AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 1

Data Request Received: November 6, 2009
Request No.: Staff 1- 6 (Revised)

Date of Response: December 4, 2009
Witness: T. Dixon

REQUEST: Please provide an estimate of the anticipated rate impacts associated with the respective year's projects contained in the Company's filing. In answering, please provide the underlying calculations upon which the Company's estimates are based.

RESPONSE: Please see Staff 1-6 Attachment A (Revised) for the computations for each of the respective years' estimated surcharge. The resultant rate impacts are illustrated below:

Year	WICA Surcharge %	WICA Surcharge Amount	Cumulative WICA Surcharge %	Cumulative WICA Surcharge Amount	Annual Customer Bill*
Current					$486.90
1	2.01%	$9.79	2.01%	$9.79	$496.69
2	1.74%	$8.47	3.75%	$18.26	$505.16
3	1.42%	$6.91	5.17%	$25.17	$512.07

*Typical residential bill using 67,000 gallons per year.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

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	2010	2011	2012
Plant Additions[1]	$ 908,000	$ 784,000	$ 643,000
Pre Tax Rate of Return	10.50%	10.50%	10.50%
Revenue Requirement	$ 95,326	$ 82,308	$ 67,505
Depreciation	12,529	11,056	9,158
Property Taxes	11,656	9,994	8,192
Overall Revenue Requirement	$ 119,511	$ 103,358	$ 84,855
Cumulative Revenue Requirement	$ 119,511	$ 222,869	$ 307,724
Revenues per DW 08-098	$ 6,094,612		
Less: Misc Charges	(137,480)		
Base Revenues	$ 5,957,132		
Overall Revenue Surcharge Amount	**2.01%**	**1.74%**	**1.42%**
Cumulative Revenue Surcharge Amount	**2.01%**	**3.74%**	**5.17%**

Calculation of Pre Tax Rate of Return

	Weighted Cost	Tax Multiplier	Pre Tax Cost
Debt	3.64%	1.000	3.64%
Equity	4.08%	1.681	6.86%
	7.72%		10.50%

[1] Assumes approval and completion of all projects per the October 30, 2009 filing.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 1

Data Request Received: November 6, 2009
Request No.: Staff 1- 6 (Revised)

Date of Response: December 4, 2009
Witness: T. Dixon

2010	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement[1]	Net Investment	Depreciation Rate[2]	Depreciation Expense	Mil Rate[3]	Property Tax Expense
Mains	**$ 738,000**	$ (25,490)	$ 712,510	1.20%	$ 8,550	14.01	$ 9,982
Meters	$ 125,000	$ (47,252)	$ 77,748	3.80%	$ 2,954	14.01	$ 1,089
Hydrants	$ 20,000	$ (1,751)	$ 18,249	2.40%	$ 438	14.01	$ 256
Services	$ 20,000	$ (1,348)	$ 18,652	1.85%	$ 345	14.01	$ 261
Valves	$ 5,000	$ (173)	$ 4,827	5.00%	$ 241	14.01	$ 68
Total	$ 908,000	$ (76,014)	$ 831,986		$ 12,529		$ 11,656

2011	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement[1]	Net Investment	Depreciation Rate[2]	Depreciation Expense	Mil Rate[3]	Property Tax Expense
Mains	**$ 617,000**	$ (21,311)	$ 595,689	1.20%	$ 7,148	14.01	$ 8,346
Meters	$ 122,000	$ (46,118)	$ 75,882	3.80%	$ 2,884	14.01	$ 1,063
Hydrants	$ 20,000	$ (1,751)	$ 18,249	2.40%	$ 438	14.01	$ 256
Services	$ 20,000	$ (1,348)	$ 18,652	1.85%	$ 345	14.01	$ 261
Valves	$ 5,000	$ (173)	$ 4,827	5.00%	$ 241	14.01	$ 68
Total	$ 784,000	$ (70,701)	$ 713,299		$ 11,056		$ 9,994

2012	Investment			Depreciation Expense		Property Tax Expense	
	Investment	Retirement[1]	Net Investment	Depreciation Rate[2]	Depreciation Expense	Mil Rate[3]	Property Tax Expense
Mains	$ 498,000	$ (17,201)	$ 480,799	1.20%	$ 5,770	14.01	$ 6,736
Meters	$ 100,000	$ (37,802)	$ 62,198	3.80%	$ 2,364	14.01	$ 871
Hydrants	$ 20,000	$ (1,751)	$ 18,249	2.40%	$ 438	14.01	$ 256
Services	$ 20,000	$ (1,348)	$ 18,652	1.85%	$ 345	14.01	$ 261
Valves	$ 5,000	$ (173)	$ 4,827	5.00%	$ 241	14.01	$ 68
Total	$ 643,000	$ (58,275)	$ 584,725		$ 9,158		$ 8,192

[1] Retirement values are estimates only. Actual retirement values will be presenteded within the completed surcharge filing.

[2] As per order 25,019 in Case DW 08-098

[3] The current Mil Rate in Hampton, NH was used as an example.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-15

Date of Response: December 4, 2009
Witness: T. Dixon

REQUEST: Does Aquarion plan to notify customers in advance of implementation of the WICA surcharge?

a) If so, please explain what type of notification will be used.

b) Please identify the content of the notification.

c) Please identify the time frame notification will occur prior to the implantation of the WICA surcharge.

RESPONSE: a) Aquarion has plans to communicate information to its customers via the following:

- A letter describing WICA inserted into customer bills. (A bill insert is estimated to cost $560 versus $5,605 for a direct customer mailing.)
- Similar content posted to the Aquarion website.
- Additional content in Water Watch (Aquarion's customer newsletter).
- Detailed information in the comments section of the bill at the time of the first surcharge, or at the time of a change in the surcharge percentage.
- Definition of WICA on the back of the bill and suggesting customers check our website or call for additional information.

b) The content of the WICA notifications will be similar to that used at the time of the implementation of WICA in CT. It will include information such as: *What is WICA?, How does WICA work?,* and *What are the benefits of WICA?* The content will be customized for Aquarion New Hampshire customers. The bill insert used for CT customers is attached in Staff 2-15 Attachment A as an example.

c) The Company expects the bill insert to go out in the 3rd quarter of 2010.

AQUARION
Water Company

Aquarion Water Company
835 Main Street
Bridgeport, CT 06604
www.aquarionwater.com

203.445.7310 phone
800.732.9678 (toll free)

Dear Aquarion Water Customer:

Replacing aging infrastructure has always been a part of our capital project work, but more is needed. As an Aquarion Water Company customer, you will see a new line in your bill this year: a small surcharge in accordance with the Water Infrastructure and Conservation Act (WICA). This Act was designed to facilitate more timely replacements of aging infrastructure, such as old or problematic water mains, valves that manage the flow of water through the mains, Aquarion-owned fire hydrants, meters and leak-detection equipment.

What is WICA? The Connecticut State Legislature approved the surcharge bill called WICA (Water Infrastructure and Conservation Adjustment) in 2007 to cover the replacement of water distribution system pipes and related infrastructure that have either reached the end of their useful life, or are negatively impacting water quality or service reliability. The legislation limits the surcharge to 5% in any given year, and 7.5% between full rate cases. For increases beyond these amounts, water companies must submit full applications for a formal rate case.

How Does WICA Work? As an example, if Aquarion applied and received approval for a 1% WICA adjustment, the increase would amount to about just over 1 cent per day for a typical family of four using 200 gallons of water a day. The surcharge will require approval by the Department of Public Utility Control and would take affect no sooner than April 1, 2009.

What are the Benefits of WICA? The benefits of WICA to our customers are two-fold. First, you will see timelier, smaller increases to your water bill than you have experienced in the past. Second, you will benefit from enhanced quality and reliability, because improving our infrastructure enables us to improve our service and delivery.

Our Commitment to You. All of our employees at Aquarion Water Company of Connecticut appreciate the important responsibility placed upon us to bring an ample supply of clean, healthy water that meets or exceeds quality standards required by State and Federal public health agencies. Our commitment to you is to continue to provide high quality water with outstanding service, and WICA will allow us to achieve this.

If you desire more information about the surcharge, please visit our website at www.aquarionwater.com or contact us locally at (203) 445-7310 [toll-free at (800) 732-9678].

Sincerely,

Charles V. Firlotte
President & CEO

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-16

Date of Response: December 4, 2009
Witness: T. Dixon

REQUEST: Please provide a sample customer bill which indicates how the WICA surcharge will be displayed to customers.

RESPONSE: Please refer to Staff 2-16 Attachment A.

50850220989-x/O

AQUARION Water Company

Stewards of the Environment

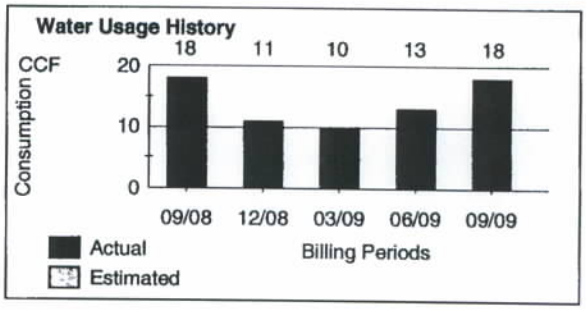
Contact Us: (800) 403-4333
Website: www.aquarionwater.com

Account Number: 200000000
Total Charges: $93.78
Statement Date: 09/17/09
Service for: ACADIA AVE
HAMPTON NH 03842

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
78417359 (5/8")	06/16/09 - 09/15/09	92	From / To 466 / 484	Actual	18 hundred cubic feet (13 thou. g)	Approximately 12/14/09

Account Detail

Outstanding Balance	**76.96**
Payment Received (07/03/2009), Thank You	- 76.96
Outstanding Balance	0.00
Current Charges	
Service Charge	33.81
Usage Charge 18 ccf @ $3.2760	58.97
WICA	.93
Total Current Balance due by 10/10/2009	93.78
Total Balance	$93.78
Amount Due After 10/19/2009	$98.46



SPECIAL NOTES

CONTACT INFORMATION: Please call our offices for questions about your account, payment locations or to obtain a copy of our rate schedules at (603) 926-3319 or toll-free (800) 403-4333. For after-hour emergencies, call (603) 926-3319 ext. 9.

WICA: This bill contains a 1% Water Inftrastructure and Conservation Adjustment (WICA) charge. For further information, please refer to the back of your bill.

AQUARION Water Company

Stewards of the Environment

Aquarion Water Company of NH
1 Merrill Industrial Drive
Hampton, NH 03842

ACCOUNT NUMBER	TOTAL	PAYMENT ENCLOSED
200204327	$93.78	

Pay Current Charges By 10/19/2009

Please indicate account number and amount enclosed to ensure prompt credit to your account.

AQUARION CUSTOMER
ACADIA AVENUE
HAMPTON NH 03842

Aquarion Water Company of NH
PO Box 821
LEWISTON ME 04243-0821

☐ Check here for address or telephone number changes. See reverse side.

Contact our Customer Service Center:

For questions regarding rates, billing, collections or service, please contact us toll free at (800) 403-4333 or locally at (603) 926-3319.
You may also write us at:

Aquarion Water Company of New Hampshire
1 Merrill Industrial Drive
Hampton, NH 03842

Our walk-in office hours are Monday through Friday, 8:00 a.m. - 4:30 p.m.

Visit our website at www.aquarionwater.com to sign up for ***aquariOnline;*** receive and view your bill on-line. It's easy, fast and free!

After-hours emergencies: (603) 926-3319, ext. 9

Your Right to Dispute Your Water Bill:
If you believe your bill is inaccurate or for any other reason you wish to dispute it, please call us by telephone (603) 926-3319 or (800) 403-4333 toll-free, or by mail or in person at the address noted above to explain what you believe to be in error. We will promptly investigate your complaint and notify you of the resolution.

If you are not satisfied with the decision of Aquarion relative to your bill and you still consider the bill to be inaccurate in any respect, or if you have any other complaint regarding the matter, you have the right to appeal to the New Hampshire Public Utilities Commission.

State of New Hampshire
Public Utilities Commission
21 S. Fruit Street, Suite 10
Concord, NH 03301-2429
(603) 271-2431
(800) 852-3793 (NH only)

****WICA Charge Explanation: Your current bill includes a Water Infrastructure and Conservation Adjustment (WICA) charge. This adjustment covers costs of completed infrastructure improvements that have both enhanced the reliability of water service and its delivery to our customers. Further information may be obtained from our website www.aquarion.com or by contacting customer service at (800) 403-4333 or locally at (603) 926-3319.**

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Please indicate address or telephone number changes

NAME:_____

ADDRESS:_____

CITY:_____

STATE:_____ ZIP_____

TELEPHONE:_____

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 1

Data Request Received: November 6, 2009
Request No.: Staff 1- 1

Date of Response: November 16, 2009
Witness: C. McMorran

REQUEST: The first paragraph on the second page of the cover letter states "[t]he proposed main replacement projects were prioritized from 56 potential main replacement projects based on main break history, pipe age/useful life …." Further detail is provided on page 1 of the attached schedules. Please provide any additional analysis or data Aquarion reviewed when it ranked the 56 projects in order of priority, as well as the final tabulation of numbers used in the ranking.

RESPONSE: Please refer to Staff 1-1 Attachment A (NH Proposed Main Replacement Projects) which shows the prioritization details for the 56 possible main replacement projects.

Aquarion Water Company of New Hampshire

Main Replacement Projects

						PRIORITIZATION FACTORS									
						1	2	3	4	5	6	7	8	9	
Priority	PIPE SEGMENT OR PROJECT NAME	Town	LENGTH (FEET)	PIPE DIAMETER (INCHES)	ESTIMATED COST	MAIN BREAK HISTORY	PIPE AGE / USEFUL LIFE	MATERIAL INTEGRITY	CRITICAL / SYSTEM IMPACT	WATER QUALITY ISSUES	HYDRAULIC CAPACITY	SCHEDULED WORK COORDINATION	OTHER FACTOR (SPECIFY)	STAFF RATING	TOTAL
1	Atlantic Avenue - Mill Road to Woodland Road	North Hampton	3,550	8	$ 642,000	3	2	3	0	3	0	0	0	0	11
2	Ocean Boulevard - Dumas Avenue to Winnacunnet Road	Hampton	4,200	12	$ 842,000	3	3	3	3	0	0	0	0	3	15
3	Church Street - Highland Avenue to William Street	Hampton	700	12	$ 188,000	3	2	3	3	0	0	0	0	0	11
4	Atlantic Avenue - Maple Road to Woodland Road	North Hampton	2,350	8	$ 428,000	3	2	3	0	3	0	0	0	0	11
5	Meadow Pond Road	Hampton	700	8	$ 165,000	3	3	3	0	0	0	0	0	1	10
6	Atlantic Avenue - Ocean Boulevard to Sea Road	North Hampton	1,700	8	$ 291,000	3	2	3	3	3	0	0	0	0	14
7	Atlantic Avenue - Maple Road to Sea Road	North Hampton	2,500	8	$ 450,000	3	2	3	0	3	0	0	0	0	11
8	Mill Road - Palmer Street to Sicard Street	Hampton	400	12	$ 132,000	3	2	2	3	0	0	0	0	0	10
9	Well 7 - Pumphouse to Little River Road	Hampton	900	12	$ 161,000	3	1	1	3	0	0	0	0	1	9
10	Route 101 - Church Street to Tide Mill Road	Hampton	3,700	12	$ 742,000	3	1	2	3	0	0	0	0	1	10
11	King's Highway - First Street to High Street	Hampton	5,000	12	$ 976,000	3	3	3	0	0	0	0	0	1	10
12	Sea Road - Atlantic Avenue to Ocean Boulevard	North Hampton	1,100	8	$ 226,000	3	2	3	0	3	0	0	0	0	11
13	Ocean Boulevard - First Street to Winnacunnet	Hampton	1,000	8	$ 239,000	3	3	3	0	0	0	0	0	0	9
14	Ocean Boulevard - First Street to Nineteenth Street	Hampton	5,200	12	$ 1,001,000	3	3	3	0	0	0	0	0	0	9
15	First Street	Hampton	900	8	$ 145,000	3	3	2	0	0	0	0	0	1	9
16	Ocean Boulevard - D Street to H Street	Hampton	1,000	12	$ 190,000	3	3	3	0	0	0	0	0	3	12
17	Ocean Boulevard - Dover Avenue to H Street	Hampton	2,800	12	$ 528,000	3	3	3	0	0	0	0	0	2	11
99	Well 9 Transmission Main - Pumphouse to Mill Road	Hampton	500	8	$ 64,000	1	2	3	3	0	0	0	0	0	9
99	Ocean Boulevard - Appledore Avenue to Sea Road	North Hampton	2,600	12	$ 491,000	3	3	3	0	0	0	0	0	0	9
99	Ocean Boulevard - Ancient Highway to Cusack Road	Hampton	1,000	12	$ 190,000	3	3	3	0	0	0	0	0	0	9
99	Ocean Boulevard - Ancient Highway to Appledore Avenue	Hampton	3,500	12	$ 662,000	3	3	3	0	0	0	0	0	0	9
99	Fifteenth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	1	9

Aquarion Water Company of New Hampshire

Main Replacement Projects

						PRIORITIZATION FACTORS									
						1	2	3	4	5	6	7	8	9	
Priority	PIPE SEGMENT OR PROJECT NAME	Town	LENGTH (FEET)	PIPE DIAMETER (INCHES)	ESTIMATED COST	MAIN BREAK HISTORY	PIPE AGE / USEFUL LIFE	MATERIAL INTEGRITY	CRITICAL / SYSTEM IMPACT	WATER QUALITY ISSUES	HYDRAULIC CAPACITY	SCHEDULED WORK COORDINATION	OTHER FACTOR (SPECIFY)	STAFF RATING	TOTAL
99	Chapel Road - Maple Avenue to Willow Avenue	North Hampton	4,400	8	$ 702,000	0	1	2	3	0	3	0	0	0	9
99	BrownAvenue	Hampton	2,700	8	$ 450,000	3	1	2	3	0	0	0	0	0	9
99	Ancient Highway	Hampton	1,600	8	$ 281,000	3	3	3	0	0	0	0	0	0	9
99	Twelfth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Thirteenth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Tenth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Sixth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Seventh Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Ninth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Mill Road Wellfield Transmission Main to Mill Road	North Hampton	2,600	10	$ 440,000	0	2	3	3	0	0	0	0	0	8
99	McKay Avenue / Charles Street	Hampton	1,000	8	$ 161,000	3	3	2	0	0	0	0	0	0	8
99	J Street	Hampton	600	8	$ 97,000	3	3	2	0	0	0	0	0	0	8
99	Fuller Acres	Hampton	600	8	$ 95,000	3	3	2	0	0	0	0	0	0	8
99	Fourteenth Street	Hampton	300	8	$ 49,000	3	3	2	0	0	0	0	0	0	8
99	Eleventth Street	Hampton	500	8	$ 64,000	3	3	2	0	0	0	0	0	0	8
99	Winnacunnet Road - Ocean Boulevard to Thorwald Street	Hampton	1,000	12	$ 239,000	1	3	3	0	0	0	0	0	0	7
99	Willow Avenue - Chapel Road to Ocean Boulevard	North Hampton	1,500	8	$ 291,000	0	2	2	3	0	0	0	0	0	7
99	Mooring Drive	Hampton	600	8	$ 97,000	3	2	2	0	0	0	0	0	0	7
99	Gill Street	Hampton	500	8	$ 80,000	3	2	2	0	0	0	0	0	0	7
99	Old Locke Road - AC Section	North Hampton	1,200	8	$ 192,000	3	2	1	0	0	0	0	0	0	6
99	Old Beach Road - Breakers Road to Straws Point Road	Rye	2,000	8	$ 320,000	3	1	2	0	0	0	0	0	0	6
99	Greene Street	Hampton	500	8	$ 80,000	3	1	1	0	0	0	0	0	1	6

Aquarion Water Company of New Hampshire

Main Replacement Projects

						PRIORITIZATION FACTORS									
						1	2	3	4	5	6	7	8	9	
Priority	PIPE SEGMENT OR PROJECT NAME	Town	LENGTH (FEET)	PIPE DIAMETER (INCHES)	ESTIMATED COST	MAIN BREAK HISTORY	PIPE AGE / USEFUL LIFE	MATERIAL INTEGRITY	CRITICAL / SYSTEM IMPACT	WATER QUALITY ISSUES	HYDRAULIC CAPACITY	SCHEDULED WORK COORDINATION	OTHER FACTOR (SPECIFY)	STAFF RATING	TOTAL
99	Glade Path Road	Hampton	1,500	8	$ 239,000	3	1	2	0	0	0	0	0	0	6
99	Gentian Road	Hampton	600	8	$ 97,000	3	1	1	0	0	0	0	0	1	6
99	Ashworth Avenue - Dover Avenue to *HDPE Pipe*	Hampton	1,100	12	$ 261,000	0	3	3	0	0	0	0	0	0	6
99	Riverview Terrace	Hampton	500	8	$ 80,000	3	1	1	0	0	0	0	0	0	5
99	Perkins Avenue	Hampton	600	8	$ 146,000	3	1	1	0	0	0	0	0	0	5
99	Fairway Drive	Hampton	2,000	8	$ 320,000	3	1	1	0	0	0	0	0	0	5
99	Cole Street	Hampton	600	8	$ 97,000	3	1	1	0	0	0	0	0	0	5
99	Q Street	Hampton	400	8	$ 64,000	2	1	1	0	0	0	0	0	0	4
99	Island Path - Ashworth Avenue to Jones Avenue	Hampton	900	8	$ 145,000	0	2	2	0	0	0	0	0	0	4
99	Sunsurf Avenue	Hampton	400	8	$ 64,000	0	3	3	0	0	0	0	-6	0	0
99	Dumas Avenue	Hampton	400	8	$ 64,000	0	3	3	0	0	0	0	-6	0	0
99	Boar's Head Terrace	Hampton	400	8	$ 64,000	0	3	3	0	0	0	0	-6	0	0
				TOTAL	$ 14,311,000										

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-3

Date of Response: December 4, 2009
Witness: C. McMorran

REQUEST: Please provide an explanation of how the following criteria were used in determining the priority of the 56 proposed projects listed on Attachment A to Aquarion's response to Staff 1-1:

a) Main Break History,
b) Pipe Age/Useful Life,
c) Material Integrity,
d) Criticality to System Function,
e) Water Quality Problems,
f) Hydraulic Capacity,
g) Schedule Coordination with Other Projects,
h) Water Utility Staff Input and Concerns, and
i) Capital Budget Constraints.

RESPONSE: See Staff 2-3 Attachment A for WICA rating information on items a) through f)

a) Main Break History – Pipe segments were scored as follows:

Three or more breaks per thousand feet	score 3
Two breaks per thousand feet	score 2
One break per thousand feet	score 1
No history of breaks	score 0

b) Pipe Age / Useful Life – Pipe segments were given weighted points based on age as follows:

Pre 1920	30
1920 – 1939	24
1940 – 1954	15
1955 – 1969	6
1970 – 1979	3
1980 – 1989	1.5
1990 – 1999	0.6
2000 – 2007	0

Pipe segment points were summed by street and the totals scored as follows:

Failing	71 or more points	score 3
Poor	51 – 70 points	score 2
Fair	26 - 50 points	score 1
Good	0 - 25 points	score 0

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-3

Date of Response: December 4, 2009
Witness: C. McMorran

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c) Material Integrity - Pipe segments were given weighted points based on material as follows:

Universal Pipe (UP)	40
Cast Iron, unlined (CI)	36
Leaded Joint (LJ)	32
Galvanized Steel (GS)	28
Cast Iron, cement lined (CICL)	20
Ductile Iron (DI)	12
Asbestos Cement (AC)	8
HDPE	0
PVC	0

Pipe segment points were summed by street and the totals scored as follows:

Very Low	60 or more points	score 3
Low	41 – 60 points	score 2
Medium	21 – 40 ponts	score 1
High	0 – 20 points	score 0

d) Criticality to System Function – Pipe Segments were scored as follows:

Essential System Component (water main between production well and storage tank)	score 3
Medical Facility	score 2
Other Important Facility (school, public service building)	score 1
Not critical	score 0

e) Water Quality - Pipe Segments were scored as follows:

Water age concern	score 3
Identified water quality concern	score 2
Reported water quality concern	score 1
No water quality concerns	score 0

f) Hydraulic Capacity - Pipe Segments were scored as follows:

Required flow rate greater than 2,500 gpm	score 3
Required flow rate between 1,000 and 2,500 gpm	score 2
Required flow rate less than 1,000 gpm	score 1
No hydraulic deficiency	score 0

Data Request Received: November 20, 2009
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g) Schedule Coordination - Pipe Segments were scored as follows:

Scheduled road work within the next year	score 3
Scheduled road work within two to three years	score 2
Scheduled road work within three to five years	score 1
No scheduled road work	score 0

h) Staff Input – The list of candidate main replacements were discussed among Company personnel and rated between 3 and 0 by consensus.

The scores for a) through h) were added to produce a total score for the pipe on each section of street.

i) Capital Budget Constraints – Main replacements will not be scheduled in strict order of their priority scores because the estimated project costs exceed available capital funds in some years. Projects must be shifted from year to year depending on what other projects, both WICA and non-WICA, are also being considered. See the Company's response to Staff 2-7 for an example of this process.

Water Main Breaks WICA Ratings

WICA Rating	Priority	Criteria
3	High Priority	3 or more breaks per 1,000 feet
2	Moderate Priority	2 breaks per 1,000 feet
1	Low Priority	1 break per 1,000 feet
0	Non Priority	No history of breaks

Pipe Age/Useful Life WICA Ratings

WICA Rating	Priority	Criteria
3	High Priority	▪ Pipe Age/Useful Life score greater than70
2	Moderate Priority	▪ Pipe Age/Useful Life score 51 through 70
1	Low Priority	▪ Pipe Age/Useful Life score 26 through 50
0	Non Priority	▪ Pipe Age/Useful Life score less than 26

Material Integrity WICA Ratings

WICA Rating	Priority	Criteria
3	High Priority	▪ Material Integrity score greater than 60
2	Moderate Priority	▪ Material Integrity score 41 through 60
1	Low Priority	▪ Material Integrity score 21 through 40
0	Non Priority	▪ Material Integrity score less than 20

Critical System Impact WICA Ratings		
WICA Rating	**Priority**	**Criteria**
3	High Priority	System component
2	Moderate Priority	Medical facility
1	Low Priority	Other critical facility/water main
0	Non Priority	Not critical

Water Quality WICA Ratings		
WICA Rating	**Priority**	**Criteria**
3	High Priority	Water age concern
2	Moderate Priority	Identified water quality concern
1	Low Priority	Reported water quality concern
0	Non Priority	No water quality concerns

Hydraulic WICA Ratings		
WICA Rating	**Priority**	**Criteria**
3	High Priority	Recommended flow greater than 2,500 gpm
2	Moderate Priority	Recommended flow 1,000 to 2,500 gpm
1	Low Priority	Recommended flow less than 1,000 gpm
0	Non Priority	No hydraulic deficiency

Scheduled Work WICA Ratings		
WICA Rating	**Priority**	**Criteria**
3	High Priority	Work scheduled within the next year
2	Moderate Priority	Work scheduled in two to three years
1	Low Priority	Work scheduled in three to five years
0	Non Priority	No work scheduled within next five years

Pipe Age/Useful Life Grading System			
Weight	**Performance Criteria**	**Rating**	**Weighted Rating**
40%	**Material**		
	Universal Pipe	100	40
	Unlined Cast Iron	90	36
	Prestressed Concrete Cylinder Pipe	80	32
	Galvanized Steel	70	28
	Cement Lined Cast Iron	50	20
	Ductile Iron	30	12
	Asbestos Cement	20	8
	Plastic	0	0
30%	**Installation Date**		
	1900-1919	100	30
	1920-1939	80	24
	1940-1954	50	15
	1955-1969	20	6
	1970-1979	10	3
	1980-1989	5	1.5
	1990-1999	2	0.6
	2000-2009	0	0
15%	**Diameter**		
	4-inch water main and smaller	100	15
	6-inch water main	80	12
	8-inch water main	20	3
	10-inch water main	15	2.25
	12-inch water main	10	1.5
	16-inch water main	5	0.75
	20-inch water main	0	0
15%	**Soil**		
	Salt influence, landfill, stray current	100	15
	Clay, Stream Crossing	80	12
	Gravel, sand	0	0
0%	**Static Pressure**		
	Greater than 125 psi	100	0
	101 to 125 psi	80	0
	80 to 10 0psi	60	0
	Less than 80 psi	0	0

Material Integrity Grading System			
Weight	**Performance Criteria**	**Rating**	**Weighted Rating**
40%	**Material**		
	Universal Pipe	100	40
	Unlined Cast Iron	90	36
	Prestressed Concrete Cylinder Pipe	80	32
	Galvanized Steel	70	28
	Cement Lined Cast Iron	50	20
	Ductile Iron	30	12
	Asbestos Cement	20	8
	Plastic	0	0
40%	**Internal Corrosion (Unlined metal pipes only)**		
	Friction Factor less than 50	100	40
	Friction Factor 50 to 69	80	32
	Friction Factor 70 to 90	50	20
	Friction Factor greater than 90	20	8
0%	**Manufacturer Problem**		
	Known manufacturer defect	100	0
	No known manufacturer defect	0	0
20%	**External Corrosion**		
	Salt influence, landfill, stray current	100	20
	Clay, Stream Crossing	80	16
	Gravel, sand	0	0
0%	**Leaks**		
	3 or more per 1,000 feet	100	0
	2 per 1,000 feet	80	0
	1 per 1,000 feet	60	0
	None	0	0

Asset Management Grading System			
Weight	**Performance Criteria**	**Rating**	**Weighted Rating**
25%	Break History		
	History of breaks	100	25
	No history of breaks	0	0
20%	Material		
	Universal Pipe	100	20
	Unlined Cast Iron	90	18
	Prestressed Concrete Cylinder Pipe	80	16
	Galvanized Steel	70	14
	Cement Lined Cast Iron	50	10
	Ductile Iron	30	6
	Asbestos Cement	20	4
	Plastic	0	0
10%	Installation Date		
	1900-1919	100	10
	1920-1939	80	8
	1940-1954	50	5
	1955-1969	20	2
	1970-1979	10	1
	1980-1989	5	0.5
	1990-1999	2	0.2
	2000-2009	0	0
10%	Diameter		
	4-inch water main and smaller	100	10
	6-inch water main	80	8
	8-inch water main	20	2
	10-inch water main	15	1.5
	12-inch water main	10	1
	16-inch water main	0	0
25%	Soil		
	Salt influence, landfill, stray current	100	25
	Clay Stream Crossing	80	20
	Gravel, sand	0	0
10%	Water Quality		
	History of water quality concerns	100	10
	No water quality concerns	0	0

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-5

Date of Response: December 4, 2009
Witness: C. McMorran

REQUEST: Attachment A to Aquarion's response to Staff 1-1 contains "0" indicating a "low" priority score for "hydraulic capacity" and for "scheduled work coordination" for all 56 projects. Please explain why the Prioritization Factor for "hydraulic capacity" and "scheduled work coordination" was consistently a "0" for low priority.

RESPONSE: Typographical errors were found and corrected on hydraulic capacity scores for two Atlantic Avenue sections (Mill Road to Woodland Road and Maple Road to Woodland Road), and for Mill Road (Palmer Street to Sicard Street). These are "3", not "0" (see attachment to Staff 2-11). All other hydraulic capacity scores are correct.

Scheduled work coordination refers to efforts to coordinate water main replacement construction projects with other paving and excavation projects conducted by Hampton and Rye's Road and Sewer Departments, North Hampton's Road Department, NH DOT, gas and electric utilities (Unitil and PSNH). Preparation of the 2010 WICA proposal included contacts with Town public works directors for paving schedules. Please note that the last three projects on the list are rated at –6, which is simply a number large enough to drop these projects to the bottom of the list. These streets were paved in 2009 and now have a 5-year moratorium on non-emergency street opening permits, therefore they are ineligible for non-emergency replacement until 2015, regardless of how high they may score in other priority categories.

Our intent is to contact these organizations during budget cycles to coordinate projects as much as practical.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 1

Data Request Received: November 20, 2009
Request No.: Staff 2-6

Date of Response: December 4, 2009
Witness: C. McMorran

REQUEST: With respect to Aquarion's statement at the technical session that its priority project list is a shifting target, please explain what factors contribute to the changeable nature of the priority list proposed in the WICA filing.

RESPONSE: Several factors will change in priority over time, e.g.:

1. Main Breaks – the frequency of breaks on any given segment of pipe may increase in coming years, which will increase the score. Also, the specific locations of some main breaks create more problems compared to others such that our top choices for main replacements may not be based strictly on score.

2. Criticality – other system improvements may reduce the relative importance of a particular pipe segment. For example, a loop project may create redundancy and/or eliminate a bottleneck.

3. Water Quality Problems – frequency and nature of water quality issues may change over time, due to factors such as adjustments in treatment or other operating conditions, which could increase or decrease the score for any particular pipe segment.

4. Schedule Coordination – it's difficult to forecast paving projects, since many are voted on at Town meetings each spring. There is always the possibility that a scheduled main replacement project will be postponed when one of the Towns conducts paving that was not previously scheduled.

5. Staff Input – The experience and field knowledge of Aquarion's staff with distribution mains change over time through ongoing operating and maintenance activities. Staff opinion regarding the relative priorities of different main replacement projects changes in response to day-by-day working experience with the system.

6. Capital Budget Constraints - Main replacements cannot be scheduled in strict order of their priority scores because the estimated project costs exceed available capital funds in some years. Projects must be shifted from year to year depending on what other projects, both WICA and non-WICA, are also being considered. See our response to Staff 2-7 for an example of this process.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 1

Data Request Received: November 20, 2009
Request No.: Staff 2-7

Date of Response: December 4, 2009
Witness: C. McMorran

REQUEST: A project listed in Attachment A to Aquarion's response to Staff 1-1 as project #16 and receiving a score of 12 ranked lower than other projects receiving a lower score. Please explain what factors Aquarion considered in placing project #16 where it is in the priority list.

RESPONSE: The 2010 WICA main replacement schedule was prepared as follows:

- From Tata & Howard's capital efficiency evaluation, a list of 56 potential main replacment projects were identified.
- Cost estimates were revised by adding Aquarion labor, overhead, etc.
    - All but the smallest projects were split into a design phase and a construction phase because:
        - It is very difficult, if not impossible, to get a project designed, permitted, bid and constructed in a single calendar year. Design, permits and bids alone require six to eight months.
        - Project construction typically can't start before mid-April due to seasonal constraints. Town and State road departments will not issue street opening permits until winter frost is gone. To meet the year end WICA filing deadline, projects must be used, useful and booked by the end of the 3rd quarter, further reducing the season for construction.
        - Projects on Hampton Beach are not permitted during the summer tourist season (Memorial Day to Labor Day)
- Additional factors were evaluated (e.g., streets closed to work due to recent paving; other information from Company field personnel on these main projects)
- The top projects were then scheduled based on how to best fit the projects' costs into the overall capital budget.
    - Atlantic Avenue was split into 2010 and 2011 construction phases because our capital budget is not adequate to construct both phases in 2010.
    - Design of Ocean Boulevard (Dumas to Winnacunnet) was scheduled for 2010. Estimated construction costs are over $750,000. Construction is planned for three phases in separate years because the cost is too high to complete in a single year. By spreading construction over three years, capital funding becomes available for the design of other projects.
    - Church Street was scheduled for 2010 design and 2011 construction because the estimated project costs fit best with available capital funds in those years.
    - Meadow Pond Road 2011 design and 2012 construction; and 2013 designs for Atlantic Avenue (Ocean to Sea and Maple to Sea), Mill Road (Palmer to Sicard) and Well 7 transmission line were scheduled because project costs fit into available capital funds for those years.

AQUARION WATER COMPANY OF NEW HAMPSHIRE

DW 09-211

Aquarion Water Company's Responses to Staff Data Requests—Set 2

Data Request Received: November 20, 2009
Request No.: Staff 2-11

Date of Response: December 4, 2009
Witness: C. McMorran

REQUEST: For each of the first seventeen projects listed in the table of Staff 1-1, Attachment A, please provide the following:

a) Proposed pipe diameter;
b) Existing pipe age;
c) Existing pipe material, including whether lined or unlined if cast iron;
d) Any update of column 6, hydraulic capacity; and

To what extent the project could be a candidate for cleaning and lining instead of replacement.

RESPONSE: A revised table is attached in Staff 2-11 Attachment A. The Company does not believe that any of these projects are suitable for cleaning and lining. The technology used for cleaning and lining is best suited to water mains that demonstrate hydraulic constrictions and water quality problems derived from interior pipe corrosion and which still demonstrate adequate structural integrity. The water mains to be replaced were selected because they demonstrate structural problems (high frequency of breaks, old age, weak material), which warrant total replacement.

Aquarion Water Company of New Hampshire

Main Replacement Projects

				PIPE DIAMETER (inches)					PRIORITIZATION FACTORS									
#	Priority	PIPE SEGMENT OR PROJECT NAME	Town	LENGTH (FEET)	Current	Proposed	PIPE AGE (Years)	PIPE MATERIAL	ESTIMATED COST	1 MAIN BREAK HISTORY	2 PIPE AGE / USEFUL LIFE	3 MATERIAL INTEGRITY	4 CRITICAL / SYSTEM IMPACT	5 WATER QUALITY ISSUES	6 HYDRAULIC CAPACITY	7 SCHEDULED WORK COORDINATION	8 OTHER FACTOR (SPECIFY)	9 STAFF RATING	TOTAL
3	1	Atlantic Avenue - Mill Road to Woodland Road	North Hampton	3,550	8	12	61	Cast iron	$ 642,000	3	2	3	0	3	3	0	0	0	14
5	2	Ocean Boulevard - Dumas Avenue to Winnacunnet Road	Hampton	4,200	12	12	99	Cast iron	$ 842,000	3	3	3	3	0	3	0	0	3	18
36	3	Church Street - Highland Avenue to William Street	Hampton	700	8	12	54	Cast iron	$ 188,000	3	2	3	3	0	0	0	0	0	11
2	4	Atlantic Avenue - Maple Road to Woodland Road	North Hampton	2,350	8	16	61	Cast iron	$ 428,000	3	2	3	0	3	3	0	0	0	14
35	5	Meadow Pond Road	Hampton	700	8	8	54	Cast iron / asbestos cement	$ 165,000	3	3	3	0	0	0	0	0	1	10
4	6	Atlantic Avenue - Ocean Boulevard to Sea Road	North Hampton	1,700	8	8	61	Cast iron	$ 291,000	3	2	3	3	3	0	0	0	0	14
7	7	Atlantic Avenue - Maple Road to Sea Road	North Hampton	2,500	8	8	61	Cast iron	$ 450,000	3	2	3	0	3	0	0	0	0	11
54	8	Mill Road - Palmer Street to Sicard Street	Hampton	400	12	12	69	Cast iron	$ 132,000	3	2	2	3	0	3	0	0	0	13
10	9	Well 7 - Pumphouse to Little River Road	Hampton	900	12	12	59	Cast iron, cement-lined	$ 161,000	3	1	1	3	0	0	0	0	1	9
8	10	Route 101 - Church Street to Tide Mill Road	Hampton	3,700	12	12	54	Cast iron, cement-lined	$ 742,000	3	1	2	3	0	0	0	0	1	10
16	11	King's Highway - First Street to High Street	Hampton	5,000	12	12	94	Universal pipe	$ 976,000	3	3	3	0	0	0	0	0	1	10
13	12	Sea Road - Atlantic Avenue to Ocean Boulevard	North Hampton	1,100	8	8	59	Cast iron	$ 226,000	3	2	3	0	3	0	0	0	0	11
53	13	Ocean Boulevard - First Street to Winnacunnet	Hampton	1,000	8	8	89	Cast iron	$ 239,000	3	3	3	0	0	0	0	0	0	9
12	14	Ocean Boulevard - First Street to Nineteenth Street	Hampton	5,200	12	12	89	Cast iron	$ 1,001,000	3	3	3	0	0	0	0	0	0	9
29	15	First Street	Hampton	900	8	8	89	Galvanized steel	$ 145,000	3	3	2	0	0	0	0	0	1	9
33	16	Ocean Boulevard - D Street to H Street	Hampton	1,000	12	12	94	Cast iron	$ 190,000	3	3	3	0	0	0	0	0	3	12
15	17	Ocean Boulevard - Dover Avenue to H Street	Hampton	2,800	12	12	77	Cast iron	$ 528,000	3	3	3	0	0	0	0	0	2	11