DW-SRF 2010 Project

Proposal for Green Project Reserve Methodology using format from EPA's • June 22, 2009 guidance for GPR business cases

ESTIMATE OF VALUE OF WATER LOSS WORKSHEET

1	Date:	6-Apr-10
2	PWSID #	91200
3	System	**Old Town Water District**
4	Project Name	Main Replacement Project
5	Location	Bradley Road
6	Engineering Consultant	Woodard & Curran
7	Existing Main size, age, and type	6" cast iron unlined pipe
8	Proposed New Water Main size and type	12" Ductile Iron cement lined pipe
9	New Main Pipe Length	3,800
10	Estimated Project Cost	$ 524,790

Note: Data from Utilities Annual Report (2008) to Maine Public Utilities Commission

Page	Line	Description	Units	2008
W-12	15	Total Production Water	gallons per year	323,123,000
W-12	17	Total Revenue Water	gallons per year	251,785,000
W-12	19	Total Non-Revenue Water	gallons per year	71,338,000
W-12	19	Percent Non-Revenue Water		22%
W-12	22	Utility Usage - treatment	gallons per year	26,961,000
W-12	23	Utility Usage - hydrant flushing	gallons per year	6,640,000
W-12	14	Utility Usage - bleeders	gallons per year	4,000,000
W-12	26	Utility Usage - all other (running customers & blow-offs)	gallons per year	
W-12	30	Fire Protection	gallons per year	100,000
W-12	31	Main Breaks	gallons per year	3,400,000
W-12	35	Flushing Mains	gallons per year	
W-12	36	Total Accounted for Non-Revenue Water	gallons per year	41,101,000
W-12	37	Total Unaccounted Non-Revenue Water	gallons per year	30,237,000
		Estimated Water Loss From ALL Breaks, Leaks, & Bleeders *(PUC Accounts total of lines 14, 26,31,35 and 37)*	**gallons per year**	37,637,000
		% of Water Loss of Total Production Water *(PUC Lines 14,26,31,35,37 divided by Line 15)*		12%
W-9	9	Total Transmission Mains	feet	10,535
W-9	23	Total Distribution Mains	feet	241,301
		Total Mains in Service	feet	251,836
			miles	48
		Estimated Distribution System Losses:		
		Loss Water per mile of pipe	gallons per mile per year	789,098
		Loss Water per foot of pipe per year	gallons per foot per year	149
		Loss water per foot of pipe per day	gallons per foot per day	0.41
		Water loss will vary with age of water main - assume Straight line projection as follows:		
		0 to 25 year old pipe — *0 % of Total Loss*	gallons per mile per year	-
		26 to 50 year old pipe — *10% of Total Loss*	gallons per mile per year	*78,910*
		51 to 75 year old pipe — *30% of Total Loss*	gallons per mile per year	*236,729*
		over 75 year old pipe — *60% of Total Loss*	gallons per mile per year	*473,459*
			All Loses:	789,098
		Age of Main to be replaced	years	100
		Length of Main to be Replaced	mile	0.72
		CALCULATED WATER LOSS - FOR PROPOSED PROJECT	**gallons per year**	**340,747**
W-2	29c	**Total PRODUCTION COST of Water**	**$/year**	**$ 967,971**
W-12	15	Total Production Water	1,000 gallons per year	323,123
		Production Cost of Water	**per 1,000 gallons**	**$ 3.00**
		PROJECTED ANNUAL VALUE of WATER LOSS	**per year**	**$ 1,021**

Annual Savings	$ 1,021
PV Factor (uniform series present worth factor (1%, 75 years):	$ 52.587
Present Value of Savings over Economic life of pipeline:	**$ 53,679**
Project Cost	**$ 524,790**
PV Percent of Project Cost:	10%
ESTIMATED % Green	**10%**
$ Amount Green	**$ 53,679**

Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services
John E. Baldacci, Governor Brenda M. Harvey, Commissioner

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State of Maine Drinking Water Program
GREEN PROJECT RESERVE
BUSINESS CASE for a
WATER MAIN REPLACEMENT

ESTIMATE OF VALUE OF WATER LOSS
April 13, 2010

The Fiscal Year (FY) 2010 Appropriation Law (P.L. 111-88) included additional requirements affecting the Drinking Water State Revolving Fund (SRF) program. EPA has developed *Draft Procedures for Implementing Certain Provisions of EPA's Fiscal Year 2010 Appropriation Affecting the Clean Water and Drinking Water State Revolving Fund Programs* dated March 3, 2010. Public Law 111-88 included the language "Provided, that for fiscal year 2010, to the extent there are sufficient eligible project applications, not less than 20% of the funds made available under this title to each State for the Clean Water and Drinking Water State Revolving funds and not less than 20% of the funds made available under this title to each State for Drinking Water State Revolving Fund capitalization grants shall be used by the State for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities."

One of the project area identified in the EPA Green Project Guidance Documents is identified as Water Efficiency Improvements "*distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks*". A Business Case Analysis if required for a water main replacement project to be approved as providing "Water Efficiency Improvements".

The purpose of this document is to provide public water utilities regulated by the Maine Public Utilities Commission (MPUC) with a standard procedure for calculating an estimate of the value of the water losses saved in conjunction with a water main replacement project. This method does not preclude a utility from providing an alternative calculation methodology based on project specific information. Such alternative documentation shall be reviewed and may be approved by the MDWP.

The Maine Public Utilities Commission (MPUC) requires all Maine water utilities file an Annual Report with the Commission. The Annual Report is the source of much information useful for preparing an estimate of value of water loss for a Business Case analysis of Green Project Reserve.

The attached methodology utilizes specific data from a utility's Annual Report to the MPUC. Page W-12 provides a detailed analysis of utilities water production and consumption information. Specific details include Production Water (line 15), Revenue Water (Line 17), as well as estimated water losses from bleeders, blow-offs, main breaks, service leaks, and main flushing.

Page W-9 of the PUC Annual Report provides information on total transmission and distribution mains in service as well as annual additions and deletions.

With information on Page W-12, one can calculate total water losses from all breaks, leaks, and bleeders. From Page W-9, one can identify the total length of mains in service. With these two pieces of information, one can calculate the estimated water loss in gallons per foot of pipe per day.

Knowing that older water mains and services will typically be the source of more leaks, or water losses, a ratio to distribute water losses by the age of mains. Pipes 0 to 25 years old are not expected to leak therefore no water loss is attributed to pipes less than 25 years old. Pipes 26 to 50 years old will account for 10% of all water losses. Pipes 51 to 75 years old will account for 30% of water losses and pipes older than 75 years will represent 60% of all pipeline water losses.

Using the average water loss per foot and the specific pipeline proposed for replacement, one can allocate water losses associated with the proposed project.

Using the water production cost information found on Page W-2, one can calculate the Annual Projected Value of Water Loss associated with the proposed project.

The MPUC allows depreciation of water distribution mains over a 75 year period. Using the MPUC time period (which should be the absolute minimum that a new water main will remain in service, or economic life) a Present Value (PV) calculation can be made of the an Annuity (Annual Value) of Water Loss using a 1% value of money over 75 years.
MPUC defines "Service Life" as the average length of time a unit of equipment will remain in service taking into account factors such as the effect of normal wear and tear, economic and technological obsolescence and public requirements.

The resulting PV can be compared with the Project Cost Estimate to determine the % of project expense attributed to the value of reduced water loss.

ANNUAL REPORT

For Water Utilites

OF

Name OLD TOWN WATER DISTRICT

Address P.O. BOX 525, OLD TOWN, ME 04468

TO THE

PUBLIC UTILITIES COMMISSION

OF THE

STATE OF MAINE

FOR THE

YEAR ENDED DECEMBER 31, 2008

Signature of Person responsible for report _____

TITLE Superintendent

TELEPHONE 207-827-2145

EMAIL frank.otwater@roadrunner.com

Utility Name: OLD TOWN WATER DISTRICT

Year of Report: December 31, 2008

WATER UTILITY PLANT ACCOUNTS

Line Number	ACCT. NO. (a)	ACCOUNT NAME (b)	CURRENT YEAR (c)	.1 Source of Supply & Pumping Expenses-Operations (d)	.2 Source of Supply & Pumping Expenses-Maintenance (e)
1	601	Salaries and Wages - Employees	331,324	13,665	9,253
2	603	Salaries and Wages - Officers, Directors and Majority Stockholders			
3			1,500		
4	604	Employee Pensions and Benefits	223,063		
5	610	Purchased Water			
6	615	Purchased Power	85,055	76,865	
7	616	Fuel for Power Purchased			
8	618	Chemicals	97,822		
9	620	Materials and Supplies	50,407	2,272	682
10	631	Contractual Services - Engineering	10,278		10,278
11	632	Contractual Services - Accounting	5,900		
12	633	Contractual Services - Legal	8,553		
13	634	Contractual Services - Management Fees			
14	635	Contractual Services - Other	69,677		49,302
15	641	Rental of Building/Real Property			
16	642	Rental of Equipment	7,466		
17	650	Transportation Expenses	19,910		
18	656	Insurance - Vehicle	3,830		
19	657	Insurance - General Liability	10,341		
20	658	Insurance - Workman's Compensation	16,185		
21	659	Insurance - Other	3,495		
22	660	Advertising Expense	201		
23	666	Regulatory Commission Expenses -			
24		Normalization of Rate Case Expense			
25	667	Regulatory Commission Expenses - Other			
26	670	Bad Debt Expense	240		
27	675	Miscellaneous Expenses	22,726		
28					
29		Total Water Utility Expenses	967,971	92,802	69,514

Utility Name: OLD TOWN WATER DISTRICT

Year of Report: December 31, 2008

WATER TREATMENT

FOR EACH SUPPLY, CHECK AND/OR SPECIFY THE TYPE OF TREATMENT USED

Line Number	Name of Source	Chlorination	Fluoridation	Flocculation/Coagulation	Sedimentation	Filtration	Iron/Manganese Removal	Lead/Copper	Other Treatment (specify)
1									
2	All Wells Blended	X	X			X	X	X	pH (soda ash)
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

FEET OF TRANSMISSION AND DISTRIBUTION MAINS

Explain any important items included in column (f)

Line Number	Kind of Pipe (Galvanized, Cast Iron, Ductile, etc) (a)	Diameter in inches (b)	In Use First of Year (c)	Added During Year (d)	Retirements during Yr (e)	Adjustments Dr. (or Cr.) during Yr (f)	In Use End of Year (g)
1	Transmission						
2		16	1,200				1,200
3		12	7,655				7,655
4		10	1,000				1,000
5		8	500				500
6	Sibley II Well	6	180				180
7							
8							
9	Total Transmission		10,535	0	0		10,535
10	Distribution						
11		16	15,004				15,004
12		14	10				10
13		12	25,379	468	252		25,595
14		10	6,013		468		5,545
15	Hamel Estates (Ductile)	8	52,788				52,788
16		6	123,876	1,131	511		124,496
17		4	10,879		620		10,259
18		2	4,555	392	140		4,807
19		<2	2,797				2,797
20							
21							
22							
23	Total Distribution		241,301	1,991	1,991		241,301

Utility Name: OLD TOWN WATER DISTRICT

Year of Report: December 31, 2008

WATER PRODUCTION AND CONSUMPTION

1. Show quantities of water produced and purchased and the quantities delivered to consumers and lost or unaccounted for during the year. Where estimates are used, the basis thereof should be set forth in a footnote.

Line Number	Month	Thousand Gallons Delivered to Mains				
		Purchased	Groundwater		Surface Water	
			By Pumping	By Gravity	By Pumping	By Gravity
	(a)	(b)	(c)	(d)	(e)	(f)
1	January		26,345			
2	February		24,147			
3	March		25,264			
4	April		25,866			
5	May		30,020			
6	June		26,914			
7	July		29,053			
8	August		26,271			
9	September		28,330			
10	October		27,862			
11	November		27,055			
12	December		25,996			
13	Totals	0	323,123	0	0	0

14					
15	Total PRODUCTION WATER				THOUSAND GALLONS 323,123
16					
17	Total REVENUE WATER (Page W-3, line 25, col. c)				251,785
18					
19	Balance as NON-REVENUE WATER	**State Percentage:**	22%	22.078%	71,338
20					
21	**Description and estimated consumption of Non-Revenue Water**				
22	Utility Usage-at source/treatment plants				26,961
23	Utility Usage-flushing hydrants	Number flushed:	357 x 2		6,640
24	Utility Usage-bleeders	Number in use:	2		4,000
25	Utility Usage-meter bench	Number meters tested:	150		100
26	Utility Usage-other purposes (specify):	Back wash wells, dead end flushing and standpipe cleaning, soda ash tank			5,150
27					
28					
29					
30	Fire Protection	Number of hydrant-using fires:	2		100
31	Main Breaks	Number of breaks:	12		1,200
32	Service Line losses before meters	Number of cases:	10		2,200
33	Other Non-Revenue uses/losses (specify):	Running water to prevent freezing			5,760
34	In Line Samplers & City Street Sweeper.	Bradley, Milford, & Old Town Fire Training during the year			6,764
35		Skating Rinks			
36	Total Accounted for Non-Revenue Water (Lines 22 through Lines 35)				58,875
37	Unaccounted for Water				12,463
38	Total Non-Revenue Water (Lines 36 plus Line 37)				71,338
39					

40	**System DEMAND Data**	Quantity (mgd)	Date
41	Average Daily Demand:	0.882	
42	Maximum Day Demand:	1.317	06/05/08
43	Peak Hour Demand:		

Remarks