSTOMER SERVICE DEPARTMENT:
800-367-4314 OR 803-796-9545.
OUR OFFICE IS OPEN MONDAY THROUGH FRIDAY FROM 8:30 A.M. TO 5:00 P.M.

****

IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE AND ARE NOT FULLY SATISFIED WITH OUR RESPONSE, YOU MAY CONTACT THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS:

STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF
PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

****

TO PAY BY CREDIT OR DEBIT CARD, CALL 1-877-527-7852. PAYMENTS MADE ON VISA DEBIT/CREDIT CARDS WILL BE PROCESSED AS A DEBIT CARD. TO PAY OVER THE INTERNET, ACCESS PAYBYINTERNET.COM. TO PAY OVER THE INTERNET, YOU MUST INDICATE THAT YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES INC. A CONVENIENCE FEE WILL BE CHARGED FOR DEBIT/CREDIT AND INTERNET PAYMENTS.

********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 04/07/07 Amount Paid
Please Pay Credit Balance $_____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (704) 822-9729

To insure proper credit, return this portion. Please do not staple, clip, or tape.

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #
Service Addr. 403 TERRAPIN LN
Bill Date 03/13/07 Due Date 04/07/07

Prior Read	01/31/07	48250
Current Read	03/02/07	53780
Usage		5530
# of days this period		30
Average daily usage		184
Average daily water cost		$0.72
Average daily sewer cost		$0.00
Last Payment	03/07/07	$110.00

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE.

Description of Charges

PRIOR BALANCE	$-50.72
WATER BASE/DISTRBUT'N CHG	$20.76
COUNTY WATER SUPPLY CHG	$18.03
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.16
Credit Balance DO NOT PAY	$-10.94

********** IMPORTANT CUSTOMER INFORMATION **********
PLEASE BE ADVISED OF THE PHONE NUMBERS TO OUR CUSTOMER SERVICE DEPARTMENT:
800-367-4314 OR 803-796-9545.
OUR OFFICE IS OPEN MONDAY THROUGH FRIDAY FROM 8:30 A.M. TO 5:00 P.M.

IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE AND ARE NOT FULLY SATISFIED WITH OUR RESPONSE, YOU MAY CONTACT THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS:

STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF
PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

TO PAY BY CREDIT OR DEBIT CARD, CALL 1-877-527-7852. PAYMENTS MADE ON VISA DEBIT/CREDIT CARDS WILL BE PROCESSED AS A DEBIT CARD. TO PAY OVER THE INTERNET, ACCESS PAYBYINTERNET.COM. TO PAY OVER THE INTERNET, YOU MUST INDICATE THAT YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES INC. A CONVENIENCE FEE WILL BE CHARGED FOR DEBIT/CREDIT AND INTERNET PAYMENTS.
********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information			Description of Charges	
Account #			PRIOR BALANCE	$-10.94
Service Addr.	403 TERRAPIN LN		WATER BASE/DISTRBUT'N CHG	$39.40
Bill Date	04/11/07 Due Date	05/06/07	COUNTY WATER SUPPLY CHG	$50.01
			SC DHEC FEE	$0.83
Prior Read	03/02/07	53780	COUNTY WATER BASE CHARGE	$0.16
Current Read	03/30/07	69120		
Usage		15340		
# of days this period		28		
Average daily usage		548		
Average daily water cost		$1.44		
Average daily sewer cost		$0.00		
Last Payment				

$160.00
4/18/07
#

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $79.46

********** IMPORTANT CUSTOMER INFORMATION **********
THIS BILL REFLECTS THE INCREASE IN RATES RESULTING FROM THE COMPANY'S APPEAL IN DOCKET NO. 2004-357-WS. **********
********IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE, ********
AND ARE NOT SATISFIED WITH OUR RESPONSE, YOU MAY CALL THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS: STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF P.O. BOX 11263, COLUMBIA, SOUTH CAROLINA 29211
****

WE CAN DRAFT YOUR PAYMENT FROM YOUR SAVINGS OR CHECKING ACCOUNT FREE OF CHARGE. FOR DETAILS, CALL OUR OFFICE AT 803-796-9545 OR 800-367-4314.

TO PAY BY CREDIT/DEBIT CARD (VISA & MASTERCARD), CALL 1-877-527-7852. PAYMENTS MADE ON ANY VISA CARD THAT CAN BE USED AS A DEBIT OR CREDIT CARD WILL BE PROCESSED AS A DEBIT CARD. TO PAY OVER THE INTERNET, ACCESS PAYBYINTERNET.COM. YOU MUST INDICATE YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES INC. A CONVENIENCE FEE WILL BE CHARGED FOR CREDIT/DEBIT AND INTERNET PAYMENTS.

********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #
Service Addr. 403 TERRAPIN LN
Bill Date 05/14/07 Due Date 06/08/07

Prior Read	03/30/07	69120
Current Read	04/27/07	94970
Usage		25850
# of days this period		28
Average daily usage		923
Average daily water cost		$2.17
Average daily sewer cost		$0.00
Last Payment	04/20/07	$160.00

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE.

Description of Charges

PRIOR BALANCE	$-80.54
WATER BASE/DISTRBUT'N CHG	$59.91
COUNTY WATER SUPPLY CHG	$84.27
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

#~ 5/23/07 #164.62

Please Pay $64.62

EFFECTIVE 4/5/07, THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA HAS APPROVED AN INCREASE IN WATER AND SEWER RATES. THE RATE INCREASE HAS BEEN PRORATED IN THE CURRENT BILL.

****

PAYMENT OPTIONS -- $$ -- WE CAN AUTOMATICALLY DRAFT YOUR PAYMENT FROM YOUR SAVINGS/CHECKING ACCOUNT FREE OF CHARGE. FOR INFORMATION, CALL OUR CUSTOMER SERVICE DEPARTMENT AT THE SERVICE AND BILLING INQUIRY NUMBER LISTED ABOVE.

****

TO PAY BY CREDIT, DEBIT (VISA & MASTERCARD) OR ELECTRONIC CHECK, CALL 1-877-527-7852. PAYMENTS MADE ON ANY VISA CARD THAT CAN BE USED AS A DEBIT OR CREDIT CARD WILL BE PROCESSED AS A DEBIT CARD. PAY OVER THE INTERNET BY ACCESSING PAYBYINTERNET.COM. MAKE INTERNET PAYMENTS TO OUR PARENT COMPANY UTILITIES INC. THERE IS A FEE FOR THESE PAYMENT OPTIONS.

****

Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 07/07/07 Amount Paid
Please Pay Credit Balance $_____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (704) 822-9729

To insure proper credit, return this portion. Please do not staple, clip, or tape.

**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	06/12/07 Due Date	07/07/07
Prior Read	04/27/07	94970
Current Read	05/28/07	107540
Usage		12570
# of days this period		31
Average daily usage		405
Average daily water cost		$1.21
Average daily sewer cost		$0.00
Last Payment	05/24/07	$164.62

Description of Charges

PRIOR BALANCE	$-100.00
WATER BASE/DISTRBUT'N CHG	$36.61
COUNTY WATER SUPPLY CHG	$40.98
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15
RATE ADJUSTMENT	$3.11

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Credit Balance DO NOT PAY $-18.32

THIS BILL CONTAINS A RATE ADJUSTMENT FOR A BILLING DISCREPANCY THAT WAS ON YOUR BILL DATED 5/14/07. IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT CUSTOMER SERVICE AT 800-367-4314 OR 803-796-9545. **********
OUR OFFICE IS OPEN MONDAY THROUGH FRIDAY FROM 8:30 A.M. TO 5:00 P.M.
****

IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE AND ARE NOT FULLY SATISFIED WITH OUR RESPONSE, YOU MAY CONTACT THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS:

STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF
PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

****

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PO BOX 240908
CHARLOTTE NC 28224-0908

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A Convenience Fee Will Be Charged.

Account Information		
Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	07/11/07 Due Date	08/05/07
Prior Read	05/28/07	107540
Current Read	06/29/07	159990
Usage		52450
# of days this period		32
Average daily usage		1639
Average daily water cost		$3.70
Average daily sewer cost		$0.00
Last Payment		

Description of Charges	
PRIOR BALANCE	$-18.32
WATER BASE/DISTRBUT'N CHG	$117.56
COUNTY WATER SUPPLY CHG	$170.99
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

#271.21
8/1/07

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $271.21

********** IMPORTANT CUSTOMER INFORMATION **********

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Rate Schedule Available Upon Request

*Net 10 days

Total $96.95

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Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information			Description of Charges	
Account #	00460 801061 1		PRIOR BALANCE	$0.00
Service Addr.	403 TERRAPIN LN		WATER BASE/DISTRBUT'N CHG	$151.00
Bill Date	08/11/07 Due Date 09/05/07		COUNTY WATER SUPPLY CHG	$224.68
			SC DHEC FEE	$0.83
Prior Read	06/29/07	159990	COUNTY WATER BASE CHARGE	$0.15
Current Read	08/02/07	228910		
Usage		68920		
# of days this period		34		
Average daily usage		2027		
Average daily water cost		$4.47		
Average daily sewer cost		$0.00		
Last Payment	08/03/07	$271.21		

8/28/07 dispute #4982

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $376.66

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Rate Schedule Available Upon Request

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CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #	00460 801061 1
Service Addr.	403 TERRAPIN LN
Bill Date	09/12/07 Due Date 10/07/07
Prior Read	08/02/07 228910
Current Read	08/30/07 284850
Usage	55940
# of days this period	28
Average daily usage	1998
Average daily water cost	$4.48
Average daily sewer cost	$0.00
Last Payment	09/10/07 $376.66

Description of Charges

PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$124.65
COUNTY WATER SUPPLY CHG	$182.36
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

#5004
9/20/07

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $307.99

********** IMPORTANT CUSTOMER INFORMATION **********

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COLUMBIA, SOUTH CAROLINA 29211

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Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct # 00460 801061 1
Due Date 11/05/07
Please Pay $106.33

Amount Paid $_____

10/31/07 Acct. Chk.

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #	00460 801061 1	
Service Addr.	403 TERRAPIN LN	
Bill Date	10/11/07 Due Date	11/05/07
Prior Read	08/30/07	284850
Current Read	09/27/07	302670
Usage		17820
# of days this period		28
Average daily usage		636
Average daily water cost		$1.72
Average daily sewer cost		$0.00
Last Payment	10/03/07	$307.99

Description of Charges

PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$47.26
COUNTY WATER SUPPLY CHG	$58.09
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $106.33

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Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 12/07/07
Please Pay $64.97

Amount Paid $ _____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (803) 831-8065

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PO BOX 240908
CHARLOTTE NC 28224-0908

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800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	11/12/07 Due Date	12/07/07
Prior Read	09/27/07	302670
Current Read	10/31/07	312670
Usage		10000
# of days this period		34
Average daily usage		294
Average daily water cost		$0.95
Average daily sewer cost		$0.00
Last Payment	11/06/07	$106.33

Description of Charges

PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$31.39
COUNTY WATER SUPPLY CHG	$32.60
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

1 1/2% PER MONTH WILL BE ADDED TO
ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $64.97

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Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 01/06/08
Please Pay $151.59

Amount Paid $ _____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

12/18

Service Address Telephone # _____

Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

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PO BOX 240908
CHARLOTTE NC 28224-0908

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800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
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Account Information

Account #		
Service Addr.	403 TERRAPIN LN	
Bill Date	12/12/07 Due Date	01/06/08
Prior Read	10/31/07	312670
Current Read	11/30/07	339050
Usage		26380
# of days this period		30
Average daily usage		879
Average daily water cost		$2.18
Average daily sewer cost		$0.00
Last Payment	11/28/07	$65.00

Description of Charges

PRIOR BALANCE	$-0.03
WATER BASE/DISTRBUT'N CHG	$64.64
COUNTY WATER SUPPLY CHG	$86.00
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $151.59

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PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

****

Missy Myers | 403 Terrapin Lane | Account#

Invoice Date	Bill Code	Read Date	Meter Reading	Consumption	Bill Amount	Payment	Pay Date	Batch #	Prior Amount
12/12/2006	46001	########	30,440	1,100	12.34	30.42	1/5/2007	4220	0
12/12/2006	46002	########			3.59				
12/12/2006	46030	########			0.83				
12/12/2006	46051	########			13.6				
12/12/2006	46060	########			0.16				
1/12/2007	46001	########	38,940	8,500	26.4	55.1	1/23/2007	4395	0
1/12/2007	46002	########			27.71				
1/12/2007	46030	########			0.83				
1/12/2007	46060	########			0.16				
2/12/2007	46001	1/31/2007	48,250	9,310	27.94	110	3/7/2007	4408	0
2/12/2007	46002	1/31/2007			30.35				
2/12/2007	46030	1/31/2007			0.83				
2/12/2007	46060	1/31/2007			0.16				
3/13/2007	46001	3/2/2007	53,780	5,530	20.76				-50.72
3/13/2007	46002	3/2/2007			18.03				
3/13/2007	46030	3/2/2007			0.83				
3/13/2007	46060	3/2/2007			0.16				
4/11/2007	46001	3/30/2007	69,120	15,340	39.4	160	4/20/2007	4178	-10.94
4/11/2007	46002	3/30/2007			50.01				
4/11/2007	46030	3/30/2007			0.83				
4/11/2007	46060	3/30/2007			0.16				
5/14/2007	46001	4/27/2007	94,970	25,850	59.91	164.62	5/24/2007	4139	-80.54
5/14/2007	46002	4/27/2007			84.27				
5/14/2007	46030	4/27/2007			0.83				
5/14/2007	46060	4/27/2007			0.15				
6/12/2007	46001	5/28/2007	107,540	12,570	36.61				-100
6/12/2007	46002	5/28/2007			40.98				
6/12/2007	46030	5/28/2007			0.83				
6/12/2007	46060	5/28/2007			0.15				
6/12/2007	4	5/28/2007			3.11				

OCT-23-2007 17:11 CAROLINA WATER SERVICE P.005

Missy Myers | 403 Terrapin Lane | Account#

7/11/2007	46001	6/29/2007	159,990	52,450	117.56	271.21	8/3/2007	4442	-18.32	
7/11/2007	46002	6/29/2007			170.09					
7/11/2007	46030	6/29/2007			0.83					
7/11/2007	46060	6/29/2007			0.15					
8/11/2007	46001	8/2/2007	228,910	68,920	151	376.68	9/10/2007	4391	0	
8/11/2007	46002	8/2/2007			224.68					
8/11/2007	46030	8/2/2007			0.83					
8/11/2007	46060	8/2/2007			0.15					
9/12/2007	46001	8/30/2007	284,850	55,940	124.65	307.99	10/3/2007	4217	0	
9/12/2007	46002	8/30/2007			182.36					
9/12/2007	46030	8/30/2007			0.83					
9/12/2007	46060	8/30/2007			0.15					
10/11/2007	46001	9/27/2007	302,670	17,820	47.26				0	
10/11/2007	46002	9/27/2007			58.09					
10/11/2007	46030	9/27/2007			0.83					
10/11/2007	46060	9/27/2007			0.15					

Totals and Remaining Balance

Total	Billings -	1,582.33
Total	Payments -	1,476.00
Total	Adjustments -	0
Remaining	Balance -	106.33

CAROLINA WATER SERVICE, INC.

AN AFFILIATE OF
UTILITIES, INC.

Regional Office:

110 Queen Parkway
P.O. Drawer 4509
Cayce-West Columbia, SC 29171-4509
Telephone: 803/796-9545
1-800-367-4314
Fax Number: 803/791-8643

COPY

DEFERRED PAYMENT PLAN

Date: February 27, 2008

Name: Missy Myers

Address: 403 Terrapin Lane
Lake Wylie, SC 29710

Subdivision: Carolina Coves

Account #:

Amount of Bill: $888.50

This deferred payment plan shall require the above customer to maintain his/her account with Carolina Water Service, Inc. CURRENT and to pay no less than 1/6 of the outstanding balance. My total balance as of February 27, 2008 is $888.50. I am making a payment of $300.00 on February 27, 2008 by mail. This will leave a balance of $588.50 divided by 6 months equals $98.08. This agreement will not exceed six (6) months. The plan begins February 27, 2008 and ends on the August 2008 invoice due date.

February 27, 2008 - $300.00	
1st payment	March 2008 invoice due date
2nd payment	April 2008 invoice due date
3rd payment	May 2008 invoice due date
4th payment	June 2008 invoice due date
5th payment	July 2008 invoice due date
6th payment	August 2008 invoice due date

I, the undersigned, hereby agree to pay Carolina Water Service, Inc., a monthly payment in addition to my current bill each month when the new bill is rendered by the Company. My payment is due in the Office by the due date of each monthly invoice.

The outstanding balance includes the late payment charge as authorized by the *South Carolina Public Service Commission, R.103-532.5.*

In addition to the above, I further understand that if I do not comply with this agreement and make the payments accordingly; my service will be terminated without further notice. Upon termination, an approved reconnection fee will be due prior to restoration of service.

Sign and return by March 7, 2008. You may either mail the signed form to the above address or it to (803)791-8643.

Customer's signature:_____ Date_____

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 02/05/08
Please Pay $436.01

Amount Paid $_____

2/8/08
2360 w
Elliott

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (803) 831-8065

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**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account # _____ _____ _
Service Addr. 403 TERRAPIN LN
Bill Date 01/11/08 Due Date 02/05/08

Prior Read	11/30/07	339050
Current Read	12/28/07	419190
Usage		80140
# of days this period		28
Average daily usage		2862
Average daily water cost		$6.24
Average daily sewer cost		$0.00
Last Payment	12/19/07	$151.59

Description of Charges

PRIOR BALANCE	$0.00
WATER BASE/DISTRBUT'N CHG	$173.77
COUNTY WATER SUPPLY CHG	$261.26
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15

Bust in water line

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $436.01

********** IMPORTANT CUSTOMER INFORMATION **********

PLEASE BE ADVISED OF THE PHONE NUMBERS TO OUR CUSTOMER SERVICE DEPARTMENT:
800-367-4314 OR 803-796-9545.
OUR OFFICE IS OPEN MONDAY THROUGH FRIDAY FROM 8:30 A.M. TO 5:00 P.M.

****

IF YOU HAVE FILED A COMPLAINT OR INQUIRY WITH OUR OFFICE AND ARE NOT FULLY SATISFIED WITH OUR RESPONSE, YOU MAY CONTACT THE STATE OF SOUTH CAROLINA OFFICE OF REGULATORY STAFF AT 800-922-1531. IF YOU PREFER TO WRITE, THE MAILING ADDRESS IS:

STATE OF SOUTH CAROLINA, OFFICE OF REGULATORY STAFF
PO BOX 11263
COLUMBIA, SOUTH CAROLINA 29211

****

TO PAY BY CREDIT OR DEBIT CARD, CALL 1-877-527-7852. PAYMENTS MADE ON VISA DEBIT/CREDIT CARDS WILL BE PROCESSED AS A DEBIT CARD. TO PAY OVER THE INTERNET, ACCESS PAYBYINTERNET.COM. TO PAY OVER THE INTERNET, YOU MUST INDICATE THAT YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES INC. A CONVENIENCE FEE WILL BE CHARGED FOR DEBIT/CREDIT AND INTERNET PAYMENTS.

********** YOU MUST ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 03/08/08
Please Pay $888.50

Amount Paid $_____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____

Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

****** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ******

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #			
Service Addr.	403 TERRAPIN LN		
Bill Date	02/12/08	Due Date	03/08/08
Prior Read	12/28/07		419190
Current Read	01/30/08		546490
Usage			127300
# of days this period			33
Average daily usage			3858
Average daily water cost			$8.19
Average daily sewer cost			$0.00
Last Payment	02/11/08		$236.00

Description of Charges

PRIOR BALANCE	$200.01
WATER BASE/DISTRBUT'N CHG	$269.51
COUNTY WATER SUPPLY CHG	$415.00
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15
PENALTY	$3.00

2/19/08 Vivian

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $888.50

OUR RECORDS INDICATE THAT THE PRIOR BALANCE ON THIS BILL REMAINS UNPAID. PLEASE NOTE THAT THE DUE DATE ON THIS BILL REFERS TO THE CURRENT AMOUNT DUE AND WILL IN NO WAY EXTEND THE TIME ALLOWED FOR PAYMENT OF THE PRIOR BALANCE TO AVOID DISCONNECTION OF SERVICE, PLEASE PAY THE PRIOR BALANCE TODAY.

***

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

314
$300 a
Eddt

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Acct #
Due Date 03/03/08
Please Pay $200.01

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Please return this portion with your payment.

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries:
800-367-4314 OR 803-796-9545

THIS IS YOUR FINAL NOTICE. YOUR PAYMENT MUST BE RECEIVED IN OUR OFFICE NO LATER THAN 03/03/08 TO AVOID DISCONNECTION OF SERVICE.

Account #
Service Addr 403 TERRAPIN LN

Payments after 02/21/08 are not reflected on this statement.

Past Due Amount $200.01

PLEASE PAY $200.01

Our records indicate that your utility account remains unpaid. If you have recently made a payment, please disregard this notice or call our office to verify receipt of the payment.

Once service has been disconnected, service will not be restored until receipt of full payment of the delinquent balance plus all applicable service charges.

SERVICE TERMINATION IS IN PROCESS

CONTACT OUR OFFICE TO SEE IF YOU ARE ELIGIBLE FOR A DEFERRED PAYMENT PLAN TO AVOID DISCONNECTION OF SERVICE.

PAYMENT OPTIONS

YOU MAY PAY BY CREDIT OR DEBIT CARD (VISA & MASTERCARD) BY CALLING 1-877-527-7852. PAYMENTS MADE ON ANY VISA CARD THAT CAN BE USED AS A DEBIT OR CREDIT CARD WILL BE PROCESSED AS A DEBIT CARD. YOU MAY ALSO PAY OVER THE INTERNET BY ACCESSING PAYBYINTERNET.COM. TO PAY OVER THE INTERNET, YOU MUST INDICATE THAT YOU ARE MAKING PAYMENT TO OUR PARENT COMPANY, UTILITIES, INC. A CONVENIENCE FEE WILL BE CHARGED FOR THESE PAYMENT OPTIONS.

********** PLEASE ALLOW FOR PROCESSING TIME. **********

TO AVOID SERVICE TERMINATION, YOU MUST CALL OUR CUSTOMER SERVICE DEPARTMENT WITH THE CONFIRMATION NUMBER YOU RECEIVE FROM THE CREDIT CARD PAYMENT CENTER AS PROOF OF PAYMENT.

***** IF IT BECOMES NECESSARY TO TERMINATE YOUR SERVICE, SOMEONE MUST BE ***** PRESENT AT THE PROPERTY WHEN SERVICE IS REINSTATED.

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

$200 4/4/08 GK

Acct#
Due Date 04/04/08
Please Pay $588.50

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Please return this portion with your payment

Customer Service Information Please Retain for Your Records

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries:
800-367-4314 OR 803-796-9545

**** THIS IS YOUR FINAL NOTICE. YOUR PAYMENT MUST BE RECEIVED IN OUR OFFICE NO LATER THAN 04/04/08 TO AVOID DISCONNECTION OF SERVICE. ****

Account #
Service Addr 403 TERRAPIN LN

Payments after 03/24/08 are not reflected on this statement

Past Due Amount $588.50

PLEASE PAY $588.50

Our records indicate that your utility account remains unpaid. If you have recently made a payment, please disregard this notice or call our office to verify receipt of the payment.

Once service has been disconnected, service will not be restored until receipt of full payment of the delinquent balance plus all applicable service charges.

SERVICE TERMINATION IS IN PROCESS

****

CONTACT OUR OFFICE TO SEE IF YOU ARE ELIGIBLE FOR A DEFERRED PAYMENT PLAN TO AVOID DISCONNECTION OF SERVICE.

PAYMENT OPTIONS

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********** PLEASE ALLOW FOR PROCESSING TIME **********

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***** IF IT BECOMES NECESSARY TO TERMINATE YOUR SERVICE, SOMEONE MUST BE *****
***** PRESENT AT THE PROPERTY WHEN SERVICE IS REINSTATED. *****

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 04/07/08
Please Pay $637.86

Amount Paid
$ _____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #		
Service Addr	403 TERRAPIN LN	
Bill Date	03/13/08 Due Date	04/07/08
Prior Read	01/30/08	546490
Current Read	02/27/08	551870
Usage		5380
# of days this period		28
Average daily usage		192
Average daily water cost		$0.82
Average daily sewer cost		$0.00
Last Payment	03/05/08	$300.00

Description of Charges

PRIOR BALANCE	$588.50
WATER BASE/DISTRBUT'N CHG	$22.01
COUNTY WATER SUPPLY CHG	$17.54
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15
PENALTY	$8.83

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE.

Please Pay $637.86

OUR RECORDS INDICATE THAT THE PRIOR BALANCE ON THIS BILL REMAINS UNPAID. PLEASE NOTE THAT THE DUE DATE ON THIS BILL REFERS TO THE CURRENT AMOUNT DUE AND WILL IN NO WAY EXTEND THE TIME ALLOWED FOR PAYMENT OF THE PRIOR BALANCE TO AVOID DISCONNECTION OF SERVICE, PLEASE PAY THE PRIOR BALANCE TODAY.

****

IF YOU HAVE ALREADY SENT IN YOUR PAYMENT, PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT TO VERIFY THAT YOUR PAYMENT HAS BEEN RECEIVED. IF IT BECOMES NECESSARY TO DISCONTINUE YOUR SERVICE, IT WILL BE RESTORED ONLY AFTER WE RECEIVE PAYMENT IN THE AMOUNT OF THE DELINQUENT BALANCE PLUS ALL APPLICABLE SERVICE CHARGES. IN ADDITION, SOMEONE MUST BE PRESENT AT THE PROPERTY WHEN SERVICE IS REINSTATED. **********

TO PAY BY VISA, MASTERCARD OR ELECTRONIC CHECK, CALL 1-877-527-7852. FOR INTERNET PAYMENTS, ACCESS PAYBYINTERNET.COM. MAKE INTERNET PAYMENTS TO OUR PARENT COMPANY, UTILITIES INC. ENTER YOUR ACCOUNT NUMBER CAREFULLY.

***** CONTACT OUR OFFICE TO SEE IF YOU ARE ELIGIBLE FOR A DEFERRED PAYMENT PLAN TO AVOID DISCONNECTION OF SERVICE. **********

YOU MUST CALL OUR CUSTOMER SERVICE DEPARTMENT WITH THE CONFIRMATION NUMBER THAT YOU RECEIVE FROM THE CREDIT CARD PAYMENT CENTER AS PROOF THAT PAYMENT WAS MADE. PLEASE ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Utilities, Inc. and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 05/02/08
Please Pay $437.86

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Please return this portion with your payment.

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Customer Service Information Please Retain for Your Records
For Service or Billing Inquiries:
800-367-4314 OR 803-796-9545

****** THIS IS YOUR FINAL NOTICE. YOUR PAYMENT MUST BE RECEIVED IN OUR OFFICE NO LATER THAN 05/02/08 TO AVOID DISCONNECTION OF SERVICE. ******

Account #
Service Addr 403 TERRAPIN LN

Past Due Amount $437.86

Payments after 04/22/08 are not reflected on this statement.

PLEASE PAY $437.86

Our records indicate that your utility account remains unpaid. If you have recently made a payment, please disregard this notice or call our office to verify receipt of the payment.

Once service has been disconnected, service will not be restored until receipt of full payment of the delinquent balance plus all applicable service charges.

SERVICE TERMINATION IS IN PROCESS

CONTACT OUR OFFICE TO SEE IF YOU ARE ELIGIBLE FOR A DEFERRED PAYMENT PLAN TO AVOID DISCONNECTION OF SERVICE.

PAYMENT OPTIONS

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********* PLEASE ALLOW FOR PROCESSING TIME *********

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***** IF IT BECOMES NECESSARY TO TERMINATE YOUR SERVICE, SOMEONE MUST BE ***** PRESENT AT THE PROPERTY WHEN SERVICE IS REINSTATED.

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

4/20/08
$200.
Elect.

Acct #
Due Date 05/06/08
Please Pay $492.10

Amount Paid $_____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____ Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

**** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ****

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545

To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account # _____
Service Addr. 403 TERRAPIN LN
Bill Date 04/11/08 Due Date 05/06/08

Prior Read	02/27/08	551870
Current Read	03/31/08	558600
Usage		6730
# of days this period		33
Average daily usage		204
Average daily water cost		$0.78
Average daily sewer cost		$0.00
Last Payment	04/07/08	$200.00

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE.

Description of Charges

PRIOR BALANCE	$437.86
WATER BASE/DISTRBUT'N CHG	$24.75
COUNTY WATER SUPPLY CHG	$21.94
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15
PENALTY	$6.57
Please Pay	$492.10

OUR RECORDS INDICATE THAT THE PRIOR BALANCE ON THIS BILL REMAINS UNPAID. PLEASE NOTE THAT THE DUE DATE ON THIS BILL REFERS TO THE CURRENT AMOUNT DUE AND WILL IN NO WAY EXTEND THE TIME ALLOWED FOR PAYMENT OF THE PRIOR BALANCE TO AVOID DISCONNECTION OF SERVICE, PLEASE PAY THE PRIOR BALANCE TODAY.

****

IF YOU HAVE ALREADY SENT IN YOUR PAYMENT, PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT TO VERIFY THAT YOUR PAYMENT HAS BEEN RECEIVED. IF IT BECOMES NECESSARY TO DISCONTINUE YOUR SERVICE, IT WILL BE RESTORED ONLY AFTER WE RECEIVE PAYMENT IN THE AMOUNT OF THE DELINQUENT BALANCE PLUS ALL APPLICABLE SERVICE CHARGES. IN ADDITION, SOMEONE MUST BE PRESENT AT THE PROPERTY WHEN SERVICE IS REINSTATED. **********

TO PAY BY VISA, MASTERCARD OR ELECTRONIC CHECK, CALL 1-877-527-7852. FOR INTERNET PAYMENTS, ACCESS PAYBYINTERNET.COM, MAKE INTERNET PAYMENTS TO OUR PARENT COMPANY, UTILITIES INC., ENTER YOUR ACCOUNT NUMBER CAREFULLY.

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YOU MUST CALL OUR CUSTOMER SERVICE DEPARTMENT WITH THE CONFIRMATION NUMBER THAT YOU RECEIVE FROM THE CREDIT CARD PAYMENT CENTER AS PROOF THAT PAYMENT WAS MADE. PLEASE ALLOW FOR PROCESSING TIME. **********

Rate Schedule Available Upon Request

Utilities, Inc and Affiliated Companies

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Acct #
Due Date 06/06/08
Please Pay $339.76

Amount Paid
$_____

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

Service Address Telephone # _____

Current # : (803) 831-8065

To insure proper credit, return this portion. Please do not staple, clip, or tape.

****** PLEASE VISIT OUR WEBSITE AT www.uiwater.com ******

Remittance Address:
CAROLINA WATER SERVICE INC
PO BOX 240908
CHARLOTTE NC 28224-0908

For Service or Billing Inquiries Call:
800-367-4314 OR 803-796-9545
To Pay By Credit or Debit Card, Call 1-877-527-7852.
A Convenience Fee Will Be Charged.

Account Information

Account #
Service Addr. 403 TERRAPIN LN
Bill Date 05/12/08 Due Date 06/06/08

Prior Read	03/31/08	558600
Current Read	05/01/08	564500
Usage		5900
# of days this period		31
Average daily usage		190
Average daily water cost		$0.77
Average daily sewer cost		$0.00
Last Payment	04/22/08	$200.00

Description of Charges

PRIOR BALANCE	$292.10
WATER BASE/DISTRBUT'N CHG	$23.07
COUNTY WATER SUPPLY CHG	$19.23
SC DHEC FEE	$0.83
COUNTY WATER BASE CHARGE	$0.15
PENALTY	$4.38

$239.76 ck
6/19/08

1 1/2% PER MONTH WILL BE ADDED TO ALL AMOUNTS NOT PAID BY THE DUE DATE. Please Pay $339.76

OUR RECORDS INDICATE THAT THE PRIOR BALANCE ON THIS BILL REMAINS UNPAID. PLEASE NOTE THAT THE DUE DATE ON THIS BILL REFERS TO THE CURRENT AMOUNT DUE AND WILL IN NO WAY EXTEND THE TIME ALLOWED FOR PAYMENT OF THE PRIOR BALANCE TO AVOID DISCONNECTION OF SERVICE, PLEASE PAY THE PRIOR BALANCE TODAY.

***

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

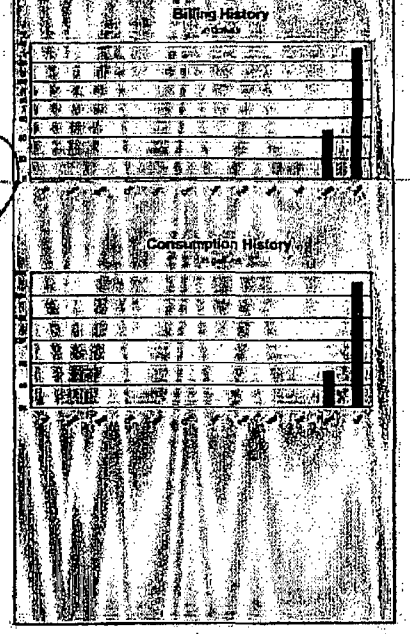
Bill Date	Account Number	Due Date	Please Pay
07/11/2008		8/5/2008	$ 80.31

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710A*

Activity Since Last Bill		
Previous Balance	$186.93	
Payments received as of 07/11/2008	$-239.76	
Balance as of 07/11/2008		$-52.83
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 22,249 gallons at $2.03 per 1,000 gallons	$45.17	
Water Supply Charge of 22,249 gallons at $0.0034183 per gallon	$76.05	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$133.14
Total Amount Due		**$80.31**

Summary of Service

Meter Reading	Meter #	
Current	593219	06/24/2008 E
Previous	570970	05/29/2008
Usage	22,249 Gallons	
Number of Days:	26	
Average Daily Use:	856 Gallons	
Average Daily Cost:	$ 5.12	



7/27/08
$80.31

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Please note that your billed usage amount is based on an Estimated Read. If you have any questions, please contact your customer service office at the phone number listed above.

Utilities, Inc.

2335 Sanders Road
Northbrook, IL 60062

Account Number:
Due Date: 8/5/2008
Please Pay **$ 80.31**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710A

Carolina Water Service Inc of SC
PO BOX 4509
West Columbia SC 29171-4509

Utilities, Inc.

9/29/08 Jeannie #350.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

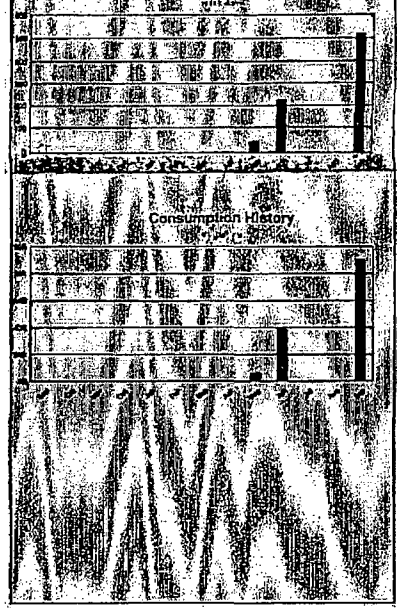
Bill Date	Account Number	Due Date	Please Pay
09/05/2008		10/2/2008	$ 609.85

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$80.31	
Payments received as of 09/05/2008	-$80.31	
Balance as of 09/05/2008		$0.00
Adjustments		
Bill Corrections		$90.98
Residential Purchased Water		
Water Distribution Base Charge	$25.51	
Distribution Usage of 90,202 gallons at $2.03 per 1,000 gallons	$183.11	
Water Supply Charge of 90,202 gallons at $0.0034183 per gallon	$308.34	
SC DHEC Fee	$1.91	
Total Residential Purchased Water		$518.87
Total Amount Due		$609.85

Summary of Service

Meter Reading	Meter #	
Current	700120	09/01/2008
Previous	609918	06/24/2008 E
Usage	90,202 Gallons	
Number of Days	69	
Average Daily Use	1,307 Gallons	
Average Daily Cost	$ 7.52	



Vivian @ Carolina Water 9/17/08
2 separate visits to verify reading and to test water meter

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Please note, this is a corrected bill. If you have any questions, please contact customer service at the phone number indicated above.
Please note: This bill is for a total of 2 months or 2 billing cycles. We apologize for the inconvenience. If you need additional time to make payment, please call your local office for assistance.

Utilities, Inc.

2335 Sanders Road
Northbrook, IL 60062

Account Number:
Due Date: 10/2/2008
Please Pay $ 609.85
Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO BOX 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

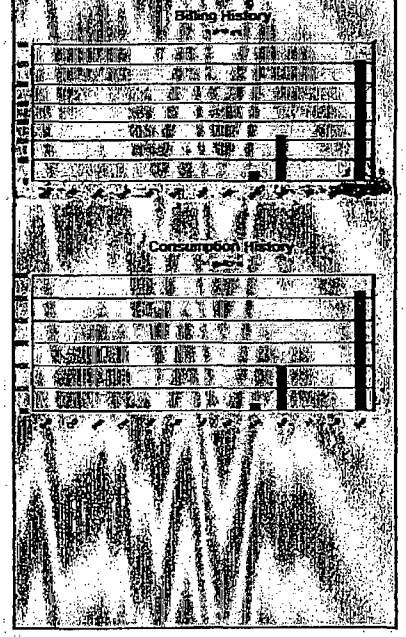
Bill Date	Account Number	Due Date	Please Pay
09/30/2008		10/27/2008	$ 96.00

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$609.85	
Payments received as of 09/30/2008	$0.00	
Balance as of 09/30/2008		$609.85
Adjustments		
Transfer Balance To/From Payment Arrangement		$-609.85
Residential Purchased Water		
Water Distribution Base Charge	$6.28	
Distribution Usage of 15,160 gallons at $2.03 per 1,000 gallons	$30.77	
Water Supply Charge of 15,160 gallons at $0.00341 per gallon	$51.70	
SC DHEC Fee	$0.47	
Total Residential Purchased Water		$89.22
Payment Arrangement Amount		
Total Payment Arrangement Amount		$6.78
Total Amount Due		$96.00

Summary of Service

Meter Reading	Meter #	
Current	715280	09/18/2008
Previous	700120	09/01/2008
Usage	15,160 Gallons	
Number of Days	17	
Average Daily Use	892 Gallons	
Average Daily Cost	$ 5.25	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

2335 Sanders Road
Northbrook, IL 60062

Account Number:
Due Date: 10/27/2008
Please Pay $ 96.00

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO BOX 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

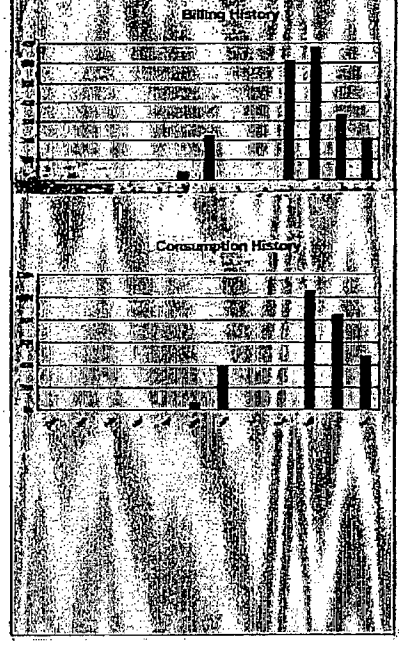
Bill Date	Account Number	Due Date	Please Pay
12/10/2008		1/6/2009	$ 76.01

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$488.83	
Payments received as of 12/10/2008	$-888.83	
Balance as of 12/10/2008		$-400.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 47.940 gallons at $2.03 per 1,000 gallons	$97.32	
Water Supply Charge of 47.940 gallons at $0.00341 per gallon	$163.48	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$272.72
Payment Arrangement Amount		
Total Payment Arrangement Amount		$203.29
Total Amount Due		$76.01

Summary of Service

Meter Reading	Meter #	
Current	848340	11/22/2008
Previous	800400	10/27/2008
Usage	47,940 Gallons	
Number of Days	26	
Average Daily Use	1,844 Gallons	
Average Daily Cost	$ 10.49	



$150.00
11/20/08

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

2335 Sanders Road
Northbrook, IL 60062

Account Number:
Due Date: 1/6/2009
Please Pay $ 76.01

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO BOX 4509
West Columbia SC 29171-4509

Utilities, Inc.

dave on 3/10/09 3/18/09 #50.00

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314

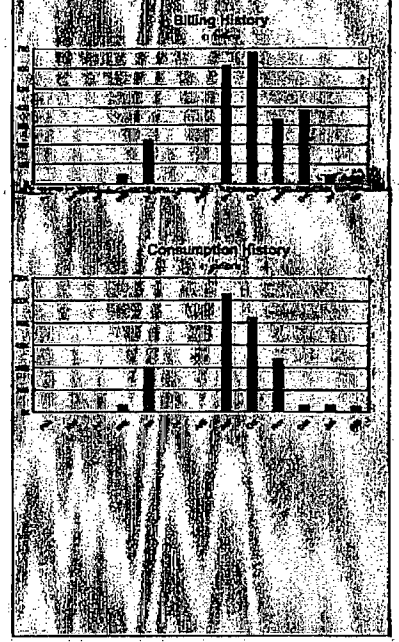
Bill Date	Account Number	Due Date	Please Pay
02/28/2009		3/23/2009	$ 39.83

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$-2.34	
Payments received as of 02/28/2009	$0.00	
Balance as of 02/28/2009		$-2.34
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,560 gallons at $2.03 per 1,000 gallons	$11.29	
Water Supply Charge of 5,560 gallons at $0.00341 per gallon	$18.96	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$42.17
Total Amount Due		$39.83

Summary of Service
www.uiwater.com

Meter Reading	Meter #	
Current	866500	02/20/2009
Previous	860940	01/23/2009
Usage	5,560 Gallons	
Number of Days:	28	
Average Daily Use:	199 Gallons	
Average Daily Cost:	$1.51	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

Account Number:
Due Date: 3/23/2009
Please Pay $ 39.83

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314

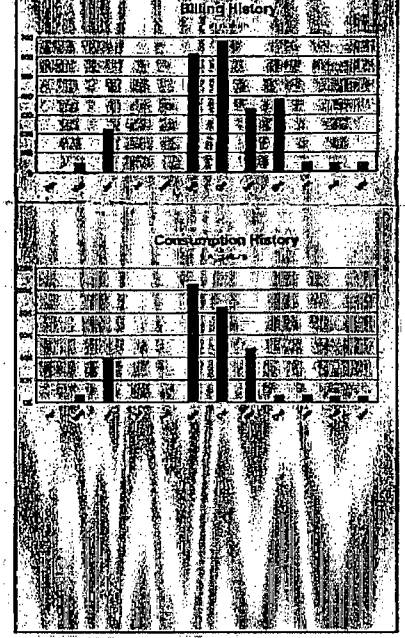
Bill Date	Account Number	Due Date	Please Pay
04/01/2009		4/22/2009	$ 31.68

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$39.83	
Payments received as of 04/01/2009	$-50.00	
Balance as of 04/01/2009		$-10.17
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,500 gallons at $2.03 per 1,000 gallons	$11.17	
Water Supply Charge of 5,500 gallons at $0.00341 per gallon	$18.76	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$41.85
Total Amount Due		**$31.68**

Summary of Service
www.uiwater.com

Meter Reading	Meter #	
Current	872000	03/20/2009
Previous	866500	02/20/2009
Usage	5,500 Gallons	
Number of Days	28	
Average Daily Use	196 Gallons	
Average Daily Cost	$ 1.49	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 4/22/2009
Please Pay **$ 31.68**

Amount Paid
31.68
4/8/09
Cm#

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314

Bill Date	Account Number	Due Date	Please Pay
04/30/2009		5/21/2009	$ 221.08

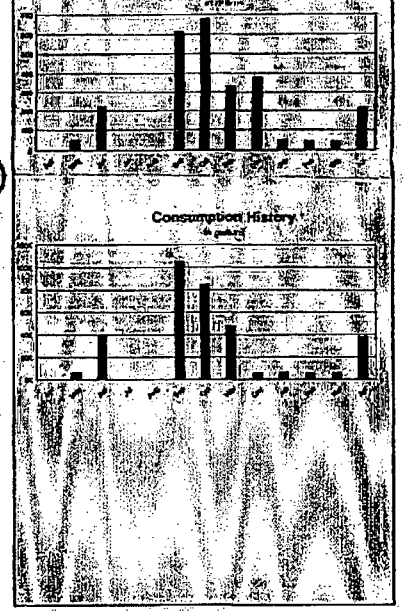
Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$31.68	
Payments received as of 04/30/2009	$-31.68	
Balance as of 04/30/2009		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 38,450 gallons at $2.03 per 1,000 gallons	$78.05	
Water Supply Charge of 38,450 gallons at $0.00341 per gallon	$131.11	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$221.08
Total Amount Due		$221.08

5/19/09

Summary of Service
www.uiwater.com

Meter Reading	Meter #	
Current	910450	04/25/2009
Previous	872000	03/20/2009
Usage	38,450 Gallons	
Number of Days:	36	
Average Daily Use:	1,068 Gallons	
Average Daily Cost:	$ 6.14	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 5/21/2009
Please Pay $ 221.08

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Collections: (800) 367-4314
Phone: (800) 367-4314

Customer Service: (800) 367-4314

Bill Date	Account Number	Late Date	Please Pay
06/03/2009		6/24/2009	$ 412.84

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC,

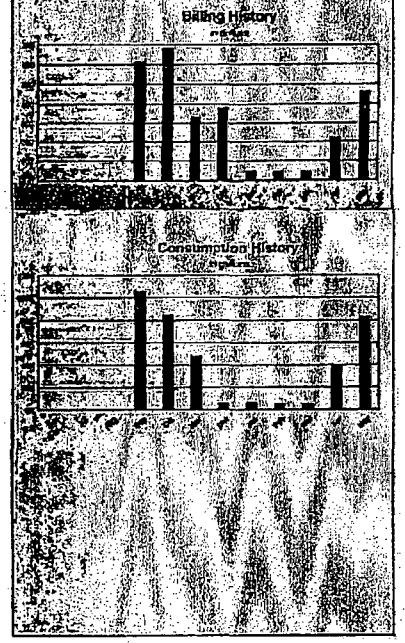
Activity Since Last Bill

Previous Balance	$221.08	
Payments received as of 06/03/2009	$-271.08	
Balance as of 06/03/2009		$-50.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 82,890 gallons at $2.03 per 1,000 gallons	$168.27	
Water Supply Charge of 82,890 gallons at $0.00341 per gallon	$282.65	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$462.84
Total Amount Due		$412.84

$500 6/23/09

Summary of Service

Meter Reading	Meter #	
Current	993340	05/23/2009
Previous	910450	04/25/2009
Usage	82,890 Gallons	
Number of Days	28	
Average Daily Use	2,960 Gallons	
Average Daily Cost	$ 16.53	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 6/24/2009
Please Pay **$ 412.84**

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
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Carolina Water Service Inc of SC
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Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Total Amount Due
07/02/2009		7/23/2009	$ 357.07

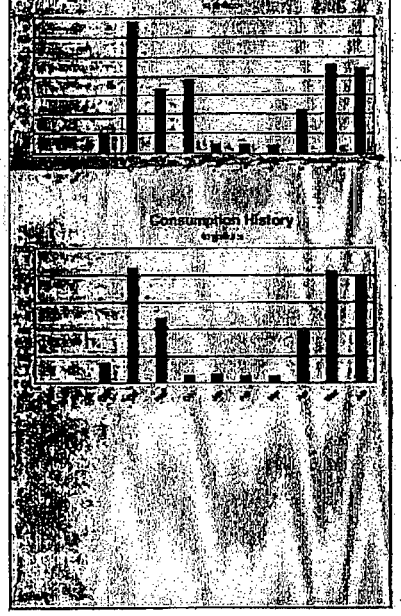
Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$412.84	
Payments received as of 07/02/2009	$-500.00	
Balance as of 07/02/2009		$-87.16
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 79,470 gallons at $2.03 per 1,000 gallons	$161.32	
Water Supply Charge of 79,470 gallons at $0.00341 per gallon	$270.99	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$444.23
Total Amount Due		$357.07

Summary of Service

	Meter Reading	Meter #
Current	1072810	06/27/2009
Previous	993340	05/23/2009
Usage	79,470 Gallons	
Number of Days	35	
Average Daily Use	2,271 Gallons	
Average Daily Cost	$ 12.69	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO Box 4509
West Columbia SC 29171-4509

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Account Number:

Amount Paid

Due Date: 7/23/2009

Please Pay $ 357.07

7/30/09

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

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Customer Service: (800) 367-4314
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Bill Date	Account Number	Due Date	Please Pay
08/04/2009		8/25/2009	$ 427.05

Name CAROLINA COVE PRP OWNER ASSOC Primary Telephone # (678) 595-6007

Service Address *CAROLINA COVES ENT, LAKE WYLIE, SC, 29710*

Activity Since Last Bill

Previous Balance	$43.96	
Payments received as of 08/04/2009	$-43.96	
Balance as of 08/04/2009		$0.00

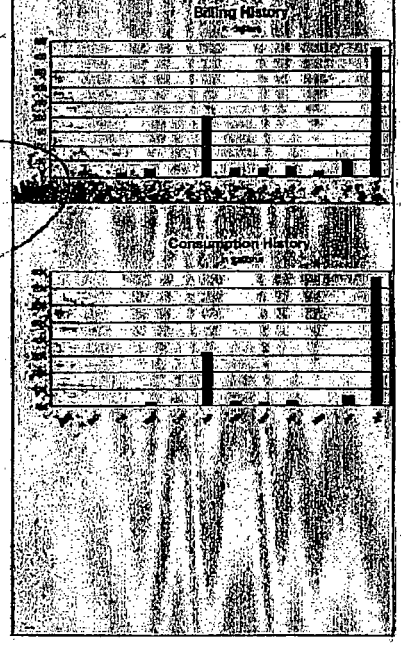
Residential Purchased Water

Water Distribution Base Charge	$11.09	
Distribution Usage of 76,310 gallons at $2.03 per 1,000 gallons	$154.91	
Water Supply Charge of 76,310 gallons at $0.00341 per gallon	$260.22	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$427.05
Total Amount Due		$427.05

#1015
8/28/09

Summary of Service

Meter Reading	Meter #	
Current	1064830	07/26/2009
Previous	988520	06/27/2009
Usage	76,310 Gallons	
Number of Days	29	
Average Daily Use	2,631 Gallons	
Average Daily Cost	$14.73	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

9/- #100
10/8/09 $509.62

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

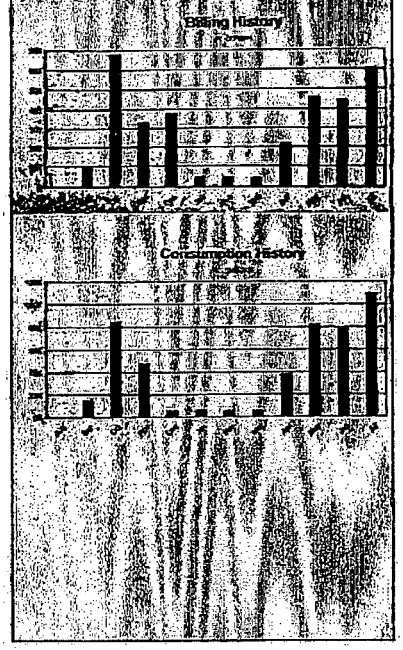
Bill Date	Account Number	Due Date	Please Pay
08/04/2009		8/25/2009	$ 609.62

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$357.07	
Payments received as of 08/04/2009	$-357.07	
Balance as of 08/04/2009		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 109,870 gallons at $2.03 per 1,000 gallons	$223.04	
Water Supply Charge of 109,870 gallons at $0.00341 per gallon	$374.66	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$609.62
Total Amount Due		$609.62

Summary of Service

Meter Reading	Meter #	
Current	1182680	07/26/2009
Previous	1072810	06/27/2009
Usage	109,870 Gallons	
Number of Days	29	
Average Daily Use	3,789 Gallons	
Average Daily Cost	$ 21.02	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 8/25/2009
Please Pay $ 609.62

Amount Paid
609.62
5/20

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

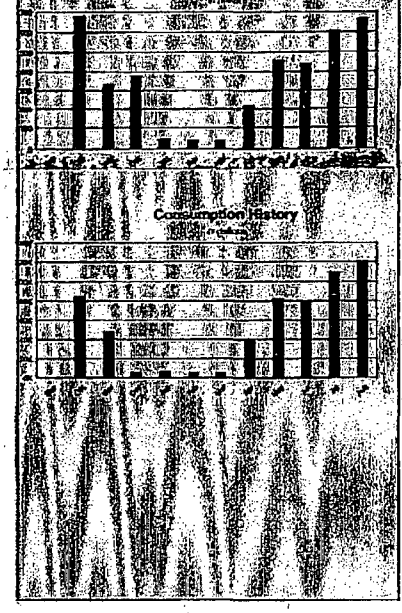
Bill Date	Account Number	Due Date	Please Pay
09/11/2009	[redacted]	10/2/2009	$ 569.84

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

Activity Since Last Bill		
Previous Balance	$609.62	
Payments received as of 09/11/2009	$-709.62	
Balance as of 09/11/2009		$-100.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 120,940 gallons at $2.03 per 1,000 gallons	$245.51	
Water Supply Charge of 120,940 gallons at $0.00341 per gallon	$412.41	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$669.84
Total Amount Due		$569.84

Summary of Service

Meter Reading	Meter #	
Current	1303820	08/22/2009
Previous	1182680	07/26/2009
Usage	120,940 Gallons	
Number of Days	27	
Average Daily Use	4,479 Gallons	
Average Daily Cost	$ 24.81	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number: [redacted]
Due Date: 10/2/2009
Please Pay $ 569.84

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
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Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
10/06/2009		10/27/2009	$ 1,198.55

Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill

Previous Balance	$569.84	
Payments received as of 10/06/2009	$0.00	
Balance as of 10/06/2009		$569.84
Adjustments		
Late Payment Charge on 10/05/2009		$8.55
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 111,810 gallons at $2.03 per 1,000 gallons	$226.97	
Water Supply Charge of 111,810 gallons at $0.00341 per gallon	$381.27	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$620.16
Total Amount Due		**$1,198.55**

10/28/09 $620.16

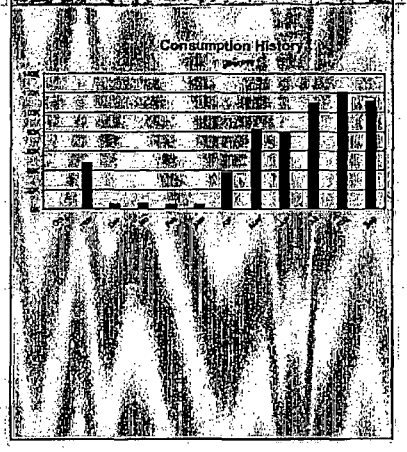
11/10 - $588.74 Nonda #
11/12 - $150.00 Beck #

Summary of Service

Meter Reading	Meter #	
Current	1415430	09/24/2009
Previous	1303620	08/22/2009
Usage	111,810 Gallons	
Number of Days	33	
Average Daily Use	3,388 Gallons	
Average Daily Cost	$ 18.79	

Billing History

Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Our records indicate the prior balance remains unpaid and your account may be subject to disconnection. Please note the due date on this bill refers to the current bill amount and does not extend the time allowed for payment of the prior balance.
We apologize for the delay in processing your bill. You will receive future bills on time. If you have any questions, please contact your local customer service office.

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

Account Number:
Due Date: 10/27/2009
Please Pay $ 1,198.55

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
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Customer Service: (800) 367-4314
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Bill Date	Account Number	Due Date	Please Pay
11/04/2009		11/25/2009	$ 456.81

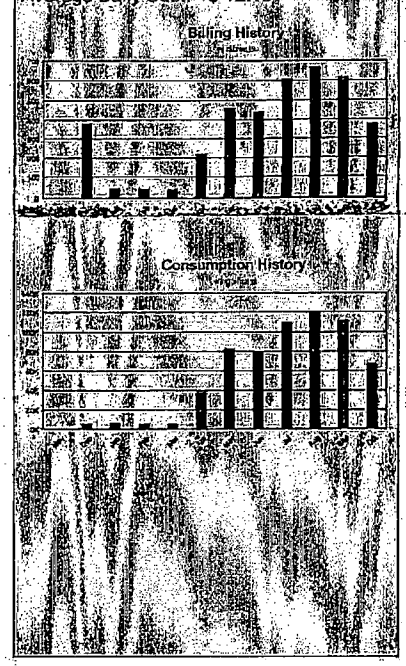
Name MISSY MYERS Primary Telephone # (803) 831-8065
Service Address: 403 TERRAPIN LN, LAKE WYLIE, SC, 29710

Activity Since Last Bill

Previous Balance	$1,198.55	
Payments received as of 11/04/2009	$-1,129.78	
Balance as of 11/04/2009		$68.77
Adjustments		
Late Payment Charge on 10/28/2009		$10.33
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 67,240 gallons at $2.03 per 1,000 gallons	$136.50	
Water Supply Charge of 67,240 gallons at $0.00341 per gallon	$229.29	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$377.71
Total Amount Due		**$456.81**

Summary of Service

Meter Reading	Meter #	
Current	1482670	10/25/2009
Previous	1415430	09/24/2009
Usage	67,240 Gallons	
Number of Days	31	
Average Daily Use	2,169 Gallons	
Average Daily Cost	$ 12.18	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
Our records indicate the prior balance remains unpaid and your account may be subject to disconnection. Please note the due date on this bill refers to the current bill amount and does not extend the time allowed for payment of the prior balance.
We apologize for the delay in processing your bill. You will receive future bills on time. If you have any questions, please contact your local customer service office.

Utilities, Inc.
PO Box 4509
West Columbia SC 29171-4509

11/23/09
QR

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Account Number:
Due Date: 11/25/2009
Please Pay $ 456.81

Amount Paid

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
11/30/2009		12/21/2009	$ 123.38

Name MISSY MYERS, Primary Telephone #: (803) 831-8065
Service Address *403 TERRAPIN LN, LAKE WYLIE, SC, 29710*

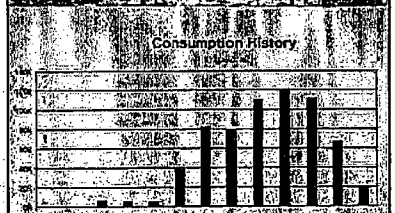
Activity Since Last Bill		
Previous Balance	$456.81	
Payments received as of 11/30/2009	$-456.81	
Balance as of 11/30/2009		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 20,490 gallons at $2.03 per 1,000 gallons	$41.59	
Water Supply Charge of 20,490 gallons at $0.00341 per gallon	$69.87	
SC DHEC Fee	$0.83	
Total Residential Purchased Water		$123.38
Total Amount Due		$123.38

Summary of Service

Meter Reading	Meter #	
Current	503160	11/29/2009
Previous	482670	10/25/2009
Usage	20,490 Gallons	
Number of Days	35	
Average Daily Use	585 Gallons	
Average Daily Cost	$3.53	

Billing History

Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

PO Box 4509
West Columbia SC 29171-4509

12/15

Account Number:
Due Date: 12/21/2009
Please Pay $ 123.38

Amount Paid

MISSY MYERS
403 TERRAPIN LN
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 4509
West Columbia SC 29171-4509

There is no Hearing Exhibit No. 19. The documents intended to be included in the record before the Public Service Commission comprising this "late-filed" exhibit were never filed with the PSC or served upon the parties of record in the case. *Cf.* R. at 400, 548, and 549, Transcript Vol. 2, p. 152, p. 300, ll. 2-7, and p.301, ll. 13-17.

WINDWARD POINTE HOMEOWNERS ASSOCIATION
Lexington, South Carolina

PETITION OF PROTEST
Docket No. 2011-47-WS

Carolina Water Service has filed an application to the Public Service Commission of South Carolina for an increase in its monthly water and sewer charges and in its water and sewer account set up charges and its sewer notification fee. The company further seeks to modify its tariff to recover its costs of disconnecting customers; charges to recover its costs of repair of its facilities due to tampering; charges to recover its costs of pumping its customer's tanks; charges for installation of water meters; and modification of certain language clarifying the purpose of existing rates.

We, the undersigned customers of Carolina Water Service, Inc., request the Public Service Commission of South Carolina deny the application to increase their rates or modify their existing tariff.

	Name	Address (Murray Vista Circle)	Signature
1.	WILLIAM G. JACOBS, SR.	223 MVC	William G Jacobs Sr.
2.	SANDRA PRICHARD	220 MVC	Sandra Prichard
3.	Trad Kaminer	228 MVC	
4.		224 MVC	Gilbert F. Sapp
5.	Elizabeth D. DuPre	219 MVC	Elizabeth D. DuPre
6.	Nancye B. Owens	209 MVC	Nancye B Owens
7.	Valerie Limberry	137 MVC	
8.	Gregory Sheckler	140 MVC	
9.	Steve K. Cathey	105 MVC	
10.	Frances Waters	121 MVC	Frances Waters
11.	Chris Smith	100 MVC	
12.	GEORGE E. SANSBURY	204 MVC	
13.	JAMES R BASS	161 MVC	James R Bass
14.	JOE I. WHITE, III	260 MVC	
15.	Doris Roder	153 MVC	Doris Roder
16.	Wanda Peery	145 MVC	
17.	RON KAM	141 MVC	Ronald D. Kam

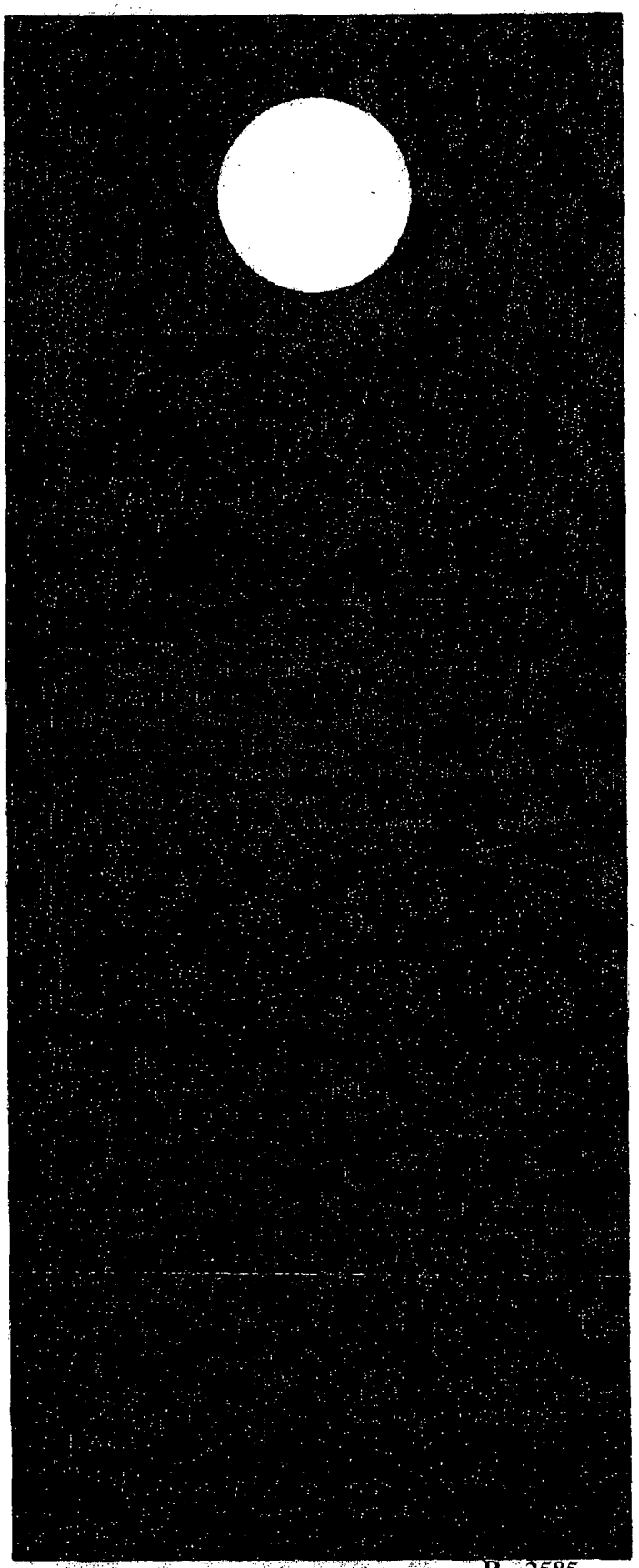
EXHIBIT 9/7/11 20 2011-47-WS

WINDWARD POINTE HOMEOWNERS ASSOCIATION
PETITION OF PROTEST
Docket No. 2011-47-WS
Page two

	Name	Address	Signature
18.	Andrew Barden	133 MVC	
19.	John Newton	116 MVC	
20.	Robert F. Grant Jr.	125 MVC	
21.	George M Eisenhauer	128 MVC	
22.	John D Long	232 MVC	John D Long
23.	LEON M. HOTALING	113 MVC	
24.	BARRY STEWART	149 MVC	
25.	JANOLYN Wheeler	128 MVC	
26.	Deborah R Bentley	215 MVC	
27.	EDWARD P. GAVIN	212 MVC	
28.	CARL Chase JR	211 MVC	
29.	Opal Blume	231 MVC	OPAL BLUME
30.	Belinda Bailey	239 MVC	
31.	RONALD GREGG	236 MVC	
32.	Nancy P. Turner	101 MVC	
33.	Kenneth Wicker	104 MVC	
34.	Hoyt Kelley	109 MVC	

WINDWARD POINTE HOMEOWNERS ASSOCIATION
PETITION OF PROTEST
Docket No. 2011-47-WS
Page three

	Name	Address	Signature
35.	Betty Ethers	112 MVC	Betty J. Ethers
36.	STAN WHITE	117 MVC	
37.	Peggy Fidler	120 MVC	Peggy Fidler
38.	Martha Thompson	201 MVC	Martha Thompson
39.	Blayd Fikes	203 MVC	
40.	NETA LEE	124 MVC	Neta Lee
41.	Paul & Linda Sawyer	216 MVC	Paul Sawyer
42.	Michael J. Cary	108 MVC	
43.	E. J. AYERS	165 MVC	
44.	John H. Blume	235 MVC	
45.	Kelly Lewis	127 MVC	Kelly Lewis
46.		MVC	
47.		MVC	



Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.utiwater.com

Bill Date	Account Number	Due Date	Please Pay
07/31/2011		8/25/2011	$76.24

Name PEGGY W FIDLER Primary Telephone # (803) 356-1187
Service Address 120 MURRAY VISTA CIR, LEXINGTON, SC, 29072

Activity Since Last Bill

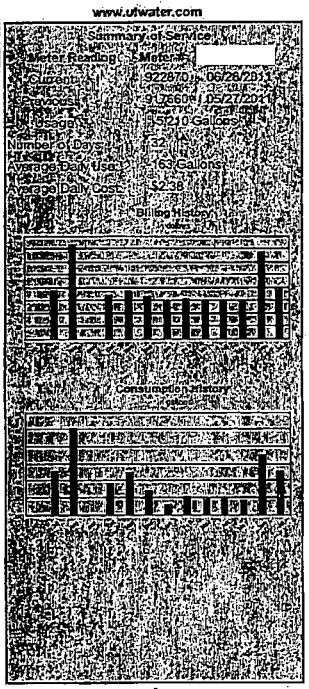
Previous Balance	$74.71	
Payments received as of 07/31/2011	$-74.71	
Balance as of 07/31/2011		$0.00

Residential Purchased Water

Water Distribution Base Charge	$11.09	
Distribution Usage of 5,210 gallons at $2.03 per 1,000 gallons	$10.58	
Water Supply Charge of 5,210 gallons at $0.0029888 per gallon	$15.57	
Total Residential Purchased Water		$37.24

Residential Wastewater Service

Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		$76.24



Pd 8/15/11
CK#

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ulwater.com

Bill Date	Account Number	Due Date	Please Pay
08/15/2011		9/9/2011	$274.34

Name KELLY LEWIS Primary Telephone # (803) 996-4713

Service Address 227 MURRAY VISTA CIR, LEXINGTON, SC, 29072

Activity Since Last Bill

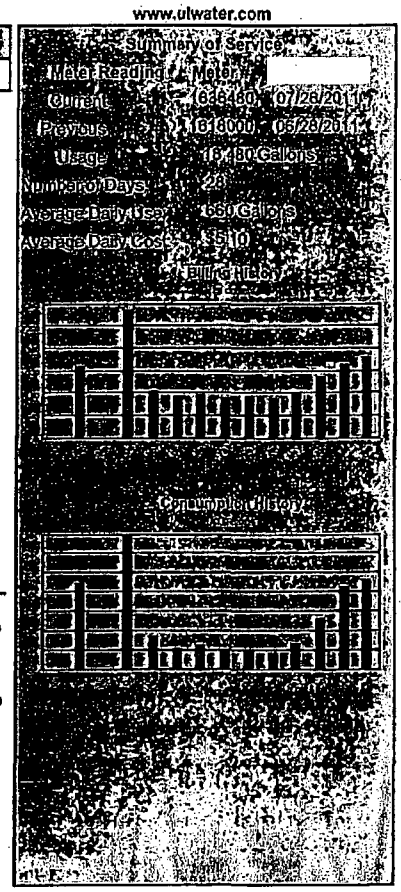
Previous Balance	$131.51	
Payments received as of 08/15/2011	$0.00	
Balance as of 08/15/2011		$131.51
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 18,480 gallons at $2.03 per 1,000 gallons	$37.51	
Water Supply Charge of 18,480 gallons at $0.0029888 per gallon	$55.23	
Total Residential Purchased Water		$103.83
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$274.34**

Cashed 8/15/11 ck#

131.51

142.00

.83



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Our records indicate the prior balance remains unpaid and your account may be subject to disconnection. Please note the due date on this bill refers to the current bill amount and does not extend the time allowed for payment of the prior balance.

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ulwater.com

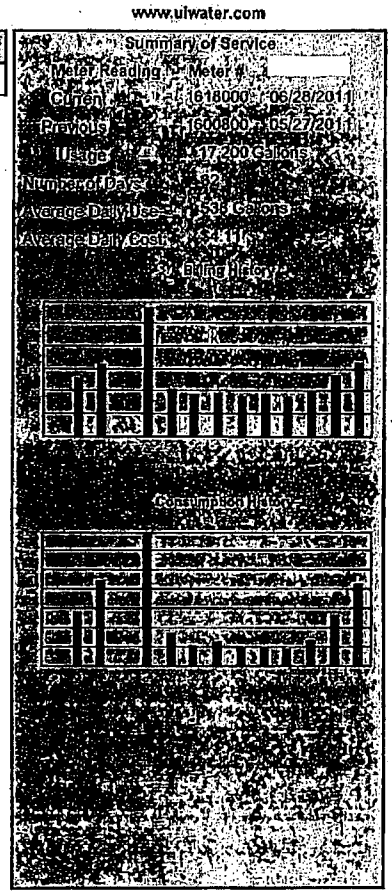
Bill Date	Account Number	Due Date	Please Pay
07/28/2011		8/22/2011	$131.51

Name KELLY LEWIS Primary Telephone # (803) 996-4713

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$108.96	
Payments received as of 07/28/2011	$-108.96	
Balance as of 07/28/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 17,200 gallons at $2.03 per 1,000 gallons	$34.92	
Water Supply Charge of 17,200 gallons at $0.0027032 per gallon	$46.50	
Total Residential Purchased Water		$92.51
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$131.51**



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
06/05/2011		6/30/2011	$108.96

Name KELLY LEWIS Primary Telephone # (803) 996-4713

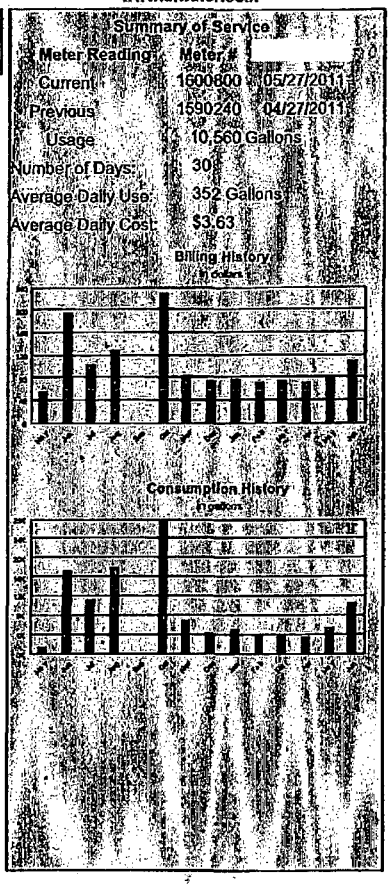
Service Address 227 MURRAY VISTA CIR, LEXINGTON, SC, 29072

Activity Since Last Bill

Previous Balance	$151.09	
Payments received as of 06/05/2011	$-151.09	
Balance as of 06/05/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 10,560 gallons at $2.03 per 1,000 gallons	$21.44	
Water Supply Charge of 10,560 gallons at $0.0034754 per gallon	$36.70	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$69.96
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		$108.96

Summary of Service

Meter Reading	Meter #	
Current	1600800	05/27/2011
Previous	1590240	04/27/2011
Usage	10,560 Gallons	
Number of Days:	30	
Average Daily Use:	352 Gallons	
Average Daily Cost:	$3.63	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.®

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
05/11/2011		6/6/2011	$151.09

Name KELLY LEWIS Primary Telephone # (803) 996-4713

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$70.08	
Payments received as of 05/11/2011	$0.00	
Balance as of 05/11/2011		$70.08
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 5,310 gallons at $2.03 per 1,000 gallons	$10.78	
Water Supply Charge of 5,310 gallons at $0.003656 per gallon	$19.41	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$42.01
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$151.09**

pd 5/9
ck#

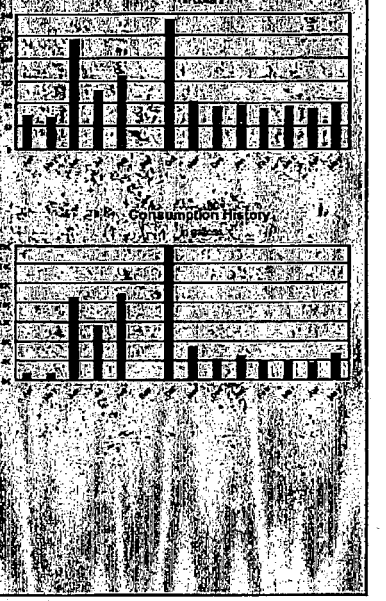
70.08
81.01

pd 5/19
ck#

Summary of Service

	Meter Reading	Meter #
Current	1590240	04/27/2011
Previous	1584930	03/28/2011
Usage	5,310 Gallons	
Number of Days	30	
Average Daily Use	177 Gallons	
Average Daily Cost	$2.70	

Billing History
(in dollars)



Consumption History
(in gallons)

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ufwater.com

Bill Date	Account Number	Due Date	Please Pay:
04/30/2011		5/25/2011	$70.08

Name KELLY LEWIS Primary Telephone # (803) 996-4713

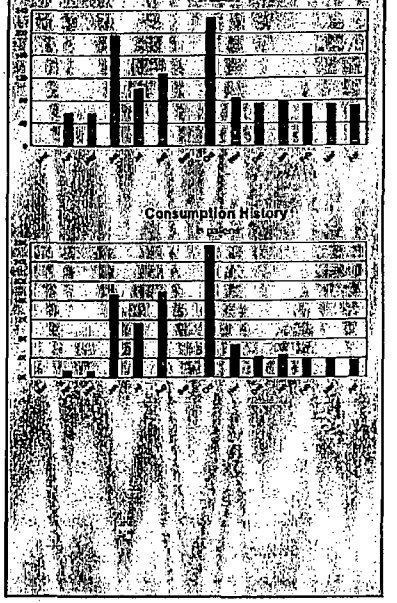
Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill		
Previous Balance	$73.28	
Payments received as of 04/30/2011	-$73.28	
Balance as of 04/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,620 gallons at $2.03 per 1,000 gallons	$7.35	
Water Supply Charge of 3,620 gallons at $0.0032696 per gallon	$11.91	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$31.08
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$70.08**

Summary of Service

Meter Reading	Meter #	
Current	1584930	03/28/2011
Previous	1581310	02/28/2011
Usage	3,620 Gallons	
Number of Days:	28	
Average Daily Use:	129 Gallons	
Average Daily Cost:	$2.50	

Billing History



Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ulwater.com

Bill Date	Account Number	Due Date	Please Pay:
03/30/2011		4/25/2011	$73.28

Name **KELLY LEWIS** Primary Telephone # **(803) 996-4713**

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$72.62	
Payments received as of 03/30/2011	$-72.62	
Balance as of 03/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,990 gallons at $2.03 per 1,000 gallons	$8.10	
Water Supply Charge of 3,990 gallons at $0.0035997 per gallon	$14.36	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$34.28
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$73.28**

Summary of Service

Meter Reading	Meter #	
Current	1581310	02/28/2011
Previous	1577320	01/26/2011
Usage	3,990 Gallons	
Number of Days:	33	
Average Daily Use:	121 Gallons	
Average Daily Cost:	$2.22	

Billing History
in dollars

Consumption History
in gallons

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

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Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ufwater.com

Bill Date	Account Number	Due Date	Please Pay
02/24/2011		3/21/2011	$72.62

Name **KELLY LEWIS** Primary Telephone # **(803) 996-4713**

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$79.17	
Payments received as of 02/24/2011	$-79.17	
Balance as of 02/24/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 3,840 gallons at $2.03 per 1,000 gallons	$7.80	
Water Supply Charge of 3,840 gallons at $0.0036453 per gallon	$14.00	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$33.62
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$72.62**

Summary of Service

Meter Reading	Meter #	
Current	1577320	01/26/2011
Previous	1573480	12/28/2010
Usage	3,840 Gallons	
Number of Days:	29	
Average Daily Use:	132 Gallons	
Average Daily Cost:	$2.50	

Billing History

Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
01/26/2011		2/21/2011	$79.17

Name **KELLY LEWIS** Primary Telephone # (803) 996-4713

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

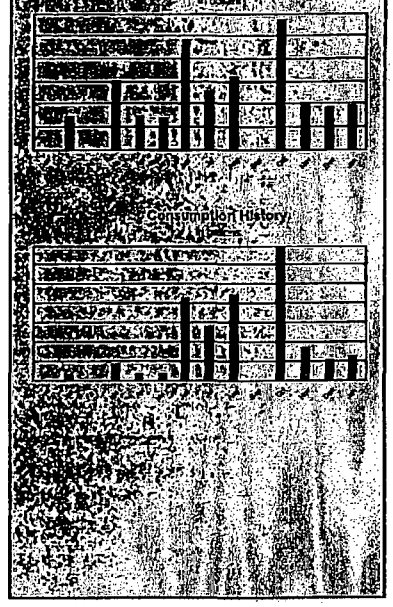
Activity Since Last Bill

Previous Balance	$74.41	
Payments received as of 01/26/2011	$-74.41	
Balance as of 01/26/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 4,890 gallons at $2.03 per 1,000 gallons	$9.93	
Water Supply Charge of 4,890 gallons at $0.0037671 per gallon	$18.42	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$40.17
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		$79.17

Summary of Service

Meter Reading	Meter #	
Current	1573480	12/28/2010
Previous	1568590	11/24/2010
Usage	4,890 Gallons	
Number of Days	34	
Average Daily Use	144 Gallons	
Average Daily Cost	$2.33	

Billing History



Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

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Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
12/31/2010		1/25/2011	$74.41

Name KELLY LEWIS Primary Telephone # (803) 996-4713

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$84.11	
Payments received as of 12/31/2010	$-84.11	
Balance as of 12/31/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 4,420 gallons at $2.03 per 1,000 gallons	$8.97	
Water Supply Charge of 4,420 gallons at $0.0033088 per gallon	$14.62	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$35.41
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$74.41**

Summary of Service

Meter Reading	Meter #	
Current	1568590	11/24/2010
Previous	1564170	10/28/2010
Usage	4,420 Gallons	
Number of Days	27	
Average Daily Use	164 Gallons	
Average Daily Cost	$2.76	

Billing History

Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.®

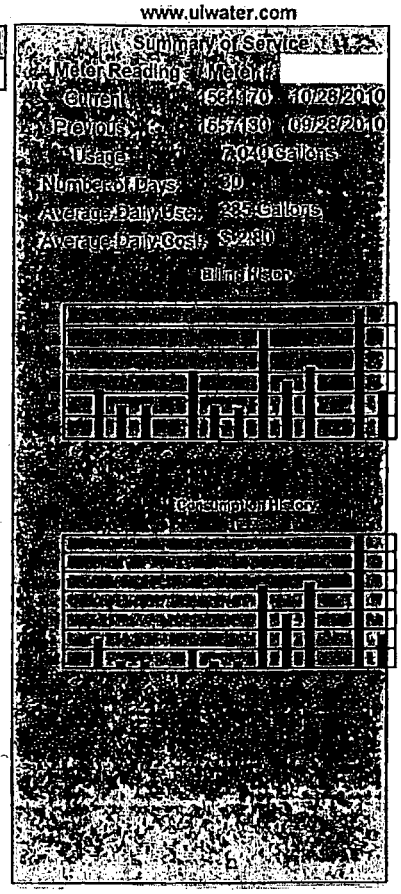
Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
11/28/2010		12/23/2010	$ 84.11

Name KELLY LEWIS Primary Telephone # (803) 996-4713
Service Address 227 MURRAY VISTA CIR, LEXINGTON, SC, 29072

Activity Since Last Bill

Previous Balance	$114.10	
Payments received as of 11/28/2010	$-114.10	
Balance as of 11/28/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 7,040 gallons at $2.03 per 1,000 gallons	$14.29	
Water Supply Charge of 7,040 gallons at $0.0026983 per gallon	$19.00	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$45.11
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$84.11**



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
We are pleased to announce the launch of our new Web Self-Service site. The site will allow you to obtain current and historical account information. The site may be accessed by going to http://www.uiwater.com/myaccount.

Utilities, Inc.®

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
10/25/2010		11/19/2010	$ 114.10

Name **KELLY LEWIS** Primary Telephone # **(803) 996-4713**

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

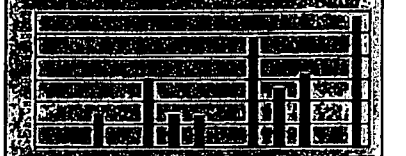
Activity Since Last Bill

Previous Balance	$101.99	
Payments received as of 10/25/2010	$-101.99	
Balance as of 10/25/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 13,410 gallons at $2.03 per 1,000 gallons	$27.22	
Water Supply Charge of 13,410 gallons at $0.0026894 per gallon	$36.06	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$75.10
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$114.10**

Summary of Service

Meter Reading	Meter #
Current	09/28/2010
Previous	09/01/2010
Usage	Gallons
Number of Days	27
Average Daily Use	Gallons
Average Daily Cost	$4.23

Billing History



Consumption History

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.ulwater.com

Bill Date	Account Number	Due Date	Please Pay: $
10/03/2010		10/28/2010	$ 101.99

Name KELLY LEWIS Primary Telephone # (803) 996-4713

Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

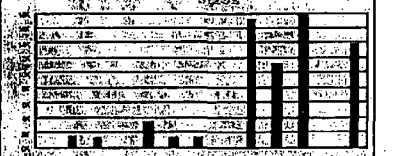
Activity Since Last Bill		
Previous Balance	$127.49	
Payments received as of 10/03/2010	$-127.49	
Balance as of 10/03/2010		$0.00
Adjustments		
Miscellaneous Adjustment - Water		$-2.59
Miscellaneous Adjustment - Wastewater		$-9.10
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 13,890 gallons at $2.03 per 1,000 gallons	$28.20	
Water Supply Charge of 13,890 gallons at $0.0024951 per gallon	$34.66	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$74.68
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		$101.99

Summary of Service

Meter Reading	Meter #	
Current	1543720	09/01/2010
Previous	1529830	07/30/2010
Usage	13,890 Gallons	
Number of Days:	33	
Average Daily Use:	421 Gallons	
Average Daily Cost:	$ 3.44	

Billing History

Consumption History



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 367-4314
Collections: (800) 367-4314
Customer Service: (800) 367-4314
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay
08/23/2010		9/17/2010	$ 127.49

Name KELLY LEWIS Primary Telephone # (803) 996-4713

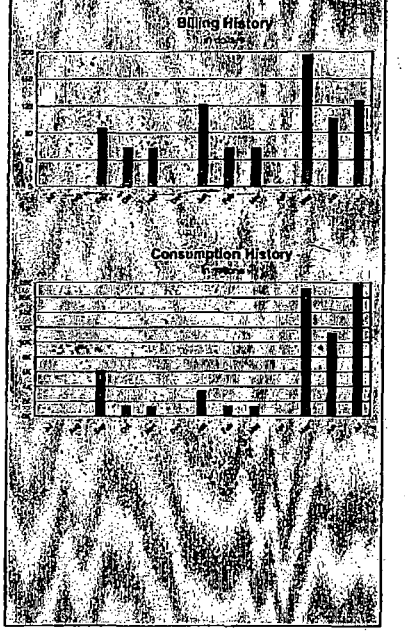
Service Address *227 MURRAY VISTA CIR, LEXINGTON, SC, 29072*

Activity Since Last Bill

Previous Balance	$101.44	
Payments received as of 08/23/2010	$-101.44	
Balance as of 08/23/2010		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 17,790 gallons at $2.03 per 1,000 gallons	$36.11	
Water Supply Charge of 17,790 gallons at $0.0022799 per gallon	$40.56	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$88.49
Residential Wastewater Service		
Wastewater Service	$39.00	
Total Residential Wastewater Service		$39.00
Total Amount Due		**$127.49**

Summary of Service

Meter Reading	Meter #	
Current	1529830	07/30/2010
Previous	1512040	06/28/2010
Usage	17,790 Gallons	
Number of Days	32	
Average Daily Use	556 Gallons	
Average Daily Cost	$ 3.98	



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages

PETITION IN OPPOSITION TO THE RATE INCREASE REQUESTED BY CAROLINA WATER SERVICE INC.

August 23, 2011

To the South Carolina Public Service Commission, Columbia, South Carolina

We the undersigned, owners of property in the Cunningham Park Subdivision, Lexington, SC, hereby protest the requested increase in water & sewage rate by Carolina Water Service, Inc. We hereby petition the SC Public Service Commission to take the necessary steps to turn down their request for an 80% rate increase in water and 14% increase in sewer for our subdivision.

This increase is exorbitant, especially since the water is being bought from the City of West Columbia Water Department. The customers of the West Columbia Water Department pay much less for their water and sewage than we are currently paying.

Since a free market for water and sewer services is not allowed in our area, we have no choice but to use the services of Carolina Water Service, Inc. The company is fully aware of this fact and as a result is attempting to take advantage of its helpless customers.

Neighborhood Contact Person Stephen Keene Telephone Number (803) 520-6654

Owner's Name & Signature	Address	Phone
[signature]	123 Viclynn Run	803-587-3179
Amanda Barton	103 Viclynn Run	803-369-1039
Theresa Parker	107 Viclynn Run	803-359-4609
Martha Freeman	107 Viclynn Run	803-359-4609
[signature]	115 Viclynn Run	803-358-0843
Jill DuBois	115 Viclynn Run	767-6256
Stephanie Martin	123 Viclynn Run	803-360-7228
[signature]	123 Viclynn Run	803-360-5367
Christine Tull	131 Viclynn Run	803-351-1041
[signature]	131 Viclynn Run	803-476-2832

EXHIBIT 9/7/11
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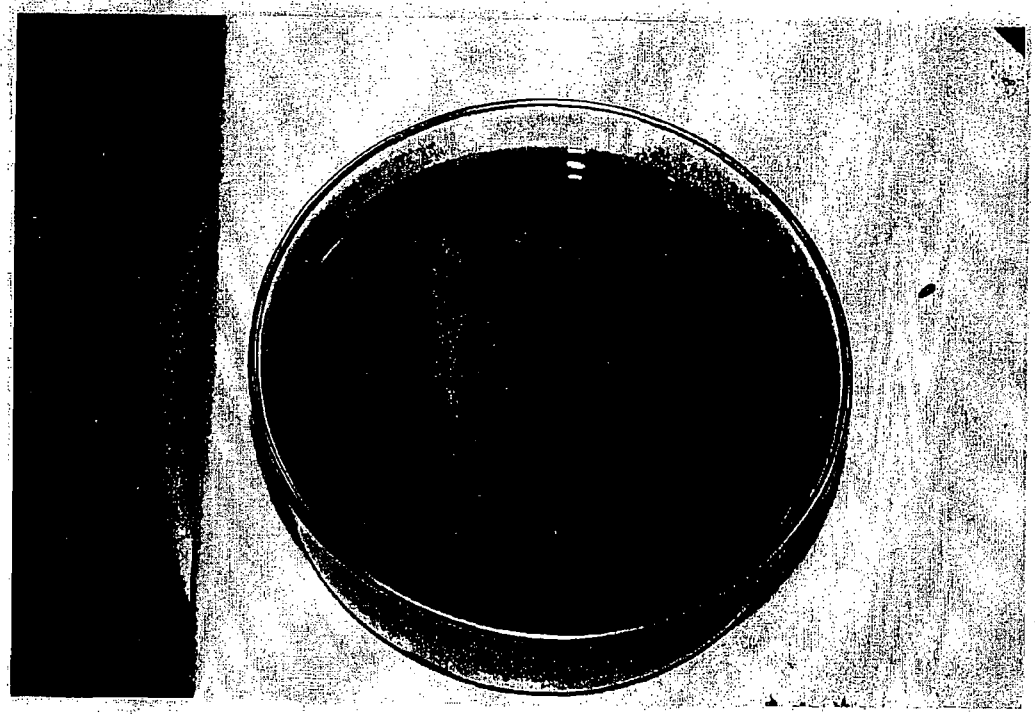
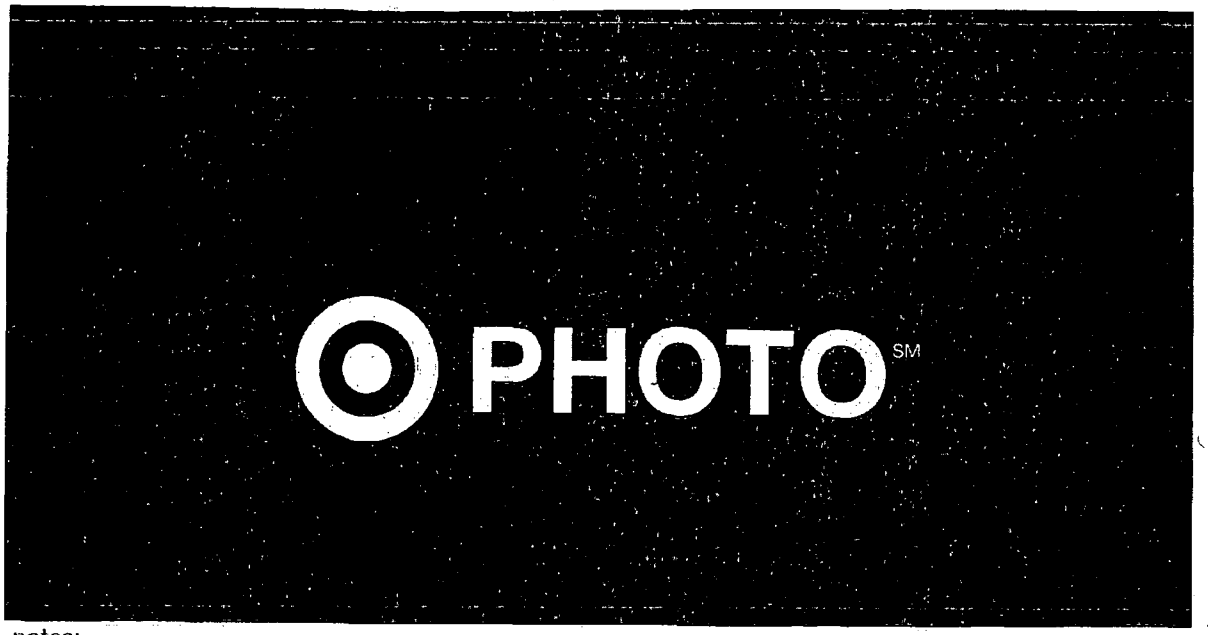
Terry & Patsy Banks	242 Melann Pass	864-382-8027
Miriam Berry	246 Melann Pass	356-2085
Linda C Eberly	119 Vicky Run	520-6987
Nella Edwards	119 Vicky Run	520-6987
Chrissie Picard	245 Melann Pass	609-7451
[illegible]	245 Melann Pass	315-0202
Melissa Hughes	253 Melann Pass	520-6688
Jesse Stevens	258 Melann Pass	315-1824
Beth Hawkins	257 Melann Pass	240-4017
Mell C Stark	257 Melann Pass	960-3079
Billie Logue (Bebe)	261 Melann Pass	808 4465
James O. Freeman	" " "	808 4465
Dewey Kaufholz	265 Melann Pass	803-730-7083
Melissa Kaufholz	265 Melann Pass	803-730-7083
Ruth Broadwell	262 Melann Pass	803-629-3722
Jeffrey Bradwell	262 Melann Pass	803-629-9518
Virginia Wetzel	258 Melann Pass	803-374-5914
[illegible]	258 Melann Pass	803-603-4222
[illegible]	250 Melann Pass	803-908-7707
Jennifer L Brown	211 Melann Pass	803.422-0935
Chris Gamble	211 Melann Pass	803 360-8804
Devin Hinson	210 Melann Pass	803 920-5999
Kathy Henson	210 Melann Pass	803 413 7161
Erin Salter	222 Melann Pass	803-600-3658

Luviana Aylheart	135 Vielynn Run	803-530-6252
Tracy Aylheart	135 Vielynn Run	803-520-6252
Shena King	89 Vielynn Run	(770) 280 7916
Walter E Harris	143 Vielynn Run	(803) 359-5446
Bunny Gable	151 Vielynn Run	(803) 359-6549
BENNIE GABLE	151 VIELYNN RUN	(803) 359-6549
Jan	155 Vielynn Run	803 356-3232
Deborah J Taylor	" " "	"
Beverly Pennell	202 Melann Pass	803-206-3384
	207 Melann Pass	803-730-8331
	214 Melann Pass	803-238-4742
Faye L. Keller	214 Melann Pass	803-486-8890
Lyxi Hughes	226 Melann Pass	803-808-0983
Clifton D. Hughes	226 Melann Pass	803-808-0983
Andrea Kune	233 Melann Pass	803-500-6654
Andrea Kune	233 Melann Pass	803-500-6654
Ryan West	238 Melann Pass	(803) 586-7830
Jamie A Sox	221 Melann Pass	(803) 520-4225
Jamie K. Sox	221 Melann Pass	(803) 520-4225
	230 Melann Pass	(803) 622-0853
Brandi Zafarano	237 Melann Pass	(803) 951-2180
Michael Zafarano	237 Melann Pass	(803) 951-2180
Ratonya West	238 Melann Pass	(843) 834-2678

Chad Coleman	206 Melanie Pass	394-0999
Katie Coleman	" " "	467-6346

PHOTO
SM
EXHIBIT
12A-G
2011-47-WS





notes:

Sun Aug 14 2011

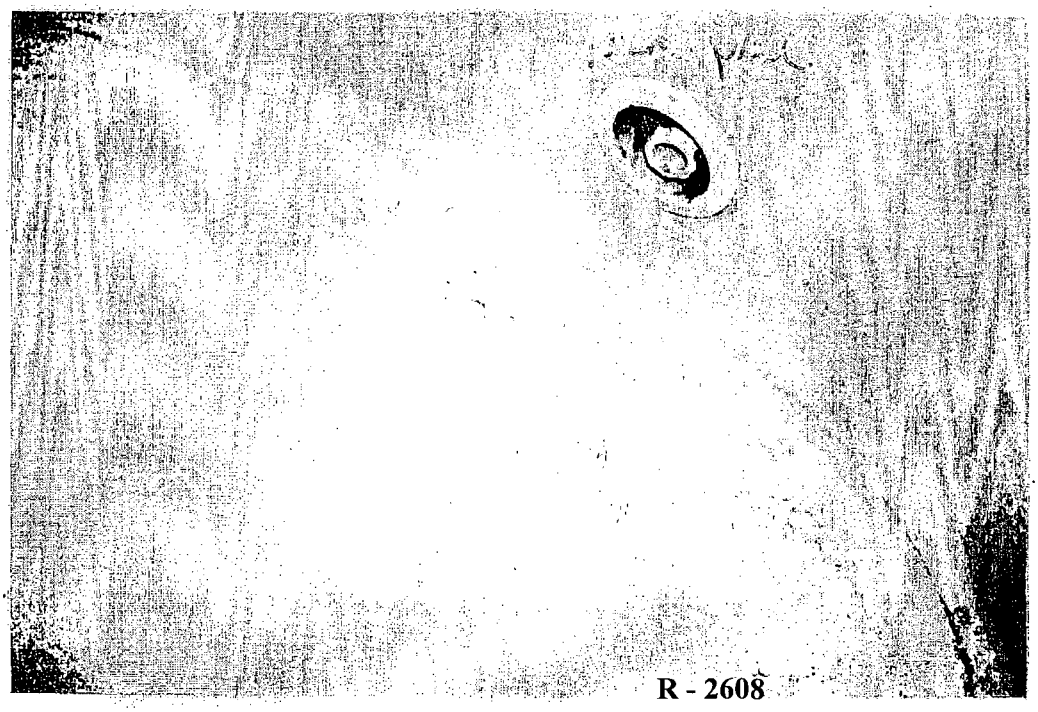
HE 22-A

Sun Aug 14 2011

HE 22-B

Sun Aug 14 2011

HE-22C

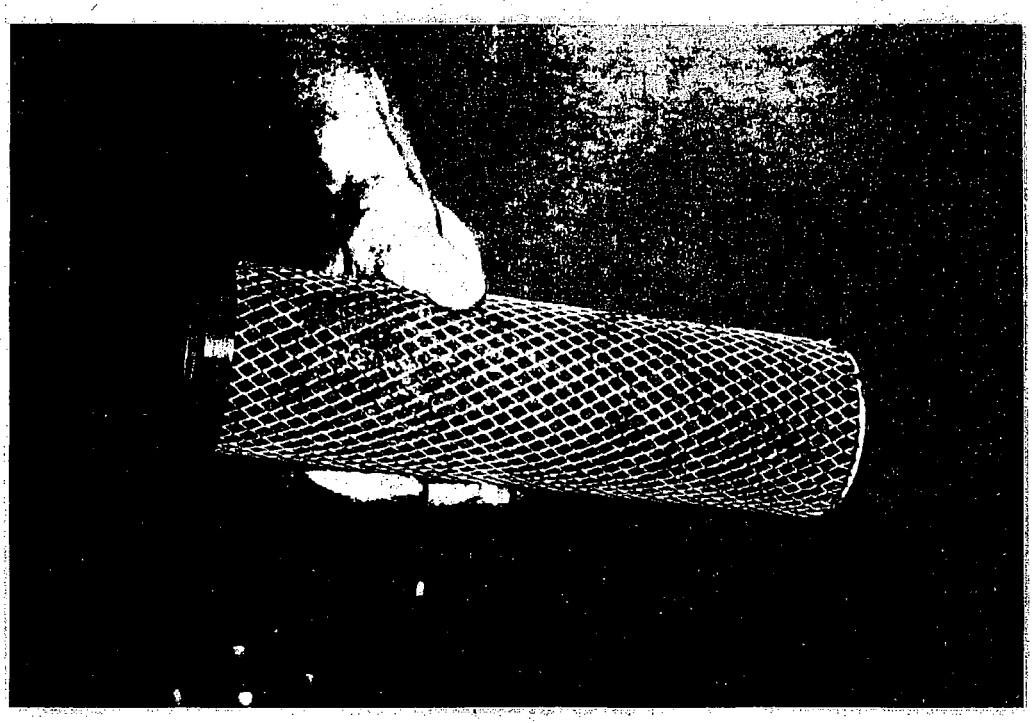


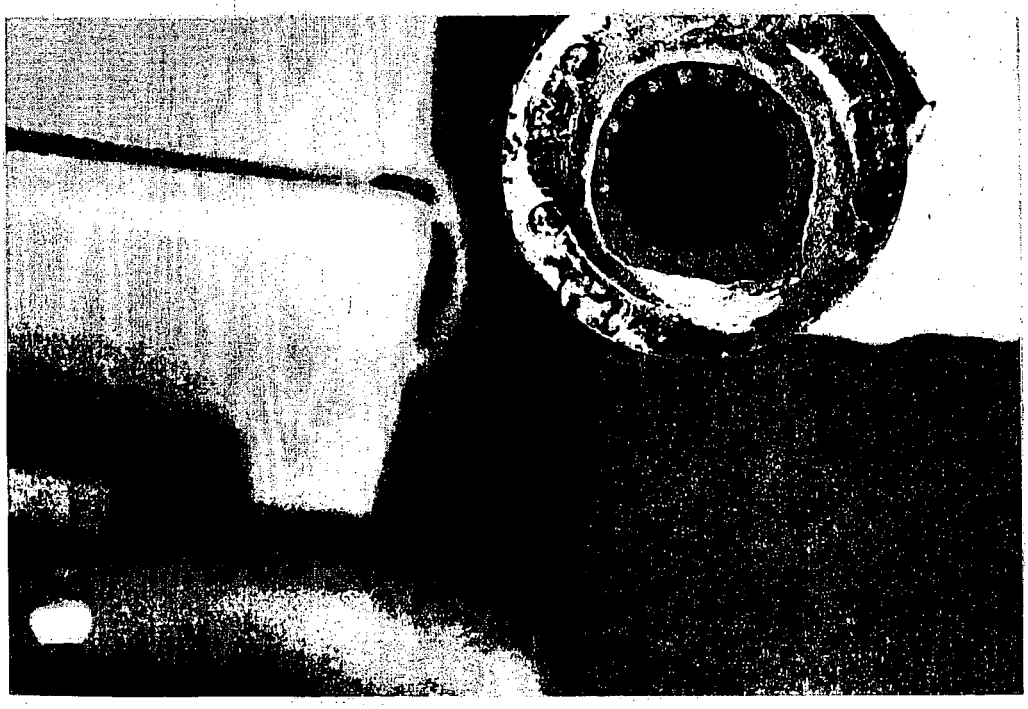
Sun Aug 14 2011

HE-22D

Sun Aug 14 2011

HE-22E





July 2011

HE-22F

HE-22G

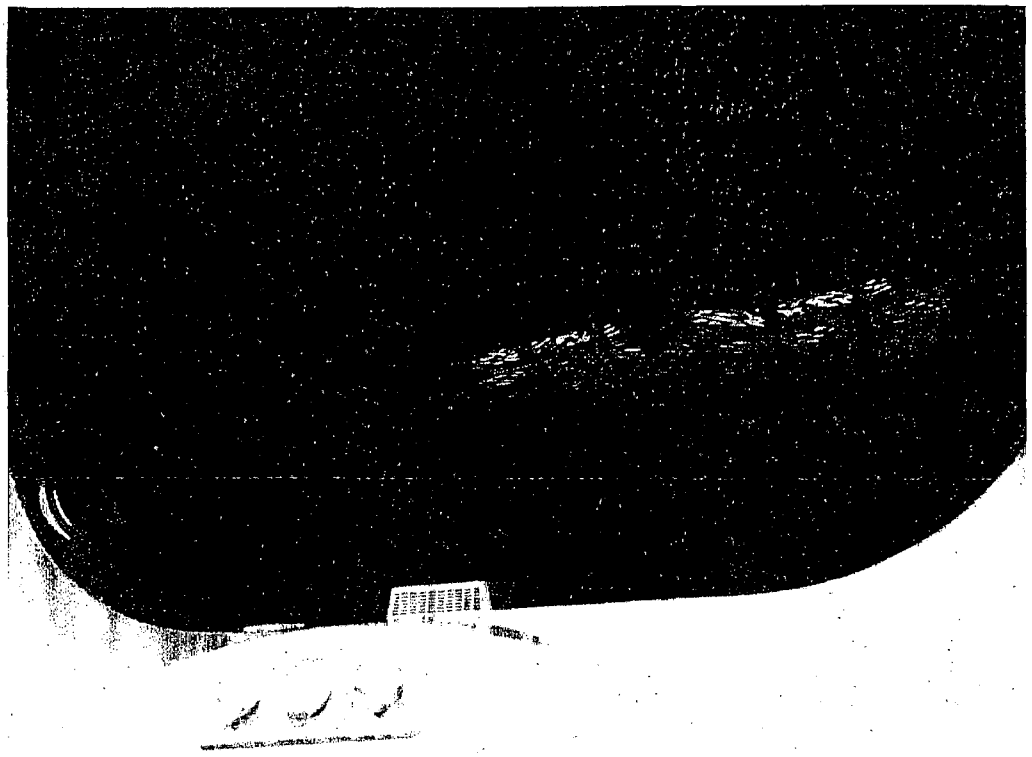
1108 hp

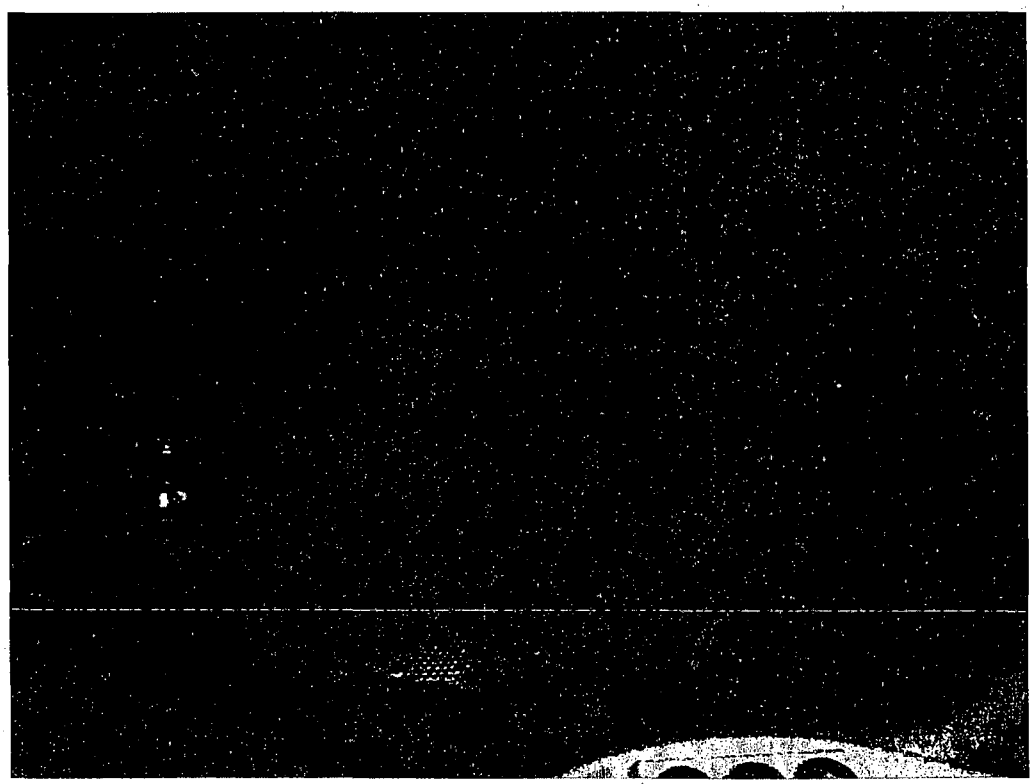
Exhibit 22-H

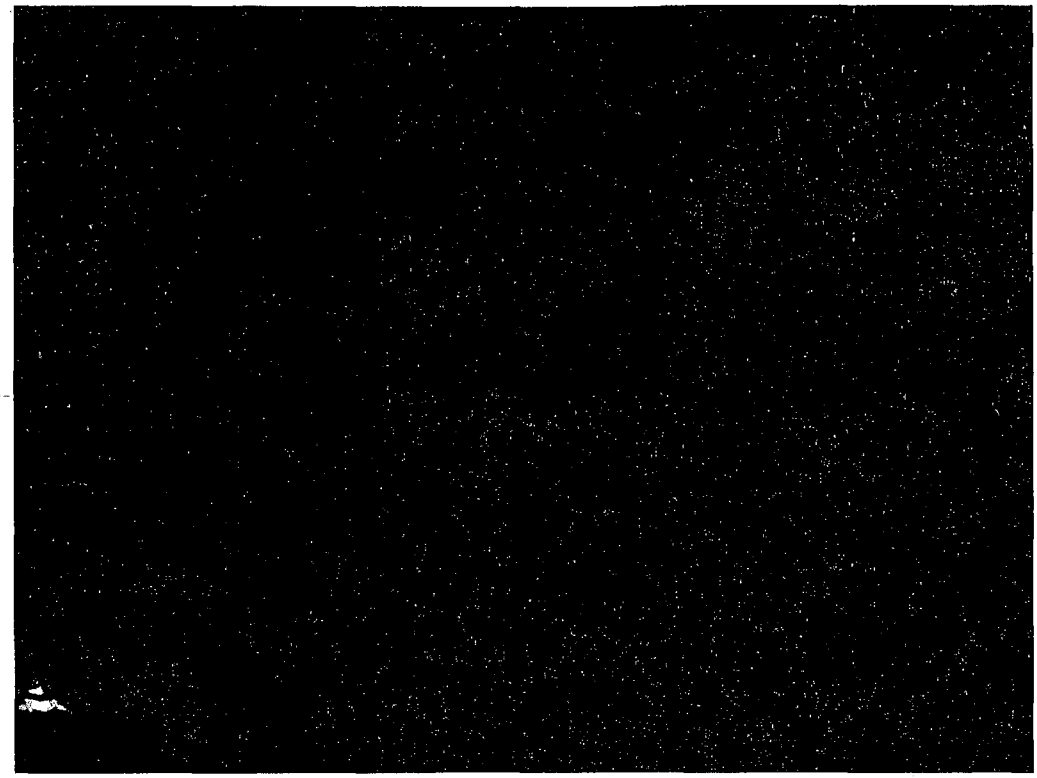
Used filter cartridge from water filtration system

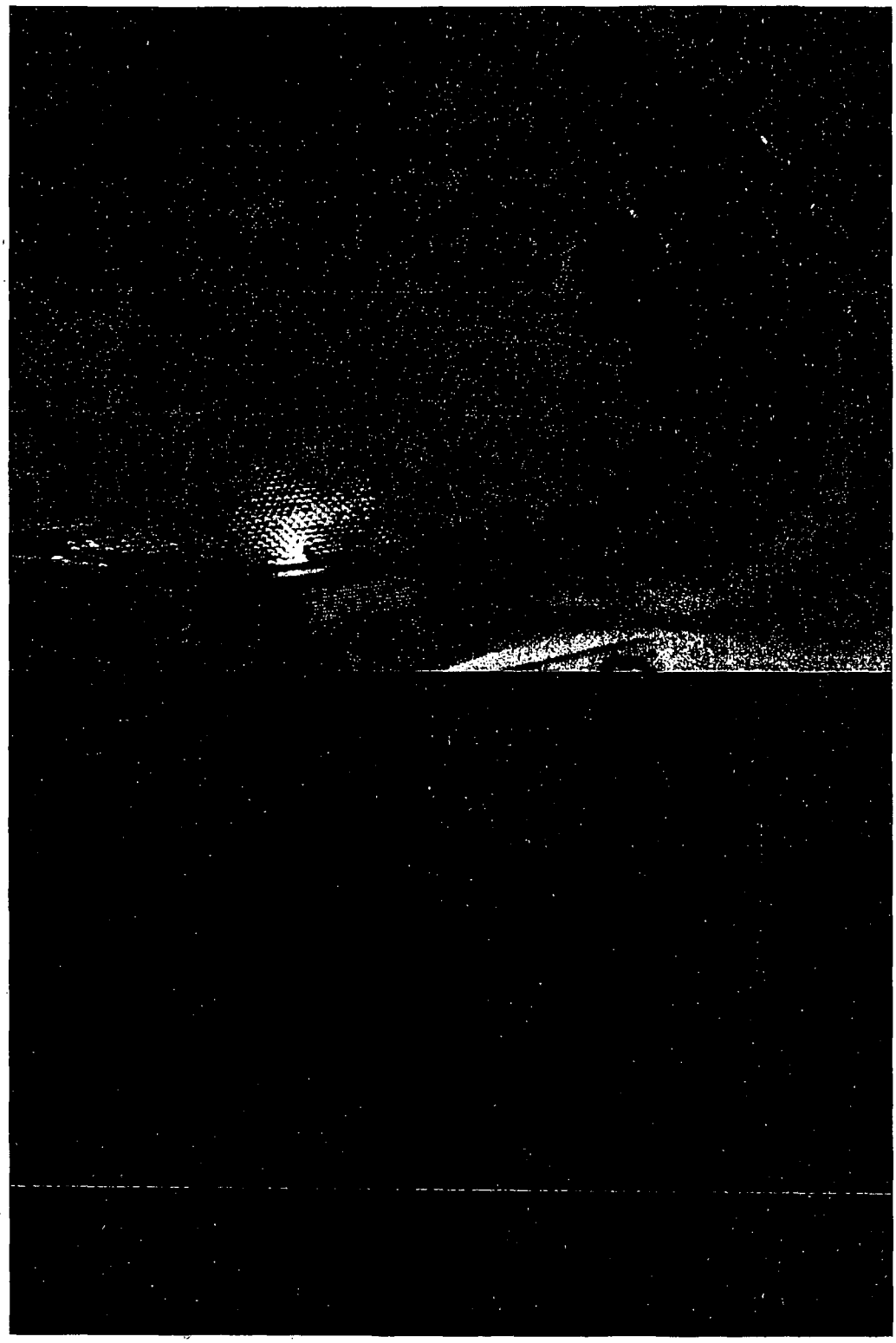
photos]

EXHIBIT
23
2011-47-WS









Minutes

FORTY LOVE POINT - WATER MEETING: **Thursday, September 24th at 6:30**

Notes from that meeting: Taken by Nancy Williamson

Hello Neighbors. I just wanted to pass some information on about the meeting with CWS and DHEC last Thursday. I tried to take meeting minutes, but I got caught up in the discussion quite a bit, so I am just going to summarize the meeting in my own words instead, and feel free to reply all and add something that I missed.

FIRST: Before I lose you, CWS will be flushing everyone's lines over the next few weeks; this would be the line from your home that connects to the water system. I will let you know when your street will be done – it only takes about 5 minutes for each house during the flushing so your water will be turned off. They will knock on your door as well to let you know when they are about to do it because your water will be shut off during the flushing.

The meeting was very nice, it actually didn't get as heated as I thought it would. There were 24 residents that came to the meeting, so it was a pretty good turn out. Bob Gilroy, the regional operations manager, spoke on behalf of CWS. He is new to this position and is taking a personal interest in our neighborhood. He has been out here working with the other operators testing the water and flushing the lines. Mac Mitchell also came from CWS, he is a lab specialist and has been testing water for CWS for over 20 years. Sonya Johnson and Miranda Chestnut came out from DHEC.

Bob explained the current situation and what CWS was doing to combat the dirty water. The brown stinky water that had iron bacteria has supposedly been taken care of. Bob urged residents to call him directly, any time they experienced these problems. His number is 800-367-4314. Bob was unaware of the previous complaints the neighborhood had, he thought this was the first incident. Laura Valtorta mentioned the complaints in 2006 when there was a rate increase, he did not know about the complaints then of smelly dirty water, and had no idea that residents filled out affidavits concerning the poor quality of water and low pressure. Laura said that she would get that information together for him so he could see that there has been a history of complaints.

Bob also discussed water pressure. There are several residents that experience extremely low water pressure and others that don't have any problems. Pam Stewart commented that her upstairs shower is barely a trickle and you can't even use it; she asked if this will improve. Bob said that if they increase pressure on the system then some homes will get blown out with too high of pressure – but they will test it and try to figure out a happy medium. One way to help with the water pressure problem would be to restrict water usage; for example, limit yard watering to specific off peak times during to the day. The more people that are usuing the water at the same time, the less the pressure will be. (*might want to think about asking the neighborhood to restrict yard sprinkler timers during morning shower hours – discuss at board meeting). Sonya said that DHEC regulations require that pressure does not fall below 25 psi, or 20 psi during peak range. Bob said that CWS will start randomly testing pressure to see if they can adjust it.

Martin Shaffer asked if the desing of the well system was large enough to handle the number of homes in he neighborhood. Nancy asked Bob how many exactly it was designed for and how many houses are

using it. Bob said that the system is designed for 205 houses, currently there are 203 houses on the system (he was not sure if that included the empty lots or not). There are 7 wells on the system; 2 are off-line, so only 5 are working. He also explained that the developer designed the system (hired engineers that worked with DHEC), and they developed the 25psi and did not plan for fire-flow hydrants. If fire trucks were to tap into the system, they would draw out water right away, it just does not have that much capacity. The fire trucks would have to fill up in the boat launch area, there is a fire tap there.

Sonya addressed the iron bacteria, explained that it is a naturally occurring bacteria and that this is the first time our water has tested positive for it. The iron bacteria is killed through chlorination, and that our water is now iron bacteria free. Kyra Sulkowski asked what the long term affects are of this bacteria, what health risks are there associated with it? Sonya said that there are none, it just causes foul odor and discoloration, it is safe to drink (and she admits that she would never drink it and that no one should have to). Sonya explained that CWS test for about 95 different items monthly and they report the test results to DHEC (there is a fee on our water bill for that). If items they test for have no hits consecutively, then they decrease the frequency of testing for that item. They have test results back to 2000. Laura Valtorta asked what happens if the test comes back unacceptable? Sonya said they have not come back unacceptable.

CWS addressed the **Boil Water Advisory.** They explained that this is not all bad water, only some of you will have bad water, but they don't know who, so everyone should boil it... (ok, that is what I heard anyway, may not be how they said it exactly) ...which is different from **Boil Water Notice** – which they thought we had not had. We have had several of those, we brought that to their attention, that means is not all bad water, only some of you will have bad water, but they don't know who, so everyone should boil it... Tom O'Neill commented that we are charged all month for this water, whether it is poor quality or not, shouldn't we be compensated for that? They could not answer any money/rate questions, residents were urged to talk to ...someone else (I did not get a name or number, but I will ask Bob Gilroy who we complain to for that – does not look promising though)

Bob explained that since this is a well system, the water we have is dependent on the water in the ground. The water around the lake are is hard water. They work with DHEC to maintain the water at quality levels and they try to get the natural sedimentation (the floaties) out. They add chlorine to take out the odor and kill the bacterias. They soften the water at the softening station pumps located in our tennis courts area. Sonya said that DHEC makes sure they do not fall below the guidelines. Laura commented that the water we have is at the absolute minimum safe guidelines, so there is nothing that DHEC can do because they are within the EPA (nationally regulated) guidelines that are given to DHEC to inforce.

Wendy Engel commented that 95% of the residents that came to the meeting live on Match Point Drive, are they on the same well, is that why our water is so bad? Bob said that everyone gets the same water, we are all connected to the same 5 wells. So why are some people experiencing poor water quality and others aren't? ....hmmm..... I must have been really listening because I don't have an anwer for that one – it must go back to flusing the individual lines from the main line to each home. When the lines are flushed, the water is pushed through at such a high pressure that is scours the lines and it pushes out sediment, and loosens sediment that might come out after the flushing. So one person might get sediment that was loosened but not flushed out.

Ann Marie Mims asked if the iron bacteria is not harmful, then why to they chlorinate to kill it? Sonya replied that it is purely for aesthetic purposes. Ann Marie also asked what would happen if it wasn't

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
06/29/2011		7/25/2011	$100.74

Name FRANK S RUTKOWSKI
Primary Telephone # (803) 732-9978
Service Address 123 MATCH POINT DR, CHAPIN, SC, 29036

Activity Since Last Bill

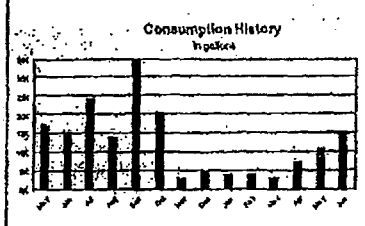
Previous Balance	$87.25	
Payments received as of 06/29/2011	$-87.25	
Balance as of 06/29/2011		$0.00
Residential Water Service		
Water Base Charge	$11.09	
14,710 gallons at $3.55 per 1,000 gallons	$52.22	
SC DHEC Fee	$0.73	
Total Residential Water Service		$64.04
Residential Wastewater Service		
Wastewater Collection	$25.70	
Richland County Wastewater Treatment	$11.00	
Total Residential Wastewater Service		$36.70
Total Amount Due		$100.74

Summary of Service

Meter Reading	Meter #	
Current	530540	06/26/2011
Previous	515830	05/25/2011
Usage	14,710 Gallons	
Number of Days:	32	
Average Daily Use:	460 Gallons	
Average Daily Cost:	$3.15	

Billing History
In dollars

Consumption History
In gallons



$100.74
4 adults
1 mth only
water + sewer

ie date.
SC

-922-1531 with any complaints that remain unresolved after 7 days.
can obtain account information and register for paperless billing.

Utilities, Inc.
PO BOX 160609
Altamonte Springs, Fl 32716

Account Number:
Due Date: 7/25/2011
Please Pay: $100.74

Amount Paid

UTI0630A AUTO SCH 3-DIGIT 290
7000004396 01.0019.0009 4396/1

FRANK S RUTKOWSKI
123 MATCH POINT DR
CHAPIN SC 29036-7879

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

EXHIBIT
9/7/11
24
2011-47

CITY OF WEST COLUMBIA
Water Collection Division - City Hall
PO Box 4044
West Columbia SC 29171-4044

LOCATION: 1163 GUNTER CIRCLE
ACCOUNT NO.:
BILLING DATE: 07-10-2011
DELINQUENT DATE: 08-10-2011

TOTAL DUE: DO NOT PAY

J O MARTIN
1163 GUNTER CIR 2 668
WEST COLUMBIA SC 29169-6252

CITY OF WEST COLUMBIA
Water Collection Division City Hall
PO Box 4044
West Columbia SC 29171-4044

▲ PLEASE DETACH AND MAIL THIS PORTION ALONG WITH PAYMENT ▲

WATER BILL

CITY OF WEST COLUMBIA
Water Collection Division City Hall
PO Box 4044
West Columbia SC 29171-4044
Phone: (803) 791-1880

MESSAGE:

SERVICE LOCATION:
1163 GUNTER CIRCLE

ACCOUNT NUMBER:

ADDRESS:
J O MARTIN
1163 GUNTER CIRCLE
WEST COLUMBIA SC 29169-6252

SEE SPECIAL MESSAGE & INFORMATION ON THE BACK

1. LOCATION	1163 GUNTER CIRCLE	
2. METER NUMBER		
3. LAST PAYMENT	31.42	DELINQUENT AFTER
4. RECEIVED	05-16-2011	08-10
5. DATE READ	06-29-2011	
6. LAST READING	1037200	
7. CURRENT READING	1046800	
8. GALLONS CONSUMED	9300	
9. BILLING DATE	07-10-2011	
10. CLASS	RI	
11. ACCOUNT NO.		
12. PREVIOUS BALANCE	.00	
13. WATER	22.94	
14. SEWER	13.75	
15. IMPACT FEE	.00	
17. SPRINKLER HEADS	.00	
19. ONE TIME CHARGE	.00	
21. SPECIAL CHARGE	.00	

A late charge will be assessed if not paid by the delinquent date shown above.

TOTAL DUE 36.69

TOTAL DUE $ 36.69

CITY OF WEST COLUMBIA
Water Collection Division - City Hall
PO Box 4044
West Columbia SC 29171-4044

LOCATION: MOHAWK DRIVE
ACCOUNT NO.:
BILLING DATE: 07-10-2011
DELINQUENT DATE: 08-10-2011

TOTAL DUE: DO NOT PAY

JOHNNY O MARTIN
1163 GUNTER CIR 2 704
WEST COLUMBIA SC 29169-6252

CITY OF WEST COLUMBIA
Water Collection Division - City Hall
PO Box 4044
West Columbia SC 29171-4044

▲ PLEASE DETACH AND MAIL THIS PORTION ALONG WITH PAYMENT ▲

WATER BILL

CITY OF WEST COLUMBIA
Water Collection Division - City Hall
PO Box 4044
West Columbia SC 29171-4044
Phone: (803) 791 1880

MESSAGE:

SERVICE LOCATION:
MOHAWK DRIVE

ACCOUNT NUMBER:

ADDRESS:
JOHNNY O MARTIN
1163 GUNTER CIR
WEST COLUMBIA SC 29169-6252

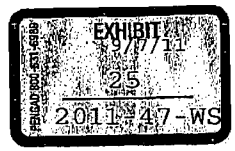
SEE SPECIAL MESSAGE & INFORMATION ON THE BACK

1. LOCATION	MOHAWK DRIVE	
2. METER NUMBER		
3. LAST PAYMENT	16-10	DELINQUENT AFTER
4. RECEIVED	05-16-2011	
5. DATE READ	06-30-2011	08-10
6. LAST READING	692800	
7. CURRENT READING	714400	
8. GALLONS CONSUMED	21600	
9. BILLING DATE	07-10-2011	
10. CLASS	C1	
11. ACCOUNT NO.		
12. PREVIOUS BALANCE	.00	
13. WATER	53.16	
14. SEWER	.00	
15. HYDRANT FEE	.00	
17. SPRINKLER HEADS	.00	
19. ONE TIME CHARGE	.00	
20		
21. SPECIAL CHARGE	.00	
22.		
23		
24.		

A late charge will be assessed if not paid by the delinquent date shown above

TOTAL DUE 53.16

TOTAL DUE $ 53.16



BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2011-47-WS

IN RE: Application of Carolina Water Service, Inc. for Adjustment of Certain Terms and Conditions for the Provision of Water and Sewer Service	))))	**SETTLEMENT AGREEMENT**

WHEREAS Carolina Water Service, Inc., ("Carolina Water") has applied for an adjustment of rates and charges in the above captioned docket; and

WHEREAS Carolina Water by contract provides Midlands Utility, Inc. ("Midlands") with bulk sewer treatment service for Midlands' customers in the Vanarsdale subdivision in Richland County, South Carolina; and

WHEREAS Carolina Water in its application has sought to increase the contract bulk sewer treatment rate with Midlands as approved in Docket No. 2006-92-WS from $16.53 per single family equivalent per month to $18.78 per month; and

WHEREAS Midlands has intervened in the above captioned docket objecting to the increase in the contract bulk treatment service expense; and further because Vanarsdale Customers presently pay a collection fee in the amount of $23.03 inaddition to the treatment charge, for a total cost of sewer services of $39.56. per single family equivalent per month; and

WHEREAS Carolina Water and Midlands have agreed to resolve all issues between them in this docket, subject to the approval of the South Carolina Public Service Commission.

WHEREFORE, for the purposes of this docket, consideration of the premises, the Parties hereto agree and stipulate as follows:

1) That any increase in the contract bulk sewer treatment service rate charged Midlands by Carolina Water for bulk sewer treatment service to Midland's customers in the Vanarsdale subdivision shall be identical to the percentage increase which may be allowed for single family equivalent sewer treatment rate in this docket; and

2) That the prefiled testimony of Carolina Water and Midlands addressing the issues related to the appropriate rate to be charged to Midlands for bulk sewer treatment service to Midlands' customers in the Vanarsdale subdivision will be admitted into the record without objection or cross examination.

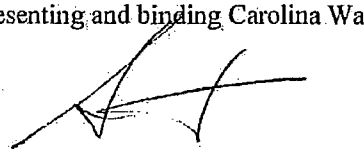
3) That the Parties agree that this Settlement Agreement is fair, reasonable, in the public interest, and in accordance with law and regulatory policy; and

4) That the Parties agree that by signing this Settlement Agreement it shall not constrain, inhibit, or impair their arguments or positions held in future proceedings before the South Carolina Public Service Commission; and

5) That this Settlement Agreement contains the complete agreement between the Parties and shall be binding according to the stipulations.

WITNESS THE BELOW SIGNATURES EXECUTED AS OF SEPTEMBER 7, 2011 BY THE PARTIES RESPECTIVE ATTORNEYS OF RECORD.

Representing and binding Carolina Water Service, Inc.



Scott Elliott, Esquire
Elliott & Elliott, PA
1508 Lady Street
Columbia, SC 29201
803-771-0555 (P)
803-771-8010 (F)
selliott@elliottlaw.us

Representing and binding Midlands Utility, Inc.

Charles H. Cook, Esquire
Cook Law Firm
6806Pine Tree Circle
Columbia, SC 29206
803-782-6806 (P)
803-782-0098 (F)
unda8@aol.com

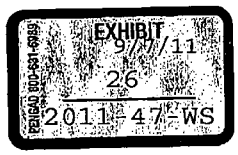
APPENDIX A

PROFESSIONAL QUALIFICATIONS

OF

PAULINE M. AHERN, CRRA
PRINCIPAL

AUS CONSULTANTS



PROFESSIONAL QUALIFICATIONS
OF
PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS

PROFESSIONAL EXPERIENCE

1994-Present

In 1996, I became a Principal of AUS Consultants, continuing to offer testimony as an expert witness on the subjects of fair rate of return, cost of capital and related issues before state public utility commissions. I provide assistance and support to clients throughout the entire ratemaking litigation process. In addition, I supervise the financial analyst and administrative staff in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. The team also assists in the preparation of interrogatory responses, as well as rebuttal exhibits.

As the Publisher of AUS Utility Reports (formerly C. A. Turner Utility Reports), I am responsible for the production, publishing, and distribution of the reports. AUS Utility Reports provides financial data and related ratios for about 120 public utilities, i.e., electric, combination gas and electric, natural gas distribution, natural gas transmission, telephone, and water utilities, on a monthly, quarterly and annual basis. Among the subscribers of AUS Utility Reports are utilities, many state regulatory commissions, federal agencies, individuals, brokerage firms, attorneys, as well as public and academic libraries. The publication has continuously provided financial statistics on the utility industry since 1930.

As the Publisher of AUS Utility Reports, I also supervise the production, publishing, and distribution of the AGA Rate Service publications under license from the American Gas Association. I am also responsible for maintaining and calculating the performance of the AGA Index, a market capitalization weighted index of the common stocks of the approximately 70 corporate members of the AGA, which serves as the benchmark for the AGA Gas Index Fund.

As an Assistant Vice President from 1994 - 1996, I prepared fair rate of return and cost of capital exhibits which were filed along with expert testimony before various state and federal public utility regulatory bodies. These supporting exhibits include the determination of an appropriate ratemaking capital structure and the development of embedded cost rates of senior capital. The exhibits also support the determination of a recommended return on common equity through the use of various market models, such as, but not limited to, Discounted Cash Flow analysis, Capital Asset Pricing Model and Risk Premium Methodology, as well as an assessment of the risk characteristics of the client utility. I also assisted in the preparation of responses to any interrogatories received regarding such testimonies filed on behalf of client utilities. Following the filing of fair rate of return testimonies, I assisted in the evaluation of opposition testimony in order to prepare interrogatory questions, areas of cross-examination, and rebuttal testimony. I also evaluated and assisted in the preparation of briefs and exceptions following the hearing process. I also submitted testimony before state public utility commissions regarding appropriate capital structure ratios and fixed capital cost rates.

1990-1994

As a Senior Financial Analyst, I supervised two analysts and assisted in the preparation of fair rate of return and cost of capital exhibits which are filed along with expert testimony before various state and federal public utility regulatory bodies. The team also assisted in the preparation of interrogatory responses.

I evaluated the final orders and decisions of various commissions to determine whether further actions were warranted and to gain insight which assisted in the preparation of future rate of return studies.

I assisted in the preparation of an article authored by Frank J. Hanley and A. Gerald Harris entitled "Does Diversification Increase the Cost of Equity Capital?" published in the July 15, 1991 issue of Public Utilities Fortnightly.

In 1992, I was awarded the professional designation "Certified Rate of Return Analyst" (CRRA) by the National Society of Rate of Return Analysts (now the Society of Utility and Regulatory Financial Analysts

(SURFA)). This designation is based upon education, experience and the successful completion of a comprehensive examination.

As Administrator of Financial Analysis for AUS Utility Reports, which then reported financial data for over 200 utility companies with approximately 1,000 subscribers, I oversaw the preparation of this monthly publication, as well as the accompanying annual publication, Financial Statistics - Public Utilities.

1988-1990

As a Financial Analyst, I assisted in the preparation of fair rate of return studies including capital structure determination, development of senior capital cost rates, as well as the determination of an appropriate rate of return on equity. I also assisted in the preparation of interrogatory responses, interrogatory questions of the opposition, areas of cross-examination and rebuttal testimony. I also assisted in the preparation of the annual publication C. A. Turner Utility Reports - Financial Statistics -Public Utilities.

1973-1975

As a Research Assistant in the Research Department of the Regional Economics Division of the Federal Reserve Bank of Boston, I was involved in the development and maintenance of econometric models to simulate regional economic conditions in New England in order to study the effects of, among other things, the energy crisis of the early 1970's and property tax revaluations on the economy of New England. I was also involved in the statistical analysis and preparation of articles for the New England Economic Review. Also, I was Assistant Editor of New England Business Indicators.

1972

As a Research Assistant in the Office of the Assistant Secretary for International Affairs, U.S. Treasury Department, Washington, D.C., I developed and maintained econometric models which simulated the economy of the United States in order to study the results of various alternate foreign trade policies so that national trade policy could be formulated and recommended.

Clients Served

I have offered expert testimony before the following commissions:

Arkansas
California
Connecticut
Delaware
Florida
Hawaii
Idaho
Illinois
Indiana
Iowa
Kentucky
Louisiana
Maine
Maryland
Michigan
Missouri
Nevada
New Jersey
New York
North Carolina
Ohio
Pennsylvania
South Carolina
Virginia
Washington

I have sponsored testimony on generic/uniform methodologies for determining the return on common equity for:

Aquarion Water Company
The Connecticut Water Company
United Water Connecticut, Inc.
Utilities, Inc.

I have sponsored testimony on the rate of return and capital structure effects of merger and acquisition issues for:

California-American Water Company
New Jersey-American Water Company

I have sponsored testimony on fair rate of return and related issues for:

Alpena Power Company
Apple Canyon Utility Company
Applied Wastewater Management, Inc.
Aqua Illinois, Inc.
Aqua New Jersey, Inc.
Aqua North Carolina, Inc.
Aqua Virginia, Inc.
Aquarion Water Company
Artesian Water Company
The Atlantic City Sewerage Company
Audubon Water Company
The Borough of Hanover, PA
Carolina Pines Utilities, Inc.
Carolina Water Service, Inc. of NC
Carolina Water Service, Inc. of SC
The Columbia Water Company
The Connecticut Water Company
Consumers Illinois Water Company
Consumers Maine Water Company
Consumers New Jersey Water Company
City of DuBois, Pennsylvania
Elizabethtown Water Company
Emporium Water Company
GTE Hawaiian Telephone Inc.
Greenridge Utilities, Inc.
Illinois American Water Company
Iowa American Water Company
Water Services Corp. of Kentucky
Lake Wildwood Utilities Corp.
Land'Or Utility Company
Long Island American Water Company
Long Neck Water Company
Louisiana Water Service, Inc.
Massanutten Public Service Company
Middlesex Water Company
Missouri-American Water Company
Mt. Holly Water Company
Nero Utility Services, Inc.
New Jersey-American Water Company
Ohio-American Water Company
The Newtown Artesian Water Company
NRG Energy Center Pittsburgh LLC
NRG Energy Center Harrisburg LLC
United Water Idaho, Inc.
Penn Estates Utilities
Pinelands Water Company
Pinelands Waste Water Company
Pittsburgh Thermal
San Jose Water Company
Southland Utilities, Inc.
Spring Creek Utilities, Inc.
Sussex Shores Water Company
Tega Cay Water Service, Inc.
Total Environmental Services, Inc. – Treasure Lake Water & Sewer Divisions
Thames Water Americas
Tidewater Utilities, Inc.
Transylvania Utilities, Inc.
Trigen – Philadelphia Energy Corporation
Twin Lakes Utilities, Inc.
United Utility Companies
United Water Arkansas, Inc.
United Water Arlington Hills Sewerage, Inc.
United Water Connecticut, Inc.
United Water Delaware, Inc.
United Water Great Gorge Inc. / United Water Vernon Transmission, Inc.
United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New Rochelle, Inc.
United Water New York, Inc.
United Water Owego / Nichols, Inc.
United Water Pennsylvania, Inc.
United Water Rhode Island, Inc.
United Water South County, Inc.
United Water Toms River, Inc.
United Water Vernon Sewage Inc.
United Water Virginia, Inc.
United Water Westchester, Inc.
United Water West Lafayette, Inc.
United Water West Milford, Inc.
Utilities, Inc.
Utilities Inc. of Central Nevada
Utilities, Inc. of Florida
Utilities, Inc. of Louisiana

(Testimony on Rate of Return Clients Continued)

Utilities, Inc. of Nevada
Utilities, Inc. of Pennsylvania
Utilities, Inc. - Westgate
Utilities Services of South Carolina
Utility Center, Inc.
Valley Energy, Inc.
Wellsboro Electric Company
Western Utilities, Inc.

I have sponsored testimony on capital structure and senior capital cost rates for the following clients:

Alpena Power Company
Arkansas-Western Gas Company
Associated Natural Gas Company
PG Energy Inc.
United Water Delaware, Inc.
Washington Natural Gas Company

I have assisted in the preparation of rate of return studies on behalf of the following clients:

Algonquin Gas Transmission Company
Anadarko Petroleum Corporation
Arkansas-Louisiana Gas Company
Arkansas Western Gas Company
Artesian Water Company
Associated Natural Gas Company
Atlantic City Electric Company
Bridgeport-Hydraulic Company
Cambridge Electric Light Company
Carolina Power & Light Company
Citizens Gas and Coke Utility
City of Vernon, CA
Columbia Gas/Gulf Transmission Cos.
Commonwealth Electric Company
Commonwealth Telephone Company
Conestoga Telephone & Telegraph Co.
Connecticut Natural Gas Corporation
Consolidated Gas Transmission Company
Consumers Power Company
CWS Systems, Inc.
Delmarva Power & Light Company
East Honolulu Community Services, Inc.
Equitable Gas Company
Equitrans, Inc.
Florida Power & Light Company
Gary Hobart Water Company
Gasco, Inc.
GTE Arkansas, Inc.
GTE California, Inc.
GTE Florida, Inc.
GTE Hawaiian Telephone
GTE North, Inc.
GTE Northwest, Inc.
GTE Southwest, Inc.
Great Lakes Gas Transmission L.P.
Hawaiian Electric Company
Hawaiian Electric Light Company
IES Utilities Inc.
Illinois Power Company
Interstate Power Company
Interstate Power & Light Co.
Iowa Electric Light and Power Company
Iowa Southern Utilities Company
Kentucky-West Virginia Gas Company
Lockhart Power Company
Middlesex Water Company
Milwaukee Metropolitan Sewer District
Mountaineer Gas Company
National Fuel Gas Distribution Corp.
National Fuel Gas Supply Corp.
Newco Waste Systems of NJ, Inc.
New Jersey Natural Gas Company
New Jersey-American Water Company
New York-American Water Company
North Carolina Natural Gas Corp.
Northumbrian Water Company
United Water Idaho, Inc.
Oklahoma Natural Gas Company
Orange and Rockland Utilities
Paiute Pipeline Company
PECO Energy Company
Penn Estates Utilities, Inc.
Penn-York Energy Corporation
Pennsylvania-American Water Co.
PG Energy Inc.
Philadelphia Electric Company
Providence Gas Company
South Carolina Pipeline Company
Southwest Gas Corporation
Stamford Water Company
Tesoro Alaska Petroleum Company
Tesoro Refining & Marketing Co.
United Telephone of New Jersey
United Utility Companies
United Water Arkansas, Inc.
United Water Delaware, Inc.

(Rate of Return Study Clients Continued)

United Water Idaho, Inc.
United Water Indiana, Inc.
United Water New Jersey, Inc.
United Water New York, Inc.
United Water Pennsylvania, Inc.
United Water Virginia, Inc.
United Water West Lafayette, Inc.
Utilities, Inc. of Pennsylvania
Utilities, Inc. - Westgate
Vista-United Telecommunications Corp.
Washington Gas Light Company
Washington Natural Gas Company
Washington Water Power Corporation
Waste Management of New Jersey – Transfer Station A
Wellsboro Electric Company
Western Reserve Telephone Company
Western Utilities, Inc.
Wisconsin Power and Light Company

EDUCATION:

1973 – Clark University – B.A. – Honors in Economics (Concentration: Econometrics and Regional/International Economics)
1991 – Rutgers University – M.B.A. – High Honors (Concentration: Corporate Finance)

PROFESSIONAL AFFILIATIONS:

American Finance Association
Financial Management Association
Society of Utility and Regulatory Financial Analysts
Member, Board of Directors – 2010-2012
President – 2006-2008 and 2008-2010
Secretary/Treasurer – 2004-2006
Energy Association of Pennsylvania
National Association of Water Companies – Member of the Finance/Accounting/Taxation Committee

SPEAKING ENGAGEMENTS:

"Public Utility Betas and the Cost of Capital", (co-presenter with Richard A. Michelfelder, Ph.D.) – Advanced Workshop in Regulation and Competition, 30th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 20, 2011, Rutgers University, Skytop, PA.

Moderator: Society of Utility and Regulatory Financial Analysts: 43rd Financial Forum – "Impact of Cost Recovery Mechanisms on the Perception of Public Utility Risk", April 14-15, 2011, Washington, DC.

"A New Approach for Estimating the Equity Risk Premium for Public Utilities", (co-presenter with Richard A. Michelfelder, Ph.D.) – Hot Topic Hotline Webinar, December 3, 2010, Financial Research Institute of the University of Missouri.

"A New Approach for Estimating the Equity Risk Premium for Public Utilities", (co-presenter with Richard A. Michelfelder, Ph.D.) before the Indiana Utility Regulatory Commission Cost of Capital Task Force, September 28, 2010, Indianapolis, IN

Tomorrow's Cost of Capital: Cost of Capital Issues 2010, Deloitte Center for Energy Solutions, 2010 Deloitte Energy Conference, "Changing the Great Game: Climate, Customers and Capital", June 7-8, 2010, Washington, DC.

"Cost of Capital Issues – 2010" – Deloitte Center for Energy Solutions 2010 Energy Conference: Changing the Great Game: Climate, Consumers and Capital, June 7-8, 2010, Washington, DC

"A New Approach for Estimating the Equity Risk Premium for Public Utilities", (co-presenter with Richard A.

Michelfelder, Ph.D.) – Advanced Workshop in Regulation and Competition, 29th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 20, 2010, Rutgers University, Skytop, PA

Moderator: Society of Utility and Regulatory Financial Analysts: 42nd Financial Forum – "The Changing Economic and Capital Market Environment and the Utility Industry", April 29-30, 2010, Washington, DC

"A New Model for Estimating the Equity Risk Premium for Public Utilities" (co-presenter with Richard A. Michelfelder, Ph.D.) – Spring 2010 Meeting of the Staff Subcommittee on Accounting and Finance of the National Association of Regulatory Utility Commissioners, March 17, 2010, Charleston, SC

"New Approach to Estimating the Cost of Common Equity Capital for Public Utilities" (co-presenter with Richard A. Michelfelder, Ph.D.) - Advanced Workshop in Regulation and Competition, 28th Annual Eastern Conference of the Center for Research in Regulated Industries (CRRI), May 14, 2009, Rutgers University, Skytop, PA

Moderator: Society of Utility and Regulatory Financial Analysts: 41st Financial Forum – "Estimating the Cost of Capital in Today's Economic and Capital Market Environment", April 16-17, 2009, Washington, DC

"Water Utility Financing: Where Does All That Cash Come From?", AWWA Pre-Conference Workshop: Water Utility Ratemaking, March 25, 2008, Atlantic City, NJ

PAPERS:

"Public Utility Beta Adjustment and the Cost of Capital", co-authored with Richard A. Michelfelder, Ph.D. and Panayiotis Theodossiou, Ph.D.

"A New Approach for Estimating the Equity Risk Premium for Public Utilities", co-authored with Frank J. Hanley and Richard A. Michelfelder, Ph.D. (forthcoming in The Journal of Regulatory Economics).

"Comparable Earnings: New Life for an Old Precept" co-authored with Frank J. Hanley, Financial Quarterly Review, (American Gas Association), Summer 1994.

BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

DOCKET NO. 2011-47-WS

In the Matter of:

Application of Carolina Water Service, Inc. for adjustment of Rates and Charges and Modification of Certain Terms and Conditions for the Provision of Water and Sewer Service

Exhibit
to Accompany the
Prepared Direct Testimony
of

Pauline M. Ahern, CRRA
Principal
AUS Consultants

On Behalf of the

Carolina Water Service, Inc.

August 3, 2011

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to the Financial Supporting Exhibit
of Pauline M. Ahern, CRRA

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Estimated Market Capitalization for Carolina Water Service, Inc. and the Proxy Group of Nine Water Companies	PMA-14

Carolina Water Service, Inc.
Summary of Cost of Capital and Fair Rate of Return
Based upon the Capital Structure of Utilities, Inc. at December 31, 2010

Type of Capital	Ratios (1)	Cost Rate	Weighted Cost Rate
Long-Term Debt	50.11%	6.60% (1)	3.31%
Common Equity	49.89%	10.80% - 11.40% (2)	5.39% - 5.69%
Total	100.00%		8.70% 9.00%

Notes:
(1) Company-provided.
(2) Based upon informed judgment from the entire study, the principal results of which are summarized on page 2.

Carolina Water Service, Inc.
Brief Summary of Common Equity Cost Rate

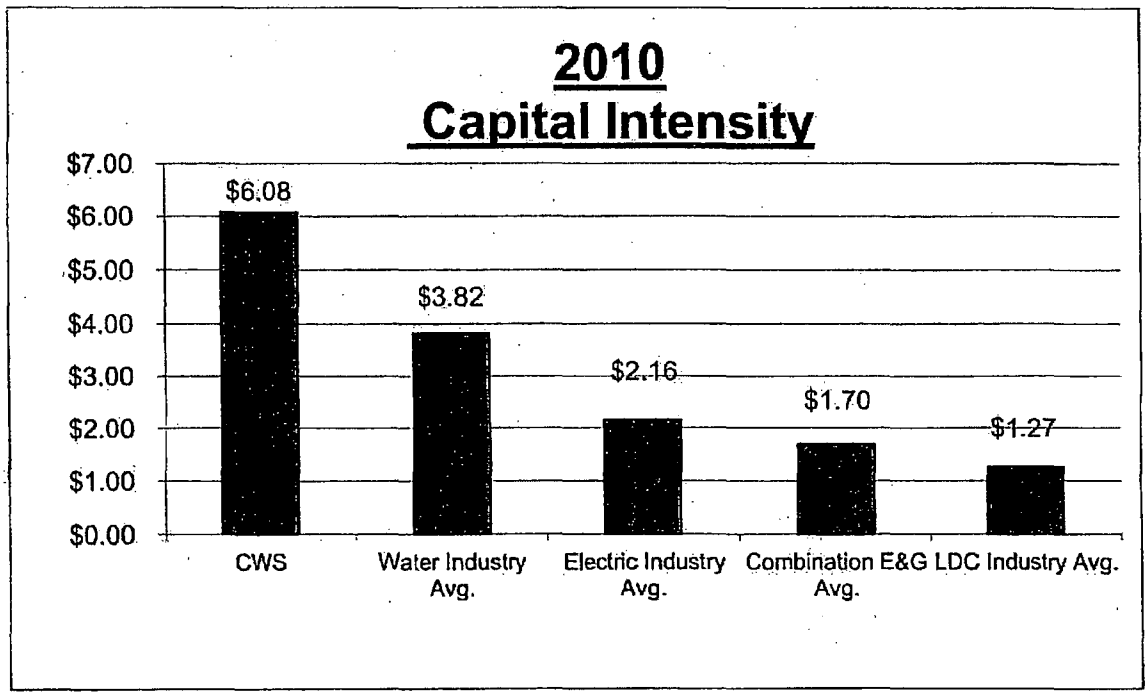
No.	Principal Methods	Proxy Group of Nine Water Companies
1.	Discounted Cash Flow Model (DCF) (1)	9.54%
2.	Risk Premium Model (RPM) (2)	10.33%
3.	Capital Asset Pricing Model (CAPM) (3)	10.42%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	13.45%
5.	Indicated Common Equity Cost Rate before Adjustment for Business Risks	10.40% - 11.00%
6.	Financial Risk Adjustment (5)	-0.08% -0.08%
7	Business Risk Adjustment (6)	0.50% 0.50%
8.	Indicated Common Equity Cost Rate	10.82% - 11.42%
9.	Recommended Common Equity Cost Rate	10.80% - 11.40%

Notes:
(1) From Schedule PMA-6.
(2) From page 1 of Schedule PMA-8.
(3) From page 1 of Schedule PMA-10.
(4) From page 2 of Schedule PMA-11.
(5) Financial risk adjustment to reflect the financial risk of the capital structure employed by Carolina Water Service, Inc. for ratemaking purposes relative to the proxy group as detailed in Ms. Ahern's accompanying direct testimony.

(6) Business risk adjustment to reflect CWS's greater business risk due to its small size relative to the proxy group as detailed in Ms. Ahern's accompanying direct testimony.

Carolina Water Service, Inc.
2010 Capital Intensity of Carolina Water Service, Inc. and
AUS Utility Reports Utility Companies Industry Averages

	Average Net Plant ($ mill)	Average Operating Revenue ($ mill)	Capital Intensity ($)	Capital Intensity of CWS v. Other Industries (times)
Carolina Water Service, Inc.	$ 43.11	$ 7.09	$ 6.08	--
Water Industry Average	$ 1,841.97	$ 482.13	$ 3.82	159.16%
Electric Industry Average	$ 11,841.00	$ 5,481.47	$ 2.16	281.48%
Combination Elec. & Gas Industry Average	$ 10,561.90	$ 6,210.80	$ 1.70	357.65%
Gas Distribution Average	$ 2,909.36	$ 2,295.93	$ 1.27	478.74%



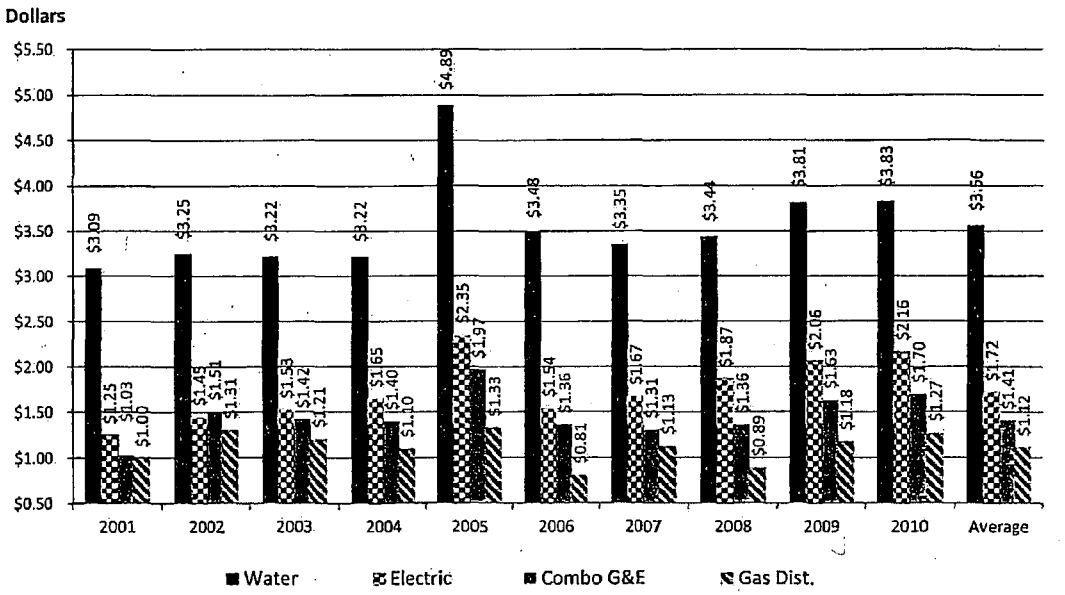
Notes:
Capital Intensity is equal to Net Plant divided by Total Operating Revenue.

Source of Information:
EDGAR Online's I-Metrix Database
Company Annual Forms 10-K

AUS Utility Reports - May 2011
Published By AUS Consultants

Company Provided Information

Capital Intensity of the AUS Utility Reports Companies
2001 - 2010

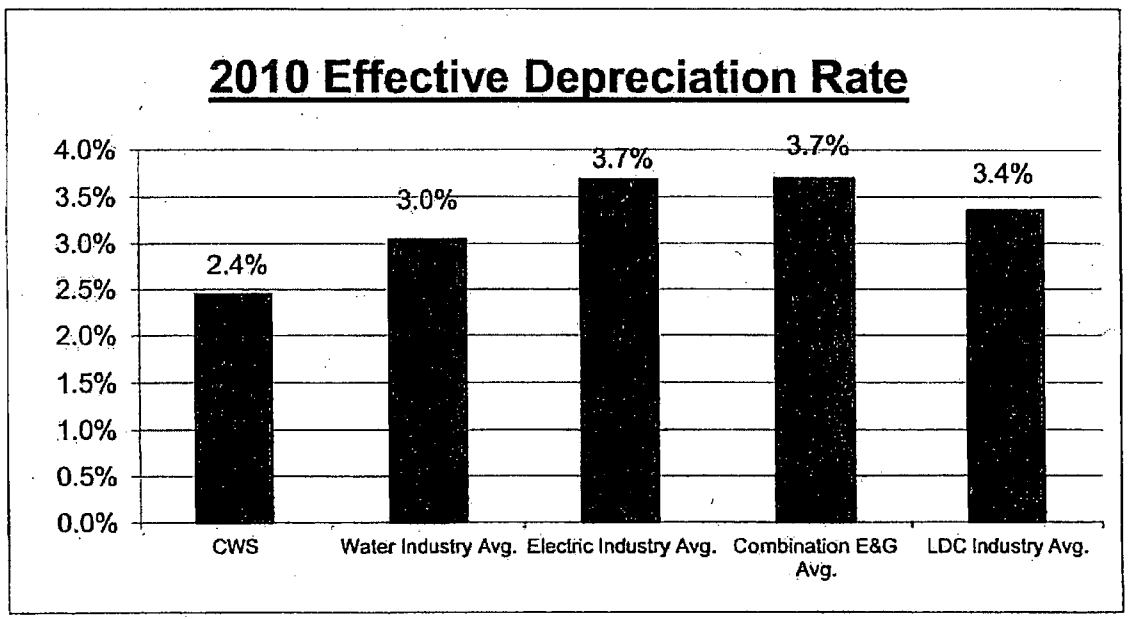


Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PMA-2
Page 2 of 5

Carolina Water Service, Inc.
2010 Depreciation Rate of Carolina Water Service, Inc. and
AUS Utility Reports Utility Companies Industry Averages

	Depreciation Depletion & Amort. Expense ($ mill)	Average Total Gross Plant Less CWIP ($ mill)	Depreciation Rate (%)	Depreciation Rate of CWS v. Other Industries (times)
Carolina Water Service, Inc.	$ 0.69	$ 28.02	2.4%	--
Water Industry Average	$ 61.69	$ 2,024.85	3.0%	80.00%
Electric Industry Average	$ 581.88	$ 15,770.71	3.7%	64.86%
Combination Elec. & Gas Industry Average	$ 541.78	$ 14,632.55	3.7%	64.86%
LDC Gas Distribution Industry Average	$ 132.79	$ 3,952.97	3.4%	70.59%



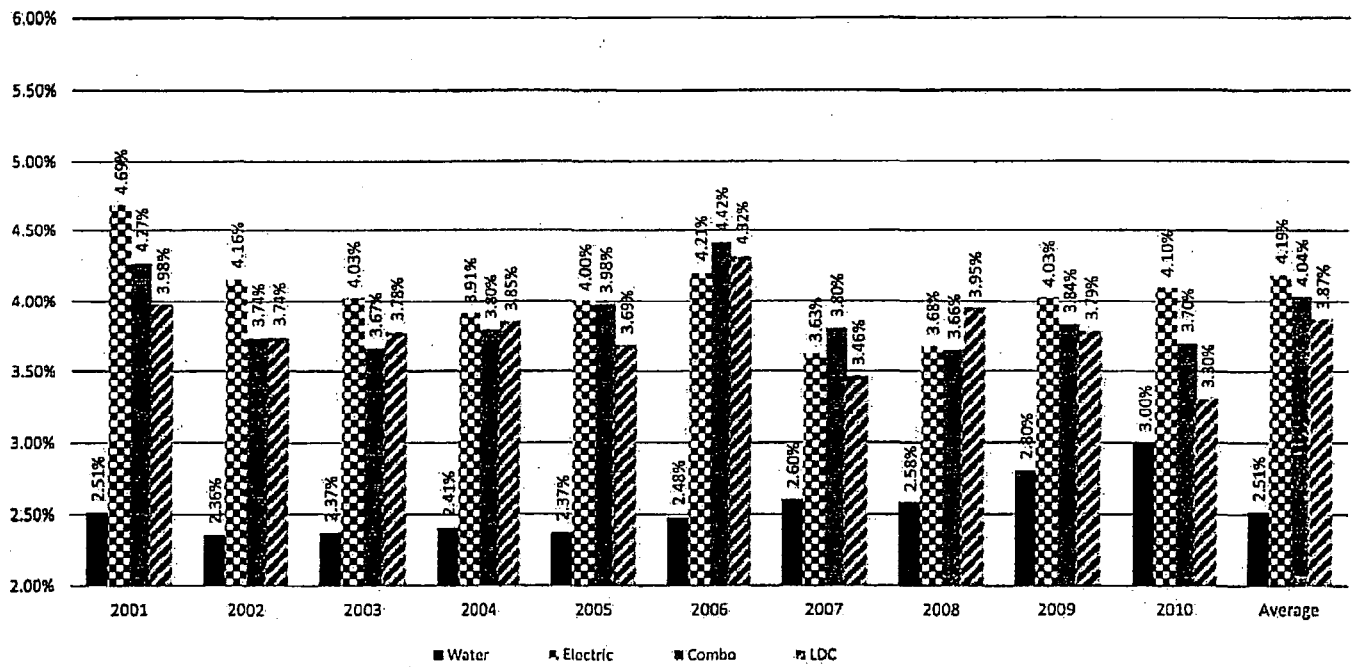
Notes:
Effective Depreciation Rate is equal to Depreciation, Depletion and Amortization Expense divided by average beginning and ending year's Gross Plant minus Construction Work in Progress.

Source of Information:
EDGAR Online's I-Metrix Database
Company Annual Forms 10-K

AUS Utility Report - May 2011
Published by AUS Consultants

Company Provided Information

Depreciation Rates for the AUS Utility Reports Companies 2001-2010



Source of Information: SEC Edgar I-Metrix Online Database

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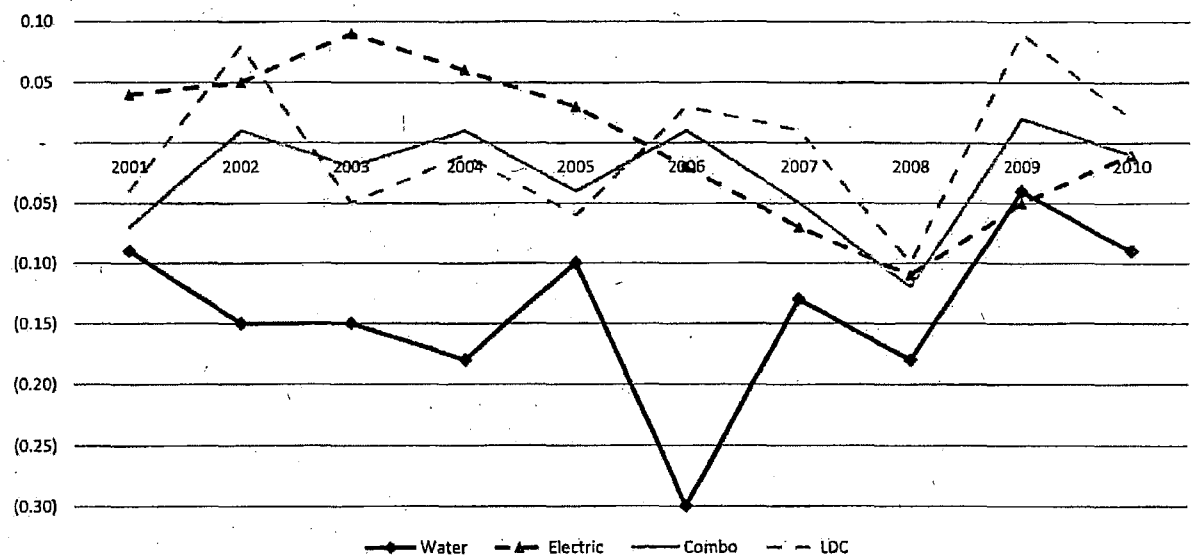
Exhibit No. ___
Schedule PMA-2
Page 4 of 5

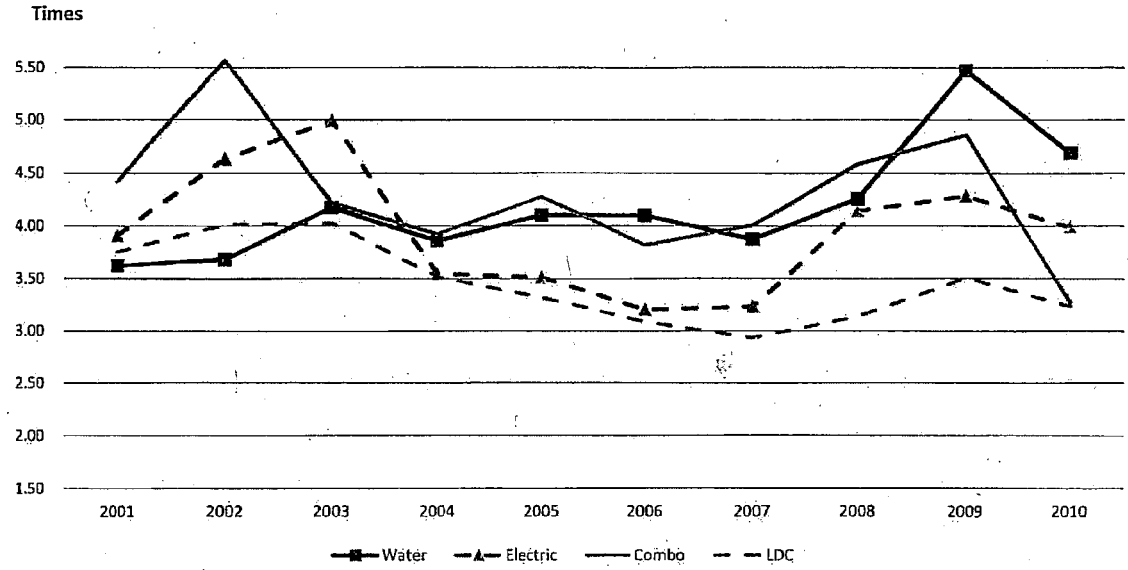
Free Cash Flow / Operating Revenues for the AUS Utility Reports Companies 2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PMA-2
Page 5 of 5

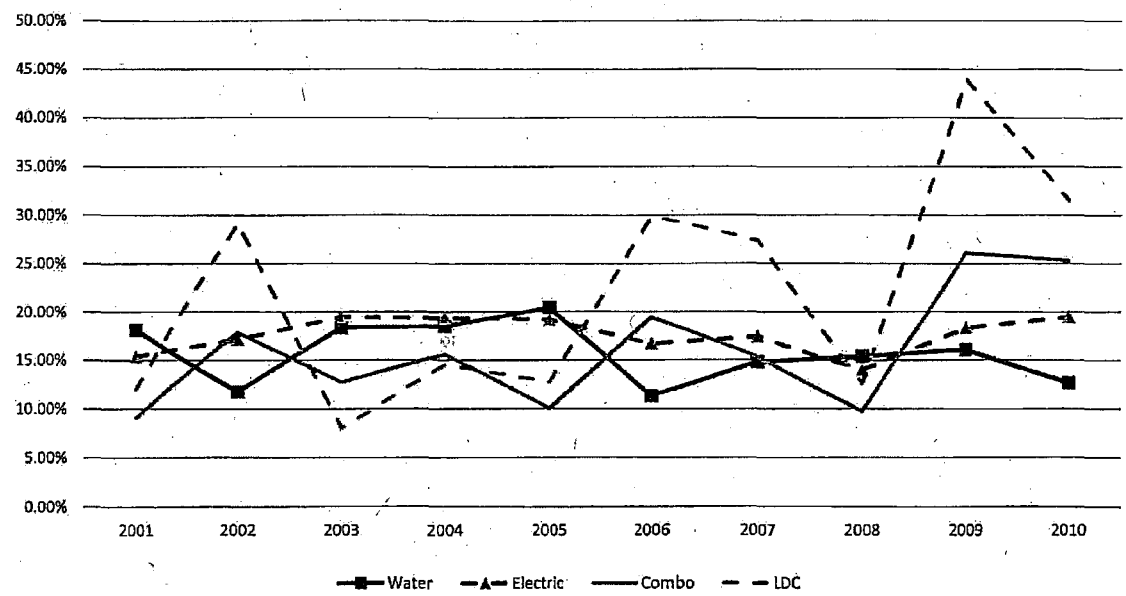
Total Debt / EBITDA for the AUS Utility Reports Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PNA-3
Page 1 of 10

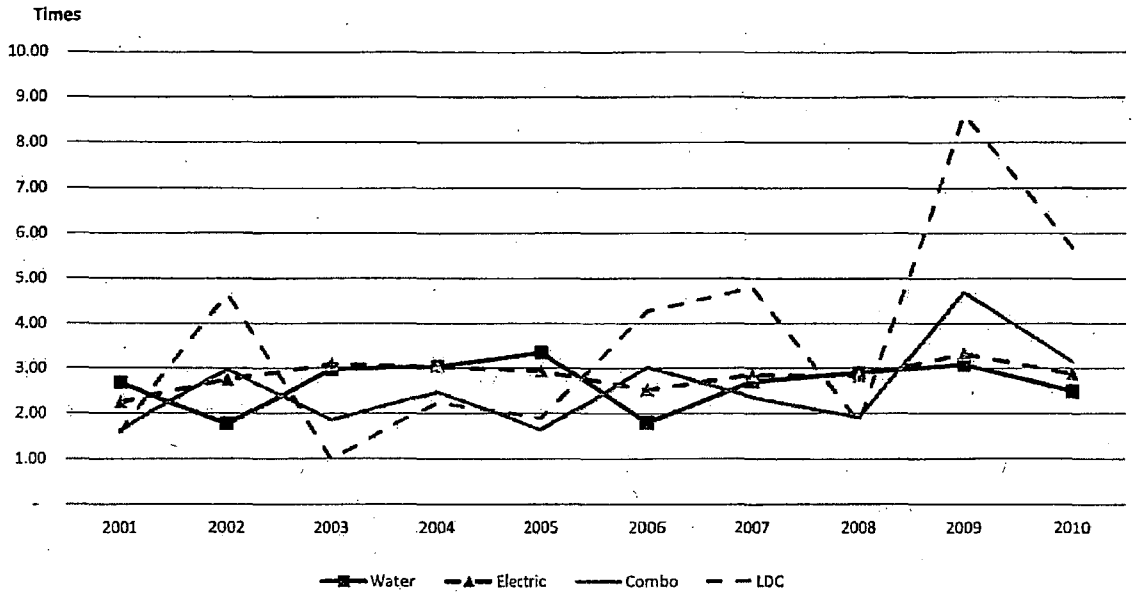
Funds From Ops / Total Debt for the AUS Utility Reports Cos.
2001- 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No. ___
Schedule RMA-3
Page 2 of 10

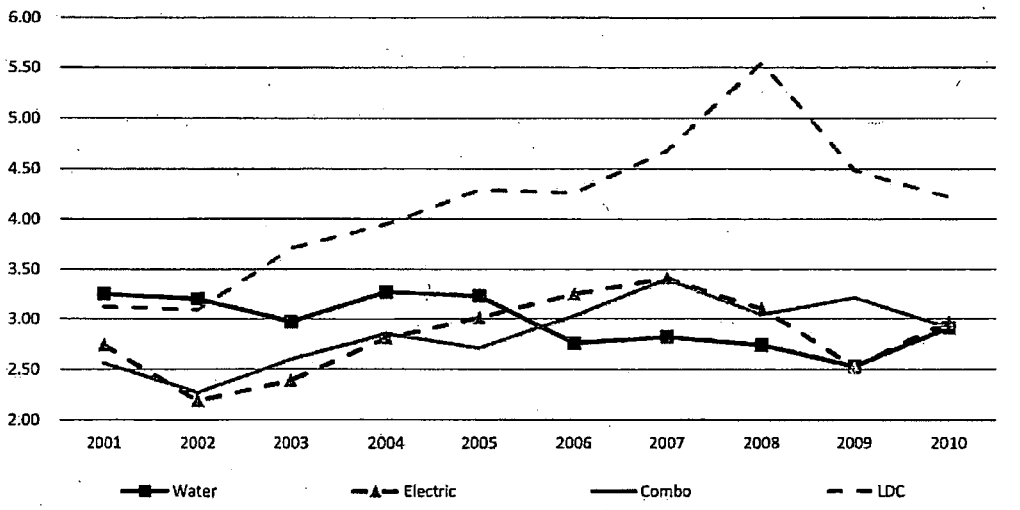
Funds From Ops / Interest Cov. for the AUS Utility Reports Cos. 2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PMA-3
Page 3 of 10

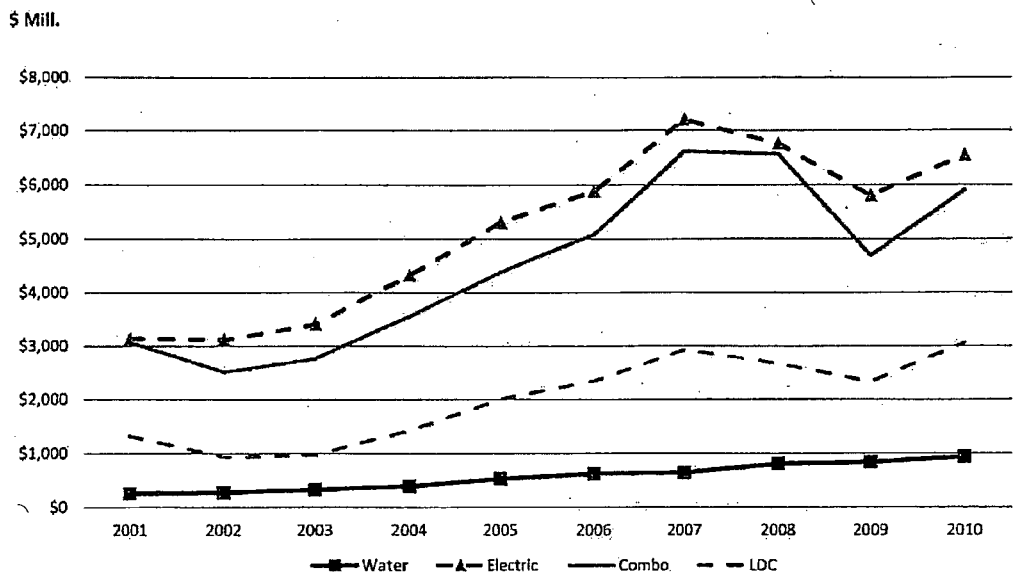
Before-Inc. Tax / Interest Cov. for the AUS Utility Reports Cos. 2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Databae

Exhibit No.___
Schedule PMA-3
Page 4 of 10

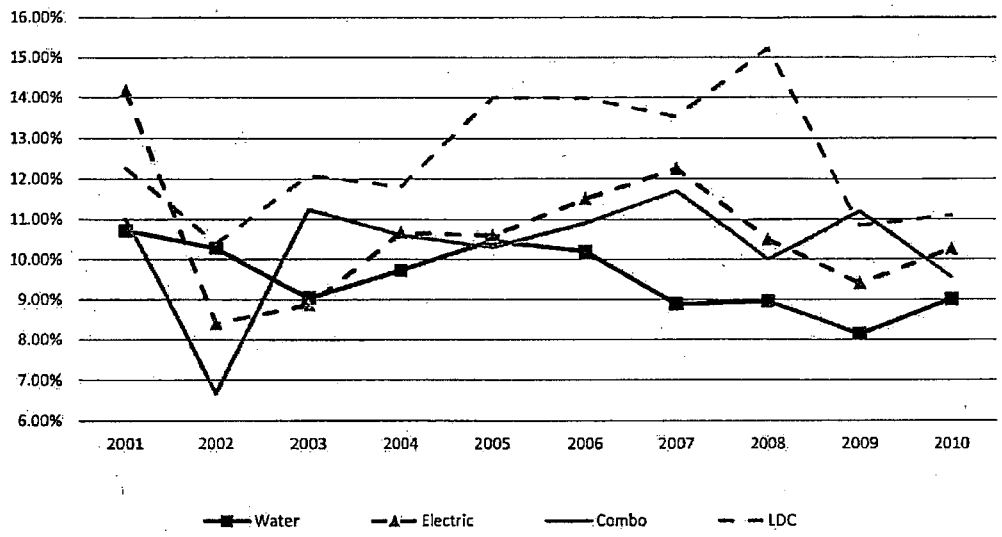
Market Capitalization for the AUS Utility Reports Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PMA-3
Page 5 of 10

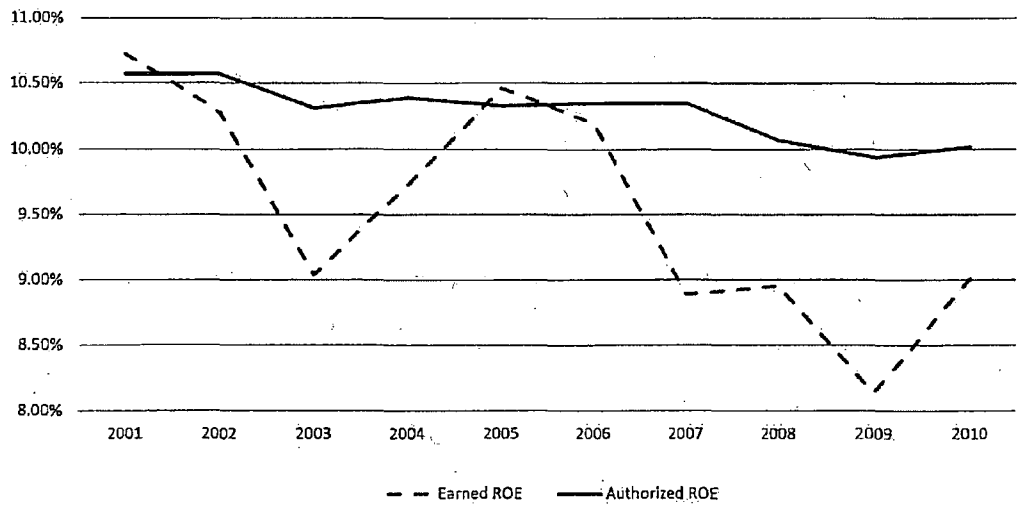
Earned Returns on Common Equity for the AUS Utility Reports Cos. 2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database

Exhibit No.___
Schedule PMA-3
Page 6 of 10

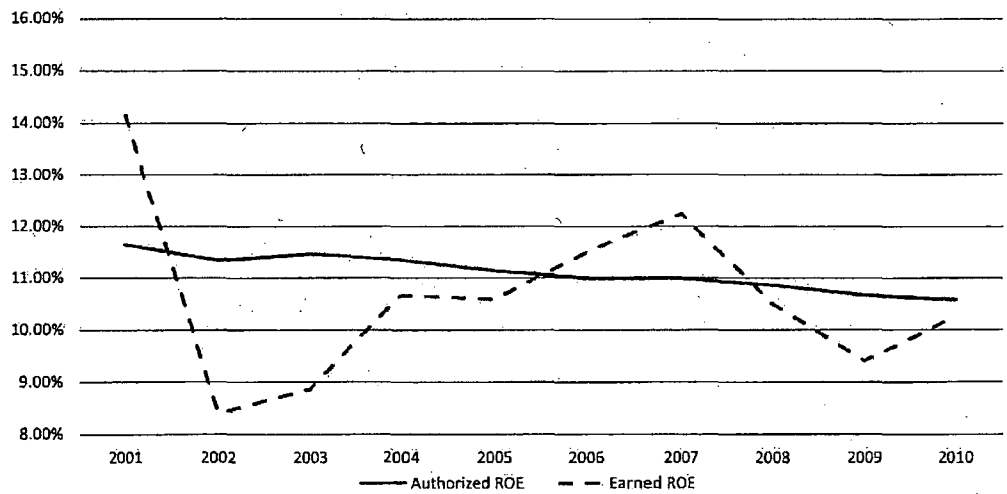
Earned ROE v Authorized ROE for the AUS Utility Reports Water Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database & AUS Utility Reports

Exhibit No.___
Schedule PMA-3
Page 7 of 10

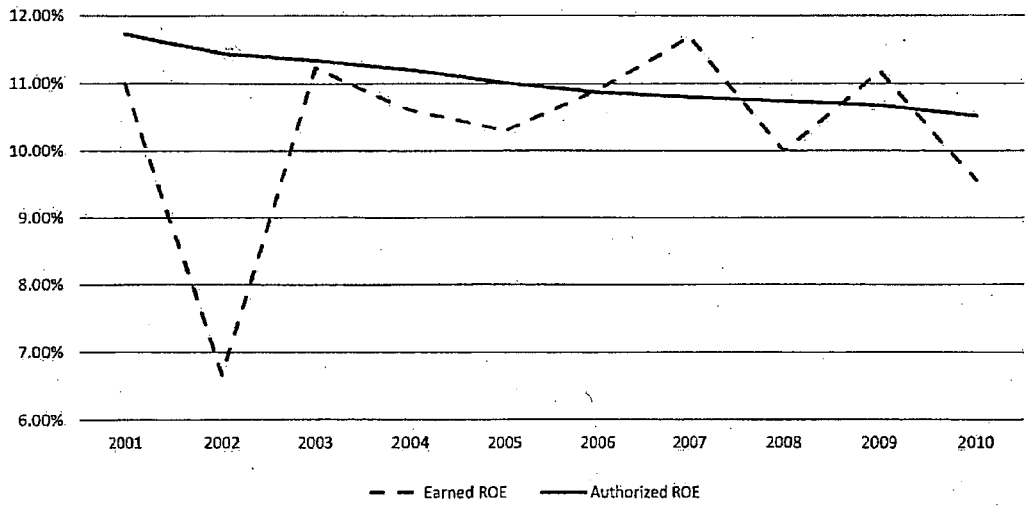
Earned ROE v Authorized ROE for the AUS Utility Reports Electric Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database & AUS Utility Reports

Exhibit No.___
Schedule PMA-3
Page 8 of 10

Earned ROE v Authorized ROE for the AUS Utility Reports Combination Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database & AUS Utility Reports

Exhibit No.___
Schedule PMA-3
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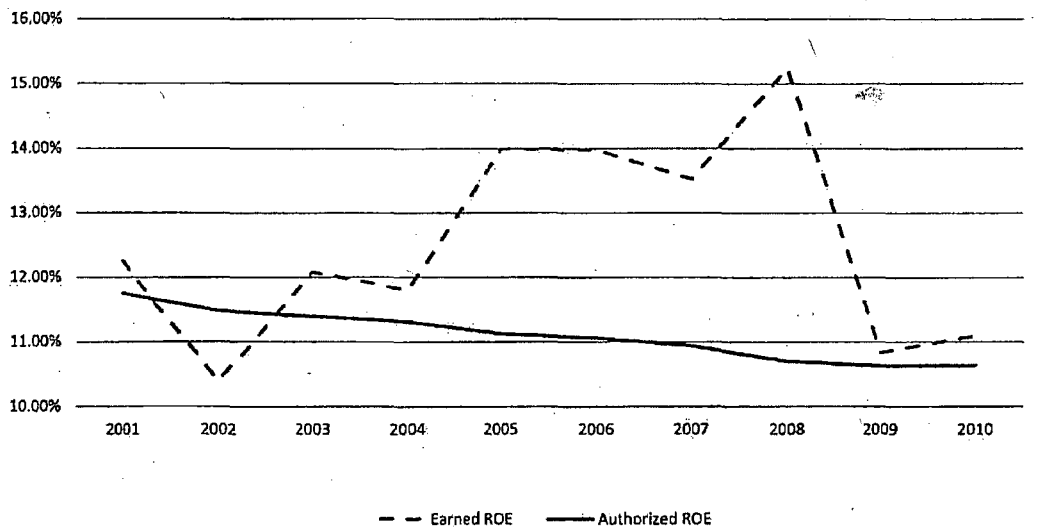
Earned ROE v Authorized ROE for the AUS Utility Reports LDC Companies
2001 - 2010



Source of Information: SEC Edgar I-Metrix Online Database & AUS Utility Reports

Exhibit No.___
Schedule PMA-3
Page 10 of 10

STANDARD &POOR'S

RATINGSDIRECT®

May 27, 2009

Criteria | Corporates | General:

Criteria Methodology: Business Risk/Financial Risk Matrix Expanded

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Criteria | Corporates | General:

Criteria Methodology: Business Risk/Financial Risk Matrix Expanded

(Editor's Note: In the previous version of this article published on May 26, certain of the rating outcomes in the table 1 matrix were missated. A corrected version follows.)

Standard & Poor's Ratings Services is refining its methodology for corporate ratings related to its business risk/financial risk matrix, which we published as part of 2008 Corporate Ratings Criteria on April 15, 2008, on RatingsDirect at www.ratingsdirect.com and Standard & Poor's Web site at www.standardandpoors.com.

This article amends and supersedes the criteria as published in Corporate Ratings Criteria, page 21, and the articles listed in the "Related Articles" section at the end of this report.

This article is part of a broad series of measures announced last year to enhance our governance, analytics, dissemination of information, and investor education initiatives. These initiatives are aimed at augmenting our independence, strengthening the rating process, and increasing our transparency to better serve the global markets.

We introduced the business risk/financial risk matrix four years ago. The relationships depicted in the matrix represent an essential element of our corporate analytical methodology.

We are now expanding the matrix, by adding one category to both business and financial risks (see table 1). As a result, the matrix allows for greater differentiation regarding companies rated lower than investment grade (i.e., 'BB' and below).

Table 1

Business And Financial Risk Profile Matrix

Business Risk Profile	Financial Risk Profile					
	Minimal	Modest	Intermediate	Significant	Aggressive	Highly Leveraged
Excellent	AAA	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-
Vulnerable	--	--	--	B+	B	CCC+

These rating outcomes are shown for guidance purposes only. Actual rating should be within one notch of indicated rating outcomes.

The rating outcomes refer to issuer credit ratings. The ratings indicated in each cell of the matrix are the midpoints of a range of likely rating possibilities. This range would ordinarily span one notch above and below the indicated rating.

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Business Risk/Financial Risk Framework

Our corporate analytical methodology organizes the analytical process according to a common framework, and it divides the task into several categories so that all salient issues are considered. The first categories involve fundamental business analysis; the financial analysis categories follow.

Our ratings analysis starts with the assessment of the business and competitive profile of the company. Two companies with identical financial metrics can be rated very differently, to the extent that their business challenges and prospects differ. The categories underlying our business and financial risk assessments are:

Business risk

- Country risk
- Industry risk
- Competitive position
- Profitability/Peer group comparisons

Financial risk

- Accounting
- Financial governance and policies/risk tolerance
- Cash flow adequacy
- Capital structure/asset protection
- Liquidity/short-term factors

We do not have any predetermined weights for these categories. The significance of specific factors varies from situation to situation.

Updated Matrix

We developed the matrix to make explicit the rating outcomes that are typical for various business risk/financial risk combinations. It illustrates the relationship of business and financial risk profiles to the issuer credit rating.

We tend to weight business risk slightly more than financial risk when differentiating among investment-grade ratings. Conversely, we place slightly more weight on financial risk for speculative-grade issuers (see table 1, again). There also is a subtle compounding effect when both business risk and financial risk are aligned at extremes (i.e., excellent/minimal and vulnerable/highly leveraged.)

The new, more granular version of the matrix represents a refinement--not any change in rating criteria or standards--and, consequently, holds no implications for any changes to existing ratings. However, the expanded matrix should enhance the transparency of the analytical process.

Financial Benchmarks

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Table 2

Financial Risk Indicative Ratios (Corporates)

	FFO/Debt (%)	Debt/EBITDA (x)	Debt/Capital (%)
Minimal	greater than 60	less than 1.5	less than 25
Modest	45-60	1.5-2	25-35
Intermediate	30-45	2-3	35-45
Significant	20-30	3-4	45-50
Aggressive	12-20	4-5	50-60
Highly Leveraged	less than 12	greater than 5	greater than 60

How To Use The Matrix--And Its Limitations

The rating matrix indicative outcomes are what we typically observe--but are not meant to be precise indications or guarantees of future rating opinions. Positive and negative nuances in our analysis may lead to a notch higher or lower than the outcomes indicated in the various cells of the matrix.

In certain situations there may be specific, overarching risks that are outside the standard framework, e.g., a liquidity crisis, major litigation, or large acquisition. This often is the case regarding credits at the lowest end of the credit spectrum--i.e., the 'CCC' category and lower. These ratings, by definition, reflect some impending crisis or acute vulnerability, and the balanced approach that underlies the matrix framework just does not lend itself to such situations.

Similarly, some matrix cells are blank because the underlying combinations are highly unusual--and presumably would involve complicated factors and analysis.

The following hypothetical example illustrates how the tables can be used to better understand our rating process (see tables 1 and 2).

We believe that Company ABC has a satisfactory business risk profile, typical of a low investment-grade industrial issuer. If we believed its financial risk were intermediate, the expected rating outcome should be within one notch of 'BBB'. ABC's ratios of cash flow to debt (35%) and debt leverage (total debt to EBITDA of 2.5x) are indeed characteristic of intermediate financial risk.

It might be possible for Company ABC to be upgraded to the 'A' category by, for example, reducing its debt burden to the point that financial risk is viewed as minimal. Funds from operations (FFO) to debt of more than 60% and debt to EBITDA of only 1.5x would, in most cases, indicate minimal.

Conversely, ABC may choose to become more financially aggressive--perhaps it decides to reward shareholders by borrowing to repurchase its stock. It is possible that the company may fall into the 'BB' category if we view its financial risk as significant. FFO to debt of 20% and debt to EBITDA 4x would, in our view, typify the significant financial risk category.

Still, it is essential to realize that the financial benchmarks are guidelines, neither gospel nor guarantees. They can vary in nonstandard cases: For example, if a company's financial measures exhibit very little volatility, benchmarks may be somewhat more relaxed.

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Moreover, our assessment of financial risk is not as simplistic as looking at a few ratios. It encompasses:

- a view of accounting and disclosure practices;
- a view of corporate governance, financial policies, and risk tolerance;
- the degree of capital intensity, flexibility regarding capital expenditures and other cash needs, including acquisitions and shareholder distributions; and
- various aspects of liquidity–including the risk of refinancing near-term maturities.

The matrix addresses a company's standalone credit profile, and does not take account of external influences, which would pertain in the case of government-related entities or subsidiaries that in our view may benefit or suffer from affiliation with a stronger or weaker group. The matrix refers only to local-currency ratings, rather than foreign-currency ratings, which incorporate additional transfer and convertibility risks. Finally, the matrix does not apply to project finance or corporate securitizations.

Related Articles

Industrials' Business Risk/Financial Risk Matrix--A Fundamental Perspective On Corporate Ratings, published April 7, 2005, on RatingsDirect.

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Proxy Group of Nine Water Companies
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2006 - 2010, Inclusive

	2010	2009	2008	2007	2006	
			(MILLIONS OF DOLLARS)			
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED						
TOTAL PERMANENT CAPITAL	$1,712.951	$1,641.561	$1,537.371	$1,561.064	$1,274.261	
SHORT-TERM DEBT	$53.463	$31.243	$84.104	$37.360	$100.228	
TOTAL CAPITAL EMPLOYED	$1,766.414	$1,672.804	$1,621.475	$1,598.424	$1,374.489	
INDICATED AVERAGE CAPITAL COST RATES (2)						
TOTAL DEBT	5.37 %	5.31 %	5.58 %	6.08 %	7.61 %	
PREFERRED STOCK	1.85	1.85	2.88	2.18	2.04	
CAPITAL STRUCTURE RATIOS						5 YEAR AVERAGE
BASED ON TOTAL PERMANENT CAPITAL:						
LONG-TERM DEBT	50.97 %	50.80 %	50.35 %	49.46 %	48.48 %	50.01 %
PREFERRED STOCK	0.19	0.21	0.22	0.31	0.46	0.28
COMMON EQUITY	48.84	48.99	49.43	50.23	51.06	49.71
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	53.49 %	53.33 %	53.43 %	50.59 %	50.32 %	52.23 %
PREFERRED STOCK	0.18	0.19	0.21	0.31	0.45	0.27
COMMON EQUITY	46.33	46.48	46.36	49.10	49.23	47.50
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED						
EARNINGS / PRICE RATIO	5.92 %	4.33 %	2.90 %	4.95 %	5.29 %	4.68 %
MARKET / AVERAGE BOOK RATIO	161.43	147.98	156.27	198.82	206.08	174.12
DIVIDEND YIELD	3.62	4.03	3.84	3.31	3.31	3.62
DIVIDEND PAYOUT RATIO	66.67	60.06	64.23	63.89	63.02	63.57
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	8.98 %	6.99 %	6.39 %	7.09 %	8.09 %	7.51 %
TOTAL DEBT / EBITDA (3)	4.75 X	5.53 X	9.07 X	5.59 X	4.56 X	5.90 X
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	17.10 %	16.41 %	16.14 %	15.04 %	16.58 %	16.25 %
TOTAL DEBT / TOTAL CAPITAL	53.49 %	53.33 %	53.43 %	50.59 %	50.32 %	52.23 %

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.

(2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.

(3) Total debt as a percentage of EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).

(4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: I-Metrix Database
Company SEC Form 10-K

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Nine Water Companies
2006 - 2010, Inclusive

	2010	2009	2008	2007	2006	5 YEAR AVERAGE
American States Water Co.						
Long-Term Debt	44.30 %	46.95 %	46.25 %	46.99 %	48.61 %	46.62 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	55.70	53.05	53.75	53.01	51.39	53.38
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
American Water Works Co., Inc.						
Long-Term Debt	56.73 %	56.98 %	53.75 %	51.05 %	46.93 %	53.08 %
Preferred Stock	0.29	0.30	0.32	0.31	0.06	0.26
Common Equity	42.98	42.72	45.93	48.64	53.01	46.66
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Aqua America, Inc.						
Long-Term Debt	57.05 %	56.59 %	54.21 %	55.88 %	51.55 %	55.06 %
Preferred Stock	0.02	0.02	0.09	0.09	0.10	0.06
Common Equity	42.93	43.39	45.70	44.03	48.35	44.88
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Artesian Resources Corp.						
Long-Term Debt	52.84 %	54.12 %	59.57 %	52.20 %	61.87 %	56.12 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	47.16	45.88	40.43	47.80	38.13	43.88
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
California Water Service Group						
Long-Term Debt	52.51 %	47.93 %	41.88 %	42.86 %	43.47 %	45.73 %
Preferred Stock	0.00	0.00	0.00	0.51	0.51	0.20
Common Equity	47.49	52.07	58.12	56.63	56.02	54.07
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Connecticut Water Service, Inc.						
Long-Term Debt	49.32 %	50.59 %	46.94 %	47.76 %	44.42 %	47.81 %
Preferred Stock	0.34	0.35	0.39	0.44	0.49	0.40
Common Equity	50.34	49.06	52.67	51.80	55.09	51.79
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Middlesex Water Company						
Long-Term Debt	43.91 %	47.35 %	49.10 %	49.48 %	48.78 %	47.72 %
Preferred Stock	1.07	1.24	1.22	1.46	2.95	1.59
Common Equity	55.02	51.41	49.68	49.06	48.27	50.69
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
SJW Corporation						
Long-Term Debt	53.79 %	49.52 %	46.08 %	47.79 %	41.83 %	47.80 %
Preferred Stock	0.00	0.00	0.00	0.01	0.01	0.00
Common Equity	46.21	50.48	53.92	52.20	58.16	52.20
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
York Water Company						
Long-Term Debt	48.28 %	47.18 %	55.31 %	51.17 %	48.82 %	50.15 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	51.72	52.84	44.69	48.83	51.18	49.85
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Nine Water Companies						
Long-Term Debt	50.97 %	50.80 %	50.35 %	49.46 %	48.48 %	50.01 %
Preferred Stock	0.19	0.21	0.22	0.31	0.46	0.28
Common Equity	48.84	48.99	49.43	50.23	51.06	49.71
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

Source of Information
EDGAR Online's I-Metrix Database
Annual Forms 10-K

Carolina Water Service, Inc.
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
the Proxy Group of Nine Water Companies

	1	2	3	4	5	6	7	8
Proxy Group of Nine Water Companies	Average Dividend Yield (1)	Value Line Projected Five Year Growth in EPS (2)	Reuters Mean Consensus Projected Five Year Growth Rate in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth in EPS (3)	Adjusted Dividend Yield (4)	Indicated Common Equity Cost Rate (5)
American States Water Co.	3.29 %	8.00 %	5.50 %	- %	5.50 %	6.33 %	3.39 %	9.72 %
American Water Works Co., Inc.	3.02	8.50	11.00	8.70	8.70	9.23	3.16	12.39
Aqua America, Inc.	2.81	10.00	7.20	6.50	6.00	7.43	2.91	10.34
Artesian Resources Corp.	3.99	3.60	4.50	3.60	4.53	4.06	4.07	8.13
California Water Service Group	3.34	3.00	6.30	-	9.00	6.10	3.44	9.54
Connecticut Water Service, Inc.	3.72	4.00	5.50	4.00	3.00	4.13	3.80	7.93
Middlesex Water Company	3.99	3.00	(1.00)	3.00	3.00	2.00	4.03	6.03
SJW Corporation	3.02	9.00	14.00	-	14.00	12.33	3.21	15.54
York Water Company	3.10	6.00	6.00	6.00	6.00	6.00	3.19	9.19
Average								9.87 %
Median								9.54 %

NA= Not Available
NMF = Not Meaningful Figure

Notes:
(1) Indicated dividend at 7/6/2011 divided by the average closing price of the last 60 trading days ending 7/6/2011 for each company.
(2) From pages 2 through 10 of this Schedule.
(3) Average of columns 2 through 5 excluding negative growth rates.
(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co. ,3.29% x (1+(1/2 x 6.33%).) = 3.39%.
(5) Column 6 + column 7.

Source of Information:
Value Line Investment Survey: April 22, 2011
www.reuters.com Downloaded on 07/06/2011
www.zacks.com Downloaded on 07/06/2011
www.yahoo.com Downloaded on 07/06/2011

AMER. STATES WATER NYSE-AWR

RECENT PRICE 34.33 | P/E RATIO 14.5 (Trailing: 18.0 / Median: 22.0) | RELATIVE P/E RATIO 0.87 | DIV'D YLD 3.0% | VALUE LINE

TIMELINESS 3 Raised 11/19/10
SAFETY 3 New 2/4/00
TECHNICAL 2 Raised 4/8/11
BETA .75 (1.00 = Market)

2014-16 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(+75%)	17%
Low	40	(+15%)	7%

Insider Decisions

	M	J	J	A	S	O	N	D	J
to Buy	0	0	0	2	0	0	0	0	0
Options	1	0	0	0	0	1	2	1	0
to Sell	1	0	0	0	1	1	2	0	0

Institutional Decisions

	2Q2010	3Q2010	4Q2010
to Buy	46	53	59
to Sell	55	47	51
Hld's(000)	10863	11195	11086

High: 25.3 26.4 29.0 29.0 26.8 34.6 43.8 46.1 42.0 38.8 39.6 36.4
Low: 16.7 19.0 20.3 21.8 20.8 24.3 30.3 33.6 27.0 29.8 31.2 32.7

LEGENDS
— 1.25 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
3-for-2 split 6/02
Options: No
Shaded areas indicate recessions

Target Price Range 2014 | 2015 | 2016: 128 / 96 / 80 / 64 / 48 / 40 / 32 / 24 / 16 / 12

% TOT. RETURN 3/11

	THIS STOCK	VL ARITH.* INDEX
1 yr.	6.4	23.4
3 yr.	8.7	49.0
5 yr.	10.0	45.9

Percent shares traded: 12 / 8 / 4

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	©VALUE LINE PUB. LLC	14-16
11.03	11.37	11.44	11.02	12.91	12.17	13.06	13.78	13.98	13.61	14.06	15.76	17.49	18.42	19.48	21.41	21.05	22.05	Revenues per sh	25.00
1.75	1.75	1.85	2.04	2.26	2.20	2.53	2.54	2.08	2.23	2.64	2.89	3.31	3.37	3.40	4.34	4.15	4.35	"Cash Flow" per sh	4.85
1.03	1.13	1.04	1.08	1.19	1.28	1.35	1.34	.78	1.05	1.32	1.33	1.62	1.55	1.62	2.25	2.10	2.20	Earnings per sh A	2.60
.81	.82	.83	.84	.85	.86	.87	.87	.88	.89	.90	.91	.96	1.00	1.01	1.04	1.08	1.12	Div'd Decl'd per sh B■	1.25
2.19	2.40	2.58	3.11	4.30	3.03	3.18	2.68	3.76	5.03	4.24	3.91	2.89	4.45	4.18	4.24	4.15	4.35	Cap'l Spending per sh	5.00
10.29	11.01	11.24	11.48	11.82	12.74	13.22	14.05	13.97	15.01	15.72	16.64	17.53	17.95	19.39	20.26	20.80	20.50	Book Value per sh	20.75
11.77	13.33	13.44	13.44	13.44	15.12	15.12	15.18	15.21	16.75	16.80	17.05	17.23	17.30	18.53	18.63	19.25	19.50	Common Shs Outst'g C	20.00
11.6	12.6	14.5	15.5	17.1	15.9	16.7	18.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.5	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	18.0
.78	.79	.84	.81	.97	1.03	.86	1.00	1.82	1.23	1.17	1.50	1.27	1.38	1.41	1.00			Relative P/E Ratio	1.25
6.7%	5.8%	5.5%	5.0%	4.2%	4.2%	3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%			Avg Ann'l Div'd Yield	2.5%
197.5	209.2	212.7	226.0	236.2	268.6	301.4	318.7	361.0	398.9	405	430	Revenues ($mill)	500
20.4	20.3	11.9	16.5	22.5	23.1	28.0	26.8	29.5	42.7	40.0	43.0	Net Profit ($mill)	52.0
43.0%	38.9%	43.5%	37.4%	47.0%	40.5%	42.6%	37.8%	38.9%	42.6%	42.0%	40.0%	Income Tax Rate	40.0%
--	--	--	--	--	12.2%	8.5%	6.9%	3.2%	5.0%	5.0%	5.0%	AFUDC % to Net Profit	5.0%
54.9%	52.0%	52.0%	47.7%	50.4%	48.6%	46.9%	46.2%	45.9%	44.3%	43.0%	45.0%	Long-Term Debt Ratio	49.5%
44.7%	48.0%	48.0%	52.3%	49.6%	51.4%	53.1%	53.8%	54.1%	55.7%	57.0%	55.0%	Common Equity Ratio	50.5%
447.6	444.4	442.3	480.4	532.5	551.6	569.4	577.0	665.0	677.4	700	725	Total Capital ($mill)	825
539.8	563.3	602.3	654.2	713.2	750.6	776.4	825.3	866.4	905.2	950	1000	Net Plant ($mill)	1150
6.1%	6.5%	4.6%	5.2%	5.4%	6.0%	6.7%	6.4%	5.9%	7.5%	7.5%	7.5%	Return on Total Cap'l	8.0%
10.1%	9.5%	5.6%	6.6%	8.5%	8.1%	9.3%	8.6%	8.2%	11.3%	11.0%	11.0%	Return on Shr. Equity	12.5%
10.1%	9.5%	5.6%	6.6%	8.5%	8.1%	9.3%	8.6%	8.2%	11.3%	11.0%	11.0%	Return on Com Equity	12.5%
3.6%	3.3%	NMF	1.0%	2.8%	2.7%	3.9%	3.1%	3.2%	6.2%	5.0%	5.5%	Retained to Com Eq	6.5%
65%	65%	113%	84%	67%	67%	58%	64%	61%	45%	52%	51%	All Div'ds to Net Prof	48%

CAPITAL STRUCTURE as of 12/31/10
Total Debt $361.2 mill. Due in 5 Yrs $296.9 mill.
LT Debt $299.8 mill. LT Interest $21.6 mill.
(LT interest earned: 4.9x; total interest coverage: 4.4x) (44% of Cap'l)

Leases, Uncapitalized: Annual rentals $3.3 mill.

Pension Assets-12/10 $90.2 mill.
Oblig. $118.8 mill.

Pfd Stock None.

Common Stock 18,654,106 shs.
as of 3/9/11
MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2008	2009	12/31/10
Cash Assets	7.3	1.7	4.2
Other	83.3	94.3	200.8
Current Assets	90.6	96.0	205.0
Accts Payable	36.6	33.9	36.2
Debt Due	75.3	18.1	61.4
Other	25.5	47.7	81.2
Current Liab.	137.4	99.7	178.8
Fix. Chg. Cov.	293%	352%	441%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '08-'10 to '14-'16
Revenues	4.5%	6.0%	4.5%
"Cash Flow"	5.0%	8.0%	5.5%
Earnings	4.0%	8.5%	8.0%
Dividends	1.5%	2.5%	3.5%
Book Value	4.5%	5.0%	3.0%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	66.9	80.3	85.3	84.2	318.7
2009	79.6	93.6	101.5	86.3	361.0
2010	88.4	95.5	111.3	103.7	398.9
2011	93.0	102	115	95.0	405
2012	95.0	110	125	100	430

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	.30	.53	.26	.43	1.55
2009	.28	.64	.52	.18	1.62
2010	.45	.47	.62	.71	2.25
2011	.45	.55	.65	.45	2.10
2012	.47	.58	.69	.46	2.20

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2007	.235	.235	.235	.250	.96
2008	.250	.250	.250	.250	1.00
2009	.250	.250	.250	.260	1.01
2010	.260	.260	.260	.260	1.04
2011	.260				

BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Company, it supplies water to more than 250,000 customers in 75 communities in 10 counties. Service areas include the greater metropolitan areas of Los Angeles and Orange Counties. The company also provides electric utility services to nearly 23,250 customers in the city of Big Bear Lake and in areas of San Bernardino County. Acquired Chaparral City Water of Arizona (10/00). Has 703 employees. Officers & directors own 2.6% of common stock (4/10 Proxy). Chairman: Lloyd Ross. President & CEO: Robert J. Sprowls. Inc: CA. Addr: 630 East Foothill Boulevard, San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.

Favorable regulatory backing enabled American States Water to have a blowout fourth quarter. Indeed, the water utility posted earnings of $0.71 a share, nearly four times the year-before tally. Revenues jumped 20%, to $103.7 million, thanks to the recognition of retroactive revenues from earlier in the year associated with rate increases handed down by the California Public Utilities Commission (CPUC) in regard to general rate cases for Regions II and III.

Growth will be tough to come by this year due to the stiffer comparisons ... Although the benefits were all realized in the final quarter of the year, the CPUC's ruling added $0.30 a share to the bottom line for the full-year 2010. AWR is subject to regulatory rulings so the gain is considered typical and not looked at as a nonrecurring. But we do not expect a similar occurrence this year.

... as well as the continued escalation of infrastructure costs. AWR's operating costs remain on the rise and are not likely to slow anytime soon, given that its water systems are growing older and require attention. Its pockets are all but empty, however, and the company will have to continue to seek outside financiers to stay afloat. Debt and equity issuances have become commonplace, and will likely remain a drag on earnings growth going forward. As a result, we look for share earnings to take a step back this year and to show modest improvement in 2012. That said, the company is slated to file a general rate case for all three regions in July of this year. A ruling is expected to take 18 months. A favorable verdict could prove our 2012 estimate conservative.

Capital projects are likely to remain a longer-term concern too. There is no end in sight to the infrastructure investment that is necessary. This industry is capital intensive, but unfortunately AWR is cash-strapped. As a result, the stock does not stand out for price appreciation potential for the coming six to 12 months or the 3 to 5 years ahead. The financial constraints lead to concerns about the company's dividend, which despite being above the average offering in our *Survey*, loses some luster when compared to other utilities.

Andre J. Costanza *April 22, 2011*

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 14¢; '05, 25¢; '06, 6¢; '08, (27¢); '10, (55¢). Next earnings report due early May. Quarterly egs. may not add due to rounding.
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for split.

Company's Financial Strength	B++
Stock's Price Stability	85
Price Growth Persistence	70
Earnings Predictability	85

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AMERICAN WATER NYSE-AWK

RECENT PRICE 27.90 | P/E RATIO 16.8 (Trailing: 18.1 Median: NMF) | RELATIVE P/E RATIO 1.01 | DIV'D YLD 3.2% | VALUE LINE

TIMELINESS 1 New 10/22/10
SAFETY 3 New 7/25/08
TECHNICAL 4 Lowered 3/11/11
BETA .65 (1.00 = Market)

2014-16 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+80%)	18%
Low	35	(+25%)	9%

Insider Decisions

	M	J	J	A	S	O	N	D	J
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	2Q2010	3Q2010	4Q2010
to Buy	134	146	145
to Sell	107	93	119
Hld's(000)	154379	149349	145430

LEGENDS
.... Relative Price Strength
Options: Yes
Shaded areas indicate recessions

Percent shares traded 21 14 7

High: 23.7 23.0 25.8 28.9
Low: 16.5 16.2 19.4 25.2

Target Price Range 2014 2015 2016

% TOT. RETURN 3/11

	THIS STOCK	VL ARITH. INDEX
1 yr.	33.7	23.4
3 yr.	—	49.0
5 yr.	—	45.8

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	© VALUE LINE PUB. LLC	14-16
--	--	--	--	--	--	--	--	--	--	--	13.08	13.84	14.61	13.93	15.49	16.10	16.35	Revenues per sh	17.95
--	--	--	--	--	--	--	--	--	--	--	.65	d.47	2.87	2.89	3.56	3.50	3.80	"Cash Flow" per sh	4.10
--	--	--	--	--	--	--	--	--	--	--	d.97	d2.14	1.10	1.25	1.53	1.70	1.80	Earnings per sh A	2.10
--	--	--	--	--	--	--	--	--	--	--	--	--	.40	.82	.86	.90	.94	Div'd Decl'd per sh B	1.10
--	--	--	--	--	--	--	--	--	--	--	4.31	4.74	6.31	4.50	4.38	4.30	4.25	Cap'l Spending per sh	4.20
--	--	--	--	--	--	--	--	--	--	--	23.86	28.39	25.64	22.91	23.59	23.60	23.40	Book Value per sh D	23.60
--	--	--	--	--	--	--	--	--	--	--	160.00	160.00	160.00	174.63	175.00	180.00	185.00	Common Shs Outst'g C	195.00
--	--	--	--	--	--	--	--	--	--	--	--	--	18.9	15.6	14.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	20.0
--	--	--	--	--	--	--	--	--	--	--	--	--	1.14	1.04	.94			Relative P/E Ratio	1.35
--	--	--	--	--	--	--	--	--	--	--	--	--	1.9%	4.2%	3.8%			Avg Ann'l Div'd Yield	2.6%
--	--	--	--	--	--	--	--	--	--	--	2093.1	2214.2	2336.9	2440.7	2710.7	2875	3025	Revenues ($mill)	3500
--	--	--	--	--	--	--	--	--	--	--	d155.8	d342.3	187.2	209.9	267.8	300	330	Net Profit ($mill)	410
--	--	--	--	--	--	--	--	--	--	--	--	--	37.4%	37.5%	40.4%	39.0%	38.5%	Income Tax Rate	38.0%
--	--	--	--	--	--	--	--	--	--	--	--	--	--	12.5%	10.0%	10.0%	10.0%	AFUDC % to Net Profit	15.0%
--	--	--	--	--	--	--	--	--	--	--	56.1%	50.9%	53.1%	56.8%	56.8%	56.5%	56.5%	Long-Term Debt Ratio	56.5%
--	--	--	--	--	--	--	--	--	--	--	43.9%	49.1%	46.9%	43.1%	43.2%	43.5%	43.5%	Common Equity Ratio	43.5%
--	--	--	--	--	--	--	--	--	--	--	8692.8	9245.7	8750.2	9289.0	9561.3	9850	10100	Total Capital ($mill)	10600
--	--	--	--	--	--	--	--	--	--	--	8720.6	9318.0	9991.8	10524	11059	11450	11875	Net Plant ($mill)	13150
--	--	--	--	--	--	--	--	--	--	--	NMF	NMF	3.7%	3.8%	4.4%	4.5%	5.0%	Return on Total Cap'l	5.5%
--	--	--	--	--	--	--	--	--	--	--	NMF	NMF	4.6%	5.2%	6.5%	7.0%	7.5%	Return on Shr. Equity	9.0%
--	--	--	--	--	--	--	--	--	--	--	NMF	NMF	4.6%	5.2%	6.5%	7.0%	7.5%	Return on Com Equity	9.0%
--	--	--	--	--	--	--	--	--	--	--	NMF	NMF	3.0%	1.6%	2.8%	3.5%	3.5%	Retained to Com Eq	4.5%
--	--	--	--	--	--	--	--	--	--	--	--	--	34%	65%	56%	54%	52%	All Div'ds to Net Prof	52%

CAPITAL STRUCTURE as of 12/31/10
Total Debt $5478.3 mill. Due in 5 Yrs $201.9 mill.
LT Debt $5433.5 mill. LT Interest $315.0 mill.
(Total interest coverage: 2.4x) (57% of Cap'l)

Leases, Uncapitalized: Annual rentals $25.7 mill.
Pension Assets-12/10 $861.0 mill
Oblig. $1285.5 mill.
Pfd Stock $23.9 mill. Pfd Div'd NMF

Common Stock 175,211,592 shs.
as of 2/22/11

MARKET CAP: $4.9 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2008	2009	12/31/10
Cash Assets	9.5	22.3	13.1
Other	408.2	476.8	521.2
Current Assets	417.7	499.1	534.3
Accts Payable	149.8	138.6	199.2
Debt Due	654.8	173.6	44.8
Other	300.2	285.2	530.6
Current Liab.	1104.8	607.4	774.5
Fix. Chg. Cov.	197%	210%	237%

ANNUAL RATES of change (per sh)	Past 10 Yrs:	Past 5 Yrs.	Est'd '08-'10 to '14-'16
Revenues	--	--	3.5%
"Cash Flow"	--	--	5.0%
Earnings	--	--	8.5%
Dividends	--	--	8.0%
Book Value	--	--	-.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	506.8	589.4	672.2	568.5	2336.9
2009	550.2	612.7	680.0	597.8	2440.7
2010	568.1	671.2	786.9	664.5	2710.7
2011	620	715	820	725	2875
2012	650	750	865	760	3025

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	.04	.28	.55	.23	1.10
2009	.19	.32	.52	.21	1.25
2010	.18	.42	.71	.23	1.53
2011	.22	.46	.75	.27	1.70
2012	.24	.49	.79	.28	1.80

Calendar	QUARTERLY DIVIDENDS PAID B Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2007	--	--	--	--	--
2008	--	--	.20	.20	.40
2009	.20	.20	.21	.21	.82
2010	.21	.21	.22	.22	.86
2011	.22				

BUSINESS: American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in over 30 states and Canada. Its nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up over 89% of 2010 revenues. New Jersey is its biggest market accounting for over 19% of revenues. Has roughly 7,000 employees. Depreciation rate, 2.5% in '10. BlackRock, Inc., owns 6.9% of the common stock outstanding. Off. & dir. own less than 1%. President & CEO: Jeffrey Sterba. Chairman: George Mackenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Telephone: 856-346-8200. Internet: www.amwater.com.

American Water Works closed out a healthy 2010 campaign in solid, albeit not as strong as we predicted, fashion. The country's biggest water utility posted share earnings of $0.23, 10% better than the year before, but half of what we were anticipating. Revenues advanced a slower-than-expected 11%, to roughly $665 million, benefiting from new rate awards and greater military demand.

We look for growth to continue slowing this year. The high end of management's earnings guidance ($1.65 to $1.75 a share) appears a little too bullish in our opinion, given the tough comparisons and the continuously rising costs of doing business in this space. Indeed, infrastructure expenses are likely to remain on an upswing, as many systems are decaying and in need of significant, if not complete, overhauls. American is not exactly flush with cash though and will need to look to outside financiers to foot the bill. The increased debt load and/or higher share count will dilute share-net gains.

We have introduced our 2012 estimates with similar trends in mind. True, American continues to make inroads with military bases, and these nonregulated ventures should remain profitable, but the company remains for all intents and purposes, a heavily regulated business. Although regulatory commissions have been far more-business friendly of late, there is no way of getting around the need to maintain the nation's waterways and pipelines. These infrastructure costs, and the associated financing expenses, ought to keep share-earnings growth in single-digit territory next year and thereafter out to mid-decade.

These shares are ranked 1 (Highest) for Timeliness, thanks to recent share-price momentum. They have been on a steady climb upward since last summer, and are up nearly 30% in all.

This issue looks to be undervalued according to our projections. Despite the financial constraints we envision, price appreciation potential out to mid-decade is on par with the *Value Line* average. Traction in nonregulated areas ought to help pick up some of the slack. Meanwhile, the dividend adds to the issue's 3- to 5-year total-return appeal.

Andre J. Costanza *April 22, 2011*

(A) Diluted earnings. Excludes nonrecurring gains (losses): '08, ($4.62); '09, (52.63). Discontinued operations: '06, (4¢).
Next earnings report due early May. Quarterly earnings may not sum due to rounding.
(B) Dividends to be paid in February, May, August, and November. ■ Div. reinvestment available.
(C) In millions.
(D) Includes intangibles. In 2010: $1.251 billion, $7.15/share.

Company's Financial Strength	B
Stock's Price Stability	85
Price Growth Persistence	NMF
Earnings Predictability	10

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AQUA AMERICA NYSE-WTR

RECENT PRICE 21.94 | P/E RATIO 23.8 (Trailing: 24.4 / Median: 25.0) | RELATIVE P/E RATIO 1.43 | DIV'D YLD 2.8% | VALUE LINE

TIMELINESS 3 Lowered 1/21/11
SAFETY 3 Lowered 8/1/03
TECHNICAL 3 Raised 4/8/11
BETA .65 (1.00 = Market)

2014-16 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	35	(+60%)	15%
Low	25	(+15%)	3%

Insider Decisions

	M	J	J	A	S	O	N	D	J
to Buy	1	0	0	0	1	0	0	0	0
Options	0	0	0	0	2	1	0	1	1
to Sell	0	0	3	0	2	1	1	1	0

Institutional Decisions

	2Q2010	3Q2010	4Q2010
to Buy	92	90	101
to Sell	119	101	94
Hld'g(000)	60654	59791	55463

High: 12.0 14.8 15.0 16.8 18.5 29.2 29.8 26.6 22.0 21.5 23.0 23.8
Low: 6.3 9.4 9.6 11.8 14.2 17.5 20.1 18.9 12.2 15.4 16.5 21.6

LEGENDS
1.60 x Dividends p sh divided by Interest Rate
Relative Price Strength
4-for-3 split 1/98
5-for-4 split 12/00
5-for-4 split 12/01
5-for-4 split 12/03
4-for-3 split 12/05
Options: Yes
Shaded areas indicate recessions

Target Price Range 2014 | 2015 | 2016
64 48 40 32 24 20 16 12 8 6

% TOT. RETURN 3/11

	THIS STOCK	VL ARITH.* INDEX
1 yr.	34.2	23.4
3 yr.	33.5	49.0
5 yr.	-8.1	45.9

Percent shares traded 15 10 5

1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	© VALUE LINE PUB. LLC	14-16
1.84	1.86	2.02	2.09	2.41	2.46	2.70	2.85	2.97	3.48	3.85	4.03	4.52	4.63	4.91	5.26	5.60	5.90	Revenues per sh	6.80
.47	.50	.56	.61	.72	.76	.86	.94	.96	1.09	1.21	1.26	1.37	1.42	1.61	1.78	1.85	1.95	"Cash Flow" per sh	2.35
.29	.30	.34	.40	.42	.47	.51	.54	.57	.64	.71	.70	.71	.73	.77	.90	.95	1.05	Earnings per sh A	1.35
.22	.23	.24	.26	.27	.28	.30	.32	.35	.37	.40	.44	.48	.51	.55	.59	.63	.67	Div'd Decl'd per sh B=	.79
.52	.48	.58	.82	.90	1.16	1.09	1.20	1.32	1.54	1.84	2.05	1.79	1.98	2.08	2.37	2.45	1.55	Cap'l Spending per sh	2.80
2.46	2.69	2.84	3.21	3.42	3.85	4.15	4.36	5.34	5.89	6.30	6.96	7.32	7.82	8.12	8.51	8.75	9.10	Book Value per sh	10.50
63.74	65.75	67.47	72.20	106.80	111.82	113.97	113.19	123.45	127.18	128.97	132.33	133.40	135.37	136.49	137.97	138.90	139.90	Common Shs Outst'g C	142.90
12.0	15.6	17.8	22.5	21.2	18.2	23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	Bold figures are		Avg Ann'l P/E Ratio	21.0
.80	.98	1.03	1.17	1.21	1.18	1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.36	Value Line		Relative P/E Ratio	1.40
6.2%	4.9%	3.9%	2.9%	3.0%	3.3%	2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	estimates		Avg Ann'l Div'd Yield	2.5%
						307.3	322.0	367.2	442.0	496.8	533.5	602.5	627.0	670.5	726.1	775	825	Revenues ($mill)	975
						58.5	62.7	67.3	80.0	91.2	92.0	95.0	97.9	104.4	124.0	130	145	Net Profit ($mill)	190
						39.3%	38.5%	39.3%	39.4%	38.4%	39.6%	38.9%	39.7%	39.4%	39.2%	40.0%	40.0%	Income Tax Rate	40.0%
						--	--	--	--	--	--	--	--	2.9%	3.1%	2.5%	2.5%	AFUDC % to Net Profit	1.5%
						52.2%	54.2%	51.4%	50.0%	52.0%	51.6%	55.4%	54.1%	55.6%	56.6%	56.0%	56.0%	Long-Term Debt Ratio	54.0%
						47.7%	45.8%	48.6%	50.0%	48.0%	48.4%	44.6%	45.9%	44.4%	43.4%	44.0%	44.0%	Common Equity Ratio	46.0%
						990.4	1076.2	1355.7	1497.3	1690.4	1904.4	2191.4	2306.6	2495.5	2706.2	2790	2880	Total Capital ($mill)	3210
						1368.1	1490.8	1824.3	2069.8	2280.0	2506.0	2792.8	2997.4	3227.3	3469.3	3640	3815	Net Plant ($mill)	4395
						7.8%	7.6%	6.4%	6.7%	6.9%	6.4%	5.9%	5.7%	5.6%	5.9%	6.0%	6.5%	Return on Total Cap'l	7.5%
						12.3%	12.7%	10.2%	10.7%	11.2%	10.0%	9.7%	9.3%	9.4%	10.6%	11.0%	11.5%	Return on Shr. Equity	13.0%
						12.4%	12.7%	10.2%	10.7%	11.2%	10.0%	9.7%	9.3%	9.4%	10.6%	11.0%	11.5%	Return on Com Equity	13.0%
						5.1%	5.2%	4.2%	4.6%	4.9%	3.7%	3.2%	2.8%	2.7%	3.7%	3.5%	4.0%	Retained to Com Eq	5.5%
						59%	59%	59%	57%	56%	63%	67%	70%	72%	65%	67%	64%	All Div'ds to Net Prof	59%

CAPITAL STRUCTURE as of 12/31/10
Total Debt $1560.4 mill. Due in 5 Yrs $316 mill.
LT Debt $1531.9 mill. LT Interest $70.6 mill.
(LT interest earned: 4.5x; total interest coverage: 4.5x) (57% of Cap'l)

Pension Assets-12/10 $159.2 mill. Oblig. $234.9 mill.

Pfd Stock None

Common Stock 137,968,188 shares as of 2/11/11

MARKET CAP: $3.0 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2008	2009	12/31/10
Cash Assets	14.9	21.9	5.9
Receivables	84.5	78.7	85.9
Inventory (AvgCst)	9.8	9.5	9.2
Other	11.8	11.5	44.4
Current Assets	121.0	121.6	145.4
Accts Payable	50.0	57.9	45.3
Debt Due	87.9	87.0	28.5
Other	55.3	56.1	149.9
Current Liab.	193.2	201.0	223.7
Fix. Chg. Cov.	329%	346%	290%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '08-'10 to '14-'16
Revenues	8.0%	7.5%	6.5%
"Cash Flow"	8.5%	8.0%	8.0%
Earnings	6.5%	4.5%	10.0%
Dividends	7.5%	8.0%	6.0%
Book Value	9.0%	7.0%	5.0%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2008	139.3	151.0	177.1	159.6	627.0
2009	154.5	167.3	180.8	167.9	670.5
2010	160.5	178.4	207.8	179.3	726.0
2011	180	185	215	195	775
2012	195	200	230	200	825

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2008	.11	.17	.26	.19	.73
2009	.14	.19	.25	.20	.77
2010	.16	.22	.32	.20	.90
2011	.16	.22	.34	.23	.95
2012	.18	.24	.36	.27	1.05

Calendar	QUARTERLY DIVIDENDS PAID B= Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2007	.115	.115	.125	.125	.48
2008	.125	.125	.125	.135	.51
2009	.135	.135	.135	.145	.55
2010	.145	.145	.145	.155	.59
2011	.155				

BUSINESS: Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Divested three of four non-water businesses in '91; telemarketing group in '93; and others. Acquired AquaSource, 7/03; Consumers Water, 4/99; and others. Water supply revenues '10: residential, 59.4%; commercial, 14.5%; industrial & other, 26.0%. Officers and directors own 2.0% of the common stock (4/11 Proxy). Chairman & Chief Executive Officer: Nicholas DeBenedictis. Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Telephone: 610-525-1400. Internet: www.aquaamerica.com.

Aqua America is slated to improve steadily in 2011. Earnings growth is likely to be driven by purchases, as well as future favorable rate rulings.

Acquisitions remain the backbone of growth. With its strong balance sheet, Aqua America is poised to continue growth via purchases this year. Though no concrete details are known at this time, we do anticipate seeing a string of transactions, similar to the previous year.

Rate rulings should provide an additional boost to the bottom line. The company has implemented a rate recovery program, with most of its rate cases likely to receive favorable rulings. It already has several major cases on the horizon, though there have not been any filings. States that the company plans to file in include Pennsylvania, New Jersey, Ohio, Illinois, and Texas. In the best-case scenario, the increase in revenues should boost the bottom lines from 2012 onward.

The Marcellus Shale project provides many growth opportunities. The company has already implemented a new program of "water stations" to fill the trucks that service the drillers in Marcellus Shale. As the drilling requires significant water use, we expect drilling-related water consumption to increase in the future, adding to the revenue stream. Furthermore as the Marcellus Shale is set to provide impetus to many states that the company serves, we anticipate organic growth to increase over the next few years.

Long-term prospects look bright for Aqua America. It looks ever likely that the company will benefit both from acquisition-driven growth and organic growth. Finally, Aqua America's diversification into other sectors continues. It is looking at three to four more solar operations this year, and is quite likely to ramp up production from 2012 onward, as these projects are turning out to be quite profitable in the near and long term. The company is also cutting down on costs, which should aid in boosting the bottom line over the next few years.

Income investors should find this issue of interest. This equity's dividend yield is well above the industry average. Furthermore, the company has a history of steady dividend increases.

Sahana Zutshi *April 22, 2011*

(A) Diluted eqs. Excl. nonrec. gains (losses): '99, (11¢); '08, 2¢; '01, 2¢; '02, 5¢; '03, 4¢. Excl. gain from disc. operations: '96, 2¢. Earnings may not add due to rounding. Next earnings report due mid-May.
(B) Dividends historically paid in early March, June, Sept. & Dec. = Div'd. reinvestment plan available (5% discount).
(C) In millions, adjusted for stock splits.

Company's Financial Strength	B+
Stock's Price Stability	100
Price Growth Persistence	70
Earnings Predictability	100

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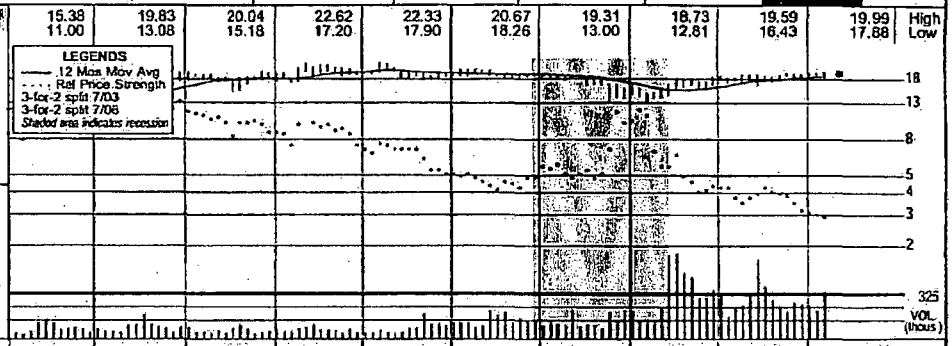
ARTESIAN RES. CORP. NDQ-ARTNA

RECENT PRICE 19.42 | TRAILING P/E RATIO 19.4 | RELATIVE P/E RATIO 1.06 | DIV'D YLD 3.9% | VALUE LINE

RANKS

PERFORMANCE 3 Average
Technical 3 Average
SAFETY 2 Above Average
BETA .60 (1.00 = Market)

Financial Strength B+
Price Stability 100
Price Growth Persistence 45
Earnings Predictability 90



	15.38 11.00	19.83 13.08	20.04 15.18	22.62 17.20	22.33 17.90	20.67 18.26	19.31 13.00	18.73 12.81	19.59 16.43	19.99 17.88 High Low
© VALUE LINE PUBLISHING LLC	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011/2012
SALES PER SH	5.97	6.20	6.67	7.52	7.77	7.20	7.59	8.11	8.48	
"CASH FLOW" PER SH	1.27	1.28	1.42	1.56	1.75	1.57	1.65	1.84	1.92	
EARNINGS PER SH	.76	.64	.72	.84	.97	.90	.86	.97	1.00	1.07 A,B/1.15 C
DIV'DS DECL'D PER SH	.52	1.08	1.11	1.16	.61	.66	.71	.72	.75	
CAP'L SPENDING PER SH	3.18	4.20	4.82	3.35	5.08	3.66	6.09	2.32	2.57	
BOOK VALUE PER SH	8.84	9.01	9.26	9.60	10.15	11.66	11.86	12.15	12.44	
COMMON SHS OUTST'G (MILL)	5.79	5.85	5.93	6.02	6.09	7.30	7.40	7.51	7.65	
AVG ANN'L P/E RATIO	17.3	24.7	25.4	23.5	20.3	21.5	20.1	16.4	18.2	18.1/16.9
RELATIVE P/E RATIO	.94	1.41	1.34	1.24	1.10	1.14	1.21	1.09	1.17	
AVG ANN'L DIV'D YIELD	3.9%	6.7%	6.1%	5.9%	3.1%	3.4%	4.1%	4.5%	4.1%	
SALES ($MILL)	34.6	36.3	39.6	45.3	47.3	52.5	56.2	60.9	64.9	Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios.
OPERATING MARGIN	99.6%	--	--	100.0%	45.6%	45.6%	45.1%	46.9%	46.5%	
DEPRECIATION ($MILL)	3.2	3.6	4.0	4.4	4.6	5.2	5.8	6.6	7.0	
NET PROFIT ($MILL)	4.2	3.9	4.4	5.0	6.1	6.3	6.4	7.3	7.6	
INCOME TAX RATE	40.4%	37.9%	39.6%	39.8%	39.0%	39.8%	40.8%	40.1%	40.0%	
NET PROFIT MARGIN	12.0%	10.8%	11.1%	11.1%	12.8%	11.9%	11.4%	11.9%	11.7%	
WORKING CAP'L ($MILL)	2.4	d10.5	d8.7	d1.8	d8.8	2.5	d20.9	d23.3	d27.9	
LONG-TERM DEBT ($MILL)	64.0	80.6	82.4	92.4	92.1	91.8	107.6	106.0	105.1	
SHR. EQUITY ($MILL)	51.3	52.7	54.9	57.8	61.8	85.1	87.8	91.2	95.1	
RETURN ON TOTAL CAP'L	5.6%	4.5%	5.1%	5.3%	5.8%	5.3%	4.7%	5.2%	5.6%	
RETURN ON SHR. EQUITY	8.1%	7.4%	8.0%	8.7%	9.8%	7.4%	7.3%	8.0%	8.0%	
RETAINED TO COM EQ	2.8%	1.4%	2.1%	2.7%	3.8%	2.1%	1.4%	2.1%	2.0%	
ALL DIV'DS TO NET PROF	65%	81%	74%	69%	61%	71%	81%	74%	75%	

A No. of analysts changing earn. est. in last 9 days: 0 up, 0 down, consensus 5-year earnings growth 3.65% per year. B Based upon 3 analysts' estimates. C Based upon 3 analysts' estimates.

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Sales	3.5%	4.5%
"Cash Flow"	5.0%	4.0%
Earnings	5.0%	3.0%
Dividends	-8.0%	4.5%
Book Value	5.5%	2.5%

QUARTERLY SALES ($mill.)

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/08	12.3	13.9	15.7	14.3	56.2
12/31/09	13.9	15.4	16.1	15.5	60.9
12/31/10	15.0	16.0	18.0	15.9	64.9
12/31/11					

EARNINGS PER SHARE

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/07	.18	.19	.37	.14	.90
12/31/08	.13	.21	.35	.17	.86
12/31/09	.22	.27	.28	.20	.97
12/31/10	.22	.24	.38	.16	1.00
12/31/11	.21	.25	.37		

QUARTERLY DIVIDENDS PAID

Cal-endar	1Q	2Q	3Q	4Q	Full Year
2008	.172	.178	.178	.178	.71
2009	.178	.178	.178	.187	.72
2010	.187	.188	.188	.189	.75
2011	.197				

INSTITUTIONAL DECISIONS

	2Q'10	3Q'10	4Q'10
to Buy	26	17	23
to Sell	15	20	21
Hld's(000)	2151	2148	2190

ASSETS ($mill.)	2008	2009	12/31/10
Cash Assets	2.9	.5	.2
Receivables	7.8	9.0	5.1
Inventory	1.1	1.2	1.2
Other	1.7	2.5	7.5
Current Assets	13.5	13.2	14.0
Property, Plant & Equip. at cost	386.5	403.0	414.6
Accum Depreciation	58.8	64.9	69.2
Net Property	327.7	338.1	345.4
Other	7.5	7.6	12.1
Total Assets	348.7	358.9	371.5
LIABILITIES ($mill.)			
Accts Payable	4.6	3.7	3.4
Debt Due	22.6	27.7	30.6
Other	7.2	5.1	7.9
Current Liab	34.4	36.5	41.9

LONG-TERM DEBT AND EQUITY
as of 12/31/10

Total Debt $135.7 mil. Due in 5 Yrs. $35.3 mil.
LT Debt $105.1 mil.
Including Cap. Leases None
(52% of Cap'l)
Leases, Uncapitalized Annual rentals $.1 mil.

Pension Liability $.5 mil. in '10 vs. $.7 mil. in '09

Pfd Stock None Pfd Div'd Paid None

Common Stock 7,649,435 shares
(48% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: Artesian Resources Corporation, through its subsidiaries, provides water, wastewater and other services on the Delmarva Peninsula. The company distributes and sells water, including water for public and private fire protection, to residential, commercial, industrial, municipal and utility customers throughout the states of Delaware, Maryland and Pennsylvania. It also provides wastewater services to customers in Delaware and has entered into purchase agreements to provide wastewater services in the State of Maryland. In addition, Artesian provides contract water and wastewater operations, water and sewer Service Line Protection Plans, wastewater management services, and design, construction and engineering services. Artesian Resources is the parent holding company of Artesian Water Company, Inc., Artesian Water Pennsylvania, Inc., Artesian Water Maryland, Inc., Artesian Wastewater Management, Inc., Artesian Wastewater Maryland, Inc. and three other entities. Has 238 employees. Chairman, C.E.O. & President: Dian C. Taylor. Address: 664 Churchmans Rd., Newark, DE 19702. Tel.: 302 453-6900. Internet: http://www.artesianwater.com. *H.T.*

April 22, 2011

TOTAL SHAREHOLDER RETURN
Dividends plus appreciation as of 3/31/2011

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
3.86%	4.22%	14.86%	19.74%	6.44%

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Exhibit No.___
Schedule PMA-6
Page 6 of 10

CALIFORNIA WATER NYSE-CWT

RECENT PRICE 36.39 | P/E RATIO 18.8 (Trailing: 28.1, Median: 22.0) | RELATIVE P/E RATIO 1.12 | DIV'D YLD 3.4% | VALUE LINE

TIMELINESS 4 Lowered 3/4/11
SAFETY 3 Lowered 7/27/07
TECHNICAL 3 Lowered 11/12/10
BETA .70 (1.00 = Market)

2014-16 PROJECTIONS

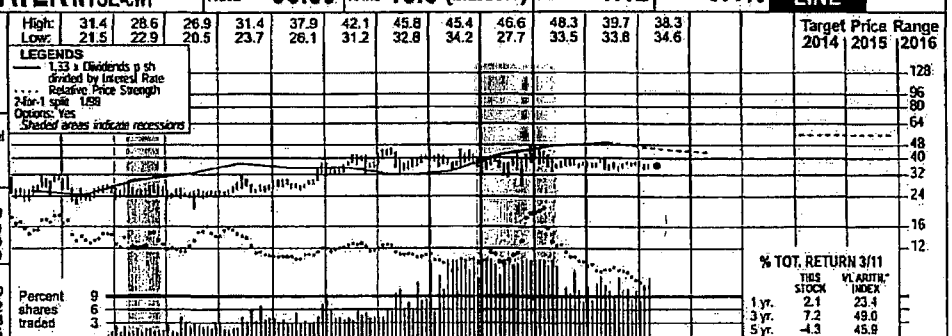
	Price	Gain	Ann'l Total Return
High	55	(+50%)	14%
Low	40	(10%)	6%

Insider Decisions

	M	J	J	A	S	O	N	D	J
to Buy	0	0	0	1	0	0	0	0	0
Options	0	0	0	0	2	0	1	0	0
to Sell	1	0	0	0	0	0	1	0	0

Institutional Decisions

	2Q2010	3Q2010	4Q2010
to Buy	43	53	62
to Sell	72	53	48
Hld's(000)	8640	9706	10125



1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	© VALUE LINE PUB. LLC	14-16
13.17	14.48	15.48	14.76	15.96	16.16	16.26	17.33	16.37	17.18	17.44	16.20	17.76	19.80	21.64	22.10	21.75	21.00	Revenues per sh	23.15
2.07	2.50	2.92	2.60	2.75	2.52	2.20	2.65	2.51	2.83	3.03	2.71	3.12	3.72	3.67	3.88	4.00	3.90	"Cash Flow" per sh	4.05
1.17	1.51	1.83	1.45	1.53	1.31	.94	1.25	1.21	1.46	1.47	1.34	1.50	1.90	1.95	1.81	2.00	2.15	Earnings per sh [A]	2.35
1.02	1.04	1.06	1.07	1.09	1.10	1.12	1.12	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.23	1.27	Div'd Decl'd per sh [B] •	1.38
2.17	2.83	2.61	2.74	3.44	2.45	4.09	5.82	4.39	3.73	4.01	4.28	3.68	4.82	5.33	5.95	5.55	5.20	Cap'l Spending per sh	5.55
11.72	12.22	13.00	13.38	13.43	12.90	12.95	13.12	14.44	15.66	15.79	18.15	18.50	19.44	20.26	20.91	20.85	22.80	Book Value per sh [C]	23.70
12.54	12.62	12.62	12.62	12.94	15.15	15.18	15.18	16.93	18.37	18.39	20.66	20.67	20.72	20.77	20.83	23.00	25.00	Common Shs Outst'g [D]	27.00
13.7	11.9	12.6	17.8	17.8	19.6	27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	20.3	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	20.0
.92	.75	.73	.93	1.01	1.27	1.39	1.08	1.26	1.06	1.33	1.58	1.39	1.19	1.31	1.30			Relative P/E Ratio	1.35
6.4%	5.8%	4.6%	4.2%	4.0%	4.3%	4.4%	4.5%	4.2%	3.9%	3.1%	2.9%	3.0%	3.1%	3.1%	3.2%			Avg Ann'l Div'd Yield	2.9%
						246.8	263.2	277.1	315.6	320.7	334.7	367.1	410.3	449.4	460.4	500	525	Revenues ($mill) [E]	650
						14.4	19.1	19.4	26.0	27.2	25.6	31.2	39.8	40.6	37.7	47.5	52.0	Net Profit ($mill)	63.0
						39.4%	39.7%	39.9%	39.6%	42.4%	37.4%	39.9%	37.7%	40.3%	39.5%	39.0%	39.0%	Income Tax Rate	39.0%
						--	--	10.3%	3.2%	3.3%	10.6%	8.3%	8.6%	7.6%	4.2%	10.0%	10.0%	AFUDC % to Net Profit	10.0%
						50.3%	55.3%	50.2%	48.6%	48.3%	43.5%	42.9%	41.6%	47.1%	52.4%	50.0%	47.0%	Long-Term Debt Ratio	49.0%
						48.8%	44.0%	49.1%	50.8%	51.1%	55.9%	56.6%	58.4%	52.9%	47.6%	50.0%	53.0%	Common Equity Ratio	51.0%
						402.7	453.1	498.4	565.9	568.1	670.1	674.9	690.4	794.9	914.7	975	1070	Total Capital ($mill)	1250
						624.3	697.0	759.5	800.3	862.7	941.5	1010.2	1112.4	1198.1	1294.3	1370	1390	Net Plant ($mill)	1625
						5.3%	5.9%	5.6%	6.1%	6.3%	5.2%	5.9%	7.1%	6.5%	5.5%	6.5%	6.5%	Return on Total Cap'l	7.0%
						7.2%	9.4%	7.8%	8.9%	9.3%	6.8%	8.1%	9.9%	9.6%	8.6%	10.0%	9.0%	Return on Shr. Equity	10.0%
						7.2%	9.5%	7.9%	9.0%	9.3%	6.8%	8.1%	9.9%	9.6%	8.6%	10.0%	9.0%	Return on Com Equity	10.0%
						NMF	1.0%	.7%	2.1%	2.1%	1.0%	1.8%	3.8%	3.8%	3.0%	4.5%	3.5%	Retained to Com Eq	4.0%
						119%	90%	91%	77%	78%	86%	77%	61%	60%	66%	57%	61%	All Div'ds to Net Prof	59%

CAPITAL STRUCTURE as of 12/31/10
Total Debt $505.3 mill. Due in 5 Yrs $43.9 mill.
LT Debt $479.2 mill. LT Interest $27.9 mill.

(LT Interest earned: 3.4x; total int. cov.: 3.2x)

Pension Assets-12/10 $139.0 mill.
Oblig. $269.9 mill.

Pfd Stock None

Common Stock 20,833,303 shs.
as of 2/24/11

MARKET CAP: $750 million (Small Cap)

CURRENT POSITION ($MILL.)	2008	2009	12/31/10
Cash Assets	13.9	9.9	42.3
Other	65.9	82.3	83.9
Current Assets	79.8	92.2	126.2
Accts Payable	45.1	43.7	39.5
Debt Due	42.8	25.0	26.1
Other	35.3	41.7	41.7
Current Liab.	123.2	110.4	107.3
Fix. Chg. Cov.	398%	430%	390%

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '08-'10 to '14-'16
Revenues	3.0%	4.5%	1.5%
"Cash Flow"	4.0%	6.5%	1.0%
Earnings	3.0%	6.5%	3.0%
Dividends	1.0%	1.0%	2.5%
Book Value	4.5%	5.5%	2.5%

Calendar	QUARTERLY REVENUES ($ mill.) [E] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2008	72.9	105.6	131.7	100.1	410.3
2009	86.6	116.7	139.2	106.9	449.4
2010	90.3	118.3	146.3	105.5	460.4
2011	95.0	130	160	115	500
2012	100	135	170	120	525

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2008	.01	.48	1.06	.35	1.90
2009	.12	.58	.94	.31	1.95
2010	.10	.50	.98	.23	1.81
2011	.11	.55	1.05	.29	2.00
2012	.12	.60	1.11	.32	2.15

Calendar	QUARTERLY DIVIDENDS PAID [B] • Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2007	.290	.290	.290	.290	1.16
2008	.293	.293	.293	.293	1.17
2009	.295	.295	.295	.295	1.18
2010	.2975	.2975	.2975	.2975	1.19
2011	.3075				

BUSINESS: California Water Service Group provides regulated and nonregulated water service to roughly 470,200 customers in 83 communities in California, Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown, '10: residential, 72%; business, 20%; public authorities, 4%; industrial, 4%. '10 reported depreciation rate: 2.3%. Has roughly 1,127 employees. Chairman: Robert W. Foy. President & CEO: Peter C. Nelson (4/11 Proxy). Inc.: Delaware. Address: 1720 North First Street, San Jose, California 95112-4598. Telephone: 408-367-8200. Internet: www.calwatergroup.com.

We look for California Water Service Group to bounce back nicely this year. The water utility disappointed in the fourth quarter of 2010, reporting earnings of $0.23 a share, well below the year-earlier mark and estimates. The top line dipped 1%, as the net effect of WRAM and the MCBA resulted in a decrease of $2.9 million in revenue. These usage of these methodologies added $5.2 million to the books in the same period last year. But there should not be any lagging effects with the transition to a three year general rate case cycle in California now in the rear view mirror. In fact, the regulatory landscape ought to be complementary after the California Public Utilities Commission recently approved CWT's rate case authorizing the company to recognize an additional $25 million in annualized revenues and another $8 million in funds to be obtained at the conclusion of certain projects. With that, we look for a 10% share-net advance in 2011, despite the rising costs of doing business (see below).

Growth will likely taper off in 2012 and thereafter, however. U.S. water infrastructures are extremely capital-intensive. Costs of maintenance are adding up as many systems require significant investment. CWT is reasonably cash-strapped, though, and will probably have to continue seeking outside financing. Though necessary, such ventures come at a price, and the initiatives will probably cause earnings growth to begin slowing.

We do not recommend this issue to most. The financing costs should weigh on shareholder gains for the foreseeable future. Although the steadily increasing dividend is a boon, it is not enough to make up for the lack of earnings power in our opinion. There are better income vehicles out there, especially in the Electric Utilities Industry. We also worry that the dearth of cash on hand could potentially affect the dividend payout if the operating environment remains so capital intensive. It should be noted that CWT announced a 2-for-1 stock split and a stock offering that looks to be contingent upon approval of the former action. If granted shareholder approval, both are slated to go through in June. Our presentation does not account for the split at this time.

Andre J. Costanza *April 22, 2011*

(A) Basic EPS. Excl. nonrecurring gain (loss): '00, (7¢); '01, 4¢; '02, 8¢. Next earnings report due April 28th.

(B) Dividends historically paid in early Feb., May, Aug., and Nov. • Div'd reinvestment plan available.

(C) Incl. deferred charges. In '10: $2.2 mill., $0.11/sh.
(D) In millions, adjusted for split.
(E) Excludes non-reg. rev.

Company's Financial Strength	B+
Stock's Price Stability	90
Price Growth Persistence	70
Earnings Predictability	85

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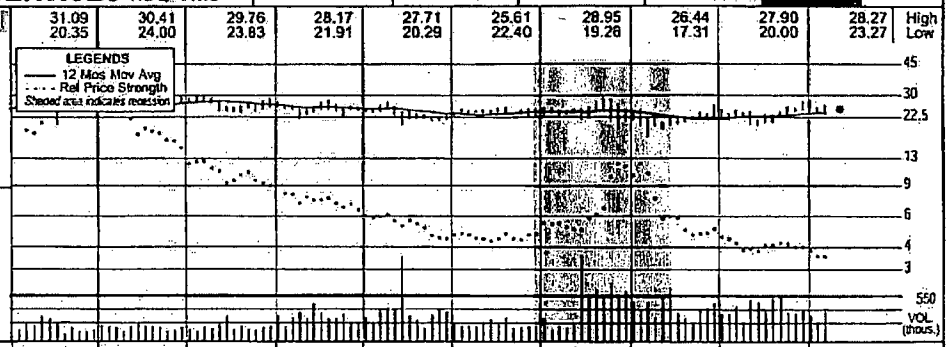
CONN. WATER SERVICES NDQ-CTWS

RECENT PRICE 25.01 | TRAILING P/E RATIO 22.1 | RELATIVE P/E RATIO 1.21 | DIV'D YLD 3.7% | VALUE LINE

RANKS

PERFORMANCE 3 Average
Technical 3 Average
SAFETY 2 Above Average
BETA .80 (1.00 = Market)

Financial Strength B+
Price Stability 95
Price Growth Persistence 25
Earnings Predictability 80



© VALUE LINE PUBLISHING LLC	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011/2012
SALES PER SH	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	
"CASH FLOW" PER SH	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	
EARNINGS PER SH	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.20[A,B]/1.24[C]
DIV'DS DECL'D PER SH	.81	.83	.84	.85	.86	.87	.88	.90	.92	
CAP'L SPENDING PER SH	1.98	1.49	1.58	1.96	1.96	2.24	2.44	3.28	3.06	
BOOK VALUE PER SH	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	
COMMON SHS OUTST'G (MILL)	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.68	
AVG ANN'L P/E RATIO	24.3	23.5	22.9	28.6	29.0	23.0	22.2	18.4	20.7	20.8/20.2
RELATIVE P/E RATIO	1.33	1.34	1.21	1.51	1.57	1.22	1.34	1.22	1.33	
AVG ANN'L DIV'D YIELD	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	
SALES ($MILL)	45.8	47.1	48.5	47.5	46.9	59.0	61.3	59.4	66.4	
OPERATING MARGIN	57.7%	52.1%	51.0%	48.3%	43.7%	40.8%	49.0%	35.8%	40.7%	
DEPRECIATION ($MILL)	5.4	5.9	6.0	6.1	5.9	7.2	7.1	6.4	7.9	
NET PROFIT ($MILL)	8.8	9.2	9.4	7.2	6.7	8.8	9.4	10.2	9.8	
INCOME TAX RATE	33.8%	17.9%	22.9%	–	23.5%	32.4%	27.2%	19.5%	35.2%	
NET PROFIT MARGIN	19.2%	19.5%	19.4%	15.1%	14.3%	14.9%	15.4%	17.2%	14.8%	
WORKING CAP'L ($MILL)	d5.1	d3.9	d.7	13.0	1.2	8.1	d3.3	d13.1	d14.7	
LONG-TERM DEBT ($MILL)	64.8	64.8	66.4	77.4	77.3	92.3	92.2	112.0	111.7	
SHR. EQUITY ($MILL)	80.7	84.2	88.7	94.9	96.7	100.9	104.2	109.3	114.0	
RETURN ON TOTAL CAP'L	7.4%	7.5%	7.0%	5.0%	4.9%	5.5%	5.9%	5.5%	5.4%	
RETURN ON SHR. EQUITY	10.9%	10.9%	10.6%	7.5%	6.9%	8.7%	9.0%	9.3%	8.6%	
RETAINED TO COM EQ	3.1%	3.2%	3.1%	.3%	NMF	1.6%	1.9%	2.3%	1.6%	
ALL DIV'DS TO NET PROF	72%	71%	71%	95%	105%	82%	79%	76%	81%	

Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios.

[A]No. of analysts changing earn. est. in last 9 days: 0 up, 0 down, consensus 5-year earnings growth 4.0% per year. [B]Based upon 3 analysts' estimates. [C]Based upon 3 analysts' estimates.

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Sales	4.0%	10.5%
"Cash Flow"	2.0%	5.5%
Earnings	1.5%	-5.0%
Dividends	1.5%	2.0%
Book Value	3.0%	3.0%

QUARTERLY SALES ($mill.)

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/08	13.6	16.0	17.0	14.7	61.3
12/31/09	13.4	15.2	16.6	14.2	59.4
12/31/10	13.8	15.9	21.0	15.7	66.4
12/31/11					

EARNINGS PER SHARE

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/07	.18	.22	.46	.19	1.05
12/31/08	.20	.35	.34	.22	1.11
12/31/09	.13	.27	.67	.12	1.19
12/31/10	.12	.27	.54	.20	1.13
12/31/11	.16	.31	.55		

QUARTERLY DIVIDENDS PAID

Calendar	1Q	2Q	3Q	4Q	Full Year
2008	.218	.218	.222	.222	.88
2009	.222	.222	.228	.228	.90
2010	.228	.228	.233	.233	.92
2011	.233				

INSTITUTIONAL DECISIONS

	2Q'10	3Q'10	4Q'10
to Buy	30	21	27
to Sell	23	21	19
Hld's(000)	2790	2747	2764

ASSETS ($mill.)	2008	2009	12/31/10
Cash Assets	.7	5.4	1.0
Receivables	12.0	6.5	10.1
Inventory (Avg cost)	1.1	1.1	1.7
Other	2.0	7.0	7.6
Current Assets	15.8	20.0	20.4
Property, Plant & Equip. at cost	418.1	448.2	471.6
Accum Depreciation	115.8	123.0	127.4
Net Property	302.3	325.2	344.2
Other	54.3	70.1	60.6
Total Assets	372.4	415.3	425.2
LIABILITIES ($mill.)			
Accts Payable	5.7	6.5	6.6
Debt Due	12.1	25.0	26.3
Other	1.3	1.6	2.2
Current Liab	19.1	33.1	35.1

LONG-TERM DEBT AND EQUITY
as of 12/31/10

Total Debt $138.0 mil. Due in 5 Yrs. $26.3 mil.
LT Debt $111.7 mil.
Including Cap. Leases None (49% of Cap'l)
Leases, Uncapitalized Annual rentals $.3 mil.

Pension Liability $16.7 mil. in '10 vs. $14.9 mil. in '09

Pfd Stock $.8 mil. Pfd Div'd Paid Nil

Common Stock 8,676,849 shares (51% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: Connecticut Water Service, Inc. primarily operates as a water utility provider. The company operates through three segments; Water Activities, Real Estate Transactions, and Services and Rentals. The Water Activities segment supplies public drinking water to its customers. Its Real Estate Transactions segment involves in the sale of its limited excess real estate holdings. The Services and Rentals segment provides contracted services to water and wastewater utilities and other clients, as well as leases certain properties to third parties. This segment's services include contract operations of water and wastewater facilities; Linebacker, its service line protection plan for public drinking water customers; and provision of bulk deliveries of emergency drinking water to businesses and residences via tanker truck. As of December 31, 2010, Connecticut Water Service provided water to approximately 90,000 customers in 55 towns throughout Connecticut. Has 225 employees. Chairman, C.E.O. & President: Eric W. Thornburg. Inc.: CT. Address: 93 West Main Street, Clinton, CT 06413. Tel.: (860) 669-8636. Internet: http://www.ctwater.com. *W.T.*

April 22, 2011

TOTAL SHAREHOLDER RETURN
Dividends plus appreciation as of 3/31/2011

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
-4.61%	12.06%	17.78%	25.16%	21.46%

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MIDDLESEX WATER NDQ–MSEX

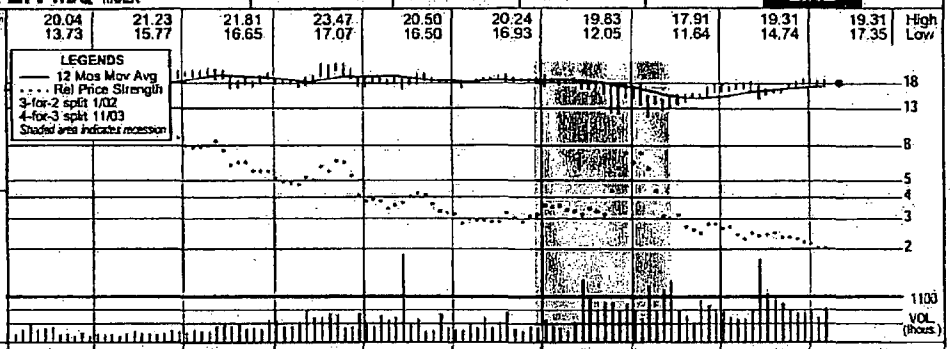
RECENT PRICE 18.14 | TRAILING P/E RATIO 18.9 | RELATIVE P/E RATIO 1.04 | DIV'D YLD 4.0% | VALUE LINE

RANKS

PERFORMANCE 3 Average
Technical 3 Average
SAFETY 2 Above Average
BETA .75 (1.00 = Market)

Financial Strength B++
Price Stability 95
Price Growth Persistence 30
Earnings Predictability 90

LEGENDS
12 Mos Mov Avg
Rel Price Strength
3-for-2 split 1/02
4-for-3 split 11/03
Shaded area indicates recession



© VALUE LINE PUBLISHING LLC	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011/2012
SALES PER SH	5.98	6.12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	
"CASH FLOW" PER SH	1.20	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	
EARNINGS PER SH	.73	.61	.73	.71	.82	.87	.89	.72	.96	.95 A,B/.99 C
DIV'DS DECL'D PER SH	.63	.65	.66	.67	.68	.69	.70	.71	.72	
CAP'L SPENDING PER SH	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	
BOOK VALUE PER SH	7.39	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	
COMMON SHS OUTST'G (MILL)	10.36	10.48	11.36	11.58	13.17	13.25	13.40	13.52	15.57	
AVG ANN'L P/E RATIO	23.5	30.0	26.4	27.4	22.7	21.8	19.8	21.0	17.8	19.1/18.3
RELATIVE P/E RATIO	1.28	1.71	1.39	1.45	1.23	1.15	1.19	1.40	1.14	
AVG ANN'L DIV'D YIELD	3.7%	3.5%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	
SALES ($MILL)	61.9	64.1	71.0	74.6	81.1	86.1	91.0	91.2	102.7	
OPERATING MARGIN	47.1%	44.0%	44.4%	44.4%	47.4%	47.0%	46.9%	42.6%	48.7%	
DEPRECIATION ($MILL)	5.0	5.6	6.4	7.2	7.8	8.2	8.5	9.2	10.0	
NET PROFIT ($MILL)	7.8	6.6	8.4	8.5	10.0	11.8	12.2	10.0	14.3	
INCOME TAX RATE	33.3%	32.8%	31.1%	27.6%	33.4%	32.6%	33.2%	34.1%	32.1%	
NET PROFIT MARGIN	12.5%	10.3%	11.9%	11.4%	12.4%	13.8%	13.4%	10.9%	13.9%	
WORKING CAP'L ($MILL)	d9.3	d13.3	d11.8	d4.5	2.8	d9.6	d40.9	d38.6	d17.9	
LONG-TERM DEBT ($MILL)	87.5	97.4	115.3	128.2	130.7	131.6	118.2	124.9	133.8	
SHR. EQUITY ($MILL)	80.6	83.7	99.2	103.6	133.3	137.1	141.2	143.0	176.6	
RETURN ON TOTAL CAP'L	6.0%	5.0%	5.1%	5.0%	5.1%	5.6%	5.8%	5.0%	5.7%	
RETURN ON SHR. EQUITY	9.6%	7.9%	8.5%	8.2%	7.5%	8.6%	8.6%	7.0%	8.1%	
RETAINED TO COM EQ	1.3%	NMF	.9%	.6%	1.3%	1.8%	2.0%	.1%	2.1%	
ALL DIV'DS TO NET PROF	87%	106%	90%	94%	84%	79%	78%	98%	75%	

Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios.

A No. of analysts changing earn. est. in last 9 days: 0 up, 0 down, consensus 5-year earnings growth 3.0% per year. B Based upon 2 analysts' estimates. C Based upon 2 analysts' estimates.

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Sales	1.5%	-2.0%
"Cash Flow"	3.5%	10.0%
Earnings	4.5%	33.5%
Dividends	1.5%	1.5%
Book Value	5.5%	8.0%

Fiscal Year	QUARTERLY SALES ($mill.) 1Q	2Q	3Q	4Q	Full Year
12/31/08	20.8	23.0	25.7	21.5	91.0
12/31/09	20.6	23.1	25.5	22.0	91.2
12/31/10	21.6	26.5	29.6	25.0	102.7
12/31/11					

Fiscal Year	EARNINGS PER SHARE 1Q	2Q	3Q	4Q	Full Year
12/31/07	.13	.24	.31	.19	.87
12/31/08	.15	.26	.35	.13	.89
12/31/09	.10	.21	.29	.12	.72
12/31/10	.11	.31	.37	.17	.96
12/31/11	.11	.29	.34		

Cal-endar	QUARTERLY DIVIDENDS PAID 1Q	2Q	3Q	4Q	Full Year
2008	.175	.175	.175	.178	.70
2009	.178	.178	.178	.18	.71
2010	.18	.18	.18	.183	.72
2011	.183				

INSTITUTIONAL DECISIONS

	2Q'10	3Q'10	4Q'10
to Buy	40	30	39
to Sell	21	24	21
Hld's(000)	5706	5930	6031

ASSETS ($mill.)	2008	2009	12/31/10
Cash Assets	3.3	4.3	2.5
Receivables	14.3	10.6	16.7
Inventory (Avg cost)	1.5	1.6	2.2
Other	1.5	5.5	1.4
Current Assets	20.6	22.0	22.8
Property, Plant & Equip. at cost	436.8	453.6	490.6
Accum Depreciation	70.5	77.1	84.7
Net Property	366.3	376.5	405.9
Other	53.1	59.6	60.5
Total Assets	440.0	458.1	489.2
LIABILITIES ($mill.)			
Accts Payable	5.7	4.3	6.4
Debt Due	43.9	46.6	21.4
Other	11.9	9.8	12.9
Current Liab	61.5	60.7	40.7

LONG-TERM DEBT AND EQUITY as of 12/31/10

Total Debt $155.3 mill. Due in 5 Yrs. $40.1 mill.
LT Debt $133.8 mill.
Including Cap. Leases None (43% of Cap'l)
Leases, Uncapitalized Annual rentals None
Pension Liability $28.6 mill. in '10 vs. $25.7 mill. in '09
Pfd Stock $3.4 mill. Pfd Div'd Paid $.2 mill. (1% of Cap'l)
Common Stock 15,566,000 shares (56% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey and Delaware, and a regulated wastewater utility in NJ. The company offers contract operations services and a service line maintenance program through its nonregulated subsidiary, Utility Service Affiliates, Inc. Its water utility system treats, stores, and distributes water for residential, commercial, industrial, and fire prevention purposes. It also provides water treatment and pumping services to the Township of East Brunswick, as well as water and wastewater services to residents in Southampton Township. Middlesex Water's Delaware subsidiaries provide water services to retail customers in New Castle, Kent, and Sussex counties. In February, Middlesex Water announced the retirement of J. Richard Tompkins, who will not seek re-election when his term expires in May 2011. Has 285 employees. Chairman: Dennis W. Doll. Address: 1500 Ronson Rd, P.O. BOX 1500, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: http://www.middlesexwater.com.

W.T.

April 22, 2011

TOTAL SHAREHOLDER RETURN

Dividends plus appreciation as of 3/31/2011

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
0.10%	10.18%	11.08%	13.92%	16.41%

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SJW CORP. NYSE-SJW

RECENT PRICE 22.65 | P/E RATIO NMF (Trailing: 27.0 Median: 22.0) | RELATIVE P/E RATIO NMF | DIV'D YLD 3.0% | VALUE LINE

TIMELINESS 4 New 4/22/11
SAFETY 3 New 4/22/11
TECHNICAL 3 New 4/22/11
BETA .80 (1.00 = Market)

2014-16 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(+75%)	17%
Low	25	(+10%)	6%

Insider Decisions

	M	J	J	A	S	O	N	D	J
to Buy	1	0	0	0	0	0	0	1	0
Options	0	0	0	0	0	0	0	1	0
to Sell	0	0	0	0	0	0	0	1	0

Institutional Decisions

	2Q2011	3Q2010	4Q2010
to Buy	31	26	34
to Sell	32	28	26
Hld's(000)	8930	8989	8640

Percent shares traded: 21 / 14 / 7

LEGENDS
1.50 x Dividends p sh divided by Interest Rate
Relative Price Strength
Options: No
Shaded areas indicate recessions

Target Price Range 2014 | 2015 | 2016

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	© VALUE LINE PUB. LLC	14-16
	4.99	5.39	5.79	5.58	6.40	6.74	7.45	7.97	8.20	9.14	9.66	10.35	11.25	12.12	11.68	11.62	11.20	11.35	Revenues per sh	12.00
	.98	1.43	1.27	1.26	1.43	1.23	1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.37	2.40	2.40	"Cash Flow" per sh	2.60
	.59	.96	.80	.76	.87	.58	.77	.78	.91	.87	1.12	1.19	1.04	1.08	.91	.84	.90	1.00	Earnings per sh A	1.30
	.35	.37	.38	.39	.40	.41	.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.74	Div'd Decl'd per sh B■	.82
	.96	1.06	1.27	1.81	1.77	1.89	2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	5.15	5.00	Cap'l Spending per sh	4.80
	5.58	6.31	7.02	7.53	7.88	7.90	8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.90	15.70	Book Value per sh	17.00
	19.50	19.02	19.02	19.01	18.27	18.27	18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	20.50	22.00	Common Shs Outst'g C	25.00
	9.9	6.8	11.2	13.1	15.5	33.1	18.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.5	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	25.0
	.66	.43	.65	.68	.88	2.15	.95	.94	.88	1.04	1.05	1.27	1.77	1.58	1.91	1.89			Relative P/E Ratio	1.65
	6.0%	5.7%	4.3%	3.9%	3.0%	2.1%	3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%			Avg Ann'l Div'd Yield	2.5%
							135.1	145.7	149.7	166.9	180.1	189.2	206.6	220.3	216.1	215.6	230	250	Revenues ($mill)	300
							14.0	14.2	16.7	16.0	20.7	22.2	19.3	20.2	15.2	15.6	18.0	22.0	Net Profit ($mill)	32.0
							34.5%	40.4%	36.2%	42.1%	41.6%	40.8%	39.4%	39.5%	40.4%	39.7%	40.0%	40.0%	Income Tax Rate	39.0%
							4.4%	4.2%	1.6%	2.1%	1.6%	2.1%	2.7%	2.3%	2.0%	3.6%	5.0%	5.0%	AFUDC % to Net Profit	5.0%
							42.4%	41.7%	45.6%	43.7%	42.6%	41.8%	47.7%	46.0%	49.4%	53.7%	51.0%	50.0%	Long-Term Debt Ratio	47.0%
							57.6%	58.3%	54.4%	56.3%	57.4%	58.2%	52.3%	54.0%	50.6%	46.3%	49.0%	50.0%	Common Equity Ratio	53.0%
							259.4	263.5	306.0	328.3	341.2	391.8	453.2	470.9	498.6	550.7	625	700	Total Capital ($mill)	900
							367.8	390.8	428.5	456.8	484.8	541.7	645.5	684.2	718.5	785.5	850	930	Net Plant ($mill)	1175
							6.7%	6.9%	6.9%	6.5%	7.6%	7.0%	5.7%	5.8%	4.4%	4.2%	4.5%	4.5%	Return on Total Cap'l	6.0%
							9.4%	9.3%	10.0%	8.7%	10.6%	9.7%	8.2%	8.0%	6.0%	6.1%	6.0%	6.5%	Return on Shr. Equity	7.5%
							9.4%	9.3%	10.0%	8.7%	10.6%	9.7%	8.2%	8.0%	6.0%	6.1%	6.0%	6.5%	Return on Com Equity	7.5%
							4.1%	3.8%	4.7%	3.6%	5.6%	5.2%	3.5%	3.3%	1.2%	1.2%	1.5%	2.0%	Retained to Com Eq	2.5%
							56%	59%	53%	58%	47%	46%	57%	59%	80%	81%	74%	74%	All Div'ds to Net Prof	67%

% TOT. RETURN 3/11

	THIS STOCK	VL ARITH. INDEX
1 yr.	-6.4	23.4
3 yr.	-12.1	49.0
5 yr.	-2.7	45.9

CAPITAL STRUCTURE as of 12/31/10
Total Debt $300.8 mill. Due in 5 Yrs $12.4 mill.
LT Debt $295.7 mill. LT Interest $15.9 mill.
(LT interest earned: 2.7x; total interest coverage: 2.6x) (54% of Cap'l)

Leases, Uncapitalized: Annual rentals $4.2 mill.

Pension Assets-12/10 $10.8 mill.
Oblig. $58.8 mill.

Pfd Stock None.

Common Stock 18,577,012 shs.
as of 2/8/11
MARKET CAP: $425 million (Small Cap)

CURRENT POSITION ($MILL.)

	2008	2009	12/31/10
Cash Assets	3.4	1.4	1.7
Other	28.6	26.6	36.3
Current Assets	32.0	28.0	38.0
Accts Payable	5.8	6.6	5.5
Debt Due	19.1	6.9	5.1
Other	18.4	18.5	18.6
Current Liab.	43.3	32.0	29.2
Fix. Chg. Cov.	293%	352%	400%

ANNUAL RATES of change (per sh)

	Past 10 Yrs.	Past 5 Yrs.	Est'd '08-'10 to '14-'16
Revenues	6.5%	5.5%	5.0%
"Cash Flow"	6.0%	3.5%	6.5%
Earnings	2.0%	-1.5%	9.0%
Dividends	5.0%	5.5%	4.0%
Book Value	6.0%	6.5%	3.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	41.3	60.0	69.5	49.5	220.3
2009	40.0	58.2	69.3	48.6	216.1
2010	40.4	54.1	70.3	50.8	215.6
2011	43.0	58.0	75.0	54.0	230
2012	47.0	63.0	81.0	59.0	250

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2008	.15	.34	.44	.15	1.08
2009	.01	.23	.43	.14	.81
2010	.05	.24	.44	.11	.84
2011	.05	.25	.47	.13	.90
2012	.07	.28	.50	.15	1.00

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2007	.15	.15	.15	.15	.60
2008	.16	.16	.16	.16	.64
2009	.165	.165	.165	.165	.66
2010	.17	.17	.17	.17	.68
2011	.173				

BUSINESS: SJW Corporation engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 226,000 connections that serve a population of approximately one million people in the San Jose area and 8,700 connections that serve approximately 36,000 residents in a service area in the region between San Antonio and Austin, Texas. The company offers nonregulated water-related services, including water system operations, cash remittances, and maintenance contract services. SJW also owns and operates commercial real estate investments. Has 375 employees. Chairman: Charles J. Toeniskoetter. Inc.: CA. Address: 110 W. Taylor Street, San Jose, CA 95110. Tel.: (408) 279-7800. Internet: www.sjwater.com.

We welcome newcomer SJW Corp to *The Value Line Investment Survey* in this issue. Although it dabbles in commercial property, the company, for all intents and purposes, is a water utility, engaging in the production, purchase, storage, purification, distribution, and sale of water. It offers nonregulated services via agreements with municipalities and other utilities, but the bulk of its business is regulated. Operations are centered around San Jose, California, where it provides more than 225,000 connections that serve population of roughly one million people. Services are not exclusive to the Golden State, however, with another 8,700 connections serving 36,000 residents in the state of Texas.

The company's inaugural appearance is forgettable. It posted earnings of $0.11 in the fourth quarter of 2010 (March-period results are due out next week), a few pennies below the prior year's tally, after stripping out gains we deem as nonrecurring in nature. Sales inched up modestly in the quarter, but the costs of doing business in this capital-intensive industry continued to take a toll.

We are a little wary of the company's near-term prospects. Operating costs are likely to remain on the rise, given the shape that many water systems appear to be in across the United States. That said, SJW, like many of its bedfellows, is not exactly flush with cash and will probably have to turn to outside financing to make the improvements. The costs associated with additional debt or share offerings, however, will be dilutive, likely keeping growth under wraps going forward. Note, however, that growth may look decent against depressed 2010 comparisons.

We advise investors to take a pass on this issue. SJW is ranked 4 (Below Average) for Timeliness and lacks 3- to 5-year appreciation potential, as well. Meanwhile, the balance sheet is highly leveraged, adding some skepticism about the sustainability of the stock's only saving grace at this time, its dividend. Although the steady stream of income is not likely to dry up completely, the financial constraints alluded to above could prompt the company to use the funds to make capital improvements instead.

Andre J. Costanza *April 22, 2011*

(A) Diluted earnings. Excludes nonrecurring losses: '03, $1.97; '04, $3.78; '05, $1.09; '06, $16.36; '08, $1.22; '10, 46¢. Next earnings report due April 28th. Quarterly egs. may not add due to rounding.
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions.

Company's Financial Strength	B+
Stock's Price Stability	70
Price Growth Persistence	80
Earnings Predictability	85

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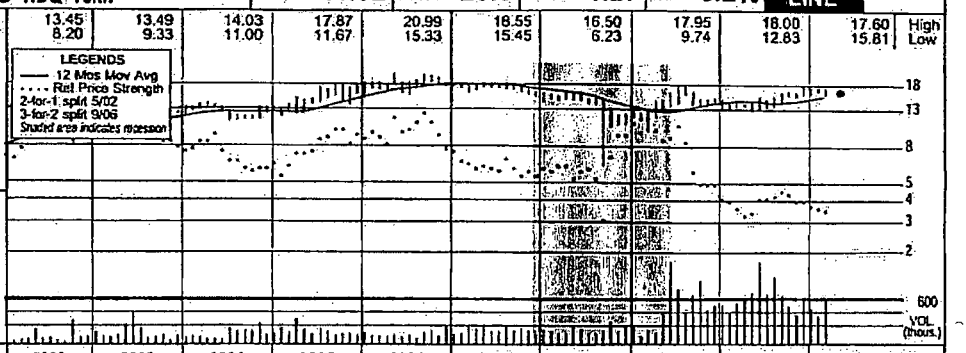
YORK WATER CO NDQ-YORW

RECENT PRICE 16.52 | TRAILING P/E RATIO 23.3 | RELATIVE P/E RATIO 1.27 | DIV'D YLD 3.2% | VALUE LINE

RANKS

PERFORMANCE 4 Below Average
Technical 4 Below Average
SAFETY 2 Above Average
BETA .70 (1.00 = Market)

Financial Strength B++
Price Stability 90
Price Growth Persistence 60
Earnings Predictability 100



© VALUE LINE PUBLISHING LLC	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011/2012
REVENUES PER SH	2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	
"CASH FLOW" PER SH	.57	.65	.65	.79	.77	.86	.88	.95	1.07	
EARNINGS PER SH	.40	.47	.49	.56	.58	.57	.57	.64	.71	.77[A,B]/.80[C]
DIV'D DECL'D PER SH	.35	.37	.39	.42	.45	.48	.49	.51	.52	
CAP'L SPENDING PER SH	.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.83	
BOOK VALUE PER SH	3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	
COMMON SHS OUTST'G (MILL)	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	
AVG ANN'L P/E RATIO	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	21.5/20.7
RELATIVE P/E RATIO	1.47	1.40	1.36	1.39	1.68	1.61	1.48	1.46	1.33	
AVG ANN'L DIV'D YIELD	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	
REVENUES ($MILL)	19.6	20.9	22.5	26.8	28.7	31.4	32.8	37.0	39.0	
NET PROFIT ($MILL)	3.8	4.4	4.8	5.8	6.1	6.4	6.4	7.5	8.9	
INCOME TAX RATE	34.9%	34.8%	36.7%	36.7%	34.4%	36.5%	36.1%	37.9%	38.5%	
AFUDC % TO NET PROFIT	3.7%	--	--	--	7.2%	3.6%	10.1%	--	1.2%	
LONG-TERM DEBT RATIO	46.7%	43.4%	42.5%	44.1%	48.3%	46.5%	54.5%	45.7%	48.3%	
COMMON EQUITY RATIO	53.3%	56.6%	57.5%	55.9%	51.7%	53.5%	45.5%	54.3%	51.7%	
TOTAL CAPITAL ($MILL)	69.9	69.0	83.6	90.3	126.5	125.7	153.4	160.1	176.4	
NET PLANT ($MILL)	106.7	116.5	140.0	155.3	174.4	191.6	211.4	222.0	228.4	
RETURN ON TOTAL CAP'L	7.4%	8.5%	7.6%	8.4%	6.2%	6.7%	5.7%	6.2%	6.5%	
RETURN ON SHR. EQUITY	10.2%	11.4%	10.0%	11.6%	9.3%	9.5%	9.2%	8.6%	9.8%	
RETURN ON COM EQUITY	10.2%	11.4%	10.0%	11.6%	9.3%	9.5%	9.2%	8.6%	9.8%	
RETAINED TO COM EQ	1.3%	2.6%	2.1%	3.0%	2.2%	1.7%	1.4%	1.9%	2.7%	
ALL DIV'DS TO NET PROF	88%	77%	79%	74%	77%	82%	85%	78%	72%	

Bold figures are consensus earnings estimates and, using the recent prices, P/E ratios.

[A]No. of analysts changing earn. est. in last 9 days: 0 up, 0 down; consensus 5-year earnings growth 6.0% per year. [B]Based upon 4 analysts' estimates. [C]Based upon 4 analysts' estimates.

ANNUAL RATES

of change (per share)	5 Yrs.	1 Yr.
Revenues	5.0%	4.0%
"Cash Flow"	7.0%	12.0%
Earnings	5.0%	11.0%
Dividends	5.0%	2.0%
Book Value	8.5%	4.0%

QUARTERLY SALES ($mill.)

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/08	7.5	7.8	8.6	8.9	32.8
12/31/09	8.8	9.2	9.8	9.2	37.0
12/31/10	9.0	9.7	10.5	9.8	39.0
12/31/11					

EARNINGS PER SHARE

Fiscal Year	1Q	2Q	3Q	4Q	Full Year
12/31/07	.12	.15	.15	.15	.57
12/31/08	.11	.13	.15	.18	.57
12/31/09	.13	.17	.18	.16	.64
12/31/10	.15	.18	.21	.17	.71
12/31/11	.17	.20	.22		

QUARTERLY DIVIDENDS PAID

Calendar	1Q	2Q	3Q	4Q	Full Year
2008	.121	.121	.121	.121	.48
2009	.126	.126	.126	.126	.50
2010	.128	.128	.128	.128	.51
2011	.131	.13			

INSTITUTIONAL DECISIONS

	2Q'10	3Q'10	4Q'10
to Buy	29	21	25
to Sell	19	18	16
Hld's(000)	2811	3078	3107

ASSETS ($mill.)	2008	2009	12/31/10
Cash Assets	.0	.0	1.3
Receivables	5.9	5.4	6.3
Inventory (Avg cost)	.7	.7	.6
Other	.7	1.0	.6
Current Assets	7.3	7.1	8.8
Property, Plant & Equip. at cost	246.0	260.4	270.8
Accum Depreciation	34.6	38.4	42.4
Net Property	211.4	222.0	228.4
Other	21.7	19.7	22.7
Total Assets	240.4	248.8	259.9
LIABILITIES ($mill.)			
Accts Payable	1.6	1.4	1.2
Debt Due	9.1	9.3	.0
Other	3.5	3.9	4.1
Current Liab	14.2	14.6	5.3

LONG-TERM DEBT AND EQUITY as of 12/31/10

Total Debt $85.2 mill. Due in 5 Yrs. $12.2 mill.
LT Debt $85.1 mill.
Including Cap. Leases None (48% of Cap'l)
Leases, Uncapitalized Annual rentals None
Pension Liability $9.6 mill. in '10 vs. $8.8 mill. in '09
Pfd Stock None Pfd Div'd Paid None
Common Stock 12,692,000 shares (52% of Cap'l)

INDUSTRY: Water Utility

BUSINESS: The York Water Company engages in the impounding, purification, and distribution of water in York County and Adams County, Pennsylvania. The company supplies water for residential, commercial, industrial, and other customers. It has two reservoirs, Lake Williams, which is 700 feet long and 58 feet high, and creates a reservoir covering approximately 165 acres containing about 870 million gallons of water; and Lake Redman, which is 1,000 feet long and 52 feet high and creates a reservoir covering approximately 290 acres containing about 1.3 billion gallons of water. In addition, it possesses a 15-mile pipeline from the Susquehanna River to Lake Redman that provides access to an additional supply of water. As of December 31, 2010, York Water served approximately 182,000 residential, commercial, industrial, and other customers in 39 municipalities in York County and seven municipalities in Adams County. Has 111 employees. C.E.O. & President: Jeffrey R. Hines. Inc.: PA. Address: 130 East Market Street, York, PA 17401. Tel.: (717) 845-3601. Internet: http://www.yorkwater.com.

W.T.

April 22, 2011

TOTAL SHAREHOLDER RETURN

Dividends plus appreciation as of 3/31/2011

3 Mos.	6 Mos.	1 Yr.	3 Yrs.	5 Yrs.
1.47%	10.26%	30.68%	28.75%	16.25%

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Carolina Water Service, Inc.
Current Institutional Holdings and Individual Holdings
the Proxy Group of Nine Water Companies

	1 July 06, 2011 Percentage of Institutional Holdings	2 July 06, 2011 Percentage of Individual Holdings (1)
Proxy Group of Nine Water Companies		
American States Water Co.	61.86 %	38.14 %
American Water Works Co., Inc.	84.08	15.92
Aqua America, Inc.	41.26	58.74
Artesian Resources Corp.	34.01	65.99
California Water Service Group	52.31	47.69
Connecticut Water Service, Inc.	32.20	67.80
Middlesex Water Company	39.65	60.35
SJW Corporation	46.54	53.46
York Water Company	24.25	75.75
Average	46.24 %	53.76 %

Notes:
(1) (1 - column 1).

Source of Information: pro.edgar-online.com, July 6, 2011

Carolina Water Service, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Nine Water Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	5.35 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.34 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	5.69 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	0.14 (3)
5.	Adjusted Prospective Bond Yield	5.83
6.	Equity Risk Premium (4)	4.50
7.	Risk Premium Derived Common Equity Cost Rate	10.33 %

Notes:
(1) Derived in Note (4) on page 6 of this Schedule.
(2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.34% from page 4 of this Schedule.
(3) Adjustment to reflect the A3 Moody's bond rating of the proxy group of nine water companies as shown on page 2 of this Schedule. The 14 basis point adjustment is derived by taking 1/3 of the spread between Baa2 and A2 Public Utility Bonds (1/3 * 0.42% = 0.14%).
(4) From page 5 of this Schedule.

Carolina Water Service, Inc.
Comparison of Bond Ratings, Business Risk and Financial Risk Profiles for the
Proxy Group of Nine Water Companies

		Moody's Bond Rating July 2011		Standard & Poor's Bond Rating July 2011							
		Bond Rating	Numerical Weighting (1)	Bond Rating	Numerical Weighting (1)	Credit Rating	Numerical Weighting (1)	Business Risk Profile (2)	Numerical Weighting (1)	Financial Risk Profile (2)	Numerical Weighting (1)
Proxy Group of Nine Water Companies											
American States Water Co. (3)		A2	6.0	A+	5.0	A+	5.0	Excellent	1.0	Intermediate	3.0
American Water Works Co., Inc. (4)		Baa1	8.0	A+	5.0	BBB+	8.0	Excellent	1.0	Aggressive	5.0
Aqua America, Inc. (5)		NR	--	AA-	4.0	A+	5.0	Excellent	1.0	Intermediate	3.0
Artesian Resources Corp.		NR	--	NR	--	NR	--	NR	--	NR	--
California Water Service Group (6)		NR	--	AA-	4.0	A+	5.0	Excellent	1.0	Intermediate	3.0
Connecticut Water Service, Inc. (7)		NR	--	A	6.0	A	6.0	Excellent	1.0	Intermediate	3.0
Middlesex Water Company		NR	--	A	6.0	A-	7.0	Excellent	1.0	Intermediate	3.0
SJW Corporation (8)		NR	--	A	6.0	A	6.0	Excellent	1.0	Intermediate	3.0
York Water Company		NR	--	A-	7.0	A-	7.0	Excellent	1.0	Intermediate	3.0
	Average	A3	7.0	A+	5.4	A	6.1	Excellent	1.0	Intermediate	3.3

Notes: (1) From page 3 of this Schedule.
(2) From Standard & Poor's Issuer Ranking: U.S. Investor-Owned Water Utilities, Strongest to Weakest, June 20, 2011.
(3) Ratings, business risk and financial risk profiles are those of Golden State Water Company.
(4) Rating, business risk and financial risk profiles are those of Pennsylvania and New Jersey American Water.
(5) Ratings, business risk and financial risk profiles are those of Aqua Pennsylvania, Inc.
(6) Ratings, business risk and financial risk profiles are those of California Water Service Co.
(7) Ratings, business risk and financial risk profiles are those of Connecticut Water Company.
(8) Ratings, business risk and financial risk profiles are those of San Jose Water Co.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Exhibit No. ___
Schedule PMA-8
Page 2 of 8

Carolina Water Service, Inc.
Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings
and Standard & Poor's Business and Financial Risk Profiles

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-

Standard & Poor's

Business Risk Profile	Numerical Weighting	Financial Risk Profile	Numerical Weighting
Excellent	1	Minimal	1
Strong	2	Modest	2
Satisfactory	3	Intermediate	3
Fair	4	Significant	4
Weak	5	Aggressive	5
Vulnerable	6	Highly Leveraged	6

Moody's
Comparison of Interest Rate Trends
for the Three Months Ending June 2011 (1)

Months	Corporate Bonds Aaa Rated	Public Utility Bonds Aa Rated	Public Utility Bonds A Rated	Public Utility Bonds Baa Rated	Spread - Corporate v. Public Utility Bonds Aa (Pub. Util.) over Aaa (Corp.)	Spread - Corporate v. Public Utility Bonds A (Pub. Util.) over Aaa (Corp.)	Spread - Corporate v. Public Utility Bonds Baa (Pub. Util.) over Aaa (Corp.)	Spread - Public Utility Bonds A over Aa	Spread - Public Utility Bonds Baa over A
June-11	4.93 %	5.04 %	5.26 %	5.67 %					
May-11	4.95	5.08	5.32	5.74					
April-11	5.16	5.32	5.55	5.98					
Average of Last 3 Months	5.04 %	5.15 %	5.38 %	5.80 %	0.11 %	0.34 %	0.76 %	0.23 %	0.42 %

Notes: (1) All yields are distributed yields.

Source of Information: Mergent Bond Record, July 2011, Vol. 78, No. 7.

Exhibit No.___
Schedule PMA-8
Page 4 of 8

Carolina Water Service, Inc.
Judgment of Equity Risk Premium for
the Proxy Group of Nine Water Companies

Line No.		Proxy Group of Nine Water Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	4.87
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.12
3.	Average equity risk premium	4.50 %

Notes: (1) From page 6 of this Schedule.
(2) From page 8 of this Schedule.

Carolina Water Service, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
the Proxy Group of Nine Water Companies

Line No.		Proxy Group of Nine Water Companies
1.	Arithmetic mean total return rate on the Standard & Poor's 500 Composite Index - 1926-2010 (1)	11.90 %
2.	Arithmetic mean yield on Aaa and Aa Corporate Bonds 1926-2010 (2)	(6.10)
3.	Historical Equity Risk Premium	5.80 %
4.	Forecasted 3-5 year Total Annual Market Return (3)	13.44 %
5.	Prospective Yield an Aaa Rated Corporate Bonds (4)	(5.35)
6.	Forecasted Equity Risk Premium	8.09 %
7.	Conclusion of Equity Risk Premium (5)	6.95 %
8.	Adjusted Value Line Beta (6)	0.70
9.	Beta Adjusted Equity Risk Premium	4.87 %

Notes:
(1) Stocks, Bonds, Bills, and Inflation - Market Results for 1926-2010 Yearbook Valuation Edition, Morningstar, Inc., 2011 Chicago, IL.

(2) From Moody's Industrial Manual and Mergent Bond Record Monthly Update.

(3) From page 3 of Schedule PMA-10.

(4) Average forecast based upon six quarterly estimates of Aaa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated July 1, 2011 (see page 7 of this Schedule). The estimates are detailed below.

Third Quarter 2011	5.00 %
Fourth Quarter 2011	5.10
First Quarter 2012	5.30
Second Quarter 2012	5.40
Third Quarter 2012	5.60
Fourth Quarter 2012	5.70
Average	5.35 %

(5) The average of the historical equity risk premium of 5.80% from Line No. 3 and the forecasted equity risk premium of 8.09% from Line No. 6 ((5.80% + 8.09%) / 2 = 6.95%.

(6) Median beta from page 1 of Schedule PMA-10.

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions[1]

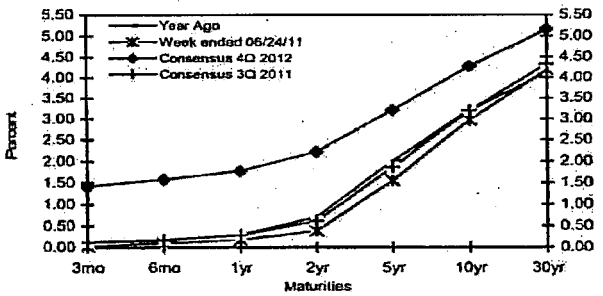
	History: Average For Week Ending				Average For Month			Latest Q*	Consensus Forecasts-Quarterly Avg.					
Interest Rates	June 24	June 17	June 10	June 3	May	Apr.	Mar.	2Q 2011	3Q 2011	4Q 2011	1Q 2012	2Q 2012	3Q 2012	4Q 2012
Federal Funds Rate	0.09	0.09	0.10	0.10	0.09	0.10	0.14	0.11	0.2	0.2	0.3	0.6	1.0	1.4
Prime Rate	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.3	3.3	3.4	3.6	4.0	4.4
LIBOR, 3-mo.	0.25	0.25	0.25	0.25	0.26	0.28	0.31	0.28	0.3	0.4	0.6	0.9	1.3	1.7
Commercial Paper, 1-mo.	0.14	0.12	0.10	0.12	0.11	0.14	0.17	0.14	0.2	0.3	0.5	0.7	1.1	1.6
Treasury bill, 3-mo.	0.03	0.05	0.05	0.05	0.04	0.06	0.10	0.06	0.1	0.2	0.4	0.6	1.0	1.4
Treasury bill, 6-mo.	0.10	0.11	0.10	0.11	0.09	0.12	0.16	0.11	0.2	0.3	0.5	0.8	1.2	1.6
Treasury bill, 1 yr.	0.17	0.18	0.18	0.18	0.19	0.25	0.26	0.22	0.3	0.4	0.7	0.9	1.4	1.8
Treasury note, 2 yr.	0.39	0.40	0.41	0.44	0.56	0.73	0.70	0.62	0.6	0.8	1.1	1.4	1.8	2.2
Treasury note, 5 yr.	1.55	1.58	1.58	1.63	1.84	2.17	2.11	1.96	1.9	2.1	2.4	2.6	2.9	3.2
Treasury note, 10 yr.	2.97	2.99	3.00	3.01	3.17	3.46	3.41	3.29	3.2	3.4	3.6	3.8	4.1	4.3
Treasury note, 30 yr.	4.19	4.21	4.22	4.21	4.29	4.50	4.51	4.40	4.3	4.5	4.6	4.8	5.0	5.2
Corporate Aaa bond	4.96	4.98	4.97	4.95	4.96	5.16	5.13	5.06	5.0	5.1	5.3	5.4	5.6	5.7
Corporate Baa bond	5.73	5.73	5.73	5.70	5.78	6.02	6.03	5.91	5.8	5.9	6.1	6.2	6.4	6.6
State & Local bonds	4.46	4.49	4.49	4.51	4.59	4.99	4.92	4.77	4.6	4.7	4.9	5.0	5.2	5.3
Home mortgage rate	4.50	4.50	4.49	4.55	4.64	4.84	4.84	4.73	4.7	4.9	5.1	5.3	5.5	5.7

	History							Consensus Forecasts-Quarterly					
Key Assumptions	3Q 2009	4Q 2009	1Q 2010	2Q 2010	3Q 2010	4Q 2011	1Q 2011	2Q* 2011	3Q 2011	4Q 2011	1Q 2012	2Q 2012	3Q 2012	4Q 2012
Major Currency Index	76.4	72.8	74.8	77.6	75.9	73.0	71.9	69.7	70.1	70.2	70.6	71.2	71.7	71.9
Real GDP	1.6	5.0	3.7	1.7	2.6	3.1	1.9	2.2	3.1	3.2	2.9	3.0	3.2	3.2
GDP Price Index	0.7	-0.2	1.0	1.9	2.1	0.4	2.0	2.3	1.9	1.7	1.9	2.0	2.0	2.0
Consumer Price Index	3.7	2.7	1.3	-0.5	1.4	2.6	5.2	4.2	2.2	2.1	2.3	2.3	2.3	2.4

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Interest rate definitions are the same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the Fed's Major Currency Index is from FRSR H.10 and G.5. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS).). **Interest rate data for 2Q 2011 based on historical data through the week ended June 24. *Data for 2Q 2011 Major Currency Index also is based on data through week ended June 24. Figures for 2Q 2011 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panelists this month (see page 14).*

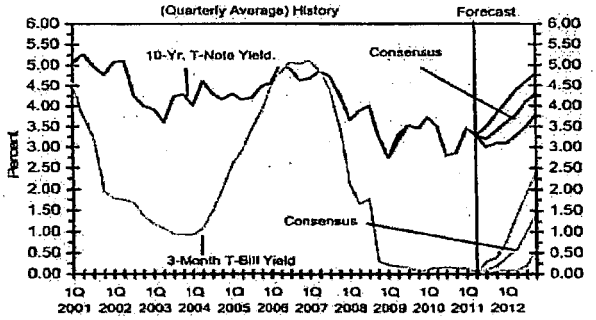
U.S. Treasury Yield Curve

Week ended May 20, 2011 and Year Ago vs. 2Q 2011 and 3Q 2012 Consensus Forecasts



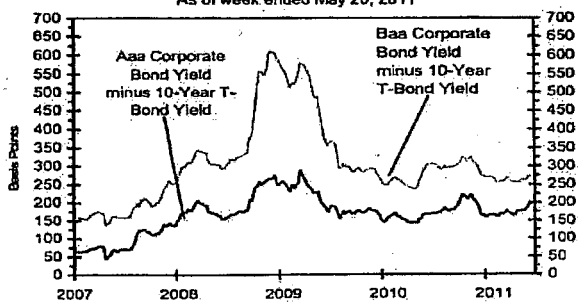
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) History — Forecast



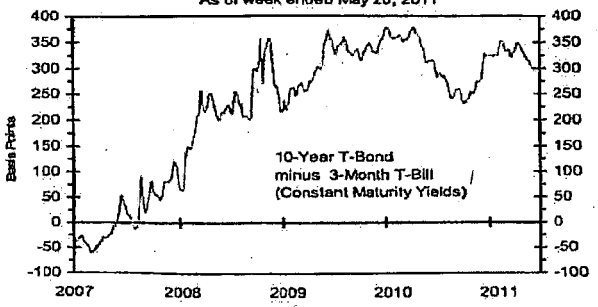
Corporate Bond Spreads

As of week ended May 20, 2011



U.S. Treasury Yield Curve

As of week ended May 20, 2011



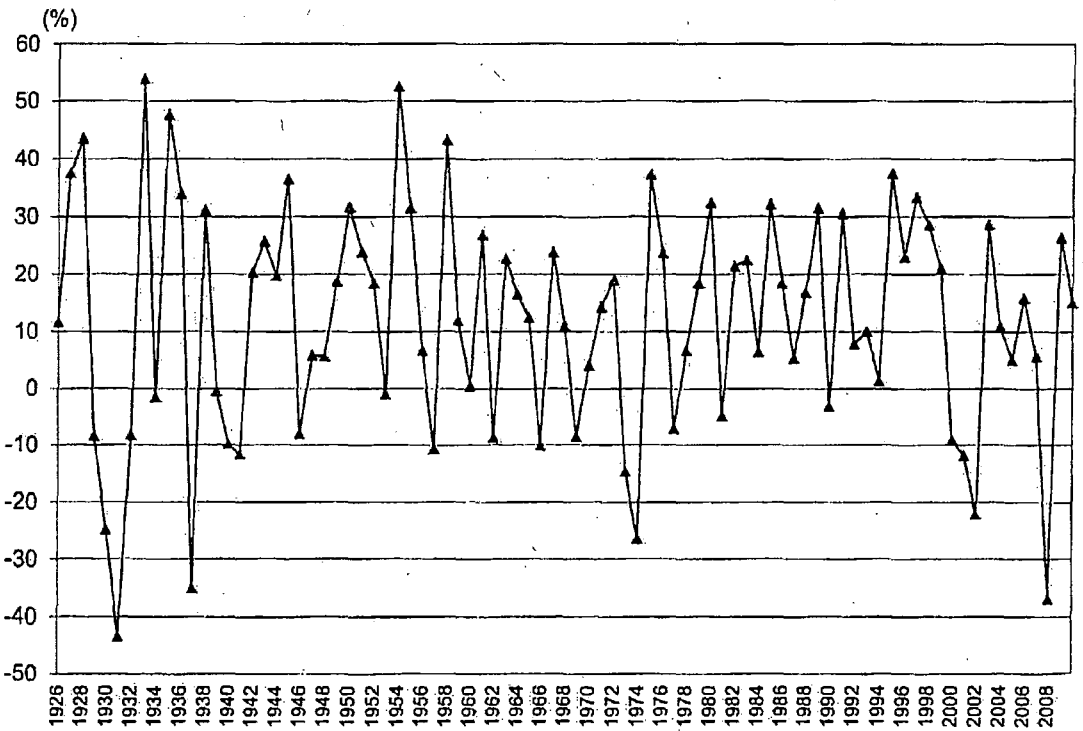
Carolina Water Service, Inc.
Derivation of Mean Equity Risk Premium Based on a Study
Using Holding Period Returns of Public Utilities

Line No.		Over A Rated Moody's Public Utility Bonds - AUS Consultants Study (1)
1.	Arithmetic Mean Holding Period Returns on the Standard & Poor's Utility Index 1926-2010 (2):	10.69 %
2.	Arithmetic Mean Yield on Moody's A Rated Public Utility Yields 1926-2010	(6.57)
3.	Equity Risk Premium	4.12 %

Notes: (1) S&P Public Utility Index and Moody's Public Utility Bond Average Annual Yields 1928-2010, (AUS Consultants - Utility Services, 2011).

(2) Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

Large Company Stock Returns
From 1926 to 2010



Source of Information:
Ibbotson® SBBI® - 2011 Valuation Yearbook - Market Results for Stocks Bonds Bills and Inflation - 1926-2010, Morningstar, Inc., 2011 Chicago, IL.

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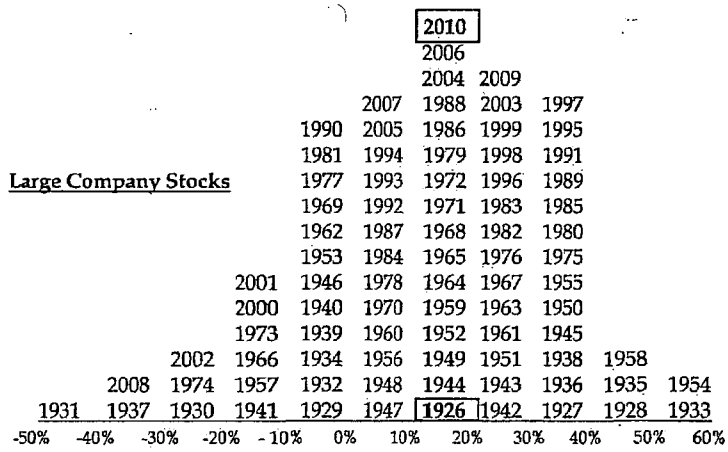
Exhibit No. ___
Schedule PMA-9
Page 1 of 3

Total Returns on Large Company Stocks
1926 to 2010



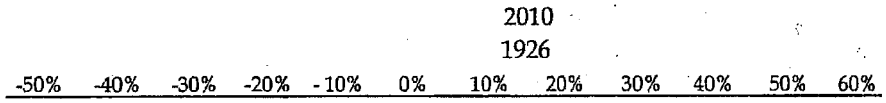
Arithmetic Mean: $r_A = \sum_{i=1}^{n} r_i / n$

Source: Ibbotson® SBBI ® – 2011 Valuation Yearbook – Market Results for Stocks, Bonds, Bills, and Inflation –1926-2010
Morningstar, Inc., 2011 Chicago, IL

Exhibit No.___
Schedule PMA-9
Page 2 of 3

Total Returns on Large Company Stocks
1926 to 2010

Large Company Stocks



Geometric Mean: $r_G = \left[V_n / V_0 \right]^{1/n} - 1$

Source: Ibbotson® SBBI ® – 2011 Valuation Yearbook – Market Results for Stocks, Bonds, Bills, and Inflation –1926-2010
Morningstar, Inc., 2011 Chicago, IL

Exhibit No. ___
Schedule PMA-9
Page 3 of 3

Carolina Water Service, Inc.
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

	1	2	3	4	5	6
Proxy Group of Nine Water Companies	Value Line Adjusted Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate (3)	ECAPM Cost Rate (4)	Indicated Common Equity Cost Rate (5)
American States Water Co.	0.75	7.71 %	4.73 %	10.51 %	10.99 %	
American Water Works Co., Inc.	0.65	7.71	4.73	9.74	10.42	
Aqua America, Inc.	0.65	7.71	4.73	9.74	10.42	
Artesian Resources Corp.	0.60	7.71	4.73	9.36	10.13	
California Water Service Group	0.70	7.71	4.73	10.13	10.71	
Connecticut Water Service, Inc.	0.80	7.71	4.73	10.90	11.28	
Middlesex Water Company	0.75	7.71	4.73	10.51	10.99	
SJW Corporation	0.90	7.71	4.73	11.67	11.86	
York Water Company	0.70	7.71	4.73	10.13	10.71	
Average				10.30 %	10.83 %	10.57 %
Median				10.13 %	10.71 %	10.42 %

See page 2 for notes.

Carolina Water Service, Inc.
Development of the Market-Required Rate of Return on Common Equity Using
the Capital Asset Pricing Model for
the Proxy Group of Nine AUS Utility Reports Water Companies
Adjusted to Reflect a Forecasted Risk-Free Rate and Market Return

Notes:

(1) For reasons explained in Ms. Ahern's accompanying direct testimony, from the thirteen weeks ending July 8, 2011, Value Line Summary & Index, a forecasted 3-5 year total annual market return of 13.44% can be derived by averaging the thirteen weeks ended July 8, 2011 forecasted total 3-5 year total appreciation, converting it into an annual market appreciation and adding the Value Line average forecasted annual dividend yield.

The 3-5 year average total market appreciation of 55% produces a four-year average annual return of 11.51% ($(1.55^{\frac{1}{4}}) - 1$). When the average annual forecasted dividend yield of 1.93% is added, a total average market return of 13.44% (1.93% + 11.51%) is derived.

The thirteen week forecasted total market return of 13.44% minus the forecasted risk-free rate of 4.73% (developed in Note 2) is 8.71% (13.44% - 4.73%). The Morningstar, Inc. (Ibbotson Associates) calculated market premium of 6.70% for the period 1926-2010 results from a total market return of 11.90% less the average income return on long-term U.S. Government Securities of 5.20% (11.90% - 5.20% = 6.70%). This is then averaged with the 8.71% Value Line market premium resulting in a 7.71% market premium. The 7.71% market premium is then multiplied by the beta in column 1 of page 1 of this Schedule.

(2) The average forecast based upon six quarterly estimates of 30-year Treasury Note yields per the consensus of nearly 50 economists reported in the Blue Chip Financial Forecasts dated July 1, 2011 (see page 7 of Schedule PMA-8). The estimates are detailed below:

	30-Year Treasury Note Yield
Third Quarter 2011	4.30
Fourth Quarter 2011	4.50
First Quarter 2012	4.60
Second Quarter 2012	4.80
Third Quarter 2012	5.00
Fourth Quarter 2012	5.20
Average	4.73%

(3) The traditional Capital Asset Pricing Model (CAPM) is applied using the following formula:

$R_S = R_F + \beta (R_M - R_F)$

Where R_S = Return rate of common stock
R_F = Risk Free Rate
β = Value Line Adjusted Beta
R_M = Return on the market as a whole

(4) The empirical CAPM is applied using the following formula:

$R_S = R_F + .25 (R_M - R_F) + .75 \beta (R_M - R_F)$

Where R_S = Return rate of common stock
R_F = Risk-Free Rate
β = Value Line Adjusted Beta
R_M = Return on the market as a whole

Source of Information: Value Line Summary & Index
Blue Chip Financial Forecasts, July 1, 2011
Value Line Investment Survey, April 22, 2011
Standard Edition and Small and Mid-Cap Edition
Ibbotson® SBBI® 2011 Valuation Yearbook – Market Results for
Stocks, Bonds, Bills, and Inflation – 1926 – 2010, Morningstar, Inc., 2011 Chicago, IL

Carolina Water Service, Inc.
Summary of Cost of Equity Models Applied to the
Proxy Group of Non-Utility Companies
Comparable in Total Risk to the
Proxy Group of Nine Water Companies

Principal Methods		Proxy Group of Thirty-Nine Non-Utility Companies
Projected Return on Book Common Equity (1)		15.50 %
Average of Market-Based Models (2)		11.39 %
	Average	13.45 %

Notes:
(1) From Schedule PMA-12.
(2) Average of the results of the DCF (12.05%), RPM (11.38%), and CAPM / ECAPM (10.75%) analyses as shown on pages 1, 2, and 5 of Schedule PMA-13 respectively.

Carolina Water Service, Inc.
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Nine Water Companies	Value Line Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression
American States Water Co.	0.75	0.57	3.6376
American Water Works Co., Inc.	0.65	0.43	3.5017
Aqua America, Inc.	0.65	0.41	2.7699
Artesian Resources Corp.	0.60	0.34	2.4340
California Water Service Group	0.70	0.49	3.4453
Connecticut Water Service, Inc.	0.80	0.64	2.8611
Middlesex Water Company	0.75	0.56	2.6991
SJW Corporation	0.90	0.82	4.3423
York Water Company	0.70	0.48	3.2807
Average	0.72	0.53	3.2191
Beta Range (+/- 2 std. Devs. of Beta)	0.40	0.66	
2 std. Devs. of Beta	0.13		
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.9363	3.5019	
Std. dev. of the Res. Std. Err.	0.1414		
2 std. devs. of the Res. Std. Err.	0.2828		

Carolina Water Service, Inc.
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Nine Water Companies

Proxy Group of Thirty-Nine Non-Utility Companies	VL Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression
Gallagher (Arthur J.)	0.70	0.54	3.0362
AutoZone Inc.	0.70	0.51	3.3427
Baxter Intl Inc.	0.65	0.45	2.9474
Bristol-Myers Squibb	0.75	0.57	3.0546
Brown & Brown	0.70	0.48	3.0383
Capitol Fed. Finl	0.65	0.44	3.2917
CenturyLink Inc.	0.75	0.55	2.9789
Quest Diagnostics	0.70	0.49	2.9409
Edwards Lifesciences	0.65	0.41	3.1041
Forest Labs.	0.80	0.64	3.3015
Gilead Sciences	0.65	0.46	3.5013
Gen-Probe	0.80	0.66	3.4121
Hasbro, Inc.	0.75	0.60	3.4389
Hudson City Bancorp	0.80	0.66	3.2150
Hospira Inc.	0.70	0.52	3.4108
IAC/InterActiveCorp	0.70	0.49	3.2562
Investors Bancorp	0.75	0.55	3.3951
J&J Snack Foods	0.70	0.48	3.4541
Lancaster Colony	0.75	0.57	3.3757
McKesson Corp.	0.75	0.58	3.3192
Marsh & McLennan	0.75	0.59	2.9986
MAXIMUS Inc.	0.80	0.63	3.4865
Owens & Minor	0.65	0.46	3.3308
Rollins, Inc.	0.80	0.66	3.0435
Sherwin-Williams	0.70	0.49	3.0351
Smucker (J.M.)	0.70	0.49	3.0242
Sara Lee Corp.	0.80	0.65	3.2561
Silgan Holdings	0.75	0.62	3.1746
Suburban Propane	0.75	0.59	2.9382
Stericycle Inc.	0.70	0.48	3.1808
Safeway Inc.	0.70	0.48	3.1874
Stryker Corp.	0.80	0.66	3.1280
TJX Companies	0.80	0.65	3.0165
Walgreen Co.	0.75	0.61	3.2419
WD-40 Co.	0.75	0.56	3.4782
Weis Markets	0.65	0.45	2.9598
Watson Pharmac.	0.75	0.57	3.0355
Berkley (W.R.)	0.70	0.50	3.0005
West Pharmac. Svcs.	0.80	0.62	3.4659
Average	0.73	0.55	3.20
Proxy Group of Nine Water Companies	0.72	0.53	3.2191

Carolina Water Service, Inc.
Basis of Selection of Groups of Domestic, Non-Price Regulated Companies
Comparable in Total Risk to the Proxy Group of Nine Water Companies

(1) The proxy group of thirty-nine non-utility companies was selected based upon the proxy group of nine water companies unadjusted beta range of 0.40 – 0.66 and standard error of the regression range of 2.9363 – 3.5019. These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression as detailed in Ms. Ahern's direct testimony. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and standard errors of the regression.

(2) The standard deviation of group of nine water companies' standard error of the regression is 0.1414. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1414 = \frac{3.2191}{\sqrt{518}} = \frac{3.2191}{22.7596}$$

Source of Information: Value Line, Inc., June 15, 2011
Value Line Investment Survey (Standard Edition)

Carolina Water Service, Inc.
Comparable Earnings Analysis
for the Proxy Group of Non-Utility Companies Comparable in Total Risk to the
Proxy Group of Nine Water Companies(1)

Proxy Group of Thirty-Nine Non-Utility Companies	VL Adjusted Beta	Unadjusted Beta	Residual Standard Error of the Regression	Standard Deviation of Beta	Rate of Return on Book Common Equity, Net Worth, or Partner's Capital 5-Year Projected (2) 5 Year Projection	Student's T Statistic
Gallagher (Arthur J.)	0.70	0.54	3.0352	0.0629	13.00 %	(0.5)
AutoZone Inc.	0.70	0.51	3.3427	0.0693	NMF	(1.3)
Baxter Intl Inc.	0.65	0.45	2.9474	0.0611	27.50	0.6
Bristol-Myers Squibb	0.75	0.57	3.0546	0.0633	20.00	0.0
Brown & Brown	0.70	0.48	3.0383	0.0630	12.00	(0.5)
Capitol Fed. Finl	0.65	0.44	3.2917	0.0682	3.50	(1.1)
CenturyLink Inc.	0.75	0.55	2.9789	0.0617	9.00	(0.7)
Quest Diagnostics	0.70	0.49	2.9409	0.0609	15.00	(0.3)
Edwards Lifesciences	0.65	0.41	3.1041	0.0643	18.50	(0.1)
Forest Labs.	0.80	0.64	3.3015	0.0684	13.50	(0.4)
Gilead Sciences	0.65	0.48	3.5013	0.0726	36.50	1.1
Gen-Probe	0.80	0.66	3.4121	0.0707	13.50	(0.4)
Hasbro, Inc.	0.75	0.60	3.4389	0.0713	28.00	0.5
Hudson City Bancorp	0.80	0.66	3.2150	0.0666	10.00	(0.7)
Hospira Inc.	0.70	0.52	3.4108	0.0707	24.50	0.3
IAC/InterActiveCorp	0.70	0.49	3.2562	0.0754	4.50	(1.0)
Investors Bancorp	0.75	0.55	3.3951	0.0704	9.50	(0.7)
J&J Snack Foods	0.70	0.48	3.4541	0.0716	13.00	(0.5)
Lancaster Colony	0.75	0.57	3.3757	0.0700	17.50	(0.2)
McKesson Corp.	0.75	0.58	3.3192	0.0688	14.50	(0.4)
Marsh & McLennan	0.75	0.59	2.9986	0.0621	15.00	(0.3)
MAXIMUS Inc.	0.80	0.63	3.4865	0.0723	35.00	1.0
Owens & Minor	0.65	0.46	3.3308	0.0690	16.00	(0.3)
Rollins, Inc.	0.80	0.66	3.0435	0.0631	32.00	0.8
Sherwin-Williams	0.70	0.49	3.0351	0.0629	24.50	0.3
Smucker (J.M.)	0.70	0.49	3.0242	0.0627	11.50	(0.6)
Sara Lee Corp.	0.80	0.65	3.2561	0.0675	94.00 (3)	4.9
Silgan Holdings	0.75	0.62	3.1746	0.0658	17.00	(0.2)
Suburban Propane	0.75	0.59	2.9382	0.0609	25.00	0.3
Starcycle Inc.	0.70	0.48	3.1808	0.0659	15.50	(0.3)
Safeway Inc.	0.70	0.48	3.1874	0.0661	17.00	(0.2)
Stryker Corp.	0.80	0.66	3.1280	0.0648	19.50	(0.0)
TJX Companies	0.80	0.65	3.0165	0.0625	44.00	1.6
Walgreen Co.	0.75	0.61	3.2419	0.0672	20.50	0.0
WD-40 Co.	0.75	0.56	3.4782	0.0721	15.50	(0.3)
Weis Markets	0.65	0.45	2.9598	0.0613	9.00	(0.7)
Watson Pharmac.	0.75	0.57	3.0355	0.0629	13.50	(0.4)
Berkley (W.R.)	0.70	0.50	3.0005	0.0622	13.50	(0.4)
West Pharmac. Svcs.	0.80	0.62	3.4659	0.0718	14.50	(0.4)
Average	0.73	0.55	3.1999	0.0665		
Average for the Proxy Group of Nine Water Companies	0.72	0.53	3.2191 (1)	0.0674		
Median (4)					15.50%	
Conservative Median (5)					15.50%	

Notes:
(1) See Page 4 of Schedule PMA-11.
(2) From Value Line Investment Survey, various issues for the years 2013 - 2015 / 2014 - 2016.
(3) The student's T statistic associated with these returns exceeds 1.96 at the 95% level of confidence. Therefore, they have been excluded, as outliers, to arrive at proper projected returns as fully explained in Ms. Ahern's testimony.
(4) Median five year projected rate of return on book common equity, shareholders' equity, net worth, or partners' capital including returns identified as outliers as outlined in note (3) above.
(5) Median five year projected rate of return on book common equity, shareholders' equity, net worth, or partners' capital excluding returns identified as outliers as outlined in note (3) above.

Cordova Water Service, Inc.
DCF Results for the Proxy Group of Non-Utility Companies Comparable in Total Risk to
the Proxy Group of Nine Water Companies

Proxy Group of Thirty-Nine Non-Utility Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Reuters Mean Consensus Projected Five Year Growth Rate in EPS	Zack's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate
Gallagher (Arthur J.	4.57 %	8.50 %	9.00 %	9.80 %	9.00 %	9.08 %	4.77 %	13.85 %
AutoZone Inc.	-	14.50	15.00	13.50	14.67	14.42	-	N/A
Baxter Intl Inc.	2.13	9.50	9.00	9.70	9.87	9.52	2.24	11.76
Bristol-Myers Squibb	4.67	7.50	1.90	0.70	(1.19)	3.37	4.75	8.12
Brown & Brown	1.25	7.00	11.00	13.30	11.60	10.73	1.32	12.05
Capitol Fed. Finl	2.60	12.00	N/A	N/A	N/A	12.00	2.75	14.75
Centurylink, Inc.	7.10	(1.00)	2.80	(0.30)	5.65	4.23	7.25	11.48
Quest Diagnostics	0.69	9.00	11.00	11.70	11.21	10.73	0.73	11.46
Edwards Lifesciences	-	15.00	27.00	33.90	26.31	25.55	-	N/A
Forest Labs.	-	NMF	3.40	(2.40)	(1.51)	3.40	-	N/A
Gilead Sciences	-	10.00	15.00	14.60	15.53	13.78	-	N/A
Gen-Probe	-	11.00	12.00	13.60	12.48	12.27	-	N/A
Hasbro, Inc.	2.64	10.00	13.00	N/A	13.55	12.18	2.80	14.98
Hudson City Bancorp	3.58	3.50	4.50	4.50	5.00	4.38	3.66	8.04
Hospira Inc.	-	11.50	11.00	12.20	10.76	11.37	-	N/A
IAC/InterActiveCorp	-	22.50	35.00	25.00	25.00	26.88	-	N/A
Investors Bancorp In	-	NMF	15.00	15.00	15.00	15.00	-	N/A
J&J Snack Foods	0.96	10.50	N/A	N/A	N/A	10.50	1.01	11.51
Lancaster Colony	2.18	9.00	N/A	N/A	10.00	9.50	2.28	11.78
McKesson Corp.	0.88	9.50	11.00	11.30	13.70	11.38	0.91	12.29
Marsh & McLennan	2.79	28.50	8.50	10.70	0.54	14.06	2.99	17.05
MAXIMUS Inc.	0.38	18.00	10.00	N/A	10.00	12.67	0.41	13.08
Owens & Minor	2.37	11.00	10.00	11.50	10.07	10.64	2.49	13.13
Rollins, Inc.	1.41	14.50	N/A	N/A	10.00	12.25	1.49	13.74
Sherwin-Williams	1.74	11.00	11.00	10.40	11.70	11.03	1.83	12.86
Smucker (J.M.)	2.31	10.50	6.90	8.00	7.08	8.12	2.41	10.53
Sara Lee Corp.	2.42	6.00	8.70	6.00	9.48	7.55	2.51	10.06
Sligan Holdings	1.02	11.50	8.00	5.00	8.06	8.14	1.06	9.20
Suburban Propane	6.41	1.00	4.00	3.00	4.00	3.00	6.51	9.51
Sterlcycle Inc.	-	14.50	17.00	16.50	16.00	16.00	-	N/A
Safeway Inc.	2.02	6.50	10.00	10.70	10.43	9.41	2.11	11.52
Stryker Corp.	1.20	13.00	11.00	11.20	10.89	11.52	1.27	12.79
TJX Companies	1.46	13.50	13.00	14.60	13.35	13.81	1.56	15.17
Walgreen Co.	1.62	12.00	13.00	13.40	14.17	13.14	1.73	14.87
WD-40 Co.	2.66	9.00	12.00	12.00	12.00	11.25	2.80	14.05
Weis Markets	2.90	6.50	N/A	N/A	N/A	6.50	2.99	9.49
Watson Pharmac.	-	11.50	11.00	12.80	12.53	11.96	-	N/A
Berkley (W.R.)	0.87	11.50	11.00	11.30	9.67	10.87	0.92	11.79
West Pharmac. Svcs.	1.51	8.50	20.00	N/A	15.00	14.50	1.62	16.12
Average								12.31 %
Median								12.05 %

NA= Not Available
NMF= Not Meaningful Figure

(1) Ms. Ahern's application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to her proxy group of water companies. She uses the 60 day average price and the spot indicated dividend as of 40730 for her dividend yield and then adjusts that yield for 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.reuters.com, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information: Value Line Investment Survey:
www.reuters.com Downloaded on 07/06/2011
www.zacks.com Downloaded on 07/06/2011
www.yahoo.com Downloaded on 07/06/2011

Carolina Water Service, Inc.
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Thirty-Nine Non-Utility Companies
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	6.17 %
2.	Equity Risk Premium (2)	5.21
3.	Risk Premium Derived Common Equity Cost Rate	11.38 %

Notes: (1) Average forecast based upon six quarterly estimates of Baa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated July 1, 2011 (see page 7 of Schedule PMA-PMA-8). The estimates are detailed below.

Third Quarter 2011	5.80 %
Fourth Quarter 2011	5.90
First Quarter 2012	6.10
Second Quarter 2012	6.20
Third Quarter 2012	6.40
Fourth Quarter 2012	6.60
Average	6.17 %

(2) From page 4 of this Schedule.

Carolina Water Service, Inc.
Comparison of Bond Ratings for the
Proxy Group of Non-Utility Companies Comparable in Total Risk to the
Proxy Group of Nine Water Companies

Proxy Group of Thirty-Nine Non-Utility Companies	Moody's Bond Rating 7/6/2011 Bond Rating	Moody's Numerical Weighting (1)	Standard & Poor's Bond Rating 7/6/2011 Bond Rating	Standard & Poor's Numerical Weighting (1)
Gallagher (Arthur J.)	N/A	--	N/A	--
AutoZone Inc.	Baa2	9	BBB	9
Baxter Intl Inc.	A3	7	A+	5
Bristol-Myers Squibb	A2	6	A+	5
Brown & Brown	N/A	--	N/A	--
Capitol Fed. Finl	N/A	--	N/A	--
CenturyLink Inc.	Baa3	10	N/A	--
Quest Diagnostics	Baa2	9	BBB+	8
Edwards Lifesciences	N/A	--	N/A	--
Forest Labs.	N/A	--	N/A	--
Gilead Sciences	Baa1	8	N/A	--
Gen-Probe	N/A	--	N/A	8
Hasbro, Inc.	Baa2	9	BBB+	--
Hudson City Bancorp	N/A	--	N/A	--
Hospira Inc.	Baa3	10	BBB+	8
IAC/InterActiveCorp	Ba2	12	N/A	--
Investors Bancorp	N/A	--	N/A	--
J&J Snack Foods	N/A	--	N/A	--
Lancaster Colony	N/A	--	N/A	--
McKesson Corp.	Baa2	9	A-	7
Marsh & McLennan	Baa2	9	BBB-	10
MAXIMUS Inc.	N/A	--	N/A	--
Owens & Minor	Ba2	12	BBB-	10
Rollins, Inc.	N/A	--	N/A	--
Sherwin-Williams	A3	4	A	6
Smucker (J.M.)	N/A	--	N/A	--
Sara Lee Corp.	Baa1	8	BBB	9
Silgan Holdings	Ba3	13	N/A	--
Suburban Propane	Ba2	12	N/A	--
Stericycle Inc.	N/A	--	N/A	--
Safeway Inc.	A3	7	BBB	9
Stryker Corp.	A3	7	N/A	--
TJX Companies	A3	7	A	6
Walgreen Co.	A2	6	N/A	--
WD-40 Co.	N/A	--	N/A	--
Weis Markets	N/A	--	N/A	--
Watson Pharmac.	Baa3	10	N/A	--
Berkley (W.R.)	Baa2	9	BBB+	8
West Pharmac. Svcs.	N/A	--	N/A	--
Average	Baa2	8.8	BBB+	7.7

Notes:

(1) From page 3 of Schedule

Source of Information:
Standard & Poor's Bond Guide June 2011
www.moodys.com; downloaded 7/6/2011

Carolina Water Service, Inc.
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
the Proxy Group of Non-Utility Companies
Comparable in Total Risk to the
Proxy Group of Nine Water Companies

Line No.		Proxy Group of Thirty-Nine Non-Utility Companies
1.	Arithmetic mean total return rate on the Standard & Poor's 500 Composite Index - 1926-2010 (1)	11.90 %
2.	Arithmetic mean yield on Aaa and Aa Corporate Bonds 1926-2010 (2)	(6.10)
3.	Historical Equity Risk Premium	5.80 %
4.	Forecasted 3-5 year Total Annual Market Return (3)	13.44 %
5.	Prospective Yield an Aaa Rated Corporate Bonds (4)	(5.35)
6.	Forecasted Equity Risk Premium	8.09 %
7.	Conclusion of Equity Risk Premium (5)	6.95 %
8.	Adjusted Value Line Beta (6)	0.75
9.	Beta Adjusted Equity Risk Premium	5.21 %

Notes:
(1) Ibbotson Associates 2011 Valuation Yearbook - Market Results for 1926-2010, Morningstar, Inc., 2011 Chicago, IL.
(2) From Moody's Industrial Manual and Mergent Bond Record Monthly Update.
(3) From page 2 of Schedule PMA-PMA-10.
(4) Average forecast based upon six quarterly estimates of Aaa rated corporate bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated July 1, 2011 (see page 7 of Schedule PMA-PMA-8). The estimates are detailed below.

Third Quarter 2011	5.00 %
Fourth Quarter 2011	5.10
First Quarter 2012	5.30
Second Quarter 2012	5.40
Third Quarter 2012	5.60
Fourth Quarter 2012	5.70
Average	5.35 %

(5) The average of the historical equity risk premium of 5.80% from Line No. 3 and the forecasted equity risk premium of 8.09% from Line No. 6 ((5.80% + 8.09%) / 2 = 6.95%.
(6) Median beta from page 5 of this Schedule.

Carolina Water Service, Inc.
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Utility Companies Comparable in Total Risk to the Proxy Group of Nine Water Companies

Proxy Group of Thirty-Nine Non-Utility Companies	Value Line Adjusted Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate (3)	ECAPM Cost Rate (4)	Indicated Common Equity Cost Rate (5)
Gallagher (Arthur J.)	0.70	7.71	4.73	10.13	10.71	
AutoZone Inc.	0.70	7.71	4.73	10.13	10.71	
Baxter Intl Inc.	0.65	7.71	4.73	9.74	10.42	
Bristol-Myers Squibb	0.75	7.71	4.73	10.51	10.99	
Brown & Brown	0.70	7.71	4.73	10.13	10.71	
Capitol Fed. Finl	0.65	7.71	4.73	9.74	10.42	
CenturyLink Inc.	0.75	7.71	4.73	10.51	10.99	
Quest Diagnostics	0.70	7.71	4.73	10.13	10.71	
Edwards Lifesciences	0.65	7.71	4.73	9.74	10.42	
Forest Labs.	0.80	7.71	4.73	10.90	11.28	
Gilead Sciences	0.65	7.71	4.73	9.74	10.42	
Gen-Probe	0.80	7.71	4.73	10.90	11.28	
Hasbro, Inc.	0.75	7.71	4.73	10.51	10.99	
Hudson City Bancorp	0.80	7.71	4.73	10.90	11.28	
Hospira Inc.	0.70	7.71	4.73	10.13	10.71	
IAC/InterActiveCorp	0.70	7.71	4.73	10.13	10.71	
Investors Bancorp	0.75	7.71	4.73	10.51	10.99	
J&J Snack Foods	0.70	7.71	4.73	10.13	10.71	
Lancaster Colony	0.75	7.71	4.73	10.51	10.99	
McKesson Corp.	0.75	7.71	4.73	10.51	10.99	
Marsh & McLennan	0.75	7.71	4.73	10.51	10.99	
MAXIMUS Inc.	0.80	7.71	4.73	10.90	11.28	
Owens & Minor	0.65	7.71	4.73	9.74	10.42	
Rollins, Inc.	0.80	7.71	4.73	10.90	11.28	
Sherwin-Williams	0.70	7.71	4.73	10.13	10.71	
Smucker (J.M.)	0.70	7.71	4.73	10.13	10.71	
Sara Lee Corp.	0.80	7.71	4.73	10.90	11.28	
Silgan Holdings	0.75	7.71	4.73	10.51	10.99	
Suburban Propane	0.75	7.71	4.73	10.51	10.99	
Stericycle Inc.	0.70	7.71	4.73	10.13	10.71	
Safeway Inc.	0.70	7.71	4.73	10.13	10.71	
Stryker Corp.	0.80	7.71	4.73	10.90	11.28	
TJX Companies	0.80	7.71	4.73	10.90	11.28	
Walgreen Co.	0.75	7.71	4.73	10.51	10.99	
WD-40 Co.	0.75	7.71	4.73	10.51	10.99	
Weis Markets	0.65	7.71	4.73	9.74	10.42	
Watson Pharmac.	0.75	7.71	4.73	10.51	10.99	
Berkley (W.R.)	0.70	7.71	4.73	10.13	10.71	
West Pharmac. Svcs.	0.80	7.71	4.73	10.90	11.28	
Average				10.36 %	10.88 %	10.62 %
Median				10.51 %	10.99 %	10.75 %

Notes:
(1) From Schedule PMA-PMA-10, page 2, note 1.
(2) From Schedule PMA-PMA-10, page 2, note 2.
(3) Derived from the model shown on Schedule PMA-PMA-10, page 2, note 3.
(4) Derived from the model shown on Schedule PMA-PMA-10, page 2, note 4.
(5) Average of CAPM and ECAPM cost rates.

Carolina Water Service, Inc.
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.		1 Market Capitalization on July 6, 2011 (1) (millions)	(times larger)	2 Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	3 Applicable Size Premium (3)	4 Spread from Applicable Size Premium for (4)
1.	Carolina Water Service, Inc.					
a.	Based Upon the Proxy Group of Nine Water Companies	$ 18.980		10	6.36%	
2.	Proxy Group of Nine Water Companies	$ 1,194.619	62.9 x	6-7	1.85%	4.51%

	(A) Decile	(B) Number of Companies (millions)	(C) Recent Total Market Capitalization (millions)	(D) Recent Average Market Capitalization (millions)	(E) Size Premium (Return in Excess of CAPM) (2)
Largest	1	168	$ 8,586,385.656	$ 51,109.438	-0.38%
	2	181	1,873,378.709	$ 10,350.159	0.81%
	3	187	1,022,604.243	$ 5,468.472	1.01%
	4	185	594,702.185	$ 3,214.606	1.20%
	5	213	482,327.242	$ 2,264.447	1.81%
	6	230	360,140.550	$ 1,565.828	1.82%
	7	287	304,948.414	$ 1,062.538	1.88%
	8	361	239,018.595	$ 662.101	2.65%
	9	491	181,744.805	$ 370.152	2.94%
Smallest	10	1320	136,119.075	$ 103.121	6.36%

*From Ibbotson 2011 Yearbook

Notes:
(1) From Page 2 of this Schedule.
(2) Gleaned from Column (D) on the bottom of this page. The appropriate decile (Column (A)) corresponds to the market capitalization of the proxy group, which is found in Column 1.
(3) Corresponding risk premium to the decile is provided on Column (E) on the bottom of this page.
(4) Line No. 1a Column 3 – Line No. 2 Column 3 and Line No. 1b, Column 3 – Line No. 3 of Column 3 etc.. For example, the 4.51% in Column 4, Line No. 2 is derived as follows 4.51% = 6.36% - 1.85%.

Exhibit No. ___
Schedule PMA-14
Page 1 of 2

Carolina Water Service, Inc.
Market Capitalization of Carolina Water Service, Inc. and
the Proxy Group of Nine Water Companies

Company	Exchange	1 Common Stock Shares Outstanding at Fiscal Year End 2010 (millions)	2 Book Value per Share at Fiscal Year End 2010 (1)	3 Total Common Equity at Fiscal Year End 2010 (millions)	4 Closing Stock Market Price on July 06, 2011	5 Market-to-Book Ratio on July 06, 2011 (2)	6 Market Capitalization on July 06, 2011 (3) (millions)
Carolina Water Service, Inc.		NA	NA	$ 10.795 (4)	NA		
Based Upon the Proxy Group of Nine Water Companies						175.8 % (5)	$ 18.980 (6)
Proxy Group of Nine Water Companies							
American States Water Co.		18.531	$ 20.264	$ 377.541	$ 35.130	173.4 %	$ 654.502
American Water Works Co., Inc.		174.996	$ 23.614	$ 4,132.272	$ 30.010	127.1	$ 5,251.630
Aqua America, Inc.		138.449	$ 8.481	$ 1,174.254	$ 22.570	266.1	$ 3,124.795
Artesian Resources Corp.		7.517	$ 12.657	$ 95.146	$ 18.290	144.5	$ 137.488
California Water Service Group		20.833	$ 20.908	$ 435.626	$ 18.750	89.7	$ 390.619
Connecticut Water Service, Inc.		8.677	$ 13.134	$ 113.963	$ 25.820	196.6	$ 224.036
Middlesex Water Company		15.566	$ 11.132	$ 173.279	$ 19.000	170.7	$ 295.754
SJW Corporation		18.552	$ 13.747	$ 255.032	$ 24.770	180.2	$ 459.522
York Water Company		12.692	$ 7.190	$ 91.257	$ 16.800	233.7	$ 213.227
Average		46.212	$ 14.569	$ 760.919	$ 23.460	175.8 %	$ 1,194.619

NA= Not Available

Notes: (1) Column 3 / Column 1.
(2) Column 4 / Column 2.
(3) Column 5 * Column 3.
(4) Allocation of total capitalization of Carolina Water Service, Inc. of $21.539 million by the requested common equity ratio of 49.89% ($21.539 M x 49.89% = $10.796 M).
(5) The market-to-book ratio of Carolina Water Service, Inc. on July 06, 2011 is assumed to be equal to the market-to-book ratio of the Proxy Group of Nine Water Companies at July 06, 2011.
(6) Carolina Water Service, Inc.'s common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at July 06, 2011 of the Proxy Group of Nine Water Companies, 175.8%, and Carolina Water Service, Inc.'s market capitalization on July 06, 2011 would therefore have been $18.98 million.

Source of Information: 2010 Annual Forms 10K
yahoo.finance.com

Exhibit No.___
Schedule PMA-14
Page 2 of 2

Carolina Water Service, Inc.
Docket No. 2011-47-WS

BEFORE THE

PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

EXHIBIT

TO ACCOMPANY THE

PREPARED REBUTTAL TESTIMONY

OF

PAULINE M. AHERN, CRRA
PRINCIPAL
AUS CONSULTANTS

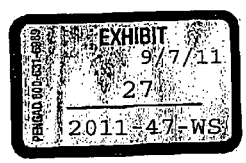
ON BEHALF OF

CAROLINA WATER SERVICE, INC.

CONCERNING

FAIR RATE OF RETURN

AUGUST 2011



Do Analyst Conflicts Matter? Evidence from Stock Recommendations

Anup Agrawal *University of Alabama*
Mark A. Chen *Georgia State University*

Abstract

We examine whether conflicts of interest with investment banking and brokerage businesses induce sell-side analysts to issue optimistic stock recommendations and, if so, whether investors are misled by such biases. Using quantitative measures of potential conflicts constructed from a novel data set containing revenue breakdowns of analyst employers, we find that recommendation levels are indeed positively related to conflict magnitudes. The optimistic bias stemming from investment banking conflicts was especially pronounced during the late-1990s stock market bubble. However, evidence from the response of stock prices and trading volumes to upgrades and downgrades suggests that the market recognizes analysts' conflicts and properly discounts analysts' opinions. This pattern persists even during the bubble period. Moreover, the 1-year stock performance following revised recommendations is unrelated to the magnitude of conflicts. Overall, our findings do not support the view that conflicted analysts are able to systematically mislead investors with optimistic stock recommendations.

I. Introduction

In April 2003, 10 of the largest Wall Street firms reached a landmark settlement with state and federal securities regulators on the issue of conflicts of interest

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faced by stock analysts.[1] The settlement requires the firms to pay a record $1.4 billion in compensation and penalties in response to government charges that the firms issued optimistic stock research to win favor with potential investment banking (IB) clients. Part of the settlement funds are earmarked for investor education and for provision of research from independent firms. In addition to requiring large monetary payments, the settlement mandates structural changes in the firms' research operations and requires the firms to disclose conflicts of interest in analysts' research reports.

The notion that investors are victims of biased stock research presumes that (1) analysts respond to the conflicts by inflating their stock recommendations and (2) investors take analysts' recommendations at face value. Even if analysts are biased, it is possible that investors understand the conflicts of interest inherent in stock research and rationally discount analysts' opinions. This alternative viewpoint, if accurate, would lead to very different conclusions about the consequences of analysts' research. Indeed, investors' rationality and self-interested behavior imply that stock prices should accurately reflect a consensus about the informational quality of public announcements (Grossman 1976; Grossman and Stiglitz 1980). Rational investors would recognize and adjust for analysts' potential conflicts of interest and thereby largely avoid the adverse consequences of biased stock recommendations.

In this article, we provide evidence on the extent to which analysts and investors respond to conflicts of interest in stock research. We address four questions. First, is the extent of optimism in stock recommendations related to the magnitudes of analysts' conflicts of interest? Second, to what extent do investors discount the opinions of more conflicted analysts? In particular, do stock prices and trading volumes react to recommendation revisions in a manner that rationally reflects the degree of analysts' conflicts? Third, is the medium-term (that is, 3- to 12-month) performance of recommendation revisions related to conflict severity? And, finally, did conflicts of interest affect analysts or investors differently during the late-1990s stock bubble than during the postbubble period? The answers to these questions are clearly of relevance to stock market participants, public policy makers, regulators, and the academic profession.

We use a unique, hand-collected data set that contains the annual revenue breakdown for 232 public and private analyst employers. This information allows us to construct quantitative measures of the magnitude of potential conflicts not only from IB business but also from brokerage business. We analyze a sample of over 110,000 stock recommendations issued by over 4,000 analysts during the 1994–2003 time period. Using univariate tests as well as cross-sectional regressions that control for the size of the company followed and individual analysts' experience, resources, workloads, and reputations, we attempt to shed

[1] Two more securities firms (Deutsche Bank Securities Inc. and Thomas Weisel Partners LLC) were added to the formal settlement in August 2004.

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light both on how analysts respond to pressures from IB and brokerage businesses and on how investors compensate for the existence of such conflicts of interest.

A number of studies (for example, Dugar and Nathan 1995; Lin and McNichols 1998; Michaely and Womack 1999; Dechow, Hutton, and Sloan 2000; Bradley, Jordan, and Ritter 2008) focus on conflicts faced by analysts in the context of existing underwriting relationships (see also Malmendier and Shanthikumar 2007; Cliff 2007).[2] Our article complements this literature in several ways. First, we take into account the pressure to generate underwriting business from both current and potential client companies. Even if an analyst's firm does not currently do IB business with a company that the analyst tracks, it might like to do so in the future. Second, we examine the conflict between research and all IB services (including advice on mergers, restructuring, and corporate control), rather than just underwriting. Third, we examine conflicts arising from brokerage business in addition to those from IB.[3]

Fourth, the prior empirical finding that underwriter analysts tend to be more optimistic than other analysts is consistent with two alternative interpretations: (*a*) an optimistic report on a company by an underwriter analyst is a reward for past IB business or an attempt to win future IB business by currying favor with the company or (*b*) a company chooses an underwriter whose analyst already likes the stock. The second interpretation implies that underwriter choice is endogenous and does not necessarily imply a conflict of interest. We sidestep this issue of endogeneity by not focusing on underwriting relations between an analyst's firm and the company followed. Instead, our conflict measures focus on the importance to the analyst's firm of IB and brokerage businesses, as measured by the percentage of its annual revenue derived from IB business and from brokerage commissions. Unlike underwriting relations between an analyst's firm and the company followed, the proportions of the entire firm's revenues from each of these businesses can reasonably be viewed as given, exogenous variables from the viewpoint of an individual analyst. Finally, our approach yields substantially larger sample sizes than those used in prior research, and it therefore leads to greater statistical reliability of the results.

Several articles adopt an approach that is similar in spirit to ours. For example, Barber, Lehavy, and Trueman (2007) find that recommendation upgrades (downgrades) by investment banks—which typically also have brokerage businesses—

[2] Bolton, Freixas, and Shapiro (2007) theoretically analyze a different type of conflict of interest in financial intermediation, one faced by a financial advisor whose firm also produces financial products (such as in-house mutual funds). Mehran and Stulz (2007) provide an excellent review of the literature on conflicts of interest in financial institutions.

[3] Hayes (1998) analyzes how pressure on analysts to generate brokerage commissions affects the availability and accuracy of earnings forecasts. Both Irvine (2004) and Jackson (2005) find that analysts' optimism increases a brokerage firm's share of the trading volume. Ljungqvist et al. (2007) find that analysts employed by larger brokerage houses issue more optimistic recommendations and more accurate earnings forecasts. However, none of these articles examines how investors' responses to analysts' recommendations and the investment performance of recommendations vary with the severity of brokerage conflicts, issues that we investigate here.

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underperform (outperform) similar recommendations by non-IB brokerages and independent research firms. Cowen, Groysberg, and Healy (2006) find that full-service securities firms—which have both IB and brokerage businesses—issue less optimistic forecasts and recommendations than do non-IB brokerage houses. Finally, Jacob, Rock, and Weber (2008) find that short-term earnings forecasts made by investment banks are more accurate and less optimistic than those made by independent research firms. We extend this line of research by quantifying the reliance of a securities firm on IB and brokerage businesses. This is an important feature of our article for at least two reasons. First, given that many securities firms operate in multiple lines of business, it is difficult to classify them by business lines. By separately measuring the magnitudes of both IB and brokerage conflicts in each firm, our approach avoids the need to rely on a classification scheme. Second, since the focus of this research is on the consequences of analysts' conflicts, the measurement of those conflicts is important. Our conclusions sometimes differ from those in classification-based studies.

We find that analysts do indeed seem to respond to pressures from IB and brokerage businesses: larger potential conflicts of interest from these businesses are associated with more positive stock recommendations. We also document that the distortive effects of IB conflicts were larger during the late-1990s stock bubble than during the postbubble period. Nonetheless, the empirical analysis yields several pieces of evidence to suggest that investors are sophisticated enough to adjust for these biases. First, the short-term reactions of both stock prices and trading volumes to recommendation upgrades are negatively and statistically significantly related to the magnitudes of potential IB or brokerage conflicts. For downgrades, the corresponding relation is negative for stock prices but positive for trading volumes. Second, the 1-year investment performance after recommendation revisions bears no systematic relation to the magnitude of conflicts. Finally, investors continued to discount conflicted analysts' opinions during the bubble period, even amid the euphoria prevailing in the market at the time. Together these results strongly support the idea that the marginal investor, taking analysts' conflicts into account, rationally discounts optimistic stock recommendations.[4]

The remainder of the article is organized as follows. We discuss the issues in Section 2 and describe our sample and data in Section 3. Section 4 examines the relation between recommendation levels and the degree of IB or brokerage conflict faced by analysts. Section 5 analyzes how conflicts are related to the response of stock prices or trading volumes to recommendation revisions. Section

[4] In a companion paper (Agrawal and Chen 2005), we find that analysts appear to respond to conflicts when making long-term earnings growth projections but not short-term earnings forecasts. This finding is consistent with the idea that, with short-term forecasts, analysts worry about their deception being revealed with the next quarterly earnings release, but they have greater leeway with long-term forecasts. We also find that the frequency of forecast revisions is positively related to the magnitude of brokerage conflicts, and several tests suggest that analysts' trade generation incentives impair the quality of stock research.

6 investigates the relation between conflicts and the investment performance of recommendation revisions. Section 7 presents our results for the late-1990s stock bubble and postbubble periods, and Section 8 concludes.

2. Issues and Hypotheses

Investment banking activity is a potential source of analyst conflict that has received widespread attention in the financial media (for example, Gasparino 2002; Maremont and Bray 2004) as well as the academic literature (for example, Lin and McNichols 1998; Michaely and Womack 1999). When IB business is an important source of revenue for a securities firm, a stock analyst employed by the firm often faces pressure to inflate his or her recommendations. This pressure is due to the fact that the firm would like to sell IB services to a company that the analyst tracks.[5] The company, in turn, would like the analyst to support its stock with a favorable opinion. Thus, we expect that the more critical is IB revenue to an analyst's employer, the greater the incentives an analyst faces to issue optimistic recommendations.[6]

Analysts also face a potential conflict with their employers' brokerage businesses. Here, the pressure on analysts originates not from the companies that they follow but from within their employing firms. Brokerage business generates a large portion of most securities firms' revenues, and analyst compensation schemes are typically related explicitly or implicitly to trading commissions. Thus, analysts have incentives to increase trading volumes in both directions (that is, buys and sells). Given the many institutional constraints that make short sales relatively costly, many more investors participate in stock purchases than in stock sales.[7] Indeed, it is mostly existing shareholders of a stock who sell. This asymmetry between purchases and sales implies that the more important brokerage business is to an analyst's employer, the more pressure the analyst faces to be bullish when issuing recommendations.

Analysts who respond to the conflicts they face by issuing blatantly misleading stock recommendations can develop bad reputations that reduce their labor income and hurt their careers.[8] Stock recommendations, however, are not as easily evaluated as other outputs of analysts' research, such as 12-month price targets or quarterly earnings forecasts, which can be judged against public, near-

[5] Throughout this article, we refer to an analyst's employer as a "firm" and a company followed by an analyst as a "company."

[6] Ljungqvist, Marston, and Wilhelm (2006, forthcoming) find that, while optimistic recommendations do not help the analyst's firm win the lead underwriter or comanager positions in general, they help the firm win the comanager position in deals in which the lead underwriter is a commercial bank.

[7] Numerous regulations in the United States increase the cost of selling shares short (see, for example, Dechow et al. 2001). Therefore, the vast majority of stock sales are regular sales rather than short sales. For example, over the 1994–2001 period, short sales comprised only about 10 percent of the annual New York Stock Exchange trading volume (New York Stock Exchange 2002).

[8] See Jackson (2005) for a theoretical model showing that analysts' concerns about their reputations can reduce optimistic biases arising from brokerage business.

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term realizations. So it is not clear whether analysts' career concerns can completely prevent them from responding to pressures to generate IB or brokerage business.

The relation between conflict severity and the short-term (2- or 3-day) stock price impact of a recommendation should depend on whether investors react to the opinion rationally or naively.[9] Under the rational discounting hypothesis, the relation should be asymmetric for upgrades and downgrades. For upgrades, the stock price response should be negatively related to the degree of conflict. This implication arises because analysts who face greater pressure from IB or brokerage business are likely to be more bullish in their recommendations, and rational investors should discount an analyst's optimism more heavily. For downgrades, however, the story is different. When an analyst downgrades a stock despite facing large conflicts, rational investors should find the negative opinion more convincing and should be more likely to revalue the stock accordingly. This implies that the short-term stock price response to a downgrade should be negatively related to the degree of conflict.

The rational discounting hypothesis also predicts cross-sectional relations between conflict severity and the short-term trading volume responses to recommendations. As Kim and Verrecchia (1991) demonstrate in a rational expectations model of trading, the more precise a piece of news, the more individuals will revise their prior beliefs and, hence, the more trading that will result. In the present context, investor rationality implies that an upgrade by a highly conflicted analyst represents less precise news to investors, and so such a revision should be followed by a relatively small abnormal volume. But when an analyst downgrades a stock despite a substantial conflict, the signal is regarded as being more precise, and thus the downgrade should lead to relatively large abnormal trading.

By contrast, under the naive investor hypothesis, investors are largely ignorant of the distortive pressures that analysts face and accept analysts' recommendations at face value. This implies that there should be no relation between conflict severity and the short-term response of either stock prices or trading volume to recommendation revisions. Furthermore, the absence of a systematic relation should hold true for both upgrades and downgrades.

What are the implications of the two hypotheses for the medium-term (3- to 12-month) investment performance of analysts' recommendations? Under the rational discounting hypothesis, there should be no systematic relation between the magnitude of conflicts faced by an analyst and the performance of his or her stock recommendations: the market correctly anticipates the potential distortions up front and accordingly adjusts its response. But the naive investor hypothesis predicts that performance should be negatively related to conflict

[9] This framework follows Kroszner and Rajan (1994) and Gompers and Lerner (1999), who analyze the conflicts that a bank faces in underwriting securities of a company when the bank owns a (debt or equity) stake in it.

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severity for both upgrades and downgrades. That is, investors ignore analysts' conflicts up front and pay for their ignorance later.

3. Sample and Data

3.1. Sample

Our sample of stock recommendations comes from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file. This file contains data on newly issued recommendations as well as revisions and reiterations of existing recommendations made by individual analysts over the period 1993–2003. Although the exact wording of recommendations can vary considerably across brokerage houses, I/B/E/S classifies all recommendations into five categories ranging from strong buy to strong sell. We rely on the I/B/E/S classification and encode recommendations on a numerical scale from 5 (strong buy) to 1 (strong sell).

Since we are primarily interested in examining how the nature and consequences of analysts' recommendations are related to IB or brokerage business, we require measures of the importance of these business lines to analysts' employers. Under U.S. law, all registered broker-dealer firms must file audited annual financial statements with the Securities and Exchange Commission (SEC) in x-17a-5 filings.[10] These filings contain information on broker-dealer firms' principal sources of revenue, broken down into revenue from IB, brokerage commissions, and all other businesses (such as asset management and proprietary trading). We use these filings to obtain various financial data, including data on our key explanatory variables: the fractions of total brokerage house revenues from IB and from brokerage commissions. Beginning with the names of analyst employers contained in the I/B/E/S Broker Translation file,[11] we search for all available revenue information in x-17a-5 filings from 1994 to 2003.[12] For publicly traded broker-dealer firms, we also use 10-K annual report filings over the sample period to gather information on revenue breakdowns, if necessary. We thus obtain annual data from 1994 to 2003 on IB revenue, brokerage revenue, and other revenue for 188 privately held and 44 publicly traded brokerage houses.[13] For each brokerage house, we match recommendations to the latest broker-year revenue data preceding the recommendation date. Over the sample period, we

[10] The Securities Exchange Act, sections 17(a)–17(e), requires these filings. We accessed them from Thomson Financial's Global Access database and the Securities and Exchange Commission's (SEC's) public reading room in Washington, D.C.

[11] We use the file supplied directly by the Institutional Brokers Estimate System (I/B/E/S) on CD-ROM. This file does not recode the name of an acquired brokerage firm to that of its acquirer for years before the merger.

[12] The electronic availability of x-17a-5 filings is very limited prior to 1994, the year the SEC first mandated electronic form filing. Hence, we do not search for revenue information prior to 1994.

[13] We exclude a small number of firm-years in which the total revenue is negative (for example, because of losses from proprietary trading).

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are able to match in this fashion 110,493 I/B/E/S recommendations issued by 4,089 analysts.

All broker-dealer firms are required to publicly disclose their balance sheets as part of their x-17a-5 filings. But a private broker-dealer firm can withhold the public disclosure of its income statement, which contains the revenue breakdown information needed for this study, if the SEC deems that such disclosure would harm the firm's competitive position. Thus, our sample of private securities firms is limited to broker-dealers that disclose their revenue breakdowns in x-17a-5 filings. We examine whether this selection bias affects our main results by separately analyzing the subsample of publicly traded securities firms, for which public disclosure of annual revenue information is mandatory. Our findings do not appear to be affected by this selection bias. All of our results for the subsample of publicly traded securities firms are qualitatively similar to the results for the full sample reported in the article. In the Appendix, we describe the characteristics of disclosing and nondisclosing private securities firms, shed some light on the firms' income statement disclosure decisions, and use a selectivity-corrected probit model to examine whether the resulting selection bias can explain analysts' response to conflicts in these private firms. We find no evidence that selection bias affects our results for these firms.

3.2. Characteristics of Analysts, Their Employers, and Companies Followed

We next measure characteristics of analysts, their employers, and the companies they cover. Prior research (for example, Clement 1999; Jacob, Lys, and Neale 1999) finds that analysts' experience and workloads affect the accuracy and credibility of their research. Using the I/B/E/S Detail History files, we measure an analyst's experience and workloads in terms of all research activity reported in I/B/E/S, including stock recommendations, quarterly and annual earnings-per-share forecasts, and long-term earnings growth forecasts. We measure general research experience as the number of days since an analyst first issued research on any company in the I/B/E/S database and company-specific research experience as the number of days since an analyst first issued research on a particular company. We measure an analyst's workload as the number of different companies or the number of different four-digit I/B/E/S sector industry groups (S/I/Gs)[14] for which the analyst issued research in a given calendar year.

The amount of resources devoted to investment research within brokerage houses also affects the quality of analysts' research (Clement 1999). Larger houses have access to better technology, information, and support staff. Accordingly, we use three measures of brokerage house size: the number of analysts issuing stock recommendations for a brokerage house over the course of a calendar year, book value of total assets, and net sales. All of our subsequent results are qual-

[14] The I/B/E/S sector industry group numbers are six-digit codes that provide information on the industry sectors and subsectors for companies in the I/B/E/S database. We use the first four digits, which correspond to broad industry groupings.

Table 1
Revenue Sources (%) of Analysts' Employers

Recommendation Level	Investment Banking		Brokerage Commission		Sample Size
	Mean	Median	Mean	Median	
5 (Strong buy)	13.94	11.81	29.87	24.09	28,901
4 (Buy)	13.81	11.21	26.68	17.22	37,478
3 (Hold)	12.68	11.13	28.44	24.07	37,883
2 (Sell)	11.61	10.55	23.13	16.12	4,875
1 (Strong sell)	16.27	14.90	33.44	24.95	1,356
p-Value (4 and 5) versus (1 and 2)	.0000	.0000	.0000	.0023	

Note. Shown are the percentages of analyst employer revenues from investment banking and brokerage commissions, by recommendation level. Data are for 110,493 stock recommendations and are drawn from the Institutional Brokers Estimate System U.S. Detail Recommendations History file for 1994–2003.

itatively similar under each of the three size measures. To save space, we report results only of tests based on the first size measure.

To capture the degree to which investors believe that individual analysts have skill in providing timely and accurate research, we use two measures of analysts' reputation. The first is based on *Institutional Investor* (*II*) magazine's All-America Research Team designation. Each year around October 15, *II* mails an issue to subscribers that lists the names of analysts who receive the most votes in a poll of institutional money managers. About 300–400 analysts are identified. We construct a variable that indicates, for each recommendation revision, whether the recommending analyst was named to the first, second, third, or honorable mention team in the latest annual survey. As a complementary, objective measure of analysts' reputation, we use a variable based on the *Wall Street Journal*'s (*WSJ*'s) annual All-Star Analysts Survey. The *WSJ* All-Star Analysts are determined by an explicit set of criteria relating to past stock-picking performance and forecasting accuracy.[15] The survey covers about 50 industries annually and names the top five stock pickers and top five earnings forecasters in each industry.[16]

Tables 1 and 2 report summary data on the characteristics of our sample. In Table 1, both the mean and the median percentages of analyst employer revenues derived from IB decline monotonically over the first four recommendation levels, but these values are the highest for strong sell recommendations. Similarly, it is the brokerage firms issuing strong sell recommendations that generally derive

[15] We recognize that the performance metrics used in the *Wall Street Journal* (*WSJ*) All-Star Analysts Survey are public information and can, in principle, be replicated by investors. However, to the extent that computing and evaluating analysts' performance is a costly activity, being named an All-Star Analyst can still affect an analyst's reputation and credibility.

[16] Since the I/B/E/S Broker Translation File provides only analysts' last names and first initials, in some instances it is not possible to ascertain from the I/B/E/S data alone whether an analyst in our sample was named to the *Institutional Investor* (*II*) or *WSJ* team. For these cases, we determine team membership of analysts from NASD BrokerCheck, an online database (http://www.nasd.com, accessed October 2004) that provides the full names of registered securities professionals as well as their employment and registration histories for the past 10 years. The database also keeps track of analysts' name changes (such as those resulting from marriage).

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Table 2
Characteristics of Analysts, Firms, and Companies Followed

Characteristic	Mean	Median	SD	Sample Size
Investment banking revenue (%)	13.60	11.25	11.93	94,892
Brokerage commission revenue (%)	28.74	24.07	24.75	94,892
Analyst's company-specific experience (years)	2.42	1.20	3.29	85,531
Analyst's general experience (years)	6.41	4.90	5.32	85,531
Analysts employed by a firm	86.34	60	79.73	94,618
Companies followed by an analyst	17.24	15	12.93	84,016
Four-digit I/B/E/S S/I/Gs followed by an analyst	3.05	3	1.90	84,014
Institutional Investor All-America stock picker	.005	0	.07	85,531
Institutional Investor All-America Research Team member	.035	0	.18	85,531
Wall Street Journal All-Star stock picker	.018	0	.13	85,531
Wall Street Journal All-Star Analyst	.136	0	.34	85,531
Market capitalization ($ millions)	8,804.46	1,367.22	27,758.81	81,333
Analyst following	9.14	7	6.88	92,869

Note. Data are for 94,892 recommendation revisions and are drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Recommendation revisions include recommendation changes as well as initiations, resumptions, and discontinuations of coverage. Analysts' experience is measured from all analyst research activity reported in I/B/E/S, including earnings-per-share forecasts, long-term earnings growth forecasts, and stock recommendations. An analyst is considered to be a top stock picker or team member if he or she appeared in the relevant portion of the most recent analyst survey by *Institutional Investor* or the *Wall Street Journal* at the time of a recommendation revision. Market capitalization is measured 12 months before the end of the current month, and analyst following is measured on the basis of stock recommendation coverage. Market capitalization values are inflation adjusted (with Consumer Price Index numbers and with 2003 as the base year). S/I/G = sector industry group.

the highest percentage of their total revenues from brokerage commissions. Notably, in each of the five categories, the mean percentage of revenue from commissions is about twice as large as the mean percentage of revenue from IB. This fact underscores the importance of trading commissions as a source of revenue for many securities firms. The last column shows that about 95 percent of the recommendations in the sample are at levels 5 (strong buy), 4 (buy), or 3 (hold). Levels 1 (strong sell) and 2 (sell) represent only about 1 percent and 4 percent of all recommendations, respectively.

The data in Table 2 provide a flavor of our sample of analysts and their employers. As noted by Hong, Kubik, and Solomon (2000), careers as analysts tend to be relatively short. The median recommendation is made by an analyst with under 5 years of experience, of which just over a year was spent following a given stock. Stock analysts tend to be highly specialized, following a handful of companies in a few industries. The median recommendation is made by an analyst following 15 companies in three industries who works for a securities firm employing 60 analysts. Being named as an All-America Research Team member by *II* is a rare honor, received by under 5 percent of all analysts in our sample. Finally, the typical company followed is large, with mean (median) market capitalization of about $8.8 billion ($1.4 billion) in inflation-adjusted

2003 dollars. Over the time span of a year, a company is tracked by a mean (median) of 9.1 (7) analysts.

4. Conflicts and the Levels of Analyst Recommendations Net of the Consensus

In this section, we examine whether the level of an analyst's stock recommendation net of the consensus (that is, median) recommendation level is related to the conflicts that he or she faces. We start by ascertaining the level of the outstanding recommendation on each stock by each analyst following it at the end of each quarter (March, June, September, December) from 1995 through 2003. An analyst's recommendation on a stock is included only if it is newly issued, reiterated, or revised in the preceding 12 months.

We estimate a regression explaining individual analysts' net stock recommendation levels at the end of a quarter (which is the recommendation level minus the median recommendation level across all analysts following a stock during the quarter).[17] The regression pools observations across analysts, stocks, and quarters and includes our two main explanatory variables: the percentage of an analyst employer's total revenues from IB and the percentage from brokerage commissions. Following Jegadeesh et al. (2004) and Kadan et al. (forthcoming), who find that momentum is an important determinant of analysts' recommendations, we control for the prior 6-month stock return.

The regression also controls for other factors that can affect the degree of analysts' optimism, such as the size of the company followed and the resources, reputation, experience, and workload of an analyst. As a measure of the resources available to an analyst, a dummy variable is used for a large brokerage house, and it equals one if the firm ranks in the top quartile of all houses in terms of the number of analysts employed during the year. The size of the company followed is measured by the natural logarithm of its market capitalization, measured 12 months before the end of the month. We measure an analyst's reputation by dummy variables that equal one if the recommending analyst was named in the most recent year as an All-America Research Team member by *II* or as an All-Star Analyst by the *WSJ*. An analyst's company-specific research experience is measured by the natural logarithm of one plus the number of days an analyst has been producing research (including earnings-per-share forecasts, long-term growth forecasts, or stock recommendations) on the company. We measure an analyst's workload by the natural logarithm of one plus the number of companies for which he or she produces forecasts or recommendations in the current year.

Finally, we control for industry and time period effects by adding dummy variables for I/B/E/S two-digit S/I/G industries and for each calendar quarter (March 1995, June 1995, and so forth). Since net recommendation levels can

[17] To ensure meaningful variation in the dependent variable, we omit stocks followed by only one analyst in a quarter.

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Table 3
Ordered Probit Analysis of Recommendation Levels Net of the Consensus

Explanatory Variable	Coefficient	z-Statistic
Investment banking revenue (%)	.4167	17.35
Brokerage commission revenue (%)	.0363	3.00
Prior 6-month stock return	−.0068	−2.89
Large brokerage house dummy	−.0639	−8.60
Company size	.0038	2.89
Institutional Investor All-America Research Team dummy	.0032	.15
Wall Street Journal All-Star Analyst dummy	−.0196	−2.23
Company-specific research experience	.0012	1.42
Number of companies followed	.0070	4.64

Note. The results are from ordered probit regressions explaining individual analysts' stock recommendation levels net of the consensus (that is, median) recommendation level at the end of each quarter (March, June, September, December) for 1995–2003. Observations are excluded if the analyst issued no new or revised recommendation in the preceding 12 months. The regression includes observations pooled across analysts, stocks, and quarters. Data on recommendations are drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Investment banking or brokerage commission revenue refer to the percentage of the brokerage firm's total revenues derived from investment banking or brokerage commissions. The large brokerage house dummy is an indicator variable that equals one if a brokerage house is in the top quartile of all houses, based on the number of analysts issuing stock recommendations listed in I/B/E/S in a given calendar year. Company size is the natural logarithm of the market capitalization of the company followed, measured 12 months prior to the end of the current month. The *Institutional Investor* All-America Research Team and *Wall Street Journal* All-Star Analyst dummies are indicator variables that equal one if the recommending analyst was listed as an All-America Research Team member or All-Star Analyst in the most recent analyst ranking. Company-specific research experience is the natural log of one plus the number of days that an analyst has been issuing I/B/E/S research on a company. Number of companies followed equals the natural log of one plus the number of companies followed by an analyst in the current calendar year. The regression includes dummy variables for two-digit I/B/E/S sector industry group industries and for calendar quarters. Test statistics are based on a robust variance estimator. The number of observations is 213,011; the p-value of the χ^2 test is <.0001.

take ordered values from −4 (strongly pessimistic) to 4 (strongly optimistic) in increments of .5, we estimate the regression as an ordered probit model.[18] The Z-statistics are based on a robust (Huber-White sandwich) variance estimator.

Table 3 shows the regression estimate. The coefficients of IB revenue percentage and commission revenue percentage are both positive. This finding implies that greater conflicts with IB and brokerage businesses lead an analyst to issue a higher recommendation on a stock relative to the consensus. Stocks followed by busier analysts and stocks of larger companies receive higher recommendations relative to the consensus. Stocks that experience a price run-up over the prior 6 months, stocks followed by analysts at large brokerage houses, and stocks followed by *WSJ* All-Star Analysts all receive lower recommendations relative to the consensus. All of these relations are highly statistically significant.

To provide a sense of the magnitude of the main effects of interest, we show in Table 4 the derivatives of the probability of each net recommendation level

[18] Notice that recommendation levels can take integer values from 1 to 5, and the median recommendation can take values from 1 to 5 in increments of .5. See Greene (2003) for a detailed exposition of the ordered probit model.

Table 4

Marginal Effects and Sample Distribution for the Ordered Probit Regression in Table 3

	Recommendation Level Net of the Consensus														
	−4	−3.5	−3	−2.5	−2	−1.5	−1	−.5	0	.5	1	1.5	2	2.5	3
Investment banking revenue (%)	−.00031	−.0002	−.0026	−.0010	−.0199	−.0086	−.0744	−.0321	.0123	.0325	.0671	.0077	.0188	.0002	.0003
Brokerage commission revenue (%)	−.00003	−.00001	−.0002	−.00009	−.0017	−.0008	−.0065	−.0028	.0011	.0028	.0059	.0007	.0016	.00002	.00003
Observed frequency	.0001	.0001	.0016	.0007	.0176	.0094	.1241	.0948	.4940	.0937	.1289	.0111	.0233	.0002	.0003

Note. Shown is the derivative of the probability of each net recommendation level with respect to investment banking or brokerage revenue percentage, estimated from the ordered probit regression in Table 3. Investment banking and brokerage commission revenue refer to the percentage of the brokerage firm's total revenues derived from investment banking and brokerage commissions. The last row shows observed frequency of each net recommendation level as a proportion of the sample of 213,011 observations.

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with respect to IB revenue and commission revenue percentages.[19] Thus, for example, a 1-standard-deviation increase in IB revenue percentage increases the probability of an optimistic recommendation (that is, a net recommendation level greater than zero) by .1193 × (.0325 + .0671 + . . . + .0003) = .0151. Compared to the unconditional probability of an optimistic recommendation by an analyst, this represents an increase of about 5.9 percent (.0151/.2575). The effect of a change in commission revenue percentage is much smaller. A 1-standard-deviation increase in commission revenue percentage increases the probability of an optimistic recommendation by .2475 × .01105 = .0027, or about 1 percent (.0027/.2575) of the unconditional probability. Thus, despite possible concerns about a loss of reputation, analysts seem to respond to conflicts of interest, particularly those stemming from IB.

5. Conflicts and Investor Response to Recommendation Revisions

5.1 Stock Price Response

This section examines whether an analyst's credibility with investors is related to the degree of conflict faced. We interpret the reaction of stock prices to a recommendation revision as an indication of an analyst's credibility. Our analysis focuses on revisions in recommendation levels, rather than on recommendation levels per se, because revisions are discrete events that are likely to be salient for investors, and previous research finds that revisions have significant information content (see, for example, Womack 1996; Jegadeesh et al. 2004). To capture the effects of the most commonly observed and economically important types of revisions, we structure our tests around four basic categories: added to strong buy, added to buy or strong buy, dropped from strong buy, and dropped from buy or strong buy.[20] These four categories are defined to include initiations, resumptions, and discontinuations of coverage because such events also reflect analysts' positive or negative views about a company.[21] Thus, for example, we consider a stock to be added to strong buy under two scenarios: (*a*) the recommendation level is raised to strong buy from a lower level or (*b*) coverage is

[19] Notice that, for each explanatory variable, these derivatives sum to zero across all the net recommendation levels.

[20] Our analysis focuses on these four types of revisions instead of the other four (added to strong sell, and so forth) because, as shown in Table 1, sell and strong sell recommendations are quite rare. But note that dropped-from-buy and dropped-from-buy-or-strong-buy revisions can entail movement to the sell or strong sell category.

[21] We use the I/B/E/S Stopped Recommendations file to determine instances in which a brokerage firm discontinued coverage of a company. This file contains numerous cases in which an analyst stops coverage of a stock only to issue a new recommendation a month or two later. Conversations with I/B/E/S representatives indicate that such events likely represent pauses in coverage due to company quiet periods or analysts' reassignments within a brokerage house. We define a stopped coverage event to be a true stoppage only if the analyst does not issue a recommendation on the stock over the subsequent 6 months.

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initiated or resumed at the level of strong buy.[22] Defining revisions in this fashion yields a sample of 94,892 recommendation revisions made over the 1994–2003 period.

5.1.1. Average Response

We compute the abnormal return on an upgraded or downgraded stock over day t as the return (including dividends) on the stock minus the return on the Center for Research in Security Prices equal-weighted market portfolio of New York Stock Exchange (NYSE), American Stock Exchange, and NASDAQ stocks. The cumulative abnormal return (CAR) on the stock over days t_1 to t_2 relative to the revision date (day 0) is measured as the sum of the abnormal returns over those days. Table 5 shows mean and median CARs for three windows: days -1 to 0, -1 to 1, and -5 to 5. The t-statistics for the difference of the mean abnormal returns from zero are computed as in Brown and Warner (1985) and are shown in parentheses. The p-values for the Wilcoxon test are reported in parentheses with the medians.

It is clear from Table 5 that recommendation revisions have large effects on stock prices. For example, when a stock is added to the strong-buy list, it experiences a mean abnormal return of about 2 percent over the 2-day revision period. Downgrades have even larger effects on stock prices than do upgrades. Strikingly, the 2-day mean abnormal return around the dropped-from-strong-buy list is -4 percent. Median values are consistently smaller in magnitude than are means, and this finding indicates that some revisions lead to price reactions of a very large magnitude. Mean and median 2-day abnormal returns are statistically different from zero for all four groups of forecast revisions. The magnitudes of abnormal returns are somewhat larger over the 3-day and 11-day windows than over the 2-day window. Overall, these returns are consistent with those found by prior research that examines the average stock price impact of recommendation revisions (for example, Womack 1996; Jegadeesh et al. 2004).

5.1.2. Cross-Sectional Analysis

Table 6 contains cross-sectional regressions of stock price reactions to recommendation revisions over days -1 to 1. The main explanatory variables of interest in these regressions are our revenue-based measures of the magnitudes of IB and brokerage conflicts. We include controls for the size of an analyst's employer, the size of the company followed, and measures of an analyst's reputation, experience, and workload.[23] We estimate a separate regression for each

[22] Note that the definitions of our four recommendation revision groups imply that stocks can be added to a group more than once on a given day. Nonetheless, excluding days on which a stock experiences multiple revisions does not change any of our qualitative results.

[23] Prior research finds that analysts who have more experience, carry lower workloads, or are employed by larger firms tend to generate more precise research (see, for example, Clement 1999; Jacob, Lys, and Neale 1999; Mikhail, Walther, and Willis 1997). In addition, more reputed analysts tend to generate timelier and more accurate research (see, for example, Stickel 1992; Hong and Kubik 2003). We expect such analysts to be more influential with investors.

Table 5

Cumulative Abnormal Returns surrounding Revisions in Analyst Stock Recommendations

Recommendation Revision	Days −1 to 0 Mean (*t*-Statistic)	Days −1 to 0 Median (*p*-Value)	Days −1 to 0 *N*	Days −1 to 1 Mean (*t*-Statistic)	Days −1 to 1 Median (*p*-Value)	Days −1 to 1 *N*	Days −5 to 5 Mean (*t*-Statistic)	Days −5 to 5 Median (*p*-Value)	Days −5 to 5 *N*
Upgrades:									
Added to strong buy	.0207	.0109	24,560	.0240	.0130	24,556	.0263	.0187	24,499
	(49.53)*	(.000)		(46.89)*	(.000)		(26.84)*	(.000)	
Added to buy or strong buy	.0149	.0071	36,879	.0165	.0085	36,875	.0207	.0128	36,780
	(46.47)*	(.000)		(42.01)*	(.000)		(27.53)*	(.000)	
Downgrades:									
Dropped from buy or strong buy	−.0337	−.0126	33,322	−.0358	−.0155	33,262	−.0491	−.0287	33,197
	(−56.21)*	(.000)		(−48.75)*	(.000)		(−34.92)*	(.000)	
Dropped from strong buy	−.0399	−.0153	22,825	−.0427	−.0183	22,795	−.0570	−.0326	22,767
	(−49.88)*	(.000)		(−43.58)*	(.000)		(−30.38)*	(.000)	

Note. The sample of recommendation revisions is drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Recommendation revisions include recommendation changes and initiations, resumptions, and discontinuations in coverage. Day 0 is the revision date. Recommendation revisions are classified according to the level of any existing recommendation and whether coverage is being initiated or dropped. For example, a revision by an analyst is classified as added to strong buy if the new recommendation is strong buy and (*a*) the previous recommendation was lower than strong buy or (*b*) analyst coverage by the brokerage house is resumed or initiated. A recommendation is classified as dropped from strong buy if the previous recommendation was strong buy and (*a*) the new recommendation is lower than strong buy or (*b*) research coverage on the company is stopped. The *t*-statistics for the difference from zero are computed as in Brown and Warner (1985). The *p*-values for the difference from zero are from a Wilcoxon test.

*Statistically significant at the 1% level in two-tailed tests.

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Table 6

Cross-Sectional Regressions of Cumulative Abnormal Returns over Days −1 to +1 surrounding Recommendation Revisions

Explanatory Variable	Added to Strong Buy	Added to Buy or Strong Buy	Dropped from Buy or Strong Buy	Dropped from Strong Buy
Intercept	.0369	.0412	−.2294	−.2224
	(7.66)**	(11.21)**	(−31.31)**	(−29.25)**
Investment banking revenue (%)	−.0262	−.0139	−.0200	−.0354
	(−5.65)**	(−3.57)**	(−2.74)**	(−3.92)**
Brokerage commission revenue (%)	−.0187	−.0148	−.0089	−.0013
	(−6.51)**	(−6.43)**	(−2.39)*	(−.29)
Large brokerage house dummy	.0116	.0088	−.0242	−.0220
	(7.46)**	(6.88)**	(−12.79)**	(−10.25)**
Company size	−.0056	−.0041	−.0004	.0018
	(−16.13)**	(−15.40)**	(−.97)	(3.77)**
Institutional Investor All-America Research Team dummy	.0159	.0122	−.0148	−.0207
	(4.11)**	(3.82)**	(−2.93)**	(−3.28)**
Wall Street Journal All-Star Analyst dummy	.0015	.0013	−.0011	.0045
	(.81)	(.84)	(−.48)	(1.78)
Company-specific research experience	.0017	.0019	.0039	.0018
	(8.42)**	(12.49)**	(7.37)**	(3.21)**
Number of companies followed	−.0012	−.0016	.0007	.0008
	(−2.97)**	(−5.37)**	(1.49)	(1.31)
Observations	19,440	28,665	28,618	19,632
Adjusted R^2	.038	.0240	.028	.035
P-Value of *F*-test	<.0001	<.0001	<.0001	<.0001

Note. Shown are coefficient estimates and (in parentheses) *t*-statistics from ordinary least squares regressions. Day 0 is the recommendation revision date. Data on recommendations are drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Investment banking and brokerage commission revenue refer to the percentages of a brokerage firm's total revenues derived from investment banking and brokerage commissions. The large brokerage house dummy is an indicator variable that equals one if a brokerage house is in the top quartile of all houses, based on the number of analysts issuing stock recommendations listed in I/B/E/S in a given calendar year. Company size is the natural logarithm of the market capitalization of the company followed, measured 12 months prior to the end of the current month. The *Institutional Investor* All-America Research Team and *Wall Street Journal* All-Star Analyst dummies are indicator variables that equal one if the recommending analyst was listed as an All-America Research Team member or All-Star Analyst in the most recent analyst ranking. Company-specific research experience is the natural log of one plus the number of days that an analyst has been issuing I/B/E/S research on a company. Number of companies followed equals the natural log of one plus the number of companies followed by an analyst in the current calendar year. All regressions include dummy variables for calendar-year and two-digit I/B/E/S sector industry group industries (not reported). The *t*-statistics are based on a robust variance estimator.

* Statistically significant at the 5% level in two-tailed tests.

** Statistically significant at the 1% level in two-tailed tests.

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of the four groups of recommendation revisions. The *t*-statistics based on a robust variance estimator are reported in parentheses.

The coefficient on IB revenue percentage is statistically significantly negative for both upgrades and downgrades. The coefficient on brokerage commission revenue percentage is also negative in all four regressions; it is statistically significant in all cases, except for the dropped-from-strong-buy revisions.[24] Collectively, these results favor the rational discounting hypothesis over the naive investor hypothesis. The magnitudes of these effects are nontrivial. For instance, a 1-standard-deviation increase in IB revenue percentage leads to a change of about −.31 (−.42) percentage points in the 3-day abnormal return around the move to (from) a strong buy recommendation. Similarly, a 1-standard-deviation increase in brokerage commission revenue percentage leads to a change of about −.37 (−.22) percentage points in the corresponding abnormal return around the move to (from) a buy or strong buy recommendation.[25]

The results for control variables are also noteworthy. The dummy variable for a large analyst employer is positively (negatively) related to the market reaction to upgrades (downgrades). This finding is consistent with the idea that revisions by analysts employed at larger brokerage houses (which tend to be more reputable) have more credibility with investors. The size of the company followed is negatively (positively) related to the market reaction to upgrades (downgrades), which is consistent with the notion that, for larger companies, an analyst's recommendation competes with more alternative sources of information and advice.

Revisions by *II* All-America Research Team analysts are positively (negatively) related to the stock price reaction to upgrades (downgrades), which suggests that they wield more influence with investors. This is a notable finding; we are unaware of previous work documenting a relation between an analyst's reputation and the stock price reaction to both upgrades and downgrades. As the coefficient on the *WSJ* All-Star Analyst dummy indicates, however, being designated as a *WSJ* All-Star Analyst does not seem to enhance the credibility of an analyst's recommendations.[26] The absence of an effect here is somewhat

[24] These and all subsequent regression results in this article are qualitatively similar when we winsorize the dependent variable at the first and ninety-ninth percentiles of its distribution.

[25] For each group of revisions (such as added to strong buy), we also estimate the regression after excluding similar revision events that a stock experiences within 3 days of a given revision event. These results are qualitatively similar to those reported in Tables 6 and 8. We also examine the possibility that investors perceived the conflicts to be more severe, and hence discounted them more, in securities firms that were charged by regulators (that is, the 10 firms that were part of the global analyst settlement) than in other firms. We do this by interacting both investment banking (IB) revenue percentage and brokerage commission revenue percentage variables in the regression with binary (0, 1) dummy variables for securities firms that are part of the global analyst settlement and firms that are not. We find no significant differences between the two groups of firms in their coefficients on IB revenue percentage and commission revenue percentage.

[26] Although *II* All-America Research Team and *WSJ* All-Star Analyst dummies both measure aspects of an analyst's reputation, they are not highly correlated. The correlation coefficient is .14 across all upgrades and .13 across all downgrades.

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surprising given that the *WSJ* has a much broader readership base than that of *II*. One explanation is that *II* analyst rankings are based on an opinion poll of money managers, who control substantial assets and therefore directly affect stock prices, while *WSJ* rankings are based on strictly quantitative measures of analysts' past stock-picking or forecasting performance.

The market reaction to upgrades is positively related to an analyst's company-specific research experience. This finding suggests that more experienced analysts tend to be more influential with investors. But the reaction to downgrades is also positively related to analysts' experience. Finally, the stock price reaction to upgrades is negatively related to analysts' workload. This finding suggests that busier analysts' opinions tend to get discounted by the market. All of these relations are statistically significant.

5.2. Response of Trading Volume

In this section, we measure analysts' credibility via changes in the volume of trade around recommendation revisions.[27] Revisions of analysts' recommendations can affect trading volumes by inducing investors to rebalance their portfolios to reflect updated beliefs.

5.2.1. Average Response

We compute the abnormal volume for a trading day t as the mean-adjusted share turnover for stock i:[28]

$$e_{it} = v_{it} - v_i, \tag{1}$$

where v_{it} is the trading volume of stock i over day t divided by common shares outstanding on day t and v_i is the mean of v_{it} over days -35 to -6.

The cumulative abnormal volume (CAV) for stock i over days t_1 to t_2 is measured in the following way:

$$\mathrm{CAV}^i_{t_1,t_2} = \sum_{t=t_1}^{t_2} e_{it}. \tag{2}$$

Table 7 shows mean and median CAV values over three windows surrounding revisions in analyst stock recommendations. Over the 2-day revision period, the mean abnormal volume is positive for both upgrades and downgrades, but its magnitude is substantially larger for downgrades. The move to (from) the strong-buy list increases a stock's trading volume by a mean of about .9 percent (2.6 percent) of the outstanding shares, compared to a normal day's volume. For longer windows, the mean abnormal volumes are substantially higher for down-

[27] Many prior studies have used trading volume to examine investors' response to informational events (see, for example, Shleifer 1986; Jain 1988; Jarrell and Poulsen 1989; Meulbroek 1992; Sanders and Zdanowicz 1992).

[28] This approach has been used in a number of prior studies (for example, Shleifer 1986; Vijh 1994; Michaely and Vila 1996).

Table 7

Cumulative Abnormal Trading Volumes surrounding Announcements of Revisions in Stock Recommendations by Analysts

Recommendation revision	Days −1 to 0 Mean (*t*-Statistic)	Days −1 to 0 Median (*p*-Value)	Days −1 to 0 *N*	Days −1 to 1 Mean (*t*-Statistic)	Days −1 to 1 Median (*p*-Value)	Days −1 to 1 *N*	Days −5 to 5 Mean (*t*-Statistic)	Days −5 to 5 Median (*p*-Value)	Days −5 to 5 *N*
Upgrades:									
Added to strong buy	.0086	.0011		.0097	.0015		.0071	.0030	
	(8.89)*	(.000)	24,506	(8.18)*	(.000)	24,502	(3.13)*	(.000)	24,488
Added to buy or strong buy	.0053	.0002		.0058	.0004		.0020	.0008	
	(5.08)*	(.000)	36,800	(4.54)*	(.000)	36,796	(.818)	(.000)	36,766
Downgrades:									
Dropped from buy or strong buy	.0217	.0010		.0265	.0014		.0381	.0039	
	(114.47)*	(.000)	33,291	(114.14)*	(.000)	33,232	(85.70)*	(.000)	33,175
Dropped from strong buy	.0259	.0017		.0315	.0025		.0453	.0057	
	(128.76)*	(.000)	22,808	(127.86)*	(.000)	22,779	(96.03)*	(.000)	22,756

Note. The abnormal volume for stock i on day t is computed from daily Center for Research in Security Prices data as $\epsilon_{it} = v_{it} - v_i$, where v_{it} is the volume on day t and v_i is the average volume over days −35 to −6 relative to the recommendation revision date (day 0). All share volumes are normalized by dividing by common shares outstanding on the same day. The *p*-values are from a Wilcoxon test.

*Statistically significant at the 1% level in two-tailed tests.

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grades. The median values are lower than the mean values. Each mean and median abnormal volume is statistically greater than zero, with a p-value below .01. Clearly, revisions of stock recommendations by analysts generate trading.

5.2.2. Cross-Sectional Analysis

Table 8 presents cross-sectional regressions explaining CAVs over days −1 to 1 surrounding the recommendation revisions. The explanatory variables in the regressions are the same as in regressions of CARs in Section 5.1.2. The results provide strong support for the rational discounting hypothesis. The coefficients on both the IB revenue percentage and commission revenue percentage variables are generally statistically significant and negative (positive) for both groups of upgrades (downgrades). The magnitudes of these effects are nontrivial. For example, a 1-standard-deviation increase in IB revenue percentage leads to a change in the 3-day abnormal volume around the addition (omission) of a stock to (from) the strong-buy list of about −.12 percent (.36 percent) of the outstanding shares; a corresponding change in the commission revenue percentage results in a change in the abnormal volume of about −.15 percent (.22 percent).

Recommendation revisions by larger brokerage houses generate more trading. The abnormal volume is also larger for revisions involving smaller companies. Revisions by *II* All-America Research Team members generate statistically significantly more abnormal volume for the dropped from buy or strong-buy group. Upgrades (downgrades) by more experienced analysts result in larger (smaller) abnormal volumes, and upgrades by busier analysts are less credible.

6. Conflicts and the Performance of Recommendation Revisions

We next consider the investment performance of analysts' recommendation revisions over periods of up to 12 months. Here, the choice of the benchmark used to compute abnormal returns is somewhat more important than it is in Section 5.1, where we measure abnormal returns over a few days around the revision. But the results here are likely to be less sensitive to the benchmark employed than are those in studies of long-run stock performance, where the time period of interest can be as long as 5–10 years (see, for example, Agrawal, Jaffe, and Mandelker 1992; Agrawal and Jaffe 2003).

6.1. Average Performance

We use an approach similar to Barber, Lehavy, and Trueman (2007). To evaluate the performance of stocks over a given window, say, months 1–12 following the month of their inclusion (month 0) in a given group of revisions such as the added-to-strong-buy list, we form a portfolio p that initially invests $1 in each recommendation. Each recommended stock remains in the portfolio until month 12 or the month that the stock is either downgraded or dropped from coverage by the securities firm, whichever is earlier. If multiple securities firms recommend a stock in a given month, the stock appears multiple times in the

Table 8

Cross-Sectional Regressions of Cumulative Abnormal Trading Volumes over Days −1 to +1 surrounding Recommendation Revisions

Explanatory Variable	Added to Strong Buy	Added to Buy or Strong Buy	Dropped from Buy or Strong Buy	Dropped from Strong Buy
Intercept	.0083	.0042	.0946	.0828
	(2.65)**	(1.90)	(13.72)**	(15.01)**
Investment banking revenue (%)	−.0100	−.0085	.0140	.0304
	(−3.31)**	(−2.26)*	(2.18)*	(3.63)**
Brokerage commission revenue (%)	−.0057	−.0059	.0087	.0055
	(−1.76)	(−4.13)**	(2.76)**	(1.45)
Large brokerage house dummy	.0058	.0038	.0168	.0171
	(3.72)**	(4.50)**	(11.12)**	(9.48)**
Company size	−.0031	−.0018	−.0023	−.0041
	(−9.54)**	(−12.30)**	(−7.60)**	(−11.40)**
Institutional Investor All-America Research Team dummy	.0035	.0033	.0084	.0046
	(1.74)	(1.88)	(2.32)*	(1.21)
Wall Street Journal All-Star Analyst dummy	.0008	.0013	.0023	−.0006
	(.74)	(1.42)	(1.36)	(−.29)
Company-specific research experience	.0010	.0010	−.0041	−.0019
	(8.39)**	(11.19)**	(−6.18)**	(−4.11)**
Number of companies followed	−.0009	−.0013	−.0001	−.0005
	(−3.49)**	(−6.23)**	(−.38)	(−.99)
Observations	19,431	28,653	28,594	19,619
Adjusted R^2	.025	.019	.030	.042
p-Value of F-test	<.0001	<.0001	<.0001	<.0001

Note. Shown are coefficient estimates and (in parentheses) t-statistics from ordinary least squares regressions. Day 0 is the recommendation revision date. Data on recommendations are drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Investment banking and brokerage commission revenue refer to the percentage of brokerage firm's total revenues derived from investment banking and brokerage commissions. The large brokerage house dummy is an indicator variable that equals one if a brokerage house is in the top quartile of all houses, based on the number of analysts issuing stock recommendations listed in I/B/E/S in a given calendar year. Company size is the natural logarithm of the market capitalization of the company followed, measured 12 months prior to the end of the current month. The *Institutional Investor* All-America Research Team and *Wall Street Journal* All-Star Analyst dummies are indicator variables that equal one if the recommending analyst was listed as an All-America Research Team member or All-Star Analyst in the most recent analyst ranking. Company-specific research experience is the natural log of one plus the number of days that an analyst has been issuing I/B/E/S research on a company. Number of companies followed equals the natural log of one plus the number of companies followed by an analyst in the current calendar year. All regressions include dummy variables for calendar-year and two-digit I/B/E/S sector industry group industries (not reported). The t-statistics are based on a robust variance estimator.

* Statistically significant at the 5% level in two-tailed tests.

** Statistically significant at the 1% level in two-tailed tests.

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portfolio that month, once for each securities firm with a strong buy recommendation. The portfolio return for calendar month t is given by

$$R_{pt} = \sum_{i=1}^{n_t} x_{it} \times R_{it} \Big/ \sum_{i=1}^{n_t} x_{it}, \tag{3}$$

where R_{it} is the month t return on recommendation i, x_{it} is one plus the compound return on the recommendation from month 1 to month $t-1$ (that is, x_{it} equals one for a stock that was recommended in month t), and n_t is the number of recommendations in the portfolio. This calculation yields a time series of monthly returns for portfolio p.

We compute the abnormal performance of portfolio p as the estimate of the intercept term α_p from the Fama and French (1993) three-factor model. Accordingly, we estimate the following time-series regression for portfolio p:

$$R_{pt} - R_{ft} = \alpha_p + \beta_{1p}(R_{mt} - R_{ft}) + \beta_{2p}\text{SMB}_t + \beta_{3p}\text{HML}_t + \varepsilon_{pt},$$
$$t = \text{January 1994 to December 2003}, \tag{4}$$

where R_f is the risk-free rate, R_m is the return on the value-weighted market index, SMB equals the monthly return on a portfolio of small firms minus the return on a portfolio of big firms, and HML is the monthly return on a portfolio of firms with high book-to-market ratio minus the return on a portfolio of firms with low book-to-market ratio. The error term in the regression is denoted ε. The time series of monthly returns on $R_m - R_f$, SMB, and HML are obtained from Kenneth French's Web site.[29] We repeat this procedure for each time window of interest, such as months 1–3, and for each group of revisions, such as the dropped-from-strong-buy list.

Table 9 shows the performance of analysts' recommendation revisions. Over the period of 3 months following the month of recommendation revision, the average abnormal returns for upgrades are positive, and the returns for downgrades are negative. The magnitudes of these returns are nontrivial. For example, the addition of a stock to the strong-buy list has an abnormal monthly return of about .875 percent, or about 2.62 percent over the 3-month period. The pattern is generally similar over longer windows. For example, over months 1–12, the abnormal monthly return for the added-to-strong-buy list is .679 percent, or about 8.15 percent over the 12-month period. The abnormal returns are significantly different from zero for upgrades in all cases; they are statistically insignificant for downgrades in all cases except one.

[29] Kenneth R. French, Fama/French Factors (file F-F_Research_Data_Factors.zip at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

Table 9
Medium-Term Investment Performance of Recommendation Revisions

	Months 1–3		Months 1–6		Months 1–12	
Portfolio	Abnormal Monthly Return (%)	*t*-Statistic	Abnormal Monthly Return (%)	*t*-Statistic	Abnormal Monthly Return (%)	*t*-Statistic
Added to strong buy	.875	6.12**	.758	6.12**	.679	5.70**
Added to buy or strong buy	.586	4.49**	.511	4.82**	.503	5.38**
Dropped from buy or strong buy	−.361	−1.60	−.260	−1.28	−.072	−.44
Dropped from strong buy	−.367	−1.58	−.395	−2.00*	−.231	−1.49

Note. Abnormal returns are reported for three event windows relative to the month of revision (month 0) and are computed using an approach similar to that in Barber, Lehavy, and Trueman (2007). The abnormal return is the estimated intercept from a time-series regression of 114 monthly portfolio returns using the Fama and French (1993) three-factor model.
* Statistically significant at the 5% level in two-tailed tests.
** Statistically significant at the 1% level in two-tailed tests.

6.2. Cross-Sectional Analysis

Table 10 shows the results of a regression similar to that in Section 5.1.2, except that the dependent variable here is the average monthly abnormal return for a firm over months 1–12 following the month of a recommendation revision. We compute this abnormal return by estimating a time-series regression similar to that in equation (4) over months 1–12 for each stock in a sample of recommendation revisions. The intercept from this regression is our estimate of the performance of the recommendation revision. Observations involving recommendation revisions on a stock that occur within 12 months of an earlier revision are omitted from each regression.[30]

In each regression result reported in Table 10, the coefficients of IB revenue percentage and commission revenue percentage are not statistically significantly different from zero. These results favor the rational discounting hypothesis, at least for the marginal investor. The performance of both groups of recommendation upgrades is negatively related to company size; the performance of one group of downgrades is positively related to the dummy variable for *WSJ* All-Star Analysts. None of the other variables is statistically significant.

7. Bubble versus Postbubble Periods

We next exploit the fact that our sample spans both the late-1990s U.S. stock bubble and a postbubble period. During the bubble period, initial public offerings, merger activities, and stock prices were near record highs, and media attention was focused on analysts' pronouncements. We therefore examine whether analysts' behavior and investors' responses to analysts' recommendations differed during the bubble and postbubble periods. Given the euphoria on Wall

[30] The results are qualitatively similar when we include these observations.

Table 10

Cross-Sectional Regressions of Average Monthly Abnormal Returns following Recommendation Revisions over Months 1–12

Explanatory Variable	Added to Strong Buy	Added to Buy or Strong Buy	Dropped from Buy or Strong Buy	Dropped from Strong Buy
Intercept	.0523	.0089	−.0646	−.0821
	(1.81)	(.49)	(−6.81)**	(−6.55)**
Investment banking revenue (%)	−.0089	−.0018	.0042	−.0068
	(−1.23)	(−.29)	(.64)	(−.87)
Brokerage commission revenue (%)	.0064	.0059	.0057	.0031
	(1.32)	(1.54)	(1.21)	(.75)
Large brokerage house dummy	.0009	−.0027	.0016	.0015
	(.38)	(−1.32)	(.72)	(.77)
Company size	−.0013	−.0017	−.0007	−.0007
	(−2.74)**	(−4.18)**	(−1.71)	(−1.54)
Institutional Investor All-America analyst dummy	−.0029	.0001	−.0016	−.0009
	(−.58)	(.01)	(−.44)	(−.23)
Wall Street Journal All-Star Analyst dummy	.0031	.0002	−.0029	.0056
	(1.24)	(.12)	(−1.42)	(2.29)*
Company-specific research experience	.0004	.0004	.0004	.0004
	(1.08)	(1.80)	(.76)	(.92)
Number of companies followed	−.0011	−.0008	−.0002	−.0002
	(−1.61)	(−1.79)	(−.45)	(−.47)
Observations	6,411	8,851	10,644	8,368
Adjusted R^2	.026	.023	.019	.020
p-Value of F-test	<.0001	<.0001	<.0001	<.0001

Note. Shown are the coefficient estimates and (in parentheses) t-statistics from ordinary least squares regressions. Month 0 is the month of recommendation revision. The abnormal return is the estimated intercept from a time-series regression of monthly portfolio returns in accordance with the Fama and French (1993) three-factor model. Data on recommendations are drawn from the Institutional Brokers Estimate System (I/B/E/S) U.S. Detail Recommendations History file for 1994–2003. Investment banking and brokerage commission revenue data refer to the percentage of the brokerage firm's total revenues derived from investment banking and brokerage commissions. The large brokerage house dummy is an indicator variable that equals one if a brokerage house is in the top quartile of all houses, based on the number of analysts issuing stock recommendations on I/B/E/S in a given calendar year. Company size is the natural logarithm of the market capitalization of the company followed, measured 12 months prior to the end of the current month. The *Institutional Investor* All-America Research Team and *Wall Street Journal* All-Star Analyst dummies are indicator variables that equal one if the recommending analyst was listed as an All-America Research Team member or All-Star Analyst in the most recent analyst ranking. Company-specific research experience is the natural log of one plus the number of days that an analyst has been issuing I/B/E/S research on a company. Number of companies followed equals the natural log of one plus the number of companies followed by an analyst in the current calendar year. All regressions include dummy variables for calendar-year and two-digit I/B/E/S sector industry group industries (not reported). The t-statistics are based on a robust variance estimator.

* Statistically significant at the 5% level in two-tailed tests.

** Statistically significant at the 1% level in two-tailed tests.

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Table 11
Ordered Probit Regression of Recommendation Levels Net of the Consensus for Bubble versus Postbubble Periods

	Bubble	Postbubble	p-Value
Investment banking revenue (%)	.5103*	.3089*	<.001
Brokerage revenue (%)	−.1868*	.2286*	<.001

Note. The explanatory variables are as in Table 3, except that (*a*) the investment banking revenue and brokerage commission revenue percentage variables are interacted with dummy variables for the bubble or postbubble period and (*b*) calendar-quarter dummies are replaced with a postregulation indicator (which is equal to one for quarters after May 2002). Shown are the coefficient estimates of investment banking and brokerage revenue percentage variables for the bubble and postbubble periods and the p-value for the difference in the coefficient estimate between the two periods. All test statistics use robust variance estimators.
* Statistically significant at the 1% level in two-tailed tests.

Street and among investors during the bubble, analysts appear to have been under acute pressure to generate IB fees and brokerage commissions. As for the response of investors, the rational discounting hypothesis predicts greater discounting of analysts' opinions during this period in response to heightened conflicts, while the naive investor hypothesis predicts less discounting.

We estimate regressions similar to those for relative recommendation levels (Table 3), those for announcement abnormal returns (Table 6), those for announcement abnormal volumes (Table 8), and those for 12-month investment performance of recommendation revisions (Table 10), except that we now interact IB revenue percentage and commission revenue percentage with dummy variables for the bubble (January 1996–March 2000) and postbubble (April 2000–December 2003) periods. Accordingly, we restrict the sample period for these regressions to January 1996–December 2003. For regressions corresponding to those with results shown in Table 3, we also replace the calendar-quarter dummies with a postregulation indicator (equal to one for quarters ending after May 2002). In May 2002, both the NYSE and the National Association of Securities Dealers considerably tightened the regulations on the production and dissemination of sell-side analyst research.[31] The findings of Barber et al. (2006) and Kadan et al. (forthcoming) suggest that these regulations exerted a downward pressure on recommendation levels. The regression results are presented in Tables 11 and 12. To save space, we report only the coefficient estimates for IB revenue percentage and commission revenue percentage.

The results in Table 11 show that analysts appear to have inflated their recommendations in response to IB conflicts during both the bubble and postbubble periods. But the magnitude of this effect is substantially greater during the bubble period than during the postbubble period. This difference is statistically significant. The magnitude of the effect is smaller for brokerage conflicts than for IB conflicts during both periods. In fact, the effect for brokerage conflicts is negative

[31] See NYSE Amended Rule 472, "Communications with the Public," and National Association of Securities Dealers Rule 2711, "Research Analysts and Research Reports."

Table 12

Ordinary Least Squares Regressions of Abnormal Returns, Abnormal Volumes, and Abnormal Stock Performance for Bubble and Postbubble Periods

	Added to Strong Buy			Added to Buy or Strong Buy			Dropped from Buy or Strong Buy			Dropped from Strong Buy		
	Bubble	Postbubble	p-Value	Bubble	Postbubble	p-Value	Bubble	Postbubble	p-Value	Bubble	Postbubble	p-Value
CARs, days −1 to 1:												
Investment banking revenue (%)	−.0248**	−.0120	.083	−.0121**	−.0080	.517	−.0125	−.0379**	.027	−.0361**	−.0345**	.908
Brokerage revenue (%)	−.0114**	−.0105**	.827	−.0099**	−.0110**	.720	−.0063	−.0208**	.003	.0017	−.0114*	.024
CAVs, days −1 to 1:												
Investment banking revenue (%)	−.0076	−.0052	.655	−.0065	−.0082*	.699	.0257**	.0130	.214	.0555**	.0153	.002
Brokerage revenue (%)	−.0042	−.0008	.376	−.0054**	−.0031	.179	.0106*	.0139**	.521	.0046	.0141**	.056
Average monthly CARs, months 1–12:												
Investment banking revenue (%)	−.0016	−.0151	.273	.00001	.0083	.420	−.0085	.0223**	.003	−.0123	−.0051	.564
Brokerage revenue (%)	.0069	.0108	.511	.0086	.0096	.842	.0035	.0136	.101	−.0036	.0091	.019

Note. The explanatory variables are as in Tables 6, 8, and 10, except that the investment banking revenue and brokerage commission revenue percentage variables are interacted with dummy variables for the bubble or postbubble period. Shown are the coefficient estimates of the investment banking and brokerage revenue percentage variables for the bubble and postbubble periods and the p-value for the difference in the coefficient estimate between the two periods. Day (month) 0 is the recommendation revision date. All test statistics use robust variance estimators. CAR = cumulative abnormal return; CAV = cumulative abnormal volume.

*Statistically significant at the 5% level in two-tailed tests.

**Statistically significant at the 1% level in two-tailed tests.

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during the bubble; it is positive and statistically significantly higher during the postbubble period.

Table 12 shows that, in regressions of 3-day abnormal returns, the coefficients of both IB revenue percentage and commission revenue percentage are negative and statistically significant during the bubble period for both groups of upgrades. For the added-to-strong-buy group, the coefficient of IB revenue percentage is significantly lower during the bubble period than during the postbubble period. For downgrades, the coefficients of both variables are generally negative in both periods, and they are statistically significantly lower during the postbubble period.

In regressions of 3-day abnormal volumes, the coefficients of IB revenue percentage and commission revenue percentage are negative for upgrades and positive for downgrades in all cases, both during and after the bubble. These coefficients are not statistically significantly different between the bubble and postbubble periods for both groups of upgrades and one group of downgrades. For the dropped-from-strong-buy group, the coefficient of IB revenue percentage is statistically significantly larger during the bubble period than during the postbubble period, but the coefficient of the commission revenue percentage is statistically significantly smaller. In regressions of 12-month postrecommendation stock performance, the coefficients of both variables are statistically insignificant both during and after the bubble period in nearly all cases, and this finding is consistent with the results shown in Table 10 for the full sample period.

Overall, analysts appear to respond to IB conflicts both during and after the bubble, but the magnitude of their response declines during the postbubble period. Perversely, while analysts do not seem to respond to brokerage conflicts during the bubble, they appear to do so after the bubble. Perhaps the intense regulatory and media focus on IB conflicts has led analysts to look for alternative avenues. Did investors discount conflicted analysts' opinions more during the bubble than in the postbubble period? The answer to this question is unclear. However, our evidence does not support the notion that investors threw caution to the wind during the bubble.

8. Summary and Conclusions

Following the collapse of the late-1990s U.S. stock market bubble, there has been a widespread hue and cry from investors and regulators over the conflicts of interest faced by Wall Street stock analysts. The discovery of e-mail messages, in which analysts were privately disparaging stocks that they were touting publicly, led to the landmark $1.4 billion settlement between a number of leading Wall Street firms and securities regulators in April 2003. The settlement requires the firms to disclose IB conflicts in analyst reports and imposes a variety of restrictions designed to strengthen the firewalls that separate research from IB. Part of the settlement funds are set aside for investor education and for research produced by independent firms. The settlement basically presumes that analysts

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respond to the conflicts by inflating their stock recommendations and that investors take analysts' recommendations at face value.

Consistent with the view of the media and regulators, we find that optimism in stock recommendations is positively related to the importance of both IB and brokerage businesses to an analyst's employer. This pattern is more pronounced during the late-1990s stock market bubble with respect to IB conflicts. However, we provide several pieces of empirical evidence that suggest that investors are sophisticated enough to adjust for this bias. First, the short-term reactions of both stock prices and trading volumes to recommendation upgrades vary negatively with the magnitude of potential IB or brokerage conflicts faced by analysts. For instance, over the 3 days surrounding an upgrade to strong buy, a 1-standard-deviation increase in the proportion of revenue from IB is associated with a .31 percentage point decrease in abnormal returns and a .12 percentage point decrease in abnormal volume. These results suggest that investors ascribe lower credibility to an analyst's upgrade when the analyst is subject to greater pressures to issue an optimistic view. For downgrades, conflict severity varies negatively with the short-term stock price reaction and positively with the short-term trading volume impact. This pattern is consistent with the idea that investors perceive an analyst to be more credible if he or she is willing to voice an unfavorable opinion on a stock despite greater pressures to be optimistic.

Second, we find no evidence that the 1-year investment performance of recommendation revisions is related to the magnitude of analysts' conflicts, either for upgrades or for downgrades. This finding suggests that, on average, investors properly discount an analyst's opinions for potential conflicts at the time the opinion is issued. Finally, investors discounted conflicted analysts' opinions during the late-1990s stock bubble, even in the face of the prevailing market euphoria. This evidence does not support the popular view that recommendations of sell-side analysts led investors to throw caution to the wind during the bubble period.

Overall, our empirical findings suggest that while analysts do respond to IB and brokerage conflicts by inflating their stock recommendations, the market discounts these recommendations after taking analysts' conflicts into account. These findings are reminiscent of the story of the nail soup told by Brealey and Myers (1991), except that here analysts (rather than accountants) are the ones who put the nail in the soup and investors (rather than analysts) are the ones to take it out. Our finding that the market is not fooled by biases stemming from conflicts of interest echoes similar findings in the literature on conflicts of interest in universal banking (for example, Kroszner and Rajan 1994, 1997; Gompers and Lerner 1999) and on bias in the financial media (for example, Bhattacharya et al., forthcoming; Reuter and Zitzewitz 2006). Finally, while we cannot rule out the possibility that some investors may have been naive, our findings do not support the notion that the marginal investor was systematically misled over the last decade by analysts' recommendations.

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Appendix

This Appendix describes the characteristics of disclosing and nondisclosing private securities firms, sheds some light on their decisions to publicly disclose their income statements, and examines whether the resulting selection bias affects our main results in Table 3. Table A1 provides summary statistics of recommendation levels and characteristics of disclosing and nondisclosing private securities firms. Compared with nondisclosing firms, disclosing firms tend to be smaller and more liquid and issue somewhat more optimistic stock recommendations. The mean recommendation level is slightly higher for disclosing firms than for nondisclosing firms. The median disclosing firm is smaller and holds more liquid assets than the median nondisclosing firm. All these differences are statistically significant. The two groups of firms have similar financial leverage ratios and 2-year growth rates in total assets.

We next examine cross-sectional determinants of a private securities firm's decision to disclose its income statement. In an excellent review of the corporate disclosure literature, Healy and Palepu (2001) point out that a firm is more willing to voluntarily disclose financial information when it needs to raise external financing and when it is less concerned that the disclosure would damage its competitive position in product markets. Ceteris paribus, firms with greater growth opportunities, higher financial leverage, and less liquid resources are more likely to need external financing. They are more likely to be open with potential investors by disclosing financial information, including their income statements. Similarly, smaller firms are likely to have greater need for external financing as they try to grow. In addition, given the intense competition in the securities business, smaller private firms are also likely to be more willing to disclose their profits and profitability because they have less business at stake. For both reasons, smaller firms are likely to be more willing to disclose financial information. We control for firm size by the natural logarithm of one plus total assets in millions of dollars, for growth opportunities by the 2-year growth rate of total assets, for financial leverage by the ratio of long-term debt to total assets, and for liquidity by the ratio of cash and equivalents to total assets. We estimate a probit regression of DISCLOSER, which equals one for a disclosing firm and is zero otherwise.

In accordance with the predictions of corporate disclosure theory, the coefficients on firm size and liquidity are negative, and the coefficient on growth is positive. Contrary to the prediction, however, the coefficient on leverage is negative. All of these coefficients are highly statistically significant. The pseudo-R^2-value of this model is .08. To save space, these results are not shown in a table.

Finally, we examine whether the selection bias caused by a private securities firm's disclosure choice (and, consequently, the availability of data on IB revenue percentage and commission revenue percentage) affects our main results in Table 3. While there is no Heckman selectivity correction for the ordered probit model, there is one for the regular probit model. So we define a binary variable to

Table A1

Summary Statistics for Disclosing and Nondisclosing Private Securities Firms

Variable	Mean			Median			Sample Size	
	Disclosers	Nondisclosers	*P*-Value of *t*-Test	Disclosers	Nondisclosers	*p*-Value of Rank Sum Test	Disclosers	Nondisclosers
Recommendation level:								
Level	3.902	3.810	<.001	4	4	<.001	62,417	181,068
Level minus median level	.036	.010	<.001	0	0	<.001	62,417	181,068
Firm size:								
Total assets ($ millions)	383.37	1,863.52	<.001	4.05	28.43	<.001	365	615
Book equity ($ millions)	26.40	68.98	<.001	1.97	10.56	<.001	365	615
Financial leverage:								
Long-term debt to total assets	.0539	.0653	.253	0	.002	.004	365	615
Total debt to total assets	.0685	.1823	.295	0	.018	<.001	365	615
Liquidity: cash and equivalents to total assets	.2392	.1816	.001	.101	.052	.0001	365	615
2-Year growth rate	.0849	.0697	.440	.052	.020	.099	246	541

Note. Disclosers are brokers that publicly disclose their income statements, while nondisclosers are brokers that do not disclose them. The statistics for recommendation level are computed from individual analysts' recommendation levels at the end of each quarter in the sample. The median recommendation level is computed at the end of each quarter and is based on all analysts recommending a stock. The statistics for broker characteristics are computed across broker years. The firm size statistics are inflation adjusted (with Consumer Price Index numbers and with 2003 as the base year). The 2-year growth rate is $(\text{Total assets}_t / \text{Total assets}_{t-2})^{1/2} - 1$.

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measure an optimistic recommendation that equals one if an analyst's recommendation level on a stock exceeds the consensus level and equals zero otherwise. We then replace the dependent variable in the regression in Section 4 with this optimistic recommendation dummy. Using the subsample of private securities firms, we estimate the resulting equation in two ways: (*a*) with a regular probit model and (*b*) with a Heckman selectivity-corrected probit model, where we use the equation described in the second paragraph of this Appendix as the selection equation. When we use approach *b*, the coefficient of the selection term (that is, the inverse Mills ratio) is statistically significant in the second-stage probit regression. What is more important for our purposes is that the sign, magnitude, and statistical significance of our main explanatory variables, the IB revenue percentage and the commission revenue percentage, are similar in the regular probit and the Heckman-corrected probit regressions. These results do not support the idea that our main findings are driven by the selection bias caused by a private securities firm's decision to disclose its revenue breakdown. To save space, these results are not shown in a table.

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Chapter 5

The Equity Risk Premium

The expected equity risk premium can be defined as the additional return an investor expects to receive to compensate for the additional risk associated with investing in equities as opposed to investing in riskless assets. It is an essential component in several cost of equity estimation models, including the buildup method, the capital asset pricing model (CAPM), and the Fama-French three factor model. It is important to note that the expected equity risk premium, as it is used in discount rates and cost of capital analysis, is a forward-looking concept. That is, the equity risk premium that is used in the discount rate should be reflective of what investors think the risk premium will be going forward.

Unfortunately, the expected equity risk premium is unobservable in the market and therefore must be estimated. Typically, this estimation is arrived at through the use of historical data. The historical equity risk premium can be calculated by subtracting the long-term average of the income return on the riskless asset (Treasuries) from the long-term average stock market return (measured over the same period as that of the riskless asset). In using a historical measure of the equity risk premium, one assumes that what has happened in the past is representative of what might be expected in the future. In other words, the assumption one makes when using historical data to measure the expected equity risk premium is that the relationship between the returns of the risky asset (equities) and the riskless asset (Treasuries) is stable. The stability of this relationship will be examined later in this chapter.

Since the expected equity risk premium must be estimated, there is much controversy regarding how the estimation should be conducted. A variety of different approaches to calculating the equity risk premium have been utilized over the years. Such studies can be categorized into four groups based on the approaches they have taken. The first group of studies tries to derive the equity risk premium from historical returns between stocks and bonds as was mentioned above. The second group, embracing a supply side model, uses fundamental information such as earnings, dividends, or overall economic productivity to measure the expected equity risk premium. A third group adopts demand side models that derive the expected returns of equities through the payoff demanded by investors for bearing the risk of equity investments.[1] The opinions of financial professionals through broad surveys are relied upon by the fourth and final group.

The range of equity risk premium estimates used in practice is surprisingly large. Using a low equity risk premium estimate as opposed to a high estimate can have a significant impact on the estimated value of a stream of cash flows. This chapter addresses many of the controversies surrounding estimation of the equity risk premium and focuses primarily on the historical calculation but also discusses the supply side model.

Calculating the Historical Equity Risk Premium

In measuring the historical equity risk premium one must make a number of decisions that can impact the resulting figure; some decisions have a greater impact than others. These decisions include selecting the stock market benchmark, the risk-free asset, either an arithmetic or a geometric average, and the time period for measurement. Each of these factors has an impact on the resulting equity risk premium estimate.

The Stock Market Benchmark

The stock market benchmark chosen should be a broad index that reflects the behavior of the market as a whole. Two examples of commonly used indexes are the S&P 500® and the New York Stock Exchange Composite Index. Although the Dow Jones Industrial Average is a popular index, it would be inappropriate for calculating the equity risk premium because it is too narrow.

We use the total return of our large company stock index (currently represented by the S&P 500) as our market benchmark when calculating the equity risk premium. The S&P 500 was selected as the appropriate market benchmark because it is representative of a large sample of companies across a large number of industries. As of December 31, 1993, 88 separate industry groups were included in the index, and the industry composition of the index has not changed since. The S&P 500 is also one of

the most widely accepted market benchmarks. In short, the S&P 500 is a good measure of the equity market as a whole. Table 5-1 illustrates the equity risk premium calculation using several different market indices and the income return on three government bonds of different horizons.

Table 5-1: Equity Risk Premium with Different Market Indices

	Equity Risk Premia		
	Long-Horizon (%)	Intermediate-Horizon (%)	Short-Horizon (%)
S&P 500	6.72	7.22	8.22
Total Value-Weighted NYSE	6.52	7.03	8.02
NYSE Deciles 1–2	5.99	6.50	7.49

Data from 1926–2010.

The equity risk premium is calculated by subtracting the arithmetic mean of the government bond income return from the arithmetic mean of the stock market total return. Table 5-2 demonstrates this calculation for the long-horizon equity risk premium.

Table 5-2: Long-Horizon Equity Risk Premium Calculation

	Arithmetic Mean				
Long-Horizon	Market Total Return (%)		Risk-Free Rate (%)		Equity Risk Premium (%)
S&P 500	11.88	–	5.17	=	6.72*
Total Value-Weighted NYSE	11.69	–	5.17	=	6.52
NYSE Deciles 1–2	11.15	–	5.17	=	5.99*

Data from 1926–2010. *difference due to rounding.

Data for the New York Stock Exchange is obtained from Morningstar and the Center for Research in Security Prices (CRSP) at the University of Chicago's Graduate School of Business. The "Total" series is a capitalization-weighted index and includes all stocks traded on the New York Stock Exchange except closed-end mutual funds, real estate investment trusts, foreign stocks, and Americus Trusts. Capitalization-weighted means that the weight of each stock in the index, for a given month, is proportionate to its market capitalization (price times number of shares outstanding) at the beginning of that month. The "Decile 1–2" series includes all stocks with capitalizations that rank within the upper 20 percent of companies traded on the New York Stock Exchange, and it is therefore a large-capitalization index. For more information on the Center for Research in Security Pricing data methodology, see Chapter 7.

The resulting equity risk premia vary somewhat depending on the market index chosen. It is expected that using the "Total" series will result in a higher equity risk premium than using the "Decile 1–2" series, since the "Decile 1–2" series is a large-capitalization series. As of September 30, 2010, deciles 1–2 of the New York Stock Exchange contained the largest 274 companies traded on the exchange. The "Total" series includes smaller companies that have had historically higher returns, resulting in a higher equity risk premium.

The higher equity risk premium arrived at by using the S&P 500 as a market benchmark is more difficult to explain. One possible explanation is that the S&P 500 is not restricted to the largest 500 companies; other considerations such as industry composition are taken into account when determining if a company should be included in the index. Some smaller stocks are thus included, which may result in the higher equity risk premium of the index. Another possible explanation would be what is termed the "S&P inclusion effect." It is thought that simply being included among the stocks listed on the S&P 500 augments a company's returns. This is due to the large quantity of institutional funds that flow into companies that are listed in the index.

Comparing the S&P 500 total returns to those of another large-capitalization stock index may help evaluate the potential impact of the "S&P inclusion effect." Prior to March 1957, the S&P index that is used throughout this publication consisted of 90 of the largest stocks. The index composition was then changed to include 500 large-capitalization stocks that, as stated earlier, are not necessarily the 500 largest. Deciles 1–2 of the NYSE contained just over 200 of the largest companies, ranked by market capitalization, in March of 1957. The number of companies included in the deciles of the NYSE fluctuates from quarter to quarter, and by September of 2010, deciles 1–2 contained 274 companies. Though one cannot draw a causal relationship between the change in construction and the correlation of these two indices, this analysis does indicate that the "S&P inclusion effect" does not appear to be very significant in recent periods.

Another possible explanation could be differences in how survivorship is treated when calculating returns. The Center for Research in Security Prices includes the return for a company in the average decile return for the period following the company's removal from the decile,

whether caused by a shift to a different decile portfolio, bankruptcy, or other such reason. On the other hand, the S&P 500 does not make this adjustment. Once a company is no longer included among the S&P 500, its return is dropped from the index. However, this effect may be lessened by the advance announcement of companies being dropped from or added to the S&P 500. In many instances throughout this publication we will present equity risk premia using both the S&P 500 and the NYSE "Deciles 1–2" portfolio to provide a comparison between these large-capitalization benchmarks.

The Market Benchmark and Firm Size

Although not restricted to include only the 500 largest companies, the S&P 500 is considered a large company index. The returns of the S&P 500 are capitalization weighted, which means that the weight of each stock in the index, for a given month, is proportionate to its market capitalization (price times number of shares outstanding) at the beginning of that month. The larger companies in the index therefore receive the majority of the weight. The use of the NYSE "Deciles 1–2" series results in an even purer large company index. Yet many valuation professionals are faced with valuing small companies, which historically have had different risk and return characteristics than large companies. If using a large stock index to calculate the equity risk premium, an adjustment is usually needed to account for the different risk and return characteristics of small stocks. This will be discussed further in Chapter 7 on the size premium.

The Risk-Free Asset

The equity risk premium can be calculated for a variety of time horizons when given the choice of risk-free asset to be used in the calculation. The *2011 Ibbotson® Stocks, Bonds, Bills, and Inflation® Classic Yearbook* provides equity risk premia calculations for short-, intermediate-, and long-term horizons. The short-, intermediate-, and long-horizon equity risk premia are calculated using the income return from a 30-day Treasury bill, a 5-year Treasury bond, and a 20-year Treasury bond, respectively.

Although the equity risk premia of several horizons are available, the long-horizon equity risk premium is preferable for use in most business-valuation settings, even if an investor has a shorter time horizon. Companies are entities that generally have no defined life span; when determining a company's value, it is important to use a long-term discount rate because the life of the company is assumed to be infinite. For this reason, it is appropriate in most cases to use the long-horizon equity risk premium for business valuation.

20-Year versus 30-Year Treasuries

Our methodology for estimating the long-horizon equity risk premium makes use of the income return on a 20-year Treasury bond; however, the Treasury currently does not issue a 20-year bond. The 30-year bond that the Treasury recently began issuing again is theoretically more correct due to the long-term nature of business valuation, yet Ibbotson Associates instead creates a series of returns using bonds on the market with approximately 20 years to maturity. The reason for the use of a 20-year maturity bond is that 30-year Treasury securities have only been issued over the relatively recent past, starting in February of 1977, and were not issued at all through the early 2000s.

The same reason exists for why we do not use the 10-year Treasury bond—a long history of market data is not available for 10-year bonds. We have persisted in using a 20-year bond to keep the basis of the time series consistent.

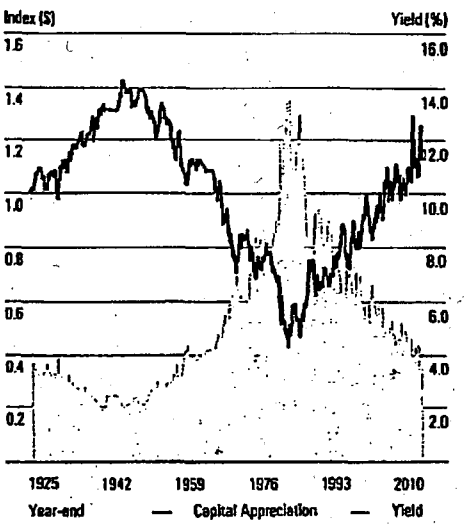
Income Return

Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return. The income return is defined as the portion of the total return that results from a periodic cash flow or, in this case, the bond coupon payment. The capital appreciation return results from the price change of a bond over a specific period. Bond prices generally change in reaction to unexpected fluctuations in yields. Reinvestment return is the return on a given month's investment income when reinvested into the same asset class in the subsequent months of the year. The income return is thus used in the estimation of the equity risk premium because it represents the truly riskless portion of the return.[2]

Yields have generally risen on the long-term bond over the 1926–2010 period, so it has experienced negative capital appreciation over much of this time. This trend has turned around since the 1980s, however. Graph 5-1 illustrates the yields on the long-term government bond series

compared to an index of the long-term government bond capital appreciation. In general, as yields rose, the capital appreciation index fell, and vice versa. Had an investor held the long-term bond to maturity, he would have realized the yield on the bond as the total return. However, in a constant maturity portfolio, such as those used to measure bond returns in this publication, bonds are sold before maturity (at a capital loss if the market yield has risen since the time of purchase). This negative return is associated with the risk of unanticipated yield changes.

Graph 5-1: Long-term Government Bond Yields versus Capital Appreciation Index



Data from 1925–2010.

For example, if bond yields rise unexpectedly, investors can receive a higher coupon payment from a newly issued bond than from the purchase of an outstanding bond with the former lower-coupon payment. The outstanding lower-coupon bond will thus fail to attract buyers, and its price will decrease, causing its yield to increase correspondingly, as its coupon payment remains the same. The newly priced outstanding bond will subsequently attract purchasers who will benefit from the shift in price and yield; however, those investors who already held the bond will suffer a capital loss due to the fall in price.

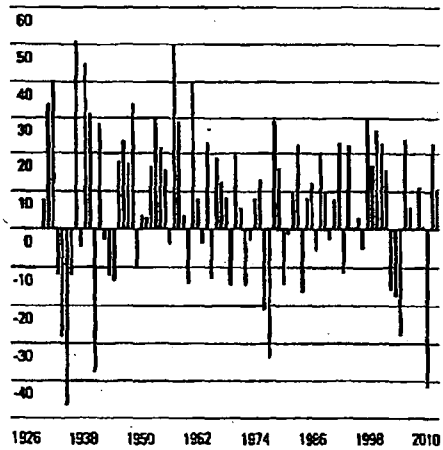
Anticipated changes in yields are assessed by the market and figured into the price of a bond. Future changes in yields that are not anticipated will cause the price of the bond to adjust accordingly. Price changes in bonds due to unanticipated changes in yields introduce price risk into the total return. Therefore, the total return on the bond series does not represent the riskless rate of return. The income return better represents the unbiased estimate of the purely riskless rate of return, since an investor can hold a bond to maturity and be entitled to the income return with no capital loss.

Arithmetic versus Geometric Means

The equity risk premium data presented in this book are arithmetic average risk premia as opposed to geometric average risk premia. The arithmetic average equity risk premium can be demonstrated to be most appropriate when discounting future cash flows. For use as the expected equity risk premium in either the CAPM or the building block approach, the arithmetic mean or the simple difference of the arithmetic means of stock market returns and riskless rates is the relevant number. This is because both the CAPM and the building block approach are additive models, in which the cost of capital is the sum of its parts. The geometric average is more appropriate for reporting past performance, since it represents the compound average return.

The argument for using the arithmetic average is quite straightforward. In looking at projected cash flows, the equity risk premium that should be employed is the equity risk premium that is expected to actually be incurred over the future time periods. Graph 5-2 shows the realized equity risk premium for each year based on the returns of the S&P 500 and the income return on long-term government bonds. (The actual, observed difference between the return on the stock market and the riskless rate is known as the realized equity risk premium.) There is considerable volatility in the year-by-year statistics. At times the realized equity risk premium is even negative.

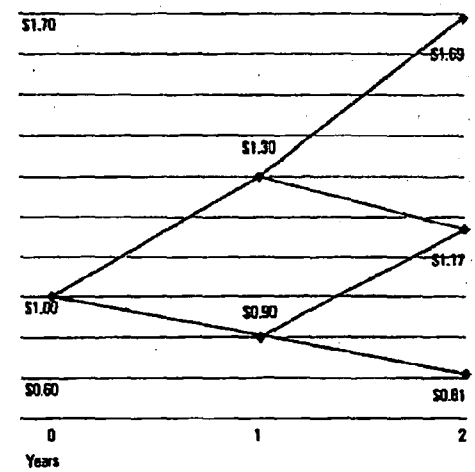
Graph 5-2: Realized Equity Risk Premium Per Year



Data from 1926–2010.

To illustrate how the arithmetic mean is more appropriate than the geometric mean in discounting cash flows, suppose the expected return on a stock is 10 percent per year with a standard deviation of 20 percent. Also assume that only two outcomes are possible each year: +30 percent and −10 percent (i.e., the mean plus or minus one standard deviation). The probability of occurrence for each outcome is equal. The growth of wealth over a two-year period is illustrated in Graph 5-3.

Graph 5-3: Growth of Wealth Example



The most common outcome of $1.17 is given by the geometric mean of 8.2 percent. Compounding the possible outcomes as follows derives the geometric mean:

$$\left[(1+0.30)\times(1-0.10)\right]^{1/2}-1=0.082$$

However, the expected value is predicted by compounding the arithmetic, not the geometric, mean. To illustrate this, we need to look at the probability-weighted average of all possible outcomes:

(0.25 × $1.69) =	$0.4225
+ (0.50 × $1.17) =	$0.5850
+ (0.25 × $0.81) =	$0.2025
Total	$1.2100

Therefore, $1.21 is the probability-weighted expected value. The rate that must be compounded to achieve the terminal value of $1.21 after 2 years is 10 percent, the arithmetic mean:

$$\$1\times(1+0.10)^2=\$1.21$$

The geometric mean, when compounded, results in the median of the distribution:

$$\$1\times(1+0.082)^2=\$1.17$$

The arithmetic mean equates the expected future value with the present value; it is therefore the appropriate discount rate.

Appropriate Historical Time Period

The equity risk premium can be estimated using any historical time period. For the U.S., market data exists at least as far back as the late 1800s. Therefore, it is possible to estimate the equity risk premium using data that covers roughly the past 100 years.

Our equity risk premium covers the time period from 1926 to the present. The original data source for the time series comprising the equity risk premium is the Center for Research in Security Prices. CRSP chose to begin their analysis of market returns with 1926 for two main reasons. CRSP determined that the time period around 1926 was

approximately when quality financial data became available. They also made a conscious effort to include the period of extreme market volatility from the late twenties and early thirties; 1926 was chosen because it includes one full business cycle of data before the market crash of 1929. These are the most basic reasons why our equity risk premium calculation window starts in 1926.

Implicit in using history to forecast the future is the assumption that investors' expectations for future outcomes conform to past results. This method assumes that the price of taking on risk changes only slowly, if at all, over time. This "future equals the past" assumption is most applicable to a random time-series variable. A time-series variable is random if its value in one period is independent of its value in other periods.

Does the Equity Risk Premium Revert to Its Mean Over Time?

Some have argued that the estimate of the equity risk premium is upwardly biased since the stock market is currently priced high. In other words, since there have been several years with extraordinarily high market returns and realized equity risk premia, the expectation is that returns and realized equity risk premia will be lower in the future, bringing the average back to a normalized level. This argument relies on several studies that have tried to determine whether reversion to the mean exists in stock market prices and the equity risk premium.[3] Several academics contradict each other on this topic; moreover, the evidence supporting this argument is neither conclusive nor compelling enough to make such a strong assumption.

Our own empirical evidence suggests that the yearly difference between the stock market total return and the U.S. Treasury bond income return in any particular year is random. Graph 5-2, presented earlier, illustrates the randomness of the realized equity risk premium.

A statistical measure of the randomness of a return series is its serial correlation. Serial correlation (or autocorrelation) is defined as the degree to which the return of a given series is related from period to period. A serial correlation near positive one indicates that returns are predictable from one period to the next period and are positively related. That is, the returns of one period are a good predictor of the returns in the next period. Conversely, a serial correlation near negative one indicates that the returns in one period are inversely related to those of the next period. A serial correlation near zero indicates that the returns are random or unpredictable from one period to the next. Table 5-3 contains the serial correlation of the market total returns, the realized long-horizon equity risk premium, and inflation.

Table 5-3: Interpretation of Annual Serial Correlations

Series	Serial Correlation	Interpretation
Large Company Stock Total Returns	0.07	Random
Equity Risk Premium	0.02	Random
Inflation Rates	0.64	Trend

Data from 1926–2010.

The significance of this evidence is that the realized equity risk premium next year will not be dependent on the realized equity risk premium from this year. That is, there is no discernable pattern in the realized equity risk premium—it is virtually impossible to forecast next year's realized risk premium based on the premium of the previous year. For example, if this year's difference between the riskless rate and the return on the stock market is higher than last year's, that does not imply that next year's will be higher than this year's. It is as likely to be higher as it is lower. The best estimate of the expected value of a variable that has behaved randomly in the past is the average (or arithmetic mean) of its past values.

Table 5-4 also indicates that the equity risk premium varies considerably by decade. The complete decades ranged from a high of 17.9 percent in the 1950s to a low of -3.7 percent in the 2000s. This look at historical equity risk premium reveals no observable pattern.

Table 5-4: Long-Horizon Equity Risk Premium by Decade (%)

1920s*	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2001-2010
17.6	2.3	8.0	17.9	4.2	0.3	7.9	12.1	-3.7	-1.1

Data from 1926–2010.
*Based on the period 1926–1929.

Finnerty and Leistikow perform more econometrically sophisticated tests of mean reversion in the equity risk premium. Their tests demonstrate that—as we suspected from our simpler tests—the equity risk premium that was realized over 1926 to the present was almost perfectly free of mean reversion and had no statistically identifiable time trends.[4] Lo and MacKinlay conclude, "the rejection of the random walk for weekly returns does not support a mean-reverting model of asset prices."

Choosing an Appropriate Historical Period

The estimate of the equity risk premium depends on the length of the data series studied. A proper estimate of the equity risk premium requires a data series long enough to give a reliable average without being unduly influenced by very good and very poor short-term returns. When calculated using a long data series, the historical equity risk premium is relatively stable.[5] Furthermore, because an average of the realized equity risk premium is quite volatile when calculated using a short history, using a long series makes it less likely that the analyst can justify any number he or she wants. The magnitude of how shorter periods can affect the result will be explored later in this chapter.

Some analysts estimate the expected equity risk premium using a shorter, more recent time period on the basis that recent events are more likely to be repeated in the near future; furthermore, they believe that the 1920s, 1930s, and 1940s contain too many unusual events. This view is suspect because all periods contain "unusual" events. Some of the most unusual events of the last hundred years took place quite recently, including the inflation of the late 1970s and early 1980s, the October 1987 stock market crash, the collapse of the high-yield bond market, the major contraction and consolidation of the thrift industry, the collapse of the Soviet Union, the development of the European Economic Community, the attacks of September 11, 2001 and the more recent liquidity crisis of 2008 and 2009.

It is even difficult for economists to predict the economic environment of the future. For example, if one were analyzing the stock market in 1987 before the crash, it would be statistically improbable to predict the impending short-term volatility without considering the stock market crash and market volatility of the 1929–1931 period. Without an appreciation of the 1920s and 1930s, no one would believe that such events could happen. The 85-year period starting with 1926 is representative of what can happen: it includes high and low returns, volatile and quiet markets, war and peace, inflation and deflation, and prosperity and depression. Restricting attention to a shorter historical period underestimates the amount of change that could occur in a long future period. Finally, because historical event-types (not specific events) tend to repeat themselves, long-run capital market return studies can reveal a great deal about the future. Investors probably expect "unusual" events to occur from time to time, and their return expectations reflect this.

A Look at the Historical Results

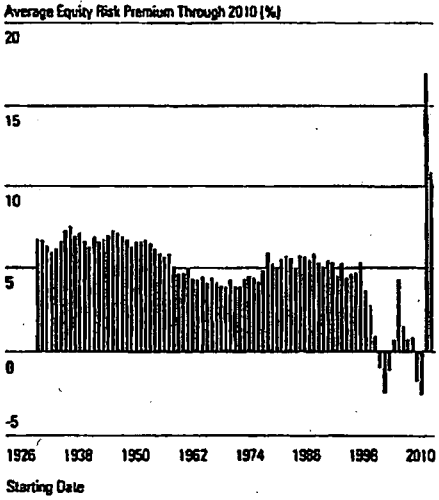
It is interesting to take a look at the realized returns and realized equity risk premium in the context of the above discussion. Table 5-5 shows the average stock market return and the average (arithmetic mean) realized long-horizon equity risk premium over various historical time periods. Similarly, Graph 5-5 shows the average (arithmetic mean) realized equity risk premium calculated through 2010 for different ending dates. The table and the graph both show that using a longer historical period provides a more stable estimate of the equity risk premium. The reason is that any unique period will not be weighted heavily in an average covering a longer historical period. It better represents the probability of these unique events occurring over a long period of time.

Table 5-5: Stock Market Return and Equity Risk Premium Over Time

Length (Yrs.)	Period Dates	Large Company Stock Arithmetic Mean Total Return (%)	Long-Horizon Equity Risk Premium (%)
85	1926–2010	11.8	6.7
70	1941–2010	12.6	7.0
60	1951–2010	12.3	6.1
50	1961–2010	11.2	4.4
40	1971–2010	11.8	4.5
30	1981–2010	12.2	5.0
20	1991–2010	11.0	5.3
15	1996–2010	8.9	3.7
10	2001–2010	3.6	-1.1
5	2006–2010	5.2	0.8

Data from 1926–2010.

Graph 5-4: Equity Risk Premium Using Different Starting Dates



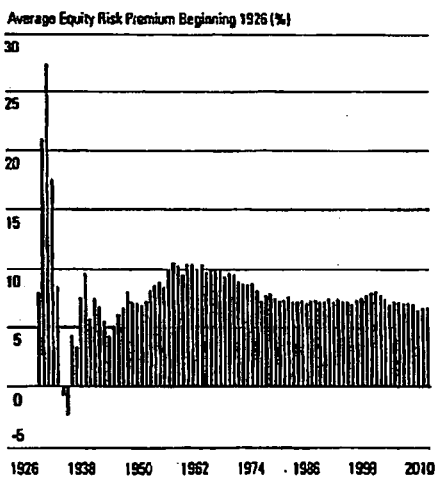
Data from 1926–2010.

Looking carefully at Graph 5-4 will clarify this point. The graph shows the realized equity risk premium for a series of time periods through 2010, starting with 1926. In other words, the first value on the graph represents the average realized equity risk premium over the period 1926–2010. The next value on the graph represents the average realized equity risk premium over the period 1927–2010, and so on, with the last value representing the average over the most recent five years, 2006–2010. Concentrating on the left side of Graph 5-5, one notices that the realized equity risk premium, when measured over long periods of time, is relatively stable. In viewing the graph from left to right, moving from longer to shorter historical periods, one sees that the value of the realized equity risk premium begins to decline significantly. Why does this occur? The reason is that the severe bear market of 1973–1974 is receiving proportionately more weight in the shorter, more recent average. If you continue to follow the line to the right, however, you will also notice that when 1973 and 1974 fall out of the recent average, the realized equity risk premium jumps up by nearly 1.2 percent.

Additionally, use of recent historical periods for estimation purposes can lead to illogical conclusions. As seen in Table 5-5, the bear market in the early 2000's and in 2008 has caused the realized equity risk premium in the shorter historical periods to be lower than the long-term average.

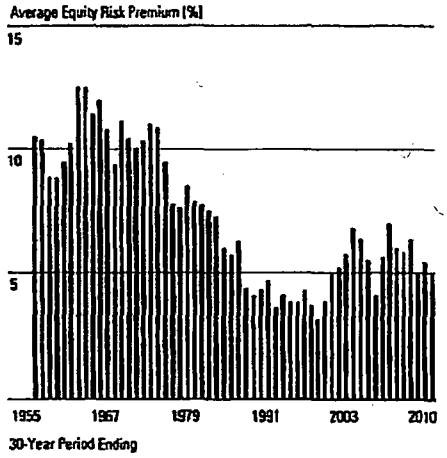
The impact of adding one additional year of data to a historical average is lessened the greater the initial time period of measurement. Short-term averages can be affected considerably by one or more unique observations. On the other hand, long-term averages produce more stable results. A series of graphs looking at the realized equity risk premium will illustrate this effect. Graph 5-5 shows the average (arithmetic mean) realized long-horizon equity risk premium starting in 1926. Each additional point on the graph represents the addition of another year to the average. Although the graph is extremely volatile in the beginning periods, the stability of the long-term average is quite remarkable. Again, the "unique" periods of time will not be weighted heavily in a long-term average, resulting in a more stable estimate.

Graph 5-5: Equity Risk Premium Using Different Ending Dates



Data from 1926–2010.

Graph 5-6: Equity Risk Premium Over 30-Year Periods



Data from 1926–2010.

Some practitioners argue for a shorter historical time period, such as 30 years, as a basis for the equity risk premium estimation. The logic for the use of a shorter period is that historical events and economic scenarios present before this time are unlikely to be repeated. Graph 5-6 shows the equity risk premium measured over 30-year periods, and it appears from the graph that the premium has been trending downwards. The 30-year equity risk premium remained close to 4 percent for several years in the 1980s and 1990s. However, it has fallen and then risen in the most recent 30-year periods.

The key to understanding this result lies again in the years 1973 and 1974. The oil embargo during this period had a tremendous effect on the market. The equity risk premium for these years alone was -21 and -34 percent, respectively. Periods that include the years 1973 and 1974 result in an average equity risk premium as low as 3.1 percent. In the most recent 30-year periods that excludes 1973 and 1974, the average rises to over 6 percent. The 2000s have also had an enormous effect on the equity risk premium.

It is difficult to justify such a large divergence in estimates of return over such a short period of time. This does not suggest, however, that the years 1973 and 1974 should be excluded from any estimate of the equity risk premium; rather, it emphasizes the importance of using a long historical period when measuring the equity risk premium in order to obtain a reliable average that is not overly influenced by short-term returns. The same holds true when analyzing the poor performance of the early 2000s and 2008.

Does the Equity Risk Premium Represent Minority or Controlling Interest?

There is quite a bit of confusion among valuation practitioners regarding the use of publicly traded company data to derive the equity risk premium. Is a minority discount implicit in this data? Recall that the equity risk premium is typically derived from the returns of a market index: the S&P 500, the New York Stock Exchange (NYSE), or the NYSE Deciles 1–2. (The size premia that are covered in Chapter 7 are derived from the returns of companies traded on the NYSE, in addition to those on the NYSE AMEX and NASDAQ). Both the S&P 500 and the NYSE include a preponderance of companies that are minority held. Does this imply that an equity risk premium (or size premium) derived from these data represents a minority interest premium? This is a critical issue that must be addressed by the valuation professional, since applying a minority discount or a control premium can have a material impact on the ultimate value derived in an appraisal.

Since most companies in the S&P 500 and the NYSE are minority held, some assume that the risk premia derived from these return data represent minority returns and therefore have a minority discount implicit within them. However, this assumption is not correct. The returns that are generated by the S&P 500 and the NYSE represent returns to equity holders. While most of these companies are minority held, there is no evidence that higher rates of return could be earned if these companies were suddenly acquired by majority shareholders. The equity risk premium represents expected premiums that holders of securities of a similar nature can expect to achieve on average into the future. There is no distinction between minority owners and controlling owners.

The discount rate is meant to represent the underlying risk of being in a particular industry or line of business. There are instances when a majority shareholder can acquire a company and improve the cash flows generated by that company. However, this does not necessarily have an impact on the general risk level of the cash flows generated by the company.

Carolina Water Service, Inc.
ORS Witness Dr. Gordon's CAPM Analysis Corrected to Reflect Arithmetic Mean
Historical Total Returns and the Empirical CAPM

Calculation of Long-Run Average Return

Decile	Total Return
1	10.9 %
2	12.9
3	13.6
4	13.9
5	14.8
6	15.0
7	15.4
8	16.5
9	17.2
10	21.0
Average	15.1 %

Source of Information: Ibbotson®
SBBI® 2011 Classis Yearbook - Market
Results for Stocks, Bonds, Bills, and
Inflation 1926-2010, Morningstar, Inc.,
2011 Chicago, IL, p. 94.

Carolina Water Service, Inc.
ORS Witness Dr. Gordon's CAPM Analysis Corrected to Reflect
Arithmetic Mean Historical Total Returns and the Empirical CAPM

Line No.		Traditional CAPM	
1.	Expected Market Return	15.10	% (1)
2.	Forecasted Risk-Free Rate	(5.00)	(2)
	Forecasted Market		
3.	Equity Risk Premium	10.10	%
4.	Proxy Group Beta	0.7222	(2)
	Proxy Group Specific		
5.	Equity Risk Premium	7.29	%
6.	Risk-Free Rate	5.00	(2)
7.	Traditional CAPM Result	12.29	%
		Empirical CAPM	
	Forecasted Market		
8.	Equity Risk Premium	10.10	% (1)
9.	Proxy Group Beta	0.7222	(2)
	Proxy Group Specific		
10.	Equity Risk Premium	8.00	% (3)
11.	Risk-Free Rate	5.00	(2)
12.	Empirical CAPM Result	13.00	%
	Average of Traditional		
13.	& Empirical CAPM	12.65	%
	ORS Witness Carlisle's		
14.	CAPM Result	9.48	% (2)

Notes:

(1) From page 1 of this Schedule.
(2) From Exhibit DHC-9, page 2.
(3) ECAPM formula derived on Exhibit No. ___, Schedule PMA-10, page 3 of 3, Note 4.

NEW
REGULATORY
FINANCE

Roger A. Morin, PhD

2006
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The model is analogous to the standard CAPM, but with the return on a minimum risk portfolio that is unrelated to market returns, R_Z, replacing the risk-free rate, R_F. The model has been empirically tested by Black, Jensen, and Scholes (1972), who find a flatter than predicted SML, consistent with the model and other researchers' findings. An updated version of the Black-Jensen-Scholes study is available in Brealey, Myers, and Allen (2006) and reaches similar conclusions.

The zero-beta CAPM cannot be literally employed to estimate the cost of capital, since the zero-beta portfolio is a statistical construct difficult to replicate. Attempts to estimate the model are formally equivalent to estimating the constants, a and b, in Equation 6-2. A practical alternative is to employ the Empirical CAPM, to which we now turn.

6.3 Empirical CAPM

As discussed in the previous section, several finance scholars have developed refined and expanded versions of the standard CAPM by relaxing the constraints imposed on the CAPM, such as dividend yield, size, and skewness effects. These enhanced CAPMs typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship. The ECAPM makes use of these empirical findings. The ECAPM estimates the cost of capital with the equation:

$$K = R_F + \acute{\alpha} + \beta \times (MRP - \acute{\alpha}) \qquad (6\text{-}5)$$

where $\acute{\alpha}$ is the "alpha" of the risk-return line, a constant, and the other symbols are defined as before. All the potential vagaries of the CAPM are telescoped into the constant $\acute{\alpha}$, which must be estimated econometrically from market data. Table 6-2 summarizes[10] the empirical evidence on the magnitude of alpha.[11]

[10] The technique is formally applied by Litzenberger, Ramaswamy, and Sosin (1980) to public utilities in order to rectify the CAPM's basic shortcomings. Not only do they summarize the criticisms of the CAPM insofar as they affect public utilities, but they also describe the econometric intricacies involved and the methods of circumventing the statistical problems. Essentially, the average monthly returns over a lengthy time period on a large cross-section of securities grouped into portfolios are related to their corresponding betas by statistical regression techniques; that is, Equation 6-5 is estimated from market data. The utility's beta value is substituted into the equation to produce the cost of equity figure. Their own results demonstrate how the standard CAPM underestimates the cost of equity capital of public utilities because of utilities' high dividend yield and return skewness.

[11] Adapted from Vilbert (2004).

TABLE 6-2
EMPIRICAL EVIDENCE ON THE ALPHA FACTOR

Author	Range of alpha
Fischer (1993)	−3.6% to 3.6%
Fischer, Jensen and Scholes (1972)	−9.61% to 12.24%
Fama and McBeth (1972)	4.08% to 9.36%
Fama and French (1992)	10.08% to 13.56%
Litzenberger and Ramaswamy (1979)	5.32% to 8.17%
Litzenberger, Ramaswamy and Sosin (1980)	1.63% to 5.04%
Pettengill, Sundaram and Mathur (1995)	4.6%
Morin (1989)	2.0%

For an alpha in the range of 1%–2% and for reasonable values of the market risk premium and the risk-free rate, Equation 6-5 reduces to the following more pragmatic form:

$$K = R_F + 0.25\,(R_M - R_F) + 0.75\,\beta(R_M - R_F) \qquad (6\text{-}6)$$

Over reasonable values of the risk-free rate and the market risk premium, Equation 6-6 produces results that are indistinguishable from the ECAPM of Equation 6-5.[12]

An alpha range of 1%–2% is somewhat lower than that estimated empirically. The use of a lower value for alpha leads to a lower estimate of the cost of capital for low-beta stocks such as regulated utilities. This is because the use of a long-term risk-free rate rather than a short-term risk-free rate already incorporates some of the desired effect of using the ECAPM. That is, the

[12] Typical of the empirical evidence on the validity of the CAPM is a study by Morin (1989) who found that the relationship between the expected return on a security and beta over the period 1926–1984 was given by:

$$\text{Return} = 0.0829 + 0.0520\,\beta$$

Given that the risk-free rate over the estimation period was approximately 6% and that the market risk premium was 8% during the period of study, the intercept of the observed relationship between return and beta exceeds the risk-free rate by about 2%, or 1/4 of 8%, and that the slope of the relationship is close to 3/4 of 8%. Therefore, the empirical evidence suggests that the expected return on a security is related to its risk by the following approximation:

$$K = R_F + x(R_M - R_F) + (1 - x)\beta(R_M - R_F)$$

where x is a fraction to be determined empirically. The value of x that best explains the observed relationship Return = 0.0829 + 0.0520 β is between 0.25 and 0.30. If x = 0.25, the equation becomes:

$$K = R_F + 0.25(R_M - R_F) + 0.75\beta(R_M - R_F)$$

long-term risk-free rate version of the CAPM has a higher intercept and a flatter slope than the short-term risk-free version which has been tested. Thus, it is reasonable to apply a conservative alpha adjustment. Moreover, the lowering of the tax burden on capital gains and dividend income enacted in 2002 may have decreased the required return for taxable investors, steepening the slope of the ECAPM risk-return trade-off and bring it closer to the CAPM predicted returns.[13]

To illustrate the application of the ECAPM, assume a risk-free rate of 5%, a market risk premium of 7%, and a beta of 0.80. The Empirical CAPM equation (6-6) above yields a cost of equity estimate of 11.0% as follows:

$$K = 5\% + 0.25\,(12\% - 5\%) + 0.75 \times 0.80\,(12\% - 5\%)$$
$$= 5.0\% + 1.8\% + 4.2\%$$
$$= 11.0\%$$

As an alternative to specifying alpha, see Example 6-1.

Some have argued that the use of the ECAPM is inconsistent with the use of adjusted betas, such as those supplied by Value Line and Bloomberg. This is because the reason for using the ECAPM is to allow for the tendency of betas to regress toward the mean value of 1.00 over time, and, since Value Line betas are already adjusted for such trend, an ECAPM analysis results in double-counting. This argument is erroneous. Fundamentally, the ECAPM is not an adjustment, increase or decrease, in beta. This is obvious from the fact that the expected return on high beta securities is actually lower than that produced by the CAPM estimate. The ECAPM is a formal recognition that the observed risk-return tradeoff is flatter than predicted by the CAPM based on myriad empirical evidence. The ECAPM and the use of adjusted betas comprised two separate features of asset pricing. Even if a company's beta is estimated accurately, the CAPM still understates the return for low-beta stocks. Even if the ECAPM is used, the return for low-beta securities is understated if the betas are understated. Refering back to Figure 6-1, the ECAPM is a return (vertical axis) adjustment and not a beta (horizontal axis) adjustment. Both adjustments are necessary. Moreover, recall from Chapter 3 that the use of adjusted betas compensates for interest rate sensitivity of utility stocks not captured by unadjusted betas.

[13] The lowering of the tax burden on capital gains and dividend income has no impact as far as non-taxable institutional investors (pension funds, 401K, and mutual funds) are concerned, and such investors engage in very large amounts of trading on security markets. It is quite plausible that taxable retail investors are relatively inactive traders and that large non-taxable investors have a substantial influence on capital markets.

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The Capital Asset Pricing Model: Theory and Evidence

Eugene F. Fama and Kenneth R. French

The capital asset pricing model (CAPM) of William Sharpe (1964) and John Lintner (1965) marks the birth of asset pricing theory (resulting in a Nobel Prize for Sharpe in 1990). Four decades later, the CAPM is still widely used in applications, such as estimating the cost of capital for firms and evaluating the performance of managed portfolios. It is the centerpiece of MBA investment courses. Indeed, it is often the only asset pricing model taught in these courses.[1]

The attraction of the CAPM is that it offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk. Unfortunately, the empirical record of the model is poor—poor enough to invalidate the way it is used in applications. The CAPM's empirical problems may reflect theoretical failings, the result of many simplifying assumptions. But they may also be caused by difficulties in implementing valid tests of the model. For example, the CAPM says that the risk of a stock should be measured relative to a comprehensive "market portfolio" that in principle can include not just traded financial assets, but also consumer durables, real estate and human capital. Even if we take a narrow view of the model and limit its purview to traded financial assets, is it

[1] Although every asset pricing model is a capital asset pricing model, the finance profession reserves the acronym CAPM for the specific model of Sharpe (1964), Lintner (1965) and Black (1972) discussed here. Thus, throughout the paper we refer to the Sharpe-Lintner-Black model as the CAPM.

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legitimate to limit further the market portfolio to U.S. common stocks (a typical choice), or should the market be expanded to include bonds, and other financial assets, perhaps around the world? In the end, we argue that whether the model's problems reflect weaknesses in the theory or in its empirical implementation, the failure of the CAPM in empirical tests implies that most applications of the model are invalid.

We begin by outlining the logic of the CAPM, focusing on its predictions about risk and expected return. We then review the history of empirical work and what it says about shortcomings of the CAPM that pose challenges to be explained by alternative models.

The Logic of the CAPM

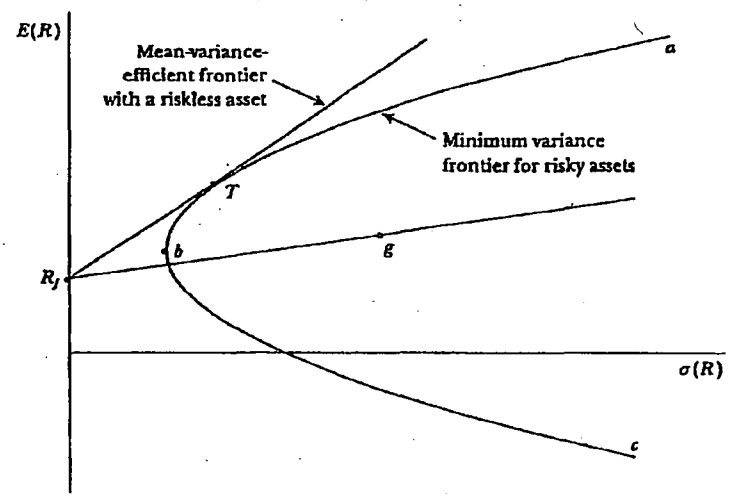
The CAPM builds on the model of portfolio choice developed by Harry Markowitz (1959). In Markowitz's model, an investor selects a portfolio at time $t - 1$ that produces a stochastic return at t. The model assumes investors are risk averse and, when choosing among portfolios, they care only about the mean and variance of their one-period investment return. As a result, investors choose "mean-variance-efficient" portfolios, in the sense that the portfolios 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance. Thus, the Markowitz approach is often called a "mean-variance model."

The portfolio model provides an algebraic condition on asset weights in mean-variance-efficient portfolios. The CAPM turns this algebraic statement into a testable prediction about the relation between risk and expected return by identifying a portfolio that must be efficient if asset prices are to clear the market of all assets.

Sharpe (1964) and Lintner (1965) add two key assumptions to the Markowitz model to identify a portfolio that must be mean-variance-efficient. The first assumption is *complete agreement*: given market clearing asset prices at $t - 1$, investors agree on the joint distribution of asset returns from $t - 1$ to t. And this distribution is the true one—that is, it is the distribution from which the returns we use to test the model are drawn. The second assumption is that there is *borrowing and lending at a risk-free rate*, which is the same for all investors and does not depend on the amount borrowed or lent.

Figure 1 describes portfolio opportunities and tells the CAPM story. The horizontal axis shows portfolio risk, measured by the standard deviation of portfolio return; the vertical axis shows expected return. The curve *abc*, which is called the minimum variance frontier, traces combinations of expected return and risk for portfolios of risky assets that minimize return variance at different levels of expected return. (These portfolios do not include risk-free borrowing and lending.) The tradeoff between risk and expected return for minimum variance portfolios is apparent. For example, an investor who wants a high expected return, perhaps at point *a*, must accept high volatility. At point *T*, the investor can have an interme-

Figure 1
Investment Opportunities



diate expected return with lower volatility. If there is no risk-free borrowing or lending, only portfolios above *b* along *abc* are mean-variance-efficient, since these portfolios also maximize expected return, given their return variances.

Adding risk-free borrowing and lending turns the efficient set into a straight line. Consider a portfolio that invests the proportion x of portfolio funds in a risk-free security and $1 - x$ in some portfolio g. If all funds are invested in the risk-free security—that is, they are loaned at the risk-free rate of interest—the result is the point R_f in Figure 1, a portfolio with zero variance and a risk-free rate of return. Combinations of risk-free lending and positive investment in g plot on the straight line between R_f and g. Points to the right of g on the line represent borrowing at the risk-free rate, with the proceeds from the borrowing used to increase investment in portfolio g. In short, portfolios that combine risk-free lending or borrowing with some risky portfolio g plot along a straight line from R_f through g in Figure 1.[2]

[2] Formally, the return, expected return and standard deviation of return on portfolios of the risk-free asset f and a risky portfolio g vary with x, the proportion of portfolio funds invested in f, as

$$R_p = xR_f + (1 - x)R_g,$$

$$E(R_p) = xR_f + (1 - x)E(R_g),$$

$$\sigma(R_p) = (1 - x)\sigma(R_g), \quad x \leq 1.0,$$

which together imply that the portfolios plot along the line from R_f through g in Figure 1.

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To obtain the mean-variance-efficient portfolios available with risk-free borrowing and lending, one swings a line from R_f in Figure 1 up and to the left as far as possible, to the tangency portfolio T. We can then see that all efficient portfolios are combinations of the risk-free asset (either risk-free borrowing or lending) and a single risky tangency portfolio, T. This key result is Tobin's (1958) "separation theorem."

The punch line of the CAPM is now straightforward. With complete agreement about distributions of returns, all investors see the same opportunity set (Figure 1), and they combine the same risky tangency portfolio T with risk-free lending or borrowing. Since all investors hold the same portfolio T of risky assets, it must be the value-weight market portfolio of risky assets. Specifically, each risky asset's weight in the tangency portfolio, which we now call M (for the "market"), must be the total market value of all outstanding units of the asset divided by the total market value of all risky assets. In addition, the risk-free rate must be set (along with the prices of risky assets) to clear the market for risk-free borrowing and lending.

In short, the CAPM assumptions imply that the market portfolio M must be on the minimum variance frontier if the asset market is to clear. This means that the algebraic relation that holds for any minimum variance portfolio must hold for the market portfolio. Specifically, if there are N risky assets,

$$\text{(Minimum Variance Condition for } M) \quad E(R_i) = E(R_{ZM}) + [E(R_M) - E(R_{ZM})]\beta_{iM}, \; i = 1, \ldots, N.$$

In this equation, $E(R_i)$ is the expected return on asset i, and β_{iM}, the market beta of asset i, is the covariance of its return with the market return divided by the variance of the market return,

$$\text{(Market Beta)} \quad \beta_{iM} = \frac{\text{cov}(R_i, R_M)}{\sigma^2(R_M)}.$$

The first term on the right-hand side of the minimum variance condition, $E(R_{ZM})$, is the expected return on assets that have market betas equal to zero, which means their returns are uncorrelated with the market return. The second term is a risk premium—the market beta of asset i, β_{iM}, times the premium per unit of beta, which is the expected market return, $E(R_M)$, minus $E(R_{ZM})$.

Since the market beta of asset i is also the slope in the regression of its return on the market return, a common (and correct) interpretation of beta is that it measures the sensitivity of the asset's return to variation in the market return. But there is another interpretation of beta more in line with the spirit of the portfolio model that underlies the CAPM. The risk of the market portfolio, as measured by the variance of its return (the denominator of β_{iM}), is a weighted average of the covariance risks of the assets in M (the numerators of β_{iM} for different assets).

Thus, β_{iM} is the covariance risk of asset i in M measured relative to the average covariance risk of assets, which is just the variance of the market return.[3] In economic terms, β_{iM} is proportional to the risk each dollar invested in asset i contributes to the market portfolio.

The last step in the development of the Sharpe-Lintner model is to use the assumption of risk-free borrowing and lending to nail down $E(R_{ZM})$, the expected return on zero-beta assets. A risky asset's return is uncorrelated with the market return—its beta is zero—when the average of the asset's covariances with the returns on other assets just offsets the variance of the asset's return. Such a risky asset is riskless in the market portfolio in the sense that it contributes nothing to the variance of the market return.

When there is risk-free borrowing and lending, the expected return on assets that are uncorrelated with the market return, $E(R_{ZM})$, must equal the risk-free rate, R_f. The relation between expected return and beta then becomes the familiar Sharpe-Lintner CAPM equation,

$$\text{(Sharpe-Lintner CAPM)} \quad E(R_i) = R_f + [E(R_M) - R_f]\beta_{iM}, \; i = 1, \ldots, N.$$

In words, the expected return on any asset i is the risk-free interest rate, R_f, plus a risk premium, which is the asset's market beta, β_{iM}, times the premium per unit of beta risk, $E(R_M) - R_f$.

Unrestricted risk-free borrowing and lending is an unrealistic assumption. Fischer Black (1972) develops a version of the CAPM without risk-free borrowing or lending. He shows that the CAPM's key result—that the market portfolio is mean-variance-efficient—can be obtained by instead allowing unrestricted short sales of risky assets. In brief, back in Figure 1, if there is no risk-free asset, investors select portfolios from along the mean-variance-efficient frontier from a to b. Market clearing prices imply that when one weights the efficient portfolios chosen by investors by their (positive) shares of aggregate invested wealth, the resulting portfolio is the market portfolio. The market portfolio is thus a portfolio of the efficient portfolios chosen by investors. With unrestricted short selling of risky assets, portfolios made up of efficient portfolios are themselves efficient. Thus, the market portfolio is efficient, which means that the minimum variance condition for M given above holds, and it is the expected return-risk relation of the Black CAPM.

The relations between expected return and market beta of the Black and Sharpe-Lintner versions of the CAPM differ only in terms of what each says about $E(R_{ZM})$, the expected return on assets uncorrelated with the market. The Black version says only that $E(R_{ZM})$ must be less than the expected market return, so the

[3] Formally, if x_{iM} is the weight of asset i in the market portfolio, then the variance of the portfolio's return is

$$\sigma^2(R_M) = Cov(R_M, R_M) = Cov\left(\sum_{i=1}^{N} x_{iM}R_i, R_M\right) = \sum_{i=1}^{N} x_{iM}Cov(R_i, R_M).$$

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premium for beta is positive. In contrast, in the Sharpe-Lintner version of the model, $E(R_{ZM})$ must be the risk-free interest rate, R_f, and the premium per unit of beta risk is $E(R_M) - R_f$.

The assumption that short selling is unrestricted is as unrealistic as unrestricted risk-free borrowing and lending. If there is no risk-free asset and short sales of risky assets are not allowed, mean-variance investors still choose efficient portfolios—points above b on the abc curve in Figure 1. But when there is no short selling of risky assets and no risk-free asset, the algebra of portfolio efficiency says that portfolios made up of efficient portfolios are not typically efficient. This means that the market portfolio, which is a portfolio of the efficient portfolios chosen by investors, is not typically efficient. And the CAPM relation between expected return and market beta is lost. This does not rule out predictions about expected return and betas with respect to other efficient portfolios—if theory can specify portfolios that must be efficient if the market is to clear. But so far this has proven impossible.

In short, the familiar CAPM equation relating expected asset returns to their market betas is just an application to the market portfolio of the relation between expected return and portfolio beta that holds in any mean-variance-efficient portfolio. The efficiency of the market portfolio is based on many unrealistic assumptions, including complete agreement and either unrestricted risk-free borrowing and lending or unrestricted short selling of risky assets. But all interesting models involve unrealistic simplifications, which is why they must be tested against data.

Early Empirical Tests

Tests of the CAPM are based on three implications of the relation between expected return and market beta implied by the model. First, expected returns on all assets are linearly related to their betas, and no other variable has marginal explanatory power. Second, the beta premium is positive, meaning that the expected return on the market portfolio exceeds the expected return on assets whose returns are uncorrelated with the market return. Third, in the Sharpe-Lintner version of the model, assets uncorrelated with the market have expected returns equal to the risk-free interest rate, and the beta premium is the expected market return minus the risk-free rate. Most tests of these predictions use either cross-section or time-series regressions. Both approaches date to early tests of the model.

Tests on Risk Premiums

The early cross-section regression tests focus on the Sharpe-Lintner model's predictions about the intercept and slope in the relation between expected return and market beta. The approach is to regress a cross-section of average asset returns on estimates of asset betas. The model predicts that the intercept in these regressions is the risk-free interest rate, R_f, and the coefficient on beta is the expected return on the market in excess of the risk-free rate, $E(R_M) - R_f$.

Two problems in these tests quickly became apparent. First, estimates of beta

for individual assets are imprecise, creating a measurement error problem when they are used to explain average returns. Second, the regression residuals have common sources of variation, such as industry effects in average returns. Positive correlation in the residuals produces downward bias in the usual ordinary least squares estimates of the standard errors of the cross-section regression slopes.

To improve the precision of estimated betas, researchers such as Blume (1970), Friend and Blume (1970) and Black, Jensen and Scholes (1972) work with portfolios, rather than individual securities. Since expected returns and market betas combine in the same way in portfolios, if the CAPM explains security returns it also explains portfolio returns.[4] Estimates of beta for diversified portfolios are more precise than estimates for individual securities. Thus, using portfolios in cross-section regressions of average returns on betas reduces the critical errors in variables problem. Grouping, however, shrinks the range of betas and reduces statistical power. To mitigate this problem, researchers sort securities on beta when forming portfolios; the first portfolio contains securities with the lowest betas, and so on, up to the last portfolio with the highest beta assets. This sorting procedure is now standard in empirical tests.

Fama and MacBeth (1973) propose a method for addressing the inference problem caused by correlation of the residuals in cross-section regressions. Instead of estimating a single cross-section regression of average monthly returns on betas, they estimate month-by-month cross-section regressions of monthly returns on betas. The times-series means of the monthly slopes and intercepts, along with the standard errors of the means, are then used to test whether the average premium for beta is positive and whether the average return on assets uncorrelated with the market is equal to the average risk-free interest rate. In this approach, the standard errors of the average intercept and slope are determined by the month-to-month variation in the regression coefficients, which fully captures the effects of residual correlation on variation in the regression coefficients, but sidesteps the problem of actually estimating the correlations. The residual correlations are, in effect, captured via repeated sampling of the regression coefficients. This approach also becomes standard in the literature.

Jensen (1968) was the first to note that the Sharpe-Lintner version of the

[4] Formally, if x_{ip}, $i = 1, \ldots, N$, are the weights for assets in some portfolio p, the expected return and market beta for the portfolio are related to the expected returns and betas of assets as

$$E(R_p) = \sum_{i=1}^{N} x_{ip}E(R_i), \text{ and } \beta_{pM} = \sum_{i=1}^{N} x_{ip}\beta_{iM}.$$

Thus, the CAPM relation between expected return and beta,

$$E(R_i) = E(R_f) + [E(R_M) - E(R_f)]\beta_{iM},$$

holds when asset i is a portfolio, as well as when i is an individual security.

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relation between expected return and market beta also implies a time-series regression test. The Sharpe-Lintner CAPM says that the expected value of an asset's excess return (the asset's return minus the risk-free interest rate, $R_{it} - R_{ft}$) is completely explained by its expected CAPM risk premium (its beta times the expected value of $R_{Mt} - R_{ft}$). This implies that "Jensen's alpha," the intercept term in the time-series regression,

$$\text{(Time-Series Regression)} \quad R_{it} - R_{ft} = \alpha_i + \beta_{iM}(R_{Mt} - R_{ft}) + \varepsilon_{it},$$

is zero for each asset.

The early tests firmly reject the Sharpe-Lintner version of the CAPM. There is a positive relation between beta and average return, but it is too "flat." Recall that, in cross-section regressions, the Sharpe-Lintner model predicts that the intercept is the risk-free rate and the coefficient on beta is the expected market return in excess of the risk-free rate, $E(R_M) - R_f$. The regressions consistently find that the intercept is greater than the average risk-free rate (typically proxied as the return on a one-month Treasury bill), and the coefficient on beta is less than the average excess market return (proxied as the average return on a portfolio of U.S. common stocks minus the Treasury bill rate). This is true in the early tests, such as Douglas (1968), Black, Jensen and Scholes (1972), Miller and Scholes (1972), Blume and Friend (1973) and Fama and MacBeth (1973), as well as in more recent cross-section regression tests, like Fama and French (1992).

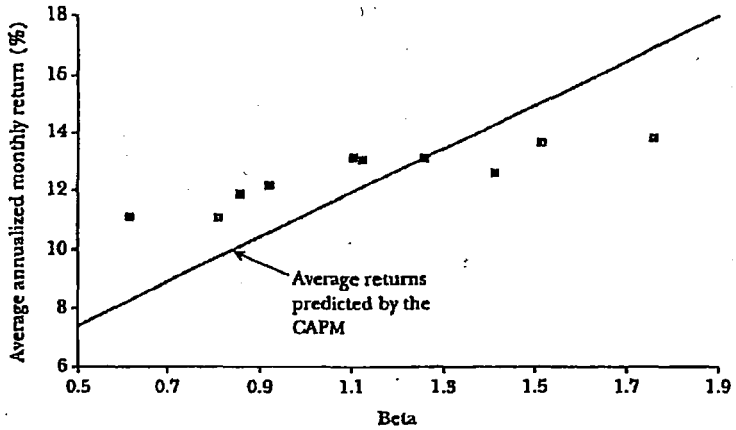
The evidence that the relation between beta and average return is too flat is confirmed in time-series tests, such as Friend and Blume (1970), Black, Jensen and Scholes (1972) and Stambaugh (1982). The intercepts in time-series regressions of excess asset returns on the excess market return are positive for assets with low betas and negative for assets with high betas.

Figure 2 provides an updated example of the evidence. In December of each year, we estimate a preranking beta for every NYSE (1928–2003), AMEX (1963–2003) and NASDAQ (1972–2003) stock in the CRSP (Center for Research in Security Prices of the University of Chicago) database, using two to five years (as available) of prior monthly returns.[5] We then form ten value-weight portfolios based on these preranking betas and compute their returns for the next twelve months. We repeat this process for each year from 1928 to 2003. The result is 912 monthly returns on ten beta-sorted portfolios. Figure 2 plots each portfolio's average return against its postranking beta, estimated by regressing its monthly returns for 1928–2003 on the return on the CRSP value-weight portfolio of U.S. common stocks.

The Sharpe-Lintner CAPM predicts that the portfolios plot along a straight

[5] To be included in the sample for year t, a security must have market equity data (price times shares outstanding) for December of $t - 1$, and CRSP must classify it as ordinary common equity. Thus, we exclude securities such as American Depository Receipts (ADRs) and Real Estate Investment Trusts (REITs).

Figure 2
Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on Prior Beta, 1928–2003



line, with an intercept equal to the risk-free rate, R_f, and a slope equal to the expected excess return on the market, $E(R_M) - R_f$. We use the average one-month Treasury bill rate and the average excess CRSP market return for 1928–2003 to estimate the predicted line in Figure 2. Confirming earlier evidence, the relation between beta and average return for the ten portfolios is much flatter than the Sharpe-Lintner CAPM predicts. The returns on the low beta portfolios are too high, and the returns on the high beta portfolios are too low. For example, the predicted return on the portfolio with the lowest beta is 8.3 percent per year; the actual return is 11.1 percent. The predicted return on the portfolio with the highest beta is 16.8 percent per year; the actual is 13.7 percent.

Although the observed premium per unit of beta is lower than the Sharpe-Lintner model predicts, the relation between average return and beta in Figure 2 is roughly linear. This is consistent with the Black version of the CAPM, which predicts only that the beta premium is positive. Even this less restrictive model, however, eventually succumbs to the data.

Testing Whether Market Betas Explain Expected Returns

The Sharpe-Lintner and Black versions of the CAPM share the prediction that the market portfolio is mean-variance-efficient. This implies that differences in expected return across securities and portfolios are entirely explained by differences in market beta; other variables should add nothing to the explanation of expected return. This prediction plays a prominent role in tests of the CAPM. In the early work, the weapon of choice is cross-section regressions.

In the framework of Fama and MacBeth (1973), one simply adds predetermined explanatory variables to the month-by-month cross-section regressions of

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returns on beta. If all differences in expected return are explained by beta, the average slopes on the additional variables should not be reliably different from zero. Clearly, the trick in the cross-section regression approach is to choose specific additional variables likely to expose any problems of the CAPM prediction that, because the market portfolio is efficient, market betas suffice to explain expected asset returns.

For example, in Fama and MacBeth (1973) the additional variables are squared market betas (to test the prediction that the relation between expected return and beta is linear) and residual variances from regressions of returns on the market return (to test the prediction that market beta is the only measure of risk needed to explain expected returns). These variables do not add to the explanation of average returns provided by beta. Thus, the results of Fama and MacBeth (1973) are consistent with the hypothesis that their market proxy—an equal-weight portfolio of NYSE stocks—is on the minimum variance frontier.

The hypothesis that market betas completely explain expected returns can also be tested using time-series regressions. In the time-series regression described above (the excess return on asset i regressed on the excess market return), the intercept is the difference between the asset's average excess return and the excess return predicted by the Sharpe-Lintner model, that is, beta times the average excess market return. If the model holds, there is no way to group assets into portfolios whose intercepts are reliably different from zero. For example, the intercepts for a portfolio of stocks with high ratios of earnings to price and a portfolio of stocks with low earning-price ratios should both be zero. Thus, to test the hypothesis that market betas suffice to explain expected returns, one estimates the time-series regression for a set of assets (or portfolios) and then jointly tests the vector of regression intercepts against zero. The trick in this approach is to choose the left-hand-side assets (or portfolios) in a way likely to expose any shortcoming of the CAPM prediction that market betas suffice to explain expected asset returns.

In early applications, researchers use a variety of tests to determine whether the intercepts in a set of time-series regressions are all zero. The tests have the same asymptotic properties, but there is controversy about which has the best small sample properties. Gibbons, Ross and Shanken (1989) settle the debate by providing an F-test on the intercepts that has exact small-sample properties. They also show that the test has a simple economic interpretation. In effect, the test constructs a candidate for the tangency portfolio T in Figure 1 by optimally combining the market proxy and the left-hand-side assets of the time-series regressions. The estimator then tests whether the efficient set provided by the combination of this tangency portfolio and the risk-free asset is reliably superior to the one obtained by combining the risk-free asset with the market proxy alone. In other words, the Gibbons, Ross and Shanken statistic tests whether the market proxy is the tangency portfolio in the set of portfolios that can be constructed by combining the market portfolio with the specific assets used as dependent variables in the time-series regressions.

Enlightened by this insight of Gibbons, Ross and Shanken (1989), one can see

a similar interpretation of the cross-section regression test of whether market betas suffice to explain expected returns. In this case, the test is whether the additional explanatory variables in a cross-section regression identify patterns in the returns on the left-hand-side assets that are not explained by the assets' market betas. This amounts to testing whether the market proxy is on the minimum variance frontier that can be constructed using the market proxy and the left-hand-side assets included in the tests.

An important lesson from this discussion is that time-series and cross-section regressions do not, strictly speaking, test the CAPM. What is literally tested is whether a specific proxy for the market portfolio (typically a portfolio of U.S. common stocks) is efficient in the set of portfolios that can be constructed from it and the left-hand-side assets used in the test. One might conclude from this that the CAPM has never been tested, and prospects for testing it are not good because 1) the set of left-hand-side assets does not include all marketable assets, and 2) data for the true market portfolio of all assets are likely beyond reach (Roll, 1977; more on this later). But this criticism can be leveled at tests of any economic model when the tests are less than exhaustive or when they use proxies for the variables called for by the model.

The bottom line from the early cross-section regression tests of the CAPM, such as Fama and MacBeth (1973), and the early time-series regression tests, like Gibbons (1982) and Stambaugh (1982), is that standard market proxies seem to be on the minimum variance frontier. That is, the central predictions of the Black version of the CAPM, that market betas suffice to explain expected returns and that the risk premium for beta is positive, seem to hold. But the more specific prediction of the Sharpe-Lintner CAPM that the premium per unit of beta is the expected market return minus the risk-free interest rate is consistently rejected.

The success of the Black version of the CAPM in early tests produced a consensus that the model is a good description of expected returns. These early results, coupled with the model's simplicity and intuitive appeal, pushed the CAPM to the forefront of finance.

Recent Tests

Starting in the late 1970s, empirical work appears that challenges even the Black version of the CAPM. Specifically, evidence mounts that much of the variation in expected return is unrelated to market beta.

The first blow is Basu's (1977) evidence that when common stocks are sorted on earnings-price ratios, future returns on high E/P stocks are higher than predicted by the CAPM. Banz (1981) documents a size effect: when stocks are sorted on market capitalization (price times shares outstanding), average returns on small stocks are higher than predicted by the CAPM. Bhandari (1988) finds that high debt-equity ratios (book value of debt over the market value of equity, a measure of leverage) are associated with returns that are too high relative to their market betas.

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Finally, Statman (1980) and Rosenberg, Reid and Lanstein (1985) document that stocks with high book-to-market equity ratios (B/M, the ratio of the book value of a common stock to its market value) have high average returns that are not captured by their betas.

There is a theme in the contradictions of the CAPM summarized above. Ratios involving stock prices have information about expected returns missed by market betas. On reflection, this is not surprising. A stock's price depends not only on the expected cash flows it will provide, but also on the expected returns that discount expected cash flows back to the present. Thus, in principle, the cross-section of prices has information about the cross-section of expected returns. (A high expected return implies a high discount rate and a low price.) The cross-section of stock prices is, however, arbitrarily affected by differences in scale (or units). But with a judicious choice of scaling variable X, the ratio X/P can reveal differences in the cross-section of expected stock returns. Such ratios are thus prime candidates to expose shortcomings of asset pricing models—in the case of the CAPM, shortcomings of the prediction that market betas suffice to explain expected returns (Ball, 1978). The contradictions of the CAPM summarized above suggest that earnings-price, debt-equity and book-to-market ratios indeed play this role.

Fama and French (1992) update and synthesize the evidence on the empirical failures of the CAPM. Using the cross-section regression approach, they confirm that size, earnings-price, debt-equity and book-to-market ratios add to the explanation of expected stock returns provided by market beta. Fama and French (1996) reach the same conclusion using the time-series regression approach applied to portfolios of stocks sorted on price ratios. They also find that different price ratios have much the same information about expected returns. This is not surprising given that price is the common driving force in the price ratios, and the numerators are just scaling variables used to extract the information in price about expected returns.

Fama and French (1992) also confirm the evidence (Reinganum, 1981; Stambaugh, 1982; Lakonishok and Shapiro, 1986) that the relation between average return and beta for common stocks is even flatter after the sample periods used in the early empirical work on the CAPM. The estimate of the beta premium is, however, clouded by statistical uncertainty (a large standard error). Kothari, Shanken and Sloan (1995) try to resuscitate the Sharpe-Lintner CAPM by arguing that the weak relation between average return and beta is just a chance result. But the strong evidence that other variables capture variation in expected return missed by beta makes this argument irrelevant. If betas do not suffice to explain expected returns, the market portfolio is not efficient, and the CAPM is dead in its tracks. Evidence on the size of the market premium can neither save the model nor further doom it.

The synthesis of the evidence on the empirical problems of the CAPM provided by Fama and French (1992) serves as a catalyst, marking the point when it is generally acknowledged that the CAPM has potentially fatal problems. Research then turns to explanations.

One possibility is that the CAPM's problems are spurious, the result of data dredging—publication-hungry researchers scouring the data and unearthing contradictions that occur in specific samples as a result of chance. A standard response to this concern is to test for similar findings in other samples. Chan, Hamao and Lakonishok (1991) find a strong relation between book-to-market equity (B/M) and average return for Japanese stocks. Capaul, Rowley and Sharpe (1993) observe a similar B/M effect in four European stock markets and in Japan. Fama and French (1998) find that the price ratios that produce problems for the CAPM in U.S. data show up in the same way in the stock returns of twelve non-U.S. major markets, and they are present in emerging market returns. This evidence suggests that the contradictions of the CAPM associated with price ratios are not sample specific.

Explanations: Irrational Pricing or Risk

Among those who conclude that the empirical failures of the CAPM are fatal, two stories emerge. On one side are the behavioralists. Their view is based on evidence that stocks with high ratios of book value to market price are typically firms that have fallen on bad times, while low B/M is associated with growth firms (Lakonishok, Shleifer and Vishny, 1994; Fama and French, 1995). The behavioralists argue that sorting firms on book-to-market ratios exposes investor overreaction to good and bad times. Investors overextrapolate past performance, resulting in stock prices that are too high for growth (low B/M) firms and too low for distressed (high B/M, so-called value) firms. When the overreaction is eventually corrected, the result is high returns for value stocks and low returns for growth stocks. Proponents of this view include DeBondt and Thaler (1987), Lakonishok, Shleifer and Vishny (1994) and Haugen (1995).

The second story for explaining the empirical contradictions of the CAPM is that they point to the need for a more complicated asset pricing model. The CAPM is based on many unrealistic assumptions. For example, the assumption that investors care only about the mean and variance of one-period portfolio returns is extreme. It is reasonable that investors also care about how their portfolio return covaries with labor income and future investment opportunities, so a portfolio's return variance misses important dimensions of risk. If so, market beta is not a complete description of an asset's risk, and we should not be surprised to find that differences in expected return are not completely explained by differences in beta. In this view, the search should turn to asset pricing models that do a better job explaining average returns.

Merton's (1973) intertemporal capital asset pricing model (ICAPM) is a natural extension of the CAPM. The ICAPM begins with a different assumption about investor objectives. In the CAPM, investors care only about the wealth their portfolio produces at the end of the current period. In the ICAPM, investors are concerned not only with their end-of-period payoff, but also with the opportunities

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they will have to consume or invest the payoff. Thus, when choosing a portfolio at time $t-1$, ICAPM investors consider how their wealth at t might vary with future *state variables*, including labor income, the prices of consumption goods and the nature of portfolio opportunities at t, and expectations about the labor income, consumption and investment opportunities to be available after t.

Like CAPM investors, ICAPM investors prefer high expected return and low return variance. But ICAPM investors are also concerned with the covariances of portfolio returns with state variables. As a result, optimal portfolios are "multifactor efficient," which means they have the largest possible expected returns, given their return variances and the covariances of their returns with the relevant state variables.

Fama (1996) shows that the ICAPM generalizes the logic of the CAPM. That is, if there is risk-free borrowing and lending or if short sales of risky assets are allowed, market clearing prices imply that the market portfolio is multifactor efficient. Moreover, multifactor efficiency implies a relation between expected return and beta risks, but it requires additional betas, along with a market beta, to explain expected returns.

An ideal implementation of the ICAPM would specify the state variables that affect expected returns. Fama and French (1993) take a more indirect approach, perhaps more in the spirit of Ross's (1976) arbitrage pricing theory. They argue that though size and book-to-market equity are not themselves state variables, the higher average returns on small stocks and high book-to-market stocks reflect unidentified state variables that produce undiversifiable risks (covariances) in returns that are not captured by the market return and are priced separately from market betas. In support of this claim, they show that the returns on the stocks of small firms covary more with one another than with returns on the stocks of large firms, and returns on high book-to-market (value) stocks covary more with one another than with returns on low book-to-market (growth) stocks. Fama and French (1995) show that there are similar size and book-to-market patterns in the covariation of fundamentals like earnings and sales.

Based on this evidence, Fama and French (1993, 1996) propose a three-factor model for expected returns,

$$\text{(Three-Factor Model)} \quad E(R_{it}) - R_{ft} = \beta_{iM}[E(R_{Mt}) - R_{ft}] + \beta_{is}E(SMB_t) + \beta_{ih}E(HML_t).$$

In this equation, SMB_t (small minus big) is the difference between the returns on diversified portfolios of small and big stocks, HML_t (high minus low) is the difference between the returns on diversified portfolios of high and low B/M stocks, and the betas are slopes in the multiple regression of $R_{it} - R_{ft}$ on $R_{Mt} - R_{ft}$, SMB_t and HML_t.

For perspective, the average value of the market premium $R_{Mt} - R_{ft}$ for 1927–2003 is 8.3 percent per year, which is 3.5 standard errors from zero. The

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average values of SMB_t and HML_t are 3.6 percent and 5.0 percent per year, and they are 2.1 and 3.1 standard errors from zero. All three premiums are volatile, with annual standard deviations of 21.0 percent ($R_{Mt} - R_{ft}$), 14.6 percent (SMB_t) and 14.2 percent (HML_t) per year. Although the average values of the premiums are large, high volatility implies substantial uncertainty about the true expected premiums.

One implication of the expected return equation of the three-factor model is that the intercept α_i in the time-series regression,

$$R_{it} - R_{ft} = \alpha_i + \beta_{iM}(R_{Mt} - R_{ft}) + \beta_{is}SMB_t + \beta_{ih}HML_t + \varepsilon_{it},$$

is zero for all assets i. Using this criterion, Fama and French (1993, 1996) find that the model captures much of the variation in average return for portfolios formed on size, book-to-market equity and other price ratios that cause problems for the CAPM. Fama and French (1998) show that an international version of the model performs better than an international CAPM in describing average returns on portfolios formed on scaled price variables for stocks in 13 major markets.

The three-factor model is now widely used in empirical research that requires a model of expected returns. Estimates of α_i from the time-series regression above are used to calibrate how rapidly stock prices respond to new information (for example, Loughran and Ritter, 1995; Mitchell and Stafford, 2000). They are also used to measure the special information of portfolio managers, for example, in Carhart's (1997) study of mutual fund performance. Among practitioners like Ibbotson Associates, the model is offered as an alternative to the CAPM for estimating the cost of equity capital.

From a theoretical perspective, the main shortcoming of the three-factor model is its empirical motivation. The small-minus-big (SMB) and high-minus-low (HML) explanatory returns are not motivated by predictions about state variables of concern to investors. Instead they are brute force constructs meant to capture the patterns uncovered by previous work on how average stock returns vary with size and the book-to-market equity ratio.

But this concern is not fatal. The ICAPM does not require that the additional portfolios used along with the market portfolio to explain expected returns "mimic" the relevant state variables. In both the ICAPM and the arbitrage pricing theory, it suffices that the additional portfolios are well diversified (in the terminology of Fama, 1996, they are multifactor minimum variance) and that they are sufficiently different from the market portfolio to capture covariation in returns and variation in expected returns missed by the market portfolio. Thus, adding diversified portfolios that capture covariation in returns and variation in average returns left unexplained by the market is in the spirit of both the ICAPM and the Ross's arbitrage pricing theory.

The behavioralists are not impressed by the evidence for a risk-based explanation of the failures of the CAPM. They typically concede that the three-factor model captures covariation in returns missed by the market return and that it picks

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up much of the size and value effects in average returns left unexplained by the CAPM. But their view is that the average return premium associated with the model's book-to-market factor—which does the heavy lifting in the improvements to the CAPM—is itself the result of investor overreaction that happens to be correlated across firms in a way that just looks like a risk story. In short, in the behavioral view, the market tries to set CAPM prices, and violations of the CAPM are due to mispricing.

The conflict between the behavioral irrational pricing story and the rational risk story for the empirical failures of the CAPM leaves us at a timeworn impasse. Fama (1970) emphasizes that the hypothesis that prices properly reflect available information must be tested in the context of a model of expected returns, like the CAPM. Intuitively, to test whether prices are rational, one must take a stand on what the market is trying to do in setting prices—that is, what is risk and what is the relation between expected return and risk? When tests reject the CAPM, one cannot say whether the problem is its assumption that prices are rational (the behavioral view) or violations of other assumptions that are also necessary to produce the CAPM (our position).

Fortunately, for some applications, the way one uses the three-factor model does not depend on one's view about whether its average return premiums are the rational result of underlying state variable risks, the result of irrational investor behavior or sample specific results of chance. For example, when measuring the response of stock prices to new information or when evaluating the performance of managed portfolios, one wants to account for known patterns in returns and average returns for the period examined, whatever their source. Similarly, when estimating the cost of equity capital, one might be unconcerned with whether expected return premiums are rational or irrational since they are in either case part of the opportunity cost of equity capital (Stein, 1996). But the cost of capital is forward looking, so if the premiums are sample specific they are irrelevant.

The three-factor model is hardly a panacea. Its most serious problem is the momentum effect of Jegadeesh and Titman (1993). Stocks that do well relative to the market over the last three to twelve months tend to continue to do well for the next few months, and stocks that do poorly continue to do poorly. This momentum effect is distinct from the value effect captured by book-to-market equity and other price ratios. Moreover, the momentum effect is left unexplained by the three-factor model, as well as by the CAPM. Following Carhart (1997), one response is to add a momentum factor (the difference between the returns on diversified portfolios of short-term winners and losers) to the three-factor model. This step is again legitimate in applications where the goal is to abstract from known patterns in average returns to uncover information-specific or manager-specific effects. But since the momentum effect is short-lived, it is largely irrelevant for estimates of the cost of equity capital.

Another strand of research points to problems in both the three-factor model and the CAPM. Frankel and Lee (1998), Dechow, Hutton and Sloan (1999), Piotroski (2000) and others show that in portfolios formed on price ratios like

book-to-market equity, stocks with higher expected cash flows have higher average returns that are not captured by the three-factor model or the CAPM. The authors interpret their results as evidence that stock prices are irrational, in the sense that they do not reflect available information about expected profitability.

In truth, however, one can't tell whether the problem is bad pricing or a bad asset pricing model. A stock's price can always be expressed as the present value of expected future cash flows discounted at the expected return on the stock (Campbell and Shiller, 1989; Vuolteenaho, 2002). It follows that if two stocks have the same price, the one with higher expected cash flows must have a higher expected return. This holds true whether pricing is rational or irrational. Thus, when one observes a positive relation between expected cash flows and expected returns that is left unexplained by the CAPM or the three-factor model, one can't tell whether it is the result of irrational pricing or a misspecified asset pricing model.

The Market Proxy Problem

Roll (1977) argues that the CAPM has never been tested and probably never will be. The problem is that the market portfolio at the heart of the model is theoretically and empirically elusive. It is not theoretically clear which assets (for example, human capital) can legitimately be excluded from the market portfolio, and data availability substantially limits the assets that are included. As a result, tests of the CAPM are forced to use proxies for the market portfolio, in effect testing whether the proxies are on the minimum variance frontier. Roll argues that because the tests use proxies, not the true market portfolio, we learn nothing about the CAPM.

We are more pragmatic. The relation between expected return and market beta of the CAPM is just the minimum variance condition that holds in any efficient portfolio, applied to the market portfolio. Thus, if we can find a market proxy that is on the minimum variance frontier, it can be used to describe differences in expected returns, and we would be happy to use it for this purpose. The strong rejections of the CAPM described above, however, say that researchers have not uncovered a reasonable market proxy that is close to the minimum variance frontier. If researchers are constrained to reasonable proxies, we doubt they ever will.

Our pessimism is fueled by several empirical results. Stambaugh (1982) tests the CAPM using a range of market portfolios that include, in addition to U.S. common stocks, corporate and government bonds, preferred stocks, real estate and other consumer durables. He finds that tests of the CAPM are not sensitive to expanding the market proxy beyond common stocks, basically because the volatility of expanded market returns is dominated by the volatility of stock returns.

One need not be convinced by Stambaugh's (1982) results since his market proxies are limited to U.S. assets. If international capital markets are open and asset prices conform to an international version of the CAPM, the market portfolio

should include international assets. Fama and French (1998) find, however, that betas for a global stock market portfolio cannot explain the high average returns observed around the world on stocks with high book-to-market or high earnings-price ratios.

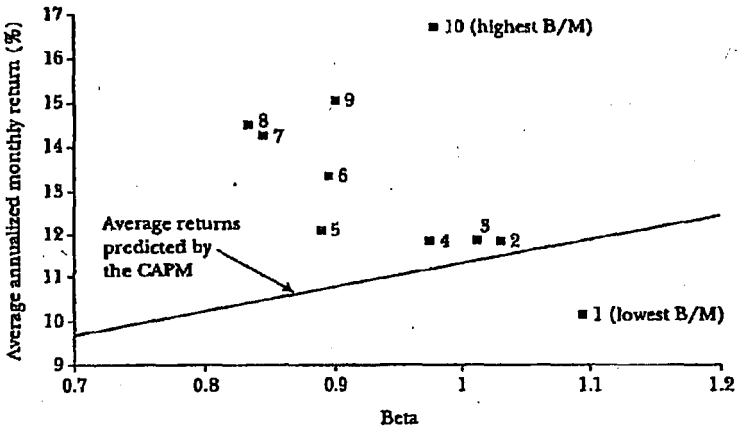
A major problem for the CAPM is that portfolios formed by sorting stocks on price ratios produce a wide range of average returns, but the average returns are not positively related to market betas (Lakonishok, Shleifer and Vishny, 1994; Fama and French, 1996, 1998). The problem is illustrated in Figure 3, which shows average returns and betas (calculated with respect to the CRSP value-weight portfolio of NYSE, AMEX and NASDAQ stocks) for July 1963 to December 2003 for ten portfolios of U.S. stocks formed annually on sorted values of the book-to-market equity ratio (B/M).[6]

Average returns on the B/M portfolios increase almost monotonically, from 10.1 percent per year for the lowest B/M group (portfolio 1) to an impressive 16.7 percent for the highest (portfolio 10). But the positive relation between beta and average return predicted by the CAPM is notably absent. For example, the portfolio with the lowest book-to-market ratio has the highest beta but the lowest average return. The estimated beta for the portfolio with the highest book-to-market ratio and the highest average return is only 0.98. With an average annualized value of the riskfree interest rate, R_f, of 5.8 percent and an average annualized market premium, $R_M - R_f$, of 11.3 percent, the Sharpe-Lintner CAPM predicts an average return of 11.8 percent for the lowest B/M portfolio and 11.2 percent for the highest, far from the observed values, 10.1 and 16.7 percent. For the Sharpe-Lintner model to "work" on these portfolios, their market betas must change dramatically, from 1.09 to 0.78 for the lowest B/M portfolio and from 0.98 to 1.98 for the highest. We judge it unlikely that alternative proxies for the market portfolio will produce betas and a market premium that can explain the average returns on these portfolios.

It is always possible that researchers will redeem the CAPM by finding a reasonable proxy for the market portfolio that is on the minimum variance frontier. We emphasize, however, that this possibility cannot be used to justify the way the CAPM is currently applied. The problem is that applications typically use the same

[6] Stock return data are from CRSP, and book equity data are from Compustat and the Moody's Industrials, Transportation, Utilities and Financials manuals. Stocks are allocated to ten portfolios at the end of June of each year t (1963 to 2003) using the ratio of book equity for the fiscal year ending in calendar year $t-1$, divided by market equity at the end of December of $t-1$. Book equity is the book value of stockholders' equity, plus balance sheet deferred taxes and investment tax credit (if available), minus the book value of preferred stock. Depending on availability, we use the redemption, liquidation or par value (in that order) to estimate the book value of preferred stock. Stockholders' equity is the value reported by Moody's or Compustat, if it is available. If not, we measure stockholders' equity as the book value of common equity plus the par value of preferred stock or the book value of assets minus total liabilities (in that order). The portfolios for year t include NYSE (1963–2003), AMEX (1963–2003) and NASDAQ (1972–2003) stocks with positive book equity in $t-1$ and market equity (from CRSP) for December of $t-1$ and June of t. The portfolios exclude securities CRSP does not classify as ordinary common equity. The breakpoints for year t use only securities that are on the NYSE in June of year t.

Figure 3
Average Annualized Monthly Return versus Beta for Value Weight Portfolios Formed on B/M, 1963–2003



market proxies, like the value-weight portfolio of U.S. stocks, that lead to rejections of the model in empirical tests. The contradictions of the CAPM observed when such proxies are used in tests of the model show up as bad estimates of expected returns in applications; for example, estimates of the cost of equity capital that are too low (relative to historical average returns) for small stocks and for stocks with high book-to-market equity ratios. In short, if a market proxy does not work in tests of the CAPM, it does not work in applications.

Conclusions

The version of the CAPM developed by Sharpe (1964) and Lintner (1965) has never been an empirical success. In the early empirical work, the Black (1972) version of the model, which can accommodate a flatter tradeoff of average return for market beta, has some success. But in the late 1970s, research begins to uncover variables like size, various price ratios and momentum that add to the explanation of average returns provided by beta. The problems are serious enough to invalidate most applications of the CAPM.

For example, finance textbooks often recommend using the Sharpe-Lintner CAPM risk-return relation to estimate the cost of equity capital. The prescription is to estimate a stock's market beta and combine it with the risk-free interest rate and the average market risk premium to produce an estimate of the cost of equity. The typical market portfolio in these exercises includes just U.S. common stocks. But empirical work, old and new, tells us that the relation between beta and average return is flatter than predicted by the Sharpe-Lintner version of the CAPM. As a

result, CAPM estimates of the cost of equity for high beta stocks are too high (relative to historical average returns) and estimates for low beta stocks are too low (Friend and Blume, 1970). Similarly, if the high average returns on value stocks (with high book-to-market ratios) imply high expected returns, CAPM cost of equity estimates for such stocks are too low.[7]

The CAPM is also often used to measure the performance of mutual funds and other managed portfolios. The approach, dating to Jensen (1968), is to estimate the CAPM time-series regression for a portfolio and use the intercept (Jensen's alpha) to measure abnormal performance. The problem is that, because of the empirical failings of the CAPM, even passively managed stock portfolios produce abnormal returns if their investment strategies involve tilts toward CAPM problems (Elton, Gruber, Das and Hlavka, 1993). For example, funds that concentrate on low beta stocks, small stocks or value stocks will tend to produce positive abnormal returns relative to the predictions of the Sharpe-Lintner CAPM, even when the fund managers have no special talent for picking winners.

The CAPM, like Markowitz's (1952, 1959) portfolio model on which it is built, is nevertheless a theoretical tour de force. We continue to teach the CAPM as an introduction to the fundamental concepts of portfolio theory and asset pricing, to be built on by more complicated models like Merton's (1973) ICAPM. But we also warn students that despite its seductive simplicity, the CAPM's empirical problems probably invalidate its use in applications.

■ *We gratefully acknowledge the comments of John Cochrane, George Constantinides, Richard Leftwich, Andrei Shleifer, René Stulz and Timothy Taylor.*

[7] The problems are compounded by the large standard errors of estimates of the market premium and of betas for individual stocks, which probably suffice to make CAPM estimates of the cost of equity rather meaningless, even if the CAPM holds (Fama and French, 1997; Pastor and Stambaugh, 1999). For example, using the U.S. Treasury bill rate as the risk-free interest rate and the CRSP value-weight portfolio of publicly traded U.S. common stocks, the average value of the equity premium $R_{Mt} - R_{ft}$ for 1927–2003 is 8.3 percent per year, with a standard error of 2.4 percent. The two standard error range thus runs from 3.5 percent to 13.1 percent, which is sufficient to make most projects appear either profitable or unprofitable. This problem is, however, hardly special to the CAPM. For example, expected returns in all versions of Merton's (1973) ICAPM include a market beta and the expected market premium. Also, as noted earlier the expected values of the size and book-to-market premiums in the Fama-French three-factor model are also estimated with substantial error.

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Comparable Earnings: New Life for an Old Precept

by
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Comparable Earnings: New Life for an Old Precept

Accelerating deregulation has greatly increased the investment risk of natural gas utilities. As a result, the authors believe it more appropriate than ever to employ the comparable earnings model. We believe our application of the model overcomes the greatest traditional objection to it — lack of comparability of the selected non-utility proxy firms. Our illustration focuses on a target gas pipeline company with a beta of 0.96 — almost equal to the market's beta of 1.00.

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Introduction

The comparable earnings model used to determine a common equity cost rate is deeply rooted in the standard of "corresponding risk" enunciated in the landmark *Bluefield* and *Hope* decisions of the U.S. Supreme Court.[1] With such solid grounding in the foundations of rate of return regulation, comparable earnings should be accepted as a principal model, along with the currently popular market-based models, provided that its most common criticism, non-comparability of the proxy companies, is overcome.

Our comparable earnings model overcomes the non-comparability issue of the non-utility firms selected as a proxy for the target utility, in this example, a gas pipeline company. We should note that in the absence of common stock prices for the target utility (as with a wholly-owned subsidiary), it is appropriate to use the average of a proxy group of similar risk gas pipeline companies whose common stocks are actively traded. As we will demonstrate, our selection process results in a group of domestic, non-utility firms that is comparable in total risk, the sum of business and financial risk, which reflects both non-diversifiable systematic, or market, risk as well as diversifiable unsystematic, or firm-specific, risk.

Embedded in the Landmark Decisions

As stated in *Bluefield* in 1922: "A public utility is entitled to such rates as will permit it to earn a return . . on investments in other business undertakings which are attended by corresponding risks and uncertainties ..."

In addition, the court stated in *Hope* in 1944: "By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks."

Thus, the "corresponding risk" precept of *Bluefield* and *Hope* predates the use of such market-based cost-of-equity models as the Discounted Cash Flow (DCF) and Capital Asset Pricing (CAPM), which were developed later and are currently popular in rate-base/rate-of-return regulation. Consequently, the comparable earnings model has a longer regulatory and judicial history. However, it has far greater relevance now than ever before in its history because significant deregulation has substantially increased natural gas utilities' investment risk to a level similar to that of non-utility firms. As a result, it is

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more important than ever to look to similar-risk non-utility firms for insight into common equity cost rate, especially in view of the deficiencies inherent in the currently popular market-based cost of common equity models, particularly the DCF model

Despite the fact that the landmark decisions are still regarded as having set the standards for determining a fair rate of return, the comparable earnings model has experienced decreased usage by expert witnesses, as well as less regulatory acceptance over the years. We believe the decline in the popularity of the comparable earnings model, in large measure, is attributable to the difficulty of selecting non-utility proxy firms that regulators will accept as comparable to the target utility. Regulatory acceptance is difficult to gain when the selection process is arbitrary. Our application of the model is objective and consistent with fundamental financial tenets.

Principles of Comparable Earnings

Regulation is a substitute for the competition of the marketplace. Moreover, regulated public utilities compete in the capital markets with all firms, including unregulated non-utilities. The comparable earnings model is based upon the opportunity cost principle; i.e., that the true cost of an investment is the return that could have been earned on the next best available alternative investment of similar risk. Consequently, the comparable earnings model is consistent with regulatory and financial principles, as it is a surrogate for the competition of the marketplace, and investors seek the greatest available rate of return for bearing similar risk.

The selection of comparable firms is the most difficult step in applying the comparable earnings model, as noted by Phillips[2] as well as by Bonbright, Danielsen and Kamerschen.[3] The selection of non-utility proxy firms should result in a sufficiently broad-based group in order to minimize the effect of company-specific aberrations. However, if the selection process is arbitrary, it likely would result in a proxy group that is too broad-based, such as the Standard & Poor's 500 Composite Index or the Value Line Industrial Composite. The use of such groups would require subjective adjustments to the comparable earnings results to reflect risk differences between the group(s) and the target utility, a gas pipeline company in this example.

Authors' Selection Criteria

We base the selection of comparable non-utility firms on market-based, objective, quantitative measures of risk resulting from market prices that subsume investors' assessments of all elements of risk. Thus, our approach is based upon the principle of risk and return; namely, that firms of comparable risk should be expected to earn comparable returns. It is also consistent with the "corresponding risk" standard established in *Bluefield* and *Hope*. We measure total investment risk as the sum of non-diversifiable systematic and diversifiable unsystematic risk. We use the unadjusted beta as a measure of systematic risk and the standard error of the estimate (residual standard error) as a measure of unsystematic risk. Both the unadjusted beta and the residual standard error are derived from a regression of the target utility's security returns relative to the market's returns, which takes the general form:

$$r_{it} = a_i + b_i r_{mt} + e_{it}$$

where:

- r_{it} = tth observation of the ith utility's rate of return
- r_{mt} = tth observation of the market's rate of return
- e_{it} = tth random error term
- a_i = constant least-squares regression coefficient
- b_i = least-squares regression slope coefficient, the unadjusted beta.

As shown by Francis,[4] the total variation or risk of a firm's return, Var (r_i), comes from two sources:

Var (r_i)= total risk of ith asset

= var($a_i + b_i r_m + e$)
substituting ($a_i + b_i r_m + e$) for r_i

= var($b_i r_m$) + var (e) since var(a_i) = 0

= b_i^2 var(r_m) + var (e) since var($b_i r_m$) = b_i^2 var(r_m)

= systematic + unsystematic risk

Francis[5] also notes: "The term $\sigma^2(r_i|r_m)$ is called the *residual variance around the regression line* in statistical terms or *unsystematic risk* in capital market theory language. $\sigma^2 (r_i|r_m)$ = ... = var (e). The residual variance is the squared standard error in regression language, a measure of unsystematic risk." Application of these criteria results in a group of non-utility firms whose average total investment risk is indeed comparable to that of the target gas pipeline.

As a measure of systematic risk, we use the Value Line unadjusted beta. Beta measures the extent to which market-wide or macro-economic events affect a firm's stock price. We use the unadjusted beta of the target utility as a starting point because it results from the regression of the target utility's security returns relative to the market's returns. Thus, the resulting standard deviation of beta relates to the unadjusted beta. We use the standard deviation of the unadjusted beta to determine the range around it as the selection criterion based on systematic risk.

We use the residual standard error of the regression as a measure of unsystematic risk. The residual standard error reflects the extent to which events specific to the firm's operations affect a firm's stock price. Thus, it is a measure of diversifiable, unsystematic, firm-specific risk.

An Illustration of Authors' Approach

Step One: We begin our approach by establishing the selection criteria as a range of both unadjusted beta and residual standard error of the target gas

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pipeline company.

As shown in table 1, our target gas pipeline company has a Value Line unadjusted beta of 0.90, whose standard deviation is 0.1250. The selection criterion range of unadjusted beta is the unadjusted beta plus (+) and minus (-) three of its standard deviations. By using three standard deviations, 99.73 percent of the comparable unadjusted betas is captured.

Three standard deviations of the target utility's unadjusted beta equals 0.38 (0.1250 x 3 = 0.3750, rounded to 0.38) Consequently, the range of unadjusted betas to be used as a selection criteria is 0.52 - 1.28 (0.52 = 0 90 - 0.38) and (1.28 = 0.90 + 0.38).

Likewise, the selection criterion range of residual standard error equals the residual standard error plus (+) and minus (-) three of its standard deviations. The standard deviation of the residual standard error is defined as: $\sigma/\sqrt{2N}$.

As also shown in table 1, the target gas pipeline company has a residual standard error of 3.7867. According to the above formula, the standard deviation of the residual standard error would be 0 1664 (0.1664 = 3.7867/ $\sqrt{2(259)}$ = 3 7867/22.7596, where 259 = N, the number of weekly price change observations over a period of five years). Three standard deviations of the target utility's residual standard error would be 0.4992 (0.1664 x 3 = .4992). Consequently, the range of residual standard errors to be used as a selection criterion is 3.2875 - 4.2859 (3.2875 = 3.7867 - 0.4992) and (4.2859 = 3 7867 + 0.4992)

Step Two: The step one criteria are applied to Value Line's data base of nearly 4,000 firms for which Value Line derives unadjusted betas and residual standard errors on a weekly basis All firms with unadjusted betas and residual standard errors within the criteria ranges are then selected

Step Three: In the regulatory ratemaking environment, authorized common equity return rates are applied to a book-value rate base Thus, the earnings rates on book common equity, or net worth, of competitive, non-utility firms are highly relevant provided those firms are indeed comparable in total risk to the target gas pipeline. The use of the return rates of other utilities has no relevance because their allowed, and hence subsequently achieved, earnings rates are dependent upon the regulatory

table 1

Summary of the Comparable Earnings Analysis for the Proxy Group of 248 Non-Utility Companies Comparable in Total Risk to the Target Gas Pipeline Company[1]

	1	2	3	4	5	6	7	8
				rate of return on net worth				
	adj. beta	unadj. beta	residual standard error	3-year average[2]	4-year average[2]	5-year average[2]	5-year projected[3]	
average for the proxy group of 248 non-utility companies comparable in total risk to the target gas pipeline company	0.97	0.82	3.7705					
target gas pipeline company	0.95	0.90[4]	3.7867					
median				11.7%	12.0%	12.6%	15.5%	
average of the median historical returns					12.1%			
conclusion[5]								13.8%

[1] The criteria for selection of the non-utility group was that the non-utility companies be domestic and included in *Value Line Investment Survey*. The non-utility group was selected based on an unadjusted beta range of 0.52 to 1.28 and a residual standard error range of 3.2875 to 4.2859.
[2] Ending 1992.
[3] 1996-1998/1997-1999.
[4] The average standard deviation of the target gas pipeline company's unadjusted beta is 0.1250.
[5] Equal weight given to both the average of the 3-, 4- and 5-year historical medians (12.1%) and 5-year projected median rate of return on net worth (15.5%). Thus, 13.8% = (12.1% + 15.5% /2).
Source: Value Line Inc., March 18, 1994
Value Line Investment Survey

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process. Consequently, we believe all utilities must be eliminated to avoid circularity. Moreover, we believe non-domestic firms must be eliminated because their reporting methods differ significantly from U.S. firms.

Step Four: We then eliminated those firms for which Value Line does not publish a "Ratings & Report" in *Value Line Investment Survey* so that the historical and projected returns on net worth[6] are from a consistent source. We use historical returns on net worth for the most recent five years, as well as those projected three to five years into the future. We believe it is logical to evaluate both historical and projected return rates because it is reasonable to assume that investors avail themselves of both when they are available from widely disseminated information services, such as Value Line Inc. The use of Value Line's return rates on net worth understates the common equity return rates for two reasons. First, preferred stock is included in net worth. Second, the net worth return rates are as of the end of each period. Thus, the use of average common equity return rates would yield higher results.

Step Five: Median returns based on the historical average three, four and five years ending 1992 and projected 1996-1998 or 1997-1999 rates of return on net worth are then determined as shown in columns 4 through 7 of table 1. The median is used due to the wide variations and skewness in rates of return on net worth for the non-utility firms as evidenced by the frequency distributions of those returns as shown in illustration 1.

However, we show the average unadjusted beta, 0.92, and residual standard error, 3.7705, for the proxy group in columns 2 and 3 of table 1 because their frequency distributions are not significantly skewed, as shown in illustration 2.

Step Six: Our conclusion of a com-

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Illustration 1

Rates of Return on Net Worth for the Proxy Group of 248 Non-Utility Companies[1]

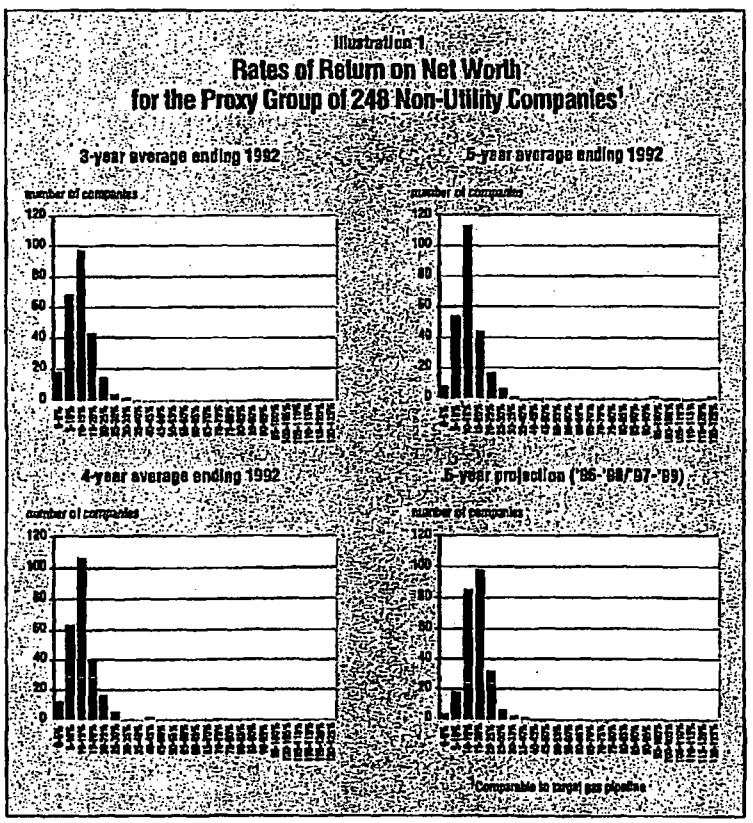
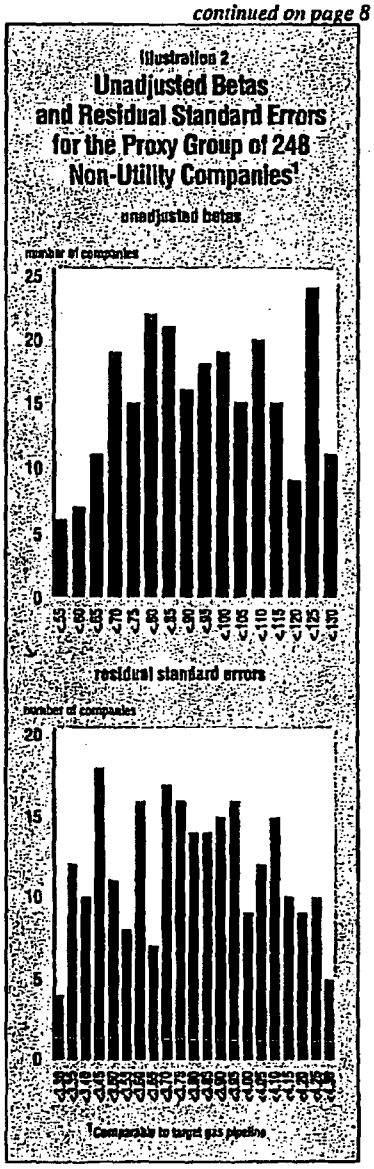


Illustration 2

Unadjusted Betas and Residual Standard Errors for the Proxy Group of 248 Non-Utility Companies[1]



Comparable Earnings *from page 7*

parable earnings cost rate is based upon the mid-point of the average of the median three-, four- and five-year historical rates of return on net worth of 12.1 percent as shown in column 5 and the median projected 1996-1998/1997-1999 rate of return on net worth of 15.5 percent as shown in column 7 of table 1. As shown in column 8, it is 13.8 percent.

Summary

Our comparable earnings approach demonstrates that it is possible to select a proxy group of non-utility firms that is comparable in total risk to a target utility. In our example, the 13.8 percent comparable earnings cost rate is very conservative as it is an expected achieved rate on book common equity (a regulatory allowed rate should be greater) and because it is based on end-of-period net worth. A similar rate on average net worth would be about 20 to 40 basis points higher (i.e., 14.0 to 14.2 percent) and still understate the appropriate regulatory allowed rate of return on book common equity.

Our selection criteria are based upon measures of systematic and unsystematic risk, specifically unadjusted beta and residual standard error. They provide the basis for the objective selection of comparable non-utility firms. Our selection criteria rely on changes in market prices over approximately five years. We compare the aggregate total risk, or the sum of systematic and unsystematic risk, which reflects investors' aggregate assessment of both business and financial risk. Thus, no adjustments are necessary to the proxy group results to compensate for the differences in business risk and financial risk, such as accounting practices and debt/equity ratios. Moreover, it is inappropriate to attempt a comparison of the target utility with any individual firm, or subset of firms, in the proxy group because only the average firm of the group is relevant.

Because the comparable earnings model is firmly anchored in the "corresponding risk" precept established in the landmark court decisions, it is worthy of consideration as a principal model for use in estimating the cost rate of common equity capital of a regulated utility. Our approach to the comparable earnings model produces a proxy group that is indeed comparable in total risk because the selection process is objective and quantitative. It therefore overcomes criticism linked to arbitrary selection processes.

All cost-of-common-equity models, including the DCF and CAPM, are fraught with deficiencies, usually stemming from the many necessary but unrealistic assumptions that underlie them. The effects of the deficiencies of individual models can be mitigated by using more than one model when estimating a utility's common equity cost rate. Therefore, when the non-comparability issue is overcome, the comparable earnings model deserves to receive the same consideration as a primary model, as do the currently popular market-based models. ■

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[1] *Bluefield Water Works Improvement Co. v. Public Service Commission*. 262 U.S. 679 (1922) and *Federal Power Commission v. Hope Natural Gas Co*. 320 U.S. 519 (1944)

[2] Charles F. Phillips Jr., The Regulation of Public Utilities: Theory and Practice. Public Utilities Reports Inc., 1988. p. 379

[3] James C. Bonbright, Albert L. Danielsen and David R. Kamerschen. Principles of Public Utilities Rates. 2nd edition. Public Utilities Reports Inc. 1988, p. 329

[4] Jack Clark Francis. Investments: Analysis and Management. 3rd edition. McGraw-Hill Book Co., 1980, p. 363.

[5] Id., p. 548.

[6] Returns on net worth must be used when relying on Value Line data because returns on book common equity for non-utility firms are not available from Value Line

Report Lists Pipeline, Storage Projects

More than $9 billion worth of projects to expand the nation's natural gas pipeline network are in various stages of development, according to an A.G.A. report. These projects involve nearly 8,000 miles of new pipelines and capacity additions to existing lines and represent 15.3 billion cubic feet (Bcf) per day of new pipeline capacity.

During 1993 and early 1994, construction on 3,100 miles of pipeline was completed or under way, at a cost of nearly $4 billion, says A.G.A. These projects are adding 5.4 Bcf in daily delivery capacity nationwide.

Among the projects completed in 1993 were Pacific Gas Transmission Co.'s 805 miles of looping that allows increased deliveries of Canadian gas to the West Coast; Northwest Pipeline Corp.'s addition of 433 million cubic feet of daily capacity for customers in the Pacific Northwest and Rocky Mountain areas; and the 156-mile Empire State Pipeline in New York.

In addition, major construction projects were started on the systems of Texas Eastern Transmission Corp. and Algonquin Gas Transmission Co. — both subsidiaries of Panhandle Eastern Corp. — and along Florida Gas Transmission Co.'s pipeline.

The report goes on to discuss another $5 billion in proposed projects, which, if completed, will add nearly 5,000 miles of pipeline and 9.8 Bcf per day in capacity, much of it serving Florida and West Coast markets.

A.G.A. also identifies 47 storage projects and says that if all of them are built, existing storage capacity will increase by more than 500 Bcf, or 15 percent.

For a copy of *New Pipeline Construction: Status Report 1993-94* (#F00103), call A.G.A. at (703) 841-8490. Price per copy is $6 for employees of member companies and associates and $12 for other customers.

Society of Utility and
Regulatory Financial Analysts

SURFA

THE COST OF CAPITAL –

A PRACTITIONER'S GUIDE

BY

DAVID C. PARCELL

PREPARED FOR THE SOCIETY OF UTILITY AND REGULATORY FINANCIAL ANALYSTS (SURFA)

2010 EDITION

Author's Note: This manual has been prepared as an educational reference on cost of capital concepts. Its purpose is to describe a broad array of cost of capital models and techniques. No cost of equity model or other concept is recommended or emphasized, nor is any procedure for employing any model recommended. Furthermore, no opinions or preferences are expressed by either the author or the Society of Utility and Regulatory Financial Analysts.

TABLE 4.1
COMMON EQUITY RATIOS

Utility Group	Common Equity Ratio*
Electric Utilities	47%
Combination Electric & Gas Utilities	45%
Natural Gas Distribution & Integrated Natural Gas Companies	52%
Water Companies	46%

* Including short-term debt.

Source: AUS Utility Reports, September, 2010

Risk and Leverage

A general principle of finance maintains that the financing structure of a company should be determined in conjunction with the perceived risk of the assets. The obvious intuitive appeal of this principle goes back at least to Adam Smith (1776, 110-111) who stated:

> "...something must be given for the profits of the undertaker of the work who hazards his stock (capital) in this adventure... In all the different employments of stock, the ordinary rate of profit varies more or less with the certainty or uncertainty of the returns...the ordinary rate of profit always rises more or less with the risk."

Risk, in this context, can be segregated into two components - business risk and financial risk. Business risk refers to the risk inherent in the level and composition of a firm's assets, as well as the nature of the business in which the firm is engaged. In essence, business risk is reflected in the variability of the pre-tax operating income stream which the firm faces. A firm with a relatively low level of earnings variability is said to have low business risk while a firm with a relatively high level of earnings variability is said to have high business risk. Business risk is not related to the manner in which the firm finances its assets.

Financial risk refers to the capital structure of the firm and how this impacts the firm's after-tax net income and return on equity. Financial risk is created by the use of debt and preferred stock in the capital structure, which is called financial leverage. The use of leverage, or the use of fixed-cost financing with a (generally) lower cost than common equity, can have two impacts on a firm's return on equity. If the firm earns a return higher than the fixed-cost (i.e., leveraged) capital, the firm's return on equity is enhanced. However, if the firm earns a return lower than the fixed-cost capital, the firm's return on equity is reduced. In the extreme, financial leverage can result in bankruptcy if the firm's earnings do not cover its fixed-cost rates and sufficient cash (from prior periods) is not on hand to pay the required payments to the owners of the fixed-cost capital.

Capital Structure Issues

Several issues are encountered in the selection of a proper capital structure for ratemaking purposes.

Reconciling Rate Base and Capital Structure

As noted in Chapter 2, the rate base - rate of return concept is based on the recognition that rate base (assets) are financed with the capital structure (liabilities and equity). An inherent assumption of this concept is that the rate base and capital structure are equal in size. In reality, this assumption is not always true.

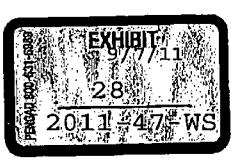
Cicchetti (1985, 41) has observed "The reconciliation of the rate base and the capital structure is an integral, and often overlooked, segment of determining the required overall rate of return". Rate base and capitalization may differ for a number of reasons, including the existence of non-utility assets and the regulatory disallowance of certain assets.

One method for reconciling rate base and capital structure is known as the "balance sheet method". This methodology begins with defining the usual rate base items (net plant in service, property held for future use, construction work in progress, and working capital) and then equating this with the capital structure items financing the rate base. As adjustments are made to remove

24) With regard to Project Phoenix, please provide the Minutes for all Utilities, Inc., Board of Directors' meetings in which Project Phoenix was discussed.

RESPONSE:
Witness: John Stover

Minutes are attached.



Utilities, Inc.
Meeting of the Board of Directors
November 28, 2007

REDACTED COPY

Board members present	Board members absent
John Stokes, Chairman (by telephone)	None
Lawrence N. Schumacher	
Michael Walsh	
Andrew Nevin	
Michael Miller	

The meeting of the Board of Directors was convened at 8:30 a.m. Pacific Standard Time by Mr. Stokes, in the Van Gogh 2 Conference Room of the Bellagio Hotel in Las Vegas, Nevada. Mr. Stokes acted as Chairman of the meeting and noted that a quorum of Directors was present. Also in attendance were Christopher Lee, Managing Partner, AIG Highstar Capital; Steve Gudovic, Investment Associate, AIG Highstar Capital; Lisa Crossett, Vice President and Chief Operating Officer of the Company; Steve Lubertozzi, Vice President, Chief Financial Officer and Treasurer of the Company; John Hoy, Vice President and Chief Regulatory Officer of the Company; John Stover, Vice President and Secretary of the Company; and Donald Sudduth, Director of Corporate Development of the Company.

John Stover acted as Secretary of the meeting and recorded the minutes.

....

Business Overview

....

- **Project Phoenix** – The Board discussed the anticipated "Go-live" on December 3, 2007 of the Company's new integrated financial system, as well as additional costs associated with previous delays in the Go-live date.

....

Other Business

There being no further business brought before the Board, upon motion duly made and seconded, Mr. Stokes adjourned the meeting at 11:20 a.m. Pacific Standard Time.

Utilities, Inc.
Meeting of the Board of Directors
August 14, 2007

REDACTED COPY

Board members present	Board members absent
John Stokes, Chairman	Michael Miller
Lawrence N. Schumacher	
Michael Walsh (by telephone)	
Aaron Gold (by telephone)	

The meeting of the Board of Directors was convened at 8:30 a.m. Eastern Daylight Time by Mr. Stokes, at the offices of AIG Investments office at 599 Lexington Ave, New York, New York. Mr. Stokes acted as Chairman of the meeting and noted that a quorum of Directors was present. Also in attendance were Christopher Lee, Managing Partner, AIG Highstar Capital; Andrew Nevin, Vice President, AIG Highstar Capital; Steve Gudovic, Investment Associate, AIG Highstar Capital; Lisa Crossett, Vice President and Chief Operating Officer of the Company; Steve Lubertozzi, Vice President, Chief Financial Officer and Treasurer of the Company; John Hoy, Vice President and Chief Regulatory Officer of the Company; John Stover, Vice President and Secretary of the Company; and Donald Sudduth, Director of Corporate Development of the Company.

John Stover acted as Secretary of the meeting and recorded the minutes.

....

Project Phoenix

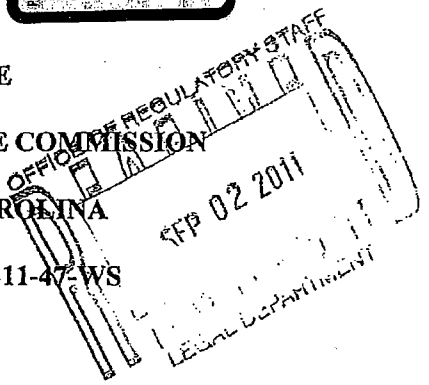
Mr. Schumacher reviewed the current status of the Company's effort to integrate, simplify and automate its business processes. The Board noted that the project was currently under budget, but that it was likely to exceed the budget before completion.

....

Other Business

There being no further business brought before the Board, upon motion duly made and seconded, Mr. Stokes adjourned the meeting at 12:25 p.m. Eastern Daylight Time.

COPY



BEFORE

THE PUBLIC SERVICE COMMISSION

OF SOUTH CAROLINA

DOCKET NO. 2011-47-WS

IN RE: Application of Carolina Water Service, Incorporated for Approval of an Increase In its Rates for Water and Sewer Services Provided to All of Its Service Areas in South Carolina	)))))	**2nd Supplemental Responses by Carolina Water Service, Inc. to Fifth Continuing Information Requests**

TO: NANETTE EDWARDS AND JEFFREY NELSON, ATTORNEYS FOR THE ORS

The Applicant, Carolina Water Service, Inc. responds to the Office of Regulatory Staff's Second Continuing Information Request as follows:

II. AUDIT REQUESTS

5.4 CWS states in its response to 2.11 that it did not return any deposit monies or deposit interest monies to the state during the test year. Has **any** monies been turned over to the South Carolina State Treasurer as prescribed by Commission regulation since January 2007? If so, provide an itemized list of the customers, address for service received, date deposit provided to CWS by customer, amount of deposit made by customer, amount of interest accrued by account holder, amount of deposit and/or interest used to make payment for utility service, and amount of deposit and/or interest provided to the South Carolina State Treasurer along with the date. If no monies have been provided to the South Carolina State Treasurer, please explain why not.

Respondent: Karen Sasic

Response:
Yes, the company has turned over money to the South Carolina State Treasurer in 2007 and 2008. The attached reports entitled "2007 Report.pdf" and "2008 Report.pdf" indicates the customer's name, last known mailing address, date of last activity and amount sent to the state. Due to the date of the last activity, the accounts have been purged from the legacy billing system and we are unable to provide the address for service

received, date deposit provided to CWS by customer, amount of deposit made by customer, amount of interest accrued by account holder, amount of deposit and/or interest used to make payment for utility service.

5.5 Since 2007, were any deposits and/or interest on deposits required to be reported to the South Carolina State Treasurer that was being held by CWS? If so, provide a list of the account holders (former customers) subject to this reporting requirement and a copy of the report. Also, provide an itemized list of the customers, address for service received, date deposit provided to CWS by customer, amount of deposit made by customer, amount of interest accrued by account holder, amount of deposit and/or interest used to make payment for utility service, and amount of the deposit and/or interest provided in each report to the South Carolina State Treasurer. In addition, provide a list of the account holder and last known address for which CWS provided the final notice to prior to making its filing with the South Carolina State Treasurer.

Respondent: Karen Sasic

Response:
Yes, the company has turned over money to the South Carolina State Treasurer in 2007 and 2008. The attached reports entitled "2007 Report.pdf" and "2008 Report.pdf" indicates the customer's name, last known mailing address, date of last activity and amount sent to the state.

In addition, attached are reports for 2009 and 2010 entitled "2009 Report.pdf" and "2010 Report.pdf". The 2009 listing is already at the SC Unclaimed Property Office of the Treasurer's website but the report has not yet been processed. The 2009 report will be remitted along with the money for unclaimed funds in September 2011. In addition, the full report and account listing for 2010 along with the money for unclaimed funds will be remitted to the State in September 2011.

Due to the date of the last activity, the accounts have been purged from the legacy billing system and we are unable to provide the address for service received, date deposit provided to CWS by customer, amount of deposit made by customer, amount of interest accrued by account holder, amount of deposit and/or interest used to make payment for utility service.

ELLIOTT & ELLIOTT, P.A.

Scott Elliott, Esquire
1508 Lady Street
Columbia, SC 29201
(803) 771-0555
(803) 771-8010 (F)
selliott@elliottlaw.us

Charles L.A. Terreni, Esquire
Terreni Law Firm, LLC
1508 Lady Street
Columbia, SC 29201
(803) 771-7228
(803) 771-8778 (F)
charles.terreni@terrenilaw.com

Attorneys for Carolina Water Service, Inc.

Columbia, South Carolina
September 1, 2011

Carolina Water Service, Inc. Response to Fifth Continuing Information Requests

5.4- 2007 Report.pdf

STATE OF SOUTH CAROLINA
LIST OF OWNERS OF UNCLAIMED FUNDS

FOR STO-UPP USE ONLY:
DEPOSIT#_____
HOLDER# 710 1877
SUFFIX#_____

CASH REPORT

THIS REPORT SHOULD CONTAIN ONLY CASH ITEMS
TO REPORT SECURITIES SEE PAGE 11

REPORT YEAR 2007

HOLDER INFORMATION:

COMPANY NAME: CAROLINA WATER SERVICE INC
ADDRESS: 2335 SANDERS RD
NORTHBROOK IL 60062
STATE OF INCORPORATION SC

FEDERAL TAX ID#: 36-2750548
CONTACT PERSON: AUELINA FRIEDMAN
PHONE NUMBER: 847-498-6440
E-MAIL ADDRESS:_____

DID YOUR COMPANY FILE UNDER A DIFFERENT NAME LAST YEAR? IF SO, PRINT COMPANY NAME_____

OWNER NAME: LAST, FIRST, MIDDLE	LAST KNOWN ADDRESS: STREET, CITY, STATE, ZIP	SOCIAL SECURITY # *OR* TAX ID	ACCOUNT#, CERTIFICATE#, IDENTIFCATION#	LAST ACTIVITY DATE	PROPERTY CODE (See page 5)	OWNER CODE (See page 5)	AMOUNT	INTEREST RATE %
TOTAL ITEMS UNDER $50.00							$ 395.45	
TOTAL OWNER-UNKNOWN ITEMS							$	

PAGE TOTAL: $ 395.45

IF YOU ARE REPORTING MORE THAN FIVE INDIVIDUAL ITEMS, PLEASE DO SO USING THE FREE EASY TO USE REPORTING SOFTWARE. SEE PAGE 16 FOR DOWNLOAD INSTRUCTIONS.

R - 2789

(ROLINA WATER SERVICE INC.

OWNER NAME: LAST, FIRST, MIDDLE	LAST KNOWN ADDRESS: STREET, CITY, STATE, ZIP CODE	SOCIAL SECURITY # *OR* TAX ID	ACCOUNT #, CERTIFICATE #, ID #	LAST ACTIVITY DATE	PROPERTY CODE (See page 5)	OWNER CODE (See page 5)	AMOUNT	INTEREST RATE %

Page Total: $_____

Report Total: $ 395.45

The undersigned, acting for_____, declares under penalty of perjury, that to the best of my knowledge and belief, this report contains a full, true and complete report of **CASH ITEMS** of unclaimed property (including social security numbers and addresses for each owner, when included in holder records) now in the possession or under the control of the holder which is presumed abandoned under the South Carolina Uniform Unclaimed Property Act.

Date_____

Signed before Antoinette Federico

On the 30 of October 2007

My commission expires: 5-4-2011

A Federico

Signature

Tax Specialist

Title

OFFICIAL SEAL
ANTOINETTE FEDERICO
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 5-4-2011

R - 2790

SC State Treasurer's Office
Unclaimed Property Division

REPORT DATE - 11/1/07
HOLDER NAME - CAROLINA WATER SERVICE, INC
HOLDER # 7101877 FEDERAL ID # 36-2750548

OWNER'S NAME LAST KNOWN ADDRESS	ID # ACCT OR CK #	PROPERTY CODE	LAST ACTIVITY DATE	AMOUNT REMITTED
Baker, Christy 13 Dean Crest Ct Irmo, SC 29063-2423	397904	UT03	12/21/2001	36.42
Dash, Sandra W. 266 Wynn Dr Columbia, SC 29210	385709	UT03	8/23/2001	19.93
Elledge, Dennis P.O. Box 63 Ballentine, SC 29002	367656	UT03	2/1/2001	32.20
Joyce, Mary Ann 4613 Maplecrest Pl Charlotte, NC 28215	369064	UT03	2/15/2001	28.69
Kehl, Rufus 526 Gallatin Cir Irmo, SC 29063	381916	UT03	7/12/2001	25.14
King, Catherine 8 O'Neal Road Beaufort, SC 29902	365978	UT03	1/11/2001	25.15
Lancaster, Parker 11917 Sam Roper Dr Charlotte, NC 28269	380861	UT03	6/29/2001	50.53
Lightfoot, Adena 124 Penny Ln Lexington, SC 29073-9114	371416	UT03	3/15/2001	15.62
Lindler, Shannon 152 Park Place Dr Irmo, SC 29063	388950	UT03	9/20/2001	31.28
Lipscomb, Tamela 801 Chinquafin Rd Columbia, SC 29212	375140	UT03	4/26/2001	19.42
Patterson, Gwen 930 Piney Wood Rd Columbia, SC 29210	380849	UT03	6/29/2001	10.03
Richmond, Darrell P.O. Box 127 Ballentine, SC 29002	390372	UT03	10/4/2001	27.92
Rutzinski, Paul	382694	UT03	7/19/2001	13.40

PAGE 1
Prepared by: AF

SC State Treasurer's Office
Unclaimed Property Division

REPORT DATE - 11/1/07
HOLDER NAME - CAROLINA WATER SERVICE, INC
HOLDER # 7101877 FEDERAL ID # 36-2750548

OWNERS NAME LAST KNOWN ADDRESS	ID # ACCT OR CK #	PROPERTY CODE	LAST ACTIVITY DATE	AMOUNT REMITTED
4 ValleyBrook, Ct Sumter, SC 29154-1047				
Sherwin, Laquana 139 a Old Jericho Rd Beaufort, SC 29902-5128	385701	UT03	8/23/2001	35.48
Woods, Kirk E 141 Legend Oaks Wy Plum Branch, SC	375144	UT03	4/26/2001	24.24
	REPORT TOTAL			$ 395.45

PAGE 2
Prepared by: AF

Carolina Water Service, Inc. Response to Fifth Continuing Information Requests

5.4- 2008 Report.pdf

STATE OF SOUTH CAROLINA
LIST OF OWNERS OF UNCLAIMED FUNDS

CASH REPORT

THIS REPORT SHOULD CONTAIN ONLY CASH ITEMS
TO REPORT SECURITIES SEE PAGE 11

REPORT YEAR 2008

HOLDER INFORMATION:

COMPANY NAME: CAROLINA WATER SERVICE, INC.
ADDRESS: 2335 SANDERS RD
NORTHBROOK, IL 60062
STATE OF INCORPORATION

FEDERAL TAX ID#: 36-2750548
CONTACT PERSON: AUELINA FRIEDMAN
PHONE NUMBER: 847-498-6440
E-MAIL ADDRESS: AFRIEDMAN@UIWATER.COM

DID YOUR COMPANY FILE UNDER A DIFFERENT NAME LAST YEAR? IF SO, PRINT COMPANY NAME

OWNER NAME: LAST, FIRST, MIDDLE	LAST KNOWN ADDRESS: STREET, CITY, STATE, ZIP	SOCIAL SECURITY # *OR* TAX ID	ACCOUNT#, CERTIFICATE#, IDENTIFCATION#	LAST ACTIVITY DATE	PROPERTY CODE (See page 5)	OWNER CODE (See page 5)	AMOUNT	INTEREST RATE %
TOTAL ITEMS UNDER $50.00							$ 280.67	
TOTAL OWNER-UNKNOWN ITEMS							$	

PAGE TOTAL: $ 280.67

IF YOU ARE REPORTING MORE THAN FIVE INDIVIDUAL ITEMS, PLEASE DO SO USING THE FREE EASY TO USE REPORTING SOFTWARE. SEE PAGE 16 FOR DOWNLOAD INSTRUCTIONS.

R - 2794

OWNER NAME: LAST, FIRST, MIDDLE	LAST KNOWN ADDRESS: STREET, CITY, STATE, ZIP CODE	SOCIAL SECURITY # *OR* TAX ID	ACCOUNT #, CERTIFICATE #, ID #	LAST ACTIVITY DATE	PROPERTY CODE (See page 5)	OWNER CODE (See page 5)	AMOUNT	INTEREST RATE %
	SEE ATTACHED							

Page Total: $ _____

Report Total: $ 280.67

The undersigned, acting for CAROLINA WATER SERVICE, INC., declares under penalty of perjury, that to the best of my knowledge and belief, this report contains a full, true and complete report of **CASH ITEMS** of unclaimed property (including social security numbers and addresses for each owner, when included in holder records) now in the possession or under the control of the holder which is presumed abandoned under the South Carolina Uniform Unclaimed Property Act.

Date 11-1-08

Signed before Antoinette Federico

On the 1st of November

My commission expires: 5-4-2011

A Friedman

Signature

Tax specialist

Title

OFFICIAL SEAL
ANTOINETTE FEDERICO
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 5-4-2011

R - 2795

REPORT DATE - 11/1/08
HOLDER NAME - CAROLINA WATER SERVICE, INC
HOLDER # 7101877 FEDERAL ID # 36-2750548

OWNER'S NAME LAST KNOWN ADDRESS	ID # ACCT OR CK #	PROPERTY CODE	LAST ACTIVITY DATE	AMOUNT REMITTED
Bearden, James 120 Tennyson Dr Lexington, SC 29073	411370	UT03	5/23/2002	16.69
Burbank, Dale 107 White Heron Ln Summverville, SC 29485-8645	436469	UT03	12/27/2002	21.60
Cancer, Danielle 823 A Sandpiper Dr Ladson, SC 29456-5420	405524	UT03	3/21/2002	19.72
Crosby, David PO Box 402 St Matthews, SC 29135	416758	UT03	7/18/2002	10.95
Gibbs, Laura 2803 Shadblow Ln Apt 8 West Columbia, SC 29170	411369	UT03	5/23/2002	24.88
Green, William M. 65 Samuel Dr Georgetown, SC 29440	435742	UT03	12/19/2002	24.48
Gregg, Walter 212 B Parler Dr Ladson, SA 29456	414218	UT03	6/20/2002	25.47
Heape, Ralph Rt 1 Box 3140 Alapaha, GA 31622	428629	UT03	10/17/2002	10.52
Keiffer, Craig 1231 Lady's Island Port Royal, SC 29935	405511	UT03	3/21/2002	39.89
Thigpen, Antoniovs	436739	UT03	12/19/2002	24.00

931 Chadford Rd Irmo, SC 29063-2158				
Waln, Amber 121 Pineisland Trl Columbia, SC 29212	433981	UT03	12/5/2002	22.36
Willetts, Leroy 4935 McDonald Ave West Columbia, SC 29172-1418	430857	UT03	11/7/2002	26.99
Wright, Christina 513 S Royal Tower Dr Irmo, SC 29063	430960	UT03	11/7/2002	13.12
	REPORT TOTAL			$ 280.67

Carolina Water Service, Inc. Response to Fifth Continuing Information Requests

5.5- 2009 Report.pdf

REPORT DATE - 11/1/09
HOLDER NAME - CAROLINA WATER SERVICE, INC
HOLDER # 7101877 FEDERAL ID # 36-2750548

OWNER'S NAME LAST KNOWN ADDRESS	ID # ACCT OR CK #	PROPERTY CODE	LAST ACTIVITY DATE	AMOUNT REMITTED
Benn, Phillip 302 Shadowmere Dr Pelzer, SC 29669	467912	UT03	10/2/2003	36.37
Graham, Nicole W 804 Settersville Rd Columbia, SC 29223	443681	UT03	3/6/2003	26.70
Lally, Anne E 303 King Bird Drive Ladson, SC 29456	469414	UT03	10/9/2003	23.28
McCulough, Carolyn 1109 Darlington St Columbia, SC 29210	474172	UT03	11/13/2003	29.12
Muir, Jennifer 5 Holmesbury Court Irmo, SC 29063	478122	UT03	12/18/2003	23.67
Senn, Billy 3958 Mineral SPR Rd Lexington, SC 29073	443692	UT03	3/6/2003	24.59
Skraba, Steve P 12 Guilford Green Ct Columbia, SC 29212	457212	UT03	7/3/2003	37.93
Smith, Nikokce 1653 Postsoot Circle Georgetown, SC 29440	470182	UT03	10/16/2003	15.31
Taylor, Steve 156 Egle Pointe Dr Chapin, SC 29036	474169	UT03	11/13/2003	17.82
Temples, Jeff R 512 Parlock Road Irmo, SC 29063	464116	UT03	8/28/2003	32.76

Trylor, Robert 168 E Dean Rd Irmo, SC 29063	467703	UT03	10/2/2003	18.53
Velasquez, Joel 825 A Sandpiper Dr Ladson, SC 29456	443694	UT03	3/6/2003	21.58
Widmer, Michael 200 Limseter Ln Columbia, SC 29212	447431	UT03	3/27/2003	15.77

REPORT TOTAL	$ 323.43

Carolina Water Service, Inc. Response to Fifth Continuing Information Requests

5.5- 2010 Report.pdf

REPORT DATE - 11/1/10
HOLDER NAME - CAROLINA WATER SERVICE, INC
HOLDER # 7101877 FEDERAL ID # 36-2750548

OWNER'S NAME LAST KNOWN ADDRESS	ID # ACCT OR CK #	PROPERTY CODE	LAST ACTIVITY DATE	AMOUNT REMITTED
Davis, Keith 528 Regatta Rd Columbia, SC 29212	508010	UT03	8/26/2004	20.70
Erke, Dean 113 Dunbury Dr Summerville, SC 29485	479754	UT03	1/8/2004	28.86
Goodman, Lynn 3887 Rhode Drive Cottageville, SC 29435	501049	UT03	7/1/2004	26.54
Jaure, Erin 123 Little Hampton Irmo, SC 29063	487641	UT03	3/11/2004	32.95
Johnston, Bobby 137 B Old Jericho Beaufort, SC 29902	501034	UT03	7/1/2004	17.83
Kermen, Steven 108 Belfry Drive Lexington, SC 29072	507017	UT03	8/19/2004	16.97
Larimore, Harold 2127 Kirkland St West Coloumbia, SC 29169	519123	UT03	11/19/2004	43.30
Lark, Kathy D 307 Chapelwhite Rd Irmo, SC 29063	498611	UT03	6/10/2004	14.79
Larson, Laurie 100 Lely Ct Irmo, SC 29063	519113	UT03	11/19/2004	47.30
Miller, Eric 3223 McCleod St West Columbia, SC 29172	508012	UT03	8/26/2004	21.43
Neal, Kristie L 9989 Dorchestor Rd Summervile, SC 29485	508015	UT03	8/26/2004	33.47

Pizzi, Michael 539 Travellers Blvd Summerville, SC 29485	501046	UT03	7/1/2004	33.47
Provence, Stephanine 2115 B Wallace St Columbia, SC 29201	522229	UT03	12/16/2004	15.97
Ross, John 320 Cinnamon Lane Lexington, SC 29073	515563	UT03	10/21/2004	11.69
Taylor, Rosie 263 Loskin Ln Lexington, SC 29073	503014	UT03	7/15/2004	24.31
Williams, Matthew 3413 Mineral Springs Lexington, SC 29073	519115	UT03	11/19/2004	46.39
REPORT TOTAL				$ 435.97

2009 Annual Report

CWS of SC
Purchase Water Costs and Consumption Data
2009 Annual Report

Schedule 1

CWS of SC - I-20 Subdivision

		COSTS						Volume					
	Month	Invoices (Costs)	Purchased Service Period	Billings (Recovered)	Sold Service Period	Under or (Over) Recovered Costs	% of Costs	Purchased	Other Water Usage	Available for Sale	Sold	Under or Over Volume	UFW%
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
(1)	Jan-09	$45,236.70	1/12/2009 - 2/15/2009	$30,477.52	12/19/2008 - 1/22/2009	$14,759.18	33%	15,078,900	-	15,078,900	10,761,399	4,317,501	29%
(2)	Feb-09	41,015.40	2/16/2009 - 3/17/2009	35,355.44	1/23/2009 - 2/23/2009	5,659.96	14%	13,671,800	-	13,671,800	10,303,760	3,368,040	25%
(3)	Mar-09	46,261.20	3/18/2009 - 4/16/2009	45,774.08	2/24/2009 - 3/19/2009	487.12	1%	15,420,400	20,000	15,400,400	9,272,208	6,128,192	40%
(4)	Apr-09	47,385.60	4/17/2009 - 5/16/2009	45,112.19	3/20/2009 - 4/20/2009	2,273.41	5%	15,795,200	-	15,795,200	11,196,331	4,598,869	29%
(5)	May-09	59,310.90	5/17/2009 - 6/15/2009	28,449.08	4/21/2009 - 5/22/2009	30,861.84	52%	19,771,800	30,000	19,741,800	12,127,246	7,614,554	39%
(6)	Jun-09	65,913.90	6/16/2009 - 7/15/2009	56,855.18	5/23/2009 - 6/19/2009	9,058.72	14%	21,971,300	-	21,971,300	12,759,788	9,211,512	42%
(7)	Jul-09	60,176.80	7/16/2009 - 8/14/2009	65,883.26	6/20/2009 - 7/21/2009	(5,707.46)	-9%	20,058,600	-	20,058,600	16,125,498	3,933,104	20%
(8)	Aug-09	80,594.40	8/15/2009 - 9/13/2009	55,460.97	7/22/2009 - 8/20/2009	25,133.43	31%	26,864,800	323,605	26,541,195	14,035,376	12,505,819	47%
(9)	Sep-09	52,212.30	9/14/2009 - 10/13/2009	63,786.79	8/21/2009 - 9/22/2009	(11,574.49)	-22%	17,404,100	-	17,404,100	12,295,788	5,108,302	29%
(10)	Oct-09	38,203.50	10/14/2009 - 11/12/2009	63,375.60	9/23/2009 - 10/21/2009	(25,172.10)	-66%	12,734,500	510,000	12,224,500	12,157,548	66,952	1%
(11)	Nov-09	40,997.40	11/13/2009 - 12/12/2009	48,617.10	10/22/2009 - 11/19/2009	(7,619.70)	-19%	13,665,800	60,000	13,605,800	10,294,825	3,310,975	24%
(12)	Dec-09	30,206.70	12/12/2009 - 1/11/2010	43,656.76	11/20/2009 - 12/19/2009	(13,450.06)	-45%	10,068,900	13,500	10,055,400	9,807,186	248,214	2%
(13)	Total	$ 807,513.80		$ 582,803.95		$ 24,709.85	4%	202,508,100	957,105	201,548,995	141,136,961	60,412,034	30%

Notes
(a) Reporting period
(b) Source vendor's invoices
(c) Source vendor's invoices
(d) Source internal billing records
(e) Source internal billing records
(f) (b) - (c)
(g) (d) - (b)
(h) Schedule 2, Line 1
(i) Schedule 2, Line 6
(j) (f) - (g)
(k) Schedule 2, Line 8
(l) (h) - (i)
(m) (j) / (h)

R - 2804

EXHIBIT
9/7/11
30
2011-47-WS

Feb 2008 - April 2009 Water Loss Report

Water Production v. Water Sold

DATE: Feb 2008-April 2009

REGION: South Carolina/CWS 1-29

Master Meters	Percent Error
Oak Drive 6-in	3.00%
Mineral Springs 10-in	20.00%
Dickert Road 2-in	2.81%

Meter Read Dates	Master Meters	Water Produced	WATER USED OR LOST: WWTP	Flushing	Main Breaks/Leaks	Filters/ Softeners	Adjustments	Total Water Sold	Total Water Sold/Active	Unaccounted For Water	Percent Unaccounted	Adjusted Water Produced	Revised Unaccounted For Water	Revised Percent Unaccounted
2/7/08 - 3/2/08	Oak Drive 6-in Meter	10,183,000										9,762,988		
	Mineral Springs 10-in Meter	938,000										22,400		
	Dickert Road 2-in meter	662,900										633,812		
	Total	10,849,900	400,000	100,000	100,000		84,554	13,696,762	13,181,325	-2,667,830	-28.63%	10,483,892	-3,119,431	-31.71%
3/2/08 - 4/2/08	Oak Drive 6-in Meter	10,879,000										10,262,879		
	Mineral Springs 10-in Meter													
	Devaga Drive Pump St	274,500										219,656		
	Dickert Road 2-in meter	507,500										492,737		
	Total	11,661,000	400,000	100,000	100,000		84,568	13,696,762	13,181,325	-2,293,325	-19.31%	10,974,551	-2,776,045	-25.30%
4/2/08 - 5/2/08	Oak Drive 6-in Meter	14,362,000										13,801,882		
	Mineral Springs 10-in Meter													
	Devaga Drive Pump St	234,100										167,280		
	Dickert Road 2-in meter	608,700										580,927		
	Total	15,204,800	400,000	350,000	650,000		115,742	14,830,332	14,944,054	-939,254	-6.19%	14,550,149	-1,093,975	-10.33%
5/2/08 - 5/30/08	Oak Drive 6-in Meter	12,178,000										11,704,018		
	Mineral Springs 10-in Meter	19,153,000										18,548,450		
	Devaga Drive Pump St	377,100												
	Dickert Road 2-in meter	543,900										512,927		
	Total	32,253,000	400,000	400,000	1,600,000		16,144	16,696,611	16,809,767	7,419,243	29.55%	22,783,146	3,933,561	17.53%
6/20/08 - 7/20/08	Oak Drive 6-in Meter	10,538,000										10,127,018		
	Mineral Springs 10-in Meter	12,369,000										9,814,890		
	Devaga Drive Pump St	190,200												
	Dickert Road 2-in meter	464,000										375,059		
	Total	23,561,180	400,000	80,000	5,000		0	13,245,527	13,346,837	9,760,973	41.80%	20,426,977	6,765,351	32.84%
7/20/08 - 8/13/08	Oak Drive 6-in Meter	11,922,000										11,457,042		
	Mineral Springs 10-in Meter	3,004,000										2,403,200		
	Devaga Drive Pump St	339,800												
	Dickert Road 2-in meter	484,400										441,177		
	Total	15,750,200	400,000	80,000	275,000		102,280	20,883,348	20,966,822	-6,878,622	-37.01%	14,301,419	-7,409,201	-51.81%
8/13/08 - 9/18/08	Oak Drive 6-in Meter	13,164,000										12,631,184		
	Mineral Springs 10-in Meter	1,609,000										1,287,200		
	Devaga Drive Pump St	517,100												
	Dickert Road 2-in meter	501,400										488,809		
	Total	15,771,500	400,000	100,000	450,000		1,000,000	18,781,721	17,769,721	-2,002,221	-12.85%	14,407,193	-1,364,307	-29.25%
9/18/08 - 10/14/08	Oak Drive 6-in Meter	17,308,000										16,831,065		
	Mineral Springs 10-in Meter	1,012,000										808,000		
	Devaga Drive Pump St	247,800												
	Dickert Road 2-in meter	617,500										628,858		
	Total	19,749,800	400,000	100,000	450,000		1,000,000	18,781,721	17,769,721	53,079	2.61%	18,067,724	-411,811	-3.59%
10/14/08 - 11/17/08	Oak Drive 6-in Meter	12,256,000										11,778,016		
	Mineral Springs 10-in Meter	640,000										512,000		
	Devaga Drive Pump St	326,600												
	Dickert Road 2-in meter	422,100										448,653		
	Total	13,644,700	400,000	100,000	450,000		1,000,000	18,781,721	17,769,721	-6,025,021	-36.79%	12,738,669	-5,971,052	-46.87%
11/17/08 - 12/17/08	Oak Drive 6-in Meter	10,208,000										9,596,450		
	Mineral Springs 10-in Meter	734,000										587,200		
	Devaga Drive Pump St	260,900												
	Dickert Road 2-in meter	380,000										358,142		
	Total	11,575,000	400,000	250,000	1,000,000		-352,630	13,650,549	13,331,519	-2,303,719	-28.51%	10,850,592	-4,155,921	-38.07%
12/17/08 - 1/15/09	Oak Drive 6-in Meter	13,121,000										12,618,831		
	Mineral Springs 10-in Meter	3,928,000										3,144,490		
	Devaga Drive Pump St	317,100												
	Dickert Road 2-in meter	793,900										770,788		
	Total	19,170,000	400,000	350,000	1,000,000		-352,630	13,650,549	13,331,519	5,188,481	17.34%	16,513,049	-1,660,570	9.34%
1/15/09 - 2/15/09	Oak Drive 6-in Meter	7,659,000										7,349,139		
	Mineral Springs 10-in Meter	8,609,000										6,287,200		
	Devaga Drive Pump St	197,600												
	Dickert Road 2-in meter	533,300										555,316		
	Total	19,078,900	400,000	250,000	1,000,000		-352,630	13,650,549	13,331,519	87,381	0.65%	13,341,655	-1,733,664	-15.11%
2/15/09 - 3/17/09	Oak Drive 6-in Meter	395,000										379,365		
	Mineral Springs 10-in Meter	12,412,000										9,929,600		
	Devaga Drive Pump St	245,800												
	Dickert Road 2-in meter	618,200										601,181		
	Total	13,671,000	400,000	100,000	450,000		1,000,000	18,759,721	17,769,721	-6,037,921	-34.00%	10,910,218	-7,759,345	-71.13%
3/17/09 - 4/15/09	Oak Drive 6-in Meter	000,000										0		
	Mineral Springs 10-in Meter	14,475,000										11,580,000		
	Devaga Drive Pump St	220,300												
	Dickert Road 2-in meter	695,100										645,746		
	Total	15,390,400	400,000	350,000	1,000,000		-854,804	13,903,811	10,648,207	5,121,193	28.24%	12,225,746	-73,461	-0.60%
	TOTAL	275,599,330	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!

Total = 202,458,793

Total = -27,398,043

$\frac{-27,398,043}{202,458,793}$ is -0.1353 for a "Revised Percent Unaccounted" of -13.53% A Gain.!!

R - 2805

October 2006 - November 2007 Water loss Report

Water Production v. Water Sold

Master Meters	Percent Error
Oak Drive 6-in	3.90%
Mineral Springs 10-in	20.00%
Dickert Road 2-in	2.91%

DATE: October 2006 - November 2007

REGION: South Carolina/CWS I-20

			WATER USED OR LOST											
Meter Read Dates	Master Meters	Water Produced	WWTP	Flushing	Main Breaks/Leaks	Filters/ Softeners	Adjustments	Total Water Sold	Total Water Sold/Active	Unaccounted For Water	Percent Unaccounted	Adjusted Water Produced	Revised Unaccounted For Water	Revised Percent Unaccounted
9/28/06 - 10/25/06	Oak Drive 6-in Meter	4,721,000										4,536,881		
	Mineral Springs 10-in Meter	8,905,000										7,124,000		
	Dickert Road 2-in meter	381,800										370,690		
	Total	14,007,800	375,000	20,000	50,000		29,745	12,087,468	12,087,213	1,465,687	10.46%	12,031,571	-510,642	-4.24%
10/26/06 - 11/24/06	Oak Drive 6-in Meter	4,527,125										4,350,567		
	Mineral Springs 10-in Meter	8,607,400										8,885,920		
	Dickert Road 2-in meter	388,620										377,311		
	Total	13,523,145	375,000	20,000	40,000		6,785	10,474,103	10,480,888	2,607,257	19.28%	11,613,798	697,910	6.01%
11/24/06 - 12/21/06	Oak Drive 6-in Meter	3,960,375										3,805,920		
	Mineral Springs 10-in Meter	7,871,600										6,297,280		
	Dickert Road 2-in meter	340,830										330,912		
	Total	12,172,805	375,000	50,000	100,000		13,695	12,785,581	12,799,176	-1,161,371	-9.46%	10,434,112	-2,690,064	-27.70%
12/21/06 - 1/25/07	Oak Drive 6-in Meter	4,512,500										4,336,613		
	Mineral Springs 10-in Meter	9,809,500										7,927,600		
	Dickert Road 2-in meter	438,200										425,448		
	Total	14,860,200	380,000	50,000	76,000		6,417	10,945,401	10,951,818	3,403,382	22.90%	12,689,581	1,232,743	9.71%
1/25/07 - 2/27/07	Oak Drive 6-in Meter	3,256,250										3,129,256		
	Mineral Springs 10-in Meter	10,194,000										8,155,200		
	Dickert Road 2-in meter	367,700										357,000		
	Total	13,817,950	400,000	150,000	250,000		9,381	10,243,567	10,252,948	2,765,002	20.01%	11,641,456	588,508	5.06%
2/27/07 - 3/24/07	Oak Drive 6-in Meter	3,328,083										3,199,249		
	Mineral Springs 10-in Meter	7,466,500										5,973,200		
	Dickert Road 2-in meter	314,583										305,429		
	Total	11,110,166	400,000	100,000	200,000		11,779	9,155,026	9,166,805	1,243,361	11.19%	9,477,877	-388,928	-4.10%
3/24/07 - 4/24/07	Oak Drive 6-in Meter	3,867,687										3,716,828		
	Mineral Springs 10-in Meter	11,042,000										8,833,600		
	Dickert Road 2-in meter	474,167										460,369		
	Total	15,383,834	400,000	100,000	100,000		54,558	13,096,762	13,151,320	1,632,514	10.61%	13,010,797	-740,623	-5.69%
4/24/07 - 5/22/07	Oak Drive 6-in Meter	5,728,500										5,505,089		
	Mineral Springs 10-in Meter	11,779,000										9,423,200		
	Dickert Road 2-in meter	483,900										469,819		
	Total	17,991,400	400,000	300,000	500,000		113,762	14,830,332	14,944,094	1,847,306	10.27%	15,398,107	-745,987	-4.84%
5/22/07 - 6/24/07	Oak Drive 6-in Meter	8,680,166										8,341,640		
	Mineral Springs 10-in Meter	12,911,333										10,329,066		
	Dickert Road 2-in meter	510,833										496,968		
	Total	22,102,332	400,000	400,000	1,000,000		28,148	16,983,611	16,989,757	3,312,575	14.99%	19,166,674	376,917	1.97%
6/24/07 - 7/25/07	Oak Drive 6-in Meter	9,633,334										9,267,634		
	Mineral Springs 10-in Meter	13,787,167										11,029,734		
	Dickert Road 2-in meter	423,817										411,484		
	Total	23,844,318	400,000	50,000	5,000		0	13,245,527	13,245,527	10,143,791	42.54%	20,698,851	6,998,324	33.81%

DATE: October 2006 - November 2007

REGION: South Carolina/CWS I-20

Mineral Springs 10-in 20.00%
Dickert Road 2-in 2.91%

Meter Read Dates	Master Meters	Water Produced	WATER USED OR LOST: WWTP	Flushing	Main Breaks/Leaks	Filters/ Softeners	Adjustments	Total Water Sold	Total Water Sold/Active	Unaccounted For Water	Percent Unaccounted	Adjusted Water Produced	Revised Unaccounted For Water	Revised Percent Unaccounted
7/25/07 - 8/21/07	Oak Drive 6-in Meter	7,182,200										6,902,094		
	Mineral Springs 10-in Meter	14,071,900										11,257,520		
	Dickert Road 2-in meter	471,770										458,041		
	Total	21,725,870	400,000	50,000	275,000		102,280	20,883,342	20,985,622	15,248	0.07%	18,617,656	-3,092,966	-16.61%
8/21/07 - 9/21/07	Oak Drive 6-in Meter	10,085,800										9,692,464		
	Mineral Springs 10-in Meter	10,175,200										8,140,160		
	Dickert Road 2-in meter	450,620										437,507		
	Total	20,711,620	400,000	100,000	450,000		1,000,000	16,759,721	17,759,721	2,001,899	9.67%	18,270,121	-439,600	-2.41%
9/21/07 - 10/17/07	Oak Drive 6-in Meter	6,836,000										6,569,396		
	Mineral Springs 10-in Meter	11,280,400										9,024,320		
	Dickert Road 2-in meter	359,960										349,485		
	Total	18,476,360	400,000	250,000	1,000,000		-352,030	13,683,649	13,331,619	3,494,841	18.92%	15,943,201	861,682	6.03%
10/17/07 - 11/25/07	Oak Drive 6-in Meter	2,061,600										1,981,198		
	Mineral Springs 10-in Meter	17,481,400										13,986,120		
	Dickert Road 2-in meter	849,980										826,248		
	Total	20,392,980	400,000	250,000	1,000,000		-854,604	11,503,811	10,649,207	8,093,773	39.69%	16,791,563	4,492,356	26.75%
	TOTAL	240,120,780	5,505,000	1,890,000	5,045,000	0	167,814	188,837,801	186,805,815	40,875,165	17.02%	205,785,345	6,539,730	3.18%

$$\frac{6,539,730}{205,785,345} = 0.0318$$

3.18% "revised percent unaccounted"

Carolina Water Service, Inc.
Smallwood Estates, Lakewood Estates, Arrowhead Shores
System ID # 3250005
2009 Water Quality Report

We are pleased to provide you with the 2009 Water Quality Report. This report is designed to inform you of the quality of water we delivered to you over the past year. Our goal is to provide you a safe and dependable supply of drinking water. Our wells are located in Lexington County.

The South Carolina Department of Health & Environmental Control (DHEC) has completed the Source Water Assessment Plan (SWAP) for Smallwood Estates/Lakewood Estates/Arrowhead Shores. The relative susceptibility rating of each source was ranked as having high susceptibility. The rating is determined by identifying potential pollution sources near each well. It is important to understand that a susceptibility rate of "high" does not imply poor water quality, only the systems' potential to become contaminated by potential pollution sources in the assessment area. Our Source Water Assessment Plan is available for your review at http://www.scdhec.gov/environment/water/srcewtrreports.htm. If you do not have Internet access, please contact Mr. Mac Mitchell with Carolina Water Service, Inc. at (800) 367-4314 to make arrangements to review this document.

Should you have any questions about this report or your water utility, please contact our Customer Service Department at (800) 272-1919. We want our customers to be informed about their water utility.

Carolina Water Service, Inc. routinely monitors for components in your drinking water according to Federal and State laws. This report covers the period of January 1 to December 31, 2009.

Definitions:

- Action level (AL) - Action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Maximum contaminant level (MCL) - The maximum contaminant level is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
- Maximum contaminant level goal (MCLG) - The "goal" is the level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.
- Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.
- Parts per billion (ppb) or milligrams per liter (ppm) - one part per billion corresponds to one minute in 2,000 years or a single penny in $10,000,000.
- Parts per million (ppm) or milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.
- Picocuries per liter (pCi/L) – Picocuries per liter is a measure of radioactivity in the water.
- Running Annual Average (RAA) – Calculated running annual average of all contaminant levels detected.

Based on certain criteria, some systems may be allowed to monitor for regulated contaminants less often than once a year. In this case, the table will include the date and results of the most recent sampling.

TEST RESULTS								
Contaminant	Violation Y/N	Date Collected	Level Detected	Range of Detects or # of Samples Exceeding MCL/ACL	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants (source)								
Beta/ Photon emitters	N	2009	35.6	ND - 35.6	pCi/ L	0	50	Decay of natural & man-made deposits.
Alpha emitters	N	2009	6.06	ND - 6.06	pCi/ L	0	15	Erosion of natural deposits.
Combined radium	N	2009	3.68	ND - 3.68	pCi/ L	0	15	Erosion of natural deposits.
Inorganic Contaminants								
Arsenic	Y	2009	45	13-45	ppb	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes.
Barium	N	2009	0.096	0.087 - 0.096	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Cadmium	N	2009	0.43	0	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries & paints.
Copper (90th percentile)	N	2009	0.25	0	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	2009	0.14	0.13 - 0.14	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer & aluminum factories.
Nitrate (as Nitrogen)	N	2009	0.14	ND-0.14	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	N	2009	4.9	0	ppb	50	50	Discharge from petroleum & metal refineries; erosion of natural deposits; discharge from mines.
Disinfection By-Products								
Total Trihalomethanes (TTHM)	N	2008	1.47	0	ppb	0	80	By-product of drinking water chlorination.
Chlorine	N	2009	RAA = 1.21	0.8 - 1.4	ppm	MRDLG= 4	MRDL= 4	Water additive used to control microbes.

* Note: EPA considers 50 pCi/L to be the level of concern for beta particles.

2009 Violations Table:

Arsenic			
Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.			
Violation Type	Violation Begin	Violation End	Violation Explanation
MCL, Average	1/1/09	3/31/09	Water samples showed that the amount of this contaminant in one of the wells of the water system was above its standard (called a maximum contaminant level and abbreviated MCL) for the period indicated. The well was turned off from the system while treatment was being designed. The situation has been resolved since the arsenic removal treatment system has been installed and activated. The water supplying the system meets EPA and SC DHEC standards.

To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Carolina Water Service, Inc. is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Do not boil your water to remove lead. Excessive boiling makes the lead more concentrated – the lead remains when the water evaporates. Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available form the Safe Drinking Water Hotline (800-426-4791) or at http://www.epa.gov/safewater/lead.

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or man made. Contaminants that may be present in source water include:

(A) *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

(B) *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

(C) *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

(D) *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

(E) *Radioactive contaminants*, which can be naturally-occurring or the result of oil and gas production and mining activities.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Carolina Water Service, Inc. does not have regularly scheduled meetings. Please contact our Customer Service Department at (800) 272-1919 should you have any questions.

We ask that all our customers help us protect our water sources which are the heart of our community, our way of life and our children's future.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alquien que lo entienda bien.

Carolina Water Service, Inc.
Smallwood Estates, Lakewood Estates, Arrowhead Shores
System ID # 3250005
2010 Water Quality Report

We are pleased to provide you with the 2010 Water Quality Report. This report is designed to inform you of the quality of water we delivered to you over the past year. Our goal is to provide you a safe and dependable supply of drinking water. Our wells are located in Lexington County.

The South Carolina Department of Health & Environmental Control (DHEC) has completed the Source Water Assessment Plan (SWAP) for Smallwood Estates/Lakewood Estates/Arrowhead Shores. The relative susceptibility rating of each source was ranked as having high susceptibility. The rating is determined by identifying potential pollution sources near each well. It is important to understand that a susceptibility rate of "high" does not imply poor water quality, only the systems' potential to become contaminated by potential pollution sources in the assessment area. Our Source Water Assessment Plan is available for your review at http://www.scdhec.gov/environment/water/srcewtrreports.htm. If you do not have Internet access, please contact Mr. Mac Mitchell with Carolina Water Service, Inc. at (800) 272-1919 to make arrangements to review this document.

Should you have any questions about this report or your water utility, please contact our Customer Service Department at (800) 272-1919. We want our customers to be informed about their water utility.

Carolina Water Service, Inc. routinely monitors for components in your drinking water according to Federal and State laws. This report covers the period of January 1 to December 31, 2010.

Definitions:

- Action level (AL) - Action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Maximum contaminant level (MCL) - The maximum contaminant level is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
- Maximum contaminant level goal (MCLG) - The "goal" is the level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.
- Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.
- Parts per billion (ppb) or milligrams per liter (µg/l) - one part per billion corresponds to one minute in 2,000 years or a single penny in $10,000,000.
- Parts per million (ppm) or milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.
- Picocuries per liter (pCi/L) – Picocuries per liter is a measure of radioactivity in the water.
- Running Annual Average (RAA) – Calculated running annual average of all contaminant levels detected.

Based on certain criteria, some systems may be allowed to monitor for regulated contaminants less often than once a year. In this case, the table will include the date and results of the most recent sampling.

TEST RESULTS								
Contaminant	Violation Y/N	Date Collected	Level Detected	Range of Detects or # of Samples Exceeding MCL/ACL	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants (source)								
Alpha emitters	N	2010	*17.1	2.9 - 17.1	pCi/L	0	15	Erosion of natural deposits.
Combined radium	N	2010	*5.2	ND - 5.2	pCi/L	0	15	Erosion of natural deposits.
Inorganic Contaminants								
Arsenic	N	2010	*19	9.8 - 19	ppb	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes.
Barium	N	2010	0.01	0.088 - 0.1	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Cadmium	N	2010	0.34	0 - 0.34	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries & paints.
Copper (90th percentile)	N	2009	0.25	0	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Fluoride	N	2010	0.13	0 - 0.13	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer & aluminum factories.
Nitrate (as Nitrogen)	N	2010	0.16	ND-0.16	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	N	2010	3.6	0 - 3.6	ppb	50	50	Discharge from petroleum & metal refineries; erosion of natural deposits; discharge from mines.
Disinfection By-Products								
Total Trihalomethanes (TTHM)	N	2008	1.47	0	ppb	0	80	By-product of drinking water chlorination.
Chlorine	N	2010	RAA = 1.18	1.0 - 1.30	ppm	MRDLG= 4	MRDL= 4	Water additive used to control microbes.

* Note: Alpha emitter and combined radium Compliance is based on a four quarter average; therefore, the system was not in violation. For additional information, please see the following standard health effects language: *Some people who drink water containing alpha emitters or combined radium in excess of the MCL over many years may have an increased risk of getting cancer.*

* Note: Arsenic Compliance is based on a four quarter average; therefore, the system was not in violation. For additional information, please see the following standard health effects language: *While your drinking water meets USEPA's standard for arsenic, it does contain low levels of arsenic. USEPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. USEPA continues to research the health effects of low levels of arsenic, which is a naturally-occurring mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.*

To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Carolina Water Service, Inc. is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Do not boil your water to remove lead. Excessive boiling makes the lead more concentrated – the lead remains when the water evaporates. Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available form the Safe Drinking Water Hotline (800-426-4791) or at http://www.epa.gov/safewater/lead.

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or man made. Contaminants that may be present in source water include:

(A) *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

(B) *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

(C) *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

(D) *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

(E) *Radioactive contaminants*, which can be naturally-occurring or the result of oil and gas production and mining activities.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Carolina Water Service, Inc. does not have regularly scheduled meetings. Please contact our Customer Service Department at (800) 272-1919 should you have any questions.

We ask that all our customers help us protect our water sources which are the heart of our community, our way of life and our children's future.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alquien que lo entienda bien.

Carolina Water Service, Inc.
Indian Fork/Forty Love Point
System ID # 3250066
2010 Water Quality Report

We are pleased to provide you with the 2010 Water Quality Report. This report is designed to inform you of the quality of water we delivered to you over the past year. Our goal is to provide you a safe and dependable supply of drinking water. Our water source is the ground water from wells located in Lexington County.

The South Carolina Department of Health & Environmental Control (DHEC) has completed the Source Water Assessment Plan (SWAP) for Indian Fork/Forty Love Point. The relative susceptibility rating of each source was ranked as having high susceptibility. The rating is determined by identifying potential pollution sources near each well. It is important to understand that a susceptibility rate of "high" does not imply poor water quality, only the systems' potential to become contaminated by potential pollution sources in the assessment area. Our Source Water Assessment Plan is available for your review at http://www.scdhec.gov/environment/water/scewtrreports.htm. If you do not have Internet access, please contact Mr. Mac Mitchell with Carolina Water Service, Inc. at (800) 272-1919 to make arrangements to review this document.

We are pleased to report that our drinking water meets all federal and state requirements.

Should you have any questions about this report or your water utility, please contact our Customer Service Department at (800) 272-1919. We want our customers to be informed about their water utility.

Carolina Water Service, Inc. routinely monitors for components in your drinking water according to Federal and State laws. This report covers the monitoring period of January 1 to December 31, 2010.

Definitions:

- *Action level (AL)* - Action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- *Maximum contaminant level (MCL)* - The maximum contaminant level is the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
- *Maximum contaminant level goal (MCLG)* - The "goal" is the level of a contaminant in drinking water below which there is no known or expected health risk. MCLG's allow for a margin of safety.
- *Maximum Residual Disinfectant Level (MRDL)* – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- *Maximum Residual Disinfectant Level Goal (MRDLG)* – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- *Non-Detects (ND)* - laboratory analysis indicates that the constituent is not present.
- *Not Applicable (N/A)* – Information not applicable/not required for that particular water system or for that particular Rule.
- *Parts per billion (ppb) or micrograms per liter* (µg/l) - one part per billion corresponds to one minute in 2,000 years or a single penny in $10,000,000.
- *Parts per million (ppm) or milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in $10,000.
- *Picocuries per liter (pCi/L)* – Picocuries per liter is a measure of radioactivity in the water.
- *Running Annual Average (RAA)* – Calculated running annual average of all contaminant levels detected.

Based on certain criteria, some systems may be allowed to monitor for regulated contaminants less often than once a year. In this case, the table will include the date and results of the most recent sampling.

TEST RESULTS								
Contaminant	Violation Y/N	Date Collected	Level Detected	Range of Detects or # of Samples Exceeding MCL/AL	Unit of Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants (source)								
Alpha emitters (B32664)	N	2010	*20.5	0 - 20.5	pCi/L	0	15	Erosion of natural deposits.
Uranium	N	2010	7.5	0	ug/L	0	30	Erosion of natural deposits.
Combined radium (B32664)	N	2008	2.43	0	pCi/L	0	5	Erosion of natural deposits.
Inorganic Contaminants								
Barium	N	2008	0.5	0.071-0.5	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride	N	2008	0.15	ND-0.15	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer & aluminum factories.
Copper (90th percentile)	N	2009	0.23	0	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Nitrate (as Nitrogen)	N	2010	0.23	0.064 - 0.23	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium	N	2008	2.6	ND-2.6	ppb	50	50	Discharge from petroleum & metal refineries; erosion of natural deposits; discharge from mines.
Disinfection By-Products								
Total Trihalomethanes (TTHM)	N	2009	13.03	8.5 - 13.03	ppb	0	80	By-product of drinking water chlorination.
Chlorine	N	2010	RAA= 1.09	0.2 - 1.40	ppm	MRDLG= 4	MRDL = 4	Water additive used to control microbes.
Haloacetic Acids (HAA)	N	2009	2.9	1.08 - 2.9ppb		0	60	By-product of drinking water disinfection.

* Note: Compliance for Alpha emitters is based on a four quarter average; therefore, the system was not in violation. For additional information, please see the following standard health effects language: *Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.*

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Carolina Water Service, Inc. is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. Do not boil your water to remove lead. Excessive boiling makes the lead more concentrated – the lead remains when the water evaporates. Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water. If you are concerned about lead in your drinking water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available form the Safe Drinking Water Hotline (800-426-4791) or at http://www.epa.gov/safewater/lead.

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information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency's (USEPA) Safe Drinking Water Hotline at 1-800-426-4791.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

MCLs are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Carolina Water Service, Inc. does not have regularly scheduled meetings. Please contact our Customer Service Department at (800) 272-1919 should you have any questions. We ask that all our customers help us protect our water sources which are the heart of our community, our way of life and our children's future.

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alquien que lo entienda bien.

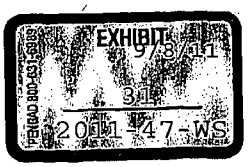
2011-47-WS

Rebuttal Testimony

Of

Steven Lubertozzi

Exhibit SML No. 1



Carolina Water Service, Inc.
Docket No. 2011-47-W/S
Purchased Water Analysis by Subdivision
For the 12 months ended December 31, 2010

Exhibit SML No. 1

[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]
Sub Name	Total Gallons Charged to CWS	Total Charged to CWS (Including Base Facility Charges)	Total Gallons Billed to Customers	Cost Per KGAL	2010 Base Charge	Charge Using 115% Gallons At 2010 Rate	Variance
(1) I-20	172,100,500	$ 516,301	138,602,526	3.00	-	$ 478,179	$ (38,123)
(2) Idlewood	7,030,500	21,092	6,768,592	3.00	-	23,352	2,260
(3) Westside Terrace	2,558,400	5,442	2,638,980	2.15	-	6,525	1,083
(4) Harborside/Watergate	30,869,000	91,353	17,803,609	2.74	-	56,099	(35,254)
(5) Rollingwood	15,284,000	45,867	14,819,235	2.74	-	46,695	829
(6) The Landings	13,028,000	39,127	14,065,793	2.74	-	44,321	5,195
	240,870,400	$ 719,181	194,698,735		-	$ 655,171	$ (64,010)

Notes:
[a] Subdivision
[b] Total gallons billed to CWS for 12 months ended 12/31/10
[c] Total invoiced to CWS for 12 months ended 12/31/10
[d] Total gallons billed to customers from CWS for 12 months ended 12/31/10
[e] Vendor's rate per KGAL on December 2010 bill
[f] Vendor's annual base facility charge
[g] (1.15 * d/1000 * e)
[h] g - c

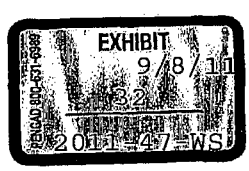
2011-47-WS

Rebuttal Testimony

Of

Kirsten Weeks

Exhibit KEW-1- 2011 Carolina Water Service RC Filing-Rebuttal



Carolina Water Service
Balance Sheet
September 30, 2010

Exhibit KEW-1
Schedule A

ASSETS		LIABILITIES AND OTHER CREDITS	
Plant In Service		Capital Stock and Retained Earnings	
Water	$ 17,252,817	Common Stock and Paid In Capital	$ 12,627,252
Sewer	34,967,470	Retained Earnings	9,012,044
Total	$ 52,220,286	Total	$ 21,639,296
Accumulated Depreciation-Water	$ (3,437,523)	Current and Accrued Liabilities	
Accumulated Depreciation-Sewer	(5,358,157)	Accounts Payable-Trade	$ 448,230
Total	$ (8,795,680)	Taxes Accrued	595,346
		Customer Deposits	193,657
		Customer Deposits - Interest	25,717
Net Utility Plant	$ 43,424,606	A/P – Assoc. Companies	6,061,114
		Total	$ 7,324,065
Plant Acquisition Adjustment-Water	$ (168,804)	Deferred Credits	
Plant Acquisition Adjustment-Sewer	(157,393)	Water	$ -
Total	$ (326,197)	Sewer	-
		Total	$ -
Construction Work In Process-Water	$ (48,518)	Advances In Aid of Construction	
Construction Work In Process-Sewer	140,266	Water	$ 800
Total	$ 91,748	Sewer	800
		Total	$ 1,600
Current Assets		Contributions In Aid of Construction	
Cash	$ 51,022	Water	$ 6,044,637
Accounts Receivable - Net	5,239,042	Sewer	12,052,034
Other Current Assets	53,434	Total	$ 18,096,671
Total	$ 5,343,498	Accumulated Deferred Income Tax	
		Unamortized ITC	$ 229,961
Deferred Charges	$ 243,152	Deferred Tax - Federal	1,596,502
		Deferred Tax - State	(111,288)
		Total	$ 1,715,175
TOTAL ASSETS	$ 48,776,807	TOTAL LIABILITIES AND OTHER CREDITS	$ 48,776,807

*Note - The balance sheet reflects the total assets, liabilities, and equity of Carolina Water Service, Inc.

R - 2820

Carolina Water Service
Combined Operations
September 30, 2010

Exhibit KEW-1
Schedule B

	Per Books	Allocation Adjustments	[a]	Restated Per Books	Pro Forma Adjustments		Pro Forma Present	Proposed Increase		Pro Forma Proposed
Operating Revenues										
Service Revenues - Water	$ 2,173,555	$ -		$ 2,173,555	$ 260,065	[b]	$ 2,433,619	$ 1,202,273		$ 3,635,892
Service Revenues - Sewer	5,170,766	-		5,170,766	155,769	[b]	5,326,535	49,951		5,376,486
Miscellaneous Revenues	164,956	-		164,956	71,713	[i]	236,669	16,620	[j]	253,289
Uncollectible Accounts	(421,242)	-		(421,242)	335,881	[c]	(85,362)	(13,774)		(99,136)
Total Operating Revenues	$ 7,088,034	$ -		$ 7,088,034	$ 823,427		$ 7,911,462	$ 1,255,070		$ 9,166,531
Maintenance Expenses										
Salaries and Wages	$ 1,147,661	$ -		$ 1,147,661	$ 23,627	[d]	$ 1,171,288	$ -		$ 1,171,288
Purchased Power	591,266	-		591,266	-		591,266	-		591,266
Purchased Sewer & Water	(249,878)	-		(249,878)	313,888	[a]	64,010	-		64,010
Maintenance and Repair	1,014,215	-		1,014,215	(45,500)	[o]	968,715	-		968,715
Maintenance Testing	73,221	-		73,221	-		73,221	-		73,221
Meter Reading	34,730	-		34,730	-		34,730	-		34,730
Chemicals	284,777	-		284,777	-		284,777	-		284,777
Transportation	182,176	-		182,176	(62,349)	[e]	119,828	-		119,828
Operating Exp. Charged to Plant	(328,570)	-		(328,570)	(1,209)	[d]	(329,779)	-		(329,779)
Total	$ 2,749,598	$ -		$ 2,749,598	$ 228,457		$ 2,978,055	$ -		$ 2,978,055
General Expenses										
Salaries and Wages	$ 475,340	$ -		$ 475,340	$ (28,357)	[d]	$ 446,983	$ -		$ 446,983
Office Supplies & Other Office Exp.	354,736	-		354,736	(38,947)	[p]	315,789	-		315,789
Regulatory Commission Exp.	266,404	-		266,404	(130,953)	[f]	135,451	-		135,451
Pension & Other Benefits	335,006	-		335,006	24,619	[d]	359,626	-		359,626
Rent	700	-		700	-		700	-		700
Insurance	160,666	-		160,666	-		160,666	-		160,666
Office Utilities	196,763	-		196,763	-		196,763	-		196,763
Outside Services - Other	114,660	-		114,660	-		114,660	-		114,660
Non-Utility Misc Income	13,059	-		13,059	(13,059)	[q]	-	-		-
Miscellaneous	10,057	-		10,057	(14,337)	[m]	(4,280)	-		(4,280)
Total	$ 1,927,390	$ -		$ 1,927,390	$ (201,034)		$ 1,726,357	$ -		$ 1,726,357
Depreciation	$ 1,011,086	$ -		$ 1,011,086	$ (8,517)	[g]	$ 1,002,569	$ -		$ 1,002,569
Amortization of CIAC	$ (324,831)	$ -		(324,831)	(12,115)	[g]	(336,946)			(336,946)
Taxes Other Than Income	790,756	-		790,756	(15,183)	[h]	775,574	11,909	[h]	787,483
Income Taxes - Federal	181,510	-		181,510	147,296	[i]	328,806	413,351	[j]	742,157
Income Taxes - State	21,770	-		21,770	27,675	[i]	49,445	62,158	[j]	111,603
Amort. Investment Tax Credit	(8,852)	-		(8,852)	-		(8,852)	-		(8,852)
Interest on Customer Deposits	-	-		-	1,277	[n]	1,277	-		1,277
Amortization of FAA	(9,861)	-		(9,861)	(0)	[g]	(9,862)	-		(9,862)
Total	$ 1,661,578	$ -		$ 1,661,578	$ 140,432		$ 1,802,011	$ 487,418		$ 2,289,428
Total Operating Expenses	$ 6,338,567	$ -		$ 6,338,567	$ 167,856		$ 6,506,422	$ 487,418		$ 6,993,840
Net Operating Income	$ 749,467	$ -		$ 749,467	$ 655,572		$ 1,405,039	$ 767,652		$ 2,172,691
Interest During Construction	$ 9,437	$ -		$ 9,437	$ (9,437)	[j]	$ -	$ -		$ -
Interest on Debt	653,687	-		653,687	141,990	[k]	795,676	-		795,676
Net Income	$ 86,344	$ -		$ 86,344	$ 523,019		$ 609,363	$ 767,652		$ 1,377,015

R - 2821

Carolina Water Service
Water Operations
September 30, 2010

	Per Books	Allocation Adjustments [a]	Restated Per Books	Pro Forma Adjustments		Pro Forma Present	Proposed Increase		Pro Forma Proposed
Operating Revenues									
Service Revenues - Water	$2,173,555	$ -	$ 2,173,555	$ 260,065	[b]	$2,433,619	$ 1,202,273		$3,635,892
Service Revenues - Sewer	-	-	-	-	[b]	-	-		-
Miscellaneous Revenues	95,741	-	95,741	-	[j]	95,741	15,382	[l]	111,123
Uncollectible Accounts	(244,489)	-	(244,489)	217,719	[c]	(26,770)	(13,225)		(39,995)
Total Operating Revenues	$ 2,024,806	$ -	$ 2,024,806	$ 477,784		$ 2,502,590	$ 1,204,430		$ 3,707,020
Maintenance Expenses									
Salaries and Wages	$ 666,102	$ -	$ 666,102	$ 13,713	[d]	$ 679,816	$ -		$ 679,816
Purchased Power	129,659	-	129,659	-		129,659	-		129,659
Purchased Water	(210,484)	-	(210,484)	274,494	[a]	64,010	-		64,010
Maintenance and Repair	220,619	-	220,619	(45,500)	[o]	175,119	-		175,119
Maintenance Testing	23,683	-	23,683	-		23,683	-		23,683
Meter Reading	20,157	-	20,157	-		20,157	-		20,157
Chemicals	165,284	-	165,284	-		165,284	-		165,284
Transportation	105,735	-	105,735	(36,187)	[e]	69,548	-		69,548
Operating Exp.Charged to Plant	(190,702)	-	(190,702)	(702)	[d]	(191,404)	-		(191,404)
Total	$ 930,054	$ -	$ 930,054	$ 205,818		$ 1,135,872	$ -		$ 1,135,872
General Expenses									
Salaries and Wages	$ 275,887	$ -	$ 275,887	(16,458)	[d]	$ 259,429	$ -		$ 259,429
Office Supplies & Other Office Exp.	205,889	-	205,889	(22,605)	[p]	183,284	-		183,284
Regulatory Commission Exp.	154,621	-	154,621	(76,005)	[f]	78,616	-		78,616
Pension & Other Benefits	194,438	-	194,438	14,289	[d]	208,727	-		208,727
Rent	406	-	406	-		406	-		406
Insurance	93,251	-	93,251	-		93,251	-		93,251
Office Utilities	114,201	-	114,201	-		114,201	-		114,201
Outside Services	66,549	-	66,549	-		66,549	-		66,549
Non-Utility Misc Income	7,579	-	7,579	(7,579)	[q]	-	-		-
Miscellaneous	5,837	-	5,837	-	[m]	5,837	-		5,837
Total	$ 1,118,657	$ -	$ 1,118,657	$ (108,359)		$ 1,010,299	$ -		$ 1,010,299
Depreciation	$ 393,833	$ -	$ 393,833	$ (11,751)	[g]	$ 382,082	$ -		$ 382,082
Amortization of CIAC	$ (107,375)	-	(107,375)	(7,692)	[g]	(115,066)	-		(115,066)
Taxes Other Than Income	458,955	-	458,955	3,658	[h]	462,613	11,434	[h]	474,047
Income Taxes - Federal	105,348	-	105,348	(298,725)	[i]	(193,377)	396,671	[i]	203,295
Income Taxes - State	12,635	-	12,635	(41,715)	[i]	(29,079)	59,650	[i]	30,571
Amort. Investment Tax Credit	(5,138)	-	(5,138)			(5,138)	-		(5,138)
Interest on Customer Deposits	-	-	-	741	[n]	741	-		741
Amortization of PAA	(4,673)	-	(4,673)	(0)	[g]	(4,673)	-		(4,673)
Total	$ 853,586	$ -	$ 853,586	$ (355,483)		$ 498,104	$ 467,755		$ 965,859
Total Operating Expenses	$ 2,902,298	$ -	$ 2,902,298	$ (258,024)		$ 2,644,275	$ 467,755		$ 3,112,029
Net Operating Income	$ (877,492)	$ -	$ (877,492)	$ 735,808		$ (141,684)	$ 736,675		$ 594,991
Interest During Construction	$ 5,477	$ -	$ 5,477	$ (5,477)	[j]	$ -	$ -		$ -
Interest on Debt	379,400	-	379,400	(161,215)	[k]	218,185	-		218,185
Net Income	$ (1,262,369)	$ -	$ (1,262,369)	$ 902,500		$ (359,869)	$ 736,675		$ 376,806

R - 2822

Carolina Water Service
Sewer Operations
September 30, 2010

	Per Books	Allocation Adjustments [a]	Restated Per Books	Pro Forma Adjustments		Pro Forma Present	Proposed Increase		Pro Forma Proposed
Operating Revenues									
Service Revenues - Water	$ -	$ -	$ -	$ -	[b]	$ -	$ -		$ -
Service Revenues - Sewer	5,170,766	-	5,170,766	155,769	[b]	5,326,535	49,951		5,376,486
Miscellaneous Revenues	69,216	-	69,216	74,713	[j]	140,929	1,238	[l]	142,166
Uncollectible Accounts	(176,753)	-	(176,753)	118,161	[c]	(58,592)	(549)		(59,141)
Total Operating Revenues	$ 5,063,228	$ -	$ 5,063,228	$ 345,643		$ 5,408,871	$ 50,639		$ 5,459,511
Maintenance Expenses									
Salaries and Wages	$ 481,559	$ -	$ 481,559	$ 9,914	[d]	$ 491,472	$ -		$ 491,472
Purchased Power	461,607	-	461,607	-		461,607	-		461,607
Purchased Sewer	(39,394)	-	(39,394)	39,394	[a]	-	-		-
Maintenance and Repair	793,596	-	793,596	-	[o]	793,596	-		793,596
Maintenance Testing	49,538	-	49,538	-		49,538	-		49,538
Meter Reading	14,573	-	14,573	-		14,573	-		14,573
Chemicals	119,492	-	119,492	-		119,492	-		119,492
Transportation	76,441	-	76,441	(26,162)	[e]	50,280	-		50,280
Operating Exp. Charged to Plant	(137,868)	-	(137,868)	(507)	[d]	(138,375)	-		(138,375)
Total	$ 1,819,544	$ -	$ 1,819,544	$ 22,639		$ 1,842,183	$ -		$ 1,842,183
General Expenses									
Salaries and Wages	$ 199,453	$ -	$ 199,453	(11,899)	[d]	$ 187,554	$ -		$ 187,554
Office Supplies & Other Office Exp.	148,847	-	148,847	(16,342)	[p]	132,505	-		132,505
Regulatory Commission Exp.	111,783	-	111,783	(54,948)	[f]	56,835	-		56,835
Pension & Other Benefits	140,569	-	140,569	10,330	[d]	150,899	-		150,899
Rent	294	-	294	-		294	-		294
Insurance	67,416	-	67,416	-		67,416	-		67,416
Office Utilities	82,562	-	82,562	-		82,562	-		82,562
Outside Services	48,111	-	48,111	-		48,111	-		48,111
Non-Utility Misc Income	5,480	-	5,480	(5,480)	[q]	-	-		-
Miscellaneous	4,220	-	4,220	(14,337)	[m]	(10,117)	-		(10,117)
Total	$ 808,733	$ -	$ 808,733	$ (92,675)		$ 716,058	$ -		$ 716,058
Depreciation	$ 617,253	$ -	$ 617,253	$ 3,233	[g]	$ 620,487	$ -		$ 620,487
Amortization of CIAC	(217,456)	-	(217,456)	(4,424)	[g]	(221,879)			(221,879)
Taxes Other Than Income	331,801	-	331,801	(18,841)	[h]	312,961	475	[h]	313,436
Income Taxes - Federal	76,162	-	76,162	446,021	[i]	522,183	16,680	[i]	538,862
Income Taxes - State	9,135	-	9,135	69,389	[i]	78,524	2,508	[i]	81,032
Amort. Investment Tax Credit	(3,714)	-	(3,714)	-		(3,714)	-		(3,714)
Interest on Customer Deposits	-	-	-	536	[a]	536	-		536
Amortization of PAA	(5,189)	-	(5,189)	(0)	[g]	(5,189)	-		(5,189)
Total	$ 807,992	$ -	$ 807,992	$ 495,915		$ 1,303,907	$ 19,663		$ 1,323,570
Total Operating Expenses	$ 3,436,269	$ -	$ 3,436,269	$ 425,879		$ 3,862,148	$ 19,663		$ 3,881,811
Net Operating Income	$ 1,626,959	$ -	$ 1,626,959	$ (80,236)		$ 1,546,724	$ 30,977		$ 1,577,700
Interest During Construction	$ 3,960	$ -	$ 3,960	$ (3,960)	[j]	$ -	$ -		$ -
Interest on Debt	274,287	-	274,287	303,205	[k]	577,492	-		577,492
Net Income	$ 1,348,713	$ -	$ 1,348,713	$ (379,481)		$ 969,232	$ 30,977		$ 1,000,208

R - 2823

Carolina Water Service
Explanation of Adjustments to Income Statement

[a] Purchased water and wastewater are zeroed out, and $64,010 is included as a cost of service per testimony of Steven Lubertozzi.

[b] Revenues are adjusted to annualize current customers at current rates.

[c] Uncollectibles are adjusted at a going forward percentage for annualized revenues.

[d] Salaries, wages and benefits are adjusted for annualization for employees working at or for CWS as of current. Operating expense charged to plant has been adjusted to reflect an increase in operator salaries, payroll taxes, and benefits.

[e] Transportation expense is adjusted to reflect the various accurate allocation percentages for employees whose salaries are assigned to CWS.

[f] Regulatory expense has been adjusted for the total estimated cost of this case, amortized over three years.

[g] Depreciation and amortization expense are annualized to reflect actual pro forma plant and general ledger additions, as well as to adjust for depreciation expense on the UPIS and CIAC recommended in this case.

[h] Taxes other than income are adjusted to annualize gross receipts, utility or commission taxes, and franchise taxes at present and proposed revenues. Taxes other than income also includes payroll taxes adjusted for the estimated salary increase.

[i] Income taxes are computed on taxable income at current rates.

[j] AFUDC is eliminated for rate making purposes.

[k] Interest on debt has been computed using a 50.11%/49.89% debt/equity ratio and a 6.60% cost of debt.

[l] Includes a portion of ORS's pro forma adjustment to miscellaneous revenue, and the proposed revenue from the water disconnection fee

R - 2824

Carolina Water Service
Combined Operations
Rate Base and Rate of Return
September 30, 2010

Exhibit KEW-1
Schedule C

	Per Books		Pro Forma Adjustments		As Adjusted	Proposed Increase	Effect of Proposed Increase
Net Operating Income	$ 749,467		$ 655,572		$ 1,405,039	$ 767,652	$ 2,172,691
Gross Plant In Service	$ 52,220,286		$ (583,923)	[b]	$ 51,636,363	$ -	$ 51,636,363
Accumulated Depreciation	(8,795,680)		371,707	[c]	(8,423,973)	-	(8,423,973)
Net Plant In Service	43,424,606		(212,216)		43,212,390	-	43,212,390
Cash Working Capital	584,624		(21,899)	[d]	562,725	-	562,725
Contributions In Aid of Construction	(18,096,671)		70,637	[a]	(18,026,034)	-	(18,026,034)
Accumulated Deferred Income Taxes	(1,485,214)		-		(1,485,214)	-	(1,485,214)
Customer Deposits	(208,583)		(12,068)	[g]	(220,651)	-	(220,651)
Advances in Aid of Construction	(1,600)		-		(1,600)	-	(1,600)
Plant Acquisition Adjustment	(326,197)		-		(326,197)	-	(326,197)
Excess Book Value	-		(743,227)	[e]	(743,227)		(743,227)
General Ledger Additions - UPIS	-		1,876,401	[e]	1,876,401	-	1,876,401
General Ledger Additions - CIAC	-		(843,386)	[e]	(843,386)		(843,386)
Pro Forma Plant	-		-		-	-	-
Pro Forma Plant Retirements	-		-		-	-	-
Total Rate Base	$ 23,890,964		$ 114,243		$ 24,005,206	$ -	$ 24,005,206
Return on Rate Base	3.14%	[f]			5.85%	[f]	9.05%

Rate of Return					
Debt	50.11%	6.60%		6.60%	6.60%
Equity	49.89%	0.72%		5.09%	11.50%

R - 2825

Carolina Water Service
Water Operations
Rate Base and Rate of Return
September 30, 2010

	Per Books		Pro Forma Adjustments		As Adjusted	Proposed Increase	Effect of Proposed Increase
Net Operating Income	$ (877,492)		$ 735,808		$ (141,684)	$ 736,675	$ 594,991
Gross Plant In Service	$ 17,252,817		$ (480,808)	[b]	$ 16,772,009	$ -	$ 16,772,009
Accumulated Depreciation	(3,437,523)		165,592	[c]	(3,271,931)	-	(3,271,931)
Net Plant In Service	13,815,294		(315,216)		13,500,078	-	13,500,078
Cash Working Capital	256,089		(6,912)	[d]	249,177	-	249,177
Contributions In Aid of Construction	(6,044,637)			[a]	(6,044,637)	-	(6,044,637)
Accumulated Deferred Income Taxes	(862,018)		-		(862,018)	-	(862,018)
Customer Deposits	(127,325)		(741)	[g]	(128,066)	-	(128,066)
Advances in Aid of Construction	(800)		-		(800)	-	(800)
Plant Acquisition Adjustment	(168,804)		-		(168,804)	-	(168,804)
Excess Book Value	-		(431,369)	[e]	(431,369)	-	(431,369)
General Ledger Additions - UPIS	-		1,010,439	[e]	1,010,439	-	1,010,439
General Ledger Additions - CIAC	-		(553,263)	[e]	(553,263)	-	(553,263)
Pro Forma Plant	-				-	-	-
Pro Forma Plant Retirements	-		-		-	-	-
Total Rate Base	$ 6,867,799		$ (297,062)		$ 6,570,737	$ -	$ 6,570,737
Return on Rate Base	-12.78%	[f]			-2.16%	[f]	9.06%

Rate of Return				
Debt	50.11%	6.60%	6.60%	6.60%
Equity	49.89%	36.85%	-10.98%	11.50%

R - 2826

Object Account	NARUC Account	Account Description	Balance at 09/30/10
1020	301.1	ORGANIZATION	82,784
1025	302.1	FRANCHISES	25,864
1030	303.2	LAND & LAND RIGHTS PUMP	500
1045	303.5	LAND & LAND RIGHTS GEN PL	184,644
1050	304.2	STRUCT & IMPRV SRC SUPPLY	804,068
1055	304.3	STRUCT & IMPRV WTR TRT PL	366,222
1060	304.4	STRUCT & IMPRV WTR TRAN DIST	1,634
1065	304.5	STRUCT & IMPRV GEN PLT	1,980
1080	307.2	WELLS & SPRINGS	1,507,471
1090	309.2	SUPPLY MAINS	24,934
1100	311.2	ELECTRIC PUMP EQUIP SRC P	19,892
1105	311.3	ELECTRIC PUMP EQUIP WTP	1,311,092
1110	311.2	ELECTRIC PUMP EQUIP SRC P	51,361
1115	320.3	WATER TREATMENT EQPT	851,661
1120	330.4	DIST RESV & STANDPIPES	1,298,592
1125	331.4	TRANS & DISTR MAINS	5,640,491
1130	333.4	SERVICE LINES	1,703,810
1135	334.4	METERS	336,666
1140	334.4	METER INSTALLATIONS	193,357
1145	335.4	HYDRANTS	248,546
1150	336.4	BACKFLOW PREVENTION DEVIC	3,699
1155	339.1	OTH PLT&MISC EQUIP INTANG	2,216
1165	339.3	OTH PLT&MISC EQUIP WTP	816
1170	339.4	OTH PLT&MISC EQUIP TRANS	1,457
1175/1455	304.5/354.7	OFFICE STRUCT & IMPRV	318,953
1180/1460	340.5/390.7	OFFICE FURN & EQPT	149,822
1185/1465	342.5/392.7	STORES EQPT	420
1190/1470	343.5/393.7	TOOL SHOP & MISC EQPT	208,355
1195/1475	344.5/394.7	LABORATORY EQUIPMENT	45,207
1200/1485	345.5/395.7	POWER OPERATED EQUIP	3,456
1205/1490	346.5/396.7	COMMUNICATION EQPT	81,410
1210/1495	347.5/397.7	MISC EQUIPMENT	10,065
1555	341.5/391.7	TRANSPORTATION EQPT	380,037
1580	340.5/390.7	MAINFRAME COMPUTER	49,326
1585	340.5/390.7	MINI COMPUTERS	187,273
1590	340.5/390.7	COMP SYS COST	964,311
1595	340.5/390.7	MICRO SYS COST	26,925
2620	348.5/398.7	UTIL PLANT ACQUIRED/DISPOSED	163,502
			17,252,817

R - 2827

Carolina Water Service
Sewer Operations
Rate Base and Rate of Return
September 30, 2010

	Per Books	Pro Forma Adjustments		As Adjusted	Proposed Increase	Effect of Proposed Increase
Net Operating Income	$ 1,626,959	$ (80,236)		$ 1,546,724	$ 30,977	$ 1,577,700
Gross Plant In Service	$ 34,967,470	$ (103,115)	[b]	$ 34,864,355	$ -	$ 34,864,355
Accumulated Depreciation	(5,358,157)	206,115	[c]	(5,152,042)	-	(5,152,042)
Net Plant In Service	29,609,312	103,000		29,712,313	-	29,712,313
Cash Working Capital	328,535	(14,987)	[d]	313,548	-	313,548
Contributions In Aid of Construction	(12,052,034)	70,637	[a]	(11,981,397)	-	(11,981,397)
Accumulated Deferred Income Taxes	(623,196)	-		(623,196)	-	(623,196)
Customer Deposits	(81,259)	(11,327)	[g]	(92,586)	-	(92,586)
Advances in Aid of Construction	(800)	-		(800)	-	(800)
Plant Acquisition Adjustment	(157,393)	-		(157,393)	-	(157,393)
Excess Book Value	-	(311,858)	[e]	(311,858)	-	(311,858)
General Ledger Additions - UPIS	-	865,962	[e]	865,962	-	865,962
General Ledger Additions - CIAC	-	(290,123)	[e]	(290,123)	-	(290,123)
Pro Forma Plant	-	-		-	-	-
Pro Forma Plant Retirements	-	-		-	-	-
Total Rate Base	$ 17,023,165	$ 411,305		$ 17,434,470	$ -	$ 17,434,470
Return on Rate Base	9.56%	[f]		8.87%	[f]	9.05%

Rate of Return					
Debt	50.11%	6.60%	6.60%	6.60%	6.60%
Equity	49.89%	15.88%	11.14%	11.14%	11.50%

R - 2828

Object Account	NARUC Account	Account Description	Balance at 09/30/10
1245	351.1	ORGANIZATION	27,645
1250	352.1	FRANCHISES INTANG PLT	-
1255	352.6	FRANCHISES RECLAIM WTR DI	-
1265	353.2	LAND & LAND RIGHTS COLL P	264
1270	353.4	LAND & LAND RIGHTS TRTMNT	-
1275	353.5	LAND & LAND RIGHTS RECLAI	-
1280	353.6	LAND & LAND RIGHTS RCL DS	-
1285	353.7	LAND & LAND RIGHTS GEN PL	89,738
1290	354.2	STRUCT/IMPRV COLL PLT	32,218
1295	354.3	STRUCT/IMPRV PUMP PLT LS	3,711,350
1300	354.4	STRUCT/IMPRV TREAT PLT	76,382
1305	354.5	STRUCT/IMPRV RECLAIM WTP	1,125
1310	354.6	STRUCT/IMPRV RECLAIM WTR	22,286
1315	354.7	STRUCT/IMPRV GEN PLT	676,741
1320	355.2	POWER GEN EQUIP COLL PLT	6,961
1325	355.3	POWER GEN EQUIP PUMP PLT	-
1330	355.4	POWER GEN EQUIP TREAT PLT	33,612
1335	355.5	POWER GEN EQUIP RECLAIM W	-
1340	355.6	POWER GEN EQUIP RCL WTR D	-
1345	360.2	SEWER FORCE MAIN	4,130,663
1350	361.2	SEWER GRAVITY MAIN/MANHOL	12,256,368
1353	361.2	MANHOLES	7,828
1355	362.2	SPECIAL COLL STRUCTURES	424
1360	363.2	SERVICES TO CUSTOMERS	291,557
1365	364.2	FLOW MEASURE DEVICES	20,515
1370	365.2	FLOW MEASURE INSTALL	2,044
1375	370.3	RECEIVING WELLS	602
1380	371.3	PUMPING EQUIPMENT PUMP PL	475,442
1385	371.5	PUMPING EQUIPMENT RECLAIM	1,414
1390	371.6	PUMPING EQUIPMENT RCL WTR	9,642
1395	380.4	TREAT/DISP EQUIP LAGOON	570,867
1400	380.4	TREAT/DISP EQUIP TRT PLT	10,310,601
1405	380.5	TREAT/DISP EQUIP RCL WTP	1,541
1410	381.4	PLANT SEWERS TRTMT PLT	39,444
1415	381.5	PLANT SEWERS RECLAIM WTP	-
1420	382.4	OUTFALL LINES	200,057
1425	398.7	OTHER PLT TANGIBLE	2,424
1430	389.2	OTHER PLT COLLECTION	3,008
1435	389.3	OTHER PLT PUMP	37,291
1440	389.4	OTHER PLT TREATMENT	16,250
1445	389.5	OTHER PLT RECLAIM WTR TRT	1,720
1450	389.6	OTHER PLT RECLAIM WTR DIS	-
1175/1455	304.5/354.7	OFFICE STRUCT & IMPRV	230,587
1180/1460	340.5/390.7	OFFICE FURN & EQPT	108,314
1185/1465	342.5/392.7	STORES EQPT	304
1190/1470	343.5/393.7	TOOL SHOP & MISC EQPT	150,630
1195/1475	344.5/394.7	LABORATORY EQUIPMENT	32,682
1200/1485	345.5/395.7	POWER OPERATED EQUIP	2,498
1205/1490	346.5/396.7	COMMUNICATION EQPT	58,855
1210/1495	347.5/397.7	MISC EQUIPMENT	7,277
1495	398.7	SEWER PLANT ALLOCATED	(525)
1500	398.7	OTHER TANGIBLE PLT SEWER	657
1525	366.6	REUSE SERVICES	-
1530	367.6	REUSE MTR/INSTALLATIONS	1,211
1535	374.5	REUSE DIST RESERVOIRS	36,341
1540	375.6	REUSE TRANMISSION & DIST	

1555	341.5/391.7	TRANSPORTATION EQPT WTR	274,748
1580	340.5/390.7	MAINFRAME COMPUTER WTR	35,660
1585	340.5/390.7	MINI COMPUTERS WTR	135,389
1590	340.5/390.7	COMP SYS COST WTR	697,148
1595	340.5/390.7	MICRO SYS COST WTR	19,465
2620	348.5/398.7	UTIL PLANT ACQUIRED/DISPOSED	118,204
			34,967,470

R - 2830

Carolina Water Service
Explanation of Adjustments to Rate Base and Rate of Return

[a] To adjust for $71,713 of CIAC (plus amortization) that should actually be recorded as sewer revenue per Willie J. Morgan.

[b] Gross plant in service is adjusted to reflect adjusted vehicles, allocated by the various accurate allocation percentages for CWS, the plant adjustment for capitalized time charged to plant, a water project that should have been capitalized, and non-allowable plant.

[c] Accumulated depreciation is adjusted to reflect adjusted vehicles, allocated by the various allocation percentages for CWS, and to correct depreciation for computers, and to remove depreciation for nonallowable plant.

[d] Cash working capital is calculated based on 1/8 of maintenance and general expenses.

[e] A pro forma adjustment has been made to allowed UPIS and CIAC general ledger additions through the end of the audit period, as well as to include excess book value.

[f] The Return on Rate Base shown above is provided solely as a matter of information and convenience for the Commission and is not intended to reflect a request for this specific return on rate base (or any return on equity). Applicant will make its request for a return on rate base (and return on equity) by way of evidence to be introduced at hearing.

[g] Interest on customer deposits has been included as well as and adjustment to include a formula error in CWS's original filing.

R - 2831

WATER

bill code	Description	Consumption	Usage Charge	Units	BFC	Revenues
400PWCOM	1" Purchase Water Commercial	5,896,971	$ 2.03	283	$ 99.02	$ 29,151
400PWCOM	1.5" Purchase Water Commercial	5,439,060	$ 2.03	173	$ 58.04	$ 21,082
400PWCOM	2" Purchase Water Commercial	23,570,727	$ 2.03	361	$ 92.86	$ 81,371
400PWCOM	3" Purchase Water Commercial	8,978,540	$ 2.03	110	$ 174.12	$ 37,380
400PWCOM	3/4" Purchase Water Commercial	882,820	$ 2.03	51	$ 11.09	$ 2,358
400PWCOM	4" Purchase Water Commercial	7,658,130	$ 2.03	16	$ 290.20	$ 10,040
400PWCOM	5/8" Purchase Water Commercial	8,093,710	$ 2.03	1,045	$ 11.09	$ 28,019
400PWRES	1" Purchase Water Residential	5,033,440	$ 2.03	1,200	$ 11.09	$ 23,573
400PWRES	1.5" Purchase Water Residential	1,854,600	$ 2.03	612	$ 11.09	$ 10,511
400PWRES	2" Purchase Water Residential	7,564,200	$ 2.03	780	$ 11.09	$ 24,008
400PWRES	3/4" Purchase Water Residential	74,380	$ 2.03	13	$ 11.09	$ 295
400PWRES	4" Purchase Water Residential	234,000	$ 2.03	176	$ 11.09	$ 2,427
400PWRES	5/8" Purchase Water Residential	186,046,154	$ 2.03	33,779	$ 11.09	$ 752,183
400PWRRH	1" Purchased Water Residential - Riverhills	329,300	$ 2.03	32	$ 11.09	$ 1,023
400PWRRH	2" Purchased Water Residential - Riverhills	13,811,160	$ 2.03	5,128	$ 11.09	$ 84,884
400PWRRH	3" Purchased Water Residential - Riverhills	5,262,100	$ 2.03	1,692	$ 11.09	$ 29,446
400PWRRH	3/4" Purchased Water Residential - Riverhills	3,210,440	$ 2.03	708	$ 11.09	$ 14,369
400PWRRH	5/8" Purchased Water Residential - Riverhills	160,934,878	$ 2.03	29,061	$ 11.09	$ 648,984
400PWRRH	6" Purchased Water Residential - Riverhills	2,629,500	$ 2.03	480	$ 11.09	$ 10,661
400WCOM	1" Commercial	874,670	$ 3.55	33	$ 29.02	$ 4,063
400WCOM	2" Commercial	1,050,500	$ 3.55	10	$ 92.86	$ 4,658
400WCOM	5/8" Commercial	1,151,484	$ 3.55	161	$ 11.09	$ 5,573
400WRES	1" Residential	1,156,690	$ 3.55	224	$ 11.09	$ 6,588
400WRES	3/4" Residential	2,380,970	$ 3.55	388	$ 11.09	$ 12,755
400WRES	5/8" Residential	107,078,333	$ 3.55	19,561	$ 11.09	$ 596,918
	Total	556,158,355		96,065		$ 2,433,619

per t/b (no accruals)	$	2,448,290
difference $	$	(14,671)
difference %		-0.60%
remove accrual		274,735
adjustment	$	260,065

Carolina Water Service
September 30, 2010
Test Year Revenues

SEWER

Bill code	Description	Consumption	Usage Charge	Units		BFC		Revenues
400WWCOM	1" WW Commercial			12	$	39.00		
400WWCOM	1.5" WW Commercial			36	$	39.00		
400WWCOM	2" WW Commercial			816	$	39.00		
400WWCOM	5/8" WW Commercial			3,708	$	39.00		
				4,572	$	39.00		178,308
400WWCRH	1" Purchase WW Commercial - Riverhills			960	$	25.70		
400WWCRH	1.5" Purchase WW Commercial - Riverhills			1,452	$	25.70		
400WWCRH	2" Purchase WW Commercial - Riverhills			4,950	$	25.70		
400WWCRH	3" Purchase WW Commercial - Riverhills			2,052	$	25.70		
400WWCRH	3/4" Purchase WW Commercial - Riverhills			144	$	25.70		
400WWCRH	4" Purchase WW Commercial - Riverhills			1,032	$	25.70		
400WWCRH	5/8" Purchase WW Commercial - Riverhills			1,524	$	25.70		
				12,114	$	25.70		311,339
400WWRCP	5/8" Purchase WW Residential - Richland			4,788	$	25.70		123,052
400WWRES	1" WW Residential			1,152	$	39.00		
400WWRES	1.5" WW Residential			612	$	39.00		
400WWRES	2" WW Residential			576	$	39.00		
400WWRES	3/4" WW Residential			12	$	39.00		
400WWRES	4" WW Residential			192	$	39.00		
400WWRES	5/8" WW Residential			90,168	$	39.00		
				92,712	$	39.00		3,615,768
400WWRH	Residential Wastewater Service			816	$	25.70		20,971
400WWRRH	1" Purchase WW Residential Coml - Riverhills			12	$	25.70		
400WWRRH	2" Purchase WW Residential Coml - Riverhills			1,008	$	25.70		
400WWRRH	3" Purchase WW Residential Coml - Riverhills			1,584	$	25.70		
400WWRRH	3/4 Purchase WW Residential Coml - Riverhills			516	$	25.70		
400WWRRH	5/8" Purchase WW Residential Coml - Riverhills			28,560	$	25.70		
400WWRRH	6" Purchase WW Residential Coml - Riverhills			4,428	$	25.70		
				36,108	$	25.70		915,686
400WWRTC	5/8" Town of Chapin Purchase WW Residential			1,020	$	25.70		26,214
400WWTRL	2" WW Trailer Residential			780	$	27.77		
400WWTRL	5/8" WW Trailer Residential			348	$	27.77		
				1,128	$	27.77		31,325
400TRT	Von Aradale Wastewater Treatment			5,017	$	16.53		82,931
400WWRHT	Riverhills Wastewater Treatment			37	$	25.70		951
	Total	-		158,612			$	5,326,535

per I/S (no accruals)	$	5,310,665
difference $	$	15,870
difference %		0.30%
remove accrual	$	139,899
adjustment	$	155,769

WATER

Bill code	Description	Test Year Consumption	Proposed Usage Charge	Test Year Units	Proposed BFC	Revenues
400PWCOM	1" Purchase Water Commercial	5,896,971	$ 2.72	282	$ 48.46	$ 29,720
400PWCOM	1.5" Purchase Water Commercial	5,439,060	$ 2.72	173	$ 66.93	31,575
400PWCOM	2" Purchase Water Commercial	50,570,727	$ 2.72	361	$ 155.08	128,148
400PWCOM	3" Purchase Water Commercial	8,978,540	$ 2.72	110	$ 290.78	58,428
400PWCOM	3/4" Purchase Water Commercial	882,820	$ 2.72	51	$ 18.52	3,348
400PWCOM	4" Purchase Water Commercial	2,658,339	$ 2.72	16	$ 484.63	14,991
400PWCOM	5/8" Purchase Water Commercial	8,093,711	$ 2.72	1,945	$ 18.52	41,387
400PWRES	1" Purchase Water Residential	5,055,410	$ 2.72	1,900	$ 18.52	35,983
400PWRES	1.5" Purchase Water Residential	1,834,600	$ 2.72	612	$ 18.52	16,329
400PWRES	2" Purchase Water Residential	7,564,200	$ 2.72	780	$ 18.52	35,038
400PWRES	3/4" Purchase Water Residential	74,380	$ 2.72	13	$ 18.52	443
400PWRES	4" Purchase Water Residential	234,000	$ 2.72	176	$ 18.52	3,897
400PWRES	5/8" Purchase Water Residential	186,046,152	$ 2.72	23,770	$ 18.52	1,131,898
400PWRRH	1" Purchased Water Residential - Riverhills	349,300	$ 2.72	32	$ 18.52	1,489
400PWRRH	2" Purchased Water Residential - Riverhills	13,811,160	$ 2.72	5,126	$ 18.52	132,533
400PWRRH	3" Purchased Water Residential - Riverhills	5,262,100	$ 2.72	1,692	$ 18.52	45,661
400PWRRH	3/4" Purchased Water Residential - Riverhills	3,210,440	$ 2.72	708	$ 18.52	21,852
400PWRRH	5/8" Purchased Water Residential - Riverhills	160,934,878	$ 2.72	29,061	$ 18.52	976,326
400PWRRH	5" Purchased Water Residential - Riverhills	2,629,500	$ 2.72	480	$ 18.52	16,048
400WCOM	1" Commercial	874,670	$ 4.76	33	$ 48.46	5,769
400WCOM	2" Commercial	1,050,500	$ 4.76	10	$ 155.08	6,852
400WCOM	5/8" Commercial	1,151,484	$ 4.76	161	$ 18.52	8,464
400WRES	1" Residential	1,156,950	$ 4.76	224	$ 18.52	9,652
400WRES	3/4" Residential	2,380,970	$ 4.76	388	$ 18.52	18,521
400WRES	5/8" Residential	107,038,333	$ 4.76	19,561	$ 18.52	871,844
	Total	550,158,355		90,665		$ 3,635,892

Carolina Water Service
September 30, 2010
Revenues at Proposed Rates

SEWER

Bill code	Description	Consumption	Proposed Usage Charge	Units	Proposed Rate	Revenues
400WWCOM	1" WW Commercial	-			$ 39.37	
400WWCOM	1.5" WW Commercial	-			$ 39.37	
400WWCOM	2" WW Commercial	-			$ 39.37	
400WWCOM	5/8" WW Commercial	-			$ 39.37	
				4,572		$ 179,980
400WWCRH	1" Purchase WW Commercial - Riverhills	-		960	$ 25.94	$ 24,903
400WWCRH	1.5" Purchase WW Commercial - Riverhills	-		1,452	$ 25.94	$ 37,666
400WWCRH	2" Purchase WW Commercial - Riverhills	-		4,950	$ 25.94	$ 128,408
400WWCRH	3" Purchase WW Commercial - Riverhills	-		2,052	$ 25.94	$ 53,231
400WWCRH	3/4" Purchase WW Commercial - Riverhills	-		144	$ 25.94	$ 3,736
400WWCRH	4" Purchase WW Commercial - Riverhills	-		1,032	$ 25.94	$ 26,771
400WWCRH	5/8" Purchase WW Commercial - Riverhills	-		1,524	$ 25.94	$ 39,534
		-				
400WWRCP	5/8" Purchase WW Residential - Richland	-		4,788	$ 25.94	$ 124,206
400WWRES	1" WW Residential	-			$ 39.37	
400WWRES	1.5" WW Residential	-			$ 39.37	
400WWRES	2" WW Residential	-			$ 39.37	
400WWRES	3/4" WW Residential	-			$ 39.37	
400WWRES	4" WW Residential	-			$ 39.37	
400WWRES	5/8" WW Residential	-			$ 39.37	
				92,712		$ 3,649,676
400WWRBJ	Residential Wastewater Service			819	$ 25.94	$ 21,168
400WWRRH	1" Purchase WW Residential Comi - Riverhills	-			$ 25.94	
400WWRRH	2" Purchase WW Residential Comi - Riverhills	-			$ 25.94	
400WWRRH	3/4 Purchase WW Residential Comi - Riverhills	-			$ 25.94	
400WWRRH	5/8" Purchase WW Residential Comi - Riverhills	-			$ 25.94	
400WWRRH	5" Purchase WW Residential Comi - Riverhills	-			$ 25.94	
		-		36,108		$ 944,460
400WWRTC	5/8" Town of Chapin Purchase WW Residential	-		1,020	$ 25.94	$ 26,460
400WWTRL	2" WW Trailer Residential	-		348	$ 28.03	
400WWTRL	5/8" WW Trailer Residential	-			$ 28.03	
				1,128		$ 31,618
400TRT	Van Ardale Wastewater Treatment			5,017	$ 16.69	$ 83,709
400WWRHT	Riverhills Wastewater Treatment			37	$ 25.94	$ 960
	Total	-		158,960		$ 5,376,486

Carolina Water Service
Uncollectible Accounts
September 30, 2010

Exhibit KEW-1
w/p [a]

	Water	Sewer	Total
Restated Per Books Revenues	$ 2,173,555	$ 5,170,766	$ 7,344,320
Uncollectible Accounts	$ 244,489	$ 176,753	$ 421,242
Uncollectible %	1.10%	1.10%	5.74%
Pro Forma Present Revenues	$ 2,433,619	$ 5,326,535	$ 7,760,154
Uncollectible %	1.10%	1.10%	5.74%
Uncollectible Accounts	$ 26,770	$ 58,592	$ 85,362
Proposed Revenues	$ 3,635,892	$ 5,376,486	$ 9,012,378
Uncollectible %	1.10%	1.10%	1.10%
Uncollectible Accounts	$ 39,995	$ 59,141	$ 99,136

Carolina Water Service
Calculation of Taxes Other Than Income Taxes
September 30, 2010

Exhibit KEW-1
w/p [e]

		Water	Sewer	Total
Test Year				
	Utility/Commission Tax	$ 30,164	$ 628	$ 30,792
	Real Estate Tax	268,579	194,169	462,748
	Personal Property Tax	48,309	34,925	83,234
	Utility Assessment	36,252	26,208	62,461
	Franchise Tax	-	-	-
	Payroll Taxes	75,651	54,692	130,342
	Total	$ 458,955	$ 310,623	$ 769,578
Pro Forma Adjustments				
	Payroll Tax Increase	$ 1,185	$ 857	$ 2,041
	Adjustment	$ 1,185	$ 857	$ 2,041
Pro Forma Present Adjustments				
	Revenue Increase	$ 260,065	$ 155,769	
	Utility Assessment	0.95%	0.95%	
	Adjustment	$ 2,473	$ 1,481	
Proposed Increase Adjustments				
	Revenue Increase	$ 1,202,273	$ 49,951	
	Utility Assessment	0.95%	0.95%	
	Adjustment	$ 11,434	$ 475	

Carolina Water Service
Depreciation Expense and A/D
September 30, 2010

Exhibit KEW-1
w/p [f]

	Water	Sewer
Total Water Plant (AA Ledger)	$ 14,874,805	$ 33,254,656
Add: Additions, Oct-10 through Jun-11 per Testimony of Kirsten E. Weeks	$ 1,010,439	$ 865,962
Add: Capitalized Well Project per Testimony of Kirsten E. Weeks	45,500	-
Add: Capitalized Time from Wage Adjustment per Testimony of Kirsten E. Weeks	702	507
Less: Land (per AA Ledger)	$ (178,189)	$ (90,002)
Less: Organization (per AA Ledger)	(82,784)	(27,645)
Less: Nonallowable Plant per Testimony of Kirsten E. Weeks	(398,314)	(10,581)
Net	$ 15,272,159	$ 33,992,897
Plant Depreciation Expense at 1.5%	$ 229,082	$ 509,893
Vehicles (Adjusted Asset Balance)	$ 251,341	$ 181,707
Vehicle Depreciation at 16.67% (accounts for fully depreciated vehicles) (per Exhibit KEW-2, w/p (a)	$ 22,481	$ 16,252
Computers (Adjusted Asset Balance)	$ 1,227,835	$ 887,663
Computer Depreciation at 12.50% (accounts for fully depreciated computers, see Exhibit KEW-4, w/p (a)	$ 123,259	$ 89,110
Depreciation on Allocated Plant (other than Vehicles and Computers) (per UA Ledger)	$ 7,260	$ 5,231
Total Depreciation	$ 382,082	$ 620,487
PAA	(311,506)	(345,936)
PAA Amortization	$ (4,673)	$ (5,189)
CIAC	$ (7,110,134)	$ (14,568,053)
Add: Additions, Oct-10 through Jun-11	$ (560,954)	$ (295,622)
Less: CIAC considered revenue in this case (per Willie J. Morgan)	-	71,713
Net	$ (7,671,088)	$ (14,791,962)
CIAC Amortization	$ (115,066)	$ (221,879)
A/D Per Books For TY (AA Ledger)	$ (2,260,480)	$ (4,508,094)
Add: A/D - Additions, Oct-10 through Jun-11	$ (15,157)	$ (12,989)
Add: A/D - Capitalized Well Project	(683)	-
Add: A/D - Capitalized Time from Wage Adjustment per Testimony of Kirsten E. Weeks	(11)	(8)
Less: A/D - Land (AA Ledger)	$ -	$ -
Less: A/D - Organization (per AA Ledger)	(102,474)	(137,048)
Less: A/D - Nonallowable Plant per Testimony of Kirsten E. Weeks (Exhibit KEW-3, w/p (d)	19,699	321
A/D - Vehicles	$ (203,377)	$ (147,032)
A/D - Computers per Exhibit KEW-4, w/p (a)	$ (517,523)	$ (374,143)
A/D - Allocated Plant (other than Vehicles and Computers) (per UA Ledger)	$ (257,268)	$ (185,884)
Post Test Year Retirements	$ 65,343	$ 212,834
Total A/D	$ (3,271,931)	$ (5,152,042)

Carolina Water Service
Calculation of Income Taxes
September 30, 2010

Exhibit KEW-1
w/p [g]

WATER		Pro Forma Present	Pro Forma Proposed
State Income Taxes			
Total Revenue		$ 2,502,590	$ 3,707,020
Maintenance Expense		1,135,872	1,135,872
General Expense		1,010,299	1,010,299
Depreciation & Amortization		257,205	257,205
Taxes Other Than Income		462,613	474,047
Interest Expense		218,185	218,185
Taxable Income		$ (581,584)	$ 611,412
State Rate	5.00%	$ (29,079)	$ 30,571
Total State Income Taxes		$ (29,079)	$ 30,571
Federal Taxes			
Taxable Income before taxes		$ (581,584)	$ 611,412
Less: State I/T		(29,079)	30,571
Federal Taxable Income		(552,505)	580,842
Federal Tax Rate		35%	35%
Federal Tax Calculation		$ (193,377)	$ 203,295
Total Federal Tax		$ (193,377)	$ 203,295

SEWER		Pro Forma Present	Pro Forma Proposed
State Income Taxes			
Total Revenue		$ 5,408,871	$ 5,459,511
Maintenance Expense		1,842,183	1,842,183
General Expense		716,058	716,058
Depreciation & Amortization		389,704	389,704
Taxes Other Than Income		312,961	313,436
Interest Expense		577,492	577,492
Taxable Income		$ 1,570,474	$ 1,620,639
State Rate	5.00%	$ 78,524	$ 81,032
Total State Tax		$ 78,524	$ 81,032
Federal Taxes			
Taxable Income before taxes		$ 1,570,474	$ 1,620,639
Less: State I/T		78,524	81,032
Federal Taxable Income		$ 1,491,951	$ 1,539,607
Federal Tax Rate		35%	35%
Federal Tax Calculation		$ 522,183	$ 538,862

Carolina Water Service
Calculation of Working Capital
September 30, 2010

Exhibit KEW-1
w/p [i]

		Water	Sewer
Test Year			
Maintenance Expenses		$ 930,054	$ 1,819,544
General Expenses		1,118,657	808,733
Total		$ 2,048,712	$ 2,628,277
Working Capital	45/360	$ 256,089	$ 328,535
Pro Forma Present			
Maintenance Expenses		$ 1,135,872	$ 1,842,183
General Expenses		1,010,299	716,058
Total		$ 2,146,171	$ 2,558,241
Working Capital	45/360	$ 268,271	$ 319,780

Carolina Water Service
Average Residential Bill @ Present & Proposed Rates
September 30, 2010

Exhibit KEW-1
Schedule F

WATER				Rate	Monthly Average Usage	Monthly Average Bill
Present Rates:	400PWCOM	1" Purchase Water Commercial	BFC	$29.07 2.03	20,911	$ 71.47
	400PWCOM	1.5" Purchase Water Commercial	BFC	58.04 2.03	31,440	$ 121.86
	400PWCOM	2" Purchase Water Commercial	BFC	92.86 2.03	65,293	$ 225.40
	400PWCOM	3" Purchase Water Commercial	BFC	174.12 2.03	81,623	$ 338.51
	400PWCOM	3/4" Purchase Water Commercial	BFC	11.09 2.03	17,310	$ 46.23
	400PWCOM	4" Purchase Water Commercial	BFC	290.20 2.03	166,146	$ 627.48
	400PWCOM	5/8" Purchase Water Commercial	BFC	11.09 2.03	7,745	$ 26.81
	400PWRES	1" Purchase Water Residential	BFC	11.09 2.03	2,313	$ 19.64
	400PWRES	1.5" Purchase Water Residential	BFC	11.09 2.03	-	$ 11.09
	400PWRES	2" Purchase Water Residential	BFC	11.09 2.03	5,698	$ 30.78
	400PWRES	3/4" Purchase Water Residential	BFC	11.09 2.03	5,722	$ 22.70
	400PWRES	4" Purchase Water Residential	BFC	11.09 2.03	1,330	$ 13.79
	400PWRES	5/8" Purchase Water Residential	BFC	11.09 2.03	5,509	$ 22.27
	400PWRRH	1" Purchased Water Residential - Riverhills	BFC	11.09 2.03	10,291	$ 31.08
	400PWRRH	2" Purchased Water Residentail - Riverhills	BFC	11.09 2.03	2,694	$ 16.56
	400PWRRH	3" Purchased Water Residentail - Riverhills	BFC	11.09 2.03	3,110	$ 17.49
	400PWRRH	3/4" Purchased Water Residentail - Riverhills	BFC	11.09 2.03	4,635	$ 20.30
	400PWRRH	5/8" Purchased Water Residentail - Riverhills	BFC	11.09 2.03	5,538	$ 22.33
	400PWRRH	6" Purchased Water Residentail - Riverhills	BFC	11.09 2.03	5,478	$ 22.21
	400WCOM	1" Commercial	BFC	29.02 3.55	26,505	$ 123.11
	400WCOM	1 1/2" Commercial	BFC	58.04 3.55		
	400WCOM	2" Commercial	BFC	92.86 3.55	105,050	$ 465.70
	400WCOM	3" Commercial	BFC	174.12 3.55		
	400WCOM	4" Commercial	BFC	290.20 3.55		
	400WCOM	5/8" Commercial	BFC	11.09 3.55	7,152	$ 36.48
	400WRES	1" Residential	BFC	11.09 3.55	5,161	$ 29.41
	400WRES	3/4" Residential	BFC	11.09 3.55	6,137	$ 32.87
	400WRES	5/8" Residential	BFC	11.09 3.55	5,472	$ 30.52

Carolina Water Service
Average Residential Bill @ Present & Proposed Rates
September 30, 2010

Exhibit KEW-1
Schedule F

WATER

				Rate	Monthly Average Usage	Monthly Average Bill
Proposed Rates (with current rate description):	400PWCOM	1" Purchase Water Commercial	BFC	$ 48.46 2.72	20,911	$ 105.39
	400PWCOM	1.5" Purchase Water Commercial	BFC	96.93 2.72	31,440	$ 182.51
	400PWCOM	2" Purchase Water Commercial	BFC	155.08 2.72	65,293	$ 332.82
	400PWCOM	3" Purchase Water Commercial	BFC	290.78 2.72	81,623	$ 512.98
	400PWCOM	3/4" Purchase Water Commercial	BFC	18.52 2.72	17,310	$ 65.64
	400PWCOM	4" Purchase Water Commercial	BFC	484.63 2.72	166,146	$ 936.93
	400PWCOM	5/8" Purchase Water Commercial	BFC	18.52 2.72	7,745	$ 39.69
	400PWRES	1" Purchase Water Residential	BFC	18.52 2.72	4,213	$ 29.99
	400PWRES	1.5" Purchase Water Residential	BFC	18.52 2.72	-	$ 18.52
	400PWRES	2" Purchase Water Residential	BFC	18.52 2.72	9,698	$ 44.92
	400PWRES	3/4" Purchase Water Residential	BFC	18.52 2.72	5,722	$ 34.10
	400PWRES	4" Purchase Water Residential	BFC	18.52 2.72	1,330	$ 22.14
	400PWRES	5/8" Purchase Water Residential	BFC	18.52 2.72	5,509	$ 33.52
	400PWRRH	1" Purchased Water Residential - Riverhills	BFC	18.52 2.72	10,291	$ 46.53
	400PWRRH	2" Purchased Water Residential - Riverhills	BFC	18.52 2.72	2,094	$ 75.86
	400PWRRH	3" Purchased Water Residential - Riverhills	BFC	18.52 2.72	3,110	$ 26.99
	400PWRRH	3/4" Purchased Water Residential - Riverhills	BFC	18.52 2.72	4,535	$ 30.86
	400PWRRH	5/8" Purchased Water Residential - Riverhills	BFC	18.52 2.72	5,539	$ 33.60
	400PWRRH	6" Purchased Water Residential - Riverhills	BFC	18.52 2.72	5,478	$ 33.43
	400WCOM	1" Commercial	BFC	48.46 4.76	26,505	$ 174.64
	400WCOM	1 1/2" Commercial	BFC	103.98 6.49		
	400WCOM	2" Commercial	BFC	155.08 4.76	105,050	$ 655.18
	400WCOM	3" Commercial	BFC	311.93 6.49		
	400WCOM	4" Commercial	BFC	519.89 6.49		
	400WCOM	5/8" Commercial	BFC	18.52 4.76	7,152	$ 52.57
	400WRES	1" Residential	BFC	18.52 4.76	5,161	$ 43.09
	400WRES	3/4" Residential	BFC	18.52 4.76	6,137	$ 47.73
	400WRES	5/8" Residential	BFC	18.52 4.76	5,472	$ 44.57

Carolina Water Service
Average Residential Bill @ Present & Proposed Rates
September 30, 2010

Exhibit KEW-1
Schedule F

Sewer			Rate	Monthly Average Usage	Monthly Average Bill
Present Rates:	400WWCOM	1" WW Commercial	$ 39.00	-	39.00
	400WWCOM	1.5" WW Commercial	$ 39.00	-	39.00
	400WWCOM	2" WW Commercial	$ 39.00	-	39.00
	400WWCOM	5/8" WW Commercial	$ 39.00	-	39.00
	400WWCRH	1" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	1.5" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	2" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	3" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	3/4" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	4" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWCRH	5/8" Purchase WW Commercial - Riverhills	$ 25.70	-	25.70
	400WWRCP	5/8" Purchase WW Residential - Richland	$ 25.70	-	25.70
	400WWRES	1" WW Residential	$ 39.00	-	39.00
	400WWRES	1.5" WW Residential	$ 39.00	-	39.00
	400WWRES	2" WW Residential	$ 39.00	-	39.00
	400WWRES	3/4" WW Residential	$ 39.00	-	39.00
	400WWRES	4" WW Residential	$ 39.00	-	39.00
	400WWRES	5/8" WW Residential	$ 39.00	-	39.00
	400WWRRI	Residential Wastewater Service	$ 25.70	-	25.70
	400WWRRH	2" Purchase WW Residential Coml - Riverhills	$ 25.70	-	25.70
	400WWRRH	3" Purchase WW Residential Coml - Riverhills	$ 25.70	-	25.70
	400WWRRH	3/4 Purchase WW Residential Coml - Riverhills	$ 25.70	-	25.70
	400WWRRH	5/8" Purchase WW Residential Coml - Riverhills	$ 25.70	-	25.70
	400WWRRH	6" Purchase WW Residential Coml - Riverhills	$ 25.70	-	25.70
	400WWRTC	5/8" Town of Chapin Purchase WW Residential	$ 25.70	-	25.70
	400WWTRL	2" WW Trailer Residential	$ 27.77	-	27.77
	400WWTRL	5/8" WW Trailer Residential	$ 27.77	-	27.77
	400TRT	Van Arsdale Wastewater Treatment	$ 16.53	-	16.53
	400WWRHT	Riverhills Wastewater Treatment	$ 25.70	-	25.70

Carolina Water Service
Average Residential Bill @ Present & Proposed Rates
September 30, 2010

Exhibit KEW-1
Schedule F

Sewer

			Rate	Monthly Average Usage	Monthly Average Bill
Proposed Rates (with current rate description):	400WWCOM	1" WW Commercial	$ 39.37	-	$ 39.37
	400WWCOM	1.5" WW Commercial	$ 39.37	-	$ 39.37
	400WWCOM	2" WW Commercial	$ 39.37	-	$ 39.37
	400WWCOM	5/8" WW Commercial	$ 39.37	-	$ 39.37
	400WWCRH	1" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	1.5" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	2" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	3" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	3/4" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	4" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWCRH	5/8" Purchase WW Commercial - Riverhills	$ 25.94	-	$ 25.94
	400WWRCP	5/8" Purchase WW Residential - Richland	$ 25.94	-	$ 25.94
	400WWRES	1" WW Residential	$ 39.37	-	$ 39.37
	400WWRES	1.5" WW Residential	$ 39.37	-	$ 39.37
	400WWRES	2" WW Residential	$ 39.37	-	$ 39.37
	400WWRES	3/4" WW Residential	$ 39.37	-	$ 39.37
	400WWRES	4" WW Residential	$ 39.37	-	$ 39.37
	400WWRES	5/8" WW Residential	$ 39.37	-	$ 39.37
	400WWRRH	Residential Wastewater Service	$ 25.94	-	$ 25.94
	400WWRRH	2" Purchase WW Residential Coml - Riverhills	$ 25.94	-	$ 25.94
	400WWRRH	3" Purchase WW Residential Coml - Riverhills	$ 25.94	-	$ 25.94
	400WWRRH	3/4 Purchase WW Residential Coml - Riverhills	$ 25.94	-	$ 25.94
	400WWRRH	5/8" Purchase WW Residential Coml - Riverhills	$ 25.94	-	$ 25.94
	400WWRRH	6" Purchase WW Residential Coml - Riverhills	$ 25.94	-	$ 25.94
	400WWRTC	5/8" Town of Chapin Purchase WW Residential	$ 25.94	-	$ 25.94
	400WWTRL	2" WW Trailer Residential	$ 28.03	-	$ 28.03
	400WWTRL	5/8" WW Trailer Residential	$ 28.03	-	$ 28.03
	400TRT	Van Alsdale Wastewater Treatment	$ 16.69	-	$ 16.69
	400WWRHT	Riverhills Wastewater Treatment	$ 25.94	-	$ 25.94

2011-47-WS

Rebuttal Testimony

Of

Kirsten Weeks

Exhibit KEW 2- Salary for Rebuttal

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYEE

Totals

Name	Position	State	Department	(a) Current Salary	(b) Annual Overtime	(c) Total
	Total Department 611000			1,141,009	8,099	1,149,108
	Total Department 615000			68,683	-	68,683
	Total Department 612000			1,207,950	-	1,207,950
	Total Department 612500			288,976	57	289,033
	Total Department 613000			294,077	372	294,449
	Total Department 613500			703,188	-	703,188
	Total Department 614000			1,004,130	-	1,004,130
	Total Department 614500			1,138,688	7,757	1,146,445
	Total Department 614600			116,751	-	116,751
	Total Department 614700			141,242	337	141,579
	Total Department 615000			1,656,973	92,478	1,749,451
	Total Department 615500			103,626	1,067	104,693
				$7,864,693	$110,168	$7,974,861

(137)

Carolina Water Service, Inc.

Name	Position	State	Department	(a) Current Salary	(b) Annual Overtime	(c) Total
	Total Department 611000			86,254	612	86,866
	Total Department 615000			5,192	-	5,192
	Total Department 612000			91,314	-	91,314
	Total Department 612500			21,845	4	21,849
	Total Department 613000			22,231	28	22,259
	Total Department 613500			88,502	-	88,502
	Total Department 614000			72,173	-	72,173
	Total Department 614500			86,033	586	86,619
	Total Department 614600			8,826	-	8,826
	Total Department 614700			10,677	25	10,703
	Total Department 615000			992,545	64,511	1,057,056
	Total Department 615500			66,230	682	66,912
				$1,551,821	$66,450	$1,618,271

(274)

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYEE

Totals				(a)	(b)	(c)
Name	Position	State	Department	Current Salary	Annual Overtime	Total

(a) Salaries are most current data as of 08/18/11.
(b) Overtime is based on the most current annual data as of 08/18/11.
(c) Sum of (a) + (b).
(d) FICA on column (c), at current FICA rates.
(e) FUTA on colum (c), at current FUTA rates.
(f) SUTA on colum (c), at current FUTA rates.
(g) Result of a actual contribution by company for 401(k) and 4% profit sharing on column (c).
(h) Health insurance and benefits for full-time employees, see calculation on w/p e.
(i) Vehicle number.
(j) Month and year vehicle was purchased.
(k) Cost of vehicle.
(l) Accumulated depreciation at TY end on vehicle (6 yr life), and adjusted to account for fully depreciated vehicles at June 2011.
(m) Depreciation expense for TY on vehicle.
(n) Transportation expense for vehicles, see calculation on w/p d.

Other Notes:

- Salaries, payroll taxes, benefits, and vehicle data are calculated by taking the total amounts per employee and multiplying those amounts by the correct ERC percentage for each company based on each employee's ERC allocation.
- Maintenance salaries consist of departments 615500 and 615000. All other departments are categorized as general salaries on Schedule B, Income Statement.

R - 2847

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYEE

Totals

Name	Position	State	Department	(d) Pro Forma FICA	(e) Pro Forma FUTA	(f) Pro Forma SUTA	(g) Pro Forma 401K	(h) Pro Forma Health Insurance and Benefits	(i) Vehicle Number	(j) Depreciation Start
	Total Department 611000			84,100	952	11,068	60,042	150,534		
	Total Department 615000			5,254	56	651	3,434	8,855		
	Total Department 612000			50,623	280	2,982	83,453	44,275		
	Total Department 612500			22,111	280	3,255	14,223	44,275		
	Total Department 613000			31,931	224	2,604	14,688	35,420		
	Total Department 613500			49,021	448	4,116	40,552	70,840		
	Total Department 614000			73,837	840	9,490	58,499	132,824		
	Total Department 614500			87,657	1,904	14,572	58,119	301,069		
	Total Department 614600			8,931	112	1,302	5,761	17,710		
	Total Department 614700			10,831	168	1,036	5,663	26,565		
	Total Department 615000			133,833	2,184	10,530	76,977	318,779		
	Total Department 615500			8,009	168	810	6,220	26,565		
(137)				$556,138	$7,616	$62,106	$427,660	$1,177,710		

Carolina Water Service, Inc.

Name	Position	State	Department	(d) Pro Forma FICA	(e) Pro Forma FUTA	(f) Pro Forma SUTA	(g) Pro Forma 401K	(h) Pro Forma Health Insurance and Benefits	(i) Vehicle Number	(j) Depreciation Start
	Total Department 611000			6,357	72	837	4,539	11,380		
	Total Department 615000			397	4	49	260	669		
	Total Department 612000			3,827	21	225	6,309	3,347		
	Total Department 612500			1,671	21	246	1,075	3,347		
	Total Department 613000			1,658	17	197	1,110	2,678		
	Total Department 613500			6,050	51	427	5,416	8,065		
	Total Department 614000			5,296	61	683	4,285	9,382		
	Total Department 614500			6,626	144	1,102	4,393	22,759		
	Total Department 614600			675	8	98	438	1,339		
	Total Department 614700			819	13	78	428	2,008		
	Total Department 615000			81,333	1,301	6,274	48,326	196,920		
	Total Department 615500			5,119	107	518	3,975	16,978		
(274)				$119,829	$1,821	$10,734	$80,553	$279,073		

R - 2848

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYEE

					(d)	(e)	(f)	(g)	(h)	(i)	(j)
Totals											
Name	Position	State	Department		Pro Forma FICA	Pro Forma FUTA	Pro Forma SUTA	Pro Forma 401K	Pro Forma Health Insurance and Benefits	Vehicle Number	Depreciation Start

(a) Salaries are most current data as of 09/18/11.
(b) Overtime is based on the most current annual data as of 08/18/11.
(c) Sum of (a) + (b).
(d) FICA on column (c), at current FICA rates.
(e) FUTA on colum (c), at current FUTA rates.
(f) SUTA on colum (c), at current FUTA rates.
(g) Result of a actual contribution by company for 401(k) and 4% profit sharing on column (c).
(h) Health insurance and benefits for full-time employees, see calculation on w/p e.
(i) Vehicle number.
(j) Month and year vehicle was purchased.
(k) Cost of vehicle.
(l) Accumulated depreciation at TY end on vehicle (6 yr life), and adjusted to account for fully depreciated vehicles at .
(m) Depreciation expense for TY on vehicle.
(n) Transportation expense for vehicles, see calculation on w/p d.

Other Notes:

- Salaries, payroll taxes, benefits, and vehicle data are calculated by taking the total amounts per employee and multiplying those amounts by the correct ERC percentage for each company based on each employee's ERC allocation.
- Maintenance salaries consist of departments 613500 and 615000. All other departments are categorized as general salaries on Schedule D, Income Statement.

R - 2849

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYER

EXHIBIT KEW-2
w/p 8

Totals

Name	Position	State	Department	(k) Vehicle Price	(l) Vehicle Accumulated Depreciation Y/E Balance	(m) Vehicle Depreciation Expense	(n) Transportation Expense
	Total Department 611000						
	Total Department 615000						
	Total Department 612000						
	Total Department 612500						
	Total Department 613000						
	Total Department 613500						
	Total Department 614000						
	Total Department 614500						
	Total Department 614600						
	Total Department 614700						
	Total Department 615000						
	Total Department 615500						
(137)				$867,387	($690,519)	$81,090	$229,373

Carolina Water Service, Inc.

Name	Position	State	Department	(k) Vehicle Price	(l) Vehicle Accumulated Depreciation Y/E Balance	(m) Vehicle Depreciation Expense	(n) Transportation Expense
	Total Department 611000						
	Total Department 615000						
	Total Department 612000						
	Total Department 612500						
	Total Department 613000						
	Total Department 613500						
	Total Department 614000						
	Total Department 614500						
	Total Department 614600						
	Total Department 614700						
	Total Department 615000						
	Total Department 615500						
(274)				$433,049	($350,409)	$38,733	$119,828

R - 2850

CAROLINA WATER SERVICE, INC.
DETAILED SALARY BY EMPLOYEE

EXHIBIT KEW-2
w/p a

Totals				(k)	(l) Vehicle Accumulated Depreciation Y/E Balance	(m) Vehicle Depreciation Expense	(n) Transportation Expense
Name	Position	State	Department	Vehicle Price			

(a) Salaries are most current data as of 08/18/11.
(b) Overtime is based on the most current annual data as of 08/18/11.
(c) Sum of (a) + (b).
(d) FICA on column (c), at current FICA rates.
(e) FUTA on colum (c), at current FUTA rates.
(f) SUTA on colum (c), at current FUTA rates.
(g) Result of a actual contribution by company for 401(k) and 4% profit sharing on column (c).
(h) Health insurance and benefits for full-time employees, see calculation on w/p e.
(i) Vehicle number.
(j) Month and year vehicle was purchased.
(k) Cost of vehicle.
(l) Accumulated depreciation at TY end on vehicle (6 yr life), and adjusted to account for fully depreciated vehicles at
(m) Depreciation expense for TY on vehicle.
(n) Transportation expense for vehicles, see calculation on w/p d.

Other Notes:

- Salaries, payroll taxes, benefits, and vehicle data are calculated by taking the total amounts per employee and multiplying those amounts by the correct ERC percentage for each company based on each employee's ERC allocation.
- Maintenance salaries consist of departments 613500 and 615000. All other departments are categorized as general salaries on Schedule II, Income Statement.

R - 2851

CAROLINA WATER SERVICE, INC.
CAPTIME ADJUSTMENT

EXHIBIT KEW-2
w/p b

			(b) Carolina Water Service, Inc.
(1)	Total Per Book Salaries	per TB	1,623,001
(2)	Per Book Salaries for Captime Employees	per TB	1,386,384
(3)	Percentage of Operator to Total	line (1) / line (2)	85.42%
(4)	Per Book Salaries for Captime Employees	per TB	$1,386,384
(5)	Per Book Payroll Taxes for Captime Employees	per TB * line (3)	111,340
(6)	Per Book Payroll Benefits for Captime Employees	per TB * line (3)	286,166
(7)		sum, lines (4) thru (6)	$1,783,889
(8)	Per Book Capitalized Time	per TB	(328,570)
(9)	Per Book Total Payroll for Captime Employees	line (7)	1,783,889
(10)	Percentage of Total Payroll to Captime	line (8) / line (9) * -1	18.42%
(11)	Pro Forma Captime Employee Payroll	per w/p a	$3,290,175
(12)	Percentage of Total Payroll to Captime	line (10)	18.42%
(13)	Pro Forma Capitalized Time	line (11) * line (12)	($606,009)

Notes:

"Captime employees" include employees that are booked to JDE accounts 6120, 6135, 6140, 6150, and 6155.

CAROLINA WATER SERVICE, INC.
TRANSPORTATION EXPENSES

EXHIBIT KEW-2
w/p c

	Object Account	Account Description		(a) TY Total
(1)	6215	FUEL	per TB	$1,491,765
(2)	6220	AUTO REPAIR/TIRES	per TB	860,423
(3)	6225	AUTO LICENSES	per TB	72,875
(4)	6230	OTHER TRANS EXPENSES	per TB	10,487
(5)		TRANSPORTATION EXPENSES	sum, lines (1) thru (4)	$2,435,550
(6)		# of Vehicles	per operations	399
(7)		Transportation Expense per Vehicle	line (5) / line (6)	$6,104
(8)		Adjustment by ORS per vehicle		(68)
(9)				$6,036

CAROLINA WATER SERVICE, INC. **EXHIBIT KEW-2**
BENEFITS **w/p d**

	Object Account	Account Description		(a) TY Total
(1)	5630	HEALTH & DENTAL PREMIUMS	per TB	$559,637
(2)	5635	DENTAL INS REIMBURSEMENTS	per TB	(219)
(3)	5640	EMP PENSIONS & BENEFITS	per TB	-
(4)	5645	EMPLOYEE INS DEDUCTIONS	per TB	(1,193,798)
(5)	5650	HEALTH COSTS & OTHER	per TB	33,256
(6)	5655	HEALTH INS REIMBURSEMENTS	per TB	3,925,217
(7)	5660	OTHER EMP PENSION/BENEFITS	per TB	55,256
(8)	5670	TERM LIFE INS	per TB	185,487
(9)	5675	TERM LIFE INS-OPT	per TB	(26,036)
(10)	5680	DEPEND LIFE INS-OPT	per TB	(3,144)
(11)	5685	SUPPLEMENTAL LIFE INS	per TB	(58)
(12)	5690	TUITION	per TB	50,663
(13)		EMPLOYEE BENEFITS	sum, lines (1) thru (12)	$3,586,261
(14)		# of Full Time Employees	per payroll	405
(15)		Benefits per Employee	line (13) / line (14)	$8,855

ERC COUNT 09/10 **EXHIBIT KEW-2**
CORPORATE ALLOCATED EMPLOYEES **w/p e**

Company	ERC	ERC Percentage
110	2,679.0	0.99%
111	438.0	0.16%
112	53.0	0.02%
113	258.6	0.10%
114	362.5	0.13%
117	83.5	0.03%
118	748.0	0.28%
119	3,058.1	1.13%
120	346.0	0.13%
121	2,071.0	0.76%
122	1,412.5	0.52%
123	350.0	0.13%
124	292.0	0.11%
125	195.0	0.07%
126	68.0	0.03%
127	220.0	0.08%
128	2,344.5	0.87%
129	243.0	0.09%
130	455.2	0.17%
131	970.6	0.36%
132	119.0	0.04%
133	635.0	0.23%
134	360.0	0.13%
150	6,206.0	2.29%
151	378.2	0.14%
152	1,821.0	0.67%
181	378.4	0.14%
182	38,347.2	14.15%
183	12,875.8	4.75%
187	3,025.0	1.12%
188	3,385.0	1.25%
190	347.0	0.13%
191	2,679.5	0.99%
192	256.0	0.09%
220	558.0	0.21%
241	2,094.2	0.77%
242	243.8	0.09%
246	1,675.5	0.62%
248	2,406.5	0.89%
249	2,493.6	0.92%
250	3,355.0	1.24%
251	12,241.0	4.52%
252	9,347.4	3.45%
254	749.3	0.28%
255	20,990.2	7.75%
256	1,066.1	0.39%
257	435.4	0.16%
259	1,512.0	0.56%
260	2,716.0	1.00%
262	351.8	0.13%
286	927.0	0.34%
287	1,486.0	0.55%
288	2,190.5	0.81%

ERC COUNT 09/10 **EXHIBIT KEW-2**
CORPORATE ALLOCATED EMPLOYEES **w/p e**

Company	ERC	ERC Percentage	
300	1,009.6	0.37%	
315	773.5	0.29%	
316	2,305.0	0.85%	
317	3,386.5	1.25%	
332	169.0	0.06%	
333	5,454.0	2.01%	
345	7,348.7	2.71%	
356	10,100.3	3.73%	
357	12,533.4	4.63%	
385	10,146.0	3.74%	
386	2,078.0	0.77%	
400	*20,482.0*	*7.56%*	*CWS*
401	6,765.5	2.50%	
402	171.0	0.06%	
403	1,186.2	0.44%	
406	3,442.0	1.27%	
425	8,652.6	3.19%	
450	3,481.5	1.28%	
451	4,659.2	1.72%	
452	587.0	0.22%	
453	11,635.5	4.29%	
900	279.0	0.10%	
	270,946.4		

ERC COUNT 09/10 **EXHIBIT KEW-2**
RVP ALLOCATED EMPLOYEES **w/p e-1**

Company	ERC	ERC Percentage	
241	2,094.2	1.33%	
242	243.8	0.15%	
246	1,675.5	1.06%	
248	2,406.5	1.53%	
249	2,493.6	1.58%	
250	3,355.0	2.13%	
251	12,241.0	7.77%	
252	9,347.4	5.93%	
254	749.3	0.48%	
255	20,990.2	13.32%	
256	1,066.1	0.68%	
257	435.4	0.28%	
259	1,512.0	0.96%	
260	2,716.0	1.72%	
262	351.8	0.22%	
356	10,100.3	6.41%	
357	12,533.4	7.95%	
385	10,146.0	6.44%	
386	2,078.0	1.32%	
400	*20,482.0*	*13.00%*	*CWS*
401	6,765.5	4.29%	
402	171.0	0.11%	
403	1,186.2	0.75%	
406	3,442.0	2.18%	
425	8,652.6	5.49%	
450	3,481.5	2.21%	
451	4,659.2	2.96%	
452	587.0	0.37%	
453	11,635.5	7.38%	
	157,598.0		

ERC COUNT 09/10 **EXHIBIT KEW-2**
RD ALLOCATED EMPLOYEES **w/p e-2**

Company	ERC	ERC Percentage	
241	2,094.2	2.23%	
242	243.8	0.26%	
246	1,675.5	1.79%	
248	2,406.5	2.57%	
249	2,493.6	2.66%	
250	3,355.0	3.58%	
251	12,241.0	13.06%	
252	9,347.4	9.97%	
254	749.3	0.80%	
255	20,990.2	22.40%	
256	1,066.1	1.14%	
257	435.4	0.46%	
259	1,512.0	1.61%	
260	2,716.0	2.90%	
262	351.8	0.38%	
400	*20,482.0*	*21.85%*	*CWS*
401	6,765.5	7.22%	
402	171.0	0.18%	
403	1,186.2	1.27%	
406	3,442.0	3.67%	
	93,724.5		

ERC COUNT 12/09 **EXHIBIT KEW-2**
SOUTH CAROLINA ALLOCATED EMPLOYEES **w/p e-3**

Company	ERC	ERC Percentage	
400	*20,482.0*	*63.91%*	*CWS*
401	6,765.5	21.11%	
402	171.0	0.53%	
403	1,186.2	3.70%	
406	3,442.0	10.74%	
	32,046.7		

ERC COUNT 09/10
SOUTH CAROLINA FIELD EMPLOYEES

EXHIBIT KEW-2
w/p f

Residence: Gerald D. C	System		ERC Count (1)	Percentage to Total	
	Util Serv South Carolina				
401108	Nevin Forest/Leon Bolt/Normidy	W	349.0	13.32%	
401176	Calhoun Acres	W	77.0	2.94%	
401177	Heyns Builders	W	61.0	2.47%	
401178	Dobbins Estates	W	70.0	2.67%	
401179	Hill And Dale	W	64.0	2.44%	
401180	Lakewood	W	72.0	2.75%	
401181	Edgebrook	W	19.0	0.73%	
401182	Oakwood Estates	W	52.0	1.98%	
401183	Sherwood Forest	W	33.0	1.26%	
401184	Towncreek Acres	W	104.0	3.97%	
401185	Belle Mead Acres	W	69.0	2.63%	
401186	Bridgewater	W	99.0	3.78%	
401187	Clearview	W	60.0	2.29%	
401188	Fiddlerst	W	27.0	1.03%	
401189	Greenforest	W	66.0	2.52%	
401190	Hidden Lake	W	65.0	2.48%	
401191	Surfside Heights	W	20.0	0.76%	
401192	Furey Shores Summer Homes	W	97.0	3.70%	54.72%
	United Utility Company				
403101	Kingswood	W	26.0	0.99%	
403102	Woodmont Estates	W	21.0	0.80%	
403103	Trollingwood W	W	50.0	1.91%	
403104	Trollingwood S	S	53.0	2.02%	
403107	Canterbury	S	136.0	5.19%	
403108	Chamber Forest	S	102.8	3.92%	
403109	Fairwood	S	85.0	3.24%	
403112	Valley Brook	S	136.0	5.53%	
403113	Village	S	203.0	7.75%	
403114	North Greenville College	S	61.0	2.33%	
403115	Highland Forest	S	84.6	3.23%	
403116	Briarcreek	S	84.8	3.24%	
403118	Greenville County School District	S	108.0	4.12%	45.27%
			2,620.2	100.00%	100.00%

Residence: Joseph C	System		ERC Count (1)	Percentage to Total	
	Carolina Water Service Inc				
400103	Falcon Ridge	W	108.8	0.39%	
400104	Westside Terrace	W	64.0	0.23%	
400105	Pocalla	W	99.0	0.36%	
400106	Pocalla	S	153.0	0.56%	
400108	Rock Bluff	W	22.0	0.08%	
400109	Oakland Plantation CWS	S	303.6	1.11%	
400110	Indian Fork/40 Lowe	W	209.0	0.76%	
400111	Indian Fork/40 Lowe	S	83.0	0.30%	
400113	40 Lowe Point	S	128.0	0.46%	
400114	Indian Pines	W	17.0	0.07%	
400115	Smallwood Estates	W	117.0	0.43%	
400116	Smallwood Estates	S	114.0	0.41%	
400118	Palmetto Apts	S	89.2	0.34%	
400119	Roosevelt Gardens	S	164.0	0.63%	
400120	Hidden Valley Country Club	W	186.8	0.72%	
400121	Peachtree Acres	W	49.0	0.19%	
400122	Hunters Glen	W	95.5	0.37%	
400123	Lincolnshire/Whites Creek	S	242.0	0.93%	
400124	Idlewood CWS	W	66.0	0.25%	
400125	North Lake Shore Point	S	22.0	0.08%	
400126	Shadowood Cove	S	116.0	0.45%	
400127	River Hills	W	3,883.1	14.99%	
400128	River Hills	S	3,295.1	12.71%	
400130	I-20 Water	W	2,286.3	8.83%	
400131	I-20 Sewer	S	2,280.7	8.80%	
400133	Stonegate	W	135.0	0.52%	
400134	Stonegate	S	134.0	0.52%	
400136	Blue Ridge/Calvin Acres/Idlewood	W	191.8	0.74%	
400137	Rollingwood	W	184.0	0.71%	
400138	The Landings	W	164.0	0.63%	
400139	Harbourside	W	78.8	0.30%	
400140	Watergate/Spence Point/Mallard Shores	W	332.5	1.28%	
400142	Watergate Sewer	S	1,102.8	4.26%	
400143	Pinegate/Bethelpine Cove	S	3,335.0	12.87%	
400144	Glenn Village II/Stonebridge	W	204.0	0.79%	
400145	Glenn Village II/Stonebridge	S	222.0	0.86%	78.60%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	0.76%	
401105	Dutch Village/Fairtree Acres	W	315.0	1.22%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.01%	
401107	Glenn Village Util Srv SC	W	202.8	0.78%	
401108	Nevin Forest/Leon Bolt/Normidy	W	349.0	1.35%	
401109	Plantation/Wintercrest/Glenwood	W	192.0	0.74%	
401110	Woodbridge	W	67.0	0.26%	
401111	Silver Lake/Wildwood	W	71.0	0.27%	
401112	Parkwood	W	110.5	0.43%	
401113	Tanya Terrance	W	25.0	0.09%	
401114	Emma Terrance	W	24.0	0.09%	
401115	Windy Hill	W	139.0	0.54%	
401116	Vanadale	W	191.6	0.74%	
401117	Murray Park Estates	W	46.0	0.18%	
401118	Lake Village Util Serv SC	W	80.0	0.31%	
401119	Tanglewood	W	10.0	0.04%	
401120	Fristrail	W	37.0	0.14%	
401121	Murray Lodge	W	57.0	0.22%	
401122	Dutchman Shores	W	154.6	0.59%	
401123	Indian Cove	W	29.0	0.11%	
401124	Millcreek Shores	W	20.0	0.08%	
401125	Hilton Place	W	35.0	0.14%	
401126	Estates At Hilton	W	24.0	0.09%	
401127	Oakland Plant Util Srv SC	W	387.0	1.49%	
401128	Springfield Acres	W	44.0	0.17%	
401129	Farrowood Estates	W	140.0	0.54%	
401130	Harmon Hill Estates	W	40.0	0.15%	
401131	Washington Heights	W	73.0	0.28%	
401132	Oakridge Hunt Club	W	78.0	0.30%	
401133	Belleaire	W	138.0	0.53%	
401134	Sargasso	W	57.8	0.22%	
401135	Dutchman Acres	W	22.0	0.08%	

401136	Lexington Farms	W		161.6	0.40%	
401137	Charwood	W		268.0	1.05%	
401138	Charlewood	W		184.0	0.72%	
401139	Shandon	W		71.0	0.27%	
401140	Shandon		S	37.0	0.14%	
401142	Forwood	W		220.0	0.85%	
401143	Forwood		S	221.0	0.85%	
401145	Leslie Woods	W		15.0	0.06%	
401146	Leslie Dale	W		26.0	0.10%	
401147	35dElectrasses	W		29.4	0.11%	
401148	Riverbend Util Serv SC	W		32.1	0.12%	
401149	Carrolton Place	W		40.0	0.15%	
401150	Camwood	W		86.0	0.33%	
401151	Camwood		S	55.0	0.21%	
401153	Country Oaks	W		136.0	0.52%	
401154	Country Oaks		S	46.0	0.18%	
401156	Barney Rhett	W		43.0	0.17%	
401157	Wedgewoods	W		25.3	0.10%	
401158	Valkyrene	W		20.0	0.08%	
401159	Hickory Hills	W		36.0	0.14%	
401160	Edgewood	W		67.0	0.26%	
401161	Olympic Acres	W		89.8	0.36%	
401162	Shiloh Quarters	W		53.0	0.21%	
401163	Southland	W		34.8	0.13%	
401164	Windy Run	W		28.0	0.11%	
401165	Brownsboro	W		71.2	0.27%	
401166	Cameron Acres	W		28.0	0.11%	
401167	Old Farm	W		19.0	0.07%	
401168	Farm Pond	W		25.0	0.10%	
401169	Kim Acres	W		51.6	0.20%	
401170	Brown Well	W		13.2	0.05%	
401171	Pepperidge	W		39.4	0.15%	21.40%
				25,005.1	100.00%	100.00%

Facility No., Index No.	Facility			KBC Count (1)	Percentage to Total	
	Carolina Water Service Inc					
400103	Falcon Meadow	W		100.8	0.66%	
400304	Westside Terrace	W		64.0	0.42%	
400110	Indian Fork/40 Love	W		203.0	1.34%	
400111	Indian Fork/40 Love		S	83.0	0.55%	
400113	40 Love Point		S	128.0	0.84%	
400114	Indian Pines	W		17.0	0.11%	
400115	Smallwood Estates	W		117.0	0.77%	
400116	Smallwood Estates		S	114.0	0.75%	
400119	Roosevelt Gardens		S	154.0	1.02%	
400120	Hidden Valley Country Club	W		156.8	1.03%	
400121	Peachtree Acres	W		46.0	0.30%	
400122	Flumbers Glen	W		95.8	0.63%	
400124	Idlewood CWS	W		64.0	0.42%	
400125	North Lake Shore Point		S	22.0	0.14%	
400126	Shadowood Cove		S	118.0	0.78%	
400130	I-90 Water	W		2,286.3	15.05%	
400131	I-90 Sewer		S	2,280.7	15.01%	
400133	Stonegate	W		135.0	0.89%	
400134	Stonegate		S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Elwood	W		191.8	1.26%	
400137	Bellingwood	W		181.0	1.21%	
400138	The Landings	W		154.0	1.01%	
400139	Harborside	W		78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W		232.5	1.53%	
400141	Watergate Sewer		S	1,101.8	7.25%	
400143	Pelangate/Ballentine Cove		S	3,335.0	21.95%	
400144	Glenn Village II/Somerbridge	W		364.0	1.34%	
400145	Glenn Village II/Somerbridge		S	222.0	1.46%	80.34%
	Util Serv South Carolina					
400102	Lexington Estates	W		196.5	1.29%	
400105	Dutch Village/Raintree Acres	W		315.0	2.07%	
400106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
400107	Glenn Village Util Serv SC	W		202.8	1.33%	
400112	Parkwood	W		112.5	0.74%	
400113	Tanya Terrace	W		22.0	0.14%	
400114	Emma Terrace	W		24.0	0.16%	
400115	Windy Hill	W		139.0	0.91%	
400116	Verandale	W		191.0	1.26%	
400117	Murray Park Estates	W		45.0	0.30%	
400118	Lake Village Util Serv SC	W		80.0	0.53%	
400119	Tanglewood	W		10.0	0.07%	
400120	Foxtrail	W		37.0	0.24%	
400121	Murray Ridge	W		57.0	0.38%	
400122	Deadmans Shores	W		154.0	1.01%	
400123	Indian Cove	W		29.0	0.19%	
400124	Millcrest Shores	W		20.0	0.13%	
400125	Hilton Place	W		35.0	0.23%	
400126	Estates At Hilton	W		24.0	0.16%	
400128	Springfield Acres	W		44.0	0.29%	
400129	Fairwood Estates	W		140.0	0.92%	
400130	Fairoaks Hall Estates	W		40.0	0.26%	
400131	Washington Heights	W		73.0	0.48%	
400132	Oakridge Hunt Club	W		78.0	0.51%	
400133	Ballcastle	W		138.0	0.91%	
401134	Sangaree	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		104.6	0.69%	
401137	Charwood	W		268.0	1.76%	
401138	Charleswood	W		184.0	1.21%	18.74%
	Southland Utilities Inc					
400100	Southland Creekwood	W		35.0	0.23%	
400101	Southland Cedarwood	W		114.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Facility No., Index No.	Facility			KBC Count (1)	Percentage to Total
	Carolina Water Service Inc				
400103	Falcon Meadow	W		100.8	0.66%
400304	Westside Terrace	W		64.0	0.42%
400110	Indian Fork/40 Love	W		203.0	1.34%
400111	Indian Fork/40 Love		S	83.0	0.55%
400113	40 Love Point		S	128.0	0.84%
400114	Indian Pines	W		17.0	0.11%
400115	Smallwood Estates	W		117.0	0.77%

400136	Smallwood Estates	S	114.0	0.75%	
400139	Rosevelt Gardens	S	164.0	1.08%	
400120	Hidden Valley Country Club	W	186.8	1.23%	
400122	Peachtree Acres	W	49.0	0.32%	
400123	Hunters Glen	W	95.5	0.63%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	116.0	0.76%	
400130	I-20 Water	W	2,286.3	15.05%	
400131	I-20 Sewer	S	2,280.7	15.01%	
400133	Stonegate	W	135.0	0.89%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Hwood	W	191.8	1.26%	
400137	Rollingwood	W	184.0	1.21%	
400138	The Landings	W	164.0	1.08%	
400139	Barkesdale	W	78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W	332.5	2.19%	
400141	Watergate Sewer	S	1,102.8	7.26%	
400143	Friarsgate/Ballentine Cove	S	3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W	204.0	1.34%	
400145	Glenn Village II/Stonebridge	S	222.0	1.46%	80.14%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	1.29%	
401105	Dutch Village/Raintree Acres	W	315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.02%	
401107	Glenn Village Util Srv SC	W	202.8	1.33%	
401112	Parkwood	W	112.3	0.74%	
401113	Tanya Terrance	W	22.0	0.14%	
401114	Emma Terrance	W	24.0	0.16%	
401125	Windy Hill	W	139.0	0.91%	
401126	Venicedale	W	191.5	1.26%	
401127	Murray Park Estates	W	46.0	0.30%	
401128	Lake Village Util Serv SC	W	80.0	0.53%	
401129	Tanglewood	W	10.0	0.07%	
401130	Foxtrail	W	37.0	0.24%	
401131	Murray Lodge	W	57.0	0.38%	
401132	Dutchman Shores	W	154.0	1.01%	
401133	Indian Cove	W	39.0	0.26%	
401134	Milkmont Shores	W	20.0	0.13%	
401135	Hilton Place	W	35.0	0.23%	
401136	Estates At Hilton	W	24.0	0.16%	
401138	Springfield Acres	W	44.0	0.29%	
401139	Farrowood Estates	W	140.0	0.92%	
401140	Hanson Hill Estates	W	40.0	0.26%	
401141	Washington Heights	W	73.0	0.48%	
401142	Gilbridge Hunt Club	W	78.0	0.51%	
401143	Bellemede	W	138.0	0.91%	
401144	Sangaree	W	57.0	0.38%	
401145	Dutchman Acres	W	22.0	0.14%	
401146	Lexington Farms	W	104.8	0.69%	
401147	Clearwood	W	268.0	1.76%	
401148	Charlerwood	W	184.0	1.21%	18.74%
	Southland Utilities Inc				
402100	Southland Crestwood	W	53.0	0.35%	
402101	Southland Cedarwood	W	118.0	0.78%	1.13%
			15,195.2	100.00%	100.00%

Number	System		PSC Count (1)	Percentage to Total	
	Carolina Water Service Inc				
400803	Falcon Ridges	W	100.8	0.66%	
400804	Westside Terrace	W	64.0	0.42%	
400810	Indian Fork/40 Lowe	W	203.0	1.34%	
400811	Indian Fork/40 Lowe	S	83.0	0.55%	
400813	40 Lowe Point	S	128.0	0.84%	
400814	Indian Point	W	57.6	0.38%	
400815	Smallwood Estates	W	117.0	0.77%	
400816	Smallwood Estates	S	114.0	0.75%	
400819	Rosevelt Gardens	S	164.0	1.08%	
400820	Hidden Valley Country Club	W	186.8	1.23%	
400822	Peachtree Acres	W	49.0	0.32%	
400823	Hunters Glen	W	95.5	0.63%	
400824	Idlewood CWS	W	66.0	0.43%	
400825	North Lake Shore Point	S	22.0	0.14%	
400826	Shadowood Cove	S	116.0	0.76%	
400830	I-20 Water	W	2,286.3	15.05%	
400831	I-20 Sewer	S	2,280.7	15.01%	
400833	Stonegate	W	135.0	0.89%	
400834	Stonegate	S	134.0	0.88%	
400836	Blue Ridge/Calvin Acres/Hwood	W	191.8	1.26%	
400837	Rollingwood	W	184.0	1.21%	
400838	The Landings	W	164.0	1.08%	
400839	Barkesdale	W	78.8	0.52%	
400840	Watergate/Spence Point/Mallard Shores	W	332.5	2.19%	
400841	Watergate Sewer	S	1,102.8	7.26%	
400843	Friarsgate/Ballentine Cove	S	3,335.0	21.95%	
400844	Glenn Village II/Stonebridge	W	204.0	1.34%	
400845	Glenn Village II/Stonebridge	S	222.0	1.46%	80.14%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	1.29%	
401105	Dutch Village/Raintree Acres	W	315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.02%	
401107	Glenn Village Util Srv SC	W	202.8	1.33%	
401112	Parkwood	W	112.3	0.74%	
401113	Tanya Terrance	W	22.0	0.14%	
401114	Emma Terrance	W	24.0	0.16%	
401125	Windy Hill	W	139.0	0.91%	
401126	Venicedale	W	191.5	1.26%	
401127	Murray Park Estates	W	46.0	0.30%	
401128	Lake Village Util Serv SC	W	80.0	0.53%	
401129	Tanglewood	W	10.0	0.07%	
401130	Foxtrail	W	37.0	0.24%	
401131	Murray Lodge	W	57.0	0.38%	
401132	Dutchman Shores	W	154.0	1.01%	
401133	Indian Cove	W	39.0	0.26%	
401134	Milkmont Shores	W	20.0	0.13%	
401135	Hilton Place	W	35.0	0.23%	
401136	Estates At Hilton	W	24.0	0.16%	
401138	Springfield Acres	W	44.0	0.29%	
401139	Farrowood Estates	W	140.0	0.92%	
401140	Hanson Hill Estates	W	40.0	0.26%	

401131	Washington Heights	W	73.0	0.48%	
401132	Oakridge Hunt Club	W	78.0	0.51%	
401133	Bellemede	W	138.0	0.91%	
401134	Sangaree	W	57.0	0.38%	
401135	Dutchman Acres	W	22.0	0.14%	
401136	Lexington Farms	W	104.8	0.69%	
401137	Charwood	W	268.0	1.76%	
401138	Charlewood	W	184.0	1.21%	18.74%
	Southland Utilities Inc				
402100	Southland Creekwood	W	55.0	0.36%	
402101	Southland Cedarwood	W	116.0	0.76%	1.13%
			15,195.2	100.00%	100.00%

Parcels, Zoned C,	Product		ERC Count (1)	Percentage in Total	
	United Utility Company				
403101	Kingswood	W	26.0	2.23%	
403102	Woodmont Estates	W	21.0	1.77%	
403103	Trollingwood W	W	50.0	4.22%	
403104	Trollingwood S	S	53.0	4.47%	
403107	Canterbury	S	136.0	11.47%	
403108	Chambert Forest	S	102.8	8.67%	
403109	Fairwood	S	85.0	7.17%	
403112	Valley Brook	S	171.0	14.42%	
403113	Village	S	203.0	17.11%	
403114	North Greenville College	S	61.0	5.14%	
403115	Highland Forest	S	84.6	7.13%	
403116	Briarcreek	S	84.8	7.15%	
403118	Greenville County School District	S	108.0	9.10%	100.00%
			1,186.2	100.00%	100.00%

Carolina Water, Rolls Circle	Product		ERC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
400103	Falcon Ranches	W	100.8	0.66%	
400104	Westside Terrace	W	64.0	0.42%	
400110	Indian Fork/40 Love	W	203.0	1.34%	
400111	Indian Fork/40 Love	S	83.0	0.55%	
400115	40 Love Point	S	916.0	6.04%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Roosevelt Gardens	S	154.0	1.08%	
400120	Hidden Valley Country Club	W	186.0	1.23%	
400121	Peachtree Acres	W	49.0	0.32%	
400122	Hunters Glen	W	93.5	0.63%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	116.0	0.76%	
400130	I-20 Water	W	2,284.3	15.05%	
400131	I-20 Sewer	S	2,282.7	15.01%	
400133	Stonegate	W	135.9	0.89%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Elwood	W	191.8	1.26%	
400137	Rollingwood	W	184.0	1.21%	
400138	The Landings	W	164.0	1.08%	
400139	Harborside	W	78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W	312.5	2.19%	
400141	Watergate Sewer	S	1,102.8	7.26%	
400145	Fairgate/Ballantyne Cove	S	3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W	204.0	1.34%	
400145	Glenn Village II/Stonebridge	S	202.0	1.40%	80.14%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	1.29%	
401105	Dutch Village/Raintree Acres	W	315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.02%	
401107	Glenn Village Util Srv SC	W	202.8	1.33%	
401112	Parkwood	W	112.5	0.74%	
401113	Tanya Terrance	W	22.0	0.14%	
401114	Emma Terrance	W	24.0	0.16%	
401115	Windy Hill	W	139.0	0.91%	
401116	Valandale	W	191.6	1.26%	
401117	Murray Park Estates	W	46.0	0.30%	
401118	Lake Village Util Serv SC	W	80.0	0.53%	
401119	Tanglewood	W	10.0	0.07%	
401120	Foxtrail	W	37.0	0.24%	
401121	Murray Ledge	W	57.0	0.38%	
401122	Dutchman Shores	W	154.0	1.01%	
401123	Indian Cove	W	29.0	0.19%	
401124	Millcoal Shores	W	20.0	0.13%	
401125	Hilton Pines	W	35.0	0.23%	
401126	Estates At Hilton	W	24.0	0.16%	
401128	Springfield Acres	W	44.0	0.29%	
401129	Perrywood Estates	W	140.0	0.92%	
401130	Harmon Hill Estates	W	40.0	0.26%	
401131	Washington Heights	W	73.0	0.48%	
401132	Oakridge Hunt Club	W	78.0	0.51%	
401133	Bellemede	W	138.0	0.91%	
401134	Sangaree	W	57.0	0.38%	
401135	Dutchman Acres	W	22.0	0.14%	
401136	Lexington Farms	W	104.8	0.69%	
401137	Charwood	W	268.0	1.76%	
401138	Charlewood	W	184.0	1.21%	18.74%
	Southland Utilities Inc				
402100	Southland Creekwood	W	55.0	0.36%	
402101	Southland Cedarwood	W	116.0	0.76%	1.13%
			15,195.2	100.00%	100.00%

Oakwood, Terry Allen	Product		ERC Count (1)	Percentage in Total	
	Util Serv South Carolina				
401108	Nevitt Forest/Leon Bolt/Kennedy	W	349.0	13.32%	
401176	Calhoun Acres	W	77.0	2.94%	
401177	Haynie Builders	W	92.0	3.47%	
401178	Dobbins Estates	W	70.0	2.67%	
401179	Hill And Dale	W	64.0	2.44%	
401180	Lakewood	W	72.0	2.75%	
401181	Edgebrook	W	19.0	0.73%	
401182	Oakwood Estates	W	52.0	1.98%	
401183	Sherwood Forest	W	33.0	1.26%	
401184	Towncreek Acres	W	104.0	3.97%	

401185	Belle Mead Acres	W		69.0	2.69%	
401186	Bridgewater	W		99.0	3.78%	
401187	Clearview	W		60.0	2.69%	
401188	Fiddlenest	W		27.0	1.03%	
401189	Greenforest	W		66.0	2.52%	
401190	Hidden Lake	W		65.1	2.48%	
401191	Sayfields Heights	W		20.0	0.76%	
401192	Purdy Shores Summer Homes	W		97.0	3.70%	54.73%
	United Utility Company					
403101	Kingswood	W		26.0	0.99%	
403102	Woodmont Estates	W		21.0	0.80%	
403103	Teallingwood W	W		50.0	1.91%	
403104	Teallingwood S		S	53.0	2.02%	
403107	Canterbury		S	136.0	5.19%	
403108	Chambert Forest		S	102.8	3.92%	
403109	Fairwood		S	85.0	3.24%	
403112	Valley Brook		S	171.0	6.53%	
403113	Village		S	203.0	7.75%	
403114	North Greenville College		S	61.0	2.33%	
403115	Highland Forest		S	84.6	3.23%	
403116	Briarcreek		S	84.8	3.24%	
403118	Greenville County School District		S	108.0	4.12%	45.27%
				2,620.2	100.00%	100.00%

Carole, Ralph H.

	System			KRC Count (1)	Percentage by Total	
	Carolina Water Service Inc					
400103	Falcon Reaches	W		100.8	0.66%	
400104	Westside Terrace	W		64.0	0.42%	
400110	Indian Fork/40 Love	W		803.0	1.04%	
400111	Indian Fork/40 Love		S	83.0	0.55%	
400113	40 Love Point		S	128.0	0.84%	
400114	Indian Pines	W		15.0	0.11%	
400115	Smallwood Estates	W		117.0	0.77%	
400116	Smallwood Estates		S	114.0	0.75%	
400119	Roosevelt Gardens		S	164.0	1.08%	
400120	Hidden Valley Country Club	W		186.8	1.23%	
400121	Peachtree Acres	W		45.0	0.31%	
400122	Hunters Glen	W		95.5	0.63%	
400124	Idlewood CWS	W		66.0	0.43%	
400125	North Lake Shore Point		S	22.0	0.14%	
400126	Shadewood Cove		S	116.0	0.76%	
400130	I-20 Water	W		2,286.3	15.05%	
400131	I-20 Sewer		S	2,280.7	15.01%	
400133	Stonegate	W		135.0	0.89%	
400134	Stonegate		S	134.0	0.88%	
400136	Elks Ridge/Calvin Acres/Idlewood	W		191.5	1.26%	
400137	Rollingwood	W		184.0	1.21%	
400138	The Landings	W		164.0	1.08%	
400139	Harborside	W		76.8	0.51%	
400140	Watergate/Spence Point/Mallard Shores	W		333.6	2.19%	
400141	Watergate Sewer		S	1,102.8	7.26%	
400143	Briarcreek/Belleaire Cove		S	3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W		204.0	1.34%	
400145	Glenn Village II/Stonebridge		S	222.0	1.46%	80.14%
	Util Serv South Carolina					
401104	Lexington Estates	W		196.5	1.29%	
401105	Dutch Village/Belmore Acres	W		315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107	Glenn Village Util Serv SC	W		202.8	1.33%	
401112	Parkwood	W		112.5	0.74%	
401113	Tanya Terrance	W		22.0	0.14%	
401114	Emma Terrance	W		24.0	0.16%	
401115	Windy Hill	W		139.9	0.91%	
401116	Vasserdale	W		191.6	1.26%	
401117	Murray Park Estates	W		46.0	0.30%	
401118	Lake Village Util Serv SC	W		80.0	0.53%	
401119	Tanglewood	W		10.0	0.07%	
401120	Foxtrail	W		37.0	0.24%	
401121	Murray Lodge	W		57.0	0.38%	
401122	Dutchman Shores	W		154.0	1.01%	
401123	Indian Cove	W		29.0	0.19%	
401124	Mimosa Shores	W		20.0	0.13%	
401125	Ilkai Place	W		35.0	0.23%	
401126	Estates At Ilkai	W		24.0	0.16%	
401128	Springfield Acres	W		44.0	0.29%	
401129	Fairwood Estates	W		140.0	0.92%	
401130	Hannon Hill Estates	W		40.0	0.26%	
401131	Washington Heights	W		73.0	0.48%	
401132	Oakridge Hunt Club	W		78.5	0.51%	
401133	Belmondo	W		136.0	0.91%	
401134	Kingston	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		134.8	0.89%	
401137	Charwood	W		268.0	1.76%	
401138	Charkswood	W		184.0	1.21%	16.74%
	Southland Utilities Inc					
402100	Southland Cricketwood	W		55.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Davis, Karl Henry

	System			KRC Count (1)	Percentage by Total	
	Carolina Water Service Inc					
400119	Roosevelt Gardens		S	164.0	100.00%	100.00%
				164.0	100.00%	100.00%

Davis, Kenneth Allen

	System			KRC Count (1)	Percentage by Total	
	Carolina Water Service Inc					
400127	River Hills	W		3,883.1	30.30%	
400128	River Hills		S	3,395.1	26.49%	56.78%
	Util Serv South Carolina					
401109	Plantation/Wildwood/Olewood	W		192.0	1.50%	
401110	Woodbridge	W		67.0	0.52%	
401111	Silver Lakes/Windwood	W		71.0	0.55%	
401139	Shandon	W		70.9	0.55%	
401140	Shandon		S	37.0	0.29%	
401142	Fernwood	W		220.0	1.72%	
401143	Fernwood		S	221.0	1.72%	

401145	Leslie Woods	W	16.0	0.12%	
401146	Leslie Dale	W	36.0	0.30%	
401147	Middlestream	W	29.4	0.23%	
401148	Riverbend Util Serv SC	W	30.4	0.24%	
401149	Carnation Place	W	40.0	0.31%	
401150	Carnwoods	W	80.0	0.62%	
401151	Carnwoods	S	55.0	0.43%	
401153	Country Oaks	W	136.0	1.06%	
401154	Country Oaks	S	46.0	0.36%	
401156	Barney Rhett	W	43.0	0.34%	
401157	Wesleywoods	W	25.5	0.20%	
401158	Valleymere	W	20.0	0.16%	
401159	Hickory Hills	W	36.0	0.28%	
401160	Ridgewood	W	67.0	0.52%	
401161	Olympic Acres	W	63.8	0.53%	
401162	Shiloh Quarters	W	53.6	0.42%	
401163	Southbend	W	34.8	0.27%	
401164	Windy Run	W	28.0	0.22%	
401165	Brownsboro	W	71.2	0.56%	
401166	Cameron Acres	W	28.0	0.22%	
401167	Old Farms	W	19.0	0.15%	
401168	Farm Pond	W	25.0	0.20%	
401169	Kim Acres	W	51.6	0.40%	
401170	Brown Neal	W	13.2	0.10%	
401171	Pepperidge	W	39.4	0.31%	
401172	Polly Circle	W	34.6	0.27%	
401173	Mallard Lakes	W	42.8	0.33%	
401174	Hidden Lakes	W	46.0	0.36%	
401175	Spring Lakes	W	14.0	0.11%	16.38%
406100	Tega Cay Water Service Inc	W	1,732.0	13.51%	
406101	Tega Cay Water Service Inc	S	1,710.0	13.34%	26.85%
			12,817.5	100.00%	100.00%

Davis, Miguel H.	System	RRC Count (1)	Percentage in Total	
	Carolina Water Service Inc			
400127	River Hills	W	3,883.3	30.30%	
400128	River Hills	S	3,395.1	26.49%	56.78%
	Util Serv South Carolina				
401109	Plantation/Watercrest/Olewood	W	192.0	1.50%	
401110	Woodbridge	W	67.0	0.52%	
401121	Silver Lakes/Windwood	W	71.0	0.55%	
401139	Shandon	W	72.0	0.55%	
401140	Shandon	S	27.0	0.21%	
401141	Foxwood	W	220.0	1.72%	
401142	Foxwood	S	221.0	1.72%	
401143	Leslie Woods	W	16.0	0.12%	
401146	Leslie Dale	W	36.0	0.28%	
401147	Middlestream	W	29.4	0.23%	
401148	Riverbend Util Serv SC	W	30.4	0.24%	
401149	Carnation Place	W	40.0	0.31%	
401150	Carnwoods	W	80.0	0.62%	
401151	Carnwoods	S	55.0	0.43%	
401153	Country Oaks	W	136.0	1.06%	
401154	Country Oaks	S	46.0	0.36%	
401156	Barney Rhett	W	43.0	0.34%	
401157	Wesleywoods	W	25.5	0.20%	
401158	Valleymere	W	20.0	0.16%	
401159	Hickory Hills	W	36.0	0.28%	
401160	Ridgewood	W	67.0	0.52%	
401161	Olympic Acres	W	63.8	0.53%	
401162	Shiloh Quarters	W	53.6	0.42%	
401163	Southbend	W	34.8	0.27%	
401164	Windy Run	W	28.0	0.22%	
401165	Brownsboro	W	71.2	0.56%	
401166	Cameron Acres	W	28.0	0.22%	
401167	Old Farms	W	19.0	0.15%	
401168	Farm Pond	W	25.0	0.20%	
401169	Kim Acres	W	51.6	0.40%	
401170	Brown Neal	W	13.2	0.10%	
401171	Pepperidge	W	39.4	0.31%	
401172	Polly Circle	W	34.6	0.27%	
401173	Mallard Lakes	W	42.8	0.33%	
401174	Hidden Lakes	W	46.0	0.36%	
401175	Spring Lakes	W	14.0	0.11%	16.38%
406100	Tega Cay Water Service Inc	W	1,732.0	13.51%	
406101	Tega Cay Water Service Inc	S	1,710.0	13.34%	26.85%
			12,817.5	100.00%	100.00%

De La Torre Jones, Mauricio A.	System	RRC Count (1)	Percentage in Total	
	Carolina Water Service Inc			
400103	Falcon Ranches	W	108.8	0.66%	
400104	Westside Terrace	W	84.0	0.42%	
400110	Indian Park/40 Lots	W	222.0	1.34%	
400111	Indian Park/40 Lots	S	83.0	0.55%	
400113	40 Low Pints	S	128.0	0.84%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Roosevelt Gardens	S	164.0	1.08%	
400120	Hidden Valley Country Club	W	188.8	1.23%	
400121	Peachtree Acres	W	49.0	0.32%	
400123	Hooters Glen	W	95.5	0.63%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	118.0	0.78%	
400130	I-20 Water	W	2,286.3	15.05%	
400131	I-20 Sewer	S	2,280.7	15.01%	
400133	Stonegate	W	135.0	0.89%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Elwood	W	191.8	1.26%	
400137	Rollingwood	W	183.0	1.21%	
400138	The Landings	W	154.0	1.02%	
400139	Harborside	W	78.8	0.52%	
400140	Watergate/Spector Point/Mallard Shores	W	338.5	2.23%	
400141	Watergate Sewer	S	1,102.8	7.26%	
400143	Pilesgate/Ballastine Cove	S	3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W	204.0	1.34%	
400145	Glenn Village II/Stonebridge	S	223.0	1.46%	80.14%

	Util Serv South Carolina					
401104	Lexington Estates	W		196.5	1.29%	
401105	Dutch Village/Baldree Acres	W		315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107	Glenn Village Util Srv SC	W		202.8	1.33%	
401112	Parkwood	W		112.5	0.74%	
401113	Tanya Terrance	W		22.0	0.14%	
401114	Linda Terrance	W		24.0	0.16%	
401115	Windy Hill	W		139.0	0.91%	
401116	Vanacadalu	W		191.6	1.26%	
401117	Murrey Park Estates	W		48.0	0.32%	
401118	Lake Village Util Serv SC	W		80.0	0.53%	
401119	Tanglewood	W		30.0	0.97%	
401120	Foxtrail	W		37.0	0.24%	
401121	Murrey Ledge	W		57.0	0.38%	
401122	Dutchman Shores	W		154.0	1.01%	
401123	Indian Cove	W		29.0	0.19%	
401124	Millmont Shores	W		20.0	0.13%	
401125	Hilton Place	W		35.0	0.23%	
401126	Estates At Hilton	W		24.0	0.16%	
401128	Springfield Acres	W		44.0	0.29%	
401129	Farmwood Estates	W		140.9	0.92%	
401130	Hanson Hill Estates	W		40.0	0.26%	
401131	Washington Heights	W		73.0	0.48%	
401132	Oakridge Hsin Club	W		78.0	0.51%	
401133	Bellemeade	W		138.0	0.91%	
401134	Sangaree	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		104.8	0.69%	
401137	Charwood	W		268.0	1.76%	
401138	Charleswood	W		184.0	1.21%	18.74%
	Southland Utilities Inc					
402100	Southland Creekwood	W		55.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	300.00%

Delaware, Marvin House	Business		PSC Count (#)	Percentage to Total	
	Carolina Water Service Inc				
400127	River Hills	W	3,883.1	50.90%	
400128	River Hills	S	3,395.1	26.49%	58.78%
	Util Serv South Carolina				
401109	Plantation/Whitecrest/Olewood	W	192.0	1.50%	
401110	Woodbridge	W	67.0	0.52%	
401111	Silver Lakes/Windwood	W	71.0	0.55%	
401139	Sheridan	W	70.0	0.55%	
401140	Sheridan	S	37.0	0.29%	
401142	Fernwood	W	226.0	1.76%	
401143	Fernwood	S	221.0	1.72%	
401145	Leslie Woods	W	16.0	0.12%	
401146	Leslie Dale	W	26.0	0.20%	
401147	Middlestream	W	29.4	0.23%	
401148	Riverbend Util Serv SC	W	30.4	0.24%	
401149	Carrillon Place	W	40.0	0.31%	
401150	Canwoods	W	80.0	0.62%	
401151	Canwoods	S	58.0	0.45%	
401153	Country Oaks	W	136.0	1.06%	
401154	Country Oaks	S	48.0	0.36%	
401156	Barney Ebert	W	43.0	0.34%	
401157	Wedgewoods	W	25.5	0.20%	
401158	Valleystore	W	20.0	0.16%	
401159	Hickory Hills	W	36.0	0.28%	
401160	Ridgewood	W	67.0	0.52%	
401161	Olympic Acres	W	67.8	0.53%	
401162	Shiloh Quarters	W	53.5	0.42%	
401163	Southbend	W	34.8	0.27%	
401164	Windy Run	W	28.0	0.22%	
401165	Brownsboro	W	71.2	0.56%	
401166	Cameron Acres	W	28.0	0.22%	
401167	Old Farms	W	19.0	0.15%	
401168	Farm Pond	W	25.0	0.20%	
401169	Kist Acres	W	51.6	0.40%	
401170	Brown Neal	W	13.2	0.10%	
401171	Pepperidge	W	39.4	0.31%	
401172	Polly Circle	W	34.6	0.27%	
401173	Mallard Lakes	W	42.8	0.33%	
401174	Hidden Lakes	W	46.0	0.36%	
401175	Spring Lakes	W	14.0	0.11%	16.36%
406100	Tega Cay Water Service Inc	W	1,732.0	13.51%	
406101	Tega Cay Water Service Inc	S	1,710.0	13.34%	26.85%
			12,817.5	100.00%	100.00%

Williams, Dwight Anthony	Business		PSC Count (#)	Percentage to Total	
	Carolina Water Service Inc				
400103	Falcon Ranches	W	100.8	0.66%	
400104	Westside Terrace	W	63.0	0.42%	
400110	Indian Fork/40 Love	W	203.2	1.34%	
400111	Indian Fork/40 Love	S	83.9	0.55%	
400113	40 Love Point	S	128.0	0.84%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Roosevelt Gardens	S	154.0	1.02%	
400120	Hidden Valley Country Club	W	186.8	1.23%	
400121	Peachtree Acres	W	49.0	0.32%	
400122	Hunters Glen	W	95.5	0.63%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	116.0	0.76%	
400130	I-20 Water	W	2,286.3	15.03%	
400131	I-20 Sewer	S	2,280.7	15.01%	
400133	Stonegate	W	133.0	0.88%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Elwood	W	191.8	1.26%	
400137	Rollingwood	W	184.0	1.21%	
400138	The Landings	W	161.0	1.06%	
400139	Harborside	W	78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W	222.5	1.46%	
400141	Watergate Sewer	S	1,102.8	7.26%	
400143	Fyrfergate/Belleidine Cove	S	3,335.0	21.93%	

400144	Glenn Village II/Stonebridge	W		204.0	1.34%	
400145	Glenn Village II/Stonebridge	S		222.0	1.46%	80.14%
	Util Serv South Carolina					
401104	Lexington Estates	W		196.5	1.29%	
401105	Dutch Village/Raintree Acres	W		315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107	Glenn Village Util Srv SC	W		202.8	1.33%	
401112	Parkwood	W		112.5	0.74%	
401113	Tanya Terrace	W		22.0	0.14%	
401114	Emma Terrace	W		24.0	0.16%	
401115	Windy Hill	W		139.0	0.91%	
401116	Verandale	W		191.6	1.26%	
401117	Murray Park Estates	W		46.0	0.30%	
401118	Lake Village Util Serv SC	W		80.0	0.53%	
401119	Tanglewood	W		10.0	0.07%	
401120	Foxtrail	W		37.0	0.24%	
401121	Murray Lodge	W		57.0	0.38%	
401122	Dutchman Shores	W		154.0	1.01%	
401123	Indian Cove	W		29.0	0.19%	
401124	Milmont Shores	W		20.0	0.13%	
401125	Hilton Place	W		35.0	0.23%	
401126	Estates At Hilton	W		24.0	0.16%	
401128	Springfield Acres	W		44.0	0.29%	
401129	Farrowood Estates	W		140.0	0.92%	
401130	Haroon Hill Estates	W		40.0	0.26%	
401131	Washington Heights	W		73.0	0.48%	
401132	Oakridge Hunt Club	W		78.0	0.51%	
401133	Bellemade	W		138.0	0.91%	
401134	Sangaree	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		104.8	0.69%	
401137	Charwood	W		268.0	1.76%	
401138	Charlerwood	W		184.0	1.21%	18.74%
	Southland Utilities Inc					
402100	Southland Creekwood	W		55.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Parcel ID	Parcel Name					
	Carolina Water Service Inc					
400103	Falcon Ranches	W		106.8	0.66%	
400104	Westside Terrace	W		64.0	0.42%	
400110	Indian Park/40 Love	W		203.0	1.34%	
400111	Indian Park/40 Love	S		83.0	0.55%	
400113	40 Love Point	S		128.0	0.84%	
400114	Indian Place	W		17.0	0.11%	
400115	Smallwood Estates	W		117.0	0.77%	
400116	Smallwood Estates	S		114.0	0.75%	
400119	Roosevelt Gardens	S		161.0	1.06%	
400120	Hidden Valley Country Club	W		188.8	1.25%	
400121	Peachtree Acres	W		49.0	0.32%	
400122	Hunters Glen	W		95.5	0.63%	
400124	Idlewood CWS	W		66.0	0.43%	
400125	North Lake Shem Point	S		22.0	0.14%	
400126	Shadowood Cove	S		116.0	0.76%	
400130	I-26 Water	W		2,284.3	15.03%	
400131	I-26 Sewer	S		2,280.7	15.01%	
400133	Stonegate	W		135.0	0.89%	
400134	Stonegate	S		134.0	0.88%	
400138	Elm Ridge/Calvin Acres/Thorne	W		191.8	1.26%	
400139	Ballingwood	W		184.0	1.21%	
400140	The Landings	W		114.0	1.08%	
400139	Barbardie	W		78.8	0.52%	
400140	Watergate/Spruce Point/Mallard Shores	W		332.5	2.19%	
400141	Watergate Sewer	S		1,102.8	7.26%	
400143	Friengate/Ballentine Cove	S		3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W		204.0	1.34%	
400145	Glenn Village II/Stonebridge	S		222.0	1.46%	80.14%
	Util Serv South Carolina					
401104	Lexington Estates	W		196.5	1.29%	
401105	Dutch Village/Raintree Acres	W		315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107	Glenn Village Util Srv SC	W		202.8	1.33%	
401112	Parkwood	W		112.5	0.74%	
401113	Tanya Terrance	W		22.0	0.14%	
401114	Emma Terrance	W		24.0	0.16%	
401115	Windy Hill	W		139.0	0.91%	
401116	Verandale	W		191.6	1.26%	
401117	Murray Park Estates	W		46.0	0.30%	
401118	Lake Village Util Serv SC	W		80.0	0.53%	
401119	Tanglewood	W		10.0	0.07%	
401120	Foxtrail	W		37.0	0.24%	
401121	Murray Lodge	W		57.0	0.38%	
401122	Dutchman Shores	W		154.0	1.01%	
401123	Indian Cove	W		29.0	0.19%	
401124	Milmont Shores	W		20.0	0.13%	
401125	Hilton Place	W		35.0	0.23%	
401126	Estates At Hilton	W		24.0	0.16%	
401128	Springfield Acres	W		44.0	0.29%	
401129	Farrowood Estates	W		140.0	0.92%	
401130	Haroon Hill Estates	W		40.0	0.26%	
401131	Washington Heights	W		73.0	0.48%	
401132	Oakridge Hunt Club	W		78.0	0.51%	
401133	Bellemade	W		138.0	0.91%	
401134	Sangaree	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		104.8	0.69%	
401137	Charwood	W		268.0	1.76%	
401138	Charlerwood	W		184.0	1.21%	18.74%
	Southland Utilities Inc					
402100	Southland Creekwood	W		55.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Parcel ID	Parcel Name					
	United Utility Company					
403101	Kingswood	W		26.0	2.77%	
403102	Westmont Estates	W		21.0	2.24%	

403103	Trollingwood W	W	511.0	5.33%	
403104	Trollingwood S	S	53.0	5.65%	
403107	Canterbury	S	136.0	14.50%	
403109	Fairwood	S	85.0	9.06%	
403112	Valley Brook	S	172.0	18.22%	
403113	Village	S	203.0	21.65%	
403116	Briarcreek	S	84.8	9.04%	
403118	Greenville County School District	S	108.0	11.51%	100.00%
			937.8	100.00%	100.00%

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	System		ERC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
4100127	River Hills	W	3,883.1	32.30%	
4001128	River Hills	S	3,395.1	26.48%	58.78%
	Util Serv South Carolina				
4011109	Plantation/Winecrest/Glenwood	W	192.0	1.50%	
4011110	Woodbridge	W	67.0	0.52%	
4011111	Silver Lakes/Windwood	W	71.0	0.55%	
4011139	Shandon	W	70.0	0.55%	
4011140	Shandon	S	37.0	0.29%	
4011142	Fernwood	W	220.0	1.72%	
4011143	Fernwood	S	222.0	1.73%	
4011145	Leslie Woods	W	16.0	0.12%	
4011146	Leslie Dale	W	26.0	0.20%	
4011147	Middlestream	W	29.4	0.23%	
4011148	Riverbend Util Serv SC	W	30.4	0.24%	
4011149	Carrollton Plant	W	40.1	0.31%	
4011150	Carewoods	W	80.0	0.62%	
4011151	Carewoods	S	55.0	0.43%	
4011153	Country Oaks	W	136.0	1.06%	
4011154	Country Oaks	S	46.0	0.36%	
4011156	Barney Rhett	W	43.0	0.34%	
4011157	Weakeywoods	W	25.5	0.20%	
4011158	Valleystere	W	20.0	0.16%	
4011159	Hickory Hills	W	36.0	0.28%	
4011160	Ridgewood	W	67.0	0.52%	
4011161	Olympic Acres	W	67.8	0.53%	
4011162	Shiloh Quarters	W	53.6	0.42%	
4011163	Southbend	W	34.8	0.27%	
4011164	Windy Run	W	28.0	0.22%	
4011165	Brownsboro	W	71.2	0.56%	
4011166	Cameron Acres	W	28.0	0.22%	
4011167	Old Farms	W	19.1	0.15%	
4011168	Farm Pond	W	25.9	0.20%	
4011169	Kim Acres	W	51.8	0.40%	
4011170	Brown Neal	W	13.2	0.10%	
4011171	Pepperidge	W	39.4	0.31%	
4011172	Polly Circle	W	34.8	0.27%	
4011173	Mallard Lakes	W	42.8	0.33%	
4011174	Hidden Lakes	W	45.0	0.36%	
4011175	Spring Lakes	W	14.0	0.11%	16.36%
4061100	Tega Cay Water Service Inc	W	1,732.0	13.51%	
4061101	Tega Cay Water Service Inc	S	1,710.0	13.34%	26.85%
			12,817.5	100.00%	100.00%

Officer, Robert H.

	System		ERC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
4001103	Falcon Ranchie	W	100.8	0.85%	
4001104	Westside Terrace	W	64.0	0.41%	
4001108	Rock Bluff	W	21.0	0.14%	
4001110	Indian Fork/40 Love	W	203.0	1.31%	
4001111	Indian Fork/40 Love	S	83.0	0.53%	
4001113	40 Love Point	S	128.6	0.82%	
4001114	Indian Pines	W	17.0	0.11%	
4001115	Smallwood Estates	W	117.0	0.75%	
4001116	Smallwood Estates	S	114.0	0.73%	
4001118	Palmetto Apts	S	89.2	0.57%	
4001119	Roosevelt Gardens	S	164.0	1.05%	
4001120	Hidden Valley Country Club	W	186.8	1.20%	
4001121	Peachtree Acres	W	49.0	0.32%	
4001122	Hunters Glen	W	95.5	0.61%	
4001123	Lincolnshire/Whites Creek	S	242.0	1.56%	
4001124	Idlewood CWS	W	66.0	0.42%	
4001125	North Lake Shore Point	S	22.0	0.14%	
4001126	Shadowood Circle	S	115.0	0.75%	
4001130	I-20 Water	W	2,286.3	14.71%	
4001131	I-20 Sewer	S	2,280.7	14.67%	
4001133	Stonegate	W	135.0	0.87%	
4001134	Stonegate	S	134.0	0.86%	
4001136	Blue Ridge/Calvin Acres/Elwood	W	191.8	1.23%	
4001137	Rollingwood	W	184.0	1.18%	
4061138	The Landings	W	164.0	1.05%	
4001139	Harborside	W	78.8	0.51%	
4001140	Watergate/Spence Point/Mallard Shores	W	332.5	2.14%	
4001141	Watergate Sewer	S	1,102.8	7.00%	
4001143	Fairgate/Ballentine Cove	S	3,335.0	21.45%	
4001144	Glenn Village II/Stonebridge	W	204.0	1.31%	
4001145	Glenn Village II/Stonebridge	S	222.0	1.43%	80.59%
	Util Serv South Carolina				
4011104	Lexington Estates	W	196.5	1.26%	
4011105	Dutch Village/Ballentree Acres	W	315.0	2.03%	
4011106	Arrowhead/Lakewood Estates	W	2.0	0.01%	
4011107	Glenn Village Util Srv SC	W	202.8	1.30%	
4011112	Parkwood	W	113.5	0.72%	
4011113	Traya Terrance	W	22.0	0.14%	
4011114	Emma Terrance	W	24.0	0.15%	
4011115	Windy Hill	W	139.0	0.89%	
4011116	Vanardale	W	191.6	1.23%	
4011117	Murray Park Estates	W	45.0	0.30%	
4011118	Lake Village Util Serv SC	W	80.0	0.51%	
4011119	Tanglewood	W	10.0	0.06%	
4011120	Foxtail	W	37.0	0.24%	
4011121	Murray Lodge	W	57.2	0.37%	
4011122	Dutchman Shores	W	154.0	0.99%	
4011123	Indian Cove	W	29.0	0.19%	
4011124	Milmont Shores	W	20.0	0.13%	
4011125	Hilton Place	W	35.0	0.23%	
4011126	Estates At Hilton	W	24.0	0.15%	
4011128	Springfield Acres	W	44.0	0.28%	

401129	Fairwood Estates	W	149.1	0.90%	
401130	Harmon Hill Estates	W	39.0	0.26%	
401131	Washington Heights	W	73.9	0.47%	
401132	Oakridge Hunt Club	W	78.0	0.50%	
401133	Bellemede	W	138.0	0.89%	
401134	Seagrove	W	57.0	0.37%	
401135	Dutchman Acres	W	22.0	0.14%	
401136	Lexington Farms	W	104.8	0.67%	
401137	Chenwood	W	268.0	1.72%	
401138	Charlewood	W	184.0	1.18%	18.31%
	Smithland Utilities Inc				
402100	Smithland Cove Forest	W	55.0	0.35%	
402101	Smithland Cedarwood	W	116.0	0.75%	1.10%
			15,547.4	100.00%	100.00%

Garden Parks Water	Region		YTC Count (1)	Percentage to Total	
	Util Serv South Carolina				
401108	North Forest/Deer Run/Normdy	W	509.0	13.21%	
401176	Calhoun Acres	W	77.0	2.84%	
401177	Floyds Builders	W	91.0	3.47%	
401178	Cobbins Estates	W	70.0	2.67%	
401179	Hill And Dale	W	64.0	2.44%	
401180	Lakewood	W	72.0	2.75%	
401181	Edgebrook	W	19.0	0.73%	
401182	Oakwood Estates	W	52.0	1.98%	
401183	Sherwood Forest	W	33.0	1.26%	
401184	Townerock Acres	W	104.0	3.97%	
401185	Belle Meal Acres	W	66.0	2.52%	
401186	Bridgewater	W	99.0	3.78%	
401187	Clearview	W	60.0	2.29%	
401188	Fieldcrest	W	27.0	1.03%	
401189	Greenforest	W	66.0	2.52%	
401190	Hidden Lake	W	65.0	2.48%	
401191	Surfside Heights	W	20.0	0.75%	
401192	Purdy Shores Summer Homes	W	97.0	3.70%	57.08%
	United Utility Company				
403101	Kingswood	W	26.0	0.99%	
403102	Woodmont Estates	W	21.0	0.80%	
403103	Trollingwood W	W	50.0	1.91%	
403104	Trollingwood S	S	53.0	2.02%	
403107	Canterbury	S	136.0	5.19%	
403108	Chambert Forest	S	102.8	3.92%	
403109	Fairwood	S	83.0	3.24%	
403112	Valley Brook	S	171.0	6.53%	
403113	Village	S	203.0	7.75%	
403114	North Greenville College	S	61.0	2.33%	
403115	Highland Forest	S	84.6	3.23%	
403116	Briercreek	S	84.8	3.24%	42.92%
			2,510.3	95.88%	100.00%

Garden Hl Charlie Ir	Region		YTC Count (1)	Percentage to Total	
	Carolina Water Service Inc				
400102	Falcon Reaches	W	102.8	0.66%	
400104	Westside Terrace	W	64.8	0.42%	
400110	Indian Fork/40 Low	W	203.0	1.34%	
400111	Indian Fork/40 Low	S	83.0	0.55%	
400113	40 Low Point	S	128.0	0.84%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Roosevelt Gardens	S	154.0	1.05%	
400120	Hidden Valley Country Club	W	186.8	1.23%	
400121	Pradmin Acres	W	49.0	0.32%	
400122	Hunters Glen	W	95.5	0.63%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	115.0	0.76%	
400128	I-20 Water	W	2,280.3	15.05%	
400131	I-20 Sewer	S	2,280.7	15.01%	
400133	Stonegate	W	135.0	0.89%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvin Acres/Hwood	W	191.8	1.26%	
400137	Rollingwood	W	184.0	1.21%	
400138	The Landings	W	154.0	1.08%	
400139	Harborside	W	78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W	332.5	2.19%	
400141	Watergate Sewer	S	1,102.8	7.26%	
400143	Pelargate/Belleaire Cove	S	3,335.0	21.95%	
400144	Glenn Village II/Stonebridge	W	204.0	1.34%	
400145	Glenn Village II/Stonebridge	S	222.0	1.46%	85.14%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	1.29%	
401105	Dutch Village/Raintree Acres	W	315.0	2.07%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.02%	
401107	Glenn Village Util Srv SC	W	202.8	1.33%	
401112	Parkwood	W	112.5	0.74%	
401113	Tampa Terrace	W	22.0	0.14%	
401114	Ervins Terrance	W	24.0	0.16%	
401115	Windy Hill	W	139.0	0.91%	
401116	Venersdale	W	191.6	1.26%	
401117	Murray Park Estates	W	46.0	0.30%	
401118	Lake Village Util Srv SC	W	80.0	0.53%	
401119	Tanglewood	W	10.0	0.07%	
401120	Pintrell	W	37.0	0.24%	
401121	Murrey Lodge	W	57.0	0.38%	
401122	Dutchman Shores	W	154.0	1.01%	
401123	Indian Cove	W	29.0	0.19%	
401124	Milsford Shores	W	20.0	0.13%	
401125	Hilton Place	W	35.0	0.23%	
401126	Estates At Hilton	W	24.0	0.16%	
401128	Springfield Acres	W	44.0	0.29%	
401129	Fairwood Estates	W	140.1	0.92%	
401130	Harmon Hill Estates	W	40.0	0.26%	
401131	Washington Heights	W	73.0	0.48%	
401132	Oakridge Hunt Club	W	78.0	0.51%	
401133	Bellemede	W	138.0	0.91%	
401134	Seagrove	W	57.0	0.38%	
401135	Dutchman Acres	W	22.0	0.14%	
401136	Lexington Farms	W	104.8	0.69%	

401137	Charwood	W		268.0	1.76%	
401138	Charlenwood	W		184.8	1.21%	18.74%
	Southland Utilities Inc					
402100	Southland Creekwood	W		53.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.8	100.00%	100.00%

Witness: Richard E.	System		KRC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
400127	River Hills	W	3,883.1	30.30%	
400128	River Hills	S	3,395.1	26.49%	56.78%
	Util Serv South Carolina				
401109	Plantation/Winterfrost/Glenwood	W	190.0	1.50%	
401110	Woodbridge	W	67.0	0.52%	
401111	Silver Lakes/Windwood	W	71.0	0.55%	
401139	Shandon	W	70.0	0.55%	
401140	Shandon	S	37.0	0.29%	
401142	Foxwood	W	220.0	1.72%	
401143	Foxwood	S	221.0	1.72%	
401145	Leslie Woods	W	16.0	0.12%	
401146	Leslie Dale	W	38.0	0.30%	
401147	Middlestream	W	53.4	0.42%	
401148	Riverbend Util Serv SC	W	30.4	0.24%	
401149	Carolina Place	W	40.0	0.31%	
401150	Carowoods	W	80.0	0.62%	
401151	Carowoods	S	55.0	0.43%	
401153	Country Oaks	W	136.0	1.06%	
401154	Country Oaks	S	45.0	0.35%	
401158	Barney Rhett	W	43.9	0.34%	
401157	Wesleywoods	W	25.5	0.20%	
401158	Valleymere	W	20.0	0.16%	
401159	Hickory Hills	W	36.8	0.28%	
401160	Ridgewood	W	67.0	0.52%	
401161	Olympic Acres	W	67.8	0.53%	
401162	Shiloh Quarters	W	53.6	0.42%	
401163	Southland	W	34.8	0.27%	
401164	Windy Run	W	28.0	0.22%	
401165	Bowensboro	W	71.2	0.56%	
401166	Cameron Acres	W	28.0	0.22%	
401167	Old Farms	W	19.0	0.15%	
401168	Farm Pond	W	25.0	0.20%	
401169	Kim Acres	W	51.6	0.40%	
401170	Brown Neal	W	13.2	0.10%	
401171	Pepperidge	W	39.4	0.31%	
401172	Polly Circle	W	34.6	0.27%	
401173	Mallard Lakes	W	42.8	0.33%	
401174	Hidden Lakes	W	46.9	0.36%	
401175	Spring Lakes	W	14.0	0.11%	16.36%
406100	Tega Cay Water Service Inc	W	1,732.0	13.51%	
406101	Tega Cay Water Service Inc	S	1,710.0	13.34%	26.85%
			12,817.5	100.00%	100.00%

Witness: Morey	System		KRC Count (1)	Percentage in Total	
	Util Serv South Carolina				
401168	North Forest/Lees Belt/Northridge	W	349.0	14.17%	
401176	Calhoun Acres	W	77.0	3.13%	
401177	Haynie Builders	W	91.0	3.70%	
401178	Dobbins Estates	W	70.0	2.84%	
401179	Hill And Dale	W	64.0	2.60%	
401180	Lakewood	W	71.0	2.92%	
401181	Edgebrook	W	19.0	0.77%	
401182	Oakwood Estates	W	53.0	2.15%	
401183	Sherwood Forest	W	33.0	1.34%	
401184	Townerark Acres	W	104.0	4.22%	
401185	Belle Mead Acres	W	69.0	2.80%	
401186	Bridgewater	W	99.0	4.02%	
401187	Clearview	W	60.0	2.44%	
401188	Fieldcrest	W	27.0	1.10%	
401189	Glencaforest	W	66.0	2.68%	
401190	Hidden Lake	W	45.0	2.04%	
401191	Surfside Heights	W	20.0	0.81%	
401192	Purdy Shores Summer Homes	W	97.0	3.94%	58.24%
	United Utility Company				
403101	Kingswood	W	26.0	1.06%	
403102	Woodmont Estates	W	21.0	0.85%	
403104	Trollingwood S	S	53.0	2.15%	
403107	Canterbury	S	136.0	5.52%	
403108	Chamberl Forest	S	102.8	4.18%	
403109	Fairwood	S	85.0	3.45%	
403112	Valley Brook	S	171.0	6.95%	
403113	Village	S	203.0	8.24%	
403114	North Greenville College	S	61.0	2.48%	
403115	Highland Forest	S	84.6	3.44%	
403116	Briarcreek	S	84.8	3.24%	41.76%
			2,462.2	100.00%	100.00%

Witness: Flynn, Robert L.	System		KRC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
400103	Falcon Ranches	W	100.8	0.66%	
400104	Westside Terrace	W	64.0	0.42%	
400110	Indian Fork/40 Love	W	203.0	1.34%	
400111	Indian Fork/40 Love	S	83.0	0.55%	
400113	40 Love Point	S	128.0	0.84%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Emerald Gardens	S	154.0	1.01%	
400120	Hidden Valley Country Club	W	186.8	1.23%	
400121	Freshtree Acres	W	49.0	0.32%	
400122	Hunters Glen	W	83.3	0.61%	
400124	Idlewood CWS	W	66.0	0.43%	
400125	North Lake Shore Point	S	22.0	0.14%	
400126	Shadowood Cove	S	116.0	0.76%	
400130	I-20 Water	W	2,086.3	13.05%	
400131	I-20 Sewer	S	2,290.7	15.01%	
400133	Stonegate	W	135.0	0.89%	
400134	Stonegate	S	134.0	0.88%	

400136	Blue Ridge/Calvin Acres/Howard	W		191.8	1.26%	
400137	Rollingwood	W		184.0	1.21%	
400138	The Landings	W		164.0	1.08%	
400139	Harborside	W		78.8	0.52%	
400140	Watergate/Spence Point/Mallard Shores	W		352.5	2.32%	
400141	Watergate Sewer		S	1,102.8	7.26%	
400143	Pricepatt/Ballantine Cove		S	3,235.0	21.31%	
400144	Glenn Village II/Stonebridge	W		204.0	1.34%	
400145	Glenn Village II/Stonebridge		S	222.0	1.46%	88.14%
	Util Serv South Carolina					
401104	Lexington Estates	W		196.5	1.29%	
401105	Dutch Village/Ralstroe Acres	W		313.0	2.07%	
401106	Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107	Glenn Village Util Serv SC	W		202.8	1.33%	
401112	Parkwood	W		113.5	0.74%	
401113	Tanya Terrance	W		22.0	0.14%	
401114	Emma Terrance	W		24.0	0.16%	
401115	Windy Hill	W		139.0	0.93%	
401116	Verandale	W		191.6	1.26%	
401117	Murray Park Estates	W		46.0	0.30%	
401118	Lake Village Util Serv SC	W		80.0	0.53%	
401119	Targlenewl	W		10.9	0.07%	
401120	Foxtail	W		37.0	0.24%	
401121	Murray Lodge	W		57.0	0.38%	
401122	Dutchman Shores	W		154.0	1.01%	
401123	Indian Cove	W		29.0	0.19%	
401124	Milwood Shores	W		26.0	0.17%	
401125	Hilton Place	W		35.0	0.23%	
401126	Estates At Hilton	W		24.0	0.16%	
401128	Springfield Acres	W		44.0	0.29%	
401129	Fernwood Estates	W		140.0	0.92%	
401130	Harmon Hill Estates	W		40.0	0.26%	
401131	Washington Heights	W		71.0	0.47%	
401132	Oakridge Hunt Club	W		78.0	0.51%	
401133	Bellamede	W		138.0	0.91%	
401134	Sargaree	W		57.0	0.38%	
401135	Dutchman Acres	W		22.0	0.14%	
401136	Lexington Farms	W		104.8	0.69%	
401137	Chatwood	W		268.0	1.76%	
401138	Charlestwood	W		184.0	1.21%	18.74%
	Southland Utilities Inc					
402100	Southland Crockwood	W		55.0	0.36%	
402101	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Water Service Area No. 4	System			EDU Count (1)	Percentage to Total	
	Carolina Water Service Inc					
400127	River Hills	W		3,859.1	28.30%	
400128	River Hills		S	3,765.1	26.49%	54.78%
	Util Serv South Carolina					
401109	Plantation/Westcrest/Okemont	W		192.0	1.40%	
401110	Woodbridge	W		67.0	0.49%	
401111	River Lakes/Wadwood	W		71.0	0.52%	
401139	Shandon	W		70.0	0.51%	
401140	Shandon		S	27.0	0.20%	
401142	Fernwood	W		230.0	1.72%	
401143	Fernwood		S	221.0	1.72%	
401145	Leslie Woods	W		16.0	0.12%	
401146	Leslie Oaks	W		36.0	0.26%	
401147	Middlestreet	W		29.4	0.22%	
401148	Riverbend Util Serv SC	W		30.4	0.24%	
401149	Carrotco Place	W		40.0	0.31%	
401150	Carowoods	W		80.0	0.62%	
401151	Carowoods		S	55.0	0.43%	
401153	Country Oaks	W		136.0	1.00%	
401154	Country Oaks		S	45.0	0.36%	
401156	Barney Rhett	W		43.0	0.34%	
401157	Wesleywoods	W		25.5	0.20%	
401158	Valleyacre	W		20.0	0.16%	
401159	Hickory Hills	W		36.0	0.28%	
401160	Ridgewood	W		67.0	0.52%	
401161	Olympic Acres	W		69.8	0.55%	
401162	Shiloh Quarters	W		53.5	0.42%	
401163	Southbend	W		34.8	0.27%	
401164	Windy Run	W		28.0	0.22%	
401165	Brownsberry	W		71.2	0.56%	
401166	Cameron Acres	W		28.0	0.22%	
401167	Old Farms	W		19.0	0.15%	
401168	Farm Pond	W		35.0	0.50%	
401169	Kim Acres	W		51.6	0.40%	
401170	Brown Neal	W		13.2	0.10%	
401171	Pepperidge	W		39.4	0.31%	
401172	Polly Circle	W		34.6	0.27%	
401173	Mallard Lakes	W		42.8	0.33%	
401174	Hidden Lakes	W		46.0	0.36%	
401175	Spring Lakes	W		14.0	0.11%	16.36%
406100	Tega Cay Water Service Inc	W		1,738.0	13.61%	
406101	Tega Cay Water Service Inc		S	1,710.0	12.54%	26.85%
				12,870.5	100.00%	100.00%

Water Service Area No. 5	System			EDU Count (1)	Percentage to Total	
	Carolina Water Service Inc					
400103	Falcon Ranches	W		100.8	0.66%	
400104	Westside Terrace	W		64.0	0.42%	
400110	Indian Fork/40 Love	W		209.0	1.34%	
400111	Indian Fork/40 Love		S	83.0	0.55%	
400113	40 Love Point		S	128.0	0.84%	
400114	Indian Pines	W		17.0	0.11%	
400115	Smallwood Estates	W		117.0	0.77%	
400116	Smallwood Estates		S	114.0	0.75%	
400119	Roosevelt Gardens		S	264.0	1.68%	
400120	Hidden Valley Country Club	W		386.0	1.25%	
400121	Peachtree Acres	W		49.0	0.32%	
400122	Hunters Glen	W		93.5	0.63%	
400124	Idlewood CWS	W		86.0	0.43%	
400125	North Lake Shore Point		S	22.0	0.14%	
400126	Shadowood Cove		S	116.0	0.76%	
400130	I-20 Water	W		2,284.5	15.05%	

400131 I-20 Sewer		S	2,380.7	15.01%	
400133 Stonegate	W		135.0	0.89%	
400134 Stonegate		S	134.0	0.88%	
400136 Blue Ridge/Calvin Acres/Ilwood	W		191.8	1.26%	
400137 Rollingwood	W		184.0	1.21%	
400138 The Landings	W		184.0	1.08%	
400139 Harborside	W		78.8	0.52%	
400140 Watergate/Spears Point/Mallard Shores	W		322.5	2.13%	
400141 Watergate Sewer		S	1,102.8	7.26%	
400143 Friarsgate/Belleatine Cove		S	3,335.0	21.95%	
400144 Glens Village II/Stonebridge	W		211.0	1.34%	
400145 Glens Village II/Stonebridge		S	222.0	1.46%	80.14%
Util Serv South Carolina					
401104 Lexington Estates	W		196.5	1.29%	
401105 Dutch Village/Raintree Acres	W		315.0	2.07%	
401106 Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107 Glens Village Util Srv SC	W		202.8	1.33%	
401112 Parkwood	W		112.5	0.74%	
401113 Tanya Terrace	W		22.0	0.14%	
401114 Emma Terrace	W		24.0	0.16%	
401115 Windy Hill	W		139.0	0.91%	
401116 Vanendale	W		191.6	1.26%	
401117 Murray Park Estates	W		46.0	0.30%	
401118 Lake Village Util Serv SC	W		80.0	0.53%	
401119 Tanglewood	W		10.0	0.07%	
401120 Foxtrail	W		37.0	0.24%	
401121 Murray Lodge	W		57.0	0.38%	
401122 Dutchman Shores	W		154.0	1.01%	
401123 Indian Cove	W		28.0	0.18%	
401124 Mikmoi Shores	W		35.0	0.23%	
401125 Hilton Place	W		25.0	0.23%	
401126 Estates At Hilton	W		24.0	0.16%	
401128 Springfield Acres	W		44.0	0.29%	
401129 Fernwood Estates	W		140.0	0.92%	
401130 Hanson Hill Estates	W		40.0	0.26%	
401131 Washington Heights	W		73.0	0.48%	
401132 Oakridge Hunt Club	W		78.0	0.51%	
401133 Bellemede	W		138.0	0.91%	
401134 Sangaree	W		57.0	0.38%	
401135 Dutchman Acres	W		22.0	0.14%	
401136 Lexington Farms	W		104.8	0.69%	
401137 Chatwood	W		268.0	1.76%	
401138 Charlerwood	W		184.0	1.21%	18.74%
Southland Utilities Inc					
402100 Southland Creekwood	W		55.0	0.36%	
402101 Southland Cedarwood	W		116.0	0.76%	1.13%
			15,194.9	100.00%	100.00%

Legal, W. Nelson	Ranking		KMC Owned (1)	Percentages in Table	
Carolina Water Service Inc					
400103 Falcon Ranches	W		130.8	0.86%	
400104 Westside Terrace	W		64.0	0.42%	
400120 Indian Fork/40 Lane	W		203.0	1.34%	
400111 Indian Fork/40 Love		S	83.0	0.55%	
400113 40 Love Point		S	128.0	0.84%	
400114 Indian Pines	W		17.0	0.11%	
400115 Smallwood Estates	W		117.0	0.77%	
400116 Smallwood Estates		S	114.0	0.75%	
400119 Roosevelt Gardens		S	164.0	1.08%	
400120 Hidden Valley Country Club	W		186.8	1.23%	
400121 Peachtree Acres	W		49.0	0.32%	
400122 Hunters Club	W		95.5	0.63%	
400124 Idlewood CWS	W		64.8	0.43%	
400125 North Lake Shore Point		S	22.0	0.14%	
400126 Shadowood Cove		S	116.0	0.76%	
400130 I-20 Water	W		2,286.3	15.05%	
400131 I-20 Sewer		S	2,380.7	15.01%	
400133 Stonegate	W		135.0	0.89%	
400134 Stonegate		S	134.0	0.88%	
400136 Blue Ridge/Calvin Acres/Ilwood	W		191.8	1.26%	
400137 Rollingwood	W		184.0	1.21%	
400138 The Landings	W		184.0	1.08%	
400139 Harborside	W		78.8	0.52%	
400140 Watergate/Spears Point/Mallard Shores	W		322.5	2.13%	
400141 Watergate Sewer		S	1,102.8	7.26%	
400143 Friarsgate/Belleatine Cove		S	3,335.0	21.95%	
400144 Glens Village II/Stonebridge	W		211.0	1.34%	
400145 Glens Village II/Stonebridge		S	222.0	1.46%	80.14%
Util Serv South Carolina					
401104 Lexington Estates	W		196.5	1.29%	
401105 Dutch Village/Raintree Acres	W		315.0	2.07%	
401106 Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107 Glens Village Util Srv SC	W		202.8	1.33%	
401112 Parkwood	W		112.5	0.74%	
401113 Tanya Terrace	W		22.0	0.14%	
401114 Emma Terrace	W		24.0	0.16%	
401115 Windy Hill	W		139.0	0.91%	
401116 Vanendale	W		191.6	1.26%	
401117 Murray Park Estates	W		46.0	0.30%	
401118 Lake Village Util Serv SC	W		80.0	0.53%	
401119 Tanglewood	W		10.0	0.07%	
401120 Foxtrail	W		37.0	0.24%	
401121 Murray Lodge	W		57.0	0.38%	
401122 Dutchman Shores	W		154.0	1.01%	
401123 Indian Cove	W		28.0	0.18%	
401124 Mikmoi Shores	W		35.0	0.23%	
401125 Hilton Place	W		25.0	0.23%	
401126 Estates At Hilton	W		24.0	0.16%	
401128 Springfield Acres	W		44.0	0.29%	
401129 Fernwood Estates	W		140.0	0.92%	
401130 Hanson Hill Estates	W		40.0	0.26%	
401131 Washington Heights	W		73.0	0.48%	
401132 Oakridge Hunt Club	W		78.0	0.51%	
401133 Bellemede	W		138.0	0.91%	
401134 Sangaree	W		57.0	0.38%	
401135 Dutchman Acres	W		22.0	0.14%	
401136 Lexington Farms	W		104.8	0.69%	
401137 Chatwood	W		268.0	1.76%	
401138 Charlerwood	W		184.0	1.21%	18.74%

	Southland Utilities Inc					
4021101	Southland Creekwood	W		55.0	0.36%	
4021201	Southland Cedarwood	W		116.0	0.76%	1.13%
				15,195.2	100.00%	100.00%

Lockhart, Johnathan W	System		RRC Count (1)	Percentage to Total	
	Carolina Water Service Inc				
4001127	River Hills	W		2,853.1	30.10%	
4001128	River Hills	S		3,795.1	76.46%	58.78%
	Util Srv South Carolina					
4001109	Plantation/Winterrest/Glenwod	W		192.0	1.50%	
4001110	Woodbridge	W		67.0	0.52%	
4001111	Silver Lakes/Windwind	W		71.0	0.55%	
4001136	Shandon	W		70.1	0.55%	
4001140	Shandon	S		37.0	0.25%	
4001142	Forwood	W		220.0	1.72%	
4001143	Forwood	S		221.1	1.72%	
4001145	Leslie Woods	W		15.0	0.12%	
4001146	Leslie Dale	W		26.0	0.20%	
4001147	Middlestream	W		29.4	0.23%	
4001148	Riverbend Util Serv SC	W		30.2	0.24%	
4001149	Carrollton Place	W		40.0	0.31%	
4001150	Carriwinds	W		80.0	0.62%	
4001151	Carriwinds	S		55.0	0.43%	
4001153	Country Oaks	W		136.0	1.06%	
4001154	Country Oaks	S		48.0	0.36%	
4001156	Barney Rhett	W		43.0	0.34%	
4001157	Wedgewoods	W		25.5	0.20%	
4001158	Valleymere	W		20.0	0.16%	
4001159	Hickory Hills	W		36.0	0.28%	
4001160	Ridgewood	W		67.0	0.52%	
4001161	Olympic Acres	W		67.8	0.53%	
4001162	Shiloh Quarters	W		53.6	0.42%	
4001163	Southbend	W		34.8	0.27%	
4001164	Windy Run	W		28.0	0.22%	
4001165	Brownsboro	W		72.2	0.56%	
4001166	Cameron Acres	W		28.0	0.22%	
4001167	Old Farms	W		19.0	0.15%	
4001168	Farm Pond	W		25.0	0.20%	
4001169	Kim Acres	W		51.6	0.40%	
4001170	Brown Seal	W		13.9	0.10%	
4001171	Pepperidge	W		39.4	0.31%	
4001172	Polly Circle	W		34.6	0.27%	
4001173	Mallard Lakes	W		42.8	0.33%	
4001174	Hidden Lakes	W		46.0	0.36%	
4001175	Spring Lakes	W		14.2	0.11%	16.36%
4061100	Tega Cay Water Service Inc.	W		1,732.0	13.51%	
4061151	Tega Cay Water Service Inc	S		1,710.0	13.34%	26.85%
				12,817.5	100.00%	100.00%

McKnight, Edwin M.	System		RRC Count (1)	Percentage to Total	
	Carolina Water Service Inc				
4000203	Pelion Ranches	W		100.8	0.65%	
4000104	Westside Terrace	W		64.8	0.41%	
4000110	Indian Fork/40 Love	W		203.0	1.30%	
4000111	Indian Fork/40 Love	S		83.0	0.53%	
4000113	40 Love Point	S		128.0	0.82%	
4000114	Indian Pines	W		17.2	0.11%	
4000115	Smallwood Estates	W		117.0	0.75%	
4000116	Smallwood Estates	S		114.0	0.73%	
4000119	Roosevelt Gardens	S		164.0	1.05%	
4000120	Hidden Valley Country Club	W		188.8	1.20%	
4000121	Peachtree Acres	W		49.0	0.31%	
4000122	Hunters Glen	W		95.5	0.61%	
4000124	Idlewood CWS	W		66.0	0.42%	
4000125	North Lake Shore Point	S		22.0	0.14%	
4000126	Shadowood Cove	S		116.0	0.74%	
4000130	I-20 Water	W		2,280.3	14.67%	
4000131	I-20 Sewer	S		2,280.7	14.64%	
4000133	Stonegate	W		135.0	0.87%	
4000134	Stonegate	S		134.0	0.86%	
4000136	Blue Ridge/Calvin Acres/Hiwass	W		191.8	1.23%	
4000137	Rollingwood	W		184.0	1.18%	
4000138	The Landings	W		164.0	1.05%	
4000139	Harborside	W		78.8	0.51%	
4000140	Watergate/Spence Point/Mallard Shores	W		532.5	3.43%	
4000141	Watergate Sewer	S		1,102.8	7.08%	
4000143	Briargate/Ballentine Cove	S		3,335.0	21.46%	
4000144	Glenn Village II/Stonebridge	W		204.0	1.31%	
4000145	Glenn Village II/Stonebridge	S		212.0	1.42%	78.15%
	Util Srv South Carolina					
4001104	Lexington Estates	W		196.5	1.26%	
4001105	Dutch Village/Ralstree Acres	W		315.0	2.02%	
4001106	Arrowhead/Lakewood Estates	W		2.0	0.02%	
4001107	Glenn Village Util Srv SC	W		202.8	1.30%	
4001112	Parkwood	W		112.5	0.72%	
4001113	Tanya Terrance	W		22.0	0.14%	
4001114	Emma Terrance	W		22.0	0.13%	
4001115	Windy Hill	W		139.0	0.89%	
4001116	Vanarsdale	W		191.6	1.23%	
4001117	Murray Park Estates	W		48.0	0.30%	
4001118	Lake Village Util Serv SC	W		80.0	0.51%	
4001119	Tanglewood	W		10.0	0.06%	
4001120	Foxtrail	W		37.0	0.24%	
4001121	Murray Lodge	W		57.0	0.37%	
4001122	Dutchman Shores	W		154.0	0.99%	
4001123	Indian Cove	W		29.0	0.19%	
4001124	Mimosa Shores	W		21.0	0.13%	
4001125	Hilton Place	W		35.0	0.22%	
4001126	Estates At Hilton	W		24.0	0.15%	
4001127	Oakland Plant Util Srv SC	W		387.0	2.48%	
4001128	Springfield Acres	W		44.0	0.28%	
4001129	Farmwood Estates	W		140.0	0.90%	
4001130	Harrison Hill Estates	W		40.0	0.26%	
4001131	Washington Heights	W		73.0	0.47%	
4001132	Oakridge Hunt Club	W		78.0	0.50%	
4001133	Bellemede	W		138.0	0.89%	
4001134	Sargasso	W		57.0	0.37%	
4001135	Dutchman Acres	W		22.0	0.14%	

401136	Lexington Farms	W	104.8	0.67%	
401137	Chatwood	W	268.0	1.71%	
401138	Charlestwood	W	184.0	1.18%	20.78%
	Southland Utilities Inc				
402100	Southland Oakwood	W	55.0	0.35%	
402101	Southland Cedarwood	W	114.0	0.74%	1.10%
			15,582.2	100.00%	100.00%

Modified Account #	Name		RBC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
400127	River Hills	W	3,895.1	30.30%	
400128	River Hills	S	3,395.1	26.49%	56.78%
	Util Serv South Carolina				
401109	Plantation/Winterset/Olewood	W	192.0	1.50%	
401110	Woodbridge	W	67.0	0.52%	
401111	Silver Lakes/Westwood	W	71.0	0.55%	
401139	Shandon	W	70.0	0.55%	
401140	Shandon	S	37.0	0.29%	
401142	Foxwood	W	220.0	1.72%	
401143	Foxwood	S	221.0	1.72%	
401145	Leslie Woods	W	14.0	0.11%	
401146	Leslie Dale	W	26.0	0.20%	
401147	Middlestream	W	29.4	0.23%	
401148	Riverbend Util Serv SC	W	30.4	0.24%	
401149	Carrolton Place	W	40.0	0.31%	
401150	Carswoods	W	80.0	0.62%	
401151	Carswoods	S	55.0	0.43%	
401153	Country Oaks	W	136.0	1.06%	
401154	Country Oaks	S	46.0	0.36%	
401155	Barney Rhett	W	43.0	0.34%	
401157	Weakywoods	W	25.5	0.20%	
401158	Valleymere	W	20.0	0.16%	
401159	Hickory Hills	W	36.0	0.28%	
401160	Ridgewood	W	87.0	0.67%	
401161	Olympic Acres	W	67.8	0.53%	
401162	Shiloh Quarters	W	53.6	0.42%	
401163	Southbend	W	34.8	0.27%	
401164	Windy Run	W	28.0	0.22%	
401165	Brownstone	W	72.2	0.56%	
401166	Cameron Acres	W	28.0	0.22%	
401167	Old Farms	W	19.0	0.15%	
401168	Farm Pond	W	35.0	0.30%	
401169	Elm Acres	W	51.6	0.40%	
401170	Brown Neal	W	13.2	0.10%	
401171	Pepperidge	W	32.4	0.25%	
401172	Polly Circle	W	34.6	0.27%	
401173	Mallard Lakes	W	42.8	0.33%	
401174	Hidden Lakes	W	46.0	0.36%	
401175	Spring Lakes	W	14.0	0.11%	10.36%
406100	Tega Cay Water Service Inc	W	1,752.0	13.51%	
406101	Tega Cay Water Service Inc	S	1,710.0	13.24%	26.85%
			12,917.3	100.00%	100.00%

Modified Account #	Name		RBC Count (1)	Percentage in Total	
	Carolina Water Service Inc				
400105	Pocalla	W	99.0	0.66%	
400106	Pocalla	S	153.0	0.93%	
400108	Rock Bluff	W	71.0	0.13%	
400109	Oakland Plantation CWS	S	303.6	1.85%	
400127	River Hills	W	3,883.1	23.68%	
400128	River Hills	S	3,395.1	20.70%	47.89%
	Util Serv South Carolina				
401108	Nevin Forest/Lees Bolt/Normdy	W	342.0	2.33%	
401109	Plantation/Winterset/Olewood	W	192.0	1.17%	
401110	Woodbridge	W	67.0	0.41%	
401111	Silver Lakes/Westwood	W	71.0	0.43%	
401127	Oakland Plant Util Serv SC	W	367.0	2.24%	
401139	Shandon	W	70.0	0.43%	
401140	Shandon	S	37.0	0.23%	
401142	Foxwood	W	220.0	1.34%	
401143	Foxwood	S	221.0	1.35%	
401145	Leslie Woods	W	18.0	0.10%	
401146	Leslie Dale	W	26.0	0.16%	
401147	Middlestream	W	29.4	0.18%	
401148	Riverbend Util Serv SC	W	30.4	0.19%	
401149	Carrolton Place	W	40.0	0.24%	
401150	Carswoods	W	80.0	0.49%	
401151	Carswoods	S	55.0	0.34%	
401153	Country Oaks	W	136.0	0.83%	
401154	Country Oaks	S	46.0	0.28%	
401155	Barney Rhett	W	43.0	0.26%	
401157	Weakywoods	W	25.5	0.16%	
401158	Valleymere	W	20.0	0.12%	
401159	Hickory Hills	W	36.0	0.22%	
401160	Ridgewood	W	67.0	0.41%	
401161	Olympic Acres	W	67.8	0.41%	
401162	Shiloh Quarters	W	53.6	0.33%	
401163	Southbend	W	34.8	0.21%	
401164	Windy Run	W	28.0	0.17%	
401165	Brownstone	W	72.2	0.43%	
401166	Cameron Acres	W	28.0	0.17%	
401167	Old Farms	W	19.0	0.12%	
401168	Farm Pond	W	35.0	0.15%	
401169	Elm Acres	W	51.6	0.31%	
401170	Brown Neal	W	13.2	0.08%	
401171	Pepperidge	W	32.4	0.24%	
401172	Polly Circle	W	34.6	0.21%	
401173	Mallard Lakes	W	42.8	0.26%	
401174	Hidden Lakes	W	46.0	0.28%	
401175	Spring Lakes	W	14.0	0.09%	
401176	Colleton Acres	W	77.0	0.47%	
401177	Haynie Builders	W	91.0	0.55%	
401178	Dobbins Estate	W	70.0	0.43%	
401179	Hill And Dale	W	64.0	0.39%	
401180	Lakewood	W	73.0	0.44%	
401181	Edgebrook	W	19.0	0.12%	
401182	Oakwood Estates	W	52.0	0.32%	

401183 Sherwood Forest	W	25.9	0.28%		
401184 Townsend Acres	W	104.0	0.63%		
401185 Belle Mead Acres	W	69.0	0.42%		
401188 Bridgewater	W	99.0	0.60%		
401187 Clairview	W	60.9	0.37%		
401188 Fieldcrest	W	27.0	0.16%		
401189 Greenforest	W	66.8	0.40%		
401190 Hidden Lake	W	65.9	0.40%		
401191 Surfside Heights	W	20.0	0.12%		
401192 Purdy Shores Summer Homes	W	97.0	0.59%	23.84%	
United Utility Company					
403101 Ridgewood	W	26.9	0.16%		
403102 Woodmont Estates	W	21.0	0.13%		
403103 Trollingwood W	W	50.6	0.30%		
403104 Trollingwood S	S	53.0	0.32%		
403107 Canterbury	S	138.0	0.83%		
403108 Chanbert Forest	S	102.8	0.63%		
403109 Fairwood	S	85.0	0.52%		
403112 Valley Brook	S	171.0	1.04%		
403113 Village	S	203.0	1.24%		
403114 North Greenville College	S	61.0	0.37%		
403115 Highland Forest	S	84.6	0.52%		
403116 Briarcreek	S	84.8	0.52%		
403118 Greenville County School District	S	108.0	0.66%	7.23%	
406100 Tega City Water Service Inc	W	1,732.0	10.56%		
406101 Tega City Water Service Inc	S	1,710.0	10.43%	20.99%	
		16,401.3	100.00%	100.07%	

Mallon, Vincent P.	Business		KRC Count (1)	Percentage in Total	
Carolina Water Service Inc					
400103 Falcon Ranches	W		100.8	0.55%	
400104 Westside Terrace	W		64.0	0.42%	
400110 Indian Fork/40 Love	W		203.9	1.34%	
400111 Indian Fork/40 Love	S		83.0	0.55%	
400113 40 Love Point	S		128.0	0.84%	
400114 Indian Ems	W		17.0	0.11%	
400115 Smallwood Estates	W		117.0	0.77%	
400116 Smallwood Estates	S		114.0	0.75%	
400119 Roosevelt Gardens	S		164.0	1.08%	
400120 Hidden Valley Country Club	W		156.8	1.03%	
400121 Peachtree Acres	W		49.0	0.32%	
400122 Hunters Glen	W		95.8	0.63%	
400124 Idlewood CWS	W		66.0	0.43%	
400125 North Lake Shore Point	S		22.0	0.14%	
400126 Shadowood Cove	S		116.0	0.76%	
400130 I-26 Wells	W		2,286.3	15.05%	
400131 I-26 Sewer	S		2,280.7	15.01%	
400133 Stonegate	W		135.0	0.89%	
400134 Stonegate	S		134.0	0.88%	
400136 Blue Ridge/Cabela Acres/Howell	W		191.8	1.26%	
400137 Rollingwood	W		184.0	1.21%	
400138 The Landings	W		164.0	1.08%	
400139 Harborside	W		78.8	0.52%	
400140 Watergate/Spears Point/Mallard Shores	W		332.5	2.19%	
400141 Watergate Sewer	S		1,102.8	7.26%	
400143 Friarsgate/Ballentine Cove	S		3,335.0	21.95%	
400144 Glens Village II/Stonebridge	W		204.0	1.34%	
400145 Glens Village II/Stonebridge	S		222.0	1.46%	80.14%
Util Serv South Carolina					
401104 Lexington Estates	W		196.6	1.29%	
401105 Dutch Village/Kelstree Acres	W		348.0	2.07%	
401106 Arrowhead/Lakewood Estates	W		3.0	0.02%	
401107 Glens Village Util Srv SC	W		202.8	1.33%	
401112 Parkwood	W		112.5	0.74%	
401113 Tanya Terrace	W		22.0	0.14%	
401114 Emma Terrace	W		24.0	0.16%	
401115 Windy Hill	W		139.0	0.91%	
401116 Vanardale	W		191.6	1.26%	
401117 Murray Park Estates	W		46.0	0.30%	
401118 Lake Village Util Serv SC	W		80.0	0.53%	
401119 Tanglewood	W		10.0	0.07%	
401120 Foxtail	W		37.0	0.24%	
401121 Murray Lodge	W		57.0	0.38%	
401122 Dutchman Shores	W		154.0	1.01%	
401123 Indian Cove	W		29.0	0.19%	
401124 Millpoint Shores	W		20.0	0.13%	
401125 Hilton Place	W		35.0	0.23%	
401126 Estates At Hilton	W		24.0	0.16%	
401128 Springfield Acres	W		44.0	0.29%	
401129 Fairwood Estates	W		149.6	0.92%	
401130 Harmon Hill Estates	W		40.0	0.26%	
401131 Washington Heights	W		73.0	0.48%	
401132 Oakridge Hunt Club	W		78.0	0.51%	
401133 Belleaude	W		138.0	0.91%	
401134 Sangaree	W		57.0	0.38%	
401135 Dutchman Acres	W		22.0	0.15%	
401136 Lexington Farms	W		104.8	0.69%	
401137 Charwood	W		268.0	1.76%	
401138 Charlewood	W		184.0	1.21%	18.74%
Southland Utilities Inc					
402100 Southland Creekwood	W		55.0	0.36%	
402101 Southland Cedarwood	W		116.0	0.76%	1.13%
			15,195.2	100.00%	100.00%

Plemmons, George Randall	Business		KRC Count (1)	Percentage in Total	
Carolina Water Service Inc					
400105 Pacolla	W		99.0	8.21%	
400106 Pacolla	S		153.0	12.69%	
400108 Rock Bluff	W		21.0	1.74%	
400109 Oakland Plantation CWS	S		303.6	25.18%	
400123 Lincolnshire/White Creek	S		242.0	20.07%	67.90%
Util Serv South Carolina					
401127 Oakland Plant Util Srv SC	W		387.0	32.10%	32.10%
			1,205.6	100.00%	100.00%

Randall, Dorothy	Business		KRC Count (1)	Percentage in Total	

	Carolina Water Service Inc					
400127	River Hills	W		3,883.1	36.20%	
400128	River Hills	S		3,395.1	31.69%	67.89%
	Util Serv South Carolina					
401109	Plantation/Watermyl/Oakwood	W		162.0	1.50%	
401110	Woodlake	W		67.0	0.62%	
401111	Silver Lake/Windwood	W		71.0	0.66%	
401139	Shandon	W		70.0	0.65%	
401140	Shandon	S		37.0	0.29%	
401142	Foxwood	W		220.0	1.72%	
401143	Foxwood	S		221.0	1.72%	
401145	Leslie Woods	W		15.6	0.12%	
401146	Leslie Dale	W		26.0	0.20%	
401147	Middlestream	W		29.4	0.23%	
401148	Riverbend Util Serv SU	W		30.4	0.24%	
401149	Carrollton Place	W		40.0	0.31%	
401150	Carowoods	W		84.0	0.62%	
401151	Carowoods	S		55.0	0.43%	
401153	Country Oaks	W		136.0	1.06%	
401154	Country Oaks	S		46.0	0.36%	
401156	Barney Rhett	W		43.0	0.34%	
401157	Wesleywoods	W		25.5	0.20%	
401158	Valleymere	W		20.0	0.16%	
401159	Hickory Hills	W		36.0	0.28%	
401160	Ridgewood	W		67.0	0.52%	
401161	Olympic Acres	W		67.8	0.53%	
401162	Shiloh Quarters	W		53.6	0.42%	
401163	Southbend	W		34.8	0.27%	
401164	Windy Ridge	W		28.0	0.22%	
401165	Brownstone	W		71.2	0.56%	
401166	Cameron Acres	W		28.0	0.22%	
401167	Old Farms	W		19.0	0.15%	
401168	Farm Pond	W		25.0	0.20%	
401169	Kim Acres	W		51.8	0.40%	
401170	Brown Neal	W		13.2	0.10%	
401171	Peppertidge	W		39.4	0.31%	
401172	Polly Circle	W		24.6	0.19%	
401173	Mallard Lakes	W		42.8	0.33%	
401174	Hidden Lakes	W		46.6	0.36%	
401175	Spring Lakes	W		14.0	0.11%	16.36%
406100	Tega Cay Water Service Inc	W		1,732.0	13.51%	
406101	Tega Cay Water Service Inc	S		4,719.0	13.74%	26.85%
				12,817.5	100.00%	100.00%

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Util Serv South Carolina					
401108	North Forest/Leon Bolt/Nirendy	W		349.0	13.12%	
401176	Calhoun Acres	W		77.0	2.94%	
401177	Haynie Builders	W		91.0	3.47%	
401178	Dobbins Estates	W		70.0	2.67%	
401179	Hill And Dale	W		64.0	2.44%	
401180	Lakewood	W		72.0	2.75%	
401181	Edgebrook	W		19.0	6.73%	
401182	Oakwood Estates	W		52.0	1.98%	
401183	Sherwood Forest	W		33.0	1.26%	
401184	Townsreek Acres	W		104.0	3.97%	
401185	Belle Mead Acres	W		66.0	2.63%	
401186	Bridgewater	W		99.0	3.78%	
401187	Clearview	W		60.0	2.29%	
401188	Fieldcrest	W		27.0	1.03%	
401189	Greenforest	W		66.0	2.52%	
401190	Hidden Lake	W		15.0	1.48%	
401191	Surside Heights	W		20.0	0.76%	
401192	Purdy Shores Summer Homes	W		57.0	2.70%	54.73%
	United Utility Company					
403101	Kingswood	W		26.0	0.99%	
403102	Woodmont Estates	W		21.0	0.80%	
403103	Trollingwood W	W		50.0	1.91%	
403104	Trollingwood S.	S		53.0	2.01%	
403107	Canterbury	S		136.0	5.15%	
403108	Chanbert Forest	S		102.8	3.92%	
403109	Fairwood	S		85.0	3.24%	
403112	Valley Brook	S		171.0	6.51%	
403113	Village	S		203.0	7.72%	
403114	North Greenville College	S		61.0	2.33%	
403115	Highland Pines	S		84.6	3.23%	
403116	Briarcreek	S		84.8	3.24%	
403118	Greenville County School District	S		108.0	4.12%	45.27%
				2,630.2	100.00%	100.00%

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Carolina Water Service Inc					
400127	River Hills	W		3,883.1	36.22%	
400128	River Hills	S		3,395.1	31.67%	67.89%
406100	Tega Cay Water Service Inc	W		1,732.0	16.16%	
406101	Tega Cay Water Service Inc	S		1,710.0	15.95%	32.11%
				10,720.2	100.00%	100.00%

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Carolina Water Service Inc					
400127	River Hills	W		3,883.1	36.22%	
400128	River Hills	S		3,395.1	31.67%	67.89%
406100	Tega Cay Water Service Inc	W		1,732.0	16.16%	
406101	Tega Cay Water Service Inc	S		1,710.0	15.95%	32.11%
				10,720.2	100.00%	100.00%

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Carolina Water Service Inc					
400103	Fabian Ranches	W		100.8	0.39%	
400104	Westside Terrace	W		64.0	0.25%	
400105	Pacolla	W		99.0	0.38%	
400106	Pacolla	S		153.0	0.59%	
400108	Rock Bluff	W		21.0	0.08%	
400109	Oakland Plantation CWS	S		303.6	1.17%	
400110	Indian Fork/40 Love	W		203.0	0.78%	

400111	Indian Fork/40 Love	S	63.0	0.52%	
400113	40 Love Point	S	118.0	0.96%	
400114	Indian Pines	W	17.0	0.07%	
400115	Smallwood Estates	W	117.0	0.45%	
400116	Smallwood Estates	S	114.0	0.44%	
400118	Palmetto Apts	S	89.2	0.34%	
400119	Roosevelt Gardens	S	164.0	0.63%	
400120	Hidden Valley Country Club	W	186.8	0.72%	
400121	Peachtree Acres	W	49.0	0.19%	
400122	Hunters Glen	W	95.5	0.37%	
400123	Lincolnshire/Whites Creek	S	242.0	0.93%	
400124	Idlewood CWS	W	64.0	0.25%	
400125	North Lake Shore Point	S	22.0	0.08%	
400126	Shadowood Cove	S	116.0	0.45%	
400127	River Hills	W	3,785.1	14.59%	
400128	River Hills	S	3,395.1	13.10%	
400130	I-26 Water	W	2,286.5	8.83%	
400131	I-26 Sewer	S	2,180.7	8.50%	
400133	Stonegate	W	135.0	0.52%	
400134	Stonegate	S	134.0	0.52%	
400136	Blue Ridge/Calvin Acres/Elwood	W	191.8	0.74%	
400137	Sullengwood	W	184.0	0.71%	
400138	The Landings	W	164.0	0.63%	
400139	Harborside	W	78.8	0.30%	
400140	Watergate/Spruce Point/Mallard Shores	W	332.5	1.28%	
400141	Watergate Sewer	S	1,102.8	4.26%	
400143	Pritzgene/Ballentine Cove	S	3,335.0	12.87%	
400144	Glenn Village II/Stonebridge	W	204.0	0.79%	
400145	Glenn Village II/Stonebridge	S	222.0	0.86%	78.60%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.6	0.76%	
401105	Dutch Village/Fairview Acres	W	315.0	1.22%	
401106	Arrowhead/Lakewood Estates	W	3.0	0.01%	
401107	Glenn Village Util Srv SC	W	202.8	0.78%	
401108	Nevitt Forest/Lone Belt/Nevendy	W	349.0	1.35%	
401109	Plantation/Wintercrest/Glewood	W	192.0	0.74%	
401110	Woodbridge	W	67.0	0.26%	
401111	Silver Lakes/Wadwood	W	71.0	0.27%	
401112	Parkwood	W	112.5	0.43%	
401113	Tanya Terrace	W	22.0	0.08%	
401114	Emma Terrace	W	24.0	0.09%	
401115	Windy Hill	W	139.0	0.54%	
401116	Verandale	W	191.6	0.74%	
401117	Murray Park Estates	W	41.0	0.16%	
401118	Lake Village Util Serv SC	W	80.0	0.31%	
401119	Tanglewood	W	10.0	0.04%	
401120	Foxtrail	W	37.0	0.14%	
401121	Murray Lodge	W	57.0	0.22%	
401122	Dutchman Shores	W	154.0	0.59%	
401123	Indian Cove	W	78.0	0.30%	
401124	Millwood Shores	W	29.0	0.11%	
401125	Hilton Place	W	33.0	0.13%	
401126	Estates At Hilton	W	24.0	0.09%	
401127	Oakland Plan Util Srv SC	W	387.0	1.49%	
401128	Springfield Acres	W	44.0	0.17%	
401129	Fairwood Estates	W	140.0	0.54%	
401130	Harmon Hill Estates	W	40.0	0.15%	
401131	Washington Heights	W	73.0	0.28%	
401132	Oakridge Town Club	W	78.0	0.30%	
401133	Bellcrest	W	158.0	0.53%	
401134	Sangaree	W	57.0	0.22%	
401135	Dutchman Acres	W	22.0	0.08%	
401136	Lexington Farms	W	104.8	0.40%	
401137	Charwood	W	368.0	1.42%	
401138	Charlewood	W	184.0	0.71%	
401139	Shandon	W	70.0	0.27%	
401140	Shandon	S	37.0	0.14%	
401142	Fernwood	W	220.0	0.85%	
401143	Fernwood	S	221.0	0.85%	
401145	Leslie Woods	W	16.0	0.06%	
401146	Leslie Dale	W	26.0	0.10%	
401147	Mid-Broome	W	29.4	0.11%	
401148	Riverland Util Serv SC	W	30.3	0.12%	
401149	Carrollton Fbsc	W	40.0	0.15%	
401150	Canewoods	W	80.0	0.31%	
401151	Canewoods	S	55.0	0.21%	
401153	Country Oaks	W	136.0	0.52%	
401154	Country Oaks	S	46.0	0.18%	
401156	Barney Rhett	W	43.0	0.17%	
401157	Wesleywoods	W	25.5	0.10%	
401158	Valleymore	W	20.0	0.08%	
401159	Hickory Hills	W	36.0	0.14%	
401160	Ridgewood	W	67.0	0.26%	
401161	Olympic Acres	W	87.8	0.34%	
401162	Black Quarters	W	53.6	0.21%	
401163	Smithland	W	34.8	0.13%	
401164	Windy Run	W	28.0	0.11%	
401165	Brownsburg	W	71.2	0.27%	
401166	Cameron Acres	W	28.0	0.11%	
401167	Old Farm	W	19.0	0.07%	
401168	Farm Pond	W	25.0	0.10%	
401169	Kim Acres	W	51.6	0.20%	
401170	Brown Neal	W	13.2	0.05%	
401171	Pepperidge	W	59.4	0.23%	21.40%
			25,908.1	100.00%	100.00%

Index Utilities	Business	CBC Count (1)	Percentage in Total
	Carolina Water Service Inc		
400103	Falcon Reaches	W	100.8	0.66%	
400104	Westside Terrace	W	64.0	0.42%	
400110	Indian Fork/40 Love	W	203.0	1.34%	
400111	Indian Fork/40 Love	S	83.0	0.55%	
400113	40 Love Point	S	128.0	0.84%	
400114	Indian Pines	W	17.0	0.11%	
400115	Smallwood Estates	W	117.0	0.77%	
400116	Smallwood Estates	S	114.0	0.75%	
400119	Roosevelt Gardens	S	164.0	1.08%	
400120	Hidden Valley Country Club	W	186.8	1.23%	
400121	Peachtree Acres	W	49.0	0.32%	
400122	Hunters Glen	W	95.5	0.63%	
400124	Idlewood CWS	W	64.0	0.42%	
400125	North Lake Shore Point	S	22.0	0.14%	

400126	Shadowood Cove	S	116.0	0.76%	
400130	I-20 Water	W	2,286.3	15.03%	
400131	I-20 Sewer	S	2,280.7	15.01%	
400133	Stonegate	W	135.0	0.89%	
400134	Stonegate	S	134.0	0.88%	
400136	Blue Ridge/Calvis Acres/Elwood	W	191.8	1.26%	
400137	Rollingwood	W	184.0	1.21%	
400138	The Landings	W	164.0	1.08%	
400139	Harborside	W	78.8	0.52%	
400140	Watergate/Spence Point2/Mallard Shores	W	332.5	2.19%	
400141	Watergate Sewer	S	1,108.8	7.26%	
400143	Friarsgate/Ballentine Cove	S	3,335.0	21.93%	
400144	Glenn Village II/Stonebridge	W	204.0	1.34%	
400145	Glenn Village II/Stonebridge	S	222.0	1.46%	80.14%
	Util Serv South Carolina				
401104	Lexington Estates	W	196.5	1.29%	
401105	Dutch Village/Raintree Acres	W	315.0	2.07%	
401108	Arrowhead/Lakewood Estates	W	3.0	0.02%	
401107	Glenn Village Util Serv SC	W	202.8	1.33%	
401112	Parkwood	W	112.5	0.74%	
401113	Terra Terrace	W	22.0	0.14%	
401114	Emma Terrace	W	24.0	0.16%	
401115	Windy Hill	W	139.0	0.91%	
401116	Vanarsdale	W	191.6	1.26%	
401117	Murray Park Estates	W	46.0	0.30%	
401118	Lake Village Util Serv SC	W	80.0	0.53%	
401119	Tanglewood	W	10.0	0.07%	
401120	Fenbrail	W	37.0	0.24%	
401121	Murray Lodge	W	57.0	0.38%	
401122	Dutchman Shores	W	153.0	1.01%	
401123	Indian Cove	W	15.0	0.10%	
401124	Midpoint Shores	W	20.0	0.13%	
401125	Hilton Place	W	35.0	0.23%	
401126	Estates At Hilton	W	24.0	0.16%	
401128	Springfield Acres	W	44.0	0.29%	
401129	Farrowood Estates	W	140.0	0.92%	
401130	Harmon Hill Estates	W	40.0	0.26%	
401131	Washington Heights	W	73.0	0.48%	
401132	Oakridge Hunt Club	W	78.0	0.51%	
401133	Bellemede	W	138.6	0.91%	
401134	Sangaree	W	57.0	0.38%	
401135	Dutchman Acres	W	22.0	0.14%	
401136	Lexington Farms	W	104.8	0.69%	
401137	Charwood	W	268.0	1.76%	
401138	Charlewood	W	184.0	1.21%	18.74%
	Southland Utilities Inc				
402100	Southland Creekwood	W	55.0	0.36%	
402101	Southland Cedarwood	W	116.0	0.76%	1.13%
			15,195.2	100.00%	100.00%

2011-47-WS

Rebuttal Testimony

Of

Kirsten Weeks

Exhibit KEW-3- Nonallowables for Rebuttal

CAROLINA WATER SERVICE, INC.
LISTING OF PURCHASE ORDERS ADJUSTED TO ACTUAL COST

EXHIBIT KEW-3
w/p a

Line	CO	BU	OBJ	LT	Vendor	Invoice No.	Invoice Date	Sample Amount	Invoice Amount	Disallowed Amount	ERC %	Allocated Amount	Description	Comment
(1)	864	864100	5480	AA	Univar Augusta	AU-533634	4/5/2010	570.00	530.00	570.00	63.91%	364.29	Sodium Hypochlorite	Please see w/p b highlighted in yellow, and invoice 252142.
(2)	864	864100	5480	AA	Univar Spartanburg	SP-967466	4/28/2010	3.50	1,170.76	3.50	63.91%	2.24	Sodium Hypochlorite, Soda Ash Dense	Please see w/p b highlighted in blue, and invoice 257266.
(3)	864	864100	5480	AA	Univar Augusta	AU-534804	6/8/2010	131.00	575.00	131.00	63.91%	83.72	Sodium Hypochlorite, fuel Surcharge	Please see w/p b highlighted in orange, and invoice 268414.
(4)	864	864100	5480	AA	Univar Augusta	AU-535610	7/20/2010	543.20	707.50	543.20	63.91%	347.16	Sodium Hypochlorite, fuel Surcharge	Please see w/p b highlighted in green, and invoice 281194.
(5)	864	864100	5490	AA	Univar Spartanburg	SP-967466	4/28/2010	758.70	1,170.76	758.70	63.91%	484.89	Sodium Hypochlorite, Soda Ash Dense	Please see w/p b highlighted in blue, and invoice 257266.
(6)	864	864100	5490	AA	Univar Spartanburg	SP-970323	5/26/2010	758.70	1,330.76	758.70	63.91%	484.89	Sodium Hypochlorite, Soda Ash Dense	[redacted]
(7)	400	400143	6345	AA	N.W. White & Co.	252937	1/27/2010	430.00	406.03	430.00	100.00%	430.00	Fill sand and fill sand freight	[redacted]

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CAROLINA WATER SERVICE, INC.
864 AA LEDGER

EXHIBIT KEW-3
w/p b

CO	BU	OBJ	SUB	DESCRIPTION	TY	DOC	DATE	DEBIT	CREDIT	NET		LT	Line Ref No.
864	864100	5480		Balance Forward	Bal		10/1/2009	22,348.23			22,348.23		
864	864100	5480		UNIVAR USA INC	OV	45799	10/1/2009	700.00			700.00	AA	
864	864100	5480		UNIVAR USA INC	OV	46929	10/15/2009	398.56			398.56	AA	
864	864100	5480		UNIVAR USA INC	OV	46917	10/15/2009	1,034.50			1,034.50	AA	
864	864100	5480		UNIVAR USA INC	OV	46915	10/15/2009	1,059.50			1,059.50	AA	
864	864100	5480		UNIVAR USA INC	OV	47930	10/30/2009	800.00			800.00	AA	
864	864100	5480		UNIVAR USA INC	OV	48408	11/2/2009		(1,988.50)		(1,988.50)	AA	
864	864100	5480		UNIVAR USA INC	OV	48408	11/2/2009		(390.00)		(390.00)	AA	
864	864100	5480		UNIVAR USA INC	OV	48387	11/2/2009	398.56			398.56	AA	
864	864100	5480		INACTIVATE/UNIVAR USA INC	OV	48578	11/3/2009		(160.00)		(160.00)	AA	
864	864100	5480		UNIVAR USA INC	OV	49981	11/23/2009	398.56			398.56	AA	
864	864100	5480		UNIVAR USA INC	OV	50082	11/24/2009	700.00			700.00	AA	
864	864100	5480		PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	159.40			159.40	AA	
864	864100	5480		PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	149.40			149.40	AA	
864	864100	5480		UNIVAR USA INC	PD	219162	12/9/2009		(1,034.50)		(1,034.50)	AA	
864	864100	5480		UNIVAR USA INC	OV	51133	12/11/2009	398.56			398.56	AA	
864	864100	5480		UNIVAR USA INC	OV	51329	12/15/2009		(50.75)		(50.75)	AA	
864	864100	5480		UNIVAR USA INC	OV	52450	12/29/2009	650.00			650.00	AA	
864	864100	5480		UNIVAR USA INC	OV	52704	12/30/2009		(110.75)		(110.75)	AA	
864	864100	5480		UNIVAR USA INC	OV	52639	12/30/2009		(10.75)		(10.75)	AA	
864	864100	5480		UNIVAR USA INC	OV	55247	12/31/2009		(10.75)		(10.75)	AA	
864	864100	5480		UNIVAR USA INC	PV	227024	12/31/2009		(90.60)		(90.60)	AA	
864	864100	5480		UNIVAR USA INC	OV	53443	1/8/2010	110.75			110.75	AA	
864	864100	5480		UNIVAR USA INC	OV	53682	1/13/2010	398.56			398.56	AA	
864	864100	5480		UNIVAR USA INC	OV	55896	2/15/2010	1,790.00			1,790.00	AA	
864	864100	5480		UNIVAR USA INC	OV	56203	2/18/2010	419.76			419.76	AA	
864	864100	5480		DEPOSIT 02/18/10	JE	269385	2/18/2010		(1,059.50)		(1,059.50)	AA	
864	864100	5480		SE 5 AP ACCRUAL FEBRUARY	JE	269481	2/28/2010		(29.00)		(29.00)	AA	
864	864100	5480		SE 5 AP ACCRUAL FEBRUARY	JE	269481	3/1/2010	29.00			29.00	AA	
864	864100	5480		UNIVAR USA INC	OV	56762	3/1/2010	559.40			559.40	AA	
864	864100	5480		UNIVAR USA INC	PV	240803	3/2/2010		(29.00)		(29.00)	AA	
864	864100	5480		UNIVAR USA INC	OV	57859	3/17/2010	398.56			398.56	AA	
864	864100	5480		UNIVAR USA INC	OV	58230	3/23/2010		(110.75)		(110.75)	AA	
864	864100	5480		UNIVAR USA INC	OV	59228	4/6/2010	570.00			570.00	AA	1
864	864100	5480		UNIVAR USA INC	PV	252412	4/19/2010		(40.00)		(40.00)	AA	1
864	864100	5480		UNIVAR USA INC	OV	60501	4/23/2010	570.00			570.00	AA	
864	864100	5480		UNIVAR USA INC	OV	60904	4/29/2010	398.56			398.56	AA	2,5

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864	864100	5480	SE 5 AP ACCRUAL APRIL	JE	271001	4/30/2010	5.00		5.00	AA	
864	864100	5480	SE 5 AP ACCRUAL APRIL	JE	271001	5/1/2010		(5.00)	(5.00)	AA	
864	864100	5480	UNIVAR USA INC	PV	256232	5/4/2010	5.00		5.00	AA	
864	864100	5480	UNIVAR USA INC	PV	257266	5/5/2010	3.50		3.50	AA	2,5
864	864100	5480	UNIVAR USA INC	OV	62399	5/18/2010	443.56		443.56	AA	
864	864100	5480	UNIVAR USA INC	OV	62924	5/25/2010		(40.00)	(40.00)	AA	
864	864100	5480	UNIVAR USA INC	OV	64320	6/14/2010	444.00		444.00	AA	3
864	864100	5480	UNIVAR USA INC	PV	268414	6/18/2010	131.00		131.00	AA	3
864	864100	5480	UNIVAR USA INC	OV	64954	6/23/2010	398.56		398.56	AA	
864	864100	5480	SE PURCHASE ORDER ACCRUAL	JE	271618	6/30/2010	570.00		570.00	AA	
864	864100	5480	SE 5 AP ACCRUAL JUNE	JE	271590	6/30/2010	131.44		131.44	AA	
864	864100	5480	SE PURCHASE ORDER ACCRUAL	JE	271618	7/1/2010		(570.00)	(570.00)	AA	
864	864100	5480	SE 5 AP ACCRUAL JUNE	JE	271590	7/1/2010		(131.44)	(131.44)	AA	
864	864100	5480	UNIVAR USA INC	OV	65903	7/2/2010	570.00		570.00	AA	
864	864100	5480	UNIVAR USA INC	PV	272934	7/7/2010	131.44		131.44	AA	
864	864100	5480	UNIVAR USA INC	OV	67093	7/26/2010	543.20		543.20	AA	4
864	864100	5480	UNIVAR USA INC	PV	281094	8/6/2010	164.30		164.30	AA	4
864	864100	5480	UNIVAR USA INC	OV	68728	8/6/2010	543.20		543.20	AA	
864	864100	5480	UNIVAR USA INC	OV	68956	8/10/2010	398.56		398.56	AA	
864	864100	5480	UNIVAR USA INC	PV	284709	8/19/2010	164.30		164.30	AA	
864	864100	5480	UNIVAR USA INC	OV	70919	9/7/2010	702.50		702.50	AA	
864	864100	5480	UNIVAR USA INC	PV	291533	9/15/2010	5.00		5.00	AA	
864	864100	5480	UNIVAR USA INC	OV	71610	9/16/2010	398.56		398.56	AA	
864	864100	5480	UNIVAR USA INC	OV	71988	9/22/2010	707.50		707.50	AA	
864	864100	5480	UNIVAR USA INC	PV	293185	9/22/2010	10.00		10.00	AA	
864	864100	5485	Balance Forward	Bal		10/1/2009	5,123.75		5,123.75		
864	864100	5490	Balance Forward	Bal		10/1/2009	72,245.35		72,245.35		
864	864100	5490	CARUS PHOSPHATES, INC	OV	46614	10/13/2009	1,197.00		1,197.00	AA	
864	864100	5490	CARUS PHOSPHATES, INC	OV	46614	10/13/2009	1.00		1.00	AA	
864	864100	5490	UNIVAR USA INC	OV	46730	10/14/2009	1,450.00		1,450.00	AA	
864	864100	5490	UNIVAR USA INC	OV	46903	10/15/2009	1,400.00		1,400.00	AA	
864	864100	5490	UNIVAR USA INC	OV	46929	10/15/2009	1,517.40		1,517.40	AA	
864	864100	5490	UNIVAR USA INC	OV	46918	10/15/2009	1,071.25		1,071.25	AA	
864	864100	5490	UNIVAR USA INC	OV	46906	10/15/2009	1,071.25		1,071.25	AA	
864	864100	5490	UNIVAR USA INC	OV	46901	10/15/2009		(1,450.00)	(1,450.00)	AA	
864	864100	5490	UNIVAR USA INC	OV	46902	10/15/2009		(1,400.00)	(1,400.00)	AA	
864	864100	5490	UNIVAR USA INC	OV	46905	10/15/2009		(1,400.00)	(1,400.00)	AA	
864	864100	5490	CARUS PHOSPHATES, INC	PV	206818	10/21/2009	123.29		123.29	AA	
864	864100	5490	UNIVAR USA INC	OV	47696	10/29/2009	1,600.00		1,600.00	AA	

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864	864100	5490	UNIVAR USA INC	OV	47696	10/29/2009	1,250.00		1,250.00	AA
864	864100	5490	UNIVAR USA INC	OV	48419	11/2/2009		(3,975.00)	(3,975.00)	AA
864	864100	5490	UNIVAR USA INC	OV	48387	11/2/2009	1,188.00		1,188.00	AA
864	864100	5490	UNIVAR USA INC	OV	49242	11/12/2009	1,300.00		1,300.00	AA
864	864100	5490	UNIVAR USA INC	PV	213506	11/17/2009	2.50		2.50	AA
864	864100	5490	UNIVAR USA INC	OV	49594	11/18/2009	1,775.00		1,775.00	AA
864	864100	5490	UNIVAR USA INC	OV	49593	11/18/2009		(1,300.00)	(1,300.00)	AA
864	864100	5490	UNIVAR USA INC	OV	49981	11/23/2009	1,130.00		1,130.00	AA
864	864100	5490	PPV - 4527 - ENTRY 2	JE	267879	11/30/2009		(62.50)	(62.50)	AA
864	864100	5490	PPV - 4527 - ENTRY 2	JE	267879	11/30/2009		(50.40)	(50.40)	AA
864	864100	5490	PPV - 4527 - ENTRY 2	JE	267879	11/30/2009		(62.50)	(62.50)	AA
864	864100	5490	PPV - 4527 - ENTRY 2	JE	267879	11/30/2009		(137.70)	(137.70)	AA
864	864100	5490	UNIVAR USA INC	OV	50942	12/9/2009	1,750.00		1,750.00	AA
864	864100	5490	UNIVAR USA INC	OV	51133	12/11/2009	758.70		758.70	AA
864	864100	5490	UNIVAR USA INC	OV	51359	12/15/2009		(100.00)	(100.00)	AA
864	864100	5490	UNIVAR USA INC	OV	51359	12/15/2009		(140.00)	(140.00)	AA
864	864100	5490	UNIVAR USA INC	OV	51328	12/15/2009		(50.00)	(50.00)	AA
864	864100	5490	UNIVAR USA INC	OV	51858	12/21/2009	100.00		100.00	AA
864	864100	5490	UNIVAR USA INC	OV	51858	12/21/2009	140.00		140.00	AA
864	864100	5490	UNIVAR USA INC	OV	52107	12/23/2009	2,400.00		2,400.00	AA
864	864100	5490	SANDERS SERVICE INC D/B/A	OV	52230	12/24/2009	22,033.62		22,033.62	AA
864	864100	5490	UNIVAR USA INC	PV	223464	12/24/2009	25.00		25.00	AA
864	864100	5490	UNIVAR USA INC	PV	224591	12/29/2009	13.50		13.50	AA
864	864100	5490	UNIVAR USA INC	OV	52701	12/30/2009		(11.00)	(11.00)	AA
864	864100	5490	UNIVAR USA INC	OV	52661	12/30/2009		(22.00)	(22.00)	AA
864	864100	5490	UNIVAR USA INC	OV	52675	12/30/2009		(1,071.25)	(1,071.25)	AA
864	864100	5490	UNIVAR USA INC	OV	55261	12/31/2009		(100.00)	(100.00)	AA
864	864100	5490	UNIVAR USA INC	OV	55261	12/31/2009		(140.00)	(140.00)	AA
864	864100	5490	UNIVAR USA INC	OV	53714	12/31/2009		(11.00)	(11.00)	AA
864	864100	5490	UNIVAR USA INC	OV	55262	12/31/2009		(0.40)	(0.40)	AA
864	864100	5490	UNIVAR USA INC	OV	53093	1/5/2010	11.00		11.00	AA
864	864100	5490	UNIVAR USA INC	OV	53682	1/13/2010	1,130.00		1,130.00	AA
864	864100	5490	CARUS PHOSPHATES, INC	OV	54098	1/19/2010	1,197.00		1,197.00	AA
864	864100	5490	CARUS PHOSPHATES, INC	PV	232130	1/27/2010		(126.31)	(126.31)	AA
864	864100	5490	CARUS PHOSPHATES, INC	PV	232130	1/27/2010	126.31		126.31	AA
864	864100	5490	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	126.31		126.31	AA
864	864100	5490	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(126.31)	(126.31)	AA
864	864100	5490	CARUS CORPORATION	PV	233474	2/3/2010	126.31		126.31	AA
864	864100	5490	UNIVAR USA INC	OV	55895	2/15/2010	1,790.00		1,790.00	AA
864	864100	5490	UNIVAR USA INC	OV	56203	2/18/2010	1,187.40		1,187.40	AA

864	864100	5490	UNIVAR USA INC	OV	56203	2/18/2010	758.70		758.70	AA
864	864100	5490	UNIVAR USA INC	PV	239675	2/24/2010		(30.00)	(30.00)	AA
864	864100	5490	SE 5 AP ACCRUAL FEBRUARY	JE	269481	2/28/2010	21.30		21.30	AA
864	864100	5490	PERMANENT PPV REVERSAL ENTRY 2	JE	269473	2/28/2010	50.40		50.40	AA
864	864100	5490	PERMANENT PPV REVERSAL ENTRY 2	JE	269473	2/28/2010	62.50		62.50	AA
864	864100	5490	SE 5 AP ACCRUAL FEBRUARY	JE	269481	3/1/2010		(21.30)	(21.30)	AA
864	864100	5490	UNIVAR USA INC	PV	240803	3/2/2010	21.30		21.30	AA
864	864100	5490	UNIVAR USA INC	OV	57219	3/8/2010	1,080.00		1,080.00	AA
864	864100	5490	UNIVAR USA INC	OV	59314	4/7/2010	3,166.50		3,166.50	AA
864	864100	5490	UNIVAR USA INC	OV	59517	4/9/2010	792.00		792.00	AA
864	864100	5490	UNIVAR USA INC	PV	251389	4/13/2010	1.66		1.66	AA
864	864100	5490	UNIVAR USA INC	OV	59871	4/15/2010	1,188.00		1,188.00	AA
864	864100	5490	UNIVAR USA INC	OV	59871	4/15/2010	1,130.00		1,130.00	AA
864	864100	5490	UNIVAR USA INC	PV	253759	4/21/2010	22.34		22.34	AA
864	864100	5490	INACTIVATE/CARUS PHOSPHATES, I	OV	60905	4/29/2010	1,325.00		1,325.00	AA
864	864100	5490	UNIVAR USA INC	OV	60904	4/29/2010	758.70		758.70	AA 2,5
864	864100	5490	UNIVAR USA INC	PV	257266	5/5/2010	10.00		10.00	AA 2,5
864	864100	5490	CARUS CORPORATION	PV	257391	5/6/2010	1.18		1.18	AA
864	864100	5490	SANDERS SERVICE INC D/B/A	OV	61492	5/6/2010	22,033.62		22,033.62	AA
864	864100	5490	UNIVAR USA INC	OV	63040	5/26/2010	2,979.00		2,979.00	AA
864	864100	5490	UNIVAR USA INC	OV	64954	6/23/2010	758.70		758.70	AA
864	864100	5490	UNIVAR USA INC	OV	64954	6/23/2010	1,130.00		1,130.00	AA
864	864100	5490	UNIVAR USA INC	OV	64933	6/23/2010		(55.00)	(55.00)	AA
864	864100	5490	UNIVAR USA INC	PV	270432	6/27/2010	13.50		13.50	AA
864	864100	5490	INACTIVATE/CARUS PHOSPHATES, I	OV	65776	6/30/2010	1,325.00		1,325.00	AA
864	864100	5490	UNIVAR USA INC	OV	65690	6/30/2010	1,097.40		1,097.40	AA
864	864100	5490	UNIVAR USA INC	OV	65690	6/30/2010	1,188.00		1,188.00	AA
864	864100	5490	SE PURCHASE ORDER ACCRUAL	JE	271618	6/30/2010	1,345.00		1,345.00	AA
864	864100	5490	SE PURCHASE ORDER ACCRUAL	JE	271618	7/1/2010		(1,345.00)	(1,345.00)	AA
864	864100	5490	UNIVAR USA INC	OV	65905	7/2/2010	1,345.00		1,345.00	AA
864	864100	5490	UNIVAR USA INC	OV	66496	7/12/2010		(21.50)	(21.50)	AA
864	864100	5490	UNIVAR USA INC	PV	275468	7/20/2010	42.50		42.50	AA
864	864100	5490	UNIVAR USA INC	PV	275468	7/20/2010	50.00		50.00	AA
864	864100	5490	UNIVAR USA INC	OV	67259	7/21/2010	3,457.90		3,457.90	AA
864	864100	5490	CARUS CORPORATION	PV	277747	7/27/2010		(41.03)	(41.03)	AA
864	864100	5490	UNIVAR USA INC	OV	68956	8/10/2010	1,130.00		1,130.00	AA
864	864100	5490	UNIVAR USA INC	OV	68956	8/10/2010	758.70		758.70	AA
864	864100	5490	UNIVAR USA INC	PV	283556	8/17/2010	27.00		27.00	AA

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864	864100	5490	INACTIVATE/CARUS PHOSPHATES, I	OV	71026	9/8/2010	1,197.00		1,197.00	AA
864	864100	5490	CARUS CORPORATION	PV	291621	9/16/2010	126.00		126.00	AA
864	864100	5490	UNIVAR USA INC	OV	71610	9/16/2010	758.70		758.70	AA
864	864100	5490	UNIVAR USA INC	PV	293185	9/22/2010	17.00		17.00	AA
864	864100	5490	UNIVAR USA INC	OV	72124	9/24/2010	5,411.65		5,411.65	AA

CAROLINA WATER SERVICE, INC.
400 AA LEDGER

EXHIBIT KEW-3
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CO	BU	OBJ	SUB	DESCRIPTION	TY	DOC	DATE	DEBIT	CREDIT	NET	Line Ref No.
400	400111	6345		RCLS OCT IV	JE	264870	10/1/2009	340.00		340.00	
400	400128	6345		RCLS OCT IV	JE	264870	10/1/2009	225.00		225.00	
400	400111	6345		PERRY'S PUMPS & CONTROLS	PV	202190	10/7/2009	250.00		250.00	
400	400128	6345		KRAFT POWER CORPORATION	PV	202224	10/7/2009	228.16		228.16	
400	400131	6345		SPICER ON-CALL SERVICES	PV	202192	10/7/2009	189.95		189.95	
400	400143	6345		HD SUPPLY #552	PV	203203	10/12/2009	79.21		79.21	
400	400143	6345		USA BLUEBOOK/UTILTY SUPPLY OF	PV	203205	10/12/2009	239.47		239.47	
400	400131	6345		PERRY'S PUMPS & CONTROLS	PV	203417	10/13/2009	250.00		250.00	
400	400143	6345		ALLIED WASTE SERVICES #743	OV	46953	10/16/2009	646.60		646.60	
400	400141	6345		GE BETZ INC	OV	47076	10/19/2009	4,000.00		4,000.00	
400	400141	6345		P & S CONSTRUCTION INC	PV	207016	10/22/2009	34.13		34.13	
400	400141	6345		ALLIED WASTE SERVICES #743	OV	47556	10/27/2009	290.00		290.00	
400	400123	6345		WINSTON MCKENZIE	OV	47709	10/29/2009	2,500.00		2,500.00	
400	400143	6345		HD SUPPLY #552	PV	208779	10/30/2009	146.19		146.19	
400	400116	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	25.15		25.15	
400	400119	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	45.72		45.72	
400	400128	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	97.30		97.30	
400	400128	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009		(48.65)	(48.65)	
400	400141	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	51.18		51.18	
400	400141	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	77.91		77.91	
400	400145	6345		LOWE'S COMPANIES INC	PV	209183	11/2/2009	11.74		11.74	
400	400143	6345		ALLIED WASTE SERVICES #743	OV	48727	11/4/2009	645.72		645.72	
400	400141	6345		GRAINGER	PV	210418	11/5/2009	22.68		22.68	
400	400141	6345		GRAINGER	PV	210419	11/5/2009	124.12		124.12	
400	400123	6345		USA BLUEBOOK/UTILTY SUPPLY OF	OV	49289	11/12/2009	273.16		273.16	
400	400141	6345		ALLIED WASTE SERVICES #743	OV	49867	11/19/2009		(11.23)	(11.23)	
400	400141	6345		ALLIED WASTE SERVICES #743	OV	49867	11/19/2009		(16.23)	(16.23)	
400	400141	6345		ALLIED WASTE SERVICES #743	OV	49867	11/19/2009		(11.23)	(11.23)	
400	400143	6345		GRAINGER	OV	49979	11/23/2009	524.70		524.70	
400	400128	6345		TARHEEL PAVEMENT CLEANING SVCS	PV	215961	11/24/2009	127.00		127.00	
400	400141	6345		KRAFT POWER CORPORATION	OV	50069	11/24/2009	508.00		508.00	
400	400128	6345		PPV - 4527 - ENTRY 2	JE	267879	11/30/2009	0.03		0.03	
400	400131	6345		PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	2.00		2.00	
400	400141	6345		PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	12.06		12.06	
400	400143	6345		PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	227.53		227.53	

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400	400143	6345	SE 5 AP ACCRUAL NOVEMBER	JE	267842	11/30/2009	100.00		100.00
400	400145	6345	PPV - 4527 - ENTRY 3	JE	267880	11/30/2009	2.00		2.00
400	400143	6345	PROSPERITY WELL AND LIFTS TANK	OV	50354	12/1/2009	1,300.00		1,300.00
400	400143	6345	SE 5 AP ACCRUAL NOVEMBER	JE	267842	12/1/2009		(100.00)	(100.00)
400	400143	6345	HES CONSTRUCTION	PV	217143	12/2/2009	100.00		100.00
400	400141	6345	GE BETZ INC	PV	219066	12/9/2009	203.01		203.01
400	400143	6345	GRAINGER ACCT # 844236323	PV	219281	12/9/2009		(52.70)	(52.70)
400	400109	6345	H2O OPERATIONS LLC	OV	51180	12/11/2009	294.00		294.00
400	400143	6345	PROSPERITY WELL AND LIFTS TANK	OV	51158	12/11/2009	455.00		455.00
400	400128	6345	STEVENSON-WEIR INC	OV	51979	12/22/2009	385.93		385.93
400	400128	6345	GOPHER UTILITY SERVICES INC	OV	52094	12/23/2009	267.00		267.00
400	400128	6345	LOWE'S COMPANIES INC	PV	225114	12/31/2009	71.82		71.82
400	400128	6345	MAINLINE SUPPLY CO	PV	225478	12/31/2009	82.09		82.09
400	400143	6345	LOWE'S COMPANIES INC	PV	225114	12/31/2009	62.79		62.79
400	400143	6345	PO ACCR-2010 RECEIPTS-SE	JE	268814	12/31/2009	495.95		495.95
400	400145	6345	LOWE'S COMPANIES INC	PV	225114	12/31/2009	21.51		21.51
400	400143	6345	PO ACCR-2010 RECEIPTS-SE	JE	268814	1/1/2010		(495.95)	(495.95)
400	400143	6345	S & S WELDING & FABRICATION LL	OV	53036	1/5/2010	495.95		495.95
400	400131	6345	P & S CONSTRUCTION INC	PV	229139	1/15/2010	160.00		160.00
400	400131	6345	P & S CONSTRUCTION INC	PV	229135	1/15/2010	160.50		160.50
400	400131	6345	GRAINGER	PV	229440	1/18/2010	141.21		141.21
400	400145	6345	GRAINGER	PV	229587	1/19/2010	60.03		60.03
400	400143	6345	HD SUPPLY #552	PV	230819	1/25/2010	180.56		180.56
[redacted]									
400	400126	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	156.78		156.78
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	148.76		148.76
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	127.08		127.08
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	122.73		122.73
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	53.37		53.37
400	400141	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	63.99		63.99
400	400145	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	1/31/2010	19.21		19.21
400	400126	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(156.78)	(156.78)
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(122.73)	(122.73)
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(148.76)	(148.76)
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(127.08)	(127.08)
400	400128	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(53.37)	(53.37)
400	400141	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(63.99)	(63.99)

400	400145	6345	SE 5 AP ACCRUAL JANUARY	JE	269147	2/1/2010		(19.21)	(19.21)
400	400128	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	148.76		148.76
400	400128	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	122.73		122.73
400	400128	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	127.08		127.08
400	400128	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	53.37		53.37
400	400141	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	63.99		63.99
400	400145	6345	LOWE'S COMPANIES INC	PV	232979	2/2/2010	19.21		19.21
400	400126	6345	P & S CONSTRUCTION INC	PV	234013	2/3/2010	156.78		156.78
400	400145	6345	WHITE CRANE COMPANY INC	OV	55391	2/5/2010	535.00		535.00
[redacted]									
400	400131	6345	P & S CONSTRUCTION INC	PV	237940	2/18/2010	204.36		204.36
400	400143	6345	P & S CONSTRUCTION INC	PV	237929	2/18/2010	193.82		193.82
400	400123	6345	GODWIN LLC, JOHN	PV	239196	2/23/2010	249.00		249.00
400	400143	6345	GRAINGER	PV	239645	2/24/2010	153.51		153.51
400	400143	6345	GRAINGER	PV	239646	2/24/2010	29.06		29.06
400	400143	6345	W P LAW, INC	PV	239550	2/24/2010	49.95		49.95
400	400123	6345	SE 5 AP ACCRUAL FEBRUARY	JE	269481	2/28/2010	160.00		160.00
400	400123	6345	SE 5 AP ACCRUAL FEBRUARY	JE	269481	3/1/2010		(160.00)	(160.00)
400	400123	6345	J & J ENTERPRISES	PV	240915	3/2/2010	160.00		160.00
400	400101	6345	LOWE'S COMPANIES INC	PV	241838	3/3/2010	14.72		14.72
400	400141	6345	LOWE'S COMPANIES INC	PV	241838	3/3/2010	35.29		35.29
400	400145	6345	LOWE'S COMPANIES INC	PV	241838	3/3/2010	123.66		123.66
400	400111	6345	ASHLEY DOVE	PV	242338	3/8/2010	175.00		175.00
400	400128	6345	KRAFT POWER CORPORATION	OV	57242	3/8/2010	387.19		387.19
400	400131	6345	P & S CONSTRUCTION INC	PV	242258	3/8/2010	192.00		192.00
400	400131	6345	P & S CONSTRUCTION INC	PV	242271	3/8/2010	214.00		214.00
400	400141	6345	SPICER ON-CALL SERVICES	PV	246359	3/24/2010	95.50		95.50
400	400123	6345	MAYO CLINIC HEALTH MGMT. RESOU	PV	248738	3/31/2010	192.72		192.72
400	400123	6345	SE 5 AP ACCRUAL MARCH	JE	270426	3/31/2010	192.72		192.72
400	400128	6345	USA BLUEBOOK/UTILTY SUPPLY OF	PV	248750	3/31/2010	313.62		313.62
400	400143	6345	MAYO CLINIC HEALTH MGMT. RESOU	PV	248738	3/31/2010	23.95		23.95
400	400143	6345	SE 5 AP ACCRUAL MARCH	JE	270426	3/31/2010	23.95		23.95
400	400123	6345	LOWE'S COMPANIES INC	PV	249052	4/1/2010	192.72		192.72
400	400123	6345	MAYO CLINIC HEALTH MGMT. RESOU	PV	248738	4/1/2010		(192.72)	(192.72)
400	400123	6345	SE 5 AP ACCRUAL MARCH	JE	270426	4/1/2010		(192.72)	(192.72)
400	400128	6345	RECLASS TO EXP I	JE	270864	4/1/2010	186.98		186.98
400	400143	6345	LOWE'S COMPANIES INC	PV	249052	4/1/2010	23.95		23.95

400	400143	6345	MAYO CLINIC HEALTH MGMT. RESOU	PV	248738	4/1/2010		(23.95)	(23.95)
400	400143	6345	SE 5 AP ACCRUAL MARCH	JE	270426	4/1/2010		(23.95)	(23.95)
400	400128	6345	GOPHER UTILITY SERVICES INC	PV	254576	4/27/2010	204.00		204.00
400	400131	6345	PERRY'S PUMPS & CONTROLS	PV	254771	4/27/2010	250.00		250.00
400	400145	6345	SE 5 AP ACCRUAL APRIL	JE	271001	4/30/2010	60.46		60.46
400	400145	6345	SE 5 AP ACCRUAL APRIL	JE	271001	5/1/2010		(60.46)	(60.46)
400	400145	6345	SAFETY PLUS INC	PV	256247	5/4/2010	60.46		60.46
400	400143	6345	SE 5 AP ACCRUAL MAY	JE	271306	5/31/2010	250.00		250.00
400	400143	6345	HES CONSTRUCTION	PV	263454	6/1/2010	250.00		250.00
400	400143	6345	SE 5 AP ACCRUAL MAY	JE	271306	6/1/2010		(250.00)	(250.00)
400	400141	6345	LOWE'S COMPANIES INC	PV	266706	6/10/2010	103.79		103.79
400	400141	6345	LOWE'S COMPANIES INC	PV	266706	6/10/2010	17.07		17.07
400	400145	6345	LOWE'S COMPANIES INC	PV	266706	6/10/2010	29.83		29.83
400	400143	6345	BIO-TECH INC	OV	64956	6/23/2010	750.00		750.00
400	400131	6345	P & S CONSTRUCTION INC	PV	277827	7/27/2010	176.01		176.01
400	400145	6345	HES CONSTRUCTION	PV	277669	7/27/2010	225.00		225.00
400	400143	6345	S & S WELDING & FABRICATION LL	PV	281208	8/6/2010	240.00		240.00
400	400143	6345	HES CONSTRUCTION	PV	284806	8/20/2010	162.50		162.50
400	400131	6345	LOWE'S COMPANIES INC	PV	287479	8/31/2010	31.21		31.21
400	400143	6345	LOWE'S COMPANIES INC	PV	287479	8/31/2010	30.05		30.05
400	400143	6345	S & S WELDING & FABRICATION LL	OV	71565	9/15/2010	893.45		893.45
400	400128	6345	SIMPLEX GRINNELL	PV	292135	9/20/2010	89.00		89.00
400	400143	6345	SAFETY PLUS INC	PV	292185	9/20/2010	136.43		136.43
400	400128	6345	EUDY, RANDY	PV	293548	9/24/2010	210.00		210.00
400	400128	6345	EUDY, RANDY	PV	293547	9/24/2010	245.00		245.00
400	400128	6345	USA BLUEBOOK/UTILTY SUPPLY OF	OV	72187	9/24/2010	417.51		417.51
400	400128	6345	USA BLUEBOOK/UTILTY SUPPLY OF	PV	293655	9/27/2010		(55.06)	(55.06)
400	400134	6345	GRAINGER	PV	293659	9/27/2010	101.14		101.14
400	400141	6345	LOWE'S COMPANIES INC	PV	295312	9/29/2010	30.54		30.54
400	400143	6345	LOWE'S COMPANIES INC	PV	295312	9/29/2010	49.08		49.08
400	400143	6345	LOWE'S COMPANIES INC	PV	295312	9/29/2010	85.50		85.50

CAROLINA WATER SERVICE, INC.
NONALLOWABLE PLANT

EXHIBIT KEW-1
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Line No.	Vendor	Invoice Number	Invoice Date	Invoice Amount	Disallowed Amount per ORS	Allowed Amount per CWS (Water)	Allowed Amount per CWS (Sewer)	Disallowed Amount per CWS (Water)	Disallowed Amount per CWS (Sewer)	Invoice Description Per CPR	Account Number	Account Description	Exceptions	A/D on Disallowed Water	A/D on Disallowed Sewer
												Street/Imprv			
(1)	Perry's Pumps & Controls	7178	4/30/2008	2,989.88	456.00	-	2,533.88	-	456.00	Installed new pump (Late fee)	1295	Pump Pit Ls	Late fee		17.10
(2)	Robert G. Burgin, Jr., Inc.	11869	7/2/2007	655.75	655.75	-	-	-	-	Review proposal Whites Creek/Lincolnshire	1315	STRUCT/IMPR V GEN PLT			
(3)	Robert G. Burgin, Jr., Inc.	11821	1/1/2007	160.00	160.00	-	-	-	-	Review proposal Whites Creek/Lincolnshire	1315	STRUCT/IMPR V GEN PLT			
(4)	Robert G. Burgin, Jr., Inc.	11895	4/1/2007	910.00	910.00	-	-	-	-	Surveyors fee	1315	STRUCT/IMPR V GEN PLT			
(5)	Robert G. Burgin, Jr., Inc.	11941	5/2/2007	17,537.64	17,537.64	-	-	-	-	Work on drawings and specs	1315	STRUCT/IMPR V GEN PLT			
(6)	Robert G. Burgin, Jr., Inc.	11980	6/30/2007	12,996.91	12,996.91	-	-	-	-	Work on spec/submittal	1315	STRUCT/IMPR V GEN PLT			
(7)	Robert G. Burgin, Jr., Inc.	12023	9/1/2007	11,586.04	11,586.04	-	-	-	-	Work on bid pkg	1315	STRUCT/IMPR V GEN PLT			
(8)	Robert G. Burgin, Jr., Inc.	11977	8/2/2007	9,440.60	9,440.60	-	-	-	-	Prepare bid request	1315	STRUCT/IMPR V GEN PLT			
(9)	Robert G. Burgin, Jr., Inc.	12020	9/13/2007	1,884.91	1,884.91	-	-	-	-	Work on revised plans	1315	STRUCT/IMPR V GEN PLT			
(10)	Sims Group	82784	9/30/2007	1,157.55	1,157.55	-	-	-	-	CAD services, registered engineer	1315	STRUCT/IMPR V GEN PLT			
(11)	Burgin Engineering Inc.	7-10010	9/30/2007	2,917.02	2,917.02	-	-	-	-	Amended bid pkg	1315	STRUCT/IMPR V GEN PLT			
(12)	Burgin Engineering Inc.	7-10009	11/15/2007	6,656.40	6,656.40	-	-	-	-	Wetlands delineation, Surveying	1315	STRUCT/IMPR V GEN PLT			
(13)	Sims Group	82777	10/31/2007	3,714.75	3,714.75	-	-	-	-	Registered engineer	1315	STRUCT/IMPR V GEN PLT			
(14)	Burgin Engineering Inc.	7-11076	10/31/2007	5,708.78	5,708.78	-	-	-	-	Work on OCRM, reimbursed railroads	1315	STRUCT/IMPR V GEN PLT			
(15)	Burgin Engineering Inc.	7-10060	10/15/2007	1,036.50	1,036.50	-	-	-	-	Work on project	1315	STRUCT/IMPR V GEN PLT			
(16)			10/31/2007	12,921.40	12,921.40	-	-	-	-						
(17)			8/31/2008	4,906.47	4,906.47	-	-	-	-	Cap Time					
(18)			9/30/2008	5,037.38	5,037.38	-	-	-	-	Interest During Construction					
				102,217.98	99,684.10	-	101,761.98	-	456.00						17.10
(19)	DHEC	QA16652-0	10/24/2008	1,065.00	1,065.00	-	-	-	1,065.00	NPDES permit for 2009/Oakland Plantation	1315	STRUCT/IMPR V GEN PLT			31.95
(20)	DHEC	QA16638-9	10/24/2008	1,065.00	1,065.00	-	-	-	1,065.00	NPDES permit for 2009/Pocalla Village-Belk	1315	STRUCT/IMPR V GEN PLT			31.95
(21)	DHEC	QA16639-7	10/24/2008	1,065.00	1,065.00	-	-	-	1,065.00	NPDES permit for 2009/Whites Creek-Lincolnshire	1315	STRUCT/IMPR V GEN PLT			31.95
(22)	DHEC	QA16657-9	10/24/2008	1,600.00	1,600.00	-	-	-	1,600.00	NPDES permit for 2009/Briargate SD	1315	STRUCT/IMPR V GEN PLT			48.00
(23)	DHEC	QA16637-1	10/24/2008	1,065.00	1,065.00	-	-	-	1,065.00	NPDES permit for 2009/Glenn Village II SD	1315	STRUCT/IMPR V GEN PLT			31.95
(24)	DHEC	QA16650-4	10/24/2008	1,600.00	1,600.00	-	-	-	1,600.00	NPDES permit for 2009/I-20 Regional	1315	STRUCT/IMPR V GEN PLT			48.00
(25)	DHEC	QA16648-8	10/24/2008	800.00	800.00	-	-	-	800.00	NPDES permit for 2009/Roosevelt Garden APTS	1315	STRUCT/IMPR V GEN PLT			24.00
(26)	DHEC	QA16659-5	10/24/2008	800.00	800.00	-	-	-	800.00	NPDES permit for 2009/Smallwood Estates	1315	STRUCT/IMPR V GEN PLT			24.00
(27)	DHEC	QA16641-3	10/24/2008	1,065.00	1,065.00	-	-	-	1,065.00	NPDES permit for 2009/Watergate Development	1315	STRUCT/IMPR V GEN PLT			31.95
				10,125.00	10,125.00	-	-	-	10,125.00						303.75

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CAROLINA WATER SERVICE, INC.
NONALLOWABLE PLANT

EXHIBIT KEW-3
w/p d

(28)	BIO Tech, Inc. Environmental		12/31/2006	32,489.13	32,489.13	-	-	32,489.13	-	No invoices provided	1115		1,861.12
(29)	Building Addition		7/27/2007	3,272.15	3,272.15	-	-	3,272.15	-	No backup provided	1118		159.53
(30)	Waterlogic, Inc.	298-007	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(31)	Waterlogic, Inc.	298-006	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(32)	Waterlogic, Inc.	298-005	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(33)	Waterlogic, Inc.	298-004	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(34)	Waterlogic, Inc.	298-003	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(35)	Waterlogic, Inc.	298-002	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(36)	Waterlogic, Inc.	298-008	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
(37)	Waterlogic, Inc.	298-001	11/21/2007	45,000.00	45,000.00	-	-	45,000.00	-	Lincolnshire WWTP Upgrade	1315	STRUCT/IMPR V GEN PLT	2,193.75
			12/31/2007	2,553.00	2,553.00	-	-	2,553.00	-	Interest During Construction	1315	STRUCT/IMPR V GEN PLT	121.27
				398,314.28	398,314.28	-	-	398,314.28	-				19,698.01

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2011-47-WS

Rebuttal Testimony

Of

Kirsten Weeks

Exhibit KEW-4-Computer Depreciation for Rebuttal

CAROLINA WATER SERVICE, INC.
CALCULATION OF WSC COMPUTERS, DEPRECIATION EXPENSE AND ACCUMULATED DEPRECIATION

EXHIBIT KEW-4
w/p a

Line No.	Item	Plant in Service (a)	Months in Service (b)	Depreciation or Amortization Expense (c)	A/D or A/A (d)
	Mainframe computers				
	pre 2001 Balance	371,502	96	-	(371,502)
1	2001	5,583	96	-	(5,583)
2	2002	-	96	-	-
3	2003 (a)	171,680	96	-	(171,680)
4	2004	13,640	75	1,705	(10,556)
5	2005	-	63	-	-
6	2006	2,385	51	298	(1,267)
7	2007	-	39	-	-
8	2008	6,476	27	810	(1,821)
9	2009	-	15	-	-
10	Sep-10	508,722	3	15,898	(15,898)
11	Totals - mainframe	1,079,988		18,710	(578,407)
12	Percentage allocated to CWS	7.32%		7.32%	7.32%
13	WSC Mainframe computers Allocation	79,062		1,370	(42,343)
	Mini-computers				
14	pre 2002 balance	716,591	96	-	(716,591)
15	2003 (a)	32,993	96	-	(32,993)
16	2004	28,308	75	3,538	(22,109)
17	2005	64,443	63	8,055	(42,291)
18	2006	462,851	51	57,856	(245,890)
19	2007	(125,640)	39	(15,705)	51,041
20	2008	70,702	27	8,838	(19,885)
21	2009	58,160	15	7,270	(9,087)
22	Sep-10	79,829	3	2,495	(2,495)
23	Totals - mini-computers	1,388,228		72,347	(1,040,299)
24	Percentage allocated to CWS	7.32%		7.32%	7.32%
25	WSC Mini-computers Allocation	101,627		5,296	(76,157)
	Computer systems cost				
26	pre 2001 balance	771,293	96	-	(771,293)
27	2001	45,542	96	-	(45,542)
28	2002	5,912	96	-	(5,912)
29	2003 (a)	14,240	96	-	(14,240)
30	2004	-	75	-	-
31	2005	-	63	-	-
32	2006	508,722	51	63,590	(270,259)
33	2007	(508,722)	39	(63,590)	206,668
34	2008	21,622,024	27	2,702,753	(6,081,194)
35	2009	488,373	15	61,047	(76,308)
36	Sep-10	(277,917)	3	(8,685)	8,685
37	Totals - Computer system	22,669,467		2,755,115	(7,049,395)
38	Percentage allocated to CWS	7.32%		7.32%	7.32%
39	WSC Computer system Allocation	1,659,552		201,692	(516,061)

CAROLINA WATER SERVICE, INC.
CALCULATION OF WSC COMPUTERS, DEPRECIATION EXPENSE AND ACCUMULATED DEPRECIATION

EXHIBIT KEW-4
w/p 2

Line No.	Item	Plant in Service (a)	Months in Service (b)	Depreciation or Amortization Expense (c)	A/D or A/A (d)
	Software Amortization				
	pre 2002 Balance	115,738	96	-	(115,738)
40	2003 (a)	8,312	96	-	(8,312)
41	2004	5,877	75	735	(4,591)
42	2005	31,318	63	3,915	(20,553)
43	2006	19,090	51	2,386	(10,141)
44	2007	318,625	39	39,828	(129,441)
45	2008	60,604	27	7,575	(17,045)
46	2009	2,763	15	345	(432)
47	Sep-10	-	3	-	-
52	Totals - Software	562,325		54,784	(306,253)
53	Percentage allocated to CWS	7.32%		7.32%	7.32%
54	WSC Software allocation	41,166		4,011	(22,420)
	Fully-depreciated computers				
59	Mainframe computers	562,405			
60	Mini-computers	1,179,538			
61	Computer systems cost	822,747			
62	Software Amortization	498,960			
63	Total - fully-depreciated computers	3,063,650			
64	Percentage allocated to CWS	7.32%			
65	Total - fully-depreciated computers	224,279			

	Per books	Per WSC Allocation	Per SC Only Computers	Adjustment	Water (b)	Sewer (c)
Per books mainframe	84,985	79,062	5,923	(0)	(0)	(0)
Per books mini computer	322,663	101,627	221,035	(0)	(0)	(0)
Per books-Comp software	1,661,459	1,659,552	1,907	(0)	(0)	(0)
Per books software	46,390	41,166	5,224	0	0	0
	2,115,497	1,881,407	234,090	(1)	(0)	(0)

	Per books	Per Allocation	Per SC Only Computers	Adjustment	Water (b)	Sewer (c)
Per books mainframe A/D	(63,870)	(42,343)	(5,923)	5,604	3,253	2,351
Per books mini computer A/D	(292,527)	(76,157)	(219,231)	(2,860)	(1,660)	(1,200)
Per books comp software A/D	(588,268)	(516,061)	(1,907)	70,300	40,802	29,498
Per books software A/D	(48,143)	(22,420)	(7,625)	18,098	10,504	7,594
	(982,808)	(656,981)	(234,686)	91,142	52,899	38,243

	Per books	Per Allocation	Per SC Only Computers	Adjustment	Water (b)	Sewer (c)
Per books company computer depreciation	237,219	212,369	-	(24,850)	(14,421)	(10,427)

Notes:
(a) 2003 has been adjusted to reflect items that are fully depreciated through June 2011.
(b) Water is allocated 58.04% of the total.
(c) Sewer is allocated 41.96% of the total.

2011-47-WS

Rebuttal Testimony

Of

Patrick Flynn

Exhibit PCF-1 Misc Charges

CAROLINA WATER SERVICE, INC.'S

RESPONSE TO

OFFICE OF REGULATORY STAFF's

SECOND CONTINUING

INFORMATION REQUEST

2.3 Provide the following information for the Disconnection Charge, $100 Meter Installation Charge, Tampering Charge, and Pumping Charge:
a. Detailed cost justification for water and sewer;
b. Identify the expenses incurred by CWS that support the charge for water and sewer; and
c. Provide the projected amount of revenue to be generated by the charge for water and sewer.

Response: Disconnection Charge

a. The proposed Disconnection Charge is intended to allow the Utility to recover the cost of physically disconnecting a customer who, after being given proper notice as required by rule, fails to make payment of the past due balance in a timely fashion. The Disconnection Charge would include the cost of printing and mailing disconnect notices to the customer; all of the transportation expense incurred to travel to and from the premise by utility personnel; the cost to turn and lock off the water service; and, in the case of a sewer-only, customer, the total cost to install an elder valve on a sewer service where one does not already exist.

b. Expenses to disconnect a water customer include:

Printing and mailing expense (nominal amount)	$ 5.00
Labor cost to visit the premise, take a read, lock off service and post the information in the billing system ($30.00/hour X 0.5 hrs)	$15.00
Meter lock	$ 5.00
Transportation expense, (nominal distance, 20 miles @ $0.50/mi)	$10.00
TOTAL	**$35.00**

Expenses incurred to disconnect a sewer customer include all of the above items plus the actual cost to install an elder valve, which varies greatly depending on various factors including: location and depth of the sewer pipe at the point of connection; video inspection services to determine the location of the sewer tap where it is otherwise not discernable; the cost of materials and supplies needed to install an elder valve; the presence and extent of underground and above ground conflicts such as driveways, sidewalks, trees, fences, and landscaping; the cost of restoration of the work area; and the cost of traffic control equipment and associated services. The total cost of an elder

valve installation can therefore vary from a minimum of $250 to as much as $2,500.

c. Projected annual revenue for water disconnection activity is estimated as the following: 600 disconnects/year x $35.00/disconnect = **$21,000**
The estimated revenue generated for sewer disconnects is estimated as the following: 200 disconnects/year x $500/disconnect = **$100,000**

$100 Meter Installation Charge

a. The actual cost to install a water meter at a premise should be recovered when service is requested. The meter installation charge should increase with meter size to reflect the increased cost of meters and appurtenances as the size of the meter increases and be inclusive of all parts and materials. Water meter specifications for all sizes and applications must meet minimum standards as established by AWWA and the utility based on the type, location and extent of water use; maximum instantaneous demand; and any other pertinent factor that impacts the ability of the meter to accurately and repeatedly measure water use.

b. Labor and materials associated with the installation of a 5/8"x3/4" cold-water meter include:

Standard brass meter housing, local read register, bronze bottom, lead-free alloy material, conforming to AWWA Standard C-700 plus shipping	$50.00
Standard meter box with meter reader lid	$25.00
Transportation expense (20 miles @ $0.50/mile)	$10.00
Labor to install on existing service line, 1 hour @ $30.00/hour	$30.00
TOTAL (A)	**$115.00**
Added cost if Ford meter box is utilized	$100.00
TOTAL (B)	**$215.00**

c. Estimated annual revenue generated from new meter installation activity is highly variable and dependent on a number of factors including: residential development activity; housing construction market conditions; size, suitability and location of unimproved property relatively near existing or proposed utility facilities; and the availability of adequate water and/or sewer capacity to serve additional customers. Therefore, a conservative estimate is based on 200 customers added/year @ $115.00 each = **$23,000**

Tampering Charge

a. A Tampering Charge should be established in order to deter customers from tampering with the operation, maintenance, or repair of a water or sewer service.

b. A Tampering Charge of $250 is proposed as a minimum amount based on tampering charges contained in current tariffs in other states in which Utilities, Inc. conducts business. However, the customer should be held responsible for all actual costs incurred as a result with tampering activities.

c. It is estimated that the Tampering Charge will generate approximately **$3,000** per year based on it being levied once per month @ $250.00 each.

Pumping Charge

a. This charge would be applicable to those sewer customers who utilize a solids interceptor tank, which must be pumped out periodically at the customer's expense. The recommended interval is five years; however, these solids interceptor tanks must be pumped out more frequently in some cases and immediately once a tank becomes full in order to avoid a sewer backup into the home. It is proposed that the customer should bear the actual cost of all pump-out activities including the additional cost of performing this service when it is conducted after normal business hours. In this way, it will be advantageous for the customer to schedule the activity during normal business hours.
b. Actual costs have risen significantly since the pumping charge of $150.00 was first established. The $150.00 charge does not reflect the full cost of performing this service. Currently, actual costs vary from $250.00 to $700.00 depending on the contractor selected and the cost to dispose of the contents in conformance with all regulatory requirements and in an environmentally responsible manner.
c. There are currently approximately 1,015 interceptor tanks in use. It is estimated that 20% of the tanks are pumped annually. At an average cost of $400/pump-out, the annual revenue is estimated to be: **$81,200**

Responder: Patrick Flynn

2011-47-WS

Rebuttal Testimony

Of

Patrick Flynn

Exhibit PCF-2

PURCHASED WATER SYSTEMS AND WATER PROVIDER

STATE	SUBDIVISION	BULK PROVIDER	Customer Count	SFE's
	CAROLINA WATER SERVICE, INC (CWS)			
SC	Westside Terrace	Town of Lexington	67	67
SC	Rollingwood/Silvercreek	Lexington County Joint Water & Sewer Commission	189	189
SC	The Landings	Lexington County Joint Water & Sewer Commission	164	164
SC	Harborside / Harbour Place / Windward Pt.	Lexington County Joint Water & Sewer Commission	98	98
SC	Lands End/Watergate / Spences Pt. / Mallard Shores	Lexington County Joint Water & Sewer Commission	332	358
SC	Idlewood Drive	City of West Columbia	71	71
SC	River Hills	York County	3952	4261
SC	I-20 AREA (CWS)	City of West Columbia	2341	2330
	which includes the following subdivisions:			
	Sycamore Acres		82	82
	Oakwood		71	71
	Laurel Meadows/Savannah Point/Agape Village		315	315
	Brighton Forest		141	136
	Spring Lake / Dutchwood		126	122
	Spring Hill/Oakcrest/Timbergate/Meadowood/Mineral Creek/Maple Grove/Cunningham Park		463	451
	Planters Station/Keystone Commons/Bradford Estates		168	165
	Grayland Forest/Woodcastle/Sparrow Point		316	310
	Golden Pond/Woodberry Forest/Sommerset		358	354
	Oak Grove Est/Courtside Commons		236	259
	Hidden Valley MHP		65	65

2011-47-WS

Rebuttal Testimony

Of

Patrick Flynn

Exhibit: AWWA-State Survey 2002

SURVEY OF STATE AGENCY WATER LOSS REPORTING PRACTICES

FINAL REPORT TO THE AMERICAN WATER WORKS ASSOCIATION

January 2002

Prepared by
Janice A. Beecher, Ph.D.
Beecher Policy Research, Inc.

SURVEY OF STATE AGENCY WATER LOSS REPORTING PRACTICES
FINAL REPORT TO THE AMERICAN WATER WORKS ASSOCIATION

January 2002

Prepared by
Janice A. Beecher, Ph.D.
Beecher Policy Research, Inc.

Introduction[1]

There might have been a time when having a fair amount of lost or "unaccounted-for" water was pretty acceptable to water utilities. Finding and plugging leaks might not have seemed cost effective for a typical water system; that is, the perceived cost of detection and repair might have outweighed the perceived benefits of saving water. Many water systems also might not have metered or charged for certain kinds of uses.

Such practices are no longer accepted as the best management of water resources. Today, the commodity that water systems deliver has greater value than ever before. Extraction, treatment, storage, and pumping all add value to the water resource. Ignoring the value of water losses is no longer justifiable.[2] Given growing constraints on water resources and mounting infrastructure costs, it is more imperative than ever that water managers endeavor to account for the water that travels from the source to end users.

While lacking a rational structure for quantifying water loss, numerous assessments in the literature suggest that water loss is a significant, and often overlooked, occurrence for many US water utilities. Many case studies have documented systems for which losses from leakage and poor accounting constitute substantial portions of total water deliveries.

A growing number of communities are faced with pressure to find additional supplies to serve expanding populations. Many of these exist in water-limited regions where the development of new supply sources and the allocation of existing sources are complex and sensitive issues. Yet rational assessment of water-loss performance and appropriate improvements often are not pursued as a resource management option or given appropriate priority.

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[1] Based on George Kunkel and Janice A. Beecher, *Survey of State Agency Water Loss Reporting Practices: Preliminary Findings.* Proceedings of the 2001 AWWA Annual Conference (Denver: CO: American Water Works Association, 2002).
[2] George Kunkel, "Cutting Our Losses," *Journal AWWA* (January 2001): 40.

Proper management of any resource must include accurate measurement of the resource throughout its life cycle. In any proper accounting system checks and balances must be provided via the use of independent audits, consistent reports and rational procedures. U.S water systems do not consistently account for water or apply consistent methods of water accounting. The need for a reliable and authoritative system of water accounting has become increasingly apparent to utility managers and practitioners in the field of water-resource policy.

This paper describes the findings of a research project sponsored by the Technical and Educational Council of the American Water Works Association that provides an initial baseline of data describing the status of water accounting and related public policy at the state and regional levels. The results are summarized in this paper and the detailed findings by jurisdiction are available in a spreadsheet format.

Water Accounting

Many water providers in the United States refer to the term "water accountability" as the measure of effectiveness in moving their product (water) to their customers with minimal losses in transmission and distribution. Water accountability, however, is not a well-defined discipline and the methodologies used to quantify losses are varied and inconsistent. Lack of standard terminology and measures are at the center of the water-loss penumbra.[3] Often quoted, but poorly defined, the "metered-water ratio" more frequently confuses rather than informs the reader when attempting to evaluate the water loss condition of suppliers.

Confusing terms and standards can make it difficult for water professionals to address water-loss issues. The terminology used to represent the difference between the water that is withdrawn from the source and water that is eventually distributed to end users is imprecise. For example, the terms "water losses" and "unaccounted-for water" have been used somewhat interchangeably. But not all unaccounted-for water is lost; some might be given away or used for authorized purposes. Some water has been labeled "nonrevenue" or "nonrevenue producing" but such water might include both authorized and unauthorized uses.[4] EPA has used the term "uncompensated usage" to include water used by public authorities, water used for maintenance purposes (flushing), leakage, and uncollected accounts from customers.[5]

In a 1987 study for the American Water Works Association Research Foundation (AWWARF), a useful distinction was made between "account" and "nonaccount" water: *Account water* is all water for which an account exists, the water is metered,

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[3] Ibid.
[4] Janice A. Beecher and Patrick C. Mann, *Cost Allocation and Rate Design for Water Utilities* (Columbus, OH: The National Regulatory Research Institute, 1990).
[5] U.S. Environmental Protection Agency, *Community Water System Survey* (Washington, DC: USEPA, 1997).

and the account is billed: *nonaccount water* is the sum of all water produced or purchased by a water utility that is not covered by the term "account water."[6]

This proposed nomenclature has not been widely internalized by U.S. water systems. For the most part, the industry and state agencies tend to use the term "unaccounted-for water" to mean leaks as well as other kinds of avoidable losses relative to total water production. However, the measurement of unaccounted-for water can be a source of confusion because the numerator and the denominator used to calculate the percentage are not obvious. Is the percentage amount supposed to represent all water not metered and sold or only water lost through leaks? How the percentage is calculated is obviously meaningful.

The confusion about terms exacerbates the confusion about standards. Any single standard (expressed in terms of volume or a percentage) for unaccounted-for water may not be valid, realistic, or appropriate for a particular water system. Many system characteristics—such as size, age, service population density, physical terrain, soil characteristics, and pipe materials—will affect leakage rates. Systems also have different production-cost profiles against which the cost-effectiveness of leak detection and control programs can be evaluated.

In 1996, AWWA's Leak Detection and Accountability Committee recommended 10 percent as a benchmark for unaccounted-for water, supplanting a 15 percent standard that apparently was based more on folklore than rigid empirical analysis.[7] But even this 10 percent recommendation in considered arbitrary in nature and the use of any percentage loss indicator is now viewed as suspect; particularly in light of emerging approaches that rest on more accurate water accounting.

The AWWA Committee concluded that, "Regardless of the water system's size, water loss should be expressed in terms of actual volume, not as a percentage."[8] This volumetric measure, the committee points out, is essential for estimating the monetary value of losses. The volumetric measure of lost water can be multiplied by the unit cost of water production (or the retail rate) to estimate the value of the lost water. From an economics perspective, the true value of losses is the *marginal* or *incremental* unit cost of production (that is, the cost of producing the next increment of drinking water supply). Incremental or marginal costs more accurately reflect water's resource value, which will increase as supply alternatives become scarcer. Reducing leakage and loss can help systems capture a supply resource and avoid costly supply-side operating and capital costs.

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[6] Lynn P. Wallace, *Water and Revenue Losses: Unaccounted for Water*. Denver, CO: American Water Works Association, 1987.
[7] AWWA Leak Detection and Water Accountability Committee, "Committee Report: Water Accountability," *Journal AWWA* (July 1996): 108-111.
[8] Ibid., 110.

Although widely applied, the concept of "unaccounted-for water" is troubling from a best-practices perspective, as well as from perceptual viewpoint; professional water managers should be able to "account for" their inventory using appropriate measurement and estimation tools. Recently a task force of the International Water Association (IWA) created a new methodology and set of performance indicators for water loss.[9] These measures, which can be applied internationally, recommend against the use of the term "unaccounted-for" water, based on the premise that *all* water should be accounted-for, as either a use or a loss. Most analysts agree a better system of *accounting* is the foundation for a better system of *accountability* for the drinking water supply industry.

Goals of the Project

The major goal of this project is to determine the extent to which state and regional agencies have established politics related to water loss and water-loss management. By making a comprehensive and systematic assessment of current policy, the project will help establish a baseline of understanding that can be used to evaluate the validity of the widely held perception that greater consistency is needed in water accounting for U.S. water utilities.

Approach

A survey was designed for completion by any state agency that might play a role in establishing or implementing a policy regarding water losses. State agencies that were contacted included drinking water administrators, natural resource agencies, and public utility regulatory agencies. Regional (multistate and substate) agencies, such as the Delaware River Basin Commission and the Florida water management districts (respectively), were also surveyed on a limited basis. A copy of the survey is included as Appendix A.

The survey results were supplemented by a document search and a review of state web sites to collect general information on state policies, including, but not limited to state laws and regulations, definitions, standards, and accounting requirements.

Survey information was gathered from various agencies representing thirty-four states, as well as the Delaware River Commission, the Southwest Florida Water Management District (SWFWMD FL), and the St. Johns River Water Management District (SJRWMD FL) (for a total of 37 completed surveys). Information on water loss policies was acquired for an additional eleven (11) state jurisdictions for which no survey was completed. Accordingly, the study includes information for forty-six (46) jurisdictions, including forty-three (43) states (See Table 1 and Figure 1).

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[9] International Water Association, *Performance Indicators for Water Supply Services* (London: International Water Association, 2000).

Although not entirely complete or representative, the results provide relatively good coverage of state water-loss policy development.

Table 1
State Water Loss Policy Survey Coverage (December 2001)

State or Regional Government	Survey	Other Information Sources
Alabama		
Alaska	X	
Arizona	X	Web search
Arkansas		
California	X	Document search
Colorado		
Connecticut	X	Web search
Delaware	X	Web search
Florida	X	Web search
Georgia	X	Web search
Hawaii	X	Web search
Idaho	X	2 surveys
Illinois		
Indiana	X	Web search
Iowa	X	Web search
Kansas	X	Web search
Kentucky	X	Document search
Louisiana		Web search
Maine	X	
Maryland	X	Document search
Massachusetts		Document search
Michigan		
Minnesota	X	Web search
Mississippi		
Missouri	X	
Montana	X	
Nebraska	X	
Nevada	X	Document search
New Hampshire	X	
New Jersey	X	
New Mexico		Document search
New York		Web search/Document search
North Carolina	X	Web search
North Dakota	X	
Ohio	X	2 surveys/ Web search
Oklahoma		
Oregon	X	
Pennsylvania	X	2 surveys
Rhode Island	X	
South Carolina	X	
South Dakota	X	

Table 1 (continued)

State or Regional Government	Survey	Other Resources
Tennessee		Document search
Texas	X	Web search
Utah		Web search
Vermont	X	Web search
Virginia		Document search
Washington		Web search
West Virginia		Web search
Wisconsin	X	Document search
Wyoming	X	Web search
Delaware River Basin Commission	X	
Southwest Florida Water Mgmt. Dist.	X	
St. Johns River Water Mgmt. Dist.	X	
TOTAL	37	29

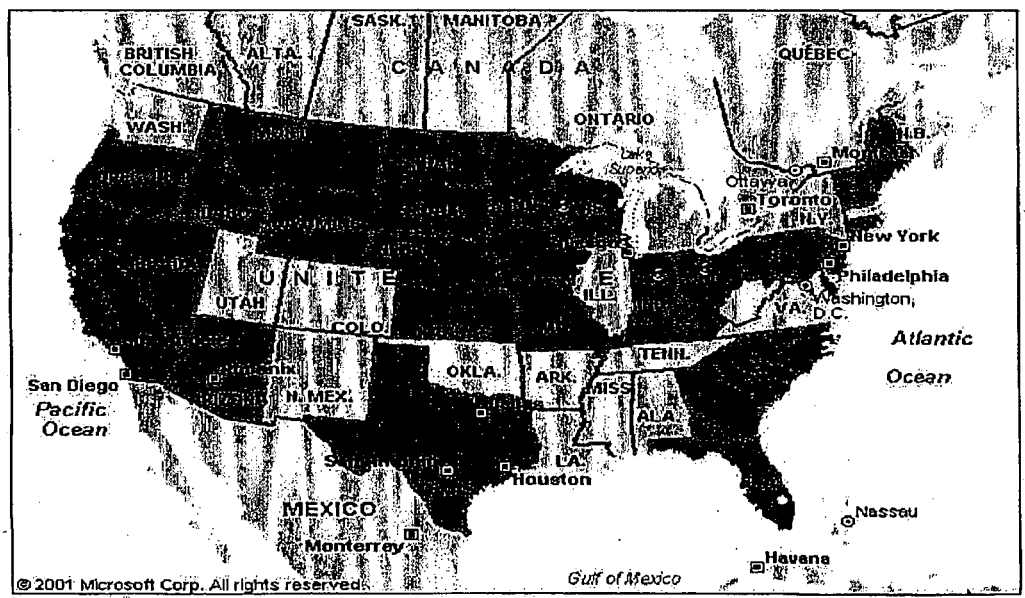

Figure 1. Survey respondents (state jurisdictions).

Survey Design

The survey on state water loss policy, as well as the supplemental research, was designed to be very simple and straightforward in order to ensure a high rate of response. Ten issue areas, which emerged from the preliminary research phase of the project, were covered by the survey:

1. Water-loss policy. Does the state have a policy regarding the loss of water by water utility systems? If so, where is the policy stated (statute, regulation, directive, etc). Which agency or agencies are responsible for implementing the water loss policy?

2. Definition of water loss. Does the state or agency provide a definition of water loss or unaccounted-for water?

3. Accounting and reporting. Does the state or agency provide a method to account for and report water loss?

4. Standards and benchmarks. Does the state or agency identify a standard or benchmark for water losses, such as a specific percentage?

5. Goals and targets. Does the state or agency specify a goal or target for water-loss reduction?

6. Planning requirements. Does the state or agency address water-loss issues in the context of water resource, conservation, or other planning requirements?

7. Compilation and publication. Does the state or agency compile and/or publish data on water losses by water utility systems?

8. Technical assistance. Does the state or agency provide any form of direct technical assistance to water utility systems to help reduce water losses?

9. Performance incentives. Does the state or agency provide any form of performance incentive for water-loss reduction?

10. Auditing and enforcement. Does the state or agency implement any form of auditing or enforcement in relation to the water-loss policy?

Survey respondents were asked to provide additional information for affirmative responses to any of the survey questions. Follow-up contacts with some respondents helped provide additional information as needed.

Finally, in addition to the survey, case studies were developed for six jurisdictions in order to highlight various aspects of water-loss policy development:

- Arizona Department of Water Resources
- Kansas Water Office
- Minnesota Department of Natural Resources, Division of Waters
- Pennsylvania Public Utility Commission and Pennsylvania Bureau of Water Supply and Wastewater Management
- Delaware River Basin Commission (interstate)
- St. Johns River Water Management District (intrastate Florida)

Survey Findings

Water-Loss Policy

Whether a state or agency has a water-loss policy is defined very liberally. Survey respondents were asked to indicate the existence of a policy. However, a policy was also assumed if information was found in any official state document. A water-loss policy can thus range from one that simply encourages utilities to reduce losses to one that specifically defines water loss, sets standards, requires reporting, and enforces compliance. Based on these broad criteria, the presence of a water-loss policy was detected for thirty-three (33) states plus the two surveyed Florida Water Management Districts and the Delaware River Basin Commission (for a total of 36 jurisdictions).

Water loss policies are most commonly found in a variety of state administrative codes, rules, and statutes. State agencies frequently reiterate and emphasize water loss policies in pamphlets, manuals, official forms, and memoranda of understanding. These can be useful information sources for understanding a particular agency's water loss policy.

As expected, the survey results indicate that the agencies responsible for water loss policy vary from state to state. Typically, the agency with responsibility in this area will be the state water resource, natural resource, or environmental agency that has jurisdiction for water-quantity issues. To a lesser extent, some state public utility commissions also implement water-loss policies. Least involved in water-loss policies are the state drinking water administrators, the primacy agencies for water-quality concerns.

Definition of Water Loss

According to the survey, seventeen (17) jurisdictions provide a definition of water loss or unaccounted-for water (including the St. Johns River Water Management District and the Delaware River Basin Commission). For the most part, these definitions do not provide for an operational measurement of unaccounted-for water. Most of the definitions differentiate between metered versus unmetered water. For

example, the Georgia Environmental Protection Division defines unaccounted-for water as "the difference between the total amount of water pumped into the water system from the source(s) and the amount of metered water use by the customers of the water system expressed as a percentage of the total water pumped into the system" (Rules and Regulations of the State of Georgia Chapter 391-3-2-.02 Definitions, Amended).

The California Department of Water Resources distinguishes between authorized unmetered uses and water losses. Authorized unmetered uses may include water used for beneficial purposes, such as fire fighting and main flushing. Most definitions identify some of the potential sources of unaccounted-for water, including water for fire fighting and flushing, leaks and breaks, illegal connections, faulty meters, and other sources.

The Massachusetts Department of Environmental Protection uses a detailed definition provided by a sister agency, the Water Resources Commission, to define unaccounted-for water as: "the difference between water pumped or purchased and water that is metered or confidently estimated. Unaccounted for water should include, meter problems (i.e. master meter inaccuracies, domestic and non-domestic meter under-registration, etc.), unauthorized hydrant openings, unavoidable leakage, recoverable leakage, illegal connections, stand-pipe overflows and data processing errors."

Three state agencies in the sample provide worksheets or formulas for calculating unaccounted-for water. The Missouri Department of Natural Resources defines water loss as a simple percentage: ((water pumped minus water used)/(water pumped)) times 100. Total usage is the sum of customer meter readings, volume used for main flushing or fire hydrant testing, volume sold through water salesman or truck loads from fire hydrants, volume used to fill swimming pools not otherwise metered, etc.

The Texas Water Development Board provides a worksheet for systems to calculate unaccounted-for water, which can be summarized in three steps:[10]

(1) The volume of water produced or supplied to the distribution system, as measured by all master meters at wells and treatment facilities or points of purchase from other utilities, is totaled.
(2) The volume of water sold and distributed as measured by sales meters and estimated un-metered uses.
(3) Unaccounted-for water is obtained by subtracting water sales from total water produced supplied.

[10] Texas Water Development Board, *A Guidebook for Reducing Unaccounted-for Water* (Texas Water Development Board, June 1997), 2.

Texas also defines unaccounted-for water as production minus sales (and the percentage of unaccounted-for water as unaccounted-for water divided by water produced times 100).

The Pennsylvania Department of Environmental Protection defines unaccounted-for water as generally "water which is produced but is not used or sold to the consumers."[11] The percent of unaccounted-for water is then specified in a basic calculation:

Percent of Unaccounted for Water =
(Water Available for Sale) – (Water Sold or Used)/Water Available for Sale x 100

Accounting and Reporting

Most water professionals agree that all water systems, even smaller systems, should implement a basic system of water accounting. AWWA provides a manual, *Water Audits and Leak Detection* (M36, 1990) to guide this process.[12] Water accounting facilitates the process of tracking water throughout the transmission and distribution system—from water sources to end users—and also identifies areas that may need special attention, such as the existence of large volumes of nonaccount water.

The survey indicates that twenty (20) state agencies and the two Florida water management districts either require or provide guidelines for water accounting and/or reporting water loss. Accounting and reporting may be part of an annual report requirement to an agency or may be required as part of an application process. Several examples illustrate the diversity in accounting and reporting.

The Environmental Protection Division of the Georgia Department of Natural Resources requires, as part of a permit to withdraw ground and surface water, submission of an annual water-use data report that includes information on unaccounted-for water for the prior twelve (12) months.

The Iowa Department of Natural Resources Water Supply Section Construction Permit Application requires applicants to provide data for unaccounted-for water (on an average-day and peak-day basis).

In addition to reporting requirements for unaccounted-for water, three state agencies also require a statement of how the utility plans to remedy the situation. In

[11] Pennsylvania Department of Environmental Protection, *Public Water Supply Manual – Part 5 (Appendix A)*, November 1, 1997.
[12] Several water conservation planning manuals also have suggested systems of water accounting. One that contributed to the method proposed in this article appeared in the *Water Conservation Manual* published by the New York State Department of Environmental Conservation (January 1989).

its Annual Statistical Report for Community (COM) Public Water Systems and Non-Transient Non-Community (NTNC) Public Water Systems, the Massachusetts Department of Environmental Protection requires systems to identify the reasons for the unaccounted-for water, as well as the measures that will be implemented to correct the problem. According to the required form:

> If your system has 15% or greater unaccounted water or uses 100,000 gallons per day or greater and has any % unaccounted for water, please indicate in the table below the possible reason(s) for your unaccounted for water and your plans to correct these problems. Please note that during or before your next Sanitary Survey DEP staff will evaluate your progress with the corrective actions plans as indicated.[13]

In a like manner, the Ohio Public Utility Commission requires each waterworks company to annually report unaccounted-for water and also to propose remedial actions if unaccounted-for water exceeds 15 percent. The West Virginia Public Service Commission also requires a statement of remedial actions to be taken if the utility indicates unaccounted-for water greater than 15 percent in its annual report.

The New York Department of Health requires water suppliers to prepare an annual Drinking Water Quality Report that includes an accounting of the total amount of water withdrawn, delivered, and lost from the system. The Texas Water Board provides detailed worksheets for calculating unaccounted-for water in their Drought Planning Guide. Finally, the Public Service Commission of Wisconsin requires utilities to maintain a ongoing record that compares water pumpage with metered consumption.

Standards and Benchmarks

The imprecision of the definitions of water losses carries over to the establishment of standards and benchmarks. The survey confirmed the lack of clear consensus on standards. Twenty-eight agencies (representing twenty-three states and the three regional authorities) reported the use of some standard or benchmark for water losses. Table 2 presents standards for "unaccounted-for water" from a select number of jurisdictions. The reported standards range from 7.5 to 20 percent, with 15 percent being most common. The percentages refer generally, but rather vaguely, to water losses relative to production.

[13] Massachusetts Department of Environmental Protection, "2001 Public Water System Annual Statistical Report for Community (COM) Public Water Systems and Non-Transient Non-Community (NTNC) Public Water Systems." http://www.state.ma.us/dep/brp/dws/files/comntnc.doc

Table 2
Selected State Standards for Unaccounted-for Water

State	Agency	Standard
Arizona	Department of Water Resources	10% (large) 15% (small)
California	Urban Water Conservation Council	10%
Florida	Southwest Florida Water Management District	12% or less
Florida	St. Johns River Water Management District	10%
Georgia	Environmental Protection Division	Less than 10%
Indiana	Department of Environmental Management	10 to 20%
Kansas	Kansas Water Office	15%
Kentucky	Department of Energy, Water and Sewer Branch	15%
Louisiana	Department of Environmental Quality	15%
Massachusetts	Department of Environmental Protection	15%
Minnesota	Department of Natural Resources	10%
Missouri	Department of Natural Resources	10%
North Carolina	Division of Water Resources	15%
Ohio	Public Utility Commission and Environmental Protection Agency	15%
Oregon	Water Resources Division	10-15%
Pennsylvania	Public Utility Commission	20%
Pennsylvania	Bureau of Water and Wastewater Management	10-15%
Rhode Island	Water Resources Board	10-15%
South Carolina	Public Service Commission	7.5%
South Carolina	Department of Health and Environmental Control	10%
Texas	Water Development Board	10 to 15%
Texas	Natural Resources Conservation Commission	20%
Washington	Department of Health	20% (10% proposed)
West Virginia	Public Service Commission	15%
Wisconsin	Public Service Commission	15% (large) 25% (small)
Delaware River Basin Commission	Delaware River Basin Commission	15%

Source: Survey of states.

According to the review, only Arizona, Texas, and Wisconsin established different standards for water systems based on their type or size. The Texas Water Development Board, for example, has found that "unaccounted for water rates above 15 percent for municipal systems and slightly higher (15% to 18%) for wide-spread rural systems indicate the need for immediate actions."[14]

Goals and Targets

Eighteen (18) state agencies and the two Florida water management districts mentioned a goal or target for water-loss reduction. In most cases the goal or target is for the utility to meet the standard or benchmark for unaccounted-for water discussed in the previous section. Goals often are stated in relatively vague terms.

For example, the Florida Department of Environmental Protection, Water Resource Implementation Rule declares that, "The overall water conservation goal of the state shall be to prevent and reduce wasteful, uneconomical, impractical, or unreasonable use of water resources..."Districts shall further accomplish this water conservation goal by:...3. Minimizing unaccounted for water losses..."[15]

The Minnesota Department of Natural Resources provides a time period target of three years for a water supplier to reduce unaccounted-for water:

> If unaccounted-for water exceeds 20% of total water appropriations the public water supplier's water appropriation permit is amended to require the implementation of measures to reduce unaccounted-for water volumes within 3 years. The generous targets of 20% and 3 years are intended to provide sufficient time and resources for small systems...[16]

The Kansas Water Office is the only agency in the sample to specify a particular target year. The agency plans to reduce the number of public water suppliers with excessive unaccounted-for water by the year 2010.

Planning Requirements

For twenty-seven (27) of the agencies in the sample, water-loss issues are addressed in the context of planning requirements. In almost every case, the planning requirement is for water conservation, supply, or emergency planning. For example, the Connecticut Department of Health requires water suppliers to

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[14] Texas Water Development Board, 2.
[15] Florida Statute, CHAPTER 62-40 Water Resource Implementation Rule 62-40.412 Water Conservation. http://www.dep.state.fl.us/water/rules/62-40.pdf
[16] Jim Japs, Supervisor, Water Permit Programs, MN Department of Natural Resources, Division of Waters, survey information.

discuss current leak detection and repair and pressure-reduction programs in their Water Supply Plans. In Nevada each water supplier must "identify and reduce leakage in water supplies, inaccuracies in water meters and high pressure in water supplies"[17] in its required water conservation plan. In Vermont, the Department of Environmental Conservation requires systems to prepare a water conservation plan that, "at a minimum, addresses the following: (a) evaluation of system water use efficiency, including evaluation of extent of unaccounted-for water, water accounting, and loss control."[18]

The Texas Natural Resources Conservation Commission includes more specific requirements in their water conservation plans:

> All water conservation plans for municipal uses by public drinking water suppliers shall include the following elements: (E) measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.). For Systems serving 5,000 or more population the plan must include "a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water" For wholesale water suppliers, plans must include goals for "maximum acceptable unaccounted-for water"[19]

New Hampshire and Virginia require water-loss management plans in connection with all new groundwater withdrawals. The Kansas Water Office requires a water utility to implement a water management review every time the amount of unsold water exceeds 20 percent of the total raw-water intake for a four-month time period.

Compilation and Publication

Only nine state agencies and one Florida water management district appear to compile or publish data on water losses. Two agencies, the Hawaii Department of Water Supply and the Southwest Florida Water Management District compile water loss data but do not publish this information for public consumption. In some states, such as Minnesota, water-loss data is only available through annual reports or planning documents. The Kansas Water Office compiles data on unaccounted-for water and publishes it in the Kansas Municipal Water Use Report, which is available

[17] Nevada Revised Statutes (NRS), NRS 540.141.
[18] Vermont Environmental Protection Rules, Chapter 21,revised December 29, 2000: Appendix B, Long Range Plan Requirements.
http://www.anr.state.vt.us/dec/watersup/wsrule/WSRuleDecember2000.pdf
[19] Texas Rules, Chapter 288 Subchapter A: Water Conservation Plans 288.1-288.6 Effective April 27, 2000. http://www.tnrcc.state.tx.us/oprd/rules/pdflib/288a.pdf

online. The office currently lists sixty-one (61) systems with unaccounted-for water amounting to 30 percent or more.

Technical Assistance

Eighteen (18) state agencies and one Florida water management district in the sample provide some amount of technical assistance to water utility systems to help reduce water losses. In Kansas, technical assistance is provided to any public water supplier upon request. The Kansas Rural Water Association provides on-site technical assistance at no charge. In Texas, technical assistance, classes, and training are available from a number of providers, including the Texas Natural Resources Conservation Commission, Texas Water Development Board, Texas Water Utilities Association, the Texas Engineering Extension Service, and the Community Resource Group.

The Kentucky Infrastructure Authority implements a program to assist systems in detecting water losses from distribution lines. The program includes both audits and low-interest loans:

> The authority shall establish a program to assist governmental agencies in detecting water loss from distribution lines. The program may include contracting with third parties to conduct water loss audits and leak detection. The program may include giving low interest loans, on a priority basis established by the authority consistent with the findings and purposes set out in section 1 of this act, for the repair or replacement of distribution facilities, deemed reasonable by the authority, undertaken as a result of the water loss audit.[20]

Performance Incentives

Only eleven (11) state agencies and one Florida water management district in the sample indicated the use of performance incentives for water loss reduction, broadly defined for the purpose of this study. Minnesota and Rhode Island consider the approval of a conservation plan or permit as a performance incentive. The Rhode Island Water Resources Board, for example, requires attention to water-loss reduction for approval of Water System Supply Management Plans. The Vermont Department of Environmental Conservation reported that fees might be slightly lowered as incentive for water-loss reduction. The Texas Natural Resources Conservation Commission, a price regulator for some systems, reports that a system's rate of return may be affected by excessive line losses.

[20] 2000 Ky. Acts 529; 2000 Ky. Ch. 529; 2000 Ky. SB 409

Four states (Indiana, Iowa, Louisiana, and North Carolina) mention water losses in their state revolving loan fund (SRF) applications. In some instances, higher rates of water loss might actually result in greater benefits. For example, Louisiana assigns extra points to loan applicants experiencing unaccounted-for water greater than 15 or 25 percent. Although such incentives might appear "perverse," the intention is to identify systems most in need of assistance. Moreover, loan provisions generally require a plan to reduce losses.

Thus, Iowa assigns ten points to SRF applicants that plan to rectify excessive water losses per the established water conservation plan if unaccounted-for water is more than 15 percent. North Carolina's funding programs place a particular emphasis on water losses. The Drinking Water Treatment Fund awards up to 20 points for projects that replace undersized or leaking water lines. For the state's Clean Water Bond Loan Program and Clean Water Revolving Loan and Grant Program, five points are given if "An applicant demonstrates it has a continuing water loss program in its water supply system program."[21]

Auditing and Enforcement

Fifteen (15) agencies in the sample call for some type of auditing or enforcement. Generally, these policies are basic auditing requirements. None of the jurisdictions covered by the survey were found to impose direct sanctions (such as fines) on systems failing to meet water-loss related requirements.

Auditing includes any agency review of the water utility's annual report or planning documents. Utility's might also be required to conduct a periodic water audit. For example, the St. Johns River Water Management District requires all consumptive use permit applicants to complete a water audit, paying special attention to unaccounted-for water:

> If the total unaccounted for loss of the system from line 4F is 10% or greater, the applicant is required to evaluate the feasibility of completing the leak detection survey found on the water audit form. The applicant has the option to perform the leak detection immediately or to propose a one year program to improve water use accountability to below 10% and then to repeat the audit. If the second audit shows unaccounted-for water loss above 10%, the permittee must implement the leak detection program where feasible.[22]

[21] North Carolina Public Water Supply Section, Chapter 1 - Departmental Rules, Subchapter 1 L - State Clean Water Bond Loan Program Section 0.100 - General Provisions
[22] St. Johns Water Management District, *Instructions for Completing the District Water Audit Form.*

The Minnesota Department of Natural Resources audits annual reports and also requires an audit of unaccounted-for water when reviewing each permit request. Public water suppliers with losses exceeding 20 percent must provide an annual report of actions being implemented to reduce unaccounted-for water. The Kansas Rural Water Association closely audits all public water suppliers with 30 percent or more unaccounted-for water. Quarterly monitoring is required until two consecutive quarterly reports show 20 percent or less unaccounted-for water.

As an example of potential enforcement, the Ohio Public Utility Commission requires a water company to notify the Commission if it cannot comply with water-loss requirements. The company is given thirty days to take corrective actions and submit a report to the Commission. "The compliance division of the commission shall, after reviewing the report, notify the company of any further necessary actions."[23]

Case Studies

Six cases are highlighted here because they represent significant water-loss policy developments at the state and regional levels.

Arizona Department of Water Resources

Most water-loss requirements in Arizona are implemented through the states five Active Management Areas (AMA). Each AMA must submit a yearly Management Plan, which requires all municipal suppliers to report their unaccounted-for water.

Arizona applies a relatively specific working definition of unaccounted-for water:

> Lost and unaccounted for water is defined as the total water from any source, except direct use effluent, withdrawn, diverted, or received in a year minus the total amount of authorized deliveries made by the municipal provider in that year.[24]

Lost and unaccounted-for water includes leaks (from distribution lines, sewer lines, storage tanks, storage ponds, hydrants), breaks (from distribution lines, sewer lines, mains, hydrants), measurement errors (meter under/over-registration, source meter errors, flumes/weirs errors), evaporation, illegal connections/water theft, and phreatophyte uses.[25]

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[23] Ohio Administrative Rule 4901:1-15-22 OAC.
[24] Arizona Department of Water Resources, *Third Management Plan for Phoenix Active Management Area, 2000-2010.*
[25] Ibid.

Arizona is one of only two jurisdictions (along with Wisconsin) that has established different water-loss standards for small and large systems. Small municipal providers are required to maintain lost and unaccounted-for water at or below 15 percent while large municipal providers are required to maintain lost and unaccounted-for water at or below 10 percent. Large systems that are unable to operate and maintain their distribution systems to meet the 10 percent requirement are required to line all canals used to deliver untreated water to delivery points with a material that allows no more lost water than a well-maintained concrete lining.

All municipal providers are required to annually report to the Arizona Department of Water Resources the total quantity of lost and unaccounted-for water during the calendar year, as well as the percentage of water lost and unaccounted for.

Municipal providers also are required to include per-capita usage estimates in their yearly report, the calculation of which considers lost and unaccounted-for water. Lost and unaccounted-for water is calculated accordingly:

1. Subtract the calendar year total residential, non-residential, and system-related deliveries from the calendar year total non-irrigation water use to obtain the lost and unaccounted for water volume, in acre-feet.
2. Divide the lost and unaccounted for water volume by the total non-irrigation water use for the calendar year and multiply the result by 100.
3. If the product from D.1. is *less than* ten percent, the result is the volumetric allotment, in acre-feet, for lost and unaccounted for water for the calendar year; **or** if the product from D.1. is *greater than* ten percent, multiply the total water use for the calendar year by ten percent. The result is the volumetric **Lost and Unaccounted For Water Allotment,** in acre-feet, for the calendar year.[26]

Kansas Water Office

Kansas has one of the most comprehensive programs for unaccounted-for water among the surveyed jurisdictions. The Kansas program for unaccounted-for water is articulated primarily through the state's annual water plan. The Kansas Water Office is mandated by law to "formulate on a continuing basis, a state water plan for the management, conservation and development of the water resources of the state."[27] The planning process is coordinated with various local, state and federal agencies, special interest groups, and the general public:

[26] Ibid.
[27] State Water Resource Planning Act (K.S.A. 82a-903 *et seq.*).

> The Kansas Water Office defines unaccounted for water as... the amount of water that a public water supplier pumped and/or purchased from other entities; minus all metered amounts (either sold or distributed free). Metered amounts include sales to other public water suppliers; large industrial, bulk or livestock water users; and residential and commercial customers; as well as metered free water (such as swimming pools, golf courses, community buildings, water treatment process, etc).[28]

One of the two primary objectives of the Kansas Water Plan is to, "By 2010, reduce the number of public water suppliers with excessive 'unaccounted for' water by first targeting those with 30 percent or more 'unaccounted for' water."[29] In addition to the focus on systems with very high losses, the plan also targets systems with losses exceeding 15 percent because "15% was the average percent of unaccounted for water for public water suppliers in 1997, and is a reasonable amount for unfinished water."[30]

Water suppliers are required to report their unaccounted-for water in an annual water report. Failure to submit an annual report is subject to a fine and providing false information is considered a class C misdemeanor. Furthermore, most water suppliers are also required to submit a water-conservation plan. One of the long-term water-use efficiency practices required of water utilities is the implementation of:

> .... a water management review, which will result in a specified change in water management practices or implementation of a leak detection and repair program or plan, whenever the amount of unsold water (amount of water provided free for public service, used for treatment purposes, water loss, etc.) exceeds 20 percent of the total raw water intake for a four month time period.[31]

The Kansas Municipal Water Use Report keeps a current compilation of all water losses in the state of Kansas. The annual and average percent of unaccounted-for water for all public water suppliers in the state is compiled and published by the Kansas Water Office.[32]

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[28] The Kansas Water Office, "2010 Objectives Basin Assessment, Unaccounted For Water Assessment." http://www.kwo.org/assess/unaccount/main.html

[29] The Kansas Water Office, "The Kansas Water Plan, Fiscal Year 2003,' July 2001. http://www.kwo.org/kwp/fy2003kwp.html

[30] ibid.

[31] The Kansas Water Office, "Kansas Municipal Water Conservation Plan Guidelines." http://www.kwo.org/reports/1990_WCP_Guidelines/index.htm

[32] This report is available online at http://www.kwo.org/reports/1999_mwur/index.htm.

Kansas is also one of the few states surveyed that operates a program for technical assistance for water suppliers to reduce water losses. The Kansas Water Office funds on-site technical assistance through the Kansas Rural Water Association to suppliers with 30 percent or more unaccounted-for water. Assistance includes leak detection, meter testing and replacement, and bookkeeping reviews. Technical assistance for preparing water conservation plans is also provided to public water suppliers.

Kansas has a strict auditing program for water suppliers with excessive water losses. The Kansas Rural Water Association monitors public water suppliers with 30 percent or more unaccounted-for water on a quarterly basis. Monitoring continues until two consecutive quarterly reports show unaccounted-for water of 20 percent or less.

The Kansas Water Office reports that their water-loss program has significantly reduced the amount of unaccounted-for water in the state. They project that the amount of unaccounted-for water in excess of 15 percent of total water use for Kansas will be reduced by 82 percent by the target year of 2010.[33]

Minnesota Department of Natural Resources, Division of Waters

Minnesota's water-loss policy is implemented in conjunction with the state's requirement for water emergency and conservation plans. System plans must address demand-reduction measures associated with plan and permit approvals, as well as water losses and unaccounted-for water.[34] An approved water emergency and conservation plan is required as part of the Wellhead Protection Plan and for applications to the State Drinking Water Revolving Fund.

Despite the emphasis on the water-loss issue, Minnesota policy is not guided by clear operational definitions. Unaccounted-for water is simply defined as water withdrawals minus water sales. Water loss is one component of unaccounted-for water. According to a state official, water suppliers estimate their own water loss, using methodologies that are "inconsistent and some times questionable."[35]

The Minnesota Department of Natural Resources (DNR) has required annual reporting of unaccounted-for water for communities serving more than 1,000 people since 1994. Because of inconsistent and questionable methodologies for determining unaccounted-for water, the Minnesota DNR has assumed the task of calculating unaccounted-for volumes based on total water withdrawals less water sales.

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[33] The Kansas Water Office, "The Kansas Water Plan, Fiscal Year 2003," July 2001. http://www.kwo.org/kwp/fy2003kwp.html

[34] See Minnesota Statutes 2001, 103G.291, Subd. 3 a-c. http://www.revisor.leg.state.mn.us/stats/103G/291.html

[35] James Japs, Minnesota DNR Water, survey response.

Minnesota has set a standard for water losses at less than 10 percent. According to the state's water appropriation permit program:

> Cities should establish a goal for unaccounted-for water (the AWWA recommends less than 10 percent) and monitor unaccounted-for water volumes each month or billing period. Water audit, leak detection, and repair programs should be implemented when unaccounted-for water is higher than the goal.[36]

However, Minnesota has set a more lenient target for public water suppliers with high rates of water loss. "If unaccounted-for water exceeds 20% of total water appropriations the public water supplier's water appropriation permit is amended to require the implementation of measures to reduce unaccounted-for water volumes within 3 years."[37] It is believed that this more lenient goal will give small systems a reasonable amount of time and resources to reduce water loss.

The Minnesota DNR audits all annual water-report forms. Furthermore, an audit and evaluation of unaccounted-for water is conducted in connection with each permit request. If a public water supplier exceeds 20 percent unaccounted-for water, the system must provide an annual report of actions being implemented to reduce unaccounted-for water.

Pennsylvania Public Utility Commission and
Pennsylvania Bureau of Water Supply and Wastewater Management

In Pennsylvania, both the Public Utility Commission and the Bureau of Water Supply and Wastewater Management implement policies that address the issue of water loss. The Public Utility Commission, an economic regulatory agency, requires evidence of the reasonableness of unaccounted-for water claims greater than 20 percent. This policy was adopted in a general waterworks rate-case order. According to the order:

> In the future, water companies with experienced unaccounted-for water of more than 20%, should be prepared to demonstrate by way of substantial evidence that their experience is both normal and reasonable. Such evidence may be a combination of engineering, operations or historical testimony and data, but

[38] Minnesota Water Appropriation Permit Program - "Conservation Measures for Water Supply Systems"
http://www.dnr.state.mn.us/waters/programs/water_mgt_section/appropriations/pwsconserve.html
[37] James Japs, Minnesota DNR Water, survey response.

it should consist of something more than unsupported or conclusory opinions by Company witnesses.[38]

The Commission requires regulated water suppliers to submit data that complies with this directive, including a description of leak-survey programs. As part of their annual report to the Commission, systems are required to complete a form on water delivered into the system during the year. The form requires suppliers to report unavoidable leakage in terms of gallons-per-day per mile of main, located and repaired breaks in mains and services, total unaccounted-for water, and percentage of unaccounted-for water.

The Bureau of Water and Wastewater Management in the Pennsylvania Department of Environmental Protection (DEP) also regulates unaccounted-for water. The Public Water Supply Manual explains the department's water-loss policy and specifies the procedures for staff to follow when they review and evaluate public water supplier's Operations and Maintenance Plans.

Although the DEP defines unaccounted-for water simply as water that is produced but not sold or used, some detail is provided about the particular factors that should be considered when assessing unaccounted-for water:

1. The water produced – Is this quantity accurately determined, has the meter been calibrated, does the meter measure all of the water?
2. The water used for water system purposes such as chemical feed water, backwash water, fire hydrant and blow-off flushing – How is each of these uses measured?...
3. The water sold or used by the consumer must be accurately accounted for. A meter testing program should be in place to periodically test the accuracy of the meters. All consumer use must be accounted for...
4. Water used for fire fighting purposes – This water only can be estimated, but some careful calculations by the fire company and the water system can develop a reasonable value.[39]

The calculation of unaccounted-for water involves subtracting the amount of water sold or used from the water available for sale. The DEP recommends using a one-year period for the calculation to mitigate the effects of metering and seasonal variations.

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[38] Pennsylvania Public Utility Order, Dauphin Consolidated Water Supply Company @ R-79050616, July 2, 1981.

[39] Pennsylvania Department of Environmental Protection, Bureau of Water Supply Management, "Public Water Supply Manual – Part V,"
http://www.dep.state.pa.us/dep/subject/all_final_technical_guidance/bwsch/383-3110-111.htm

The Pennsylvania DEP recommends the AWWA standard of 10-15 percent for unaccounted-for water. However, the department also notes the relevance of a number of systems-specific considerations:

1. The age and condition of the system...A range of 35 to 40 percent may be acceptable until funds for replacement of mains is available;
2. The pressure in the system can affect the rate of leakage. Thus high pressure systems may have a higher percentage of unaccounted-for water;
3. The number of customers per mile of main can affect the unaccounted-for water. Therefore, if a system has a high ratio of miles of pipeline to the number of customers, the percentage of unaccounted-for water will increase;
4. Under-registration of customer meters or unauthorized uses can increase the percentage of unaccounted-for water.[40]

Pennsylvania policy also expressly considers the economic value of water losses. The state recommends that systems "Calculate the cost of producing a thousand gallons or one hundred cubic feet of water and then calculate the amount of money which is being 'lost' as unaccounted-for water each month. By identifying this cost, you can justify the cost of the programs to correct the problem."[41] Suggested programs include meter testing, leakage control program that focuses on detection, and record keeping to support a main-replacement program.

These requirements and recommendations are incorporated in the review and evaluation of the Operations and Maintenance Plans that public water suppliers must prepared in accordance with the DEP's drinking water management programs.

The DEP's Water Allocation Permit system also requires systems to implement a continuous water conservation program, which must include an ongoing leakage and loss control program. Permit holders must initiate a study to develop a plan to reduce unaccounted-for water within one year of the date of the permit and reduce losses to 20 percent or less within five years of the date of the permit.

Finally, the DEP provides free leak-detection services to water suppliers that agree to follow program requirements, including a yearly water audit through a partnership agreement with the Pennsylvania Rural Water Association.

Delaware River Basin Commission

The Delaware River Basin Compact was enacted in 1961 to address water-resource issues on a regional basis. The member states include Delaware, New Jersey, New York, and Pennsylvania. The governing commission is composed of

[40] Ibid.
[41] Ibid.

five members, one from each state and one representing the federal government. The Delaware River Basin Commission (DRBC) has wide authority in the area of water-resource planning and management agencies in the basin. This authority extends to water efficiency and such areas as metering, conservation, billing, and water losses.

The DRBC policy on water loss is established in Resolution 87-6 (revised), requiring owners of water-supply systems serving the public to "undertake a systematic program to monitor and control leakage within their water supply system. Such program shall at a minimum include: periodic surveys to monitor leakage, enumerate unaccounted-for water, and determine the current status of system infrastructure; recommendations to monitor and control leakage; and a schedule for the implementation of such recommendations." After the initial submission of a leak-detection and repair plan, systems are required to submit new plans every three years. Plans are submitted to the respective state regulatory agency for review and approval.

The DRBC uses a very simple calculation for water loss. Unaccounted-for water is the difference between the metered ratio and 100 percent. A standard of 15 percent water loss is suggested and systems that exceed this standard may be subject to more frequent reporting. According to one official, "DRBC's regulatory objective is to reduce overall unaccounted-for water to 15 percent or less by 2020."[42]

Water loss is considered an integral part of the DRBC's overall water-conservation programs. All water purveyors planning a new or expanded water withdrawal must submit a water-conservation plan that discusses source metering, service metering, leak detection and repair, and water conservation performance standards. Although the conservation plan provides no specific incentives for implementation, incentives are more direct in connection with withdrawals; new projects, such as new withdrawals, will not be approved until adequate leak detection and repair programs are implemented.

The DRBC does not provide direct technical assistance to water utilities to help reduce water losses. Nor does the commission require detailed water audits or exert substantial enforcement activity. Still, much of the progress in reducing water losses in the Delaware River Basin is attributed to the DRBC regulations.

St. Johns River Water Management District (Florida)

The St. Johns River Water Management District (SJRWMD) requires the issuance of permits for large-volume water users in accordance with the "Permitting of

[42] Jeffrey Featherstone, 'Conservation in the Delaware River Basin," *Journal American water Works Association* (January 1996): 48.

Consumptive Uses of Water" rule.[43] All applicants for a consumptive-use permit must complete a thorough water audit. The water audit requires identification of water losses in the treatment process and in the distribution system. Applicants must identify all water uses, as well as total unaccounted-for water and the percentage of unaccounted-for water.

Conservation is required as part of all consumptive-use permits. In order to obtain a consumptive-use permit (CUP) from the SJRWMD, "all available water conservation measures must be implemented unless the applicant demonstrates that implementation is not economically, technically, and environmentally feasible."[44] Water-loss reduction is a recognized water conservation measure. Permit applicants must also conduct a meter survey to account for and correct meter error if unaccounted-for water is 10 percent or greater based on the initial water audit.

SJRWMD has one of the strictest requirements for leak detection. According to the applicant's handbook:

> An applicant whose water audit...shows greater than 10% unaccounted for water use, must complete the leak detection evaluation portion of Form 40C-22-0590-3. Based upon this evaluation, an applicant may choose to implement a leak detection program immediately or develop an alternative plan of corrective action to address water use accountability and submit a new water audit to the District within two years. If the subsequent audit show greater than 10% unaccounted for water, the applicant must implement a leak detection and repair program within one year unless the applicant demonstrates that implementation is not economically feasible. In all cases, this evaluation and repair program may be designed by the applicant to firs address the areas which are most suspect for major leaks. The evaluation and repair program may be terminated when the permittee demonstrates that its unaccounted for water loss no longer exceeds 10%.[45]

The leakage evaluation must include the following items:

- Potential water system leakage
- Annual potential system leakage
- Recoverable leakage (assumes 50%)
- Production cost per million gallons
- Recoverable savings
- Estimated cost of leak detection survey
- Estimated recovery period

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[43] Florida Administrative Code, Chapter 40C-2.
[44] Florida Administrative Code, Chapter 40C-2.301 (4).
[45] St. John's River Water Management District, *Applicant's Handbook: Consumptive Uses of Water, Chapter 40C-2, F.A.C.* http://www.sjrwmd.com/Excite/index.html.

The consumptive-use permit will not be issued until the applicant addresses water leaks and losses.

Conclusions

The results of the survey and analysis, summarized in Table 3, suggest a fair amount of state and regional policy activity regarding the issue of water losses. However, the prevailing policies are not entirely clear, consistent, or operational. Most of the identified policies are raising much-needed awareness of the loss issue and promoting better accounting and reporting, but most do not necessarily impose consequences through incentive or enforcement mechanisms.

The findings confirm the need to refine the definitions, measures, and standards for evaluating water losses. A uniform approach, advanced and adopted by authoritative organizations in the water industry, could play a vital role in policy development. It is not uncommon for public policies to refer to authoritative sources with regard to technical standards, such as those that might be developed for water losses.

A precursor to further policy development is the establishment of a uniform system of water accounting and the collection of valid and reliable data on water losses. Better accounting will promote a common understanding of the water-loss issue, as well as appropriate benchmarks and standards. Eventually, best practices for water accounting and loss management may emerge and find reflection in water-loss policies, as future surveys might reveal.

Table 3
Summary of Findings

Issue	Jurisdictions	States (n = 43)	Other (n = 3)	Total (n = 46)
Water-loss policy	AZ, CA, CT, FL, GA, HI, IN, IA, KS, KY, LA, MD, MA, MN, MD, NV, NH, NY, NC, OH, OR, PA, RI, SC, TN, TX, UT, VT, VA, WA, WV, WI, WY, DRBC, SWFWMD, SJRWMD	33	3	36
Definition of water loss	AZ, CA, GA, HI, KS, MD, MA, MN, MO, OR, PA, RI, SC, TX, WI, DRBC, SJRWMD	15	2	17
Accounting and reporting	AZ, CA, GA, HI, IA, KS, KY, MD, MA, MN, MO, NY, OH, OR, PA, RI, TX, WV, WI, WY, SWFWMD, SJRWMD	20	2	22
Standards and benchmarks	AZ, CA, GA, HI, IN, KS, KY, LA, MD, MA, MN, MO, NC, OH, OR, PA, RI, SC, TX, UT, WA, WV, WI, DRBC, SWFWMD, SJRWMD	23	3	26
Goals and targets	AZ, CA, FL, GA, HI, KS, KY, ME, MD, MN, MO, NM, OH, OR, PA, RI, TX, WI, SWFWMD, SJRWMD	18	2	20
Planning requirements	AZ, CA, CT, FL, GA, HI, IA, KS, MD, MA, MN, MO, NV, NH, OR, PA, RI, SC, TX, VT, VA, WA, WV, WI, SWFWMD, SJRWMD, DRBC	24	3	27
Compilation and publication	AZ, CA, HI, KS, KY, MN, PA, RI, WI, SWFWMD	9	1	10
Technical assistance	AK, CA, FL, GA, HI, KS, KY, ME, NV, ND, OR, PA, RI, SC, TN, TX, VT, WI, SWFWMD	18	1	19
Performance incentives	CA, GA, HI, IN, IA, LA, MN, NC, RI, TX, VT, SJRWMD	11	1	12
Auditing and enforcement	AZ, GA, HI, KS, MD, MN, NH, OH, OR, PA, SC, TX, WI, SWFWMD, SJRWMD	13	2	15

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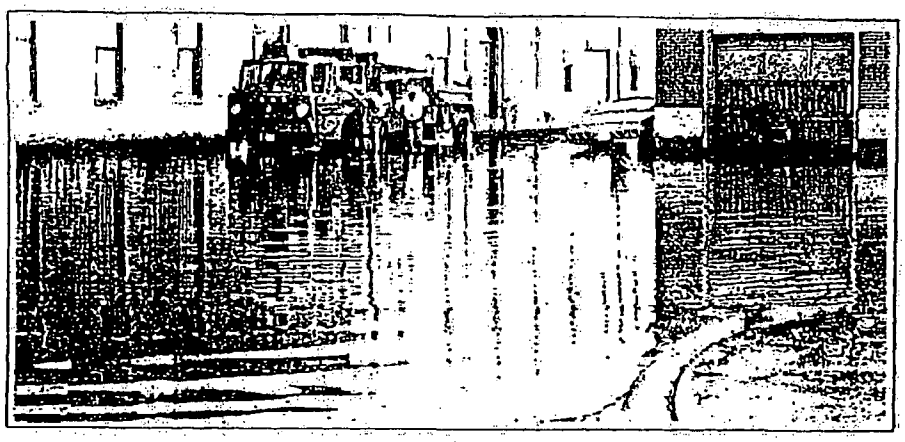
Rebuttal Testimony

Of

Patrick Flynn

Exhibit: AWWA UWL Analysis 1976



Analysis of Unaccounted-for Water

Charles W. Keller

An annual conference paper selected by the JOURNAL authored by Charles W. Keller (Active Member, AWWA), exec. partner, Black & Veatch (Consultant Member, AWWA), Consult. Engrs., Kansas City, Mo.

This article examines statistics on unaccounted-for water based on AWWA's Survey of Operating Data. Comparisons are made of distribution losses for reporting water systems by size, location, ownership, and other variables. Reasons for and causes of unaccounted-for water are also discussed.

The percentage of unaccounted-for water in a system has become a measure of not only the physical condition of the system but of the system management as well. This is understandable when the reasons for unaccounted-for water are examined.

Most water systems meter water pumped to the distribution system, and withdrawn water is measured by a summation of usage through consumers' meters. The difference, with or without further refinement, is usually referred to as unaccounted-for water. Most systems do not meter water used in fighting fires or that used in flushing streets and sewers. Some systems do not meter water furnished without charge, such as that used in parks, municipal buildings, or schools. In reporting unaccounted-for water some utilities estimate known unmetered water use, others do not, thus making such statistics difficult to compare.

Causes

To the layman, the most common assumption is that unaccounted-for water is caused by leakage in the system. Although leakage is probably a principal cause of water loss, it is not the only major reason for unaccounted-for water. Leakage can be controlled within reasonable limits, but probably never completely eliminated.

Incorrect meter reading is another major reason for unaccounted-for water. This can be the result of inaccuracies of either the meters measuring input to the system or the consumers' meters. Several years ago a city had an apparent 37 per cent loss of water pumped to the distribution system. Recalibration of the plant venturi meter reduced this apparent loss by 20 per cent. Conversely a plant meter that underregisters the water pumped to the system can produce extremely low unaccounted-for water statistics.

Under registration of consumers' meter has long been known as a contributor to unaccounted-for water. Since such a deficiency not only causes operating statistics to appear bad and directly affects revenues, an adequate meter-testing and repair program should be a part of every water utility. Practice on customer-meter maintenance varies considerably over the country. Some utilities test and maintain all meters at regular intervals, ten and fifteen years being typical periods, whereas others service only meters that are inoperative. From an economic standpoint the amount of money that can be spent on meter maintenance is related to the value of water sold. A water utility with $1 million-a-year revenue can afford to spend $10 000/year on meter testing and maintenance for each 1 per cent increased accuracy that can be sustained in meter registration. In one city an immediate financial crunch led to the abandoning of a meter-test program that was never reinstituted. The result after several years was that 20 per cent of the residential meters were inoperative.

Unauthorizd use of water by illegal taps and illegal withdrawals from fire lines and hydrants is another source of unaccounted-for water. Detector check meters on private fire lines and vigilance of public hydrants and tapping activity should reduce this cause of loss.

In systems that have any unmetered, or flat-rate customers, the statistics regarding unaccounted-for water are only as good as the estimates made for water use by such customers. If there is any great proportion of unmetered customers in a system, even a small error in estimating customer use can make the statistics invalid.

Record-Keeping

In accounting for water, provision should be made for the following:

1. Care should be taken to be sure that meters measuring water entering the system are properly calibrated and read at frequent regular intervals. If the time period to be analyzed is short, the incoming quantity of water should be adjusted to reflect storage-tank draw down or fill. In longer periods, such as a year, such differences become negligible.
2. Treatment-plant use should be properly metered or estimated and recorded appropriately. A large-plant water use is filter wash water, which should not be overlooked.
3. All regular users of water, whether charged or not, should be metered and read regularly. This not only provides the only accurate method of accounting for water, but also provides a firm basis for declaring the value of free service.
4. Water used in fighting major fires or lost because of major main breaks should be estimated and recorded.
5. Water sold under temporary permits for construction, or to tank wagons, should be metered or estimated and recorded.
6. In calculating percentage of unaccounted-for water, care must be taken to recognize the lag in customer-meter readings as compared with measured quantities entering the system. This is particularly true if the period of calculation is short, such as a month, and the billing frequency is bimonthly or quarterly. In calculating on an annual basis, one should consider that the weight of such factors is less unless there has been substantial growth, or differences in year-end weather conditions from one year to the next. Any changes in billing frequency will affect the calculation unless properly recognized.

Statistical Analysis

For this analysis, statistics have been taken from both the 1965 and 1970 AWWA Surveys of Operating Data. In the 1965 survey data on three categories of nonrevenue producing water were requested: plant use, distribution losses, and free service. A number of utilities did not report nonrevenue water or if so, only in total with no breakdown given. A total of 476 water utilities in the 1965 survey reported distribution losses and were therefore selected for examination. Elimination of systems making no specific report on distribution losses in the 1965 survey resulted in elimination of all data from Alaska, Nevada, Utah, and Vermont.

In the 1970 survey a slightly different form of questionnaire was used. Information requested included quantity of water delivered to the distribution system, metered water sales, and estimated flat-rate sales. A percentage meter ratio was developed by dividing meter water sales by delivery to the distribution system. In the 1965 survey several systems allocated flat-rate water to various revenue water categories, and in the 1970 survey several systems known to have flat-rate customers reported no flat-rate water use. Thus in such cases the meter ratio as reported could not be totally relied upon as a measure of unaccounted-for water or compared directly with the 1965 survey.

For analysis of the 1970 data any system reporting flat-rate use was excluded, and any system with a meter ratio showing 40 per cent, or more losses and no flat-rate use, was examined and excluded if it was known to include unreported flat-rate use. Some systems reported the same quantity of water delivered to the distribution system as metered, obviously misunderstanding the request, and hence were not considered for analysis. These exclusions resulted in 354 water utilities from the 1970 survey being selected for examination. Elimination of systems from the 1970 survey resulted in the elimination of all data from Alaska, Idaho, Rhode Island, and Vermont.

Geographical. The distribution losses of the selected 476 cities from the 1965 survey averaged 9.50 per cent of the total water distributed. The percentage distribution losses were calculated by state, and the states so ranked, as shown on Table 1. This ranking shows Wyoming with the lowest total losses of 1.85 per cent and Louisiana the highest with 27.93 per cent.

The distribution losses from the 354 selected cities in the 1970 survey averaged 10.90 per cent, slightly higher than the 1965 survey. The state averages were calculated and the results shown on Table 2. This ranking shows Colorado with the lowest total losses of 1.33 per cent and West Virginia the highest with 27.60 per cent. No particular geographic pattern is apparent from either survey with states from all parts of the country at various rankings on the list.

Ownership. Distribution losses by type of ownership, public owned or investor, were compared with the following results:

	1965—*per cent*	1970—*per cent*
Government	9.38	10.93
Investor	11.00	10.60

The government-owned systems were 412 in number in 1965 and 354 in 1970, and the number of investor-owned systems totaled 64 in 1965 and 36 in 1970. In both surveys the averages by type of ownership are very close to the overall average, and reverse positions in the two comparisons.

Type of supply. A comparison was made of cities by type of supply, ground or surface, with these results:

	1965—*per cent*	1970—*per cent*
Ground supply	9.60	11.16
Surface supply	9.48	10.79

In both surveys surface supply systems had slightly less than average losses but not in any significant amount.

System size. The distribution loss by size of system was investigated by separating the reporting systems into five categories based on total annual system pumpage. The results are

	1965 No. of Losses Systems	1965 No. of Losses *per cent*	1970 No. of Losses Systems	1970 No. of Losses *per cent*
< 2 000 mil gal/year	259	10.84	212	14.99
2 000 – 5 000 mil gal/year	108	9.85	72	12.23
5 000 – 10 000 mil gal/year	53	9.86	36	11.42
10 000 – 50 000 mil gal/year	45	11.17	28	10.77
> 50 000 mil gal/year	11	8.17	6	9.02

The percentage loss appears generally to be lower as the pumpage increases, the major reversal of this trend in the 1965 survey being the 10 000 – 50 000-mil gal/year group. In reviewing the cities included in that grouping there are two with losses of 33.21 per cent and 23.91 per cent, which, if excluded, would reduce the group average to 9.85 per cent.

Annual revenue. The relationship of size to distribution loss was also measured based on total annual revenue with the following results:

	1965 No. of Losses Systems	1965 No. of Losses *per cent*	1970 No. of Losses Systems	1970 No. of Losses *per cent*
< $ 500 000/year	223	10.62	124	14.90
$ 500 000 – $1 000 000/year	106	10.18	91	13.20
$1 000 000 – $5 000 000/year	108	8.82	113	11.60
$5 000 000 – $10 000 000/year	24	13.29	14	10.02
> $10 000 000/year	15	8.25	12	9.89

TABLE 1

1965 *Survey*
State Rankings in Order of Distribution Loss as a Percentage of Total Distribution

State	Distribution Loss *per cent*	Number of Systems
1. Wyoming	1.85	2
2. Washington	2.91	12
3. New York	3.65	19
4. New Mexico	3.69	5
5. Michigan	3.80	19
6. Montana	4.00	2
7. Colorado	4.67	5
8. Kansas	4.98	7
9. Mississippi	5.30	4
10. Rhode Island	5.52	2
11. Oregon	5.99	6
12. Arkansas	6.20	8
13. Virginia	6.42	8
14. South Dakota	6.58	4
15. Arizona	6.59	3
16. California	7.02	62
17. North Dakota	7.42	2
18. New Jersey	7.48	7
19. Wisconsin	8.28	22
20. South Carolina	8.56	6
21. Oklahoma	9.36	4
22. Massachusetts	9.52	14
23. Nebraska	9.72	5
24. Texas	9.73	23
25. Minnesota	10.18	14
26. Florida	10.23	13
27. Missouri	10.33	9
28. Hawaii	10.38	2
29. Connecticut	10.48	10
30. Delaware	11.00	1
31. Iowa	11.18	10
32. Indiana	11.82	11
33. Georgia	12.68	4
34. Tennessee	13.32	11
35. Maryland	14.13	5
36. Ohio	14.44	28
37. Illinois	14.99	23
38. New Hampshire	16.67	1
39. Kentucky	16.76	10
40. Idaho	16.91	1
41. Alabama	17.16	9
42. Pennsylvania	17.80	37
43. West Virginia	17.82	3
44. Maine	18.19	6
45. North Carolina	27.29	11
46. Louisiana	27.93	6

TABLE 2

1970 *Survey*
State Rankings in Order of Distribution Loss as a Percentage of Total Distribution

State	Distribution Loss *per cent*	Number of Systems
1. Colorado	1.33	1
2. Utah	4.99	1
3. Nevada	5.80	1
4. Mississippi	6.12	2
5. Delaware	6.49	1
6. California	6.62	55
7. Connecticut	7.38	4
8. Washington	7.69	10
9. Wyoming	8.00	1
10. South Dakota	8.22	4
11. North Dakota	9.39	2
12. Virginia	9.42	11
13. Wisconsin	9.86	18
14. Washington, D.C.	9.94	1
15. North Carolina	10.00	4
16. Nebraska	10.10	5
17. Texas	10.48	21
18. Florida	10.57	12
19. New Jersey	11.24	7
20. Michigan	11.26	14
21. Arizona	11.33	6
22. Maryland	11.50	1
23. Georgia	11.73	3
24. Montana	11.79	2
25. Hawaii	12.00	3
26. New Hampshire	12.05	1
27. Indiana	13.24	10
28. Kansas	13.43	13
29. Kentucky	13.96	2
30. Arkansas	14.22	5
31. Oregon	14.32	6
32. South Carolina	15.22	3
33. New York	15.33	18
34. Oklahoma	16.07	1
35. Minnesota	16.64	12
36. Tennessee	16.81	8
37. Iowa	17.38	14
38. Massachusetts	17.43	4
39. Alabama	17.96	6
40. Ohio	17.97	17
41. Pennsylvania	18.25	14
42. Illinois	18.80	15
43. Missouri	19.75	5
44. New Mexico	20.01	4
45. Louisiana	21.29	3
46. Maine	22.44	2
47. West Virginia	27.60	1

The two systems in the 1965 survey with high losses in the 10 000–50 000-mil gal/year pumpage group are also in the $5 million – $10 million revenue range, producing the trend reversal. Again it appears that larger systems have a smaller percentage of loss.

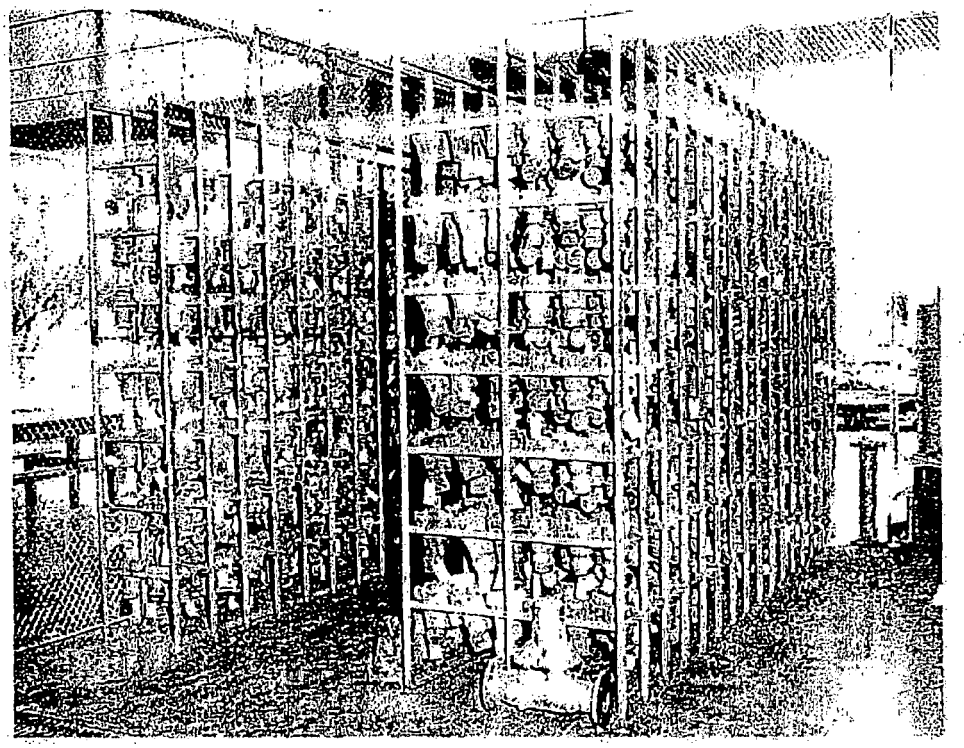
Value of water. To determine if there was any relationship between the unit value of the water lost and the percentage of loss, a comparison was made of the losses by ranges of average unit production cost per thousand gallons with the following:

	1965 No. of Losses		1970 No. of Losses	
	Systems	*per cent*	Systems	*per cent*
<20¢/ 1 000 gal	82	8.98	28	9.28
20¢– 30¢/ 1 000 gal	167	9.71	80	12.95
30¢– 40¢/ 1 000 gal	116	10.33	105	9.27
40¢– 50¢/ 1 000 gal	60	11.24	71	12.17
>50¢/ 1 000 gal	51	9.62	70	10.85

If general laws of economics were followed, it would be expected that as a commodity became more expensive, more care would be exercised to prevent its loss, hence the percentage losses would be lower. The tabulation, however, generally indicates the reverse of this. It should be noted that a number of the larger systems have the lower unit production cost; hence it appears that loss prevention may be occurring for reasons other than strict economic benefit. A possible reason might be that larger systems generally pay higher management salaries, and hence attract more competent and experienced personnel.

Ranking. In the study of 1965 data, all 476 water utilities were ranked in order of percentage loss, and the median system was found to be 9.14 per cent as compared with the average of 9.50 per cent. Twenty-five per cent of the systems had losses <4.45 per cent, and 10 per cent had losses <1.43 per cent. Conversely, 25 per cent of the systems had losses >14.65 per cent, and 10 per cent had losses >21.60 per cent.

In the study of 1970 data, the 354 selected utilities were ranked and listed in the same manner, and the median system had losses of 11.63 per cent as compared with the average of 10.90 per cent. Twenty-five per cent of the systems had losses <7.23 per cent, and 10 per cent had losses <4.00 per cent. On



Malfunctioning water meters can be a major reason for unaccounted-for water.

the other end of the scale, 25 per cent had losses >18.37 per cent, and 10 per cent had losses >25.51 per cent.

The data used in this analysis were only a small part of a large quantity of operating statistics, and it is believed that a proper amount of care might not have been exercised by some utilities in compiling the information. The small number of reporting utilities and lack of detail both served to produce a smaller-than-desired universe of data. A further complication exists in that it is known from personal experience that not all utilities keep statistics in the same manner; hence to this degree, like figures are not compared. Examples are known that both overstate and understate distribution losses; however, it is believed that the net effect on the average is to understate losses.

Excessive Loss

It is the author's opinion that systems with distribution losses of < 10 per cent can be rated excellent with 10–20 per cent losses in the reasonable range. If system losses exceed the 20 per cent level, the first thing that should be done is to examine the method of calculations suggested in this article to determine if the loss is real. After ascertaining that an excessive loss exists, the probable major causes should be attacked first. These include under registration of customer meters and major leaks.

Detection of major leaks can be accomplished by various methods, some of which might be peculiar to a given system. Leaks that produce aboveground flow are usually reported, and inspection of storm sewers in dry weather periods may disclose a flow that can be traced to a water-main leak. In this regard it may be desirable to establish a working relationship with local sewer utility personnel regarding their knowledge of extraneous flow. Furthermore, sections of the distribution system can be isolated, and a 24-hr recording made of inflow. Generally, large unexplainable night flows are indications of leaks. Further examination can determine the location and size of the leak with sonar equipment. A number of articles have been written over the years that explain methods of leak detection in more detail than possible in this article. Many utilities effectively employ specialized consultants for such leak-detection surveys.

In checking under registration of customer meters, the investigation should begin first with the large meters. Obviously a 4-in. or 6-in. meter, not properly recording, can account for far more loss than a 5/8-in. meter. Detector check meters on fire lines should also be inspected for unauthorized use. A program whereby meter readers report inoperative meters or meters with substantial consumption reductions can be initiated. If the utility employs computer billing, the billing process can include a listing of all accounts where consumption falls below a designated percentage of the consumption for a like period of the previous year. Such reports require follow-up to determine the reasons for the consumption changes. Any meter maintenance program developed should consider separately and place the most emphasis on the larger meters serving industrial and large commercial customers.

Summary

In summary it is a basic truth that unaccounted-for water will always exist in water utilities. This fact may not be understood by laymen. However, good management can keep the quantity within reasonable limits.

68644 5000

R - 2936

Late-Filed Hearing Exhibit 34

Contract document between CWS and York County approved by PSCSC by Order 92-537 and referring to 15% allowance for non-account water usage; see request pg 981-982

Response:
Please see the attached Item 4.2, Test Year Positive Tap Fees. *More detail will be provided later. Please see the attached disc.*

4.3 For the test year, provide an itemized listing of the fees collected in CWS response to item 1.22 and indicate its applicability to the tariff (i.e., "Water Service Connection", Water "Plant Impact Fee", "Sewer Service Connection", Sewer "Plant Impact Fee", etc.). Provide response in Excel format.

Respondent: Patrick Flynn

Response:
More detail will be provided later. Please see the attached disc.

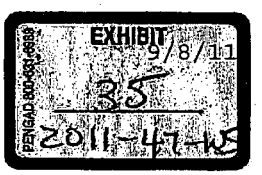
4.4 A "meter set fee" is listed in CWS response to 1.22 for Derrick Homes; Boltinhouse, Whitney; and Steinhilber, Jamie of $50 each. Please describe this fee, location of each premise, and describe how it relates to the approved tariff for CWS.

Responder: Patrick Flynn and Erin Povich

Response
Please refer to the attached Exhibit 4.4, Meter Set Fee. Specifically:
Steinhilber, Jamie – (Golden Pond Subdivision): Per our files, a $50 meter fee is required to be paid in addition to the tap fees with each application for water service.
Boltinghouse, Whitney – (The Landings Subdivision): Per our files, a $50 meter fee is required to be paid in addition to the tap fees with each application for water service.
Derrick Homes – (Stonegate Subdivision): Per our files, a $50 meter fee is required to be paid with each application for water service. However, no additional tap fees are collected. *Please see the attached disc.*

4.5 CWS response to 1.22 show various tap fees for both water and wastewater (sewer) service. Explain why the tap fees for sewer service was not included as "Other Wastewater Revenues" on Schedule B in the application to be consistent with the Uniform System of Accounts for Class A Wastewater Utilities (1996 edition) as outlined under account number 536.

Respondent: Kirsten Weeks



Carolina Water Service
Docket 2011-47-WS
Meter Set Fee
Exhibit 4.4

CO	DATE	DESCRIPTION	ENTITY_NAME	DESCRIPTION	ACCT	AMOUNT	PARENT_ID	SA_ID	CHAR_VAL	ACCT_ID
400	4/13/2010	Carolina Water Service Inc of SC	BOLTINHOUSE,WHITNEY	Wastewater Tap Fee Variable Adjustment	400.3705	50.00	WWTAPVA	9505868548	400138	9505868524
400	12/30/2009	Carolina Water Service Inc of SC	DERRICK HOMES	Meter Set Fee Variable Adjustment	400133.5285	50.00	MTRSETVA	7882518191	400133	7882518604
400	8/11/2010	Carolina Water Service Inc of SC	STEINHILBER,JAMIE	Meter Set Fee Variable Adjustment	400130.5285	(50.00)	MTRSETVA	6420671071	400130	6420671979

1) Customer Billing (South Carolina)

A) Customer bills are rendered on a monthly basis in accordance with the tariff for the service period immediately proceeding the date the monthly bill is rendered.

B) Identify the bill date for each subdivision.

C) Billing accuracy shall be measured by number of error-driven billing adjustments during quarter divided by the number of bills generated during reporting period. An error-driven billing adjustment is an adjustment to a customer's charges resulting from an error on the original bill actually sent to the customer, regardless of the cause and including all such discoveries made by staff or the customer. Errors include all those under the control of the company. Bills re-issued for estimated bills should not be included as a billing error unless the estimated bill is for more than one billing period or is issued in sequence with another estimated bill.

Measure of Billing Accuracy:

$$\frac{\text{number of error-driven billing adjustments}}{\text{number of bills generated during reporting period}}$$

D) Billing exceptions are resolved within 5 business days to ensure the customer receives the bill in a timely manner.

E) CWS shall provide ORS with a detailed quarterly report which includes the following monthly billing performance metrics:

1. Number of bills rendered
2. Billing accuracy statistics
3. Summary of causes of error-driven billing adjustments
4. Number of billing exceptions resolved including # of days to resolve exception

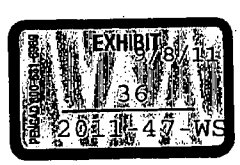
2) Call Center Operations

A) Identify all call centers designated to handle SC traffic. Provide number of calls received from all customers at each call center[1].

B) Provide address and managerial point of contact information including telephone and e-mail for all call centers designated to handle SC traffic.

C) Provide detailed call routing schematic including call routing scripts used to classify call types and determine destination.

[1] The call center software used by CWS is not configured to track the origination of phone calls. For this reason, CWS is not able to provide statistics regarding how many calls are received by its call center from SC customers.



D) Identify general protocol for handling calls and provide a copy of the training documents used by CWS to train its customer service representatives.

E) At a minimum, the average speed of answer service levels will be as follows:

1. 80% of all calls are answered within 120 seconds of entering the queue.
2. Twelve (12) months from the effective date of the Performance Metrics, 80% of all calls are answered within 90 seconds of entering the queue.
3. Twenty-four (24) months from the effective date of the Performance Metrics, 80% of all calls are answered within 60 seconds of entering the queue.

F) Identify the initial and on-going training requirements for call center employees.

G) Provide a copy of the call center training plan indicating training topics and time frames for when the training is provided and completed.

H) CWS shall provide ORS with a detailed quarterly report which included the following monthly call center performance metrics:

1. Average speed of answer/Service Level
2. Abandon rate
3. Longest wait time in queue - how long the oldest call has been waiting
4. Average wait time
5. Average customer treatment time – how long the customer spoke with a customer service representative

I) CWS shall perform the requirements of the Performance Metrics, unless the performance is prevented or delayed by events that constitute a *force majeure*. A *force majeure*, for purposes of the Performance Metrics, is defined as any event arising from causes not reasonably foreseeable or beyond the control of CWS, or of any person or entity controlled by CWS, which delays or prevents the timely performance of any obligation under the Performance Metrics despite CWS's best efforts to fulfill such obligation. A *force majeure* may include without limitation: extraordinary weather events, natural disasters, strikes and lockouts [by other than CWS employees], national emergencies, wars, and acts of terror. CWS shall be excused from any further performance or observance of the obligations so affected for as long as such circumstances prevail and that CWS shall make reasonable efforts to recommence performance whenever and to whatever extent possible without delay. CWS shall, if affected by a force majeure event, advise ORS in

reasonable detail of the event, including the estimated duration of the event, as promptly as practicable after occurrence of the event, and provide adjusted Performance Metric's that take into account the impact of the event.

3) Customer Complaints

A) Customer complaints are logged and records are retained by company.

B) Identify general protocol for handling complaints and provide a copy of the training documents used by CWS to train its customer service representatives.

C) Notify all customers with an unresolved complaint after 7 days that the company is under the PSC jurisdiction and the customer may notify ORS of the complaint.

D) Complaint rates should be measured by dividing the number of complaints by the number of active customer accounts.

E) CWS shall provide ORS with a detailed quarterly report which included the following monthly complaint metrics:

1. Number of complaints received
2. Number of unresolved complaints issued notice per item 3)C) above.
3. Summary of types of complaints
4. Complaint rate
5. Types and number of types of calls received from customers of CWS.

4) Communications

A) At a minimum, ORS and CWS will meet quarterly to review:

1. Quarterly performance metrics results
2. Review open customer complaints from ORS
3. Other issues as necessary

5) Record Retention and Publication

A) Data Retention

1. CWS, its parent and penultimate parent, and affiliates are required to retain complete records of the data collected and procedures used to calculate each service quality performance result for a minimum of one year from the date a report is filed with the Commission and ORS. Within this one-year period, CWS or the entity that has possession of the date shall, upon reasonable request by the ORS, provide breakdowns by subdivision of their monthly service quality results for Measures 1 -3 (Customer Billing, Call Center Operations, and Customer Complaints).

B) ORS and the Commission will add the Quarterly report to each respective website at a later date.

6) Reporting and Verification

The quarterly report shall be filed no later than twenty (20) days after the last day of the quarter covered by the report and the person submitting the report shall verify its accuracy under oath. Such verification shall be in the following form:

VERIFICATION UNDER OATH
REGARDING ACCURACY OF SERVICE OBJECTIVES REPORT

I, _____, state and attest that the attached Service Objectives Report is filed on behalf of _____ (Name of Public Utility as certificated) as required by Order No. _____; that I have reviewed said Report and, in the exercise of due diligence, have made reasonable inquiry into the accuracy of the information provided therein; and that, to the best of my knowledge, information, and belief, all of the information contained therein is accurate and true, no material information or fact has been knowingly omitted or misstated therein, and all of the information contained in said Report has been prepared and presented in accordance with all applicable South Carolina statutes, Commission Rules, and Commission Orders.

_____
Signature of Person Making Verification

_____
Job Title

_____
Date

Subscribed and sworn before me this the _____ day of _____, 20__.

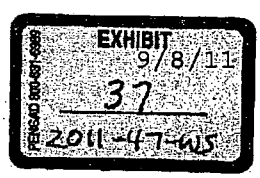
_____
Notary Public
My Commission Expires: _____

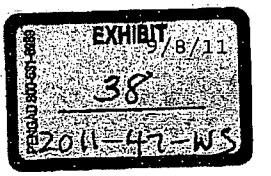
River Hills Adjustments

Row Labels	Average of adj amt	Est monthly impact
COML	$ (66.03)	$ (2.45)
RES	$ (20.34)	$ (0.75)
Grand Total	$ (22.92)	
	Total	$ 72,875.48
	Customers affected	3420

Credit adjustments applied in August and reflect on bills issued 8/31/11.
Bill insert & offer to refund.

January Prorated BFC		Avg Impact to Customers
Water	$ 701.44	
WW	$ 640.78	
Grand Total	$ 1,342.22	$ 4.69
	Customers affected	286





ORS WATER METER TESTING FORM

Customer Name: Mrs. Missy Myers

Utility Name: Carolina Water Service, Inc.

Address: 403 Terrapin Lane

Subdivision Name: Carolina Cove

Account #:

System Type (well or bulk): Bulk

Name of Bulk Provider: York County

Date Inspected: August 24, 2011

Time: 10:45 A.M.-11:45 A.M.

Inspected By: Brad Kirby/Chad Campbell

Customer Representative Present: Missy Myers

Utility Representative Present: Dick Hinson

Test Meter Data		Customer Meter Data	
Brand	Sensus	Brand	Badger
Size	5/8''	Size	5/8''
Serial #	48418016	Serial #	32764957
Test Meter Readings		**Customer Meter Data**	
Stop	13050.0	Stop	2354200.29
Start	12950.0	Start	2354100.42
Total Gallons	100.0	Total Gallons	99.87

% Accuracy = Total Gallons Customer Meter + Total Gallons Test Meter X 100 = 99.87 %

Compliance with regulation 103-722.A.: (choose one)

x Meter reading is within 3%

___ Meter reading is NOT within 3%

___ Retest Meter

Description of Weather Conditions (i.e., sunny, cloudy, temp., etc.): Sunny, temp. in the mid-80's

Comments:

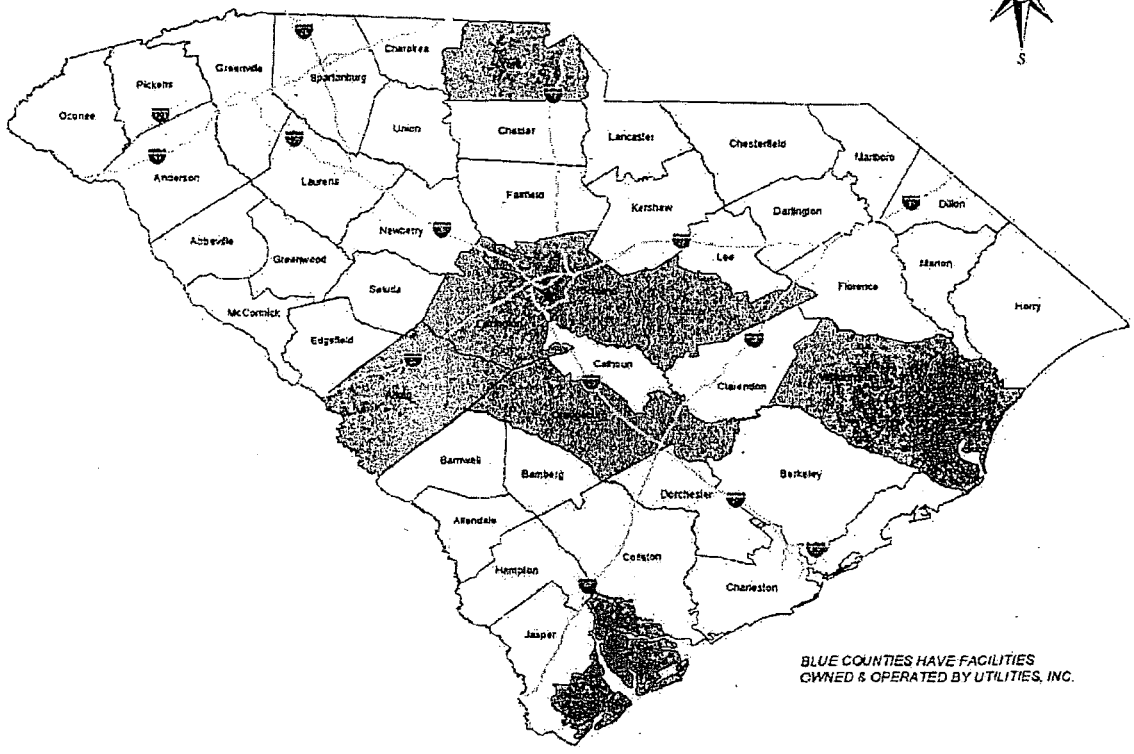
No leaks detected

Customer has swimming pool

Customer has irrigation system with 12 total zones with total of 54 sprinkler heads. According to Mrs. Myers, the sprinkler system is run 30 minutes once a day, three times per week. Of the 12 zones, 1 is a spray zone run 12 minutes/day, three times per week and a drip zone run 11 minutes/day, three times per week.

ORS Form 722 / 5-2009 revised

CAROLINA WATER SERVICE, INC. - SOUTH CAROLINA SYSTEMS



★ OPERATIONS CENTER

AREAS OF OPERATIONS:

1. AIKEN COUNTY
   - HUNTER'S CLUB (W)
2. BEAUFORT COUNTY
   - PALMETTO ARMY HOUSE (S)
3. GEORGETOWN COUNTY
   - LINCOLNSHIRE / PAWLEYS GREEN (S)
4. LEXINGTON COUNTY
   - ASHBROOK ESTATES (W)
   - BLUE RIDGE (W)
   - DALVIN ACRES (W)
   - FALCON RANCHES (W)
   - KINARY (W) (S)
   - GOVERNOR'S GRANT (S)
   - HARBOR LAKE (W&S)
   - HARBOR SIDE (W&S)
   - HEATHERWOOD (W)
   - HIDDEN VALLEY COUNTRY CLUB (W)
   - HIDDEN VALLEY TRAILER PARK (W&S)
   - LCP (W&S)
   - OLDE WOOD (W)
   - PEPPERTREE (W)
   - LAKEWOOD ESTATES (W)
   - LAKES EDGE / WATERGATE / PRINCESS POINT (W&S)
   - PEACH TREE ACRES (W)
   - RAINBOW GLEN / STONEBRIDGE (W&S)
   - RUSHING WOOD (W&S)
   - SECRET COVE (S)
   - SMALLWOOD ESTATES (W&S)
   - THE LAKINGS (W&S)
   - WESTOVER TERRACE (W)
   - WOODLAND POINT (W&S)
5. ORANGEBURG COUNTY
   - ROOSEVELT GARDENS (S)
6. RICHLAND COUNTY
   - ALLOWAY POINT (W&S)
   - BALLENTINE COVE (S)
   - INDIAN FORK (W&S)
   - NORTH LAKE SHORE POINT (S)
   - NORTH PRESTWICK ESTATE (W&S)
   - SHADYWOOD DRIVE (S)
7. SUMTER COUNTY
   - OAKLAND PLANTATION (S)
   - POCALLA VILLAGE (W&S)
8. WILLIAMSBURG COUNTY
   - ROCK BLUFF (W)
9. YORK COUNTY
   - LAKE WYLIE SERVICE AREA (W&S)

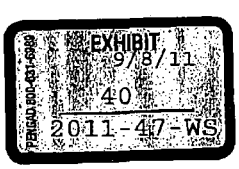
EXHIBIT
9/8/11
39
2011-47-WS

R - 2947

Gilroy Exhibit 1

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 1
REBUTTAL TESTIMONY OF
BOB GILROY



From: bobandnancew@sc.rr.com
To: tisha@sc.rr.com, billya@sc.rr.com, tinamarie2162@yahoo.com, barnwellelizabet@bellsouth.net, rbeesburgjr@sc.rr.com, dbrasington@hotmail.com, robytom@aol.com, pbilinski@yahoo.com, gbmotionman@aol.com, bbbjr@threeriversmortgage.com, philipbowman@bellsouth.net, gbravo77@gmail.com, kimkaw212@aol.com, amybrown@sc.rr.com, lbuchoilit@aol.com, jburke@scana.com, jimcain2@yahoo.com, tj3callan@gmail.com, fcannon1@sc.rr.com, mcantey1@sc.rr.com, rcash2@sc.rr.com, dcash@sc.rr.com, danacausey@sc.rr.com, lynkel4@msn.com, cdouglasclary@aol.com, mclement@sc.rr.com, mcombs@sc.rr.com, msmelis66@aol.com, Crcoxe@aol.com, sariec@earthlink.net, kristin@ospreyhd.com, Lee@ospreyhd.com, pmdavis4wic@bellsouth.net, ndeyoung@lex5.k12.sc.us, ericdy@aol.com, ladonato@sc.rr.com, sdoyle96@sc.rr.com, michaeleasterday@hotmail.com, engeljwba@msn.com, charmel7@sc.rr.com, ferrellkeith@hotmail.com, mignonfowler@sc.rr.com, lwfowler@sc.rr.com, viperfac@sc.rr.com, MyraLGilbert@aol.com, don@gilbertswendys.com, pkgrigsb@hotmail.com, bradguthrie@remax.net, tammyguthrie23@hotmail.com, shall2@sc.rr.com, hannerss@bellsouth.net, wrexjr@bellsouth.net, jamee70@sc.rr.com, abacomah@aol.com, abacowilly@aol.com, gattisproaudio@aol.com, khuggins@sefl.com, Lhuggins@chllc.net, huntermw@dot.state.sc.us
Sent: 8/10/2009 8:04:53 A.M. Eastern Daylight Time
Subj: bad water!!

Hello everyone. Can you please take a minute to complain? I have sent

Utilities Inc. an email message, a letter that they wont receive for a few days, and a fax to DHEC. I KNOW they probably will not do anything, but I
want them to know how many of us are complaining, and I want them to acknowledge it. I have included your names on the letter, but it would be more effective if everyone could log in and complain and even fax DHEC the squeaky wheel gets the grease? I only used the names of the email replies that I received, so if you didnt have a chance to respond I am sorry but I was so mad after my shower and laundry last night that I just wanted to get the letter out before I exploded! I felt like I was bathing and washing my clothes and dishes in sewage!
_http://www.utilitiesinc-usa.com/customer_center/index.php?centerId=9&fr
omMa
p=question_service_
(http://www.utilitiesinc-usa.com/customer_center/index.php?centerId=9&fr
omMap=question_service)
THANKS!!!!!!!!!!!!!!!!
Robert & Nancy Williamson
228 Match Point Drive
Chapin, SC 29036
629-0101
TO: Utilities Inc. Customer Service/ Carolina Water Service Inc.
FROM: Robert & Nancy Williamson and Forty Love Point Community
of Chapin, SC
DATE: August 10, 2009
SUBJECT: Bad water, terrible foul odor and taste

I would like to make another formal complaint of the water in my neighborhood and would like to have this issue addressed and resolved.
For the last several days, the water in my neighborhood has smelled like sulfur and rotten sewage and has a very foul taste. I even have water softening filtration system that usually helps filter out a lot of the floaties in the water, but it is not able to filter it out currently. The water

has a very strong odor of rotten eggs and tastes bad as well it is terrible to shower with, to wash laundry with, to cook with, and even the bathrooms all smell. I cant believe we actually PAY for such poor quality water! Some of my neighbors prefer to brush their teeth in the lake water behind their house because the smell of their water is so bad. There are several other people in my neighborhood that have also said their water is really stinking and foul right now, here are their names:
Mac Nowell Match Point Drive
Eddie & Rene Wilder 212 Match Point Drive Ted & Michele Rodgers 23 Clay Court Mark & Harriet Clement Match Point Drive Barry and Mary Ann Jenkins Set Point Court Myra & Don Gilbert Racket Road Rex Hodges Tennis Court Ray Lord Racket Road Jonathan Lipsi Forty Love Point
Nicholas Gentile Tennis Court
Tammy Guthrie Racket Road
Tom & Ursula Callan Forty Love Point - Smells like they are mixing drinking water with waste water. Please complain loudly!!!
And us: Robert & Nancy Williamson 228 Match Point Drive As you can see, this problem is not just occurring in my house or even just on my street, but all over this neighborhood. We have complained in the
past and the water quality just keeps deteriorating. Please send a
crew
out right away to address this issue to see what is contaminating the water and how to get it out! I believe DHEC needs to come out and test it as well and will be contacting them as well.
Robert & Nancy Williamson
228 Match Point Drive
Chapin, SC 29036
803.407.7173
TO: DHEC Fax: (803) 896-0617
ATTN: Drinking Water - Sonya Johnson
FROM: Robert & Nancy Williamson and Forty Love Point
Community
of Chapin, SC
DATE: August 10, 2009
SUBJECT: Bad water, terrible foul odor and taste, supplier:
Utilities Inc. Customer Service/ Carolina Water Service Inc.
Is there anything that can be done to test the water in our community and to make our water company fix our water? For the past several days it has smelled terrible and tasted even worse (Please see the attached letter).
We intermittently have terrible water in our neighborhood and it is currently just awful.
Please advise us on what we can do.
Thank you,
Nancy Williamson

On behalf of Forty Love Point Community Secretary of Forty Love Point Home Owners Association DHEC Columbia EQC Field Office
Serving: Fairfield, Lexington, Newberry, and Richland Counties

Bldg #5 / PO Box 156
State Park, SC 29147-0156
(803) 896-0620 Fax: (803) 896-0617

Columbia Contacts
Air Quality - Gerald Shealy
Solid Waste - Al Peeples
Hazardous Waste - Gerald Shealy
Drinking Water - Sonya Johnson
Private Wells - Chris Corley
Wastewater - Sonya Johnson

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 2
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bruce Haas [mailto:BTHaas@uiwater.com]
Sent: Wednesday, August 12, 2009 4:20 PM
To: bobandnancew@sc.rr.com; Bob Gilroy
Cc: tisha@sc.rr.com; billya@sc.rr.com; tinamarie2162@yahoo.com; barnwellelizabet@bellsouth.net; rbeesburgjr@sc.rr.com; dbrasington@hotmail.com; robytom@aol.com; pbilinski@yahoo.com; gbmotionman@aol.com; bbbjr@threeriversmortgage.com; philipbowman@bellsouth.net; gbravo77@gmail.com; kimkaw212@aol.com; amybrown@sc.rr.com; lbuchoilit@aol.com; jburke@scana.com; jimcain2@yahoo.com; tj3callan@gmail.com; fcannon1@sc.rr.com; mcantey1@sc.rr.com; rcash2@sc.rr.com; dcash@sc.rr.com; danacausey@sc.rr.com; lynkel4@msn.com; cdouglasclary@aol.com; mclement@sc.rr.com; mcombs@sc.rr.com; msmelis66@aol.com; Crcoxe@aol.com; sariec@earthlink.net; kristin@ospreyhd.com; Lee@ospreyhd.com; pmdavis4wic@bellsouth.net; ndeyoung@lex5.k12.sc.us; ericdy@aol.com; ladonato@sc.rr.com; sdoyle96@sc.rr.com; michaeleasterday@hotmail.com; engeljwba@msn.com; charmel7@sc.rr.com; ferrellkeith@hotmail.com; mignonfowler@sc.rr.com; lwfowler@sc.rr.com; viperfac@sc.rr.com; MyraLGilbert@aol.com; don@gilbertswendys.com; pkgrigsb@hotmail.com; bradguthrie@remax.net; tammyguthrie23@hotmail.com; shall2@sc.rr.com; hannerss@bellsouth.net; wrexjr@bellsouth.net; jamee70@sc.rr.com; abacomah@aol.com; abacowilly@aol.com; gattisproaudio@aol.com; khuggins@sefl.com; Lhuggins@chllc.net; huntermw@dot.state.sc.us
Subject: Indian Fork - Forty Love water system

Dear Mr. and Mrs. Williamson:

Thank you for your email correspondence regarding water quality concerns in the Forty Love water system. I understand that our Regional Manager, Mr. Bob Gilroy, has responded to several emails and has copied you as well regarding our progress. I, too, appreciate you contacting us so we can work towards resolving any concerns you may have.

As you are aware, CWS personnel have been working in your system during the past few days. I understand that we had stopped by your residence yesterday afternoon late to check the water quality and follow-up with you directly, but unfortunately were unavailable to talk.

Your satisfaction is very important to us and we will continue working closely with DHEC and the residents to ensure that you receive the best service possible. I ask that you please contact us at any time if you should experience problems so that we can respond immediately to your concerns. You can contact us at (803) 796-9545, or toll free at (800) 367-4314, 24-Hrs/day.

Sincerely,

Bruce T. Haas
Regional Director
Carolina Water Service, Inc.
P.O. Box 4509
110 Queen Parkway (29169)
West Columbia, SC 29171-4509
Ph: 803-796-9545 (Customer Service)
Toll Free: 800-367-4314

Fax: 803-791-8643

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 3
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bob Gilroy
Sent: Tuesday, August 11, 2009 8:05 PM
To: mignonfowler@sc.rr.com; LordLawFirm@aol.com; laurapv@aol.com; macnowell@hotmail.com; JLIPSI@SC.RR.COM; majenkins1@gmail.com; mclement@sc.rr.com; michelerodgers@cox.net; reneewldr@yahoo.com; maxtonking@bellsouth.net; johnniehutto@bellsouth.net; msmelis66@aol.com; snorris2@sc.rr.com; bobandnancew@sc.rr.com
Cc: Bruce Haas; Charlotte Sightler; Larry Bodie; Sonya C. Johnson
Subject: Water Quality

Dear Forty Love Resident:

Thank you for your email correspondence expressing your concerns over the quality of the water within the Forty Love water distribution system. The quality of service that you receive from Carolina Water Service (CWS) is extremely important to us. Upon receiving communication from you, we have acted quickly to investigate these concerns to ensure that you receive the highest quality water service to your residence. Our field operations personnel conduct routine daily checks on the water quality and operations of your distribution system 7-days per week, 365-days per year. Our goal is to ensure that the water meets all parameters as set forth by SC DHEC and to provide you with the best service possible.

As a follow-up to your email, please be advised that CWS personnel have conducted on-site testing throughout the entire water distribution system to ensure that all parameters are within established guidelines. While no problems were identified, CWS staff also conducted flushing to ensure that the water you receive is the highest quality possible. While our routine "scheduled" flushing of the system is typically performed semi-annually in the spring and fall, we took the steps of performing this process yesterday and welcome any feedback you may have regarding water quality. We also took the additional steps of following-up with DHEC regarding our actions and regarding the concerns of our customers. If necessary, CWS would be happy to have one of our field technicians, or Area Manager, visit your residence to discuss the water quality and any continued concerns you may have. You may contact our West Columbia Regional Office at anytime at (80) 796-9545 and our Customer Service Representative can assist you, or, please feel free to email me directly at rhgilroy@uiwater.com.

As the Regional Manager for your area, my goal is to ensure that you receive the best service possible. Please feel free to contact us at anytime at the numbers listed below.

Sincerely,

Bob Gilroy
Carolina Water Service, Inc.
P.O. Box 4509
110 Queen Parkway (29169)
West Columbia, SC 29171-4509
Ph: 803-796-2313 (Operations)
Ph: 803-796-9545 (Customer Service)
Toll Free: 800-367-4314
Fax: 803-791-8643

Bob Gilroy
Regional Manager
Carolina Water Service, Inc.
Utilities, Inc.

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 4
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bob and Nancy Williamson [mailto:bobandnancew@sc.rr.com]
Sent: Wednesday, August 12, 2009 7:12 PM
To: Bruce Haas; Bob Gilroy; 'Sonya C. Johnson'; laurapv@aol.com; 'Wendy Engel'; 'Chip Timmons'; 'Cichon'; 'John Williams'; Kristin Dashiell; Len Roberson; mignonfowler@sc.rr.com; LordLawFirm@aol.com
Cc: tisha@sc.rr.com; billya@sc.rr.com; tinamarie2162@yahoo.com; barnwellelizabet@bellsouth.net; rbeesburgjr@sc.rr.com; dbrasington@hotmail.com; robytom@aol.com; pbilinski@yahoo.com; gbmotionman@aol.com; bbbjr@threeriversmortgage.com; philipbowman@bellsouth.net; gbravo77@gmail.com; kimkaw212@aol.com; amybrown@sc.rr.com; lbuchoilit@aol.com; jburke@scana.com; jimcain2@yahoo.com; tj3callan@gmail.com; fcannon1@sc.rr.com; mcantey1@sc.rr.com; rcash2@sc.rr.com; dcash@sc.rr.com; danacausey@sc.rr.com; lynkel4@msn.com; cdouglasclary@aol.com; mclement@sc.rr.com; mcombs@sc.rr.com; msmelis66@aol.com; Crcoxe@aol.com; sariec@earthlink.net; kristin@ospreyhd.com; Lee@ospreyhd.com; pmdavis4wic@bellsouth.net; ndeyoung@lex5.k12.sc.us; ericdy@aol.com; ladonato@sc.rr.com; sdoyle96@sc.rr.com; michaeleasterday@hotmail.com; engeljwba@msn.com; charmel7@sc.rr.com; ferrellkeith@hotmail.com; mignonfowler@sc.rr.com; lwfowler@sc.rr.com; viperfac@sc.rr.com; MyraLGilbert@aol.com; don@gilbertswendys.com; pkgrigsb@hotmail.com; bradguthrie@remax.net; tammyguthrie23@hotmail.com; shall2@sc.rr.com; hannerss@bellsouth.net; wrexjr@bellsouth.net; jamee70@sc.rr.com; abacomah@aol.com; abacowilly@aol.com; gattisproaudio@aol.com; khuggins@sefl.com; Lhuggins@chllc.net; huntermw@dot.state.sc.us
Subject: RE: Indian Fork - Forty Love water system REPLY TO CWS

I was home all day after 11:45am yesterday, I would have been available to talk and my cell phone was with me at all times. Thank you for responding to our complaints. Since the system has been flushed, the water at my home is much better, no bad odor or taste - but I can't speak for everyone else that was experiencing similar issues. This seems to be a reoccurring problem - if flushing the lines corrected the problem, then maybe our lines need to be flushed more frequently? I will copy you on the photos that I sent back to Sonya Johnson, DHEC, earlier today. I will also attach a copy of photos of bathwater, drawn earlier this year, that is typical of our water quality; please note that this was not actually used as a bath, if you notice in the 1st photo the water is tinted brown, in the second and third photo you can see the sediment that was left when the bath was drained. I think that your company needs a visual - this is the water we are drinking and bathing in and we are paying for.

I have complained in the past and I have had neighbors tell me they have complained and given up, but this is the first time that I have had a response from your company; we have individually complained for years, I guess it took us all complaining at one time and forwarding that complaint on to DHEC to get your attention. Whatever the reason, we are pleased that you have responded promptly and have addressed the odor/taste issues that so many of us experienced last week.

I will forward this email on to the rest of my community so that they can see CWS has responded to our complaints and is trying to resolve our concerns.

Thank you,
Nancy Williamson

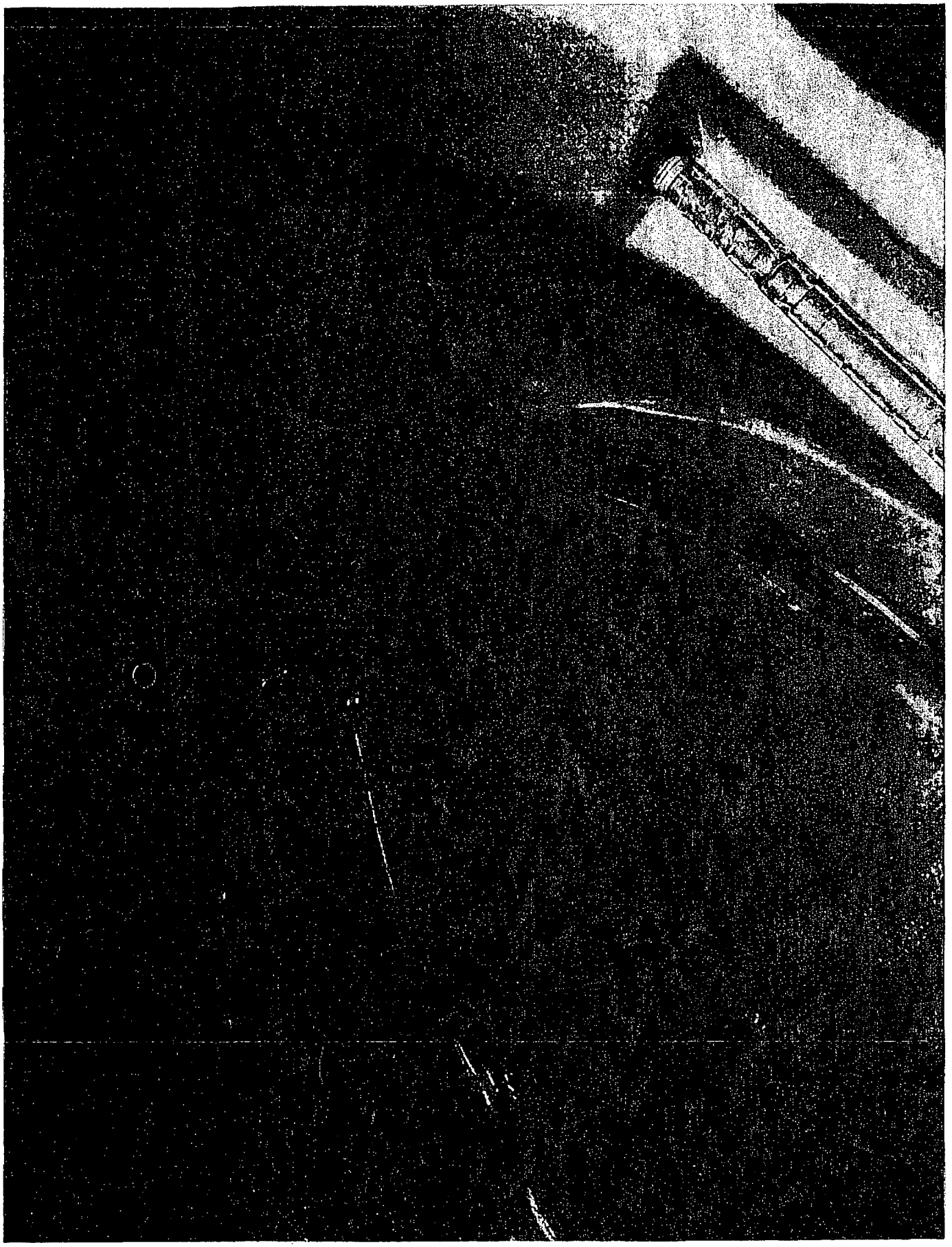
FLP HOA Secretary

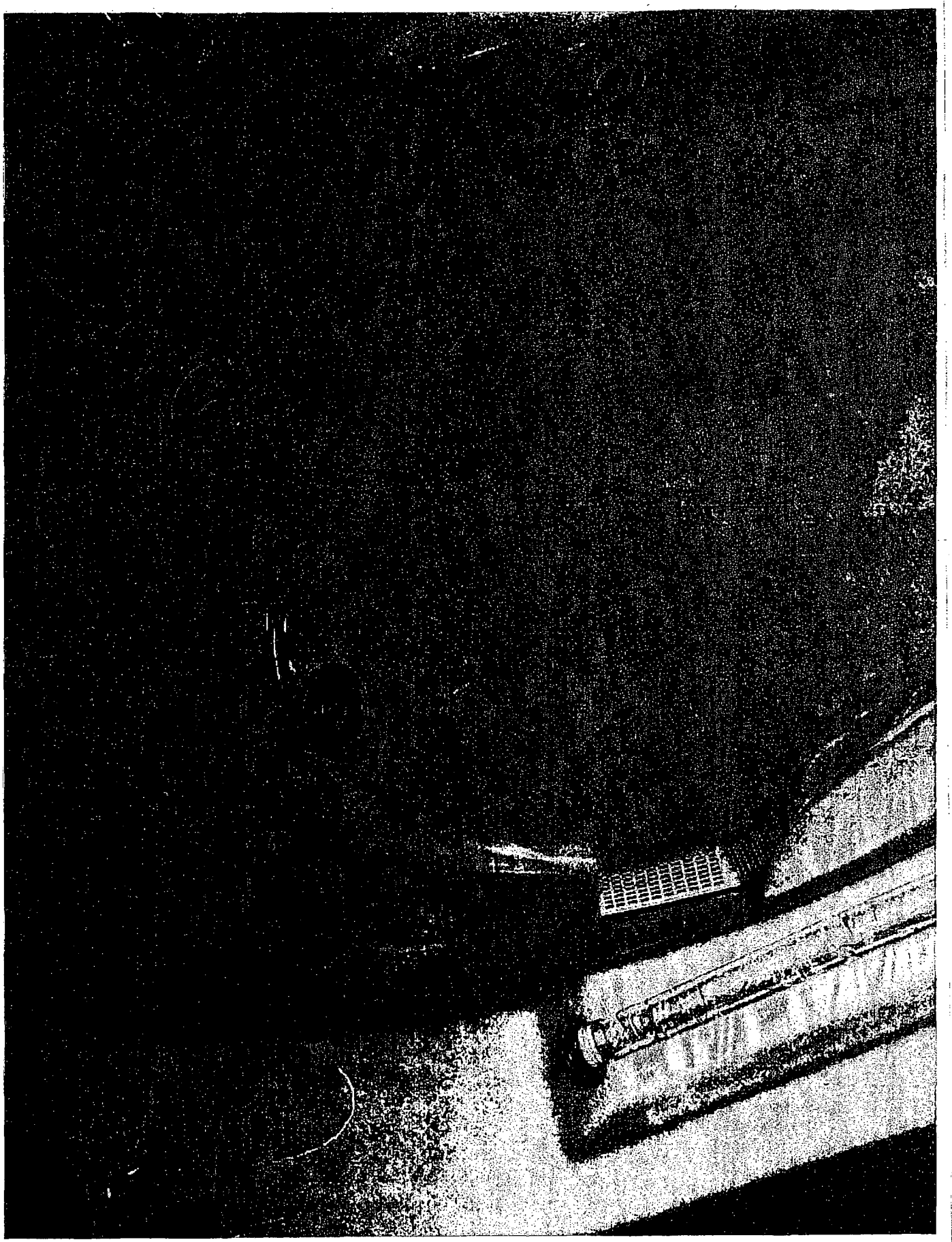
Other residents that had bad odor/taste in water last week:

Mac Nowell - Match Point Drive
Eddie & Rene Wilder - 212 Match Point Drive Ted & Michele Rodgers - 23 Clay Court
Mark & Harriet Clement - Match Point Drive Barry and Mary Ann Jenkins - Set Point
Court Myra & Don Gilbert - Racket Road Rex Hodges - Tennis Court Ray Lord -
Racket Road Jonathan Lipsi - Forty Love Point Nicholas Gentile - Tennis Court
Tammy Guthrie - Racket Road Tom & Ursula Callan - Forty Love Point - Smells like
they are mixing drinking water with waste water. Please complain loudly!!!
Keith and Laura Huggins - Deuce Court
Reid & Sharon Radtke - Clay Court
Valarie Saracin - 100 Forty Love Point
Melissa Cox - 120 Forty Love Point
Frank & Dana Causey - Forty Love Point **had tiny black WORMS in their water
previously this year** John and Bernadette Walker - Racket Road Bill and Patricia
Grigsby - 232 Match Point Drive And us: Robert & Nancy Williamson - 228 Match
Point Drive

Nancy Williamson
228 Match Point Drive
Chapin, SC 29036
629-0101

R - 2960





BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 5
REBUTTAL TESTIMONY OF
BOB GILROY

From: Sonya C. Johnson [mailto:johnsosc@dhec.sc.gov]
Sent: Tuesday, August 11, 2009 8:38 PM
To: Gbmotionman@aol.com; John C. Ansell; Sally Messier; bobandnancew@sc.rr.com
Cc: Harry L. Mathis; Jim R. Rice; Gerald D. Shealy; mamichell@uiwater.com; Bob Gilroy
Subject: Re: Fwd: bad water!!

Hi All,

I have been trying to send my e-mail reply to everyone in reference to their concern with the water quality of the USSC/Indian Fork-Forty Love public water system. I apologize for not including everyone, but for some reason it would not let me capture the listed people. Please forward this to those customers of the water system.

Earlier today, I talked to Bob Gilroy U.S. Services, Inc. He indicated they received a different e-mail with the same concerns with taste and odor issues. As of today, they flushed the water system and collected additional bacteriological samples.

This water system has not typically had a history of odor concerns and complaints. I will be out of the office for the rest of this week. My next best open day next week will be Wednesday afternoon. I prefer to assist my staff in investigating the water quality concerns expressed. The water system already provides water softening treatment on 4 of the 8 wells on the system. Our staff collects water samples as required at the wells and have not experience odor issues from the well source themselves. I would like to take the opportunity to evaluate the homes and the distribution lines of the water system to see if the problem is an isolated issue. When collecting of water samples, they are from the water system itself and not after private home treatment units. When requiring corrective actions by the water systems, it is no longer the water providers responsibility once it enters private treatment units. If water quality issues are arising in the distribution system, flushing of the water system is the most common practice in order to introduce fresh water to the area.

I would like to identify if the problem is occurring in the cold water, hot water, private treatment units, size of water line serving the area vs the amount of usage. I believe a few years ago, new 6 inch lines were installed.... it is crucial that proper water turnover occurs to prevent stagnant water in these. US Services has a bi-annual flushing program in place for this water system. Flushing of water systems usually occurs during non-peak usage season - cooler months.

US Services water sample results should be ready Wednesday afternoon should the laboratory contact them. If the odor still is present after the flushing of today, we will need to evaluate a different approach for correcting the problem. I have let a message for Nancy Williamson should she need assistance tomorrow.

Again, I will be out of the office for the rest of this week, and prefer to assist my staff in addressing your concern. If you have an immediate concern, please contact this office and ask for Sally or Katrina. Thank you.

Sonya C. Johnson
Program Manager of Water
SCDHEC Region 3 EQC Columbia Office
(803) 896-0620
(803) 896-0617 (fax)

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 6
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bob Gilroy
Sent: Wednesday, August 26, 2009 5:01 PM
To: Bob and Nancy Williamson
Subject: Forty Love

Hello Mr. & Mrs. Williams,

My name is Bob Gilroy, Manager for the area which includes your subdivision. I want you to know that since your previous notifications regarding the odor of the water at your and others homes, I had instructed our field staff and system manager to respond immediately with the flushing of the system to make sure the freshest water possible was delivered. I also spoke with Sonya Johnson of SCDHEC regarding the notifications and actions taken by us. Also, at that time, samplings and testing of the water was conducted. Although T/C, or total-coliform, bacteria samples were collected, I also had all active source water sites sampled and tested for possible presence of iron bacteria, based primarily on the odor complaints.

All T/C samples to date have come back negative. The initial iron bacteria samples collected at each well site indicated that it was present at one well source in numbers sufficient to cause the odor that many complained about. Although iron bacteria is not a health hazard, it does create aesthetically unpleasing water such as the rotten egg odor many residents noted, especially in the morning with the first draw of water at a tap. SCDHEC representatives also sampled the distribution at the time we had but I am not aware of their results as yet.

Although iron bacteria in wells is not completely uncommon, there had been no history of its presence in our wells in the area of Forty Love and Indian Fork and therefore not routinely tested for at any well site. Since this detection, all wells associated with the distribution system, and not just the one, will be put on a regular schedule regarding detection of iron bacteria. We are now, and will continue to work with SCDHEC regarding this issue. Although the distribution system is sampled and tested on a monthly basis as required by SCDHEC and even more in-depth testing is conducted by SCDHEC on a scheduled basis at each well site, I regret that this problem occurred.

CWS does strive to provide quality water and the best service possible. I also encourage customers to continue to call if they have any concern regarding their water quality or service. To take it a step further, if they feel for any reason they are not satisfied with a response to their concern, they may contact me directly.

If it is OK, both I and Sonya Johnson of DHEC would like to meet sometime with any concerned residents of the neighborhood to discuss the steps the company is taking to prevent the reoccurrence of this situation. Please let me know if this is agreeable to you and others and I will be happy to coordinate a meeting to discuss these issues.

Thank you and I look forward to talking to you.

Bob Gilroy
Regional Manager
Carolina Water Service, Inc.
(803) 796-2313
rhgilroy@uiwater.com

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 7
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bob and Nancy Williamson [mailto:bobandnancew@sc.rr.com]
Sent: Friday, August 20, 2010 9:32 AM
To: Bob Gilroy; Sonya C. Johnson; customerservice@uiwater.com; welchra@dhec.sc.gov
Cc: tish.anderson75@gmail.com; billya@sc.rr.com; tinamarie2162@yahoo.com; barnwellelizabet@bellsouth.net; victoriagayle03@yahoo.com; rbeesburgjr@sc.rr.com; dbrasington@hotmail.com; robytom@aol.com; pbilinski@yahoo.com; gbmotionman@aol.com; bbbjr@threeriversmortgage.com; philipbowman@bellsouth.net; gbravo77@gmail.com; rhett.briggs@yahoo.com; klmkaw212@aol.com; amybrown@sc.rr.com; lbuchoilit@aol.com; jburke@scana.com; jjjburke258@att.net; jimcain2@yahoo.com; tj3callan@gmail.com; fcannon1@sc.rr.com; mcantey1@sc.rr.com; mcantey1@att.net; rcash2@sc.rr.com; dcash@sc.rr.com; danacausey@sc.rr.com; lynkel4@msn.com; cdouglasclary@aol.com; mark-clement@att.net; mcombs@sc.rr.com; mcooke@sc.rr.com; msmells66@aol.com; Crcoxe@aol.com; kristin@ospreyhd.com; kristindashiell@gmail.com; Lee@ospreyhd.com; pmdavis4wic@bellsouth.net; ndeyoung@lex5.k12.sc.us; ericdy@aol.com; ladonato@sc.rr.com; sdoyle96@sc.rr.com; michaeleasterday@hotmail.com; engeljwba@msn.com; charmel7@sc.rr.com; ferrellkeith@hotmail.com; mignonfowler@sc.rr.com; lwfowler@sc.rr.com; hillaryf@mac.com; viperfac@sc.rr.com; MyraLGilbert@aol.com; don@gilbertswendys.com; pkgrigsb@hotmail.com; tammyguthrie23@hotmail.com; tammynantz23@yahoo.com; shall2@sc.rr.com; hannerss@bellsouth.net; wrexjr@bellsouth.net; jamee70@sc.rr.com; abacomah@aol.com; abacowilly@aol.com; gattisproaudio@aol.com; khuggins@sefl.com; Lhuggins@chllc.net; huntermw@dot.state.sc.us; johnniehutto@bellsouth.net; wilburnhutto@bellsouth.net
Subject: BROWN WATER COMPLAINT: Forty Love Point, 228 Match Point Drive, Chapin 29036

OK everyone, this is my second tub of bathwater this morning – I am calling the president of the United States on this one... I am so mad that they can't provide us with plain old WATER – I would be dirtier AFTER this bath and I can only imagine what color my blonde hair would be. I am so angry. When you get water like this I want you to COMPLAIN to DHEC and CWS and everyone on their website because this is NOT FAIR!! I am PAYING for this crap, WE are all paying for this! A little angry? We don't ask for much, just clean water - this is the BROWNEST water I have had yet!! I have received about 30 names from other people in our neighborhood that are experiencing this and we have had no results with our complaints. They have tried to correct the problem a few times but apparently can't figure out what is wrong with their system and in the meanwhile we are ingesting GodOnlyKnowsWhat and who knows what the long term effects will be on our systems? The short term effects are cruddy faucets and sinks, tubs, and toilets that won't come clean.

They told us to flush our water heaters last fall – but the first picture is water coming out of the cold line – how many of us wasted money on having our hot water heaters flushed? ...and of course the brown toilets aren't going through the water heater, but I was so hopeful that the flushing would be a solution that I didn't think of that at the time when he told us to flush them last fall.

Here is a list of residents experiencing the SAME issues: (and it is not complete)

List of residents in Forty Love Point that have experienced water problems:

Stewart	133 Forty Love Point Drive	Brown smelly water
Williamson	228 Match Point Drive	Brown, muddy water for a day or so at a time, STAINING and mucky build up on faucets
Patterson	224 Match Point Drive	Brown, muddy dark water
Dashiell	201 Match Point Drive	Brown, Muddy dark water, tubs, sinks toilets
Shaffer	220 Match Point Drive	Brown, muddy dark water
Remensnyeder	12 Deuce Court	Brown dirty water
Rutkowskis	123 Match Point Drive	Brown water, sinks tubs toilets
Norris	316 Forty Love Point Drive	Brown smelly water, sinks tubs toilets
Gentile	22 Tennis Court	Brown smelly water sinks tubs toilets
Bilinski	300 Racket Road	Brown, muddy water for a day or so
Nowell	204 Match Point Dr.	Brown water in tubs, toilets & sinks all most every night. Do not drink water at all. Always buy water.
Huggins	4 Deuce Court	Brown muddy water
Meyers	116 Forty Love Point Drive	Brown muddy water
Wallace	140 Forty Love Point	Brown muddy water
Timmons	207 Match Point Drive	Brown smelly water, in tubs
Jennings	156 Forty Love Point	Brown smelly water
Valtorta	223 Forty Love Point	Brown water - color of tea every other day
Engel	222 Match Poitn Drive	Brown water: been going on for about a month. Tried to email DHEC but the email was returned. I wonder when they will figure out it is not our individual lines but the old system. Please add that I could write my name in the slime in my tub the other night after draining it. An important fact.
Unger	111 Match Point Drive	Brown water, was told to flush water heater, has 'tankless'
Williams	121 Match Point Drive	Brown water

Taylor	148 Forty Love Point	Brown smelly water
Spohn	116 Racket Rd	Really dirty, smelly water
Hodges	40 Tennis Court	Brown water about 2 weeks ago, came and went
Radtke	Clay court	Brown water, mucky faucet build up
King	132 Forty Love Point	Brown muddy smelly water, a day or so at a time
Rory	15 Clay Court	Brown dirty water, paid for inspection to find cause
Kea	Racket Road	Brown water, crud came out while brushing teeth

Can we sue them for lying on their web page?;

Superior Quality.

Efficient Operations.

Exceptional Service.

Utilities, Inc. provides high-quality water and wastewater services to more than 300,000 customers throughout the United States. We offer our services to homes, businesses, new developments, commercial enterprises, and any project—large or small—requiring innovative new water and wastewater systems, system upgrade solutions, or expert water and wastewater system management.

Superior Quality.

We are dedicated to the purity and safety of our water supply and provide our services in the safest, most environmentally sound manner possible. We believe in promoting responsible water use and sustainable water practices to enhance the overall quality of our lives and meet our country's future water needs.

Efficient Operations.

We are committed to peak performance in all facets of our operations. We are accountable, results-oriented, and determined to provide cost-effective solutions for our customers by improving productivity, setting standards, and embracing new technologies.

Exceptional Service.

We consider customer service excellence one of our core competencies. Driven by a staunch dedication to customer satisfaction, we respond quickly and intelligently to concerns and requests, and serve as an educational resource for water news, information, and advocacy.

Customer Service Center

Please use the information below to contact customer service in your area. Make check payable to Carolina Water Service, Inc. SC. Be sure to write your account number on your check.

Carolina Water Service, Inc. SC

Send Payments To:
P.O. Box 11025
Lewiston, ME 04243- 9476

Office Address:
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Phone: 800-272-1919

Office Hours: Monday - Friday 8:00am - 5:00pm ET
Email: customerservice@uiwater.com
Fax: 407-869-4416

Return to Customer Service Locator

From: 8036290101@mms.att.net [mailto:8036290101@mms.att.net]
Sent: Friday, August 20, 2010 8:41 AM
To: bobandnancew@sc.rr.com
Subject:

This is my morning bathwater AFTER I dumped the first tub. This is absolutely disgusting and is coming out of the COLD side. How can CWS and DHEC say this is ok???

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL EXHIBIT 8
REBUTTAL TESTIMONY OF
BOB GILROY

From: Bob Gilroy
Sent: Thursday, September 02, 2010 1:15 PM
To: Bob and Nancy Williamson
Cc: 'Sonya C. Johnson'
Subject: Samples

Hi Nancy –

I have received the sample results back from DHEC yesterday afternoon for the homes sampled and have attached them. I'm sure Sonya will be getting back to you as well if she hasn't already. The minerals that directly affect discolored water concerns in any water system and especially a ground water system are primarily iron and manganese. That is why they chose to test for these elements. Too much iron in the water results in it coming out of solution creating reddish rusty looking water and possible sediment. Manganese is black and in conjunction with iron can cause a very dark reddish water and possible sediment, both similar to what has been reported and seen, including your tub. (I haven't gotten that sample back yet, by the way). The problem is that the test results are basically low for these elements and not at the levels that would normally cause this type of precipitating out in a water system resulting in periods of 'dirty' looking water.

In spite of the results, and as you saw in a response to Laura and Keith Huggins, we are moving quickly ahead with the set up of an additional treatment for the water at the current well supply facilities. This treatment should be very effective at sequestering or keeping the minerals in the water in solution and preventing them from 'dropping out' causing aesthetic problems similar to what is being reported.

Again, the mineral content results seen here under most conditions do not result in these types of problems. We will install the treatment to address the immediate concerns and will continue to investigate water chemistry as to why such low concentrations in the water solution fall out. I do have at present two outside expert water consultants as well as DHEC working with me to assure that everything is looked at and considered.

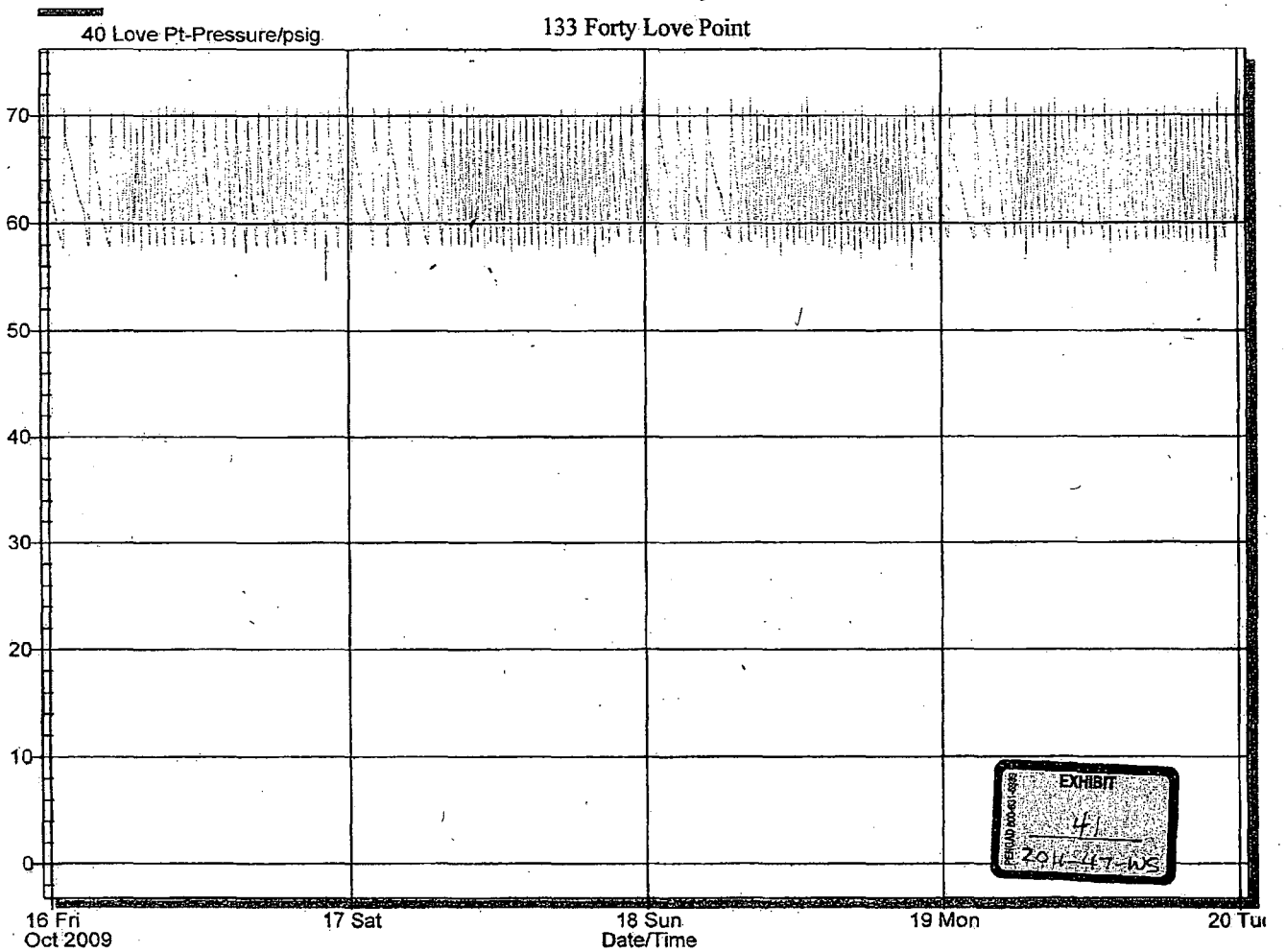
Thanks,

Bob Gilroy

BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2011-47-WS

BG REBUTTAL REDACTED EXHIBIT 9
REBUTTAL TESTIMONY OF
BOB GILROY

Downloaded Data - Tuesday, October 20, 2009



EPA List of National Secondary Drinking Water Regulations

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

South Carolina Department of Health and Environmental Control
Analytical Services Division Laboratory Report

Station Code: 3250066
.ocation Description: 2 CLAY CT - COLD H2O OS
Matrix: WATER
County: LEXINGTON
Sample Type: CS
Additional Info: Brown Water Complaint

Laboratory Sample Number: AC76628
Program Charge: WSP
Collected By: JOHNSON S
Date of Collection: 8/20/2010
Time of Collection: 3:03:00 PM

aboratory Sample Number: **AC76628**

Analysis	Result	Units	Method Reference
on in Water	0.033	mg/L	EPA 200.7
anganese in Water	0.042	mg/L	EPA 200.7

Sample Comments

South Carolina Department of Health and Environmental Control
Analytical Services Division Laboratory Report

Station Code: 3250066
Location Description: 18 SET PT CT - OS
Matrix: WATER
County: LEXINGTON
Sample Type: CS
Additional Info: Brown Water Complaint

Laboratory Sample Number: AC76633
Program Charge: WSP
Collected By: JOHNSON S
Date of Collection: 8/20/2010
Time of Collection: 3:40:00 PM

Laboratory Sample Number: **AC76633**

Analysis	Result	Units	Method Reference
Iron in Water	0.021	mg/L	EPA 200.7
Manganese in Water	0.014	mg/L	EPA 200.7

Sample Comments

South Carolina Department of Health and Environmental Control
Analytical Services Division Laboratory Report

Station Code: 3250066
Location Description: 2 CLAY CT - HOT H2O OS
Matrix: WATER
County: LEXINGTON
Sample Type: CS
Additional Info: Brown Water Complaint

Laboratory Sample Number: AC76629
Program Charge: WSP
Collected By: JOHNSON S
Date of Collection: 8/20/2010
Time of Collection: 3:06:00 PM

Laboratory Sample Number: **AC76629**

Analysis	Result	Units	Method Reference
on in Water	0.022	mg/L	EPA 200.7
Manganese in Water	0.027	mg/L	EPA 200.7

Sample Comments

South Carolina Department of Health and Environmental Control

Analytical Services Division Laboratory Report

Station Code: 3250066
Location Description: 22 TENNIS CT - OS
Matrix: WATER
County: LEXINGTON
Sample Type: CS
Additional Info: Brown Water Complaint

Laboratory Sample Number: AC76632
Program Charge: WSP
Collected By: JOHNSON S
Date of Collection: 8/20/2010
Time of Collection: 3:35:00 PM

Laboratory Sample Number: **AC76632**

Analysis	Result	Units	Method Reference
Iron in Water	<0.020	mg/L	EPA 200.7
Manganese in Water	<0.010	mg/L	EPA 200.7

Sample Comments

South Carolina Department of Health and Environmental Control
Analytical Services Division Laboratory Report

Station Code: 3250066
Location Description: 4 DEUCE CT - OS
Matrix: WATER
County: LEXINGTON
Sample Type: CS
Additional Info: Brown Water Complaint

Laboratory Sample Number: AC76630
Program Charge: WSP
Collected By: JOHNSON S
Date of Collection: 8/20/2010
Time of Collection: 3:20:00 PM

Laboratory Sample Number: **AC76630**

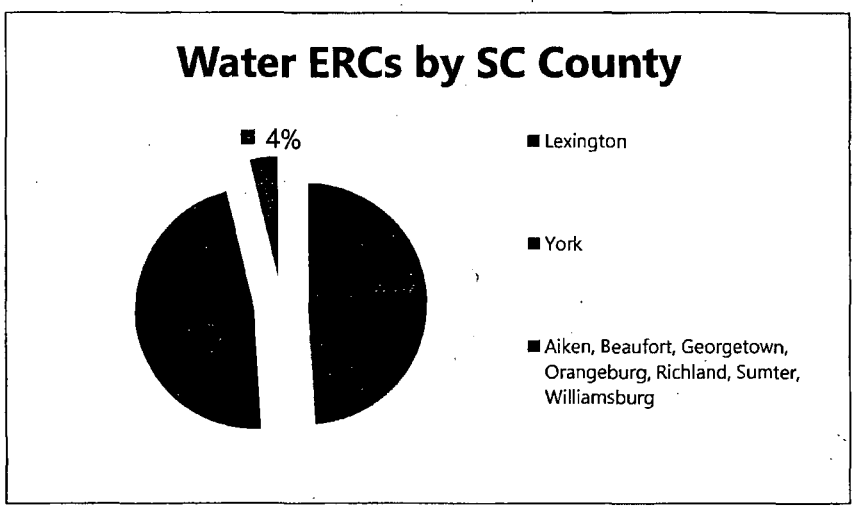
Analysis	Result	Units	Method Reference
·on in Water	0.032	mg/L	EPA 200.7
Manganese in Water	0.021	mg/L	EPA 200.7

Sample Comments

2011-47-WS **EXHIBIT DMH-1**

Carolina Water Service, Inc.

Customer Comparison by County



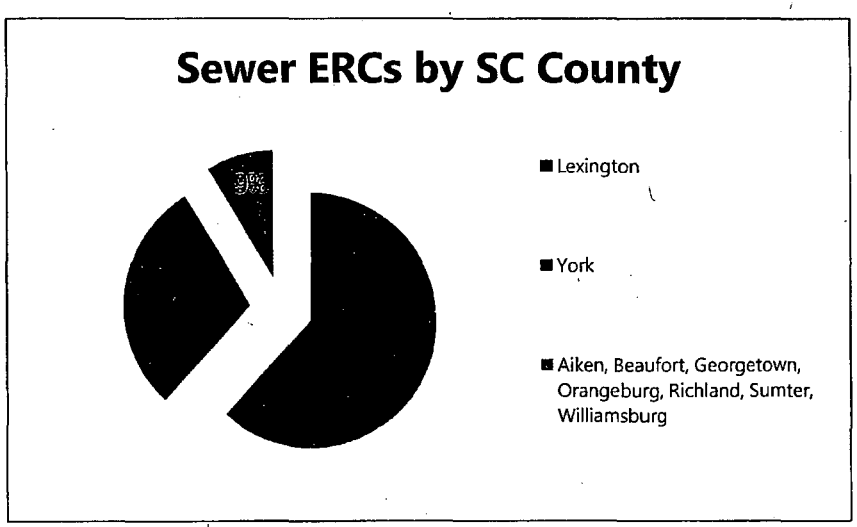
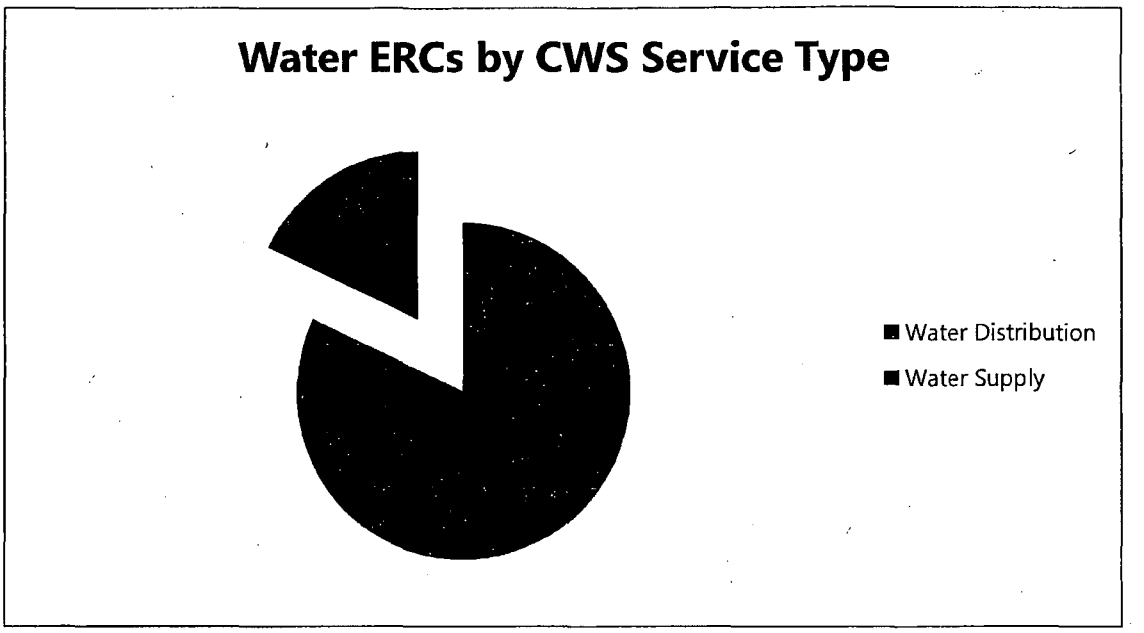
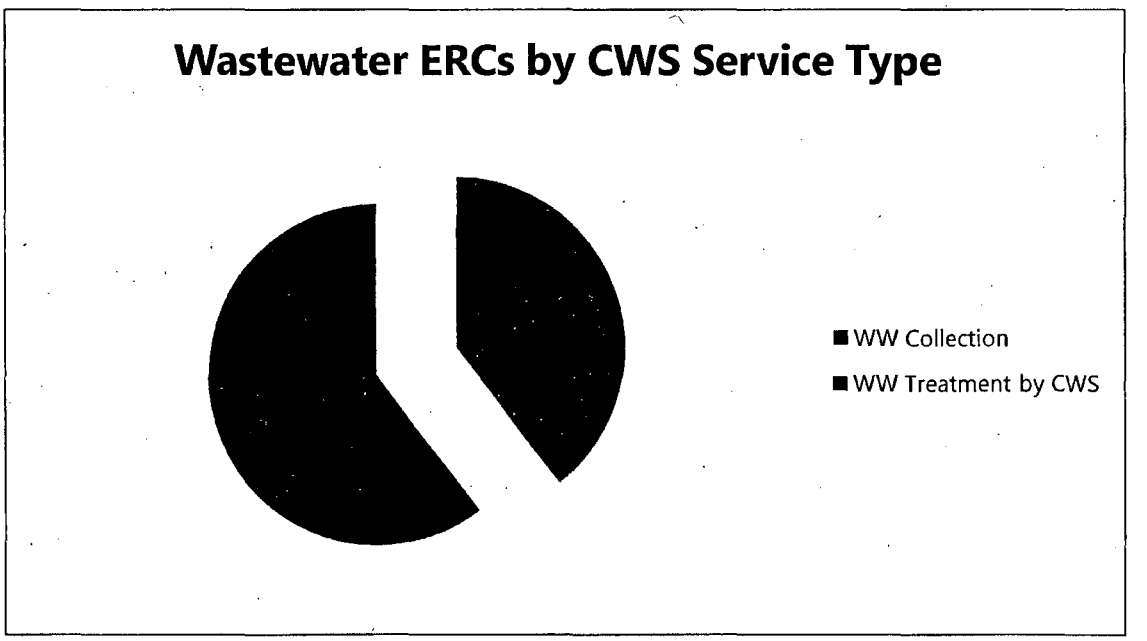


EXHIBIT
9/8/11
43
2011-47-WS

CWS Customer Detail by Service Type





ORS BUSINESS OFFICE COMPLIANCE REVIEW

Utility: Carolina Water Service, Inc.
Inspector: Dawn Hipp
Office: 110 Queen Parkway, West Columbia, SC
Utility Type: Water and Wastewater
Date: April 15, 2011 - August 8, 2011

#	Compliance Regulation	In Compliance	Out of Compliance	Comments
1	All records and reports available for examination in accordance with R.103-510 and R.103-710.	X		
2	Complaint records maintained in accordance with R.103-516 and R.103-716.	X		
3	Utility's rates, its rules and regulations, and its up-to-date maps and plans available for public inspection in accordance with R.103-530 and R.103-730.	X		Customer must call CWS Customer Service at 800/272-1919 for information.
4	Established procedures to assure that every customer making a complaint is made aware that the utility is under the jurisdiction of the South Carolina Public Service Commission and that the customer has the right to register the complaint in accordance with R.103-530 and R.103-730.	X		Customer bill message informs customer of PSC jurisdiction and ORS phone number.
5	Deposits charged within the limits established by R.103-531 and R.103-731.		X	CWS did not accrue interest on customer deposits accurately during the test year. Deposit interest is required to be paid to the customer every 2 years. CWS reconciled this account during the test year and re-set the interest rate to 3.5% on all deposits that had been in CWS possession for over 2 years and prior to the PSC setting the interest rate to 3.5% in 2003.
6	Timely and accurate bills being rendered to customers in accordance with R.103-532 and R.103-732.		X	Customer bills were inaccurate and untimely during the test year for customers in purchased water and sewer systems.

#	Compliance Regulation	In Compliance	Out of Compliance	Comments
7	Bill forms in accordance with R.103-532 and R.103-732.		X	Bill forms are missing meter readings, applicable rate schedule, and distinct marking to identify estimated bills.
8	Adjustments of bills handled in accordance with R.103-533 and R.103-733.		X	CWS did not bill new customers for service. In some instances, new customers were billed for a full year of service which exceeds the maximum of 6 months CWS is allowed to collect the deficient amount by R.103-733.
9	Policy for customer denial or discontinuance of service in accordance with R.103-535 and R.103-735.	X		
10	Notices sent to customers prior to termination in accordance with Rule R.103-535 and R.103-735.	X		
11	Notices filed with the Commission of any violation of PSC or DHEC rules which affect service provided to its customers in accordance with rule R.103-514-C and R.103-714-C.		X	CWS did not file DHEC notices of violation with the PSC during the test year.
12	Advisories provided to ORS Consumer Services Department affecting 10 or more customers in accordance with rule R.103-514-D and R.103-714-D.	X		ORS receives written copies of voice reach customer advisories.
13	Utility has adequate means (telephone, etc.) whereby each customer can contact the water and/or wastewater utility at all hours in case of emergency or unscheduled interruptions or service in accordance with R.103-530 and R.103-730.	X		
14	Records maintained of any condition resulting in any interruption of service affecting its entire system or major division, including a statement of time, duration, and cause of such an interruption in accordance with R.103-514 and R.103-714.	X		
15	Utility advised the Commission, in accordance with R. 103-512 and R.103-712 of the name, title, address and telephone number of the person who should be contacted in connection with general management duties, customer relations, engineering operations, and emergencies during non-office hours.	X		
16	Company verified the maps on file with the Commission include all the service area of the company.	X		

#	Compliance Regulation	In Compliance	Out of Compliance	Comments
17	Number of customers the company has at present time. Billed ERCs as of 4/1/2011.			ERC's – Water service: 9,442 Sewer service: 13,685
18	Company has a current performance bond on file with the Commission. Amount of bond: **$350,000** (water) and **$350,000** (sewer)	X		
19	Utility maintains a documented Safety Program.	X		
20	Utility maintains a documented Emergency Response plan.	X		
21	Utility maintains a documented Preventative Maintenance plan.	X		
22	Utility submitted a current Annual Report.	X		CWS files Annual Report on FY
23	Utility is in compliance with Gross Receipts reporting and payment regulations.	X		

SURREBUTTAL EXHIBIT DMH-1

Utilities, Inc.

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.uiwater.com

Bill Date	Account Number	Due Date	Please Pay:
01/30/2011	[redacted]	2/24/2011	$99.91

Name [redacted] Primary Telephone # [redacted]

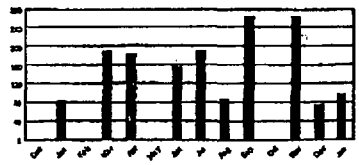
Service Address 8 MISCHIEF ST, LAKE WYLIE, SC, 29710

Activity Since Last Bill		
Previous Balance	$76.68	
Payments received as of 01/30/2011	$-76.68	
Balance as of 01/30/2011		$0.00
Residential Purchased Water		
Water Distribution Base Charge	$13.31	
Distribution Usage of 6,090 gallons at $2.03 per 1,000 gallons	$12.36	
York County Supply Charge	$20.03	
SC DHEC Fee	$0.88	
Total Residential Purchased Water		$46.58
York County Residential Wastewater Treatment		
Wastewater Collection	$30.84	
Usage of 6,090 gallons	$22.17	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$53.33
Total Amount Due		$99.91

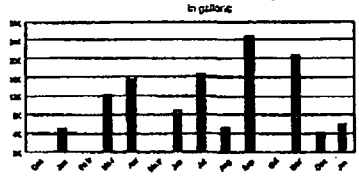
Summary of Service

Meter Reading	Meter #	97822652
Current	1338490	01/28/2011
Previous	1330400	12/23/2010
Usage	6,090 Gallons	
Number of Days:	36	
Average Daily Use:	169 Gallons	
Average Daily Cost:	$2.78	

Billing History
in dollars



Consumption History
in gallons



A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.
Paperless billing is now available. Please visit our Web Self Service site where you can obtain account information and register for paperless billing. The site may be accessed by going to http://www.uiwater.com/myaccount.

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Utilities, Inc.
PO BOX 160609
Altamonte Springs, FL 32716

Account Number: [redacted]
Due Date: 2/24/2011
Please Pay: $99.91

Amount Paid

[redacted]
8 MISCHIEF ST
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

PAGE 1 OF 1

EXHIBIT
9/8/11
DOCKET NO. 2011-47-WS

Utilities, Inc.

SURREBUTTAL EXHIBIT DMH-2

Carolina Water Service Inc of SC
Phone: (800) 272-1919
Collections: (800) 272-1919
Customer Service: (800) 272-1919
www.ulwater.com

Bill Date	Account Number	Due Date	Please Pay:
09/29/2010	[redacted]	10/25/2010	$74.91

Name [redacted] Primary Telephone # [redacted]

Service Address *8 MISCHIEF ST, LAKE WYLIE, SC, 29710*

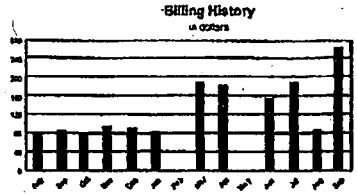
Activity Since Last Bill

Previous Balance	$279.74	
Payments received as of 09/29/2010	$-468.85	
Balance as of 09/29/2010		$-189.11
Residential Purchased Water		
Water Distribution Base Charge	$11.09	
Distribution Usage of 24,910 gallons at $2.03 per 1,000 gallons	$50.57	
Water Supply Charge of 24,910 gallons at $0.00341 per gallon	$84.94	
SC DHEC Fee	$0.73	
Total Residential Purchased Water		$147.33
York County Residential Wastewater Treatment		
Wastewater Collection	$25.70	
Usage of 24,910 gallons	$90.67	
York County Wholesale Wastewater Base Charge	$0.32	
Total York County Residential Wastewater Treatment		$116.69
Total Amount Due		**$74.91**

Summary of Service

Meter Reading	Meter #	97822652
Current	1305130	09/26/2010
Previous	1280220	08/27/2010
Usage	24,910 Gallons	
Number of Days:	30	
Average Daily Use:	830 Gallons	
Average Daily Cost:	$8.80	

Billing History
in dollars



Consumption History
in gallons

A fee of 1.5% per month will be added if unpaid by the due date.
Make check payable to: Carolina Water Service Inc of SC

Messages
The Company is under the jurisdiction of the PSC. You may contact the ORS at 800-922-1531 with any complaints that remain unresolved after 7 days.

349

Utilities, Inc.
PO BOX 160609
Altamonte Springs, FL 32716

Account Number: [redacted]
Due Date: 10/25/2010
Please Pay: $74.91

Amount Paid

[redacted]
8 MISCHIEF ST
LAKE WYLIE SC 29710

Carolina Water Service Inc of SC
PO Box 11025
Lewiston ME 04243-9476

☐ Address correction requested on back

PAGE 1 OF 1

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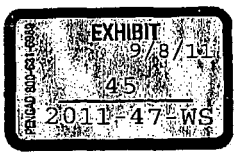
Carolina Water Service, Inc.
Docket No. 2011-47-WS
Operating Experience, Rate Base and Rates of Return
For the Test Year Ended September 30, 2010
Combined Operations



Description	(1) Application Per Books $	(2) Accounting & Pro Forma Adjustments $	(3) After Accounting & Pro Forma Adjustments $	(4) Applicant's Proposed Increase $	(5) After Applicant's Proposed Increase $
Operating Revenues:					
Service Revenues - Water	2,173,555	260,064 (A)	2,433,619	1,973,636 (S)	4,407,255
Service Revenues - Sewer	5,170,766	155,769 (A)	5,326,535	726,254 (S)	6,052,789
Miscellaneous Revenues	164,957	94,397 (B)	259,354	269,437 (T)	528,791
Uncollectible Accounts	(421,242)	342,207 (C)	(79,035)	(805) (U)	(79,840)
Total Operating Revenues	7,088,036	852,437	7,940,473	2,968,522	10,908,995
Operating Expenses					
Maintenance Expenses	2,749,597	196,841 (D)	2,946,438	0	2,946,438
General Expenses	1,927,393	(372,038) (E)	1,555,355	0	1,555,355
Interest on Customer Deposits	0	1,277 (F)	1,277	0	1,277
Depreciation	1,011,086	(47,505) (G)	963,581	0	963,581
Amortization of CIAC	(324,831)	(13,190) (H)	(338,021)	0	(338,021)
Taxes Other Than Income	790,756	1,061 (I)	791,817	28,232 (V)	820,049
Income Taxes - State & Federal	203,280	279,710 (J)	482,990	1,124,660 (W)	1,607,650
Amortization Investment Tax Credit	(8,852)	0	(8,852)	0	(8,852)
Amortization of Plant Acq. Adj.	(9,862)	0	(9,862)	0	(9,862)
Total Operating Expenses	6,338,567	46,156	6,384,723	1,152,892	7,537,615
Total Operating Income	749,469	806,281	1,555,750	1,815,630	3,371,380
Less: Interest During Construction	9,437	(9,437) (K)	0	0	0
Less: Interest on Debt	653,687	(653,687) (L)	0	0	0
Plus: Customer Growth	0	14,337 (M)	14,337	18,917 (X)	33,254
Net Income for Return	86,345	1,483,742	1,570,087	1,834,547	3,404,634
Original Cost Rate Base:					
Gross Plant in Service	52,220,287	(161,992) (N)	52,058,295	0	52,058,295
Accumulated Depreciation	(8,795,680)	682,310 (O)	(8,113,370)	0	(8,113,370)
Net Plant in Service	43,424,607	520,318	43,944,925	0	43,944,925
Cash Working Capital	683,468	(120,743) (P)	562,725	0	562,725
Contributions in Aid of Construction	(18,096,671)	(843,386) (Q)	(18,940,057)	0	(18,940,057)
Accumulated Deferred Income Taxes	(1,485,214)	0	(1,485,214)	0	(1,485,214)
Customer Deposits	(208,584)	(12,068) (R)	(220,652)	0	(220,652)
Advances in Aid of Construction	(1,600)	0	(1,600)	0	(1,600)
Plant Acquisition Adjustment	(326,197)	0	(326,197)	0	(326,197)
Total Rate Base	23,989,809	(455,879)	23,533,930	0	23,533,930
Return on Rate Base	0.36%		6.67%		14.47%
Operating Margin - Note	-8.00%		10.00%		24.10%
Interest Expense	653,687	122,335	776,022		776,022

Note: Operating Margin is computed using Net Income for Return less Interest Expense and divided by Total Operating Revenues.

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Operating Experience, Rate Base and Rates of Return
For the Test Year Ended September 30, 2010
Water Operations

Description	(1) Application Per Books $	(2) Accounting & Pro Forma Adjustments $	(3) After Accounting & Pro Forma Adjustments $	(4) Applicant's Proposed Increase $	(6) After Applicant's Proposed Increase $
Operating Revenues:					
Service Revenues - Water	2,173,555	260,064 (A)	2,433,619	1,973,636 (S)	4,407,255
Miscellaneous Revenues	95,741	29,603 (B)	125,344	114,115 (T)	239,459
Uncollectible Accounts	(244,489)	107,316 (C)	(137,173)	(341) (U)	(137,514)
Total Operating Revenues	2,024,807	396,983	2,421,790	2,087,410	4,509,200
Operating Expenses					
Maintenance Expenses	930,053	160,588 (D)	1,090,641	0	1,090,641
General Expenses	1,118,658	(215,886) (E)	902,772	0	902,772
Interest on Customer Deposits	0	741 (F)	741	0	741
Depreciation	393,833	(33,483) (G)	360,350	0	360,350
Amortization of CIAC	(107,375)	(7,691) (H)	(115,066)	0	(115,066)
Taxes Other Than Income	458,955	(311) (I)	458,644	19,852 (V)	478,496
Income Taxes - State & Federal	117,983	(300,251) (J)	(182,268)	790,841 (W)	608,573
Amortization Investment Tax Credit	(5,138)	0	(5,138)	0	(5,138)
Amortization of Plant Acq. Adj.	(4,673)	0	(4,673)	0	(4,673)
Total Operating Expenses	2,902,296	(396,293)	2,506,003	810,693	3,316,696
Total Operating Income	(877,489)	793,276	(84,213)	1,276,717	1,192,504
Less: Interest During Construction	5,477	(5,477) (K)	0	0	0
Less: Interest on Debt	379,400	(379,400) (L)	0	0	0
Plus: Customer Growth	0	0 (M)	0	14,206 (X)	14,206
Net Income for Return	(1,262,366)	1,178,153	(84,213)	1,290,923	1,206,710
Original Cost Rate Base:					
Gross Plant in Service	17,252,817	(256,924) (N)	16,995,893	0	16,995,893
Accumulated Depreciation	(3,437,523)	319,673 (O)	(3,117,850)	0	(3,117,850)
Net Plant in Service	13,815,294	62,749	13,878,043	0	13,878,043
Cash Working Capital	313,458	(64,281) (P)	249,177	0	249,177
Contributions in Aid of Construction	(6,044,637)	(553,263) (Q)	(6,597,900)	0	(6,597,900)
Accumulated Deferred Income Taxes	(862,018)	0	(862,018)	0	(862,018)
Customer Deposits	(127,325)	(741) (R)	(128,066)	0	(128,066)
Advances in Aid of Construction	(800)	0	(800)	0	(800)
Plant Acquisition Adjustment	(168,804)	0	(168,804)	0	(168,804)
Total Rate Base	6,925,168	(555,536)	6,369,632	0	6,369,632
Return on Rate Base	-18.23%		-1.32%		18.94%
Operating Margin	-81.08%		-12.15%		22.10%
Interest Expense	379,400	(169,364)	210,036		210,036

Note: Operating Margin is computed using Net Income for Return less Interest Expense and divided by Total Operating Revenues.

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Operating Experience, Rate Base and Rates of Return
For the Test Year Ended September 30, 2010
Sewer Operations

Description	(1) Application Per Books	(2) Accounting & Pro Forma Adjustments	(3) After Accounting & Pro Forma Adjustments	(4) Applicant's Proposed Increase	(6) After Applicant's Proposed Increase
	$	$	$	$	$
Operating Revenues:					
Service Revenues - Sewer	5,170,766	155,769 (A)	5,326,535	726,254 (S)	6,052,789
Miscellaneous Revenues	69,216	64,794 (B)	134,010	155,322 (T)	289,332
Uncollectible Accounts	(176,753)	234,891 (C)	58,138	(464) (U)	57,674
Total Operating Revenues	5,063,229	455,454	5,518,683	881,112	6,399,795
Operating Expenses					
Maintenance Expenses	1,819,544	36,253 (D)	1,855,797	0	1,855,797
General Expenses	808,735	(156,152) (E)	652,583	0	652,583
Interest on Customer Deposits	0	536 (F)	536	0	536
Depreciation	617,253	(14,022) (G)	603,231	0	603,231
Amortization of CIAC	(217,456)	(5,499) (H)	(222,955)	0	(222,955)
Taxes Other Than Income	331,801	1,372 (I)	333,173	8,380 (V)	341,553
Income Taxes - State & Federal	85,297	579,961 (J)	665,258	333,819 (W)	999,077
Amortization Investment Tax Credit	(3,714)	0	(3,714)	0	(3,714)
Amortization of Plant Acq. Adj.	(5,189)	0	(5,189)	0	(5,189)
Total Operating Expenses	3,436,271	442,449	3,878,720	342,199	4,220,919
Total Operating Income	1,626,958	13,005	1,639,963	538,913	2,178,876
Less: Interest During Construction	3,960	(3,960) (K)	0	0	0
Less: Interest on Debt	274,287	(274,287) (L)	0	0	0
Plus: Customer Growth	0	14,337 (M)	14,337	4,711 (X)	19,048
Net Income for Return	1,348,711	305,589	1,654,300	543,624	2,197,924
Original Cost Rate Base:					
Gross Plant in Service	34,967,470	94,932 (N)	35,062,402	0	35,062,402
Accumulated Depreciation	(5,358,157)	362,637 (O)	(4,995,520)	0	(4,995,520)
Net Plant in Service	29,609,313	457,569	30,066,882	0	30,066,882
Cash Working Capital	370,010	(56,462) (P)	313,548	0	313,548
Contributions in Aid of Construction	(12,052,034)	(290,123) (Q)	(12,342,157)	0	(12,342,157)
Accumulated Deferred Income Taxes	(623,196)	0	(623,196)	0	(623,196)
Customer Deposits	(81,259)	(11,327) (R)	(92,586)	0	(92,586)
Advances in Aid of Construction	(800)	0	(800)	0	(800)
Plant Acquisition Adjustment	(157,393)	0	(157,393)	0	(157,393)
Total Rate Base	17,064,641	99,657	17,164,298	0	17,164,298
Return on Rate Base	7.90%		9.64%		12.81%
Operating Margin	21.22%		19.72%		25.50%
Interest Expense	274,287	291,699	565,986		565,986

Note: Operating Margin is computed using Net Income for Return less Interest Expense and divided by Total Operating Revenues.

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
Accounting and Pro forma Adjustments			
Operating Revenues			
(A) Service Revenues			
1 To adjust service revenues to reflect test year customer billings.			
Per ORS	415,833	260,064	155,769
Per CWS	293,730	250,579	43,151
(B) Miscellaneous Revenues			
2 To adjust miscellaneous revenues to reflect various adjustment of the Water and Wastewater Department.			
Per ORS	94,397	29,603	64,794
Per CWS	0	0	0
(C) Uncollectible Accounts			
3 To adjust uncollectible accounts to reflect actual bad debt.			
Per ORS	342,207	107,316	234,891
Per CWS	(29,661)	(28,186)	(1,475)
(D) Maintenance Expenses			
Salaries & Wages			
4 To annualize operators' salaries for the test year.			
Per ORS	(13,918)	(8,072)	(5,846)
Per CWS	134,377	77,990	56,387
Purchased Sewer & Water			
5 To adjust for purchased sewer and water pass-through costs.			
Per ORS	249,878	210,484	39,394
Per CWS	249,878	210,484	39,394
Maintenance and Repair			
6 To remove water project write-off from operating expenses.			
Per ORS	(45,500)	(45,500)	0
Per CWS	0	0	0

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
Transportation			
7 To adjust for allocated transportation expense including fuel and auto repairs.			
Per ORS	(63,364)	(36,776)	(26,588)
Per CWS	(27,880)	(16,181)	(11,699)
Operating Expenses Charged to Plant			
8 To adjust operating expense charged to plant (capitalized time) for actual salary expenses and associated taxes and benefits.			
Per ORS	69,745	40,452	29,293
Per CWS	48,773	28,313	20,460
Total ORS - Maintenance Expenses	196,841	160,588	36,253
(E) General Expenses			
Salaries & Wages			
9 To annualize office salaries for the test year.			
Per ORS	(69,985)	(40,591)	(29,394)
Per CWS	(28,970)	(16,814)	(12,156)
Office Supplies & Other Office Expense			
10 To remove nonallowable amounts from office supplies and other office expenses.			
Per ORS	(41,144)	(23,880)	(17,264)
Per CSW	(127)	(74)	(53)
Regulatory Commission Expense			
11 To amortize current rate case expenses over a three-year period.			
Per ORS	(207,386)	(120,367)	(87,019)
Per CWS	(145,464)	(84,427)	(61,037)
Pension & Other Benefits			
12 To annualize pension and other benefits associated with the adjusted test year salaries.			
Per ORS	(40,464)	(23,469)	(16,995)
Per CWS	65,675	38,117	27,558

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
Non-Utility Miscellaneous Income and Expenses			
13 To remove non-utility income and expenses.			
Per ORS	(13,059)	(7,579)	(5,480)
Per CWS	0	0	0
Total ORS - General Expenses	(372,038)	(215,886)	(156,152)
(F) Interest on Customer Deposits			
14 To annualize interest on customer deposits.			
Per ORS	1,277	741	536
Per CWS	0	0	0
(G) Depreciation Expense			
15 To annualize depreciation expense for known and measurable plant in service.			
Per ORS	(47,505)	(33,483)	(14,022)
Per CWS	33,938	18,392	15,546
(H) Amortization of Contributions in Aid of Construction (CIAC)			
16 To annualize the amortization of CIAC.			
Per ORS	(13,190)	(7,691)	(5,499)
Per CWS	(17,617)	(8,696)	(8,921)
(I) Taxes Other Than Income			
17 To adjust payroll taxes associated with the adjusted test year salaries.			
Per ORS	(7,045)	(4,086)	(2,959)
Per CWS	12,185	7,072	5,113
18 To adjust gross receipts and utility/commission taxes after the accounting and pro forma adjustments using a factor of .00951022 (.003 for SCDOR and .00651022 for PSC/ORS.)			
Per ORS	8,106	3,775	4,331
Per CWS	294	251	43
Total Per ORS -Taxes Other Than Income	1,061	(311)	1,372

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
(J) Income Taxes			
19 To adjust state and federal income taxes after accounting and pro forma adjustments. See Audit Exhibit SGS-6.			
Per ORS	279,710	(300,251)	579,961
Per CWS	(160,620)	(507,594)	346,974
(K) Interest During Construction (IDC)			
20 To eliminate IDC for rate making purposes. Construction work in progress was not included in rate base; therefore, IDC is eliminated as an addition to net income.			
Per ORS	(9,437)	(5,477)	(3,960)
Per CWS	(9,437)	(5,477)	(3,960)
(L) Interest on Debt			
21 To eliminate interest expense from operating expenses. Adjusted interest expense will be used to compute an operating margin.			
Per ORS	(653,687)	(379,400)	(274,287)
Per CWS	180,333	(121,130)	301,463
(M) Customer Growth			
22 To adjust for customer growth after accounting and pro forma adjustments. The growth factors of 1.19126% for water and .87421% for wastewater were provided by the Water and Wastewater Department.			
Per ORS	14,337	0	14,337
Per CWS	0	0	0
(N) Gross Plant in Service			
23 To reflect adjusted vehicles allocated to CWS.			
Per ORS	(365,155)	(211,936)	(153,219)
Per CWS	(191,515)	(111,155)	(80,360)
24 To adjust gross plant in service for net additions documented as of June 2011.			
Per ORS	1,876,401	1,010,439	865,962
Per CWS	1,251,683	893,630	358,053

Carolina Water Service, Inc.
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Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
25 To reduce capitalized salaries, taxes, and benefits associated with Operating Expenses Charged to Plant.			
Per ORS	(69,745)	(40,452)	(29,293)
Per CWS	(48,773)	(28,313)	(20,460)
26 To include plant for water project that should be capitalized.			
Per ORS	45,500	45,500	0
Per CWS	0	0	0
27 To adjust for computer allocation updates and removal of a portion of the Customer Care and Billing System.			
Per ORS	(397,643)	(230,792)	(166,851)
Per CWS	0	0	0
28 To remove excess book value according to previous orders.			
Per ORS	(743,227)	(431,369)	(311,858)
Per CWS	0	0	0
29 To remove non-allowable plant.			
Per ORS	(508,123)	(398,314)	(109,809)
Per CWS	0	0	0
Total Per ORS	(161,992)	(256,924)	94,932
(O) Accumulated Depreciation			
30 To adjust for depreciation expense, retirements and nonallowable plant.			
Per ORS	682,310	319,673	362,637
Per CWS	120,359	69,856	50,503
(P) Cash Working Capital			
31 To adjust cash working capital after accounting and pro forma adjustments. See Audit Exhibit SGS-7.			
Per ORS	(120,743)	(64,281)	(56,462)
Per CWS	32,176	26,934	5,242
(Q) Contributions in Aid of Construction (CIAC)			
32 To adjust CIAC to reflect contributions after the test year.			
Per ORS	(856,576)	(560,954)	(295,622)
Per CWS	0	0	0

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
33 To adjust CIAC to reflect the amortization of CIAC expense as a result of ORS Adjustment 16.			
Per ORS	13,190	7,691	5,499
Per CWS	0	0	0
Total ORS CIAC	(843,386)	(553,263)	(290,123)
(R) Customer Deposits			
34 To adjust for interest on customer deposits as a result of Adjustment #14.			
Per ORS	(1,277)	(741)	(536)
Per CWS	0	0	0
35 To adjust to reflect correct customer deposits balance per books.			
Per ORS	(10,791)	0	(10,791)
Per CWS	0	0	0
Total ORS Customer Deposits	(12,068)	(741)	(11,327)
Proposed Increase			
(S)			
36 To adjust water and sewer service revenues for ORS's recalculation of the Company's proposed rate increase.			
Per ORS	2,699,890	1,973,636	726,254
Per CWS	2,470,877	1,966,875	504,002
(T)			
37 To adjust miscellaneous revenues for ORS's recalculation of the Company's proposed rate increase.			
Per ORS	269,437	114,115	155,322
Per CWS	0	0	0
(U)			
38 To adjust for uncollectible accounts associated with the Company's proposed rate increase.			
Per ORS	(805)	(341)	(464)
Per CWS	(238,469)	(221,241)	(17,228)

Carolina Water Service, Inc.
Docket No. 2011-47-WS
Explanation of Accounting and Pro Forma Adjustments
For the Test Year Ended September 30, 2010

Description	$ Combined Operations	$ Water Operations	$ Sewer Operations
(V)			
39 To adjust gross receipts and utility/commission taxes associated with the Company's proposed increase using a factor of .00951022 (.003 for SCDOR and .00651022 for PSC/ORS.)			
Per ORS	28,232	19,852	8,380
Per CWS	2,471	1,967	504
(W)			
40 To adjust state and federal income taxes associated with the Company's proposed increase. See Audit Exhibit SGS-6.			
Per ORS	1,124,660	790,841	333,819
Per CWS	852,950	666,952	185,998
(X)			
41 To adjust for customer growth after the proposed increase. The growth factors of 1.19126% for water and .87421% for wastewater were provided by the Water and Wastewater Department.			
Per ORS	18,917	14,206	4,711
Per CWS	0	0	0