4. Sewer extensions constructed during 2013 that contributed flows to PAWC system:

Project / Development Name	Length & Diameter of Sewer Completed	Length and Diameter of Sewer Remaining	Total EDU's Completed	Total EDU's Remaining

5. Proposed Projects which shall require sewer extensions that will contribute flows to PAWC system but are not yet constructed.

Project / Development Name	Length & Diameter of Sewer Proposed	Total EDU's Proposed	Start of Construction (Year)
Sadsbury Commons	Combination Gravity & Forcemain	120	2014
Lafayette Square	Gravity	85	2014

- 6. Please provide discussion on the following:
 - a.) Sewer System Flow Monitoring:

P&B Maintenance Company of Essington, PA is currently under contract with Sadsbury Township to monitor Pump Station and Meter on a regular basis. The Township Engineer monitors flows on a regular basis. Currently, the only flow meter readings are from a Mag Meter located along the force main discharge from the pumps at the Pump Station (effluent flow). It is required by Chapter 94 to report on influent flow to evaluate Pump Station hydraulic loading and for determining peaking factors for projected flows. Since the only flow data currently available are the Pump Station discharge flow meter readings, these readings were used to prepare the 2013 report and assumptions were made for projected flows. Using the discharge flow readings would yield inaccurately high peaking factors and falsely indicate hydraulic overloading of the pump station, which is a fairly new station. There is ongoing discussion with the Township regarding installation of an influent flow meter at this station. The Township has placed the influent meter in the 2014 budget. It is anticipated that the influent meter will be installed and operational during 2014. The Township is in the process of evaluating possible Stottsville Pump Station upgrades to meet future demands while at the same time identifying sources of I/I.

b.) Sewer System Maintenance:

Sadsbury Township has a contract with P&B Maintenance Company for Pump Station maintenance. The Township will contract out with local contractors for major repairs.

c.) Sewer System I&I Program:

The Township reviews flows on a regular basis in order to keep a watchful eye on potential I/I. The Township Road Crew is available on a continual basis for routine repairs. Major repairs will be performed by local contractors as the need arises. Currently, the Lincoln Crest Mobile Home Park has been identified as a source of inflow as well as several manholes along Route 372 due to the relocation of a storm sewer line by PennDOT. The Township is monitoring the flows from the Lincoln Crest Mobile Home Park on a regular basis and is working with the owner of the mobile home park to identify and remedy an apparent inflow issue. Flows from the mobile home park continue to spike during rainfall events greater than one (1) inch. Lincoln Crest has received Conditional Final Land Development approval from the Township to expand the park with additional 50 units. The park currently has 125 existing connections. Improvements associated with the expansion should curtail inflow issues. The timing of the mobile home expansion is uncertain at this juncture due to litigation. In Addition, the Township is in the process of investigating another possible source of additional inflow that may be attributed to users within the Bellaire Business Park. The Township is in the process of monitoring their sewage flow and water usage to determine if there is an inflow issue.

7. Please provide discussion of the condition of your sewer system:

a.) Portions where conveyance capacity is being exceeded or will be exceeded in the next 5 years:

The Sanitary Sewer System is in Good Working Condition and no exceedances are anticipated in the next five years.

b.) Proposed projects to increase conveyance capacity, i.e. repair, rehabilitation, new construction:

As stated in 6(a), the Township is in the process of evaluating the possible need to upgrade the Stottsville Pump Station in order to provide for a capacity increase for flows from developments within West Caln Township.

8. Please provide data and discussion of your sewer flow:

Metering Point or	Agreement or	2013 Average	2014 Projected	2018 Projected
Pump Station	Rated Capacity ¹	Daily Flow	Average Daily	Average Daily
Name	(gpm)	(gpm)*	Flow (gpm)*	Flow (gpm)*
Stottsville Pump	1,008,000 gpd	168,909gpd	186,045 gpd	255,813 gpd
Station	(700 gpm)	(117 gpm)	(129 gpm)	(178 gpm)

^{*} Based on Average Annual Flow

^{1.} Excluding Capacity of Backup Pump = Maximum Pump Rate

a.) Other discussion or information:

The existing Stottsville Pump Station has Two (2) alternating pumps with a rated capacity of 700 gpm each. The pump station is in good condition and is more than capable of handling the projected 5-year flow of 178 gpm. Comparison of rainfall events greater than one (1) inch and flow at the pump station seem to indicate a direct correlation at times, yet at other times the station appears to be unaffected by significant rainfall events.

THIS SECTION IS NOT APPLICABLE TO SADSBURY TOWNSHIP

9.		Please provide a discussion of the industrial waste discharged into your system:
	a.)	Date of adoption of the ordinance or regulation governing industrial waste discharges into your system:
	b.)	Discussion of program for the surveillance and monitoring of the industrial waste discharges into your system:
	c.)	Discussion of specific problems in your sewer system, known or suspected to be caused by industrial waste discharges within the past 5 years:

Sadsbury Township 2013 Chapter 94 Annual Report Projection of EDU Connections and Flows (gpd)

Project Name	Proposed Use	Location	Plan Status	Current EDUs	Remaining EDUs	TOTAL EDUs	Prior to 2013	2013	2014	2015	2016	2017	2018
			1				Vi						
Witmer Fire Store	30,000 s.f. Building Expansion	Independence Way	Approved Feb. 2009 - BUILT										
and the same of th	4 SFDUs on Lg. Lots - ON LOT Sewage	all and the state of the state		SVCSS	(South	95553							
Constable LD	Disposal	Limestone Road	Approved Mar. 2009	N.A.	N.A.	N.A.							_
Sadsburyville Fire Company	Fire Station Expansion	Old Wilmington Rd	ON HOLD - NO EDUS	N.A.	N.A.	N.A.							
Chester County Airport		Rt 30 & Washington Ln	Pending Approval	_									
	Constitution of the Consti	Morris Farm/ Independence		1									
York Equity - Lot 6	Office Building	Way	ON HOLD	-	2.2	-			_	-	700	- 22	
Sadsbury Commons	500,000 s.f. Shopping Center	Rt 30 & Rt 10	Pending Approval & Act 537 Plan Update	0	117	117	0			20	20	20	20
Sadsbury Commons - Medical Office Building	40,000 sf Medical Office Facility - ON LOT Sewage Disposal	Rt 10 Across from WalMart	Approved & Occupied - Currently On-lot Disposal pending approval of Wester Sewer District Act 537 Plan Approval	0	3	3	0		3				
Art Hurling	2 Existing Residential EDUs, 1 Proposed	Maple Avenue	Planning Module Approved - 2 Existing Connected	2	1	3	2		1				
Valley View Business Center Lots 2 &		Waverly Blvd. & Washington	Training Woodile Approved - 2 Existing Confected		-	-	-	-	-				-
3 (National Guard)	National Guard Armory	Ln.	Connected & Occupied	3	0	3	3						
Maria Caraca Car	50 Unit Expansion of 125 Existing Unit		Conditional Final Approval - Awaiting Posting of										
Lincoln Crest Mobile Home Park	Park	Rt 30 & Sharon Ln	Escrow*	0	50	50	0					10	10
	67 EDUs (52 SFD, 15 SFA)+ 2 EDUs for	Old Wilmington Rd south of Rt		3							1	-	-
Sadsbury Park - Phase 2A	Cabana = 69 TOTAL EDUs	30	Approved & Under Construction	33	36	69	31	2	12	12	12		
	48 Townhouse Units (SFA) - Including 6	Old Wilmington Rd south of Rt		-				-	-		-		
Sadsbury Park - Phase 4C	from Phase 28	30	Approved & Under Construction	23	25	48	8	15	25				
		Old Wilmington Rd south of Rt	- distance			-							
Sadsbury Park - Phase 1	41 EDUs (All SFD)	31	Not submitted	0	41	41	0					41	
	132 EDUs (38 SFD, 88 SFA+ 6 SFA	Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 28	Accounted for in Ph 4C)	32	Not submitted	0	126	126	0						44
		Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 3A	42 EDUs (All SFD)	33	Not submitted	0	42	42	0						
		Old Wilmington Rd south of Rt				-		THE PROPERTY.					
Sadsbury Park - Phase 38	46 EDUs (14 SFD, 32 SFA)	34	Not submitted	0	46	46	0						
		Old Wilmington Rd south of Rt						-					
Sadsbury Park - Phase 4A	57 EDUs (All SFD)	35	Not submitted	0	57	57	0						
		Old Wilmington Rd south of Rt						-					
Sadsbury Park - Phase 4B	12 EDUs (All SFD)	36	Not submitted	0	12	12	0						
		Renovated Farmhouse at Sads											
Sadsbury Township Misc	Existing Residence	Park Development	Completed & Connected	1	0	1	1						
			Approved Oct 2010 - Construction Complete										
Lafayette Square - Phase 1	Units)	30	(4 Bldgs Complete (9 10 Units EA)	40	0	40	40						
	7 Bidgs (65 Units) of Total 13 Bidgs (125	Old Wilmington Rd North of Rt		0		-177							
Lafayette Square - Phase 2	Units)	31	Approved Oct 2010 - Not Started	0	65	65	0		25	40			
	2 Bldgs (20 Units) of Total 13 Bldgs (125	Old Wilmington Rd North of Rt											
Lafayette Square - Phase 3	Units)	32	Approved Oct 2010 - Not Started	0	20	20	0			20			
Sadsbury Township -			Phase 4 Sewer Construction Complete -										
Phase 4 Sewers	Existing Residential EDUs	Valley Road	Not all EDUs connected	13	57	80	12	1	4	4	4	4	4
Sadsbury Township -													
Phase 3A Sewers	House and Apartment (2 EDUs)	31 Morris Lane	Connected	2	0	2	2						1
Sadsbury Township Misc	Existing Residence	2907 Lincoln Highway	Connected	1	0	1	_1						
Sadsbury Township Misc	Existing Residence	2931 Lincoln Highway	Connected	1	0	1	0	1					
Sadsbury Township -							7						
Phase 1 Sewers	Existing Residence	28 Chestnut Street	Connected	1	0	1	0	1					
- Improvements should curtail Inflo	w												
TOTAL EDUs				120	708	828	100	20	70	96	36	75	78
TOTAL FLOW (GPD) @ 244.8 GPD/ED	U			29,376	173,318	202,694	24,480	4,896	17,136	23,501	8,813	18,360	19,094
TOTAL TOTAL TOTAL OF CHALL GP D/ED	W/I			12,070	210/010	201,034	6.75 100	7,020	21,230	23,302	30013	20,300	22,034
	OJECTION (GPD)					The second second		168,909		-		236,719	-

Pump Station

	Volume (Gallons)	ADF (GPD)
Jan-13	5,965,577	192,438
Feb-13	5,606,322	200,225
Mar-13	5,256,280	169,557
Apr-13	4,613,074	153,769
May-13	5,113,802	164,961
Jun-13	6,285,006	209,500
Jul-13	5,369,416	173,207
Aug-13	5,480,767	176,799
Sep-13	4,597,602	153,253
Oct-13	4,336,444	139,885
Nov-13	4,018,966	133,966
Dec-13	5,177,424	167,014
TOTAL	61,820,680	168,909 GPD
		117.3 GPM

168,909	GPD - Annual Average Daily Flow (ADF)
7,038	GPH - Annual Average Hourly Flow (AHF)
	GPM - Annual Average Flow per Minute (AFM)

389,569 GPD - Maximum Daily Flow (MDF) October 29, 2013
35,720 GPH - Peak Hourly Flow (PHF) August, 11 2013 between 5:25 PM and 6:25 PM
797 GPM - Peak Instantaneous Flow (PIF) October 29, 2013 @ 6:10 pm

- 2.31 Current MDF Peaking Factor = (MDF/ADF)
 5.08 Current PHF Peaking Factor = (PHF/AHF)
 6.79 Current Instantaneous Flow Peaking Factor = (PIF/AFM)
 - 6.79 Current Instantaneous Flow Peaking Factor = (PIF/AFM)

 From the Pennsylvania Department of Environmental Protection, Water

 Management Program, Southeast Regional Office, Sewage Pumping Station
 Guidance, last revised March 24, 1999.

797 GPM - Peak Instantaneous Flow (PIF)

	Jai	nuary 2013				
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
01/01/13	133.5	192,178	21.3	30,671	0.00	0.00
01/02/13	146.5	210,887	17.5	•	0.00	0.00
01/03/13	137.8	198,447	16.8	24,208	0.00	0.00
01/04/13	143.0	205,907	15.3		0.00	0.00
01/05/13	163.5	235,400	18.6		0.00	0.00
01/06/13	177.7	255,810	20.5	29,576	0.09	0.70
01/07/13	137.7	198,332	17.0	24,431	0.00	0.00
01/08/13	134.8	194,149	15.8	22,722	0.00	0.00
01/09/13	120.5	173,562	16.4	23,606	0.00	0.00
01/10/13	114.0	164,203	16.2	23,397	0.00	0.00
01/11/13	112.2	161,615	16.9	24,378	0.68	0.00
01/12/13	114.9	165,418	19.8	28,538	0.00	0.00
01/13/13	114.6	165,006	20.9	30,025	0.00	0.00
01/14/13	101.5	145,519	17.5	25,225	0.20	0.00
01/15/13	139.1	200,286	17.5	25,164	0.35	0.00
01/16/13	224.5	323,267	25.2	36,269	0.85	0.00
01/17/13	143.9	207,165	17.6	25,344	0.00	0.00
01/18/13	127.4	183,474	17. 7	25,556	0.00	0.00
01/19/13	141.0	202,971	20.0	28,736	0.00	0.00
01/20/13	136.4	196,445	21.5	30,966	0.00	0.00
01/21/13	122.7	176,665	18.8	27,042	0.05	1.40
01/22/13	112.1	161,480	16.3	23,473	0.00	0.00
01/23/13	115.5	166,266	16.0	23,017	0.00	0.00
01/24/13	103.5	149,094	15.6	22,441	0.00	0.00
01/25/13	102.7	147,829	15.2	21,853	0.07	1.50
01/26/13	126.9	182,775	19.3	27,854	0.00	0.00
01/27/13	130.0	187,158	20.7	29,779	0.00	0.00
01/28/13	105.6	152,020	16.3	23,513	0.11	0.20
01/29/13	100.4	144,501	15.9		0.00	0.00
01/30/13	131.2	188,948	22.8	32,794	0.32	0.00
01/31/13	228.3	328,798	35.4		0.62	0.10

Monthly Averages		192,438	27,047
Monthly Totals		5,965,577	838,445
Maximum Flows	1/31/2013 3:15	471.38	
Maximum Flows	1/31/2013 5:30		100.15

⁼ Water Equivalent of Snowfall

February 2013								
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)		
02/01/13	120.5	173,578	17.5	25,252	0.00	0.10		
02/02/13	124.5	179,258	19.1	27,485	0.03	0.5		
02/03/13	139.8	201,262	22.3	32,062	0.01	0.2		
02/04/13	118.5	170,584	17.0	24,527	0.00	0.0		
02/05/13	106.4	153,258	16.9	24,333	0.01	0.3		
02/06/13	106.0	152,710	16.9	24,386	0.00	0.0		
02/07/13	108.8	156,619	16.3	23,488	0.00	0.0		
02/08/13	133.3	191,960	17.8	25,605	0.34	0.0		
02/09/13	164.7	237,142	21.6	31,114	0.11	1.4		
02/10/13	159.7	229,997	21.4	30,842	0.00	0.0		
02/11/13	139.3	200,608	21.7	31,311	0.49	0.0		
02/12/13	134.3	193,348	16.9	24,373	0.00	0.0		
02/13/13	137.1	197,353	17.4	25,103	0.26	0.2		
02/14/13	135.0	194,441	18.1	26,004	0.00	0.0		
02/15/13	161.7	232,883	18.3	26,310	0.00	0.0		
02/16/13	178.2	256,650	21.6	31,154	0.02	0.0		
02/17/13	182.0	262,009	20.1	28,979	0.00	0.0		
02/18/13	149.4	215,095	19.9	28,727	0.00	0.0		
02/19/13	130.1	187,283	17.3	24,900	0.21	0.0		
02/20/13	131.5	189,382	17.4	25,005	0.00	0.0		
02/21/13	149.7	215,505	16.6	23,842	0.00	0.0		
02/22/13	151.3	217,923	15.8	22,687	0.00	0.0		
02/23/13	170.0	244,828	19.8	28,493	0.12	0.0		
02/24/13	179.1	257,928	21.3	30,623	0.00	0.0		
02/25/13	128.2	184,671	17.5	25,180	0.00	0.		
02/26/13	117.0	168,441	17.6	25,393	0.39	0.0		
02/27/13	129.0	185,709	22.3	32,041	0.12			
02/28/13	108.3	155,901	17.2	24,815	0.01	. 0.0		
Monthly Averages		200,226		26,930				
Monthly Totals		5,606,322		754,033				
Maximum Flows	2/24/2013 12:00	472.21						
Maximum Flows	2/3/2013 17:15			78.01				

sbury P.S. rage Flow (gpm) 119.5 136.8 135.8 112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4 110.9	Sadsbury P.S. TOTAL Flow (Gallons) 172,015 196,931 195,531 162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	Sandy Hill P.S. Average Flow (gpm) 16.7 20.2 22.4 16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1 22.2	Sandy Hill P.S. TOTAL Flow (Gallons) 24,055 29,093 32,219 24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227	Rainfall (in) 0.00 0.00 0.00 0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	Snowfall (in) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0
(gpm) 119.5 136.8 135.8 112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	(Gallons) 172,015 196,931 195,531 162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	(gpm) 16.7 20.2 22.4 16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	24,055 29,093 32,219 24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	(in) 0.00 0.00 0.00 0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	(in) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0
119.5 136.8 135.8 112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	172,015 196,931 195,531 162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	16.7 20.2 22.4 16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	24,055 29,093 32,219 24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
136.8 135.8 112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	196,931 195,531 162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	20.2 22.4 16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	29,093 32,219 24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.00 0.20 0.00 0.00
135.8 112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	195,531 162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	22.4 16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	32,219 24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.00 0.20 0.00 0.00 0.00
112.8 103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	162,376 149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	16.7 15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	24,044 22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.00 0.20 0.00 0.00 0.00 0.00
103.5 105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	149,111 152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	15.6 19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	22,415 27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.20 0.00 0.00 0.00 0.00 0.00
105.8 104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	152,308 150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	19.2 16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	27,679 24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.13 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.0	0.00 0.00 0.20 0.00 0.00 0.00 0.00 0.00
104.4 101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	150,317 145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	16.7 16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	24,055 23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.02 0.00 0.00 0.00 0.90 0.00 0.00	0.00 0.20 0.00 0.00 0.00 0.00 0.00 0.00
101.0 104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	145,317 150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	16.3 19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	23,487 28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.02 0.00 0.00 0.00 0.90 0.00 0.00 0.00	0.20 0.00 0.00 0.00 0.00 0.00 0.00 0.00
104.7 115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	150,788 165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	19.7 21.5 17.8 27.2 19.3 17.8 16.8 19.1	28,331 30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.00 0.90 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00 0.00 0.00
115.0 111.4 193.2 125.9 115.6 108.0 108.7 120.4	165,657 160,354 278,231 181,246 166,514 155,490 156,459 173,334	21.5 17.8 27.2 19.3 17.8 16.8 19.1	30,892 25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.00 0.90 0.00 0.00 0.00 0.04	0.00 0.00 0.00 0.00 0.00 0.00
111.4 193.2 125.9 115.6 108.0 108.7 120.4	160,354 278,231 181,246 166,514 155,490 156,459 173,334	17.8 27.2 19.3 17.8 16.8 19.1	25,616 39,227 27,760 25,563 24,230 27,475	0.00 0.90 0.00 0.00 0.00 0.04	0.00 0.00 0.00 0.00 0.00
193.2 125.9 115.6 108.0 108.7 120.4	278,231 181,246 166,514 155,490 156,459 173,334	27.2 19.3 17.8 16.8 19.1	39,227 27,760 25,563 24,230 27,475	0.90 0.00 0.00 0.00 0.04	0.00 0.00 0.00 0.00 0.00
125.9 115.6 108.0 108.7 120.4	181,246 166,514 155,490 156,459 173,334	19.3 17.8 16.8 19.1	27,760 25,563 24,230 27,475	0.00 0.00 0.00 0.04	0.00 0.00 0.00 0.00
115.6 108.0 108.7 120.4	166,514 155,490 156,459 173,334	17.8 16.8 19.1	25,563 24,230 27,475	0.00 0.00 0.04	0.00 0.00 0.00
108.0 108.7 120.4	155,490 156,459 173,334	16.8 19.1	24,230 27,475	0.00 0.04	0.00 0.00
108.7 120.4	156,459 173,334	19.1	27,475	0.04	0.00
120.4	173,334		_		
TT0.2	159,746	20.3	29,174	0.48	0.00
119.5	172,064	24.3	34,926	0.21	0.00
124.5	179,316	18.3	26,349	0.00	0.00
118.7	170,895	17.8	25,578	0.00	0.00
106.1	152,809	16.5	23,714	0.00	0.00
108.8	156,680	19.9	28,647	0.00	0.00
119.3	171,801	22.2	31,910	0.00	0.00
113.2	163,020	20.7	29,854	0.46	1.10
111.2	160,095	18.3	26,424	0.00	0.00
123.9	178,396	18.3	26,390	0.00	0.00
116.6	167,953				0.00
110.9	159,728				0.00
131.9	189,899	19.4			0.00
112.4	161,901	18.8	27,039	0.18	0.00
	169,557		27,583		
	5,256,280		855,088		
	576 57				
/2013 12:30	370.37				
	110.9 131.9 112.4	110.9 159,728 131.9 189,899 112.4 161,901 169,557 5,256,280	110.9 159,728 17.5 131.9 189,899 19.4 112.4 161,901 18.8 169,557 5,256,280 /2013 12:30 576.57	110.9 159,728 17.5 25,137 131.9 189,899 19.4 27,942 112.4 161,901 18.8 27,039 169,557 27,583 5,256,280 855,088 /2013 12:30 576.57	110.9 159,728 17.5 25,137 0.00 131.9 189,899 19.4 27,942 0.00 112.4 161,901 18.8 27,039 0.18 169,557 27,583 5,256,280 855,088

		April 2013				1
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
04/01/13	113.7	163,796	11.1	15,985	0.00	0.00
04/02/13	104.2	150,100	17.1	24,577	0.00	0.00
04/03/13	101.4	146,049	18.0	25,977	0.00	0.00
04/04/13	96.6	139,063	16.3	23,474	0.00	0.00
04/05/13	97.2	140,035	16.8	24,144	0.09	0.00
04/06/13	103.6	149,145	18.9	27,286	0.00	0.00
04/07/13	117.2	160,028	21.3	30,655	0.00	0.00
04/08/13	103.0	148,256	17.0	24,416	0.00	0.00
04/09/13	103.9	149,577	17.0	24,461	0.00	0.00
04/10/13	10 5.9	152,480	18.1	26,037	0.14	0.00
04/11/13	105.7	152,241	16.1	23,130	0.00	0.00
04/12/13	107.1	154,211	18.5	26,629	1.23	0.00
04/13/13	115.6	166,519	19.0	27,369	0.00	0.00
04/14/13	124.9	179,797	21.4	30,783	0.00	0.00
04/15/13	101.6	146,283	17.0	24,449	0.01	0.00
04/16/13	110.0	158,425	16.4	ľ	0.00	0.00
04/17/13	102.1	146,974	16.7	_	0.00	0.00
04/18/13	97.3	140,162	17.5	25,244	0.00	0.00
04/19/13	103.1	148,466	19.3	27,735	0.44	0.00
04/20/13	117.0	168,534	23.4	33,681	0.11	0.00
04/21/13	116.8	168,120	21.9	-	0.00	0.00
04/22/13	105.9	152,526	17.2	24,708	0.00	0.00
04/23/13	102.1	147,029	16.6	23,951	0.00	0.00
04/24/13	102.8	148,039	16.5	23,744	0.00	0.00
04/25/13	102.3	147,359	17.3	24,958	0.01	0.00
04/26/13	99.8	143,683	16.5	23,764	0.00	0.00
04/27/13	106.3	153,127	19.5	28,060	0.00	0.00
04/28/13	118.0	169,884	22.0	31,661	0.00	0.00
04/29/13	111.7	160,871	19.4	27,907	0.28	0.00
04/30/13	112.7	162,297	16.5	23,822	0.01	0.00
Monthly Averages		153,769		25,927		
Monthly Totals		4,613,074		777,797		
Maximum Flows	4/10/2013 7:30	296.41				
Maximum Flows	4/28/2013 19:30			85.18		

May 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
05/01/13	108.6	156,445	18.3	26,349	0.00	0.00
05/02/13	100.5	144,750	16.2	23,263	0.00	0.00
05/03/13	94.1	135,481	16.7	24,071	0.00	0.00
05/04/13	105.1	151,295	18.4	26,512	0.00	0.00
05/05/13	115.9	166,878	20.5	29,590	0.00	0.00
05/06/13	101.9	146,718	17.0	24,544	0.00	0.00
05/07/13	108.9	156,769	17.8	25,629	0.09	0.00
05/08/13	104.5	150,482	17.5	25,236	0.41	0.00
05/09/13	114.0	164,189	18.0	25,909	0.54	0.00
05/10/13	109.1	157,100	19.0	27,291	0.30	0.00
05/11/13	134.9	194,291	27.0		0.18	0.00
05/12/13	139.1	200,241	21.6		0.13	0.00
05/13/13	131.3	189,128	17.9		0.00	0.00
05/14/13	142.6	205,332	16.8		0.00	0.00
05/15/13	134.5	193,625	17.0		0.03	0.00
05/16/13	122.1	175,852	17.1	·	0.07	0.00
05/17/13	121.7	175,294	17.3	•	0.00	0.00
05/18/13	117.9	169,804	21.8	-	0.13	0.00
05/19/13	125.6	180,838	23.7		0.04	0.00
05/20/13	111.7	160,913	21.0		0.00	0.00
05/21/13	104.8	150,856	20.2	•	0.00	0.00
05/22/13	104.3	150,155	19.7		0.00	0.00
05/23/13	97.7	140,626	17 .5		0.19	0.00
05/24/13	107.7	155,060	17.5	25,208	0.08	0.00
05/25/13	109.8	158,172	19.8	28,519	0.00	0.00
05/26/13	117.7	169,488	18.5		0.00	0.00
05/27/13	134.4	193,509	22.5		0.00	0.00
05/28/13	114.2	164,439	17.5		0.14	0.00
05/29/13	107.9	155,409	18.3		0.00	0.00
05/30/13	106.1	152,753	17.0		0.00	0.00
05/31/13	102.7	147,913	18.0		0.00	0.00
Monthly Averages		164,961		27,275		
Monthly Totals		5,113,802		845,513		
Maximum Flows	5/15/2013 21:15	312.97				
Maximum Flows	5/6/2013 6:30			80.60		

June 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
06/01/13	103.3	148,700	20.2	29,115	0.00	0.00
06/02/13	112.7	162,229	20.9	30,145	0.01	0.00
06/03/13	107.5	154,858	18.0	25,850		0.00
06/04/13	111.2	160,078	16.9	24,329	0.00	0.00
06/05/13	109.6	157,815	16.6	23,841	0.00	0.00
06/06/13	124.7	179,588	18.0	25,961	0.20	0.00
06/07/13	233.9	336,761	35.8		3.50	0.00
06/08/13	154.7	222,747	23.0	33,095	0.12	0.00
06/09/13	162.5	233,948	20.8	29,967	0.00	0.00
06/10/13	242.2	348,829	27.1	39,019		0.00
06/11/13	184.3	265,333	22.6	32,595	0.00	0.00
06/12/13	136.9	197,089	17.8	25,578	0.00	0.00
06/13/13	143.9	207,175	18.9	27,268	0.47	0.00
06/14/13	178.3	256,793	19.4	27,949	0.07	0.00
06/15/13	168.2	242,217	20.0	28,845	0.00	0.00
06/16/13	171.6	247,155	19.4	27,972	0.00	0.00
06/17/13	162.3	233,772	17.9	25,760	0.00	0.00
06/18/13	156.0	224,636	19.4	27,879	0.98	0.00
06/19/13	148.3	213,510	17.5	25,136	0.00	0.00
06/20/13	148.4	213,663	16.5	23,798	0.00	0.00
06/21/13	150.3	216,378	17.5	25,213	0.00	0.00
06/22/13	151.8	218,565	20.3	29,230	0.00	0.00
06/23/13	141.9	204,281	20.3	29,174	0.00	0.00
06/24/13	120.1	172,923	18.1	26,076	0.44	0.00
06/25/13	109.0	156,936	17.7	25,449	0.05	0.00
06/26/13	104.3	150,201	18.0	25,907	0.01	0.00
06/27/13	159.0	229,029	24.0	34,542	0.56	0.00
06/28/13	128.2	184,670	19.7		0.74	0.00
06/29/13	121.4	174,831	21.1		0.00	0.00
06/30/13	118.3	170,295	19.1	27,478	0.45	0.00
Monthly Averages		209,500		28,917		
Monthly Totals		6,285,006		867,511		
Maximum Flows	6/27/2013 18:15	643.13				
Maximum Flows	6/27/2013 17:45			145.21		

July 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall
07/01/13	160.9	231,682	24.6	35,438	0.26	0.0
07/02/13	162.3		22.0	•	0.06	0.0
07/03/13	123.8	178,239	17.4	•	0.00	0.0
07/04/13	118.8	171,104	18.5	26,632	0.00	0.0
07/05/13	116.9	168,393	18.2		0.00	0.0
07/06/13	114.2	164,439	18.2		0.00	0.0
07/07/13	124.7	179,558	20.8		0.00	0.0
07/08/13	117.1	168,624	17.3		0.03	0.0
07/09/13	114.6	165,038	16.9		0.00	0.0
07/10/13	114.0	164,179	18.1	26,000	0.05	0.0
07/11/13	112.5	161,967	17.3		0.02	0.0
07/12/13	138.5	199,405	19.5	28,030	1.12	0.0
07/13/13	159.6	222,646	26.4		0.00	0.0
07/14/13	131.3	189,040	21.5	30,975	0.00	0.0
07/15/13	122.0	175,738	17.6	-	0.00	0.0
07/16/13	116.1	167,190	17.2	24,805	0.00	0.0
07/17/13	112.9	162,631	17.2		0.00	0.0
07/18/13	116.9	168,378	18.1	26,082	0.00	0.0
07/19/13	110.7	159,378	17.1		0.00	0.0
07/20/13	109.0	156,931	19.7	28,304	0.39	0.0
07/21/13	115.5	166,334	19.6	28,226	0.00	0.0
07/22/13	107.2	154,403	17.7	25,526	0.00	0.0
07/23/13	123.4	177,637	19.3	27,746	3.05	0.0
07/24/13	109.1	157,039	16.5	23,751	0.00	0.0
07/25/13	106.8	153,843	17.0	24,484	0.00	0.0
07/26/13	112.3	161,671	19.1	27,434	0.00	0.0
07/27/13	113.0	162,733	17.7		0.00	0.0
07/28/13	116.2	167,311	19.4		8.03	0.0
07/29/13	113.5	163,374	18.7		0.24	0.0
07/30/13	107.4	154,620	16.4		0.00	0.0
07/31/13	112.6	162,133	17.9		0.00	0.0
onthly Averages		173,207		27,084		
onthly Totals		5,369,416		839,610		
aximum Flows	7/1/2013 7:45	162.30				
aximum Flows	7/29/2013 12:15			104.90		

August 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
08/01/13	122.8	176,788	19.4	27,988	1.33	0.00
08/02/13	114.4	164,778	17.6	25,386	0.00	0.00
08/03/13	110.0	158,376	18.9	27,241	0.00	0.00
08/04/13	116.9	168,404	20.3	29,197	0.00	0.00
08/05/13	110.1	158,571	17.3	24,956	0.00	0.00
08/06/13	129.4	186,305	16.5	23,738	0.00	0.00
08/07/13	139.3	200,617	17.9	25,750	0.06	0.00
08/08/13	133.6	192,350	17.0	24,451	0.35	0.00
08/09/13	122.6	176,545	19.0	27,329	0.00	0.00
08/10/13	112.3	161,704	18.2	26,150	0.00	0.00
08/11/13	116.4	167,615	21.6	31,096	0.00	0.00
08/12/13	106.0	152,579	17.8	25,652	0.00	0.00
08/13/13	270.5	389,569	25.7	36,983	2.02	0.00
08/14/13	130.0	187,148	20.3	29,267	0.00	0.00
08/15/13	121.3	174,720	17.5	25,239	0.00	0.00
08/16/13	119.9	172,641	18.3	26,300	0.00	0.00
08/17/13	114.2	164,409	20.9	30,158	0.00	0.00
08/18/13	121.6	175,145	21.0	30,274	0.03	0.00
08/19/13	109.2	157,178	18.2	26,175	0.00	0.00
08/20/13	106.5	153,407	18.1	26,112	0.00	0.00
08/21/13	107.4	154,649	18.7	26,910	0.00	0.00
08/22/13	112.4	161,866	18.8	27,027	1.08	0.00
08/23/13	108.1	155,592	17.4	25,065	0.00	0.00
08/24/13	109.9	158,229	19.1	27,510	0.00	0.00
08/25/13	122.7	176,690	22.6	32,535	0.00	0.00
08/26/13	108.0	155,459	17.9		0.00	0.00
08/27/13	107.7	155,044	19.1	27,566	0.00	0.00
08/28/13	129.2	186,083	18.2	26,179	1.04	0.00
08/29/13	125.1	180,160	17.6		0.00	0.00
08/30/13	126.5	182,219	19.9		0.00	0.00
08/31/13	122.2	175,930	19.3		0.00	0.00
Monthly Averages		176,799		27,414		
Monthly Totals		5,480,767		849,829		
Maximum Flows	8/13/2013 7:30	796.80				
Maximum Flows	8/26/2013 20:30			75.97		

SEPTEMBER 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfal
09/01/13	117.3	168,896	-		0.00	0.0
09/02/13	137.8	198,464	24.1		1.89	0.0
09/03/13	142.7	205,534	18.6		0.00	0.0
09/04/13	156.5	225,427	18.1		0.00	0.0
09/05/13	142.2	204,735	17.4	-	0.00	0.0
09/06/13	134.4	193,520	18.0		0.00	0.0
09/07/13	139.6	201,026	20.5	29,525	0.00	0.0
09/08/13	159.1	229,038	24.8	35,716	0.01	0.0
09/09/13	115.7	166,591	18.4	26,427	0.00	0.0
09/10/13	97.7	140,665	17.9	25,816	0.00	0.0
09/11/13	99.8	143,750	18.0	25,961	0.00	0.0
09/12/13	94.9	136,604	19.1	27,574	0.03	0.0
09/13/13	88.0	126,648	17.5	25,267	0.16	0.0
09/14/13	93.2	134,236	20.0	28,802	0.00	0.0
09/15/13	102.8	148,048	22.9	32,944	0.00	0.0
09/16/13	92.2	132,703	19.2	27,671	0.05	0.0
09/17/13	87.8	126,410	17.7	25,505	0.00	0.0
09/18/13	87.1	125,369	18.9	27,180	0.00	0.0
09/19/13	86.4	124,404	17.6	25,279	0.00	0.0
09/20/13	86.7	124,907	18.2	26,240	0.00	0.0
09/21/13	94.7	136,352	22.6	32,522	1.05	0.0
09/22/13	108.2	155,739	23.9	34,448	0.07	0.0
09/23/13	91.8	132,241	18.4	26,523	0.00	0.0
09/24/13	95.6	137,698	17.8	25,563	0.00	0.0
09/25/13	90.3	130,035	17.4	25,113	0.00	0.0
09/26/13	86.9	125,089	16.6	23,915	0.00	0.0
09/27/13	85.1	122,592	16.8	24,166	0.00	0.0
09/28/13	90.0	129,561	18.1	26,086	0.00	0.0
09/29/13	100.3	144,448	21.8	31,420	0.00	0.0
09/30/13	88.1	126,873	17.2	24,754	0.00	0.0
onthly Averages		153,253		. 27,686		
onthly Totals		4,597,602		830,588		
laximum Flows	9/4/2013 7:00	333.85				
laximum Flows	9/8/2013 19:45			85.89		

October 2013						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)	Snowfall (in)
10/01/13	86.1	123,984	17.9	25,814	0.00	0.00
10/02/13	83.4	120,036	15.9	22,845	0.00	0.00
10/03/13	86.1	123,946	16.7		0.00	0.0
10/04/13	83.4	120,146	17.7	-	0.00	0.0
10/05/13	91.7	132,079	18.4	26,468	0.01	0.00
10/06/13	98.4	141,723	21.2		0.00	0.00
10/07/13	87.3	125,760	18.5	26,590	0.28	0.00
10/08/13	86.4	124,479	17.0		0.00	0.00
10/09/13	83.2	119,788	17.5	25,168	0.00	0.0
10/10/13	98.9	142,475	19.7	28,319	0.35	0.0
10/11/13	241.3	347,469	39.9		1.67	0.0
10/12/13	123.8	178,250	24.7		0.01	0.00
10/13/13	110.3	158,846	24.4	35,169	0.00	0.0
10/14/13	96.4	138,769	19.4		0.00	0.0
10/15/13	91.4	131,546	18.1	26,097	0.00	0.0
10/16/13	88.6	127,538	19.9	28,720	0.00	0.0
10/17/13	89.5	128,935	19.1	27,525	0.01	0.0
10/18/13	87.0	125,210	18.1	26,046	0.00	0.0
10/19/13	90.6	130,441	20.7		0.07	0.0
10/20/13	103.6	149,145	22.5	32,396	0.00	0.0
10/21/13	92.3	132,976	19.2	27,613	0.00	0.0
10/22/13	87.7	126,316	17.9	25,796	0.00	0.0
10/23/13	89.1	128,267	17.6	25,296	0.01	0.0
10/24/13	90.7	130,617	18.4	26,550	0.00	0.0
10/25/13	89.8	129,299	17.9	25,752	0.00	0.0
10/26/13	91.9	132,264	19.6	28,208	0.00	0.0
10/27/13	104.6	150,569	22.2	31,972	0.00	0.0
10/28/13	90.7	130,595	17.8		0.00	0.0
10/29/13	92.9	133,734	17.4		0.00	0.0
10/30/13	89.5	128,923	17.8	25,655	0.02	0.0
10/31/13	84.9	122,323	17.2		0.02	0.0
Monthly Averages		139,885		28,371		
Monthly Totals		4,336,444		879,496		
Maximum Flows	10/11/2013 8:00	519.50				
Maximum Flows	10/11/2013 18:30			92.99		

November 2013						
		Sadsbury	Sandy Hill P.S.	Sandy Hill		
	Sadsbury P.S.	P.S. TOTAL	Average	P.S. TOTAL		
	Average Flow	Flow	Flow	Flow	Rainfall	Snowfall
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(in)	(in)
11/01/13	88.8	127,848	17.3	24,956	0.19	0.00
11/02/13	97.8	140,877	19.8	28,498	0.00	0.00
11/03/13	109.9	158,233	22.7	32,702	0.00	0.00
11/04/13	87.6	126,138	16.9	24,340	0.00	0.00
11/05/13	85.0	122,441	17.3	24,920	0.00	0.00
11/06/13	84.6	121,781	17.6	25,411	0.00	0.00
11/07/13	85.0	122,460	17.6	25,329	0.05	0.00
11/08/13	85.3	122,882	17.3	24,861	0.00	0.00
11/09/13	90.0	129,580	18.9	27,190	0.00	0.00
11/10/13	99.4	143,154	22.6	32,576	0.00	0.00
11/11/13	90.8	130,757	17.9	25,835	0.00	0.00
11/12/13	85.9	123,642	16.6	23,845	0.00	0.00
11/13/13	97.6	140,572	17.6	25,280	0.00	0.00
11/14/13	91.6	131,925	17.0	24,469	0.00	0.00
11/15/13	87.5	126,053	16.0	23,033	0.00	0.00
11/16/13	90.6	130,477	18.6	26,751	0.00	0.00
11/17/13	99.2	142,796	21.3	30,600	0.00	0.00
11/18/13	86.2	124,143	17.1	24,602	0.18	0.00
11/19/13	92.8	133,674	16.3	23,532	0.00	0.00
11/20/13	90.8	130,811	15.9	22,842	0.00	0.00
11/21/13	86.6	124,768	15.8	22,715	0.00	0.00
11/22/13	82.3	118,515	15.5	22,267	0.03	0.00
11/23/13	90.4	130,157	18.8	27,101	0.00	0.00
11/24/13	100.1	144,175	20.5	29,482	0.00	0.00
11/25/13	93.4	134,542	16.9	24,266	0.00	0.00
11/26/13	92.8	133,651	18.3	26,318	0.72	0.00
11/27/13	135.0	194,463	31.1	44,762	1.56	0.00
11/28/13	102.4	147,449	23.6	33,996	0.00	0.00
11/29/13	89.3	128,658	20.0	28,829	0.00	0.00
11/30/13	91.9	132,348	20.0	28,867	0.00	0.00
Monthly Averages		133,966		27,006		
Monthly Totals		4,018,966		810,172		
Maximum Flows	11/3/2013 9:45	263.87		•		
Maximum Flows	11/20/2013 20:00			82.37		
		¥0				

DECEMBER 2013						
			Sandy Hill			
ļ		Sadsbury	P.S.	Sandy Hill		
	Sadsbury P.S.	P.S. TOTAL	Average	P.S. TOTAL		
	Average Flow	Flow	Flow	Flow	Rainfall	Snowfall
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(in)	(in)
12/01/13	99.9	143,835	22.8	32,787	0.00	0.00
12/02/13	87.7	126,347	18.4	26,448	0.00	0.00
12/03/13	89.2	128,446	17.1	24,693	0.00	0.00
12/04/13	93.4	134,497	17.9	25,737	0.00	0.00
12/05/13	94.4	135,902	18.3	26,289	0.00	0.00
12/06/13	105.4	151,840	23.7	34,117	0.77	0.00
12/07/13	113.4	163,273	27.5	39,655	0.07	0.00
12/08/13	104.5	150,444	24.5	35,239	0.57	8.60
12/09/13	107.1	154,261	27.0	38,860	0.99	0.00
12/10/13	102.1	146,987	24.2	34,801	*******0,22	2.20
12/11/13	103.5	148,982	19.3	27,852	0.00	0.00
12/12/13	104.3	150,231	19.6	28,281	0.00	0.00
12/13/13	102.8	148,025	18.8	27,133	0.00	0.00
12/14/13	115.3	165,990	23.1	33,210	0.70	0.30
12/15/13	141.4	203,674	30.9	44,556	0.07	0.00
12/16/13	116.2	1 67,34 5	20.3	29,229	0.00	0.00
12/17/13	115.1	165,713	20.2	29,090	*******0.06	0.10
12/18/13	107.9	155 ,43 5	19.6	28,258	0.00	0.00
12/19/13	108.4	156,129	20.4	29,376	0.00	0.00
12/20/13	108.3	155,954	20.3	29,253	0.00	0.00
12/21/13	131.6	189,571	30.3	43,578	0.00	0.00
12/22/13	137.9	198,617	29.5	42,442	0.05	0.00
12/23/13	163.6	235,545	30.3	43,621	0.50	0.00
12/24/13	140.9	202,943	26.8	38,574	0.00	0.00
12/25/13	120.2	173,040	23.6	33,943	0.00	0.00
12/26/13	124.1	178,650	22.5	32,407	0.00	0.00
12/27/13	119.4	171,936	22.7	32,690	0.00	0.00
12/28/13	119.1	171,466	23.7	34,147	0.00	0.00
12/29/13	157.5	226,865	31.1	44,841	1.19	0.00
12/30/13	135.6	195,220	24.4	35,086	0.00	0.00
12/31/13	125.2	180,263	23.2		0.00	0.00
Monthly Averages		167,014		33,533		
Monthly Totals		5,177,424		1,039,534		

12/23/2013 11:00 Maximum Flows 319.01 Maximum Flows 86.56

	Sadsbury	PS Max	Sandy H	iil Max
8/13/2013 7:30	796.8			
6/10/2013 6:45	629.5			
6/7/2013 18:15			97.27	·
10/11/2013 18:30			92.99	,
			,	
Max GPD (8/13)	=	389,569		
Max GPD (10/11)				57,43

ı

W.G. MALDEN

P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

HERB MCCOMBY SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 6/10/2013 METER#: C8099 AA LOCATION: SADSBURY

SERIAL#: 00W011634/883533-0003
MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

CLEANED EQUIPMENT: X PI

PRIMARY: X

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100% ERROR: +1% CORRECTED ACCURACY: ± 1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE ERROR: 0% CORRECTED ACCURACY: ± 1%

TRANSMITTER CALIBRATION

VOLUMETRIC DRAWDOWN CALIBRATION

ERROR: 0% CORRECTED ACCURACY: $\pm 1\%$

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DENNIS

PERSON SEEN: HAVE KEY

copies:

6/14/13

6/14/13

W.G. MALDEN

P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

HERB MCCOMBY SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 9/9/2013 METER#: C8099 AA LOCATION: SADSBURY

SERIAL#: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

CLEANED EQUIPMENT: X PRIMARY: X

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100% CORRECTED ACCURACY: ±1% ERROR: -1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE CORRECTED ACCURACY: ±1% ERROR: 0%

TRANSMITTER CALIBRATION

VOLUMETRIC DRAWDOWN CALIBRATION

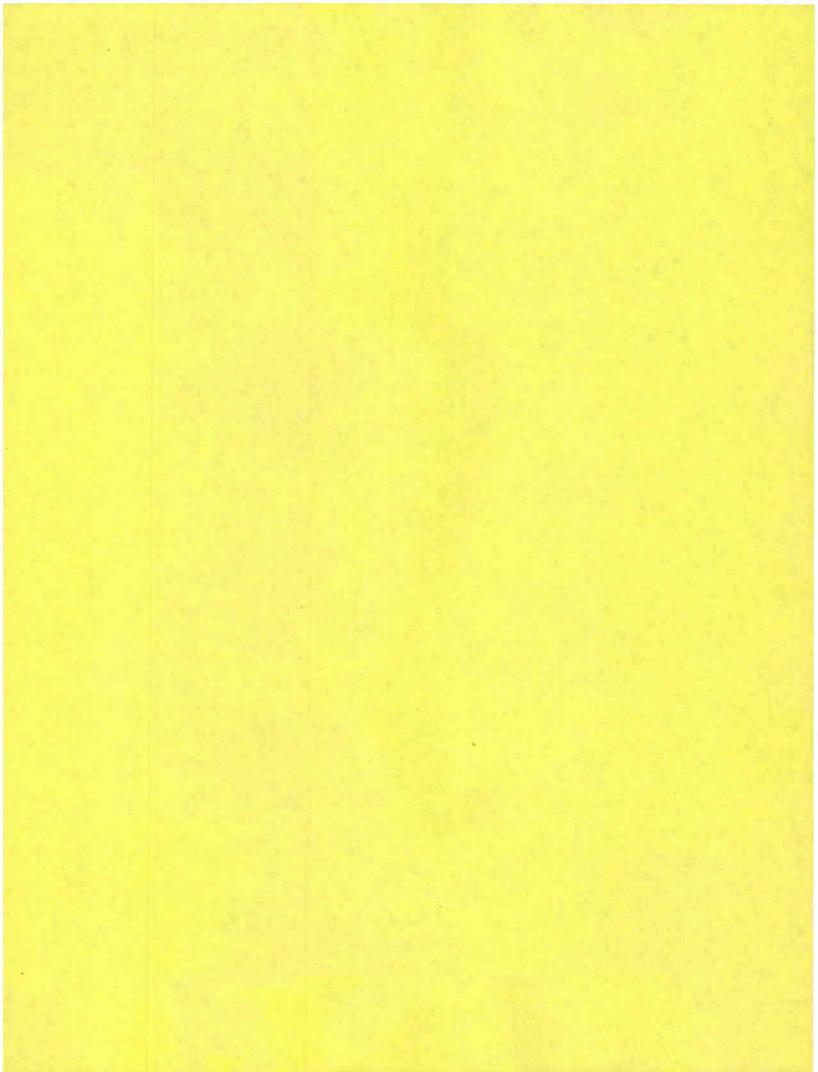
ERROR: +15% **CORRECTED ACCURACY: ±1%**

COMMENTS: PERFORMED QUARTERLY CALIBRATION, LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DENNIS copies:

PERSON SEEN: HAVE KEY

9.23.13



CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT 2012 ANNUAL REPORT

SADSBURY TOWNSHIP, CHESTER COUNTY, PA

FOR THE

PENNSYLVANIA AMERICAN WATER COMPANY COATESVILLE SEWERAGE SYSTEM

MARCH 2013

Prepared By:

Herbert E. MacCombie, Jr., P.E. Consulting Engineers and Surveyors, Inc. P.O. Box 118 Broomall, PA 19008

PENNSYLVANIA-AMERICAN WATER COMPANY COATESVILLE DISTRICT 2012 WASTELOAD MANAGEMENT REPORT SURVEY

Municipality:

SADSBURY TOWNSHIP

Information Furnished By:

Date: March 27, 2013

Municipality / Engineering Company:

Herbert E. MacCombie, Jr. P.E.

Consulting Engineers and Surveyors, Inc.

Name:

James W. MacCombie, P.E., P.L.S.

Address:

P.O. Box 118

Broomall, PA 19008

Phone:

610-356-9550

Fax: 610-356-5032

E-Mail Address:

hem.engineers@verizon.net

1. Total Present Number of EDU's connected to PAWC system:

Residential	971
Commercial	89
Industrial	0

2. Total EDU's connected to PAWC system during 2012

Residential	63
Commercial	0
Industrial	0

3. Projections for future additional EDU's to be connected to PAWC system. These projections should reflect what is actually anticipated to be constructed and placed in service:

Year	Residential	Commercial	Industrial	Total EDU's
2013	60	10	0	70
2014	96	10	0	106
2015	30	20	2	52
2016	20	20	2	42
2017	51	20	2	73
Beyond 2017	310	23	7	340
Total	1,538	192	13	1,743

4. Sewer extensions constructed during 2012 that contributed flows to PAWC system:

Project / Development Name	Length & Diameter of Sewer Completed	Length and Diameter of Sewer Remaining	Total EDU's Completed	Total EDU's Remaining	
	<u> </u>				

5. Proposed Projects which shall require sewer extensions that will contribute flows to PAWC system but are not yet constructed.

Length & Diameter of Sewer Proposed	Total EDU's Proposed	Start of Construction (Year)
Combination Gravity & Forcemain	120	2013
	Proposed Combination Gravity &	Proposed Proposed Combination Gravity & 120

- 6. Please provide discussion on the following:
 - a.) Sewer System Flow Monitoring:

P&B Maintenance Company of Essington, PA is currently under contract with Sadsbury Township to monitor Pump Station and Meter on a regular basis. The Township Engineer monitors flows on a regular basis. Currently the only flow meter readings are from a Mag Meter located along the force main discharge from the pumps at the Pump Station (effluent flow). It is required by Chapter 94 to report on influent flow to evaluate Pump Station hydraulic loading and for determining peaking factors for projected flows. Since the only flow data currently available are the Pump Station discharge flow meter readings, these readings were used to prepare the 2012 report and assumptions were made for projected flows. Using the discharge flow readings would yield inaccurately high peaking factors and falsely indicate hydraulic overloading of the pump station, which is a fairly new station. There is ongoing discussion with the Township regarding installation of an influent flow meter at this station. The Township has placed the influent meter in the 2013 budget. It is anticipated that the influent meter will be installed and operational during 2013. The Township is in the process of evaluating possible Stottsville Pump Station upgrades to meet future demands while at the same time identifying sources of I/I.

b.) Sewer System Maintenance:

Sadsbury Township has a contract with P&B Maintenance Company for Pump Station maintenance. The Township will contract out with local contractors for major repairs.

c.) Sewer System I&I Program:

The Township reviews flows on a regular basis in order to keep a watchful eye on potential I/I. The Township Road Crew is available on a continual basis for routine repairs. Major repairs will be performed by local contractors as the need arises. Currently, the Lincoln Crest Mobile Home Park has been identified as a source of inflow as well as several manholes along Route 372 due to the relocation of a storm sewer line by PennDOT. The Township is monitoring the flows from the Lincoln Crest Mobile Home Park on a regular basis and is working with the owner of the mobile home park to identify and remedy an apparent inflow issue. Flows from the mobile home park continue to spike during rainfall events greater than one (1) inch. Lincoln Crest has received Conditional Final Land Development approval from the Township to expand the park with additional 50 units. The park currently has 125 existing connections. Improvements associated with the expansion should curtail inflow issues. In addition, the Township is in the process of investigation another possible source of additional inflow that may be attributed to users within the Bellaire Business Park. The Township is in the process of monitoring their sewage flow and water usage to determine if there is an inflow issue.

7. Please provide discussion of the condition of your sewer system:

a.) Portions where conveyance capacity is being exceeded or will be exceeded in the next 5 years:

The Sanitary Sewer System is in Good Working Condition and no exceedances are anticipated in the next five years.

b.) Proposed projects to increase conveyance capacity, i.e. repair, rehabilitation, new construction:

As stated in 6(a), the Township is in the process of evaluating the possible need to upgrade of the Stottsville Pump Station in order to provide for a capacity increase for flows from developments within West Caln Township.

8. Please provide data and discussion of your sewer flow:

Metering Point or Pump Station Name	Agreement or Rated Capacity ¹ (gpm)	2012 Average Daily Flow (gpm)*	2013 Projected Average Daily Flow (gpm)*	2017 Projected Average Daily Flow (gpm)*	
Stottsville Pump Station	1,008,000 gpd	160,472 gpd	199,472 gpd	224,722 gpd	
	(700 gpm)	(111 gpm)	(139 gpm)	(156 gpm)	

^{*} Based on Average Annual Flow

^{1.} Excluding Capacity of Backup Pump = Maximum Pump Rate

a.) Other discussion or information:

The existing Stottsville Pump Station has Two (2) alternating pumps with a rated capacity of 700 gpm each. The pump station is in good condition and is more than capable of handling the projected 5-year flow of 156 gpm. Beginning on June 28th the Pump Station Meter and Data Logger lost data through July 6th. PAWC indicated that the meter lost programming and reverted back to factory default programming, likely due to a storm. The data for this time period could not be recovered. Comparison of rainfall events greater than one (1) inch and flow at the pump station seem to indicate a direct correlation at time, yet other times the station appears to be unaffected by significant rainfall events.

THIS SECTION IS NOT APPLICABLE TO SADSBURY TOWNSHIP

9.	Ple	Please provide a discussion of the industrial waste discharged into your system:				
	a.)	Date of adoption of the ordinance or regulation governing industrial waste discharges into your system:				
	b.)	Discussion of program for the surveillance and monitoring of the industrial waste discharges into your system:				
	c .)	Discussion of specific problems in your sewer system, known or suspected to be caused by industrial waste discharges within the past 5 years:				

Pump Station

	Volume (Gallons)	ADF (GPD)
Jan-12	5,439,015	175,452
Feb-12	4,382,667	151,126
Mar-12	4,984,917	160,804
Арг-12	4,601,651	153,388
May-12	5,587,161	180,231
Jun-12	4,810,830	160,361
Jul-12	4,268,700	137,700
Aug-12	4,710,853	151,963
Sep-12	4,699,769	156,659
Oct-12	5,292,544	170,727
Nov-12	4,712,376	157,079
Dec-12	5,242,425	169,110
TOTAL	58,732,908	160,472 GPD
		111.4 GPM

160,472	GPD - Annual Average Daily Flow (ADF)
6,686	GPH - Annual Average Hourly Flow (AHF)
111	GPM - Annual Average Flow per Minute (AFM)

State Later Company and State Company	
377,708	GPD - Maximum Daily Flow (MDF) October 29, 2012
24,002	GPH - Peak Hourly Flow (PHF) June 2, 2012 between 12:00 AM and 1:00 AM
400	GPM - Peak Hourly Flow (PHF) June 2, 2012 between 12:00 AM and 1:00 AM

- 2.35 Current MDF Peaking Factor = (MDF/ADF)
 3.59 Current PHF Peaking Factor = (PHF/AHF)
 - 3.50 Current Instantaneous Flow Peaking Factor = (GPM PHF/AFM)

 From the Pennsylvania Department of Environmental Protection, Water

 Management Program, Southeast Regional Office, Sewage Pumping Station
 Guidance, last revised March 24, 1999.

390 GPM - Peak Instantaneous Flow (PIF)

Pump Station

	Volume (Gallons)	ADF (GPD)
Jan-12	5,439,015	175,452
Feb-12	4,382,667	151,126
Mar-12	4,984,917	160,804
Apr-12	4,601,651	153,388
May-12	5,587,161	180,231
Jun-12	4,810,830	160,361
Jul-12	4,268,700	137,700
Aug-12	4,710,853	151,963
Sep-12	4,699,769	156,659
Oct-12	5,292,544	170,727
Nov-12	4,712,376	157,079
Dec-12	5,242,425	169,110
TOTAL	58,732,908	160,472 GPD
		111.4 GPM

	160,472	GPD - Annual Average Daily Flow (ADF)
I	6,686	GPH - Annual Average Hourly Flow (AHF)
I	111	GPM - Annual Average Flow per Minute (AFM)

į	377,708	GPD - Maximum Daily Flow (MDF) October 29, 2012
	40,920	GPH - Peak Hourly Flow (PHF) October 29, 2012 between 5:25 PM and 6:25 PM
	687	GPM - Peak Instantaneous Flow (PIF) October 29, 2012 @ 6:10 pm

2.35	Current MDF Peaking Factor = (MDF/ADF)
6.12	Current PHF Peaking Factor = (PHF/AHF)
6.17	Current Instantaneous Flow Peaking Factor = (PIF/AFM)

3.50 Current Instantaneous Flow Peaking Factor = (PIF/AFM)

From the Pennsylvania Department of Environmental Protection, Water

Management Program, Southeast Regional Office, Sewage Pumping Station
Guidance, last revised March 24, 1999.

390 GPM - Peak Instantaneous Flow (PIF)

		JANUARY 20				
	Sadsbury P.S. Average Flow	Sadsbury P.S.	Sandy Hill P.S. Average Flow	Sandy Hill P.S. TOTAL Flow	Rainfall	Snowfa
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(in)	(in)
1/1/2012	123.1	177,302	19.7	28,395	0.02	1
1/2/2012	132.2	190,317	19.6	28,252	0.00	1
1/3/2012	118.0	169,923	15.0	21,546	0.00	1
1/4/2012	112.2	161,548	15.9	22,903	0.01	0.2
1/5/2012	138.1	198,829	15.2	21,947	0.00	
1/6/2012	124.0	178,596	15.3	22,075	0.00	1
1/7/2012	127.8	184,057	18.2	26,243	0.00	1
1/8/2012	125.9	181,341	19.0	27,422	0.00	1
1/9/2012	108.0	155,571	15.6	22,454	0.00	1
1/10/2012	107.1	154,264	15.0	21,638	0.00	1
1/11/2012	109.4	157,497	15.7	22,561	0.36	1
1/12/2012	154.4	222,375	24.6	35,473	0.68	1
1/13/2012	122.3	176,079	17.1	24,663	0.05	1
1/14/2012	126.6	182,304	19.1	27,481	0.00	1
1/15/2012	161.8	233,014	18.2	26,137	0.00	1
1/16/2012	142.7	205,518	18.1	26,122	0.03	1
1/17/2012	122.0	175,742	17.0	24,504	0.30	1
1/18/2012	115.3	166,073	16.1	23,113	0.00	
1/19/2012	111.3	160,203	15.1	21,685	0.00	1
1/20/2012	105.6	152,002	14.8	21,287	0.00	1
1/21/2012	115.3	165,972	18.9	27,224	0.38	2.3
1/22/2012	122.0	175,700	20.2	29,044	0.00	
1/23/2012	118.4	170,527	19.8	28,512	0.29	1
1/24/2012	122.1	175,762	19.1	27,498	0.00	1
1/25/2012	110.9	159,710	15.9	22,839	0.00	
1/26/2012	111.2	160,140	15.7	22,579	0.05	
1/27/2012	126.7	182,457	19.8	28,456	0.42	
1/28/2012	121.5	174,956	13.9	19,956	0.00	
1/29/2012	125.1	180,099	17.5	25,150	0.00	
1/30/2012	111.6	160,745	18.1	25,994	0.00	
1/31/2012	104.3	148,642			0.00	
					2.59	
		233,014		35,473		
1/15/2012 10:00	352.0					
1/3/2011 12:15			81.1			1

= Water Equivalent of Snowfall

	· ·	FEBRUARY 20	the same of the sa			
	Sadsbury P.S. Average	Sadsbury P.S.	Sandy Hill P.S. Average	Sandy Hill P.S. TOTAL		
N	Flow	TOTAL Flow	Flow	Flow	Rainfall	Snowfall
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(in)	(in)
2/1/2012	126.5	104,387	16.1	13,295	0.02	
2/2/2012	109.8	158,054	15.9	22,834	0.00	
2/3/2012	106.4	153,213	14.2	20,411	0.00	1
2/4/2012	116.9	168,350	16.8	24,175	0.00	
2/5/2012	120.3	173,245	20.0	28,779	0.00	
2/6/2012	104.5	150,471	15.0	21,538	0.00	1
2/7/2012	103.6	149,124	15.3	22,004	0.00	1
2/8/2012	103.3	148,775	14.7	21,166	0.08	0.3
2/9/2012	101.3	145,848	15.3	21,986	0.00	
2/10/2012	97.7	140,708	14.7	21,182	0.00	
2/11/2012	111.4	160,409	17.9	25,793	0.26	0.9
2/12/2012	115.2	165,837	19.3	27,721	0.00	
2/13/2012	103.7	149,386	15.2	21,854	0.00	
2/14/2012	98.2	141,344	15.1	21,779	0.00	
2/15/2012	99.2	142,789	15.7	22,669	0.00	
2/16/2012	99.9	143,861	16.4	23,632	0.16	
2/17/2012	100.6	144,928	15.6	22,465	0.00	
2/18/2012	104.2	150,049	17.7	25,469	0.00	
2/19/2012	107.4	154,618	18.5	26,678	0.00	1
2/20/2012	110.3	158,890	17.5	25,130	0.00	1
2/21/2012	96.3	138,640	14.8	21,321	0.00	
2/22/2012	95.9	138,097	15.4	22,139	0.00	
2/23/2012	95.0	136,735	15.8	22,755	0.00	
2/24/2012	96.3	138,635	15.3	22,072	0.29	
2/25/2012	104.2	150,093	18.6	26,729	0.00	
2/26/2012	111.7	160,863	20.3	29,302	0.00	
2/27/2012	98.4	141,766	16.5	23,726	0.00	
2/28/2012	94.4	135,947	15.3	22,055	0.00	
2/29/2012	92.6	76,408	15.4	12,708	1.03	1
			-		1.84	1
		173,245		29,302		1
2/18/2012 12:30	264.6					
2/2/2012 7:15			139.3			1

= Water Equivalent of Snowfall

MARCH 2012						
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	P.S. TOTAL Flow (Gallons)	Rainfall	
3/1/2012	140.9	135,299	18.6	17,840	0.02	
3/2/2012	142.3	204,897	14.6	20,954	0.18	
3/3/2012	140.1	201,814	20.7	29,831	0.12	
3/4/2012	131.6	189,517	20.2	29,081	0.00	
3/5/2012	109.5	157,613	16.3	23,446	0.00	
3/6/2012	103.1	148,500	17.4	25,110	0.00	
3/7/2012	106.3	153,072	15.5	22,336	0.00	
3/8/2012	106.6	153,496	15.5	22,325	0.00	
3/9/2012	101.0	145,479	14.8	21,350	0.02	
3/10/2012	106.6	153,492	18.1	26,006	0.00	
3/11/2012	119.8	172,461	20.7	29,864	0.00	
3/12/2012	132.3	190,537	15.2	21,852	0.00	
3/13/2012	141.5	203,712	15.2	21,873	0.08	
3/14/2012	121.8	175,358	15.3	22,044	0.00	
3/15/2012	121.6	175,126	15.3	22,007	0.00	
3/16/2012	112.1	161,434	15.0	21,604	0.00	
3/17/2012	110.7	159,362	17.8	25,632	0.00	
3/18/2012	116.4	167,565	20.1	28,958	0.00	
3/19/2012	101.4	145,964	15.3	22,045	0.00	
3/20/2012	91.7	132,104	15.0	21,570	0.00	
3/21/2012	93.9	135,192	15.3	21,998	0.01	
3/22/2012	93.8	135,011	15.3	21,993	0.00	
3/23/2012	95.5	137,523	15.5	22,339	0.00	
3/24/2012	101.2	145,659	17.9	25,752	0.08	
3/25/2012	104.5	150,536	18.9	27,221	0.01	
3/26/2012	94.1	135,468	15.6	22,488	0.00	
3/27/2012	90.6	130,504	15.7	22,564	0.00	
3/28/2012	99.5	143,283	14.8	21,305	0.00	
3/29/2012	118.7	170,985	14.9	21,399	0.00	
3/30/2012	113.6	163,611	15.0	21,641	0.00	
3/31/2012	60.6	29,076	10.2	4,889	0.27	
					0.79	
		204,897		29,864		
3/13/2012 6:45	319.3					
3/6/2012 8:00			316.1			

APRIL 2012							
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)		
4/1/2012	149.0	134,067	26.0	23,375	0.17		
4/2/2012	100.0	144,040	16.8	24,122	0.16		
4/3/2012	98.7	142,163	15.6	22,462	0.00		
4/4/2012	101.5	146,195	14.8	21,287	0.00		
4/5/2012	102.3	147,258	15.2	21,869	0.00		
4/6/2012	103.1	148,489	16.8	24,135	0.00		
4/7/2012	111.6	160,667	18.0	25,974	0.00		
4/8/2012	108.2	155,741	19.5	28,115	0.00		
4/9/2012	96.4	138,872	17.1	24,617	0.00		
4/10/2012	92.7	133,451	15.2	21,849	0.00		
4/11/2012	92.1	132,605	15.6	22,454	0.00		
4/12/2012	93.7	134,911	15.4	22,165	0.00		
4/13/2012	88.7	127,666	14.4	20,691	0.00		
4/14/2012	96.0	138,183	17.0	24,551	0.00		
4/15/2012	109.8	158,058	20.6	29,663	0.04		
4/16/2012	88.7	127,669	15.7	22,648	0.00		
4/17/2012	87.4	125,916	16.0	23,046	0.00		
4/18/2012	94.4	135,913	16.0	23,069	0.00		
4/19/2012	91.2	131,295	15.8	22,808	0.00		
4/20/2012	99.0	142,629	15.2	21,918	0.00		
4/21/2012	129.6	186,574	19.4	27,913	0.15		
4/22/2012	205.4	295,764	26.2	37,748	1.87		
4/23/2012	168.3	242,394	25.3	36,413	0.10		
4/24/2012	128.3	184,799	17.5	25,218	0.00		
4/25/2012	110.8	159,558	14.8	21,291	0.00		
4/26/2012	97.7	140,700	15.0	21,659	0.06		
4/27/2012	93.8	135,104	15.3	22,044	0.00		
4/28/2012	99.3	143,030	18.1	26,011	0.00		
4/29/2012	106.2	152,981	19.7	28,423	0.00		
4/30/2012	55.0	25,572	12.3	5,736	0.00		
					2.55		
		295,764		37,748			
4/22/2012 22:15	480.4				1.8		
4/19/2012 20:15			79.0				

	MAY 2012							
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)			
5/1/2012	109.8	98,794	17.2	15,498	0.25			
5/2/2012	91.7	132,116	15.8	22,718	0.08			
5/3/2012	103.2	148,672	16.9	24,301	0.08			
5/4/2012	101.0	145,446	15.7	22,595	0.08			
5/5/2012	122.2	175,934	22.5	32,358	0.00			
5/6/2012	115.5	166,257	20.6	29,651	0.00			
5/7/2012	98.9	142,385	15.7	22,559	0.00			
5/8/2012	95.8	137,929	21.4	30,772	0.02			
5/9/2012	98.2	141,356	17.1	24,657	0.50			
5/10/2012	96.0	138,191	17.6	25,381	0.07			
5/11/2012	92.5	133,140	15.3	21,973	0.00			
5/12/2012	97.9	140,969	17.8	25,684	0.00			
5/13/2012	100.0	143,989	19.1	27,517	0.00			
5/14/2012	93.9	135,189	16.8	24,136	0.06			
5/15/2012	112.7	162,281	21.4	30,784	0.82			
5/16/2012	98.6	141,999	16.8	24,140	0.00			
5/17/2012	99.2	142,918	16.7	24,074	0.00			
5/18/2012	106.7	153,659	14.8	21,352	0.00			
5/19/2012	137.4	197,869	19.0	27,332	0.00			
5/20/2012	146.4	210,796	20.2	29,149	0.00			
5/21/2012	139.7	201,133	15.3	22,069	0.25			
5/22/2012	144.6	208,183	16.4	23,590	0.16			
5/23/2012	154.9	223,100	15.5	22,327	0.00			
5/24/2012	166.0	238,972	15.7	22,655	0.87			
5/25/2012	165.2	237,842	16.1	23,143	0.00			
5/26/2012	169.1	243,504	16.4	23,687	0.00			
5/27/2012	167.7	241,465	17.9	25,756	0.00			
5/28/2012	184.4	265,522	20.5	29,477	0.00			
5/29/2012	170.7	245,825	16.1	23,120	0.11			
5/30/2012	163.2	235,015	16.6	23,929	0.00			
5/31/2012	125.1	78,812	14.0	8,814	0.00			
					3.35			
		265,522		32,358				
5/29/2012 21:15	421.6							
5/8/2012 9:00			500.3					

JUNE 2012							
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall		
6/1/2012	161.6	232,732	17.4	24,992	0.71		
6/2/2012	192.3	276,889	22.9	33,013	0.06		
6/3/2012	144.4	207,986	20.1	28,882	0.05		
6/4/2012	119.2	171,599	16.7	23,982	0.40		
6/5/2012	109.4	157,558	16.9	24,347	0.00		
6/6/2012	98.4	141,693	15.7	22,559	0.00		
6/7/2012	91.9	132,349	15.4	22,135	0.00		
6/8/2012	91.9	132,297	16.1	23,164	0.00		
6/9/2012	94.0	135,428	17.8	25,562	0.00		
6/10/2012	100.6	144,901	20.0	28,844	0.00		
6/11/2012	9,8.4	141,710	15.5	22,335	0.00		
6/12/2012	98.7	142,148	18.0	25,928	0.99		
6/13/2012	96.8	139,321	16.5	23,794	0.00		
6/14/2012	95.6	137,698	15.5	22,387	0.00		
6/15/2012	98.5	141,882	15.7	22,629	0.00		
6/16/2012	129.7	186,808	17.5	25,143	0.00		
6/17/2012	129.6	186,643	17.3	24,856	0.00		
6/18/2012	120.2	173,105	16.3	23,469	0.00		
6/19/2012	121.5	174,895	16.7	23,982	0.00		
6/20/2012	104.8	150,899	15.6	22,436	0.00		
6/21/2012	90.9	130,900	16.0	23,070	0.00		
6/22/2012	86.5	124,546	15.9	22,951	0.55		
6/23/2012	108.2	155,777	16.7	24,108	0.00		
6/24/2012	129.8	186,937	18.4	26,494	0.00		
6/25/2012	106.7	153,677	15.8	22,738	0.00		
6/26/2012	96.8	139,443	15.5	22,294	0.00		
6/27/2012	90.8	130,695	15.5	22,368	0.00		
6/28/2012	49.0	11,766	4.0	957	0.00		
6/29/2012	0.0	0	14.7	21,170	0,14		
6/30/2012	0.0	0	0.6	843	0.04		
					2.94		
		276,889		33,013			
6/2/2012 0:30	521.5						
6/5/2012 13:15			82.1				

	JULY 2012							
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)			
7/1/2012	0.0	0	23.0	18,942	0.00			
7/2/2012	0.0	0	16.4	23,624	0.00			
7/3/2012	0.0	0	13.9	20,015	0.00			
7/4/2012	0.0	0	19.0	27,322	0.00			
7/5/2012	0.0	0	18.0	25,908	0.00			
7/6/2012	103.2	66,566	16.4	23,581	0.00			
7/7/2012	91.1	131,184	17.5	25,204	0.00			
7/8/2012	98.6	141,996	19.1	27,531	0.00			
7/9/2012	92.8	133,700	16.5	23,712	0.00			
7/10/2012	91.0	131,005	15.0	21,611	0.03			
7/11/2012	88.9	127,970	14.9	21,422	0.00			
7/12/2012	92.9	133,746	15.1	21,717	0.00			
7/13/2012	89.2	128,376	15.5	22,284	0.00			
7/14/2012	105.0	151,222	18.6	26,846	0.45			
7/15/2012	134.9	194,320	19.6	28,261	0.24			
7/16/2012	108.1	155,630	16.9	24,355	0.00			
7/17/2012	93.6	134,796	14.6	21,053	0.00			
7/18/2012	89.7	129,232	16.2	23,332	0.00			
7/19/2012	100.9	145,357	15.7	22,602	0.00			
7/20/2012	98.8	142,291	17.1	24,591	0.26			
7/21/2012	91.5	131,691	17.0	24,418	0.00			
7/22/2012	98.2	141,366	18.2	26,205	0.00			
7/23/2012	94.3	135,830	15.4	22,212	0.00			
7/24/2012	92.1	132,669	16.6	23,845	0.00			
7/25/2012	91.3	131,498	15.5	22,287	0.00			
7/26/2012	90.9	130,967	16.5	23,717	0.46			
7/27/2012	93.9	135,153	15.0	21,648	0.00			
7/28/2012	99.3	142,955	17.1	24,596	0.04			
7/29/2012	103.3	148,743	18.4	26,546	0.00			
7/30/2012	94.7	136,308	15.8	22,722	0.00			
7/31/2012	85.8	70,761	13.5	11,098	0.00			
					1.48			
3		194,320		28,261				
7/15/2012 12:30	280.0							
7/18/2012 9:00			105.3					

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Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)
8/1/2012	121.6	76,600	17.6	11,070	0.43
8/2/2012	108.2	155,791	14.7	21,238	0.00
8/3/2012	114.1	164,355	15.0	21,574	0.03
8/4/2012	103.6	149,225	16.5	23,798	0.00
8/5/2012	116.7	168,022	18.4	26,547	0.90
8/6/2012	101.8	146,658	16.6	23,887	0.00
8/7/2012	101.3	145,850	16.2	23,397	0.00
8/8/2012	98.9	142,405	16.6	23,926	0.00
8/9/2012	95.3	137,239	16.5	23,702	0.00
8/10/2012	98.1	141,241	17.7	25,456	1.10
8/11/2012	98.0	141,077	18.9	27,227	0.07
8/12/2012	101.3	145,867	19.7	28,430	0.00
8/13/2012	95.1	136,896	15.1	21,785	0.00
8/14/2012	101.5	146,140	16.4	23,589	0.39
8/15/2012	100.2	144,306	15.0	21,567	0.59
8/16/2012	93.5	134,571	14.7	21,106	0.00
8/17/2012	93.1	134,071	14.8	21,245	0.42
8/18/2012	99.8	143,659	16.8	24,232	0.43
8/19/2012	107.4	154,599	18.2	26,216	0.00
8/20/2012	98.5	141,911	15.0	21,671	0.00
8/21/2012	103.0	148,310	15.7	22,659	0.00
8/22/2012	100.4	144,571	16.2	23,328	0.00
8/23/2012	96.6	139,054	15.5	22,347	0.00
8/24/2012	105.2	151,484	15.9	22,947	0.00
8/25/2012	109.4	157,492	17.0	24,408	0.00
8/26/2012	116.6	167,854	20.1	28,938	0.00
8/27/2012	113.3	163,102	15.7	22,576	0.84
8/28/2012	115.9	166,947	16.4	23,561	0.17
8/29/2012	123.9	178,399	15.4	22,116	0.00
8/30/2012	128.9	185,641	15.7	22,548	0.00
8/31/2012	97.1	58,245	12.9	7,760	0.00
					5.37
-		185,641		28,938	
8/30/2012 21:00	284.6		DOMESTIC STREET		
8/23/2012 20:15			71.4		

SEPTEMBER 2012									
Date	P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)				
9/1/2012	139.7	111,083	20.7	16,450	0.00				
9/2/2012	101.7	146,503	16.0	23,090	0.16				
9/3/2012	115.9	166,887	20.4	29,420	0.40				
9/4/2012	119.9	172,597	16.2	23,334	3.12				
9/5/2012	115.0	165,548	17.1	24,637	0.02				
9/6/2012	106.0	152,696	14.7	21,130	0.00				
9/7/2012	100.1	144,207	16.2	23,268	0.00				
9/8/2012	117.1	168,682	18.7	26,992	0.31				
9/9/2012	121.0	174,232	19.4	27,984	0.00				
9/10/2012	102.0	146,887	15.6	22,458	0.00				
9/11/2012	103.2	148,660	15.4	22,120	0.00				
9/12/2012	122.3	176,077	15.5	22,265	0.00				
9/13/2012	112.9	162,526	14.5	20,926	0.00				
9/14/2012	96.5	138,969	15.2	21,917	0.00				
9/15/2012	96.5	138,995	17.1	24,622	0.00				
9/16/2012	111.6	160,656	20.2	29,060	0.00				
9/17/2012	94.7	136,423	16.9	24,280	0.00				
9/18/2012	118.9	171,262	18.6	26,800	0.73				
9/19/2012	100.8	145,124	17.1	24,655	0.01				
9/20/2012	96.0	138,302	15.5	22,343	0.00				
9/21/2012	100.5	144,681	15.7	22,578	0.00				
9/22/2012	116.3	167,414	17.5	25,135	0.51				
9/23/2012	146.4	210,798	21.5	30,986	0.00				
9/24/2012	113.8	163,921	15.9	22,840	0.00				
9/25/2012	108.6	156,452	15.8	22,707	0.00				
9/26/2012	101.8	146,584	15.5	22,353	0.00				
9/27/2012	102.0	146,872	16.7	24,099	0.21				
9/28/2012	93.5	134,573	14.8	21,290	0.01				
9/29/2012	104.0	149,810	17.2	24,719	0.00				
9/30/2012	76.6	55,163	14.2	10,209	0.00				
				8	5.48				
		210,798		30,986					
9/18/2012 17:45	365.7								
9/5/2012 20:15			75.8						

		OCTOBER 20		·	
	Sadsbury		Sandy Hill	Sandy Hill	
	P.S.		P.S.	P.S.	
	Average	Sadsbury P.S.	Average	TOTAL	
Data	Flow	TOTAL Flow	Flow	Flow	Rain
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(ir
10/1/2012	96.1	138,367	21.5	9,369	0.0
10/2/2012	99.7	143,527	19.1	27,555	0.0
10/3/2012	99.1	142,731	21.4	30,764	0.0
10/4/2012	96.0	138,176	15.9	22,943	0.0
10/5/2012	102.8	148,067	15.7	22,541	0.0
10/6/2012	111.2	160,132	18.8	27,142	0.0
10/7/2012	119.4	171,934	20.0	28,813	0.3
10/8/2012	117.0	168,450	17.2	24,830	0.0
10/9/2012	127.4	183,429	16.3	23,429	0.0
10/10/2012	133.7	192,480	16.5	23,786	0.0
10/11/2012	129.1	185,857	15. 5	22,361	0.0
10/12/2012	111.8	161,016	15.3	22,055	0.0
10/13/2012	112.8	162,412	17.2	24,782	0.0
10/14/2012	129.4	186,401	20.3	29,259	0.0
10/15/2012	119.3	171,841	17.3	24,913	0.0
10/16/2012	115.9	166,925	16.2	23,326	0.0
10/17/2012	110.7	159,446	16.2	23,321	0.0
10/18/2012	113.8	163,891	15.8	22,761	0.0
10/19/2012	108.8	156,739	17.5	25,264	0.3
10/20/2012	106.2	152,987	20.1	28,914	0.0
10/21/2012	110.1	158,494	20.3	29,204	0.0
10/22/2012	93.5	134,675	16.5	23,697	0.0
10/23/2012	89.7	129,143	15.4	22,140	0.0
10/24/2012	96.0	138,258	15.6	22,514	0.0
10/25/2012	94.1	135,446	15.1	21,700	0.0
10/26/2012	91.5	131,825	14.8	21,314	0.0
10/27/2012	106.9	153,898	18.4	26,555	0.0
10/28/2012	126.5	182,113	22.6	32,588	0.4
10/29/2012	279.8	377,708	48.3	69,560	2.6
10/30/2012	209.7	302,034	36.3	52,329	0.2
10/31/2012	125.8	91,821	21.3	15,668	0.0
					4.(
A AAA Marka a	Statement William Variation and Constitution of the Constitution o	377,708	27. 000	69,560	
10/29/2012 18:10					
10/29/2012 17:00			127.7		

NOVEMBER 2012									
Date	Sadsbury P.S. Average Flow (gpm)	Sadsbury P.S. TOTAL Flow (Gallons)	Sandy Hill P.S. Average Flow (gpm)	Sandy Hill P.S. TOTAL Flow (Gallons)	Rainfall (in)				
11/1/2012	131.3	104,399	20.7	16,487	0.00				
11/2/2012	115.9	166,936	16,5	23,760	0.00				
11/3/2012	117.5	169,189	18.0	25,943	0.00				
11/4/2012	118.0	169,917	20.8	29,894	0.00				
11/5/2012	100.5	144,688	17.0	24,431	0.00				
11/6/2012	93.4	134,432	16.9	24,283	0.00				
11/7/2012	97.3	140,051	17.5	25,227	0.39				
11/8/2012	93.8	135,108	16.5	23,747	0.01				
11/9/2012	90.6	130,475	16.0	23,091	0.00				
11/10/2012	100.0	143,968	18.8	27,007	0.00				
11/11/2012	111.6	160,771	22.1	31,844	0.00				
11/12/2012	95.5	137,453	16.9	24,316	0.00				
11/13/2012	106.0	152,667	21.0	30,213	0.14				
11/14/2012	95.5	137,553	17.0	24,488	0.00				
11/15/2012	100.4	144,628	16.0	22,983	0.00				
11/16/2012	99.2	142,833	16.6	23,923	0.00				
11/17/2012	115.0	165,629	18.2	26,226	0.00				
11/18/2012	116.6	167,975	21.1	30,397	0.00				
11/19/2012	95.1	136,989	17.6	25,283	0.00				
11/20/2012	96.5	138,972	17.9	25,748	0.00				
11/21/2012	101.1	145,524	19.4	27,991	0.00				
11/22/2012	112.8	162,497	21.7	31,302	0.00				
11/23/2012	136.1	195,960	17.8	25,635	0.00				
11/24/2012	158.8	228,616	20.4	29,383	0.00				
11/25/2012	140.3	201,979	19.9	28,615	0.00				
11/26/2012	111.7	160,802	17.3	24,899	0.00				
11/27/2012	112.9	162,565	18.4	26,452	0.51				
11/28/2012	107.6	155,010	16.7	24,085	0.00				
11/29/2012	110.1	158,554	15.5	22,369	0.00				
11/30/2012	75.6	37,421	14.7	7,280	0.00				
					1.05				
		228,616		31,844					
11/24/2012 11:00	404.2								
11/20/2012 8:30			108.3						

	Codobase	DECEMBER 2		6 1 m		1
Page 1	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	Flow	P.S. TOTAL Flow	Rainfall	Snowfa
Date	(gpm)	(Gallons)	(gpm)	(Gallons)	(in)	(in)
12/1/2012	128.3	101,974	20.5	16,292	0.00	1
12/2/2012	111.3	160,342	21.6	31,109	0.01	
12/3/2012	95.2	137,115	17.1	24,681	0.00	1
12/4/2012	91.2	131,370	15.5	22,306	0.00	1
12/5/2012	92.2	132,830	15.6	22,516	0.01	1
12/6/2012	97.3	140,045	15.4	22,164	0.00]
12/7/2012	106.7	153,576	15.5	22,271	0.21	l
12/8/2012	122.8	176,896	18.2	26,261	0.17	1
12/9/2012	129.7	186,716	22.1	31,811	0.32	
12/10/2012	106.0	152,667	16.2	23,378	0.05	1
12/11/2012	98.3	141,529	15.6	22,440	0.09	1
12/12/2012	97.2	139,915	15.7	22,548	0.00	1
12/13/2012	96.1	138,393	15.2	21,903	0.00	1
12/14/2012	98.9	142,362	14.7	21,105	0.00	1
12/15/2012	97.4	140,282	17.8	25,651	0.00	1
12/16/2012	107.4	154,668	20.3	29,261	0.05	1
12/17/2012	101.0	145,442	16.5	23,759	0.04	1
12/18/2012	109.6	257,808	16.8	24,193	0.33	1
12/19/2012	99.0	142,561	15.2	21,828	0.00	1
12/20/2012	101.4	145,966	17.2	24,773	0.30	
12/21/2012	180.5	259,905	26.8	38,653	1.28	1
12/22/2012	115.0	165,634	20.7	29,802	0.00	1
12/23/2012	111.1	159,962	20.7	29,818	0.00	1
12/24/2012	112.1	161,397	20.6	29,673	0.13	0.2
12/25/2012	107.4	154,683	20.6	29,673	0.00	
12/26/2012	138.8	199,843	22.4	32,231	1.18	1
12/27/2012	182.1	262,268	23.5	33,870	0.03	i
12/28/2012	172.1	247,813	18.2	26,267	0.00	-
12/29/2012	167.0	247,813	19.1	27,552	0.00	0.2
12/30/2012	158.1	227,649	20.7	29,797	0.00	0.2
12/31/2012	133.2	189,838			0.00	1
12/31/2012	133.4	105,030	19.8	28,210		1
		262 260		20 (52	4.43	1
2/30/2012 12:00	421.4	262,268		38,653		-
12/21/2012 12:00			77.4			1
75/57/5015 9:13			77.1			

	Sadsbury PS Max		Sandy I	Hill Max
10/29/2012 18:10	687.3			
6/2/2012 0:30	521.5		M 14 1	
5/8/2012 9:00			500.3	
3/6/2012 8:00		-	316.1	,,,,,
Max GPD (10/29)		377,708	 	
Max GPD (10/29)				69,560

W.G. MALDEN

P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 12/6/2012 METER#: C8099 AA LOCATION: SADSBURY

SERIAL#: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

CLEANED EQUIPMENT: X PRIMARY: X

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100% ERROR: -1% CORRECTED ACCURACY: ± 1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE ERROR: 0% CORRECTED ACCURACY: ± 1%

TRANSMITTER CALIBRATION
VOLUMETRIC DRAWDOWN CALIBRATION

ERROR: 0% CORRECTED ACCURACY: ± 1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: BOB/ROY copies:

PERSON SEEN: GATE CODE

Sadsbury Township 2012 Chapter 94 Annual Report Projection of EDU Connections and Flows (gpd)

	27 - 818	- 000		Current	1	TOTAL	Prior to		1000				SME
Project Name	Proposed Use	Location	Plan Status	EDUs	EDUs	EDUs	2012	2012	2013	2014	2015	2016	2017
Witmer Fire Store	30,000 s.f. Building Expansion	Independence Way	Approved Feb. 2009 - BUILT	-		-		-				-	-
evitalier Pile Store	4 SFDUs on Lg. Lots - ON LOT Sewage	mospendence way	Approved FED, 2003 - BOILT	-	-	_	-		_			-	-
Constable LD	Disposal	Limestone Road	Approved Mar. 2009	N.A.	N.A.	N.A.							
Sadsburyville Fire Company	Fire Station Expansion	Old Wilmington Rd	ON HOLD - NO EDUs	N.A.	N.A.	N.A.							
Chester County Airport		Rt 30 & Washington Ln	Pending Approval										
		Morris Farm/ Independence											
York Equity - Lot 6	Office Building	Way	ON HOLD										
Sadsbury Commons	500,000 s.f. Shopping Center	Rt 30 & Rt 10	Pending Approval & Act 537 Plan Update										
Sadsbury Commons - Medical Office Building	40,000 sf Medical Office Facility - ON LOT Sewage Disposal	Rt 10 Across from WalMart	Conditional Final Approval - Planning Module Approved, Escrow Posted, Construction Shortly	N.A.	NA.	N.A.							
Art Hurling	2 Existing Residential EDUs	Maple Avenue	Pending Planning Module and/or Act 537 Plan Update	0	2	,	0	3	2				
Valley View Business Center Lots 2 &		Wayarly Blvd & Washington	Pending Planning Module and/or Act 337 Plan Opdate	U		-	0	-	- 4	-	_	_	-
3 (National Guard)	National Guard Armory	Ln.	Connected but not occupied	3	0	3	0	3					1
S (reactionial Guard)	50 Unit Expansion of 125 Existing Unit		Conditional Final Approval - Awaiting Posting of	3	-	-	-		-	_			
Lincoln Crest Mobile Home Park	Park	Rt 30 & Sharon Ln	Escrow*	0	50	50	0			10	10	10	10
and the second second second second	67 EDUs (52 SFD, 15 SFA)+ 2 EDUs for	Old Wilmington Rd south of Rt		-	- 50	- 55	-		-	20	- 20		40
Sadsbury Park - Phase 2A	Cabana = 69 TOTAL EDUs	30	Approved & Under Construction	31	38	69	12	19	28	12			
	48 Townhouse Units (SFA) - Including 6	Old Wilmington Rd south of Rt							72				
Sadsbury Park - Phase 4C	from Phase 2B	30	Final Plan Pending AQUA Approval	8	40	48	0	8	15	25			
		Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 1	41 EDUs (All SFD)	31	Not submitted	0	41	41	0						41
TOTAL CONTRACTOR CONTRACTOR	132 EDUs (38 SFD, 88 SFA+ 6 SFA	Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 28	Accounted for in Ph 4C)	32	Not submitted	0	126	126	0						
	Seattle of the seattl	Old Wilmington Rd south of Rt			CRO	357.63					1		
Sadsbury Park - Phase 3A	42 EDUs (All SFD)	33	Not submitted	0	42	42	0						
- 100 / 100 OF OF OF	Control of the Contro	Old Wilmington Rd south of Rt	Service Control of the Control of th		100	Table 1	100	- 7					
Sadsbury Park - Phase 38	46 EDUs (14 SFD, 32 SFA)	34	Not submitted	0	46	46	0		- 1				_
	en toll- (all obs)	Old Wilmington Rd south of Rt			17202	242	2						
Sadsbury Park - Phose 4A	57 EDUs (All SFD)	35 Old Wilmington Rd south of Rt	Not submitted	0	57	57	0			_	_	_	-
Parketing Back Share 40	12 EDUs (All SFD)	Die Wilmington Ra south of Kt	Not the late of	0	12	12	0						
Sadsbury Park - Phose 48	12 EUG (All SPU)	Renovated Farmhouse at Sads	Not submitted	U	12	12_	U	_			_		
Sadsbury Township Misc	Existing Residence	Park Davelopment	Completed & Connected		0	13	1		1				
Sausdory Township Wisc		AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO	Approved Oct 2010 - Construction Complete	-	-	*	-			-			
Lafayette Square - Phase 1	Units)	30	(4 Bidgs Complete @ 10 Units EA)	40	0	40	12	28					
	7 Bidgs (65 Units) of Total 13 Bidgs (125	Did Wilmington Rd North of Rt					1						
Lafayette Square - Phase 2	Units)	31	Approved Oct 2010 - Not Started	0	65	65	0		10	45	10		
	2 Bidgs (20 Units) of Total 13 Bidgs (125	Old Wilmington Rd North of Rt									N. I. S. S. S. S.		
Lafayette Square - Phase 3	Units)	32	Approved Oct 2010 - Not Started	0	20	20	0	el-			10	10	
Sadsbury Township -		THE THE STATE OF T	Phase 4 Sewer Construction Complete -										
Phase 4 Sewers	Existing Residential EDUs	Valley Road	Not all EDUs connected	12	68	80	10	2	5	4			
Sadsbury Township -													
Phase 3A Sewers	House and Apartment (2 EDUs)	31 Morris Lane	Connected	2	0	2	0	2	_	-			
Sadsbury Township Misc	Existing Residence	2907 lincoln Highway	Connected	1	D	1	0	1				_	
Improvements should curtail inflo	ow							- 12					
TOTAL EDUs				98	607	705	35	63	60	96	30	20	51
TOTAL FLOW (GPD) @ 250 GPD/EDU				24,500	151,750	176,250	8,750	15,750	15,000	24,000	7,500	5,000	12,750
													- BAUT SHI



Print

Subject: Fw: Sadsbury & Sandy Hill telog June 2012

From: Patricia.Hudock@amwater.com
Sent: Monday, July 09, 2012 11:31:48 AM
To: hem.engineers.dporter@verizon.net

Dave.

It lost the programming and went back to factory default programming, probably due to a storm. The data cannot be recovered for that time frame. Just a heads up....it will be missing data for the first week in July also. It is now back to normal.

Thanks, Patti

Patti Hudock
PA American Water - Coatesville
Admin Support
100 Cheshire Ct, Ste 104
Coatesville, PA 19320
P 610-384-1776 ext 2127
Internal 73152127
F 610-384-2996
Patricia.Hudock@amwater.com

---- Forwarded by Patricia A Hudock/PAWC/AWWSC on 07/09/2012 11:29 AM -----

Patricia A Hudock/PANC/ANWSC

To Dave Porter <hem.engineers.dporter@verizon.net>@AWX

07/09/2012 11:18 AM

CC

Subject Re: Sadsbury & Sandy Hill telog June 2012Link

I believe it's a problem on the phone line. I'm checking on that though.

Thanks, Patti

Patti Hudock
PA American Water - Coatesville
Admin Support
100 Cheshire Ct, Ste 104
Coatesville, PA 19320
P 610-384-1776 ext 2127
Internal 73152127
F 610-384-2996
Patricia.Hudock@amwater.com

Dave Porter <a href="mailto:pre-right-number-superscrip-right-number-superscri

07/09/2012 11:09 AM

To Patricia.Hudock@amwater.com cc hem.engineers@verizon.net, James.Kelly@amwater.com

Subject Re: Sadsbury & Sandy Hill telog June 2012

Thanks Patti. Any reason for the loss of data?

David M. Porter, E.I.T.

Herbert E. MacCombie, Jr., P.E. Consulting Engineers and Surveyors, Inc. P.O. Box 118 Broomall, Pa 19008

610-356-9550 Fax - 610-356-5032

hem.engineers.dporter@verizon.net

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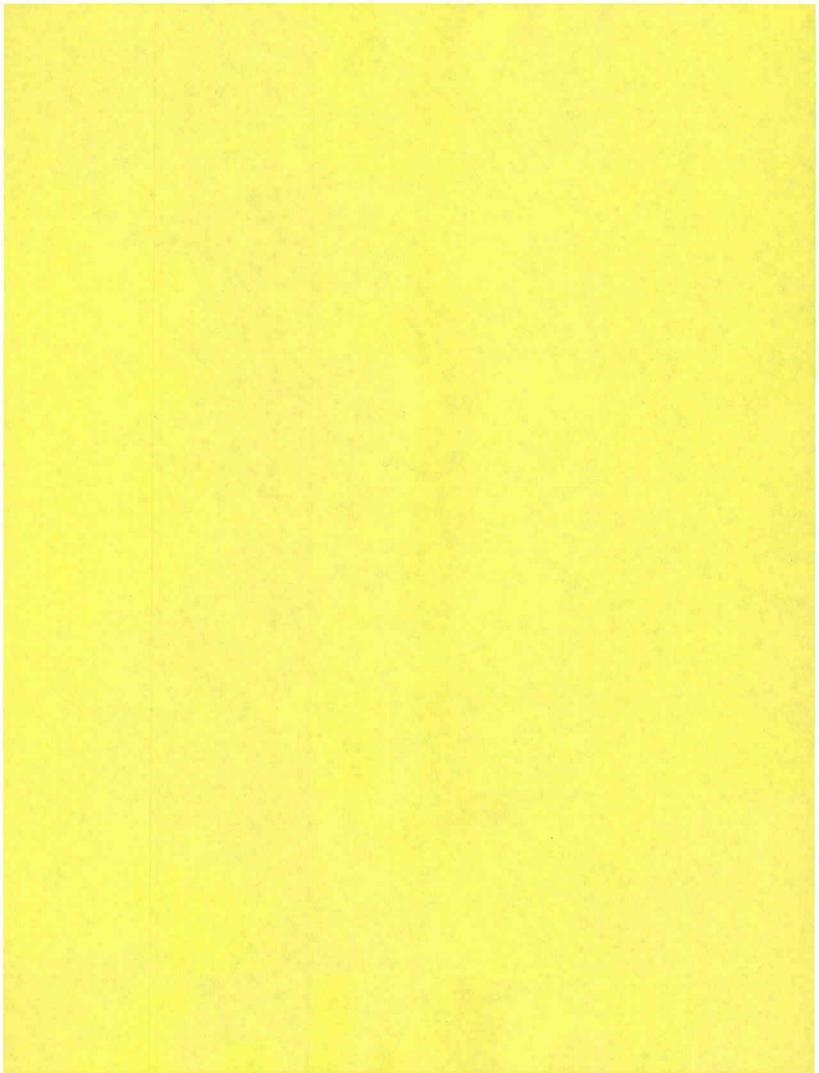
On Jul 9, 2012, Patricia.Hudock@amwater.com wrote:

Good morning

There was data lost for Sadsbury from 6/28 at 4AM to 6/30.

Thanks,

Patti Hudock
PA American Water - Coatesville
Admin Support
100 Cheshire Ct, Ste 104
Coatesville, PA 19320
P 610-384-1776 ext 2127
Internal 73152127
F 610-384-2996
Patricia.Hudock@amwater.com



CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT 2011 ANNUAL REPORT

SADSBURY TOWNSHIP, CHESTER COUNTY, PA

FOR THE

PENNSYLVANIA AMERICAN WATER COMPANY COATESVILLE SEWERAGE SYSTEM

MARCH 2012

Prepared By:

Herbert E. MacCombie, Jr., P.E.
Consulting Engineers and Surveyors, Inc.
P.O. Box 118
Broomall, PA 19008

PENNSYLVANIA-AMERICAN WATER COMPANY COATESVILLE DISTRICT 2011 WASTELOAD MANAGEMENT REPORT SURVEY

Municipality:

SADSBURY TOWNSHIP

Information Furnished By:

Date: February 28, 2012

Municipality / Engineering Company:

Herbert E. MacCombie, Jr. P.E.

Consulting Engineers and Surveyors, Inc.

Name:

James W. MacCombie, P.E., P.L.S.

Address:

P.O. Box 118

Broomall, PA 19008

Phone:

610-356-9550

Fax:

610-356-5032

E-Mail Address:

hem.engineers@verizon.net

1. Total Present Number of EDU's connected to PAWC system:

Residential	908
Commercial	89
Industrial	0

2. Total EDU's connected to PAWC system during 2011

Residential	26
Commercial	0
Industrial	0

3. Projections for future additional EDU's to be connected to PAWC system. These projections should reflect what is actually anticipated to be constructed and placed in service:

Year	Residential	Commercial	Industrial	Total EDU's
2012	78	3	0	81
2013	75	10	0	85
2014	67	10	2	79
2015	30	20	2	52
2016	20	20	2	42
Beyond 2016	360	40	7	407
Total	1,538	192	13	1,743

4. Sewer extensions constructed during 2011 that contributed flows to PAWC system:

Project / Development Name	Length & Diameter of Sewer Completed	Length and Diameter of Sewer Remaining	Total EDU's Completed	Total EDU's Remaining
Sadsbury Phase IV West End	4,044 L.F. 8" Dia. PVC	None Remaining	10	70
Sadsbury Park Phase 2A (Not Dedicated)	3,800 L.F. 8" Dia. PVC 540 L.F. 8" Dia. D.I.P.	None Remaining	13	69
Lafayette Square Phase 1			3	37

5. Proposed Projects which shall require sewer extensions that will contribute flows to PAWC system but are not yet constructed.

Project / Development Name	Length & Diameter of Sewer Proposed	Total EDU's Proposed	Start of Construction (Year)
Sadsbury Commons	Combination Gravity & Forcemain	120	2013

- 6. Please provide discussion on the following:
 - a.) Sewer System Flow Monitoring:

P&B Maintenance Company of Essington, PA is currently under contract with Sadsbury Township to monitor Pump Station and Meter on a regular basis. The Township Engineer monitors flows on a regular basis. Currently the only flow meter readings are from a Mag Meter located along the force main discharge from the pumps at the Pump Station (effluent flow). It is required by Chapter 94 to report on influent flow to evaluate Pump Station hydraulic loading and for determining peaking factors for projected flows. Since the only flow data currently available are the Pump Station discharge flow meter readings, these readings were used to prepare the 2011 report and assumptions were made for projected flows. Using the discharge flow readings would yield inaccurately high peaking factors and falsely indicate hydraulic overloading of the pump station, which is a fairly new station. There is ongoing discussion with the Township regarding installation of an influent flow meter at this station. The Township has placed the influent meter in the 2012 budget. It is anticipated that the influent meter will be installed and operational during 2012. The Township is in the process of evaluating possible Stottsville Pump Station upgrades to meet future demands while at the same time identifying sources of I/I.

b.) Sewer System Maintenance:

Sadsbury Township has a contract with P&B Maintenance Company for Pump Station maintenance. The Township will contract out with local contractors for major repairs.

c.) Sewer System I&I Program:

The Township reviews flows on a regular basis in order to keep a watchful eve on potential I/I. The Township Road Crew is available on a continual basis for routine repairs. Major repairs will be performed by local contractors as the need arises. Currently, the Lincoln Crest Mobile Home Park has been identified as a source of inflow as well as several manholes along Route 372 due to the relocation of a storm sewer line by PennDOT. The Township is monitoring the flows from the Lincoln Crest Mobile Home Park on a regular basis and is working with the owner of the mobile home park to identify and remedy an apparent inflow issue. Flows from the mobile home park continue to spike during rainfall events greater than one (1) inch. Lincoln Crest has received Conditional Final Land Development approval from the Township to expand the park with additional 50 units. The park currently has 125 existing connections. Improvements associated with the expansion should curtail inflow issues. In addition, the Township is in the process of investigation another possible source of additional inflow that may be attributed to Industrial users within the Bellaire Business Center. The Township is in the process of monitoring their sewage flow and water usage to determine if there is an inflow issue.

- 7. Please provide discussion of the condition of your sewer system:
 - a.) Portions where conveyance capacity is being exceeded or will be exceeded in the next 5 years:

The Sanitary Sewer System is in Good Working Condition and no exceedances are anticipated in the next five years.

b.) Proposed projects to increase conveyance capacity, i.e. repair, rehabilitation, new construction:

As stated in 6(a), the Township is in the process of evaluating the possible need to upgrade of the Stottsville Pump Station in order to provide for a capacity increase for flows from developments within West Caln Township.

8. Please provide data and discussion of your sewer flow:

			Pump Statio	ns		
		Permitted Capacities		Pres	Projected Flows	
Pump Number Station of Name Pumps		AA Hydraulic Number Permitted Design of Capacity Capacity ¹		Annual Average Flows (gpd)	2-Year Projected Maximum ² Flow (gpd)	
Stottsville Pump Station	2	1,008,000 (700 gpm)	1,058,400 (735 gpm) ³	171,599	417.1 ⁴	737,097 (511.9 gpm)

- 1. Excluding Capacity of Backup Pump = Maximum Pump Rate
- 2. 2-Year Projected Peak Flow = (Projected 2-Year AA Flow to P.S.) x (Pump Station Peaking Factor)
 - a. Projected 2-Year AA Flow to P.S. Based on Proposed Connections
 - b. Peaking Factor = Ratio of Peak Instantaneous Flow to AA Flow
- 3. The Hydraulic Design Capacity is assumed to be at 105% of the Permitted Capacity based upon available information for similar pump stations in the area. This assumption was made because no testing data is available for actual maximum pump performance.
- 4. The Peak Instantaneous Flow was determined by applying a Peaking Factor of 3.5 pursuant to the Pennsylvania Department of Environmental Protection, Water Management Program, Southeast Regional Office, Sewage Pumping Station Guidance, last revised March 24, 1999. This Peaking Factor was also applied to the 2-Year Projected Maximum Flow.

a.) Other discussion or information:

An unusually high peak hourly flow of 831.0 GPM (pump discharge) was recorded at the pump station between 7:15pm and 8:15pm on September 23rd and the meter readings indicate that the pump continuously ran from approximately 5:30 am on September 23rd until approximately 7:15 am on September 24th. There was a significant amount of rainfall (approximately 2.35 inches total) between September 23rd into the 24th. This storm was relatively intense dropping 2.35 inches of rain in about 12 hours. Furthermore, this event occurred after one of the wettest summers on record in which Hurricane Irene, Tropical Storm Lee, and several other significant rainfall events occurred. August saw six (6) days with over one (1) inch of rainfall with a total of 19.31 inches. About 5.7 inches of rain fell in 21 hours during Hurricane Irene (August 27th and 28th). September saw three (3) days with over one (1) inch of rainfall with a total of 10.27 inches.

This very high peak was considered but was not used in determining the peaking factor or calculating the projected flows since the instantaneous spike in flow occurred at the end of the summer where more than 19.5 inches of rain fell. Furthermore, since only pump discharge flow data is available at this time, a Peaking Factor of 3.5 was applied to the Annual Average Daily Flow (AADF) to determine the Peak Instantaneous Flow (PIF). This peaking factor is pursuant to the Pennsylvania Department of Environmental Protection, Water Management Program, Southeast Regional Office, Sewage Pumping Station Guidance, last revised March 24, 1999. This Peaking Factor was also applied to the 2-Year Projected Maximum Flow.

Hurricane Irene occurred over August 27th and 28th during a month that had 19.31 inches of rain (15.49 inches higher than normal). During the hurricane 1.49 inches of rain fell in a one (1) hour period on the 27th and a peak hourly flow of 715.9 GPM was recorded between 2:45am and 3:45am on the 28th. In all 5.7 inches of rain was recorded over 21 hours.

A week after Hurricane Irene ended Tropical Storm Lee arrived dropping 6.39 inches of rain over three (3) days (September 6th, 7th, and 8th). On the third day 2.33 inches fell in a one (1) hour period, which was more intense than Hurricane Irene. In fact, this was the most rain that fell in a one (1) hour period for the entire year. However, the highest peak hourly flow recorded during Lee was 768.0 GPM occurring on the 7th between 4:15pm and 5:15pm.

The existing Stottsville Pump Station has Two (2) alternating pumps with a rated capacity of 700 gpm each. The pump station is in good condition and is more than capable of handling the projected 2-year maximum flow of 511.9 gpm.

THIS SECTION IS NOT APPLICABLE TO SADSBURY TOWNSHIP

	Date of adoption of the ordinance or regulation governing industrial waste discharges into your system:
b.)	Discussion of program for the surveillance and monitoring of the industrial waste discharges into your system:
c.)	Discussion of specific problems in your sewer system, known or suspected to be caused by industrial waste discharges within the past 5 years:

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	Volume (Gallons)	ADF (GPD)
Jan-11	4,541,331	146,495
Feb-11	4,537,292	162,046
Mar-11	6,351,759	204,895
Apr-11	5,775,836	192,528
May-11	5,381,072	173,583
Jun-11	4,203,560	140,119
Jul-11	3,949,407	127,400
Aug-11	4,836,853	156,028
Sep-11	6,155,058	205,169
Oct-11	5,252,092	169,422
Nov-11	5,660,700	188,690
Dec-11	5,988,796	193,187
TOTAL	62,633,756	171,599 GPD
		119.2 GPM

	171,599	GPD - Annual Average Daily Flow (ADF)
I	7,150.0	GPH - Annual Average Hourly Flow (AHF)
Ī	119.2	GPM - Annual Average Flow per Minute (AFM)

	502,959 GPD - Maximum Daily Flow (MDF) August 28, 2011
	49,862 GPH - Peak Hourly Flow (PHF) September 23, 2011 between 7:15 AM and 8:15 AM
1	831.7 GPM - Peak Instantaneous Flow (PIF) September 23, 2011 @ 7:30 pm

2.93	Current MDF Peaking Factor = (MDF/ADF)
6.97	Current PHF Peaking Factor = (PHF/AHF)
6.98	Current Instantaneous Flow Peaking Factor = (PIF/AFM)

3.50 Current Instantaneous Flow Peaking Factor = (PIF/AFM)

From the Pennsylvania Department of Environmental Protection, Water

Management Program, Southeast Regional Office, Sewage Pumping Station
Guidance, last revised March 24, 1999.

417.1 GPM - Peak Instantaneous Flow (PIF)

	January	February	March	April	May	June	July	August	September	October	November	December	Total	GPD/365
Sadsbury Township														
Pump Station	4,541,331	4,537,292	6,351,759	5,775,836	5,381,072	4,203,560	3,949,407	4,836,853	6,155,058	5,252,092	5,660,700	5,988,796	62,633,756	171,599
Sadsbury Crossing/Valley Rd.	129,772	117,500	129,400	131,378	143,800	125,225	152,300	134,520	132,900	122,400	118,700	129,000	1,566,895	4,293
Sandy Hill	728,143	-861,277	-1,611,202	-866,907	-728,528	-652,006	-600,065	-779,676	-802,881	-770,070	-775,197	-789,549	-9,965,501	
Total	3,942,960	3,793,515	4,869,957	5,040,307	4,796,344	3,676,779	3,501,642	4,191,697	5,485,077	4,604,422	5,004,203	5,328,247	54,235,150	
GPD	127,192	135,483	157,095	168,010	154,721	122,559	112,956	135,216	182,836	148,530	166,807	171,879		148,589
•	3,942,960	3,793,515	4,869,957	5,040,307	4,796,344	3,676,779	3,501,642	4,191,697	5,485,077	4,604,422	5,004,203	5,328,247	54,235,150	

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			ANUARY 20:	Úli.				
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfall (in)	Snowi
1/1/2011	128.8	115,953	25.9	23,282	224.8	323,744	0	
1/2/2011	112.4	161,862	20.5	29,489	226.5	326,206	0.09	
1/3/2011	108.4	156,050	17.1	24,645	221.6	319,061	0	
1/4/2011	109.3	157,418	14.6	21,022	220.5	317,582	0	1
1/5/2011	106.8	153,757	15.3	22,061	218.9	315,249	0	1
1/6/2011	94.0	135,409	14.7	21,102	216.7	312,065	0	
1/7/2011	102.3	147,317	14.7	21,170	205.8	296,310	0.11	1.3
1/8/2011	110.1	158,501	17.1	24,588	201.5	290,144	0.1	1.9
1/9/2011	111.5	160,577	18.4	26,507	201.7	290,404	0	
1/10/2011	103.2	148,605	15.0	21,534	200.8	289,222	0	
1/11/2011	89.7	129,168	14.5	20,829	199.3	286,963	0.31	4.1
1/12/2011	100.3	144,438	17.7	25,467	203.5	292,978	0.15	1.1
1/13/2011	108.5	156,206	15.7	22,641	200.9	289,284	0	
1/14/2011	98.4	141,654	15.3	22,095	200.6	288,819	Õ	
1/15/2011	103.7	149,301	17.2	24,760	197.2	284,009	0	
1/16/2011	107.1	154,286	17.9	25,748	200.9	289,366	0	
1/17/2011	110.1	158,474	17.0	24,489	119.8	172,521	0.11	0.9
1/18/2011	103.5	149,046	16.9	24,265	8.1	11,638	0.67	0.1
1/19/2011	102.9	148,222	16.8	24,220	10.7	15,454	0.05	1
1/20/2011	96.6	139,039	15.1	21,719	9.8	14,162	0	
1/21/2011	97.5	140,406	15.7	22,652	9.4	13,568	0.15	0.6
1/22/2011	106.3	153,073	17.2	24,765	9.3	13,443	0	
1/23/2011	107.0	154,150	18.7	26,904	11.5	16,538	0	1
1/24/2011	92.1	132,599	14.4	20,807	8.8	12,701	0	1
1/25/2011	94.3	135,819	14.6	21,051	10.6	15,315	0	
1/26/2011	93.3	134,407	14.9	21,483	10.1	14,616	1.57	14.
1/27/2011	94.7	136,345	16.6	23,893	9.5	13,728	0.05	0.9
1/28/2011	91.8	132,190	13.9	19,956	8.5	12,267	0.02	0.1
1/29/2011	98.4	141,708	17.5	25,150	9.5	13,619	0	
1/30/2011	108.9	156,744	18.1	25,994	11.2	16,106	0	1
1/31/2011					8.2	11,808	0.01	1
1/2/2011 12:00	227.0							
1/3/2011 12:15			125.5					

= Water Equivalent of Snowfall

		FE	BRUARY 20					ı
	Sadsbury P.S.	Cadabaaa D.C.	P.S.	Sandy Hill P.S.	Lincoln Crest	Lincoln		
Date	Average Flow	Sadsbury P.S. TOTAL Flow	Average Flow	TOTAL Flow	Average Flow	Crest Total Flow	Rainfall (in)	Snowf (in)
2/1/2011	114.3	102,895	18.8	16,893	7.5	10,860	0.01	0.1
2/2/2011	120.7	173,840	28.4	40,933	16.1	23,172	0.7	1
2/3/2011	97.1	139,811	17.9	25,831	10.7	15,451	0	1
2/4/2011	91.5	131,777	15.2	21,906	8.6	12,320	0	1
2/5/2011	113.9	163,969	22.0	31,631	10.0	14,332	0.24	1
2/6/2011	123.7	178,173	24.6	35,405	12.7	18,333	0	
2/7/2011	105.7	152,224	19.9	28,657	11.1	16,003	0.01	1
2/8/2011	119.7	172,315	21.0	30,188	11.4	16,405	0.02	1
2/9/2011	110.6	159,293	16.8	24,121	9.3	13,321	0	1
2/10/2011	109.8	158,137	15.9	22,848	7.6	11,004	0	1
2/11/2011	108.0	155,472	15.3	22,009	7.5	10,775	0	1
2/12/2011	106.9	153,961	17.4	25,115	7.0	10,101	0	1
2/13/2011	109.4	157,469	19.2	27,674	7.6	11,001	0	1
2/14/2011	102.1	147,054	19.4	27,933	7.5	10,849	0	1
2/15/2011	102.3	147,263	18.2	26,203	6.2	8,914	0	1
2/16/2011	96.0	138,193	16.8	24,149	6.5	9,404	0	1
2/17/2011	107.6	154,935	23.9	34,385	7.9	11,310	0	1
2/18/2011	128.0	184,367	27.8	40,022	12.9	18,545	0	1
2/19/2011	118.8	171,113	19.7	28,350	11.1	15,989	0	1
2/20/2011	111.5	160,525	18.1	26,027	9.8	14,165	0	1
2/21/2011	112.5	162,045	18.4	26,448	8.3	11,922	0.21	3.1
2/22/2011	108.8	156,630	21.5	30,894	7.7	11,106	0.27	2.9
2/23/2011	101.1	145,653	17.9	25,746	6.2	8,997	0	1
2/24/2011	99.6	143,487	15.4	22,220	7.0	10,062	0.01	1
2/25/2011	171.3	246,668	40.0	57,570	17.8	25,609	0.9	
2/26/2011	125.4	180,507	28.6	41,147	9.6	13,815	0	1
2/27/2011	128.6	185,252	29.5	42,411	8.5	12,251	0	1
2/28/2011				,_,,	8.5	12,263	0.28	i
2/25/2011 9:15	344.5					-=,		1
2/25/2011 8:30			119.9					1

= Water Equivalent of Snowfall

			MARCH 201				
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	Sandy Hill P.S. Average Flow	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal (in)
3/1/2011	123.2	177,406	24.6	19,907	7.1	10,246	0
3/2/2011	110.2	158,736	22.4	32,189	6.8	9,754	0
3/3/2011	103.8	149,489	22.0	31,731	6.3	9,091	0
3/4/2011	107.8	155,267	19.7	28,367	5.0	7,199	0
3/5/2011	110.1	158,598	19.5	28,009	5,9	8,470	0
3/6/2011	147.0	211,729	38.5	55,384	15.9	22,950	1.4
3/7/2011	198.5	285,896	50.4	72,598	14.6	21,016	0.04
3/8/2011	144.4	207,970	42.4	61,006	6.7	9,681	0
3/9/2011	125.7	181,020	40.5	58,353	6.4	9,214	0
3/10/2011	141.9	204,339	71.5	103,025	47.9	68,958	1.16
3/11/2011	194.6	280,243	50.3	72,385	13.2	19,064	0.3
3/12/2011	188.8	271,864	21.8	31,392	8.0	11,463	0
3/13/2011	206.5	297,366	58.6	84,406	8.7	12,511	0
3/14/2011	182.6	262,874	53.3	76,743	8.0	11,510	0
3/15/2011	172.5	248,452	52.3	75,285	7.4	10,705	0.01
3/16/2011	183.6	264,451	58.5	84,177	10.1	14,609	0.68
3/17/2011	161.9	233,102	48.5	69,867	6.8	9,785	0
3/18/2011	156.2	224,873	46.4	66,781	6.4	9,221	0
3/19/2011	141.2	203,269	36.6	52,706	6.7	9,666	0
3/20/2011	136.6	196,633	29.8	42,959	7.0	10,132	0
3/21/2011	121.8	175,447	23.9	34,407	7.3	10,489	0.4
3/22/2011	129.2	186,071	32.5	46,782	6.8	9,837	0
3/23/2011	138.2	198,968	37.6	54,106	6.6	9,450	0.23
3/24/2011	137.7	198,312	36.1	51,920	7.2	10,370	0.02
3/25/2011	125.9	181,244	30.8	44,412	6.7	9,712	0
3/26/2011	130.7	188,153	30.3	43,637	7.4	10,623	0
3/27/2011	134.9	194,299	30.7	44,260	6.9	9,983	0
3/28/2011	119.6	172,213	24.3	35,005	5.8	8,298	0
3/29/2011	113.5	163,393	22.2	31,981	6.3	9,029	0
3/30/2011	110.3	158,899	21.0	30,210	6.5	9,394	. 0
3/31/2011	113.1	161,183	19.3	14,205	7.2	10,354	0.05
3/12/2011 7:15	439.6						
3/10/2011 17:30			149.3				

			APRIL 2011					
	P.S. Average	Sadsbury P.S.	P.S. Average	Sandy Hill P.S. TOTAL	Lincoln Crest Average	Lincoln Crest	Rainfal	
Date	Flow	TOTAL Flow	Flow	Flow	Flow	Total Flow	(in)	
4/1/2011	132.3	119,037	26.2	23,572	7.5	10,788	0.2	
4/2/2011	116.4	167,558	24.1	34,766	7.6	10,947	0	
4/3/2011	117.3	168,984	20.6	29,719	24.1	34,722	0.01	
4/4/2011	106.4	153,279	18.8	27,137	39.0	56,117	0	
4/5/2011	128.1	184,468	24.6	35,456	45.4	65,317	0.15	
4/6/2011	110.7	159,361	18.9	27,221	40.4	58,239	0	
4/7/2011	105.6	152,094	16.9	24,404	39.4	56,720	0	
4/8/2011	125.6	180,903	23.7	34,077	42.7	61,539	0.68	
4/9/2011	132.7	191,084	26.9	38,726	42.9	61,764	0	
4/10/2011	131.6	189,450	26.4	37,983	40.0	57,592	0	
4/11/2011	113.0	162,670	18.4	26,486	34.2	49,230	0	
4/12/2011	135.5	195,097	22.4	32,272	13.0	18,655	0.57	
4/13/2011	163.3	235,105	22.6	32,523	11.8	16,920	0.08	
4/14/2011	126.5	182,204	15.8	22,815	7.5	10,848	0	
4/15/2011	116.2	167,292	14.8	21,279	8.4	12,041	0	
4/16/2011	213.4	307,237	30.4	43,705	27.6	39,704	3.11	
4/17/2011	214.9	309,399	26.8	38,644	14.5	20,923	0.01	
4/18/2011	152.9	220,155	15.5	22,315	7.4	10,702	0	
4/19/2011	138.7	199,744	15.3	21,976	7.5	10,792	0	
4/20/2011	132.1	190,206	14.9	21,511	7.4	10,713	0	
4/21/2011	127.6	183,760	14.8	21,290	7.6	10,887	0	
4/22/2011	122.1	175,887	16.1	23,169	6.8	9,859	0	
4/23/2011	143.4	206,470	21.7	31,221	8.0	11,467	0.38	
4/24/2011	140.0	201,661	22.3	32,162	9.2	13,293	0.02	
4/25/2011	139.1	200,351	18.7	26,994	9.1	13,072	0.01	
4/26/2011	129.2	186,097	15.6	22,475	7.7	11,029	0	
4/27/2011	120.6	173,594	15.3	22,097	5.9	8,424	0.02	
4/28/2011	135.0	194,350	20.5	29,492	6.9	9,993	0.04	
4/29/2011	127.6	183,789	16.3	23,427	6.2	8,865	0	
4/30/2011	131.6	175,748	16.4	21,863	6.0	8,613	0	
4/16/2011 19:30	535.6							
4/9/2011 10:15			95.1				11 2	

MAY 2011 Sadsbury Sandy Hill Lincoln												
Date	P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal (in)					
5/1/2011	143.6	206,843	19.5	28,104	7.5	10,824	0					
5/2/2011	124.8	179,677	14.7	21,179	6.0	8,661	0					
5/3/2011	121.8	175,413	15.3	22,083	6.0	8,602	0					
5/4/2011	139.5	200,937	21.3	30,663	7.0	10,107	0.47					
5/5/2011	126.3	181,910	15.4	22,142	5.8	8,313	0					
5/6/2011	121.7	175,238	13.8	19,940	5.7	8,213	0					
5/7/2011	122.0	175,680	15.2	21,833	6.0	8,681	0					
5/8/2011	130.8	188,388	18.5	26,683	10.0	14,392	0					
5/9/2011	121.1	174,450	14.8	21,337	11.5	16,551	0					
5/10/2011	115.6	166,497	13.3	19,137	10.9	15,766	0					
5/11/2011	109.0	156,918	14.3	20,657	7.4	10,720	0					
5/12/2011	112.9	162,629	13.9	20,034	5.3	7,574	0					
5/13/2011	113.2	162,983	13.9	19,984	5.3	7,596	0					
5/14/2011	122.6	176,562	16.9	24,391	6.3	9,144	0.21					
5/15/2011	128.4	184,842	18.3	26,423	6.5	9,362	0.16					
5/16/2011	134.1	193,135	16.6	23,913	7.9	11,395	0.02					
5/17/2011	151.9	218,690	20.1	29,008	11.5	16,529	0.36					
5/18/2011	128.8	185,445	16.2	23,391	7.1	10,171	0.24					
5/19/2011	125.4	180,583	15.5	22,368	7.8	11,301	0.36					
5/20/2011	127.6	183,712	16.6	23,845	7.6	10,946	0.06					
5/21/2011	120.5	173,524	17.4	24,985	5.9	8,529	0					
5/22/2011	123.2	177,421	18.4	26,501	7.9	11,374	0					
5/23/2011	114.8	165,374	16.7	24,053	6.3	9,016	0.03					
5/24/2011	111.2	160,090	15.5	22,260	6.3	9,063	0					
5/25/2011	106.9	153,983	15.4	22,241	5.2	7,417	0					
5/26/2011	107.1	154,227	14.9	21,387	5.6	8,001	0					
5/27/2011	107.2	154,371	14.5	20,825	5.3	7,691	0					
5/28/2011	105.4	151,744	16.5	23,732	6.0	8,610	0					
5/29/2011	102.1	147,085	18.1	26,046	5.1	7,413	0					
5/30/2011	113.9	163,965	18.7	26,866	5.9	8,555	0					
5/31/2011	104.0	149,701	15.6	22,518	5.3	7,631	0					
5/16/2011 15:55	426.3											
5/21/2011 11:10			76.6									

			JUNE 2011				
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal
6/1/2011	101.4	146,048	13.8	19,941	7.2	10,389	0
6/2/2011	100.2	144,257	14.2	20,378	8.7	12,566	0
6/3/2011	.94.8	136,484	14.6	21,055	7.5	10,804	0
6/4/2011	100.4	144,621	16.6	23,886	6.6	9,564	0
6/5/2011	107.2	154,432	18.9	27,240	8.5	12,243	0
6/6/2011	99.1	142,654	15.0	21,604	7.7	11,153	0
6/7/2011	100.2	144,308	15.2	21,917	9.4	13,555	0
6/8/2011	96.7	139,270	13.8	19,933	9.2	13,266	0
6/9/2011	97.2	139,934	14.3	20,641	6.5	9,314	0.18
6/10/2011	94.8	136,571	14.2	20,430	5.8	8,384	0
6/11/2011	101.6	146,247	17.1	24,588	7.6	10,930	0.61
6/12/2011	112.4	161,838	18.1	26,017	8.7	12,522	0.05
6/13/2011	100.8	145,128	14.4	20,746	8.1	11,689	0
6/14/2011	97.6	140,571	15.4	22,180	6.9	9,976	0.09
6/15/2011	97.3	140,101	15.2	21,817	6.4	9,227	0
6/16/2011	96.7	139,218	14.7	21,169	7.3	10,543	0.08
6/17/2011	93.6	134,856	15.1	21,673	6.4	9,164	1.38
6/18/2011	99.2	142,779	16.0	23,040	7.7	11,058	0
6/19/2011	98.6	142,040	16.8	24,179	7.0	10,050	0
6/20/2011	89.9	129,467	13.3	19,093	5.6	8,032	0
6/21/2011	89.8	129,242	13.7	19,773	6.6	9,469	0.02
6/22/2011	93.7	134,990	13.7	19,694	7.6	10,888	0.04
6/23/2011	94.9	136,628	14.0	20,139	7.8	11,169	0.03
6/24/2011	96.5	138,918	14.3	20,655	8.8	12,614	0
6/25/2011	95.7	137,871	15.9	22,832	7.5	10,769	0
6/26/2011	98.5	141,878	16.8	24,122	8.0	11,586	0
6/27/2011	95.2	137,096	15.1	21,803	7.4	10,700	0
6/28/2011	92.6	133,386	13.9	19,999	7.0	10,113	0.08
6/29/2011	90.9	130,963	14.0	20,094	6.5	9,296	0.
6/30/2011	72.6	45,738	11.1	6,989	6.4	9,249	0
6/18/2011 8:00	304.0						
6/14/2011 10:45			137.4				

(8)

Date	P.S. Average Flow	Sadsbury P.S. TOTAL Flow	Sandy Hill P.S. Average Flow	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal (in)
7/1/2011	104.4	90,811	15.8	13,769	5.6	7,992	0
7/2/2011	83.3	119,957	14.6	21,069	6.8	9,749	0
7/3/2011	85.8	123,564	17.2	24,805	6.0	8,622	0.02
7/4/2011	93.1	134,056	16.2	23,400	6.5	9,354	0
7/5/2011	92.2	132,762	15.3	22,087	6.4	9,243	0
7/6/2011	95.5	137,451	15.3	22,092	7.0	10,021	0
7/7/2011	93.7	134,860	14.6	21,060	6.7	9,656	0.01
7/8/2011	90.9	130,870	13.8	19,875	8.0	11,523	1.48
7/9/2011	95.8	137,936	16.8	24,137	8.9	12,881	0
7/10/2011	101.9	146,748	17.7	25,559	9.1	13,036	0
7/11/2011	92.1	132,612	14.6	21,052	8.5	12,245	0
7/12/2011	89.0	128,126	13.7	19,696	7.5	10,766	0
7/13/2011	91.4	131,581	13.2	19,027	8.7	12,600	0
7/14/2011	90.3	129,992	14.1	20,254	11.0	15,826	0
7/15/2011	87.7	126,264	14.4	20,728	11.0	15,860	0
7/16/2011	91.2	131,349	15.3			18,332	0
7/17/2011	99.8	143,682	17.5	25,165	13.0	18,767	0
7/18/2011	93.8	135,130	14.0	20,188	12.3	17,730	0
7/19/2011	92.0	132,409	13.2	18,970	11.7	16,919	0.59
7/20/2011	90.2	129,825	13.9	20,019	10.5	15,180	0
7/21/2011	90.3	129,982	14.0	20,131	9.7	13,974	0
7/22/2011	93.5	134,660	13.5	19,462	7.5	10,803	0
7/23/2011	115.3	165,979	14.7	21,159	8.5	12,234	0
7/24/2011	129.3	186,140	17.1	24,665	8.9	12,832	0
7/25/2011	136.2	196,199	13.7	19,773	9.1	13,130	0.25
7/26/2011	131.2	188,890	14.7	21,205	8.4	12,070	0
7/27/2011	110.2	158,664	13.4	19,307	7.7	11,136	0
7/28/2011	90.6	130,433	14.4	20,780	7.5	10,754	0.04
7/29/2011	89.7	129,111	14.5	20,872	7.0	10,092	0.32
7/30/2011	109.2	157,265	15.6	22,455	7.9	11,434	0
7/31/2011	74.8	56,114	13.3	9,982	9.0	13,013	0
7/30/2011 7:30	620.3						
7/24/2011 10:30			72.8				

		, P	UGUST 201				
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal
8/1/2011	114.1	73,575	20.3	13,091	7.0	10,142	0.83
8/2/2011	91.7	132,052	15.0	21,668	6.5	9,348	0
8/3/2011	87.9	126,638	15.2	21,888	6.5	9,354	1.62
8/4/2011	91.7	132,043	15.4	22,239	6.4	9,230	0.13
8/5/2011	90.7	130,500	15.0	21,579	6.2	8,894	0
8/6/2011	91.8	132,127	15.0	21,655	6.8	9,765	0
8/7/2011	99.2	142,864	18.1	25,994	7.4	10,708	0.01
8/8/2011	91.4	131,569	14.8	21,255	7.2	10,357	0
8/9/2011	90.2	129,903	15.8	22,802	7.4	10,606	1.87
8/10/2011	88.5	127,398	14.6	21,080	6.1	8,806	0
8/11/2011	89.7	129,101	13.8	19,920	7.2	10,352	0
8/12/2011	88.4	127,237	16.5	23,828	6.3	9,091	0
8/13/2011	93.8	135,033	16.6	23,877	7.7	11,150	0.06
8/14/2011	110.9	159,631	20.2	29,109	9.7	14,023	4.84
8/15/2011	104.8	150,852	15.0	21,663	9.0	12,993	0.9
8/16/2011	91.9	132,264	14.2 20,466		7.1	10,227	0
8/17/2011	89.1	128,270	13.7	19,742	6.9	9,909	0
8/18/2011	91.6	131,890	15.7	22,672	6.7	9,618	1.98
8/19/2011	103.6	149,116	18.2	26,148	9.4	13,490	0.71
8/20/2011	108.7	156,552	16.2	23,360	10.1	14,490	0
8/21/2011	111.1	160,015	18.4	26,489	8.5	12,194	0.05
8/22/2011	103.3	148,755	14.9	21,520	5.7	8,206	0
8/23/2011	105.2	151,553	13.7	19,726	7.0	10,147	0
8/24/2011	96.3	138,659	14.4	20,683	6.8	9,784	0
8/25/2011	96.8	139,450	13.3	19,087	7.8	11,277	0.61
8/26/2011	96.3	138,636	15.3	21,976	6.7	9,649	0
8/27/2011	148.4	213,738	23.2	33,369	11.3	16,310	4.55
8/28/2011	349.3	502,959	62.8	90,440			1.15
8/29/2011	120.9	174,142	20.4	29,404			0
8/30/2011	123.0	177,102	14.0	20,229	-	-	0
8/31/2011	99.1	56,464	12.6	7,201			0
8/28/2011 3:15	718.6						
8/28/2011 5:30			140.9				-773

		SE	PTEMBER 20			William I have been			
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfall		
9/1/2011	127.0	104,759	15.8	13,032	6.9	9,979	.0		
9/2/2011	120.7	173,791	15.0	21,660	9.8	14,052	0		
9/3/2011	121.7	175,262	17.2	24,787	7.1	10,172	0		
9/4/2011	120.4	173,392	16.2	23,279	7.6	10,911	0		
9/5/2011	138.2	184,456	19.4	27,937	10.3	14,777	0.08		
9/6/2011	202.2	291,137	29.6	42,630	34.8	50,057	2.17		
9/7/2011	314.4	452,701	40.5	58,388	54.5	78,528	0.47		
9/8/2011	219.9	316,594	25.7	37,034	24.2	34,841	3.65		
9/9/2011	154.1	221,935	18.3	26,351	8.8	12,643	0		
9/10/2011	139.2	200,499	16.8	24,125	40.0	57,614	0		
9/11/2011	141.5	203,768	18.9	27,239	22.0	31,715	0,46		
9/12/2011	122.3	176,117	15.1	21,719	18.3	26,303	0.02		
9/13/2011	115.8	166,807	14.8	21,264	20.7	29,743	0		
9/14/2011	110.7	159,387	13.5	19,393	12.3	17,741	0		
9/15/2011	106.0	152,589	15.4	22,147	5.8	8,408	0.18		
9/16/2011	105.5			151,857	12.9	18,595	4.9	7,078	0
9/17/2011	106.9	153,902	15.8	22,768	5.6	8,052	0		
9/18/2011	122.7	176,667	20.1	28,924	7.9	11,321	0		
9/19/2011	110.0	158,436	17.2	24,737	5.6	8,023	0		
9/20/2011	107.8	155,224	14.8	21,254	6.7	9,583	0.03		
9/21/2011	107.5	154,800	14.9	21,417	6.5	9,422	0.03		
9/22/2011	105.8	152,343	14.8	21,331	7.2	10,314	0.01		
9/23/2011	260.9	375,767	33.6	48,440	30.8	44,329	2.35		
9/24/2011	177.2	255,137	23.3	33,559	12.0	17,298	0		
9/25/2011	150.6	216,915	20.0	28,821	10.0	14,470	0		
9/26/2011	129.3	186,210	15.3	21,977	8.0	11,572	0		
9/27/2011	134.5	193,643	14.2	20,506	6.4	9,209	0.19		
9/28/2011	141.7	204,021	16.6	23,907	7.5	10,771	0.44		
9/29/2011	155.9	224,534	19.2	27,653	371	-	0.04		
9/30/2011	117.3	73,909	12.8	8,069	*	-	0.15		
9/23/2011 19:30	831.7					1			
9/7/2011 15:30			136.0						

			CTOBER 20:	and the same of th			
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	P.S.	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal (in)
10/1/2011	143.2	139,579	20.9	20,423	7.4	10,658	0.11
10/2/2011	146.7	211,233	22.9	33,013	10.9	15,657	0.46
10/3/2011	120.9	174,123	16.3	23,518	6.5	9,300	0
10/4/2011	118.9	171,226	15.1	21,787	7.2	10,359	0.01
10/5/2011	112.2	161,584	14.5	20,852	6.5	9,390	0
10/6/2011	113.2	162,959	14.3	20,548	5.3	7,566	0
10/7/2011	110.3	158,901	14.8	21,319	5.7	8,278	0
10/8/2011	115.4	166,132	16.6	23,972	6.0	8,672	0
10/9/2011	123.8	178,236	18.1	26,122	7.4	10,650	0
10/10/2011	118.3	170,376	15.9	22,956	7.5	10,850	0
10/11/2011	107.0	154,101	14.0	20,228	5.7	8,263	0
10/12/2011	112.9	162,599	15.9	22,892	38.9	56,033	0.26
10/13/2011	112.2	161,588	15.1	21,773	6.9	9,887	0.03
10/14/2011	115.8	166,698	18.0	25,914	7.9	11,398	0.26
10/15/2011	116.7	167,986	17.9	25,844	7.6	11,011	0
10/16/2011	126.0	181,450	19.8	28,466	7.7	11,031	0
10/17/2011	111.9	161,163	16.9	24,402	21.7	31,308	0
10/18/2011	115.4	166,223	15.1	21,693	84.0	120,952	0
10/19/2011	126.7	182,433	20.9	30,051	44.2	63,686	0.93
10/20/2011	117.4	169,013	18.1	26,012	8.4	12,163	0
10/21/2011	107.1	154,236	14.1	20,240	7.2	10,354	0
10/22/2011	112.7	162,353	16.6	23,887	6.4	9,186	0
10/23/2011	122.5	176,420	19.6	28,258	7.1	10,252	0
10/24/2011	107.4	154,587	15.4	22,213	6.0	8,589	0.01
10/25/2011	107.9	155,365	15.5	22,320	7.0	10,151	0
10/26/2011	105.4	151,748	14.2	20,409	6.9	9,875	0
10/27/2011	109.8	158,072	16.5	23,700	6.6	9,501	0.17
10/28/2011	103.4	148,912	14.5	20,945	6.4	9,201	0
10/29/2011	129.4	186,270	20.8	29,936	8.0	11,521	1.47
10/30/2011	155.5	223,910	30.1	43,306	11.5	16,567	0
10/31/2011	111.6	76,990	17.4	12,029	7.8	11,192	0
10/8/2011 8:15	274.9						
10/2/2011 19:15			76.2				

		NC	VEMBER 2	011			
Date	Sadsbury P.S. Average Flow	Sadsbury P.S. TOTAL Flow	Sandy Hill P.S. Average Flow	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfall (in)
11/1/2011	133.7	114,945	18.5	15,938	10.0	14,335	0
11/2/2011	109.9	158,232	15.0	21,535	7.3	10,503	0
11/3/2011	112.2	161,555	15.4	22,199	6.8	9,764	0
11/4/2011	108.6	156,350	14.2	20,421	6.2	8,873	0
11/5/2011	115.0	165,609	17.2	24,829	7.1	10,234	0
11/6/2011	121.0	174,283	19.6	28,271	7.8	11,247	0
11/7/2011	105.5	151,873	14.5	20,816	7.3	10,541	0
11/8/2011	123.2	177,404	15.7	22,618	6.4	9,187	0
11/9/2011	144.0	207,420	15.1	21,679	5.6	8,074	0
11/10/2011	128.9	185,662	14.4	20,754	5.6	8,083	0.05
11/11/2011	124.9	179,922	14.4	20,672	5.9	8,480	0
11/12/2011	124.3	179,032	16.9	24,369	6.0	8,685	0
11/13/2011	159.1	229,084	18.6	26,827	7.3	10,533	0
11/14/2011	124.7	179,612	14.7	21,154	6.2	8,954	0
11/15/2011	108.2	155,786	14.8	21,273	7.4	10,604	0
11/16/2011	122.0	175,617	20.5	29,536	7.8	11,193	0.74
11/17/2011	111.7	160,866	18.6	26,759	7.0	10,020	0
11/18/2011	101.6	146,358	14.6	21,057	6.1	8,782	0
11/19/2011	112.3	161,687	15.7	22,539	6.8	9,721	0
11/20/2011	117.6	169,284	18.5	26,702	7.4	10,687	0.04
11/21/2011	104.4	150,348	15.8	22,790	6.1	8,809	0.03
11/22/2011	156.9	225,909	27.8	40,086	13.4	19,284	1.66
11/23/2011	294.6	424,217	33.9	48,819	33.7	48,547	0.77
11/24/2011	154.6	222,657	23.2	33,362	8.7	12,507	0
11/25/2011	129.3	186,146	16:8	24,240	6.7	9,718	0
11/26/2011	126.0	181,470	17.8	25,565	7.3	10,555	0
11/27/2011	133.4	192,138	19.7	28,375	7.2	10,315	0
11/28/2011	118.5	170,627	15.4	22,235	5.9	8,448	0.01
11/29/2011	153.5	221,043	23.1	33,313			0.57
11/30/2011	126.3	75,760	17.0	10,216			0
11/23/2011 5:30	515.8		T.				
11/29/2011 20:00			101.7				

		DE	CEMBER 20				
Date	P.S. Average Flow	Sadsbury P.S. TOTAL Flow	Sandy Hill P.S. Average Flow	Sandy Hill P.S. TOTAL Flow	Lincoln Crest Average Flow	Lincoln Crest Total Flow	Rainfal
12/1/2011	134.3	106,766	16.1	12,789			0
12/2/2011	115.3	166,078	13.7	19,666			0
12/3/2011	116.4	167,652	16.3	23,439			0
12/4/2011	126.9	182,750	19.1	27,491			0
12/5/2011	111.5	160,541	14.4	20,767			0.04
12/6/2011	111.4	160,446	15.7	22,547			0.15
12/7/2011	203.6	293,252	26.2	37,765			2.04
12/8/2011	217.7	313,508	23.3	33,578			0.07
12/9/2011	142.3	205,833	16.2	23,399			0
12/10/2011	136.6	196,766	16.6	23,961			0
12/11/2011	138.7	199,792	19.9	28,587			0
12/12/2011	125.0	179,952	15.5	22,345			0
12/13/2011	120.9	174,145	14.1	20,375			0
12/14/2011	116.3	167,419	15.0	21,663			0
12/15/2011	119.3	171,808	14.9	21,498			0.01
12/16/2011	118.3	170,299	14.7	21,131			0
12/17/2011	124.3	178,965	17.4	25,066			0
12/18/2011	128.1	184,470	18.9	27,185			0
12/19/2011	117.5	169,164	16.3	23,427			0
12/20/2011	113.3	163,100	15.9	22,828			0.03
12/21/2011	116.5	167,818	16.6	23,891			0.07
12/22/2011	117.2	168,786	16.2	23,306			0.18
12/23/2011	178.4	256,950	23.2	33,424			1.21
12/24/2011	142.6	205,413	21.5	30,949			0
12/25/2011	130.9	188,435	18.3	26,410			0
12/26/2011	134.7	194,014	19.0	27,412			0
12/27/2011	176.5	254,224	22.3	32,055			0.57
12/28/2011	151.3	217,850	19.3	27,773			0
12/29/2011	131.1	188,749	17.1	24,634			0
12/30/2011	126.2	181,783	17.0	24,428			0
12/31/2011	85.3	51,192	9.7	5,794			0
12/28/2011 13:30	593.4						
12/12/2011 12:45			98.3		Li.		

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	Sadsbu	iry PS Max	Sandy Hill Max				
8/28/2011 3:15	718.6	-		T			
9/23/2011 19:30	831.7						
3/10/2011 17:30	*** *** *** *		149.3	1			
8/28/2011 5:30			140.9				
Max GPD (8/28)		502,959	ļ	AMERICA STREET, and			
Max GPD (3/10)				103,025			

PRECIPITATION (inches) 2011 PHILADELPHIA (KPHL)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	4.45	3.16	2.66	6.06	4.47	5.76	1.94	2.20	2.32	1.94	3.67	1.80	40.43
1983	2.81	3.53	6.70	8.12	7.03	2.75	0.68	2.57	3.45	3.69	5.71	7.37	54.41
1984	2.22	2.81	6.14	4.25	6.87	2.85	6.99	3.28	1.96	2.56	1.56	2.17	43.66
1985	1.55	2.44	1.95	0.52	4.99	1.88	4.66	2.82	5.78	1.54	6.09	0.98	35.20
1986	4.13	3.38	1.25	4.46	0.70	1.99	4.10	3.70	2.33	2.22	6.27	5.89	40.42
1987	4.58	1.17	1.16	3.63	3.15	2.01	4.82	3.72	2.78	2.62	2.08	1.68	33.40
1988	2.72	4.11	2.24	2.92	3.67	0.57	8.07	3.16	2.62	2.16	5.17	1.00	38.41
1989	2.41	3.25	4.41	2.27	6.76	4.73	9.44	3.92	5.03	3.44	1.79	1.21	48.66
1990	4.09	1.44	2.59	3.16	6.08	3.39	2.62	4.07	1.71	1.68	1.17	3.79	35.79
1991	4.10	0.75	4.13	2.81	1.82	3.36	4.79	3.86	3.58	1.61	1.55	3.86	36.22
1992	0.88	1.31	3.19	1.26	2.74	1.84	5.05	2.00	3.04	1.23	3.26	4.61	30.41
1993	1.97	3.03	6.61	4.20	2.42	1.52	1.98	5.18	6.66	2.69	2.23	3.69	42.18
1994	4.27	3.27	6.44	2.86	3.66	1.74	10.42	4.54	1.64	0.94	3.03	2.11	44.92
1995	3.10	2.41	1.67	1.96	2.67	0.62	2.92	1.15	3.55	5.99	3.34	2.15	31.53
1996	4.39	2.12	4.27	4.48	3.25	4.73	8.17	4.29	4.95	4.30	3.03	8.47	56.45
1997	2.80	2.48	3.91	2.58	2.32	1.49	2.38	4.56	1.59	1.83	3.49	3.09	32.52
1998	4.24	3.25	3.93	2.70	3.87	4.91	1.79	1.26	1.86	1.84	1.18	0.82	31.65
1999	4.89	2.95	4.02	3.31	3.70	1.16	1.22	5.32	13.07	3.55	2.31	2.99	48.49
2000	3.22	2.02	6.32	3.05	3.03	3.82	5.54	2.90	8.28	1.51	2.21	2.82	44.72
2001	2.77	3.04	5.44	1.49	3.99	5.93	1.30	0.97	2.58	0.83	0.56	2.11	31.01
2002	2.43	0.55	4.03	2.17	3.57	3.73	2.12	2.47	3.67	5.90	4.61	4.05	39.30
2003	1.93	5.04	4.09	2.20	4.17	8.08	2.01	3.26	4.66	4.45	2.63	5.46	47.98
2004	1.70	2.50	3.54	6.02	3.62	4.57	7.91	4.17	5.19	2.24	4.55	3.17	49.18
2005	4.45	2.61	3.66	5.32	1.27	3.31	4.31	2.57	0.21	8.68	2.86	2.97	42.22
2006	4.34	1.51	0.91	3.71	2.16	7.95	4.27	3.93	5.97	6.42	4.88	2.15	48.20
2007	3.35	1.73	3.82	9.05	2.68	4.02	3.44	2.94	0.58	4.66	1.45	4.41	42.13
2008	1.74	3.93	3.67	2.19	4.55	2.87	3.45	2.44	4.31	1.59	4.02	5.57	40.33
2009	2.70	0.84	1.62	3.99	4.84	4.79	3.35	10.29	3.65	5.51	2.06	8.86	52.50
2010	2.19	5.75	7.33	2.65	2.53	2.05	6.28	2.19	3.48	5.01	1.76	3.24	44.46
2011	3.39	2.65	4.29	5.29	1.91	2.56	2.71	19.31	10.27	3.71	3.87	4.37	64.33
POR= 64 YRS	3.16	2.75	3.82	3.51	3.53	3.60	4.09	4.16	3.67	2.97	3.19	3,53	41.98 N - 12730

WBAN: 13739

AVERAGE TEMPERATURE (°F) 2011 PHILADELPHIA (KPHL)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1982	24.7	34.4	41.7	50.2	65.9	68.7	76.9	73.5	67.6	56.9	48.4	41.3	54.2
1983	34.1	34.0	43.7	51.0	62.1	72.0	77.9	77.1	69.0	56.6	46.7	33.2	54.8
1984	26.2	38.7	35.5	50.2	60.2	73.0	73.9	75.2	64.7	61.2	44.4	41.9	53.8
1985	27.3	35.3	44.6	55.5	64.5	68.8	75.4	74.1	69.1	59.3	51.3	33.3	54.9
1986	32.8	32.1	44.5	53.3	66.8	73.8	78.1	74.0	68.3	57.8	44.5	37.9	55.3
1987	31.9	32.5	45.7	53.1	63.9	74.6	79.5	75.4	68.8	52.5	48.0	39.2	55.4
1988	27.3	34.6	44.7	51.3	63.6	72.3	80.7	78.3	66.7	51.8	47.7	35.4	54.5
1989	36.5	34.8	42.3	52.4	62.4	74.7	76.3	75.6	69.7	58.3	44.9	25.5	54.5
1990	40.3	41.2	46.1	53.3	61.3	72.2	78.0	75.8	68.0	61.9	49.7	42.1	57.5
1991	35.2	40.0	46.1	55.5	70.8	75.7	79.0	79.0	69.5	58.9	47.3	39.6	58.1
1992	35.7	37.5	41.6	53.2	62.5	71.3	77.1	73.5	68.4	55.2	48.0	38.8	55.2
1993	38.2	31.9	39.8	54.2	66.4	74.4	81.4	78.9	69.7	58.0	49.0	38.4	56.7
1994	27.4	33.2	42.8	59.5	62.5	78.1	82.1	74.9	68.3	57.5	51.7	41.9	56.7
1995	38.2	31.5	47.3	54.5	64.3	74.3	81.5	79.9	70.4	61.4	43.0	31.6	56.5
1996	30.2	33.9	38.7	52.7	60.6	73.0	74.4	74.5	68.7	56.3	41.3	40.2	53.7
1997	32.5	40.0	44.1	51.4	59.5	71.1	77.5	73.9	67.1	57:3	44.4	38.5	54.8
1998	41.0	41.8	45.5	55.3	66.2	71.5	77.5	78.0	71.8	58.3	48.2	42.0	58.1
1999	35.0	38.0	42.4	53.5	64.0	72.9	81.2	77.4	69.9	56.1	50.9	39.9	56.8
2000	32.1	37.5	48.0	52.6	64.2	72.6	74.1	74.1	66.4	57.7	45.4	31.3	54.7
2001	32.5	37.4	41.1	54.9	64.7	75.2	75.4	79.9	68.4	59.1	52.9	43.7	57.1
2002	39.2	41.1	45.5	57.2	63.3	73.9	79.6	79.5	72.2	57.6	45.9	35.4	57.5
2003	28.6	29.9	44.9	52.6	60.6	71.3	78.8	78.3	70.1	56.0	50.8	36.8	54.9
2004	26.1	35.5	45.1	54.4	69.3	71.8	76.3	75.0	70.5	56.2	47.9	37.8	55.5
2005	31.8	36.1	39.5	55.3	59.6	74.8	78.9	79.7	73.8	58.8	49.3	34.4	56.0
2006	40.8	35.6	44.5	56.7	64.6	72.8	79.5	78.1	67.2	56.2	51.3	42.7	57.5
2007	38.2	28.0	43.7	50.8	66.1	73.8	77.3	77.0	72.0	64.5	45.7	37.7	56.2
2008	35.9	36.9	44.8	56.3	61.2	76.4	79.3	74.6	70.4	56.6	45.6	38.7	56.4
2009	29.1	37.1	43.7	55.6	65.0	71.1	75.9	78.2	68.0	56.4	50.9	36.4	55.6
2010	33.2	31.8	48.3	58.4	67.5	78.2	81.8	79.0	72.9	59.0	48.2	32.7	57.6
2011	29.3	37.3	44.1	56.8	67.4	75.5	82.4	76.1	71.2	57.7	51.4	43.3	57.7
POR= 64 YRS	32.3	34.5	42.7	53.4	63,4	72.5	77.4	75.9	68.6	57.1	46.9	36.6	55.1

published by: NCDC Asheville, NC

WBAN: 13739

Projection of EDU Connections and Flows (gpd)

Project Name	Proposed Use	Location	Plan Status	Current	Remaining EDUs	TOTAL EDUs	Prior to 2011	2011	2012	2013	2014	2015	2016
Witmer Fire Store	30,000 s.f. Building Expansion	Independence Way	Approved Feb. 2009 - BUILT	-			-						
	4 SFDUs on Lg. Lots - ON LOT Sewage	Industrial Trop	mppiored red. 2005 - Boiler										
Constable LD	Disposal	Limestone Road	Approved Mar. 2009	N.A.	N.A.	N.A.							
Sadsburyville Fire Company	Fire Station Expansion	Old Wilmington Rd	ON HOLD - NO EDUS	N.A.	N.A.	N.A.					_		
Chester County Airport	THE GOOD ENDONE	Rt 30 & Washington Ln	Pending Approval	14.00	14 arts	(Varia)							
and the country part point		Morris Farm/ Independence	Petiding Approval	-									
York Equity - Lot 6	Office Building	Way	ON HOLD					8	1		1		
TOTAL EQUALITY AND THE PARTY OF	Torrise building	1101	Pending Approval & Act 537					7					
Sadsbury Commons	500,000 s.f. Shopping Center	Rt 30 & Rt 10	Plan Update	•									
Superior Comments	Jacobson arr, arrapping certical	111 30 Q 111 10	Conditional Final Approval -					-	-	_			
			Planning Module Approved,	e		1							
Sadsbury Commons - Medical	40,000 sf Medical Office Facility - ON		Escrow Posted, Construction								I		
Office Building	LOT Sewage Disposal	Rt 10 Across from WalMart	Shortly	N.A.	N.A.	N.A.			th.				
Office Building	LOT Sewage Disposal	Rt 10 Across Holli Wallvlait		N.A.	N.A.	N.A.		_					
A and Liverstoner	3 Existing Decidential EDI is	Martin Avenue	Pending Planning Module			-				40			
Art Hurling	2 Existing Residential EDUs	Maple Avenue	and/or Act 537 Plan Update	0	2	2	0	-	-	2			
Valley View Business Center	ACM OF THE AREA OF THE STATE OF	Waverly Blvd. & Washington	and the second										
Lots 2 & 3 (National Guard)	National Guard Armory	Ln.	Conditional Final Approval	0	3	3	0	-	3		-	-	-
Lincoln Crest Mobile Home	50 Unit Expansion of 125 Existing Unit		Conditional Final Approval -								700		
Park	Park	Rt 30 & Sharon Ln	Awaiting Posting of Escrow*	0	50	50	0		_		10	10	10
TO STORE THE STATE OF THE STATE	67 EDUs (52 SFD, 15 SFA)+ 2 EDUs for	Did Wilmington Rd south of Rt		The same of	1990	1000		200	0.000	1000			
Sadsbury Park - Phase ZA	Cabana = 69 TOTAL EDUs	30	Construction	12	57	69	0	12	17	28	12		
and the second	48 Townhouse Units (SFA) - Including 6		Final Plan Pending AQUA		7.65								-
Sadsbury Park - Phase 4C	from Phase 28	30	Approval	0	48	48	0	0	18	30			
		Old Wilmington Rd south of Rt											- 9
Sadsbury Park - Phase 1	41 EDUs (All SFD)	31	Not submitted	0	41	41	C						-
	132 EDUs (38 SFD, 88 SFA+ 6 SFA	Old Wilmington Rd south of Rt											-2
Sadsbury Park - Phase 2B	Accounted for In Ph 4C)	32	Not submitted	0	126	126	0						
		Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 3A	42 EDUs (All SFD)	33	Not submitted	0	42	42	0						
		Old Wilmington Rd south of Rt											
Sadsbury Park - Phase 3B	46 EDUs (14 SFD, 32 SFA)	34	Not submitted	0	46	46	0						
		Old Wilmington Rd south of Rt	And in contrast of the contras										
Sadsbury Park - Phase 4A	57 EDUs (All SFD)	35	Not submitted	0	57	57	0						
addabat y rath - r that mr	37 LD03 (7111 G)	Old Wilmington Rd south of Rt		-		2/							
Sadsbury Park - Phase 4B	12 EDUs (All SFD)	36	Not submitted	0	12	12	0						
Sausbury Park - Priase 46	IZ EDOS (All SPD)	30	Approved Oct 2010 - Under		16	14	U						
14	4 Blogs (40 Units) of Total 13 Blogs (125	Claf Millimitarian Col Novello of Co.											
	Units)	30	(S 10 Units EA)	22.5	37	40	0	3	37				
Lafayette Square - Phase 1		NAME AND ADDRESS OF TAXABLE PARTY.		3	3/	40	U	3	3/				_
Information Communication 2	7 Bldgs (65 Units) of Total 13 Bldgs (125		E-CONTROL OF		cr	ce				10		10	
Lafayette Square - Phase 2	Units)	31	Started	0	65	65	0			10	45	10	_
	2 Bidgs (20 Units) of Total 13 Bidgs (125						1941						
Lafayette Square - Phase 3	Units)	32	Started	0	20	20	0	-	_		_	10	10
2772 W. Ago - 192 1925 - 1925			Phase IV Sewer Construction										
Sadsbury Township - Phase			Complete - Not all EDUs	0000	150.0	200							
IV Sewers	Existing Residential EDUs	Valley Road	connected	10	70	80	0	10	6	5			
		Renovated Farmhouse at Sads		w.									
Sadsbury Township Misc	Existing Residence	Park Development	Completed & Connected	1	0	1	0	1					
A toward and a second and a	I loffour			-	_								
* - Improvements should curtal	i milow									- 15			
TOTAL EDUS				26	676	702	0	26	81	75	67	30	20
TOTAL FLOW (GPD) @ 250 GPD	/EDU			6,500	169,000	175,500	0	6,500	20,250	18,750	16,750	7,500	5,000
	WEEK PLANTED												-10.5.1
						the same of the same of		_					

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER MANAGEMENT PROGRAM SOUTHEAST REGIONAL OFFICE

DRAFT

DRAFT

SEWAGE PUMPING STATION GUIDANCE

This guidance is a supplement to the 10/97 DOMESTIC WASTEWATER FACILITIES MANUAL and to the instructions included with the APPLICATION FOR WATER QUALITY MANAGEMENT PART II PERMIT for SEWER EXTENSIONS AND PUMPING STATIONS.

PART II PERMIT APPLICATIONS for the construction or expansion of sewage pumping stations will only be accepted by the Department of Environmental Protection after ACT 537 PLANNING APPROVAL has been granted by the Department. The required PLANNING APPROVAL may be granted through an update of a Municipality's Official Sewage Facilities 537 Plan, through a Special Study in support of an existing official plan, or through a Sewage Facilities Planning Module proposing new land development that will be served by the pumping station.

Note: Many existing pumping stations are experiencing overflows when peak usage periods coincide with increases in inflow and infiltration that occur during wet-weather events. At many pumping stations the back-up or lag pump activates during these peak use periods. The back-up pump is only to be used when one of the lead pumps is out of service. Pumping stations must be adequately sized so that the back-up or lag pump does not come on, even during periods of maximum flow. (However, the back-up pump may alternate service with the lead pumps.)

This guidance is intended to be used in conjunction with the Domestic Wastewater Facilities Manual to provide supplementary information for determining instantaneous peak flows and required pump capacities. The Department will accept projects for review that are designed by analogy, with appropriate justification (such as a year of daily flow meter readings from a similar project, that indicates maximum daily flows and instantaneous peak flows, with no instances where the back-up pump has activated).

- 1. Name of the proposed Permittee. If the name of the Permittee on the Part II Permit Application is not consistent with your Act 537 Planning Approval, your application cannot be accepted. For private pumping stations, your planning approval must be consistent with the sewage management requirements of the Pennsylvania Code, Title 25, § 71.72.
- 2. Basis of Design. Indicate the design year of the project and the corresponding design population, including both the initial population and any future population to be served.
- 3. Design Flows New Pumping Stations. The following recommended peaking factors for Peak Hourly Flows are derived from the graph on Page 20-2 of the 1978 Edition of Recommended Standards for Sewage Works, from the Great Lakes-Upper Mississippi River Board of State Sanitary Engineers, upon which Pennsylvania's Domestic Wastewater Facilities Manual was based. Alternate calculation methods may also be submitted, along with appropriate justification:

Average Daily Flow in MGD*	.010	.030	.060	.100	.300	1.000	4.000	10.000
Peaking Factor	4.2	4.0	3.9	3.8	3.5	3.0	2.5	2.0

* 100 gallons per person multiplied by the population figures listed on the graph referenced above

W.G. MALDEN

P.O. BOX 156, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

LISA MYERS SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 12/27/2011 METER#: C8099 AA LOCATION: SADSBURY

SERIAL #: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM **SERVICE CONTRACT: QUARTERLY** # of pages: | Date: |2/29/||
To:
Co./Dept: Lisa Myers
Fax #:
From: 610 - 857 - 2690
W.G. Malden

W.G. Malden

Phone: 717-768-0800 Fax: 717-768-0802

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100%

ERROR: 0% CORRECTED ACCURACY: ±1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

CORRECTED ACCURACY: ± 1% ERROR: 0%

TRANSMITTER CALIBRATION **VOLUMETRIC DRAWDOWN CALIBRATION** ERROR: 0% CORRECTED ACCURACY: ±1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DENNIS/ROY copies:

PERSON SEEN: HAVE CODE

W.G. MALDEN

P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

LISA MYERS SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 9/19/2011 METER#: C8099 AA LOCATION: SADSBURY

SERIAL #: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY # of pages: | Date: 9 | 28 | 1 | To: Co./Dept: Lisa Myers Fax #: From: 610 - 857 - 2690

W.G. Malden

Phone: 717-768-0800 Fax: 717-768-0802

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100%

ERROR: 0% CORRECTED ACCURACY: ±1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

CORRECTED ACCURACY: ±1% ERROR: 0%

TRANSMITTER CALIBRATION **VOLUMETRIC DRAWDOWN CALIBRATION**

ERROR: 0% CORRECTED ACCURACY: ±1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: BOB

PERSON SEEN: HAVE KEY

copies:

to Sadsbury

P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

LISA MYERS SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 6/27/2011 METER#: C8099 AA LOCATION: SADSBURY

SERIAL #: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100%

ERROR: 0% CORRECTED ACCURACY: ± 1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

ERROR: 0% CORRECTED ACCURACY: ±1%

TRANSMITTER CALIBRATION
VOLUMETRIC DRAWDOWN CALIBRATION

ERROR: 0% CORRECTED ACCURACY: ± 1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DENNIS copies:

PERSON SEEN: SPOKE WITH LISA

F-7/13/11



P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

LISA MYERS SADSBURY SEWER-CHESTER CO. P.O. BOX 261 SADSBURYVILLE, PA 19369

SERVICE DATE: 3/21/2011 METER#: C8099 AA LOCATION: SADSBURY

SERIAL #: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: Magmeter

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100%

ERROR: +1% CO

CORRECTED ACCURACY: ±1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

ERROR: 0%

CORRECTED ACCURACY: ±1%

TRANSMITTER CALIBRATION

VOLUMETRIC DRAWDOWN CALIBRATION

ERROR: 0%

CORRECTED ACCURACY: ±1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DENNIS

PERSON SEEN: HAVE KEY

copies:



P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

LISA MYERS
SADSBURY SEWER-CHESTER CO.
P.O. BOX 261
SADSBURYVILLE, PA 19369

SERVICE DATE: 12/27/10 & 1/5/11

METER#: C8099 AA LOCATION: SADSBURY

SERIAL#: 00W011634/883533-0003 MANUFACTURER: F & P/PARTLOW

RECORDER: MRC 5000

TRANSMITTER: 50XM13NXAB20AABC229

PRIMARY: MAGMETER

MAXIMUM CAPACITY: 2500 GPM SERVICE CONTRACT: OUARTERLY

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75 & 100%

ERROR: 0% CORRECTED ACCURACY: ± 1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

ERROR: 0% CORRECTED ACCURACY: ± 1%

TRANSMITTER CALIBRATION

VOLUMETRIC DRAWDOWN CALIBRATION

ERROR: *0% CORRECTED ACCURACY: ±1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. *FOUND EXTERNAL TOTALIZER UNREADABLE. NEEDS BATTERY REPLACED. MUST USE METER'S TOTALIZER UNTIL BATTERY IS REPLACED. LAST TOTALIZER READINGS WERE 2245355 x 100. 1/5/11 - RE-INSTALLED EXTERNAL TOTALIZER. VERIFIED CALIBRATION. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: DS/DW/RLH copies:

PERSON SEEN: HAVE KEY



P.O. BOX 196, EAST EARL, PA 17519 PHONE: (717) 768-0800 FAX: (717) 768-0802

SERVICE REPORT

JIM KELLY PENNSYLVANIA AMERICAN WATER 100 CHESHIRE COURT, SUITE 104 COATESVILLE, PA 19320

SERVICE DATE: 6/14/2011

METER#: C8317 AE

LOCATION: SANDYHILL PUMP STATION

SERIAL #: M073281304/ UR3030-001

MANUFACTURER: SPARLING/CHESSELL

RECORDER: 392

TRANSMITTER: TIGERMAG FM626

PRIMARY: 4" MAG

MAXIMUM CAPACITY: 1182 GPM SERVICE CONTRACT: QUARTERLY

WORK PERFORMED

RECORDER CALIBRATION CHECKED AT: 0, 25, 50, 75, & 100%

ERROR: -1% CORRECTED ACCURACY: ±1%

TOTALIZER CALIBRATION CHECKED AT: OPERATING RATE

ERROR: 0% CORRECTED ACCURACY: ±1%

TRANSMITTER CALIBRATION

VOLUMETRIC CALIBRATION

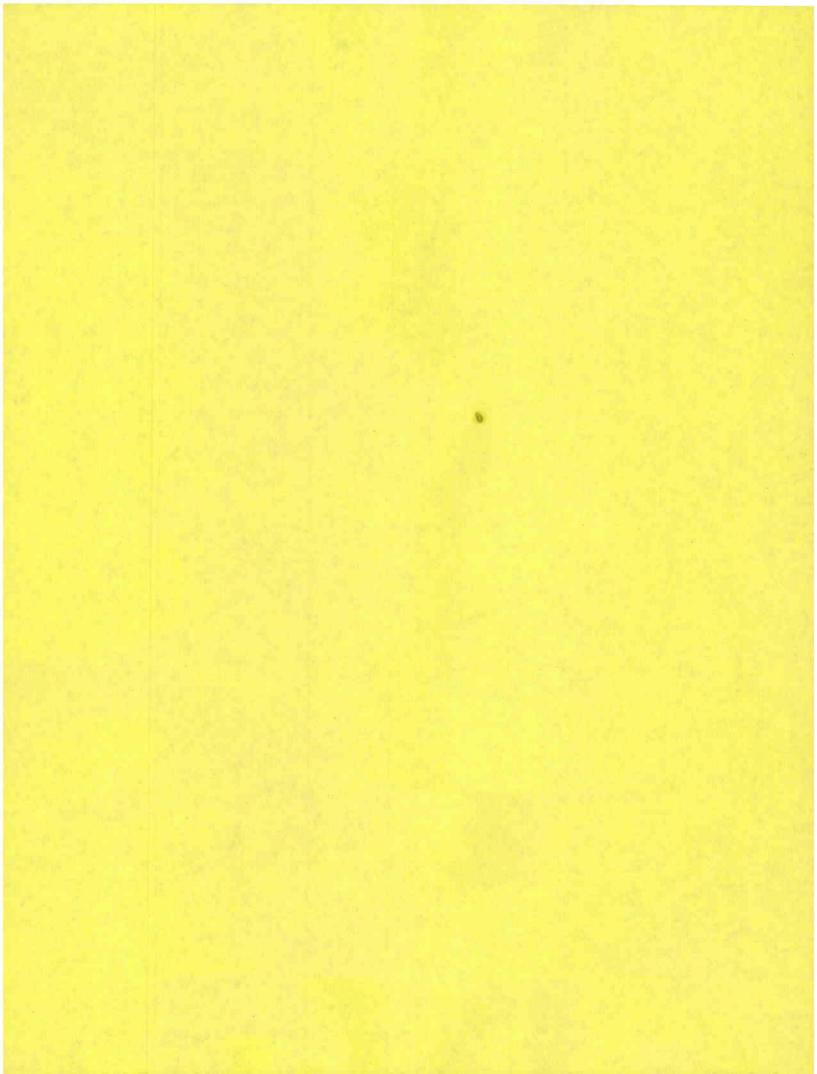
ERROR: -1.2% CORRECTED ACCURACY: ±1%

COMMENTS: PERFORMED QUARTERLY CALIBRATION. ADJUSTED 4-20 mA. LEFT EQUIPMENT OPERATING PROPERLY.

SERVICE REPRESENTATIVE: BOB

PERSON SEEN: HAVE KEY

copies:



Appraisal Work Papers As of January 1, 2017

Water/wastewater Industry Financials and Operating Statistics

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US Water Industry Financial and Operational Statistics

Financial and Operational Statistics				
	American	Aqua	Average	Use
Income Statement				
Water				
Customers	3,112,154	850,328		
Revenues	2,595,000,000	689,468,000		
Revenue Growth	3.68%	3.73%	3.71%	
Customer Growth	0.75%	2.02%	1.39%	
Revenue Growth Rates	2.93%	1.71%	2.32%	
Annual Revenues per customer	833.83	810.83		
Wastewater				
Customers	140,537	107,538		
Revenues	97,000,000	79,399,000		
Revenue Growth	7.12%	5.05%	6.08%	
Customer Growth	7.67%	4.63%	6.15%	
Revenue Growth Rates	-0.56%	0.42%	-0.07%	
Annual Revenues per customer	690.21	738.33		
Total Revenues	2,692,000,000	768,867,000		
Operating Expenses				
Operations & Maintenance	3,159,000,000	309,310,000		
O&M Exp as % of Rev.	46.72%	37.24%	41.98%	
Depreciation	440,000,000	125,290,000		
Depr as % of End Gross Plant	2.43%	2.19%	2.31%	
Taxes Other than Income Taxes	243,000,000	55,057,000		
Other taxes as % of Net Plant	1.87%	1.19%	1.53%	
Total Operating Expenses (calc'd)	2,084,000,000	493,104,000		
Operating Income (EBIT) (calc'd)	1,075,000,000	321,100,000		
Other (Income) / Expense				
Interest Expense	308,000,000	76,536,000		
Interest Exp as % of Long-Term Debt	5.76%	4.99%	5.38%	
Income before State and Federal Taxes				
(EBT) (calc'd)	782,000,000	216,752,000		
Income Taxes	306,000	14,962		
Income Taxes as % of EBT	39.72%	20.92%	30.32%	
	55 2.0		33.3273	
Income after Income Taxes (calc'd)	476,000,000	201,790,000		
Earnings before interest, depreciation &				
Amortization, and Taxes (EBITDA) (calc'd)	1,224,306,000	403,630,962		

US Water Industry

Financial and Operational Statistics

Financial and Operational Statistics		_	
Balance Sheet	American	Aqua	Average
Assets			
Property, Plant, and Equipment			
Begin Balance	18,504,000,000	6,088,011,000	
Additions	1,344,000,000	412,225,000	
Adds as % of Beg Plant Balance Retirements	7.17% (109,000,000)	7.18% (31,231,000)	7.17%
Rets as % of Beg Plant Balance	-0.89%	-0.84%	-0.87%
Transfers & Adjustments	0	0	
Trnsf as % of Beg Plant Balance	0.00%	0.00%	0.00%
Ending Balance (calc'd)			
Accumulated Reserve for Depreciation			
Begin Reserve Balance	4,571,000,000	1,399,086,000	
Depreciation	440,000,000	125,290,000	
Depr as a % of Beg Pint Bal	2.43%	2.19%	2.31%
Retirements	(109,000,000)	(31,231,000)	0.070/
Rets as % of Beg Plant Balance Transfers & Adjustments	-0.89% 0	-0.84% 0	-0.87%
Hardiers a Adjustitions	0.00%	0.00%	0.00%
Ending Reserve Balance (calc'd)			
Net Plant Begin Balance (calc'd)	13,933,000,000	4,688,925,000	
Current Assets	657,000,000	128,370,000	
CA as % of Rev	19.92%	19.28%	19.60%
Regulatory Assets	1,271,000,000	830,118,000	
Goodwill	1,302,000,000	33,866,000	
Other Assets	78,000,000	59,759,000	
Total Assets	17,241,000,000	5,741,038,000	
Liabilities			
Current Liabilities	1,533,000,000	193,199,000	
CL as % of Rev	44.40%	37.12%	40.76%
Long Term Debt			
Begin Long term Debt Additional Debt	5,874,000,000	1,743,612,000	
Current Debt			
Ending Long term Debt			
Deferred Liabilities	3,664,000,000	1,565,862,000	
		2,505,002,000	
Contribution in Aid of Construction	1,121,000,000	512,435,000	
Total Liabilities	17,241,000,000	3,821,909,000	
Equity			
Authorized Shares	500,000,000	300,000,000	
Issued	180,907,483	179,363,660	
Equity Par Value	0.011055375	22 522 222	
Capital @ Par Capital in Excess of Par	2,000,000 6,351,000,000	89,682,000 773,585,000	
capital in excess of rai	0,331,000,000	773,383,000	
Retained Earnings			
Begin Year	(1,161,000,000)	849,952,000	
Income from Operations			
Dividends paid Other Retained earnings			
Ending Year			
_			
Total Equity	5,049,000,000	1,713,219,000	
Total Libilities and Stockholder equity	17,241,000,000	5,741,038,000	

Aqua America, Inc. and Subsideries

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In thousands, except per share amounts								
	Average Statistic		2015	2014	2013	2012	2011	2010
	2013 through 2015 2010	through 2015						
Income Statement			814,204	779,903	761 400	7/7 7/0		
Operating Revenues Revenue Growth % per year	2 44%	4.33%	4 40%	2 36%	761, 1 93 0.55%	757,760 10 25%	687,291 4 11%	660,186
Operating Costs and Expenses		1,-5,-	1 10/1	2 30%	0.3374	10 25%	7.1.7	
Operations and maintenance			309,310	288,556	283,561	271,843	256,743	250,989
Op Ex as % of Revenues	37 40%	37 24%	37 99%	37 00%	37 22%	35 87%	37 36%	38 02%
Depreciation			125,290	123,054	118,414	111,767	103,412	100,606
Depr as % of Gross Book	2 14%	2 19%	2 06%	2.16%	2 20%	2 21%	2 29%	2 24%
Amortizations			3,447	3,481	5,571	5,229	4,222	11,110
Amortization as % of Goodwill	13.69%	17 57%	10 18%	11 16%	19 74%	18 57%	18.14%	27 61%
Taxes other than income taxes	6 729	c	55,057	50,453	52,625	47,404	41,449	40,147
General Tax as % of Revenues General Tax as % of Net Plant	6 72% 1 19%	6 42% 1 19%	6 76% 1 17%	6 47% 1 15%	6 92% 1 26%	6 26% 1 20%	6 03%	6 08%
Total Operating Expeses	1177	113%	493,104	465,544	460,231	436,243	1 17% 406,492	1 16% 402, 8 52
Operating Income			321,100	314,359	301,662	321,517	280,799	
			311,100	314,355	301,002	321,311	280,/33	257,334
Other expense (income) interest expense, net			76,536	76,397	77,316	77,757	77,804	
interest Exp as % of Debt	4.85%	4 99%	4 39%	4.90%	5.26%	5 04%	5 58%	73,393 4 79%
Allowance for funds used during construction	4,63%	4 2274	(6,219)	(5,134)	(2,275)	(4,142)	(7,150)	(4,831)
(Gains) loss on sale of other assets			(468)	4	(148)	(1,090)	(649)	(2,547)
Gain on extinguishment of debt			(678)		(2.0)	(2,030)	(615)	(2,547)
Equity loss in in joint venture			35,177	3,989	2,665	(1,976)		-
income from continuing operations before income taxes			216,752	239,103	224,104	250,968	210,794	191,319
Provision for income taxes			14,962	25,219	21,233	66,881	69,111	74,940
Income Taxes as % of Income Before Taxes	8 97%	20 92%	6 90%	10 55%	9 47%	26 65%	32 79%	39 17%
Oncome from continuing operations			201,790	213,884	202,271	184,087	141,683	116,379
	26.28%	23 56%	24 78%	27.42%	26 63%	24 29%	20,61%	17 63%
Discontinued operations								
Income from discontinued operations before income taxes				32,155	28,311	20,493	14,279	12,750
Provision for income taxes Income from discontinued operations before income taxes			•	12,800	9,882	8,017	12,893	5,154
Net income attributable to common shareholders			201,790	19,355 233,239	18,429 221,300	12,476 196,563	1,386	7,596
Other comprehensive income, net of tax			201,750	233,235	221,300	190,303	143,069	123,975
Unrealized holding gain (loss) on investment			(101)	193	141	198	(10)	1,588
Reclassification adjustment for gain reported in net income			,,	249	90	(339)	(233)	(1,369)
Comprehensive income			201,589	233,681	221,531	196,422	142,826	124,194
Income Check			201,689	233,681	221,531	196,422	142,826	124,194
Difference				•	•	•	•	
Balance Sheet								
Assets								
Property, Plant and Equipment at cost			6,088,011	5,707,017	5,387,852	5,050,400	4,517,966	4,489,653
Net Additions			380,994	319,165	337,452	532,434	28,313	
Retirements			(31,231)	(32,526)	(12,092)	15,446	(136,783)	
Rétirements as % of Begin Balance	-0 50%	-0 84%	-0 55%	-0 72%	-0 24%	0 34%	-3 05%	
Additions	6 93%	7 1 11/	412,225	357,751	349,544	516,988	165,096	
Adds as % of Begin Balance Less accumulated depreciation	6 93%	7.18%	7 22% 1,399,086	6 64% 1,305,027	6.92 % 1,220,559	11 44% 1,114,237	3 6 8% 987,024	1 000 105
Net Depreciation			94,059	84,468	106,322	127,213	(33,371)	1,020,395
Depreciation			125,290	123,054	118,414	111,767	103,412	
Retirements			(31,231)	(38,586)	(12,092)	15,446	(136,783)	
Net Property, Plant and Equipment			4,688,925	4,401,990	4,167,293	3,936,163	3,530,942	3,469,258
Current Assets			,,,	1,102,000	4,201,632	3,330,203	3/330/372	3,403,230
Cash and cash equivalents			3,229	4,138	5,058	5,521	8,204	5,934
Account receivable and unbilled revenues, net			99,146	96,999	95,356	92,921	75,546	85,881
Income tax receivable			,	,	7,573	16,082		33,600
Deferred income taxes				26,849	40,038	37,818	37,758	
Inventory, material and supplies			12,414	12,788	11,438	11,757	11,014	9,158
Prepayment and other current assets			11,802	11,748	11,112	10,372	9,775	10,846
Assets held for sale			1,779	-	794	\$6,423	263,061	
Total Current assets			128,370	152,522	171,669	260,894	405,358	145,419
CA as % of Rev	19 28%	19 28%	15 77%	19 56%	22.53%	34 43%	58 98%	22 03%
Regulatory Assets			830,118	725,591	585,600	521,264	240,032	217,376
deferred charges and other assets, net			52,043	52,084	50,290	49,852	51,152	65,093
Investment in joint venture			7,716	43,334	48,695	38,620	5,087	
Funds restricted for construction activity				47	47	23,572	88,905	135,026
Goodwill			33,866	31,184	28,223	28,152	26,944	40,234
Total Assets			5,741,038	5,406,752	5,051,817	4,258,517	4,342,420	4,072,466
Assets Check Difference			5,741,038	5,406,752	5,051,817	4,858,517	4,348,420	4,072,466
Aqua America stockholders' equity								
Common stock			200 000	***	200	*** ***	200 5	
Authorized			300,000	300,000	300,000	300,000	300,000	300,000
Issued			179,364 89,682	178,591	177,929	140,944 70, 472	139,526	138,449
Common Stock @\$50 par value Capital in excess of Par value			89,682 7 73,58 5	8 9,296 75 8 ,145	88,964 743,335	70,472 718,482	69,762 6 86 ,10 6	69,223 664,369
Retained earnings			930,061	849,952	729,272	611,303	508,334	452,470
Treasury Stock			(68,085)	(42,838)	(27,082)	(14,668)	(13,145)	(12,307)
Accumulated other comprehensive income			687	788	346	115	256	499
Total Aqua America equity			1,725,930	1,655,343	1,534,835	1,385,704	1,251,313	1,174,254

Aqua America, Inc. and Subsidaries

In thousands, except per share amounts								
	Average Statist 2013 through 2015 201	ics 0 through 2015	2015	2014	2013	2012	2011	2010
Noncontrolling interest Total Equity	-	•	1,725,930	40 1,655,3 8 3	20 8 1,535,043	188 1,385,892	504 1,251,817	572 1,174,826
Long-term debt, excluding current portion Commitment and contingencies (note 9)			1,743,612	1,560,655	1,468,583	1,543,954	1,395,457	1,531,976
Current liabilities								
Current portion of long-term debt Loans Payable			35,593 16,721	58,615 18,398	86,2 88 36,740	45,038 80,383	80,429 107,771	28,413 89,668
Accounts payable			56,452	63,035	65,816	55,506	67,595	45,382
Accrued interest Accrued taxes			12,651 21,887	12,437	13,615	14,026	14,563	15,891
Other accrued liabilities			49,895	31,462 41,388	15,442 34,193	28,214 27,360	16,694 22,595	16,401 27,960
Liabilities of discountinued operations held for sale			•		14,816	23,637	137,171	27,300
Total Current Liabilities	20.200		193,199	225,335	266,910	274,164	446,818	223,715
	29 22%	37.12%	23 73%	28 89%	35 03%	36 18%	65 01%	33.89%
Deferred credits and other liabilities Deferred income taxes and investments tax credits			1,118,923	1,000,791	867,880	723 367	596,644	.70.70
Customers' advances for construction			\$6,934	78,301	74,257	723,367 71,595	596,544 66,198	478,705 66,966
Regulatory Liabilities			259,507	278,317	281,014	241,363	41,344	35,921
Other			100,498	109,692	\$1,552	157,978	121,986	116,250
Total Deferred credits and other liabilities			1,565,862	1,467,101	1,304,703	1,194,303	\$26,172	697,842
Contributions in aid of construction			512,435	498,276	476,578	460,204	428,156	444,107
Total liabilities and equity			5,741,038	5,406,752	5,051,217	4,858,517	4,348,420	4,072,466
Checl Difference			5,741,038	5,406,752	5,051,817	4,858,517	4,348,420	4,072,466
Working Capital Current Assets			128,370	152,522	171,669	260,894	405,358	145,419
Current Liabilities			193,199	225,335	266,910	274,164	446,818	223,715
Working capital			(64,229)	(72,813)	(95,241)	(13,270)	(41,460)	(78,296)
Working capital as % of Revenues	-9 93%	-B 24%	-7 96%	-9 34%	-12 50%	-1 75%	-6 03%	-11 86%
Customers Residential Water			704 404	770 666				
Commercal Water			791,404 40,151	779,665 39,614	771,660 39,237	766,121 38.805	711,664 34,806	719, 8 12 34,649
Industrial Water			1,353	1,357	1,368	1,373	1,212	1,226
Other Water			17,420	17,412	17,230	16,643	15,676	15,376
Total water Growth	1.10%	2 02%	850,328 1 47%	838,048	829,495	822,942	763,358	771,063
Wastewater	1.10%	2 02%	107,538	1 03% 102,071	0.80% 98,705	7 81% 95,044	-1 00% 84,978	86,108
Growth	4 21%	4 63%	5 36%	3 41%	3 85%	11 85%	1 31%	00,100
Total Utility Customers			957,866	940,119	928,200	917,986	848,336	857,171
Customer Growth	1.43%	2 29%	1 89%	1 28%	1.11%	6 21%	-1 03%	
Operating Revenues Residential Water			477,773	460,013	457,404	441,240	403,311	391,922
Commercal Water			126,677	122,795	121,178	117,559	105,461	391,922 99,632
Industrial Water			28,021	27,369	25,263	24,822	21,407	20,716
Other Water Total Water			56,997	59,474	57,446	70,693	64,769	63,222
Growth	1 76%	3.73%	689,468 2 96%	669,651 1.26%	661,291 1 07%	654,314 9 98%	594,948 3.3 8%	575,492
Wastewater		2.73,0	79,399	76,472	73,062	68,225	62,780	62,156
Growth	5 19%	5 05%	3 83%	4 67%	7 09%	£ 67%	1 00%	
Other ytility Total Utility Revenues			10,746 779,613	9,934 756,057	10,174 744,527	10,416 732,955	10,585 668.313	10,973
Revenue Growth	2 08%	3 79%	3 12%	1 55%	1 58%	9 67%	3 04%	648,621
Tariff rate growth	0 65%	1 50%	1 23%	0 26%	0 47%	1 46%	4.07%	
Water Revenue Growth	1 76%	3 73%	2 96%	1 26%	1 07%	9 98%	3 38%	
Water Customer Growth	1 10%	2 02%	1 47%	1 03%	0 80%	7 81%	-1.00%	
Water Rate Growth	0 67%	1.71%	1 49%	0 23%	0 27%	2 17%	4.38%	
Wastewater Revenue Growth	5 19%	5 05%	3 83%	4 67%	7 09%	8 67%	1 00%	
Wastewater Customer Growth Wastewater Rate Growth	4.21% 0.99%	4 63% 0 42%	5 36% -1 53%	3 41% 1 26%	3 85% 3 24%	11 85%	-1.31%	
Maximude vate grown	U 33%	U 42%	-1 33%	1 20%	3 24%	-3 17%	2.32%	

American Water Works Company, Inc. and Subsidaries

in thousands	avcent	ner ch	374 3	mounte

In thousands, except per share amounts								
	Average Statisti 2013 through 2015 201	cs O through 2015	2015	2014	2013	2012	2011	2010
income Statement	2012 (1400R1 2012 50)	o tiaougii 2013	2013	2014	2013	2012	2011	2010
Operating Revenues			3,159,000	3,011,000	2,879,000	2,876,889	2,666,236	2,555,035
Revenue Growth	3 19%	4.37%	4 92%	4 58%	0 07%	7 90%	4 35%	
Operating Costs and Expenses Operations and maintenance			1.404.000	1,350,000	1,289,000	1,350,040	1,301,794	1,290,941
Operations and maintenance	44 68%	46 72%	44.44%	44.84%	44 77%	1,350,040 46 93%	1,301,794 48 83%	1,290,941 50 \$3%
Depreciation			440,000	424,000	407,000	381,503	351,821	330,264
Depr Exp as % of Gross Plant	2 43%	2 43%	2 38%	2 46%	2 47%	2 45%	2 42%	2 42%
Amortizations								
Taxes other than income taxes General Taxes as % of Revenues	7 89%	7 88%	243,000 7 69%	236,000 7 84%	234,000 8 13%	221,212 7 69%	210,478 7 89%	205,597 8 05%
General Taxes as % of Net Plant	1 81%	1 87%	1 74%	1 81%	1 89%	1 88%	1 91%	1 98%
(Gain) loss on asset dispositions and purchases			(3,000)	(2,000)	1,000	(839)	(993)	111
Total Operating Expeses			2,084,000	2,008,000	1,931,000	1,951,916	1,863,100	1,826,913
			4 577 565	1,003,000		****	******	
Operating Income			1,075,000	1,003,000	948,000	924,973	8 03,136	728,122
Other expense (income)								
Interest expense, net			308,000	299,000	308,000	316,152	317,470	318,281
	5 55%	5 76%	5 24%	5 49%	5 91%	6 09%	5 95%	5 90%
Allowance for funds used during construction						(23,363)	(19,054)	(14,869)
(Gains) loss on sale of other assets Gain on extinguishment of debt					41,000	926	1,040	(4,714)
Equity loss in in joint venture			(15,000)	(6,000)	(9,000)			
Income from continuing operations before income taxes			782,000	710,000	608,000	631,258	503,680	429,424
Provision for income taxes			306,000	280,000	237,000	257,008	198,751	174,352
income taxes as % of income before tax Oncome from continuing operations	39 18%	39 72%	39 13% 476,000	39 44% 430,000	38 9 8% 371,000	40 71% 374,250	39 46% 304,929	40 60% 255,072
Oncome from continuing operations			478,000	430,000	371,000	374,230	304,929	255,072
Discontinued operations								
income from discontinued operations before income taxes				(7,000)	(2,000)	(16,180)	4,684	12,755
Provision for income taxes					4			
Income from discontinued operations before income taxes Net income attributable to common shareholders			476,000	(7,000) 423,000	(2,000) 369,000	(16,180) 358,070	4,684 309,613	12,755 267,827
Other comprehensive income, net of tax			(6,000)	(47,000)	81,000	(18,514)	(26,231)	(6,769)
Unrealized holding gain (loss) on investment			• • •	, , ,	•	,, ,	, ,,	1-7:7
Reclassification adjustment for gain reported in net income								
Comprehensive income			470,000 470,000	376,000 376,000	450,000 450,000	339,556 339,556	2 83,38 2 2 83,38 2	261,058
Income Check Difference			470,000	370,000	430,000	225,220	203,382	261,058
Balance Sheet								
Assets Property, Plant and Equipment at cost			18,504,000	17,269,000	16,497,763	15,596,052	14,545,520	13,653,217
Net Additions			1,235,000	771,237	901,711	1,050,532	892,303	13,033,217
Retirements			(109,000)	(293,409)	(154,279)	(49,237)	(98,976)	
Retirement as % of Begin Balance	-1 13%	-0 89%	-0 63%	-1 78%	-0 99%	0 34%	-0 72%	
Adds			1,344,000	1,064,646	1,055,990	1,099,769	991,279	
Adds as % of Begin Bal	7 00%	7 17%	7 78%	6 45%	6 77%	7 56%	7 26%	
Less accumulated depreciation Net Depreciation			4,571,000 331,000	4,240,000 130,591	4,109,409 252,721	3,856,688 332,266	3,524,422 252,845	3,271,577
Deprecition Exp			440,000	424,000	407,000	381,503	351,821	
Retirements			(109,000)	(293,409)	(154,279)	(49,237)	(98,976)	
Net Property, Plant and Equipment			13,933,000	13,029,000	12,388,354	11,739,364	11,021,098	10,381,640
Current Assets								
Cash and cash equivalents			45,000	23,000	26,964	24,433	14,207	13,112
Restricted Funds			21,000	14,000	28,505	29,756	32,438	94,066
Account receivable and unbilled revenues, net			522,000	453,000	423,828	375,409	366,828	332,738
Income tax receivable					23,500	9,594	7,672	6,473
Deferred income taxes Inventory, material and supplies			38,000	37,000	32,973	29,772	28,598	27,743
Prepayment and other current assets			30,000	31,000	7,761	25,7.2	929,858	937,705
Other Assets			31,000	48,000	28,276	30,483	18,058	45,938
Total Current assets			657,000	575,000	571,807	499,447	1,397,659	1,457,775
	19 92%	19 92%	20 8%	19 1%	19 9%	17 4%	52 4%	57 1%
Regulatory Assets			1,271,000	1,153,000	858,465	1,199,114	1,079,661	976,174
deferred charges and other assets, net					754	10,791	25,503	26,718
Investment in Joint venture								
Funds restricted for construction activity			1 202 000	1 200 000	1 207 704	1,207,250	1 105 058	1.195.585
Goodwill Other Assets			1,302,000 78,000	1,208,000 73,000	1,207,764 6 0,9 98	1,207,250 63,010	1,195,069 57,401	1,195,585 48,354
Total Assets			17,241,000	16,038,000	15,088,142	14,718,976	14,776,391	14,086,246
Assets Check			17,241,000	16,038,000	15,088,142	14,718,976	14,776,391	14,086,246
Difference						-		
America Water stockholders' equity								
Common stock								
Authorized			500,000,000	500,000,000	500,000,000	500,000,000	500,000,000	500,000,000
Issued			180,907 483	179,461 606	178,379	176,988	175,664	174,996
Common Stock @\$50 par value Capital in excess of Par value			2,000 6,351,000	2,000 6,302,000	1,784 6,261,396	1,770 6,222,64 4	1,757 6,180,558	1,750 6,156,675
Retained earnings			(1,161,000)	(1,389,000)	(1,530,333)	(1,664,955)	(1,848,801)	(1,959,235)
Treasury Stock			(143,000)	,	(5,043)	(116,191)	(97,677)	(71,46S)
Accumulated other comprehensive income								
Total America equity			5,049,000	4,515,000	4,727,804	4,443,268	4,235,837	4,127,725
Noncontrolling interest Total Equity			5,049,000	4,915,000	4,727,804	1,720 4,444,9 88	4,547 4,240,3 8 4	4,547 4,132,272
+			-,- 12,200	-,2,000				
Long-term debt, excluding current portion			5,874,000	5,442,000	5,212,881	5,190,509	5,339,947	5,394,135
Commitment and contingencies (note 9)			•		17,177	18,861	21,137	22,135

American Water

American Water Works Company, Inc. and Subsidaries								
In thousands, except per share amounts								
	Average Statistics							
	2013 through 2015 2010	through 2015	2015	2014	2013	2012	2011	2010
Current liabilities Current portion of long-term debt			682,000	F11 000				
Loans Payable			882,000	511,000				
Accounts payable			126,000	100,000				
Accrued interest Accrued taxes			62,000 26,000	57,000				
Other accrued habilities			637,000	25,000 54 8 ,000				
Liabilities of discountinued operations held for sale Total Current Liabilities								
rotal Current Dabilities	44 22%	44 40%	1,533,000 48 53%	1,241,000 41 22%	1,235,533 42 92%	99 4,#3 2 34 58%	1,489,105 55 85%	1,106,7 64 43 32%
					12.32%	34 35,4	33 6376	43 3276
Deferred credits and other Habilities Deferred income taxes and investments tax credits								
Customers' advances for construction								
Regulatory Liabilities								
Other Total Deferred credits and other liabilities			3,664,000 3,664,000	3,365,000 3,365,000	2,852,043	3,073,650	7 714 070	2 505 244
			3,004,000	3,303,000	2,032,043	3,073,030	2,719,070	2,505,384
Contributions in aid of construction			1,121,000	1,075,000	1,042,704	996,136	966,741	925,556
Total liabilities and equity			17,241,000	16,038,900	15,088,142	14,718,976	14,776,391	14,086,246
Checi			17,241,000	16,038,000	15,088,142	14,718,976	14,776,391	14,086,246
Difference			•	-	*	-	•	-
Operating Statistics								
Working Capital Current Assets			657,000	575,000	571,807	499,447	1,397,659	1,457,775
Current Liabilities			1,533,000	1,241,000	1,235,533	994,832	1,489,105	1,106,764
Working capital Working capital as % of Revenues	-24 30%	-13 30%	(876,000)	(666,000)	(663,726)	(495,385)	(91,446)	351,011
TOTALINE EMPIRER AS NO DE REVENUES	-24 30%	-13 30%	-27 73%	-22 12%	-23 05%	-17 22%	-3 43%	13 74%
Customers								
Water Residential			2.829.170	2,813,715	2,813,601	2,783,354	2,730,524	2,728,205
Commerical			218,798	218,314	219,510	218,988	216,415	216,967
Industrial Private fire			3,765	3,793	3,822	3,894	3,885	4,033
Public Authority & Other			60,421	59,249	58,420	34,858 15,844	33,887 15,818	33,610 15,436
Total Water Customers			3,112,154	3,095,071	3,095,353	3,056,938	3,000,529	2,998,251
Growth	0 60%	0 75%	0 55%	-0 01%	1 25%	1 88%	0.08%	
Customers								
Wastewater								
Residential Commerical			132,870 7,308	117,602 6,221	117,584 6,287	95,576 5,477	95,0 9 2 5,462	93,156 5,355
Industrial			17	17	16	12	13	13
Private fire Public Authority & Other			342	281	259	10	10	11
Total Water Customers			140,537	124,121	124,146	213 101,288	199 100,776	197 98,732
Growth Revenues	11 92%	7 67%	13 23%	-0 02%	22 57%	0 51%	2 07%	
Water Service								
Residential			1,536,000	1,515,049	1,465,174	1,462,600	1,339,400	1,300,200
Commercal Industrial			559,000 130,000	550,124	520,875	518,300	474,200	457,000
Public & other			370,000	131,834 359,425	11 8 ,939 312,369	128,400 328,400	11,600 323,000	110,200 314,100
Total Water Service			2,595,000	2,556,432	2,417,357	2,443,700	2,148,200	2,181,500
Wastewater Service	2 06%	3 68%	1 51% 97,000	5 75% 93,067	-1 08% 82,831	13 76% 78,200	-1 53% 76,300	69,000
	7 50%	7 12%	4 23%	12 36%	5 92%	2 49%	10 58%	49,000
Total Revenues Growth	2 2494	3 704	2,692,000	2,649,499	2,500,188	2,521,900	2,224,500	2,250,500
ar country	2 24%	3 79%	1 60%	5 97%	-0 86%	13 37%	-1 16%	
Water Revenue Growth	2 06%	3 68%	1 51%	5 75%	-1 08%	13 76%	-1.53%	
Water Customer Growth Water Rate Growth	0 60% 1 46%	0 75% 2 93%	0 55% 0 96%	-0 01% 5 7 6%	1 26% -2 33%	1 88% 11 88%	0 08%	
					. C 33/m		-1 00%	
Wastewater Revenue Growth Wastewater Customer Growth	7 50% 11 92%	7 12% 7 67%	4 23%	12 36%	5 92%	2 49%	10 58%	
Wastewater Rate Growth	-4 42%	-0 56%	13 23% -9 00%	-0 02% 12 38%	22 57% -16 65%	0 51% 1 98%	2 07% 8 51%	
CapitalExpenditures								
Fransmission & Distribution			\$27,000	462,706	435,449	343,640	298,564	299,303
Treatment & Pumping			136,000	96,535	89,278	138,072	191,771	133,473
Services, meter & Fire hydrants General Structures & Equipment			214,000 174,000	170,193 142,193	1 78,4 12 131,446	171,855 104,854	175,635 84,059	157,982 88,932
Business transformation projects			-	8,379	\$9,746	107,049	99,891	22,462
Sources of Supply Wastewater			53,000 56,000	30,916 44,920	50,013 35,908	44,602 18,502	58,066 16,872	31,462 32,032
Total CapX			1,150,000	955, 2 42	980,252	928,574	924,858	765,646
Makes Manh							****	×=
Water Plant Land & othe non-depreciable assets			141,000	137,199	132,295	129,953	128,286	156,976
Source of Supply			705,000	680,623	659,249	623,015	565,301	598,802
Treatment & pumping facilities Treansmission & Distribution facilities			3,070,000	2,969,411	3,006,140	2,944,178 7,022,959	2,665,525	2,766,548
Services, meters, and fire hydrants			8,516,000 3,250,000	7,969,759 3,062,568	7,489,208 2,898,293	7,033, 9 58 2,729,679	6,632, 828 2,539, 69 6	6,682,273 2,515,234
General Structures & equipment			1,227,000	1,035,857	995,186	865,992	693,880	692,717

American Water

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American Water Works Company, Inc. and Subsidaries

in thousands, except per share amounts

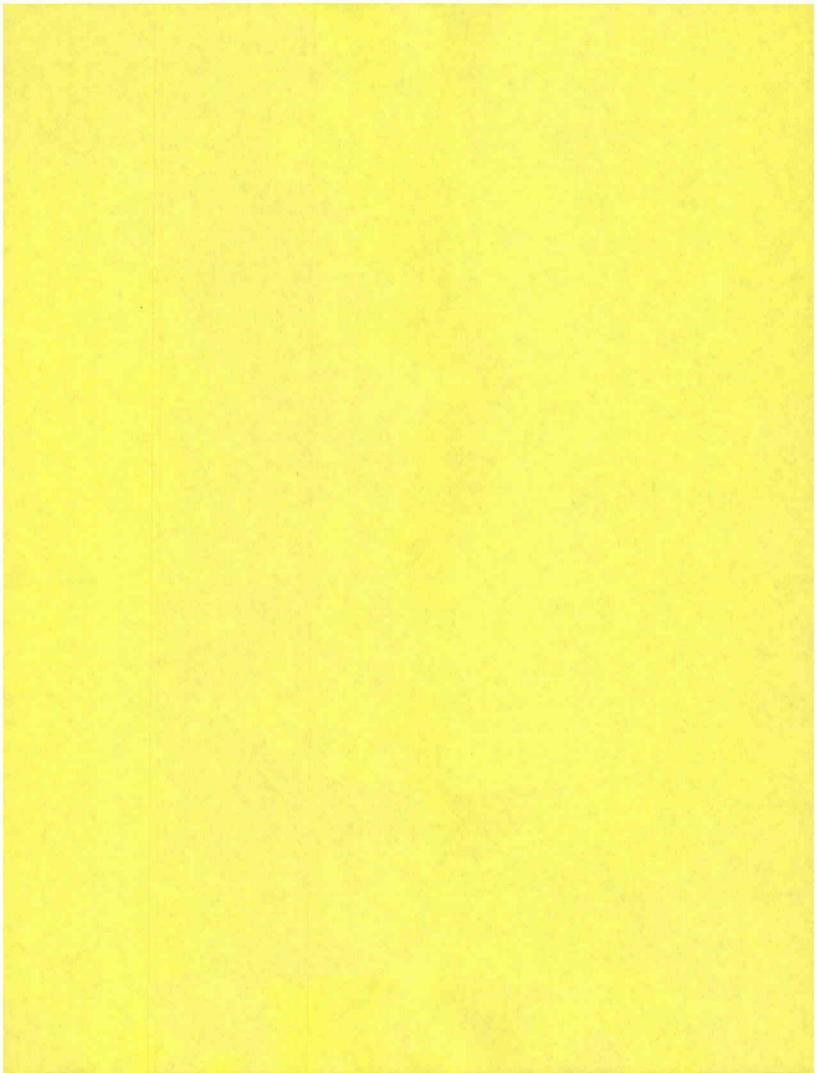
in choosands, except per share amounts								
	Average S	itatistics						
Wastewater	2013 through 2015	2010 through 2015	2015 786,000	2014 739,963	2013 683,112	2012 565.894	2011 546,002	2010 735,917
Watewater Treatment			313,000	281,000	• 63,114	303,834	340,002	743,517
Waste Collection			473000	359,000				
Total Plant			17,695,000	15,595,380	15,863,483	14,892,669	13,771,518	14,148,467
CapX Rate								
Transmission & Distribution	5 94%	S.44%	6 2%	5.8%	5 8%	4 9%	4 5%	4 5%
Treatment & Pumping	3.55%	4 51%	4.4%	3 3%	3 0%	4 7%	7 2%	4 8%
Services, meter & Fire hydrants	6 10%	6 30%	6.6%	5.6%	6 2%	6 3%	6 9%	6 3%
General Structures & Equipment	13 71%	13 07%	14 2%	13 7%	13 2%	12 1%	12.1%	12 8%
Business transformation projects								
Sources of Supply	6 55%	7 42%	7 5%	4 5%	7 6%	7 2%	10 3%	S 3%
Wastewater	6.15%	4 96%	7 1%	6 1%	5 3%	3 3%	3 1%	4 4%
Total Plant	6.16%	6 29%	6 6%	5 8%	6.2%	6 2%	6 7%	5.4%

Market Valuation Stock Price @ 12-31-Year

69 05 28 25 2 444247788

Debt

3,159 29.85



Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return

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S:\water industry\PA American - Sadsbury\PA-American Sadsbury Wastewater Industry Valuation Summary Created 2-4-2017.xlsx

Water and Wastewater Cost of Capital 2016 through 2017

1st Qtr 2017 1/1/2017

As a Investor-Owned Utility

Weighted Cost of Capital (Discount

Rate) 7.05%

Weighted Cost of Capital

(Capitlization Rate) 7.63%

Weighted Cost of Capital (Discount

Rate)

Weighted Cost of Capital (Rate of

Return on Rate Base) 7.23%

As a Municipal Financed Entity

Weighted Cost of Capital (Discount

Rate) 3.80%

Water and Wastewater Cost of Capital
First Quarter 2017 (1-1-2017)

Weighted Cost o (1)	r Capital (Discou (2)	(2a)	(3)	(3a)	(4)	(4a)	(5)	
ν-,	(-)	,,	1-7	1/	1.9	(/	(-)	
	Portion of					Tax affect on	After-tax Market	
	Capital	Type of Data	Capital Cost	Type of Data	Tax Rate	cost of capital	Capital Cost	
	AUS Input		AUS Input				(2)*(3)*(4a)	
ebt	30%	Market	4 63%	Market	41 49%	58.5%	0.81%	
quity	70%	Market	8 92%	Market	0.0%	100.0%	6 24%	
otal Capital r	100.0%						7.05%	
rowth (g)	audh: [[4 : a] [[4 :	-13 4					1.63%	
ate without Gr	owth: {(1+r)/(1+ _f	2)]-1					5.33%	
eighted Cost o	of Capital (Capitli	zation Rate)						
(1)	(2)	(2a)	(3)	(3a)	(4)	(4a)	(5)	
							After-tax	
	Portion of	T/ > ·	Carried Co.	T	T	Tax affect on	Market	
	Capital AUS Input	Type of Data	Capital Cost AUS Input	Type of Data	Tax Rate	cost of capital	Capital Cost (2)*(3)	
ebt	30%	Market	4 63%	Market	Not Applicable	Not Applicable	1.39%	
juity	70%	Market	8.92%	Market	Not Applicable	Not Applicable	6.24%	
otal Capital r	100.0%						7.63%	
owth (g)							1.63%	
sea miebane Gr	owth: [{1+r}/(1+ _f	g)]-1					5.90%	
		f Return on Rate (2a)	Base) (3)	(3a)	(4)	(4a)	(5)	
/eighted Cost o	of Capital (Rate o			(3a)	{4}	(4a)	(5) After-tax	
eighted Cost o	of Capital (Rate o			(3a)	{4}	(4a) Tax affect on		
eighted Cost o	of Capital (Rate or (2) Portion of Capital		(3) Capital Cost	(3a) Type of Data	{4} Tax Rate		After-tax Market Capital Cost	
eighted Cost o (1)	of Capital (Rate or (2)	(2a)	(3)			Tax affect on	After-tax Market	
e ighted Cost o (1)	of Capital (Rate or (2) Portion of Capital AUS Input	(2a) Type of Data	(3) Capital Cost AUS Input	Type of Data	Tax Rate	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3)	
(eighted Cost o (1) ebt quity	of Capital (Rate or (2) Portion of Capital AUS Input 41%	(2a) Type of Data Embedded	(3) Capital Cost AUS Input 4 80%	Type of Data Embedded	Tax Rate Not Applicable	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97%	
reighted Cost o (1) ebt quity otal Capital r	Portion of Capital AUS Input 41% 59%	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80%	Type of Data Embedded	Tax Rate Not Applicable	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00%	Not Applical
reighted Cost o (1) ebt quity otal Capital r	of Capital (Rate or (2) Portion of Capital Aus Input 41% 59%	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80%	Type of Data Embedded	Tax Rate Not Applicable	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23%	Not Applicat
ebt quity otal Capital r rowth (g) ate without Gre	Portion of Capital AUS Input 41% 59%	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80%	Type of Data Embedded	Tax Rate Not Applicable	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00%	Not Applicat
reighted Cost o (1) ebt quity otal Capital r rowth (g) ate without Gre s a Municipal F quicipal Financ	Portion of Capital AUS Input 41% 59% 100.0% owth: {(1+r)/(1+r) ced Rate (100% I	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23%	Not Applicat
reighted Cost o (1) ebt quity otal Capital r rowth (g) ate without Gre s a Municipal F	Portion of Capital AUS Input 41% 59% 100.0% owth: {(1+r)/(1+r) ced Rate (100% I	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80%	Type of Data Embedded	Tax Rate Not Applicable	Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00%	Not Applicat
reighted Cost o (1) ebt quity otal Capital r rowth (g) ate without Gre s a Municipal F quicipal Financ	Portion of Capital AUS Input 41% 59% 100.0% cowth: {(1+r)/(1+r)/(1+r)/(2)	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23%	Not Applical
eighted Cost o (1) ebt juity otal Capital r rowth (g) ate without Gre a Municipal F	Portion of Capital Aus input 41% 59% 100.0% owth: {{1+r}/{1+r}/{2}}	(2a) Type of Data Embedded Embedded gj]-1 Debt Financed) (2a)	(3) Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable (4a)	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% (5) After-tax Market	Not Applical
eighted Cost o (1) bbt uity tal Capital r owth (g) te without Gro a Municipal F	Portion of Capital AUS Input 41% 59% 100.0% cowth: {(1+r)/(1+r)/(1+r)/(2)	(2a) Type of Data Embedded Embedded	(3) Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23%	Not Applical
eighted Cost o (1) ebt juity otal Capital r rowth (g) ate without Gre a Municipal F	Portion of Capital AUS Input 41% 59% 100.0% owth: {(1+r)/(1+r) ced Rate (100% I (2) Portion of Capital AUS Input	(2a) Type of Data Embedded Embedded gj]-1 Debt Financed) (2a)	Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable (4a)	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23% (5) After-tax Market Capital Cost	Not Applical
eighted Cost of (1) bbt county otal Capital r rowth (g) ste without Gro s a Municipal Financ (1)	Portion of Capital AUS Input 41% 59% 100.0% owth: {(1+r)/(1+r) ced Rate (100% I (2) Portion of Capital AUS Input	(2a) Type of Data Embedded Embedded gj]-1 Debt Financed) (2a)	Capital Cost AUS Input 4 80% 8.92%	Type of Data Embedded Market	Tax Rate Not Applicable Not Applicable	Tax affect on cost of capital Not Applicable Not Applicable (4a)	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23% (5) After-tax Market Capital Cost	Not Applical
reighted Cost of (1) ebt quity otal Capital r rowth (g) ate without Gro s a Municipal Financ (1)	Portion of Capital AUS Input 41% 59% 100.0% owth: {{1+r}/{1+p}} ced Rate (100% D {2} Portion of Capital AUS Input 41%	(2a) Type of Data Embedded Embedded gj]-1 Debt Financed) (2a) Type of Data	Capital Cost AUS Input 4 80% 8.92% (3) Capital Cost AUS Input	Type of Data Embedded Market (3a)	Tax Rate Not Applicable Not Applicable {4}	Tax affect on cost of capital Not Applicable Not Applicable (4a) Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23% (5) After-tax Market Capital Cost (2)*(3)	Not Applicat
ebt quity tal Capital r rowth (g) ate without Gri s a Municipal Financ (1)	Portion of Capital AUS Input 41% 59% 100.0% owth: {{1+r}/{1+p}} ced Rate (100% D {2} Portion of Capital AUS Input 41%	(2a) Type of Data Embedded Embedded g)]-1 Debt Financed) (2a) Type of Data 100% Municipal Financing	Capital Cost AUS Input 4 80% 8.92% (3) Capital Cost AUS Input	Type of Data Embedded Market (3a)	Tax Rate Not Applicable Not Applicable {4}	Tax affect on cost of capital Not Applicable Not Applicable (4a) Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23% (5) After-tax Market Capital Cost (2)*(3)	Not Applicat
veighted Cost o (1) ebt quity otal Capital r rowth (g) ate without Gre s a Municipal F	Portion of Capital AUS Input 41% 59% 100.0% owth: {(1+r)/(1+r) ced Rate (100% I (2) Portion of Capital AUS Input	(2a) Type of Data Embedded Embedded g)]-1 Debt Financed) (2a) Type of Data 100% Municipal Financing	Capital Cost AUS Input 4 80% 8.92% (3) Capital Cost AUS Input 3 80%	Type of Data Embedded Market (3a) Type of Data Market	Tax Rate Not Applicable Not Applicable (4) Tax Rate	Tax affect on cost of capital Not Applicable Not Applicable (4a) Tax affect on cost of capital	After-tax Market Capital Cost (2)*(3) 1.97% 5.26% 7.23% 0.00% 7.23% (5) After-tax Market Capital Cost (2)*(3)	Not Applicat

Appraisal Work Papers
As of January 1, 2017

Income Approach
Cost of Capital / Required Return
Cost of Debt

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1	2	3	4	5
Value Line Investment Surveys				
Water Industry				

Water Industry As of First Quarter 2017 (1-1-20	17)			
	S&P Debt Rating	Long Term Debt	Long Term Interest	Long Term Interest Rate (embedde d)
		lugul Yalur terr	Ngod Value (me	44/(3)
American States Water		320 9	21 1	6 58%
American Water		5,853 0	297 0	5 07%
Aqua American		17487	78 6	4 49%
Californa Water		555 5	27 2	4 90%
Connecticut Water		200 2	80	4 00%
Consolidated Water Company				0 00%
Middlesex Water		130 8	5 6	4 28%
SAW Corporation		364 2	21 0	5 77%
Yark Water		84 6	3 1	6 03%
		9,257 9	463 6	5 01%
Mineraum				0 00%
wtd Mean				5 01%
Mean				4 57%
Median				4 90%
Maximum				6 38%
Delit Rating and Cost of Debi				
Embedded		5 01%	wt d mean	col 5
Rating (S&P)			Input	
Market Cost of Debt @ S&P				
Rating		4 27%		

4 27% Input

28	AME-A	
20	WIME-W	

S&P	Capital IQ	
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			Fire	d Charge	Covera	00	┱		llon S		Balance	L. Term	Capital-	Total	T			
Title-industry C Co. Finances (I	ode & In Italics)	GIÇS Sub ind	2013			76 15 Ei	10	Cash & Equiv.	Curr. Assets	Curr. Liab.	Sheet Date	Debt (Mil \$)	ization (Mii \$)	Oebt % Capital				
D in	drvidual issue Stansbos			Date of	_	Eligibl			equiar		non Provisions Iono Fund		nd/Other	-	Price Range	Mo. End		16.14
configure CO		interest Dates	SAP	Hating Change	Pnor Rabno	ı Bı	ond omi	Price	(Begins)	Price	(Begins) Thru	Pros	(Begins) Thru	Outst'g (Mil S)	2016 High Low	Price Sale(s) or Bid	Curr. Yield	Yield to Mat.
SroSeco Nts 5.10	enerating (Cont.) 0s 2019		A NA	12/13 NA	A- N/		BE Ic	²Z100 5746.83	19769.5	24455 1	6-30-16	33020.54		300.0	110.96 107 66	107.93	4.73	2.3
SIGNST NI 6% S 2 SIGNST NI 5% S 2	2040 2017	3ms30 4mn15	A-'''	3/10	BBB+	a T	BE BE							2000 600.0	128.76 107.53 106.87 103.23		5.39 5.45	
314 Sr Nt 5s 2 Schit 144a 5s 2	020 	5ms30 ao16	A A	3/10	BBB+	Q	BE BE		:::					2125 649.0	112.03 106.44	106.83 105.78	4.68	2.6
/limi6.90s.2017.	rinance		8	12/14	`в-	X	BE	No Rece	nt Fin'ls					3000		91.37	7.55	8.5
Ser B 7.45	is 2026	¹¹ id15	A- Heroad	12/06	BBB+	X Inc. s	BE	² Z100				···-		500.0	134.56 123 37	125.02	5.96	4.3
Del Bs 2026 Dels.7.90s 2017 MTN 7.10s 2028	3	¹² jd ¹³ mn	NR NR NR	10/15 10/15 10/15	B B	X	BE BE BE BE	NC NC 22100				• • • •		350.0 300.0 100.0	1: ::	138.00 116.00 134.50	5.80 6.81 5.28	2.3
m érican Towa r Fx au rt Sr Nt 3.4	Corp	60101080 ¹⁵ ms15	NA BBS-	NA	N.	4 x E	DE BE	530.36	1370.76	1519.55	9-30-16	18436.1	4	650.0 600.0	105.62 98.50 99.85 94.97	101.14	3.41	3.2
SrAN 78 2017 .	45 2U22	¹⁴ ao15	NR	4/15	888-	X	BE					•••		500.0 750.0	108.72 97.35	114.06	2.35	
FYM Rt St 3 40s	2019	Fa15	BRR-	B/13 8/13	BB+ BB+	х	BE							1000 1000	115.43 104.89 104.90 101.27	102.15	4.66 3.33	2.2
Sreet 4.706 202 Sreet 6 908 202 Fixad Pit Sr Ni	2 1 4%s 2018		888- 888- 888-	8/13 8/13 8/13	88+ 88+ 88+	X	BE BE BE	,						700.0 500.0 1000	117.50 104.76 117.21 110.29 104.65 102.56	111.82	4.41 5.28 4.38	3.2
Fxd Pt Sr Nt 4.4	10s 2026 30s 2021	²¹ fa15	NA NB				BE	::::	• .:	1		:	•:::	500.0 750.0	111.35 100.20 105.14 99.41	101.01	4.32 3.27	3 (
FYORRIS/NE TO	%s 2026 3		INR	8/13 8/13	88+ 88+	X X X	BE BE BE	::.:						1000 1000 700.0	103.30 92.82 104.98 96.23 111.81 106.43	100.05		3.4
merican Water	Capital	55104010	A · · ·	5/15	. A	X	DC BE							750.0	107.66 103.69			
Fxd Rt Sr Nt 3.4 Fxd Rt Sr Nt 4.3 AmeriGas Ptnr	10s 2025 30s 2042 s/Finence	^M S ²⁴ id N/A	Â	5/15 5/15	A -	X	BE BE Dc		::	• • •		:		525.0 500.0	109.41 101.40 118.54 99.96		3.33 4.13	
Fxd Rt Sr Nt 5	Ks 2024 Ks 2026 gen Corp ³⁴	²⁷ mn20	NR			¥	BE							675.0 675.0	108.50 97.25 108.12 96.75	102.25 101.50	5.50 5.79) 5.1 9 5.0
Sr Fixed Rt Nt	gen Corp ³ 3%s 2021	²⁴ mn15	I A-	NA	L N	A :	SE BE BE	2741.83	22789.9	25236.2	9-30-16	3594.25	5018	29.2 500.0 500.0	107.77 102.17 106.39 97.04			

Uniform Footnote Explanations-See Page 1. Other: ¹ Due 10/01/2019. ² Red at greater of 100 or amt based on formula. ³ Due 03/30/2040. ⁴ Due 11/15/2017. ⁵ Due 03/30/2020. ⁴ Due 10/16/2019. ² Subsid of Amer Geni Corp. ⁵ Was Credimitif Fini Corp. ⁵ Due 12/15/2017. ¹¹ Due 03/20/2026. ¹¹ Due 06/01/2026. ¹¹ Due 06/01/2026. ¹¹ Due 06/01/2026. ¹¹ Due 05/01/2027. ¹¹ Due 03/20/2028. □¹ Due 03/20/2028. □¹ Due 03/20/2028. □¹ Due 03/20/2028

Title-Industry Code &	GICS	Fix	ed Cha	ge (
Co. Finances (in Italics)	Sub Ind	201	3 2	014
Exchange Individual Issue Statistics	Interest	SEP	Date of Last Raking	
Americana	Dates	Rating	Change	P R
AmerisourceBergen Corp (Cont.) Fxd Rt Sr Mt 3.40s 2024 Sr Nt 1.15s 2017 Fxd Rt Sr Nt 4/s 2045 Ameristar Casinos Inc	*mn15 ³ ms	NR NR NR		<u>P</u>
Sr NI 71/45 2021. Ameritach Capital Funding. Deb 5.953 2038. Deb 6.45s 2018. Deb 6.55s 2028.	A015	NR Mgr w/s 899+ 888+	7/16 SBC Ca 2/15 2/15 2/15	A-
Gld Nt 6%s 2027 Ameriphise Financial Sr Fixed Pt Nt 5.30s 2020 Fxd Rt Sr Nt 2%s 2026 Jr Sub Nt Fixed To Float 7.516s 2066	⁷ a015 . 40203010 ⁹ ms15	BBB+ NA A NR	2/15 N	A- A
Fxd Rt Sr Nt 3,70s 2024 Sr Nt 4s 2023 Amgen Inc Sr Nt Ftig Rt 1,296s 2017 Sr Fxd Rt Nt 2,20s 2019	¹² ao15 ¹³ ao15 35201010	A NR NR NR NR	8/16 N	Be 4
Fxd Rt Sr Nt 3%s 2024 Fxd Rt Sr Nt 1.185s 2021 Fxd Rt Sr Nt 2.48 2023 Fxd Rt Sr Nt 2.60s 2026 Sr Nt 144a,5.85s 2017	¹⁶ mn22 ¹⁷ fa19 ¹⁶ fa19	NR NR NR NR	8/13	
Sr Nt 5.85s 2017. Sr Nt 64s 2037. Sr Nt 6.90s 2038. Fored Rt Sr Nts 3.45s 2020	21Jd 22Jd 23d0 2430	A A A	8/13 8/13 8/13 8/13	A+ A+ A+ A+
Sr Nt 3%s 2022. Sr Nt 5%s 2043. Sr Nt 2%s 2017. Fxd Rt Sr Nt 2%s 2020. Fxd Rt Sr Nt 2 70s 2020.	²⁵ mn15 ²⁶ mn15 ² mn15	A A A A NR	9/15	A+ A
Fxd Fit Sr Nt 3/6 2025. Fxd Fit Sr Nt 4/03 2045. Fxd Fit Sr Nt 4/40 4.5638 2048. Fxd Fit Sr Nt 14/4 4.5638 2051. Deb 8/6 2097.	29mn 30mn 31jd15 32jd15 33a0	NR NR NR	8/13	A+

Uniform Footnote Explanations-See Page 1. Other: "Due 05/15/2024. ² L

*Due 03/15/2020. **Due 03/15/2026. **Due 06-1-66-int paid un à Dec 1 to 6

**Due 03/15/2021. **Due 08/18/2023. **Due 06/19/2025. **Due 06/01/2017

**Due 05/01/2020. **Due 05/01/2022. **Due 05/01/2025. **Due 05/01/2025.

J. .. (1) 1- 1- 16

MERGENT BOND RECORD



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January 2017 Vol. 84 No. 1

Mailing Date for Next Month's Publication will be February 10th (Information revised through last business day of previous month)

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PTION DATE 08/21 08/12

د 1/09 03/31 12/22 12/18

04/11 09/30 12/05 07/01 07/01

09/15 02/16

12/12 03/25 12/19 09/08 09/12

06/17 05/14 06/15

04/11

Corporate Bond Yield Averages

			CORPC	RATE		co	ORPORA GROUP		orati					c. 48									
	AV. CORP.	Aaa	BY RAT	INGS A	Baa	P.U.		s R.R.		PUB Aaa	LIC UTIL Aa	.ITY BON A	DS Baa		IN Aaa	DUSTRIA Aa	IL BOND A	s Baa		. Aaa	RAILROAD Aa	BONDS A.	Baa
2010 Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct Nov. Dec.	5.76 5.86 5.81 5.80 5.52 5.52 5.32 5.05 5.15 5.37 5.55	5.26 5.35 5.27 5.29 4.96 4.88 4.72 4.49 4.53 4.68 4.87 5.02	5.50 5.62 5.57 5.57 5.25 5.16 4.96 4.72 4.83 5.07 5.26	5.76 5.84 5.78 5.78 5.49 5.44 5.25 5.00 5.01 5.33 5.52	6.25 6.34 6.27 6.25 6.05 6.01 5.66 5.72 5.92 6.10	5.83 5.94 5.90 5.87 5.59 5.62 5.41 5.10 5.20 5.45 5.64	5.69 5.79 5.71 5.71 5.44 5.42 5.23 4.98 5.00 5.08 5.29 5.46		Jan. Feb. Mar. Apr. May June July Aug Septe Oct. Nov. Dec.		5.55 5.69 5.64 5.62 5.29 5.22 4.99 4.75 4.74 4.89 5.12 5.32	5.77 5.87 5.84 5.81 5.50 5.46 5.01 5.01 5.37 5.56	6.16 6.25 6.29 6.19 5.97 6.18 5.55 5.55 5.53 5.62 5.04	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	5.26 5.35 5.27 5.29 4.96 4.88 4.72 4.49 4.53 4.68 4.87 5.02	5.44 5.55 5.49 5.50 5.11 4.92 4.68 4.70 4.77 5.02 5.19	5.73 5.80 5.75 5.74 5.47 5.42 5.23 4.98 5.00 5.29 5.47	6.33 6.32 6.32 6.13 6.28 6.04 5.77 5.78 5.81 5.99 6.15	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	5.56 5.55 5.55 5.33 5.30 4.79 4.60 4.39 4.47	5.04 5.22 5.13 5.16 4.99 4.93 4.37 4.09 3.98 3.87 3.93	5.26 5.37 5.28 5.29 5.06 5.04 4.47 4.23 4.16 3.97 4.03	5.53 5.64 5.52 5.52 5.26 5.26 4.74 4.54 4.40	6.09 6.15 6.03 6.02 5.78 5.76 5.36 5.27 5.37 5.14 5.25	5.64 5.73 5.62 5.38 5.33 4.78 4.61 4.66 4.37 4.47	5.46 5.58 5.49 5.27 5.27 5.25 4.79 4.58 4.41 4.47		Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		5.29 5.42 5.33 5.32 5.08 5.04 4.24 4.21 3.92 4.00	5.57 5.68 5.56 5.55 5.32 5.26 5.27 4.68 4.52 4.33	6.06 6.10 5.97 5.98 5.74 5.67 5.70 5.22 5.11 5.24 4.93 5.07	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec	5.04 5.22 5.13 5.16 4.96 4.93 4.37 4.09 3.98 3.87 3.93	5.22 5.31 5.22 5.25 5.04 5.02 4.99 4.50 4.11 4.01 4.06	5.48 5.59 5.48 5.26 5.25 5.25 4.59 4.43 4.46	6.11 6.19 6.09 6.06 5.81 5.82 5.81 5.49 5.42 5.50 5.34	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	4.45 4.42 4.54 4.49 4.33 4.22 4.03 4.09 3.97 3.92 4.05	3.85 3.85 3.99 3.80 3.64 3.40 3.48 3.47 3.55 3.65	4.01 3.99 4.14 4.08 3.91 3.54 3.61 3.63 3.57 3.70	4.39 4.51 4.44 4.26 4.14 3.93 4.01 3.90 3.87 3.98	5.23 5.14 5.23 5.19 5.07 5.02 4.87 4.91 4.84 4.58 4.51 4.63	4.48 4.47 4.59 4.53 4.36 4.12 4.12 4.17 4.05 3.95 4.10	4.41 4.37 4.50 4.44 4.30 4.18 3.99 4.00 3.89 3.89 3.99		Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		4.03 4.02 4.16 4.10 3.92 3.58 3.65 3.65 3.65 3.75	4.34 4.36 4.48 4.40 4.20 4.08 3.93 4.00 4.02 3.91 3.84 4.00	5.06 5.02 5.13 5.11 4.97 4.85 4.88 4.81 4.54 4.54	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	3.85 3.85 3.99 3.80 3.64 3.40 3.48 3.47 3.50 3.65	3.98 3.96 4.12 4.06 3.90 3.77 3.57 3.56 3.58 3.54 3.65	4.43 4.41 4.53 4.48 4.32 4.18 3.93 3.98 4.00 3.89 3.89 3.96	5.39 5.26 5.33 5.27 5.17 5.13 4.89 4.87 4.60 4.70	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	4.19 4.27 4.29 4.07 4.23 4.63 4.76 4.88 4.95 4.91 4.92	3.80 3.93 3.73 3.827 4.34 4.54 4.53 4.63 4.62	3.87 3.95 3.97 3.77 4.32 4.63 4.69 4.59 4.67 4.68	4.14 4.19 4.23 4.03 4.19 4.56 4.78 4.78 4.73 4.82 4.85	4.73 4.85 4.85 4.73 5.19 5.32 5.42 5.47 5.38 5.38	4.24 4.29 4.29 4.24 4.63 4.78 4.85 4.78 4.86 4.89	4.14 4.25 4.29 4.07 4.22 4.63 4.74 4.92 4.99 4.86 4.95 4.95		Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		3.90 3.95 3.74 3.91 4.27 4.44 4.58 4.48 4.56 4.59	4.15 4.18 4.20 4.00 4.17 4.53 4.68 4.73 4.80 4.70 4.77 4.81	4.66 4.74 4.72 4.49 4.65 5.08 5.21 5.28 5.31 5.17 5.24 5.25	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	3.80 3.93 3.73 3.89 4.27 4.34 4.54 4.64 4.53 4.63 4.62	3.84 3.95 3.98 3.79 4.36 4.47 4.80 4.69 4.79	4.13 4.20 4.25 4.05 4.20 4.58 4.69 4.83 4.90 4.76 4.85 4.89	4.81 4.95 4.99 4.60 5.43 5.57 5.62 5.51	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				
2014 Jan. Feb. Mar. Apr. May June July Aug. Sept Oct. Nov. Dec.	4.76 4.68 4.65 4.52 4.38 4.44 4.37 4.29 4.29 4.22 4.28 4.17	4.49 4.45 4.38 4.24 4.16 4.25 4.16 4.08 4.11 3.92 3.79	4.53 4.44 4.33 4.20 4.26 4.10 4.19 3.99 4.04 3.89	4.69 4.56 4.45 4.31 4.35 4.28 4.20 4.13 4.18 4.05	5.19 5.10 5.06 4.90 4.76 4.80 4.69 4.79 4.79	4.72 4.64 4.63 4.52 4.37 4.42 4.35 4.40 4.24 4.29 4.18	4.78 4.71 4.65 4.51 4.40 4.45 4.30 4.37 4.20 4.26 4.15		Jan. Feb. Mar. Abr. May June July Aug. Sept. Oct. Nov. Dec.		4.44 4.38 4.40 4.30 4.16 4.23 4.16 4.07 4.18 3.98 4.03 3.90	4.63 4.53 4.51 4.41 4.26 4.29 4.23 4.13 4.24 4.06 4.09 3.95	5.09 5.01 5.00 4.89 4.69 4.65 4.65 4.67 4.67 4.75 4.70	Jan Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	4,49 4,45 4,38 4,24 4,16 4,25 4,16 4,11 3,92 3,92 3,79	4.62 4.54 4.49 4.36 4.24 4.29 4.13 4.19 4.00 4.04 3.89	4.74 4.66 4.60 4.48 4.35 4.41 4.34 4.26 4.35 4.20 4.27 4.15	5.29 5.19 5.13 4.96 4.83 4.86 4.72 4.82 4.70 4.82 4.77	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov.				
2015 Jan. Feb Mar Apr. May June July Aug. Sept. Oct. Nov. Dec.	3.84 3.93 3.98 3.93 4.35 4.56 4.57 4.48 4.52 4.62 4.58	3.46 3.61 3.64 3.52 3.98 4.15 4.04 4.07 3.95 4.06 3.97	3.54 3.64 3.64 4.07 4.27 4.25 4.13 4.21 4.11 4.16	3.70 3.81 3.85 3.82 4.24 4.45 4.44 4.32 4.43 4.43 4.43 4.38	4.45 4.51 4.54 4.48 4.89 5.13 5.20 5.19 5.34 5.34 5.46	3.83 3.91 3.97 3.96 4.38 4.63 4.54 4.63 4.73 4.69	3.84 3.94 3.97 3.88 4.31 4.52 4.51 4.42 4.49 4.40 4.51 4.47		Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		3.52 3.62 3.67 3.63 4.05 4.29 4.27 4.13 4.25 4.13 4.22 4.16	3.58 3.67 3.74 3.75 4.17 4.39 4.40 4.25 4.39 4.40 4.35	4.39 4.44 4.51 4.51 5.13 5.22 5.42 5.47 5.55	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	3.46 3.61 3.64 3.52 3.98 4.15 4.04 4.07 3.95 4.06 3.97	3.55 3.65 3.72 3.65 4.09 4.25 4.11 4.16 4.08 4.16	3.82 3.94 3.96 3.89 4.30 4.51 4.49 4.37 4.46 4.37 4.45	4.56 4.45 4.86 5.12 5.18 5.15	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				
2016 Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	4.56 4.44 4.33 4.09 4.04 3.67 3.70 3.78 3.78 4.20 4.36	4.00 3.96 3.82 3.65 3.50 3.328 3.321 3.51 3.86 4.06	4.12 3.98 3.91 3.71 3.70 3.639 3.42 3.50 3.61 3.94 4.12	4.35 4.22 4.16 3.98 3.94 3.80 3.68 3.78 4.11 4.28	5.45 5.34 5.13 4.79 4.68 4.53 4.22 4.31 4.38 4.71 4.83	4.62 4.44 4.40 4.16 4.06 3.93 3.70 3.73 3.80 4.21 4.39	4.50 4.43 4.25 4.01 4.02 3.88 3.64 3.75 3.84 4.19 4.33		Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		4.09 3.94 3.93 3.74 3.65 3.36 3.39 3.47 3.59 4.11	4.27 4.11 4.16 4.00 3.93 3.78 3.59 3.59 3.66 3.77 4.08	5.49 5.28 5.12 4.75 4.60 4.47 4.16 4.20 4.27 4.34 4.64 4.79	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.	4.00 3.96 3.82 3.62 3.50 3.28 3.32 3.41 3.51 3.86 4.06	4.16 4.02 3.89 3.67 3.73 3.43 3.45 3.53 3.63 3.97 4.13	4.29	4.82 4.75 4.58 4.27 4.27 4.35 4.40 4.77 4.85	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.				

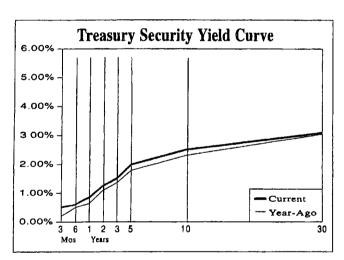
Notes: Moody's@Long-Term Corporate Bond Yield Averages have been published daily since 1929. They are derived from pricing data on a regularly-replenished population of nearly 75 seasoned corporate bonds in the US market, each with current outstandings over \$100 million. The bonds have maturities as close as possible to 30 years: they are dropped from the list if their remaining life falls below 20 years, if their ratings change. Bonds with deep discounts or steep premiums to par are generally excluded. All yields are yield-to-maturity calculated on a semi-annual basis. Each observation is an unweighted average, with Average Corporate Yields representing the unweighted average of the corresponding Average flushistrial and Average Public Utility observations. Because of the dearth of Aaa -rated railroad term bond issues, Moody's@ Aaa railroad bond yield average was discontinued as of December 18, 1967. Moody's@ Aaa public utility average suspended from July figures were based on 8 business days.

Because of the dearth of Aaa rated public utility bond issues, Moody's Aaa public utility bond yield average was discontinued as of December 10, 2001

пfу

Selected Yields

TAXABLE	Recent 3 Months Ago Year Ago (12/28/16) (9/28/16) (12/29/15)		TAXABLE	Recent (12/2 8 /16)	3 Months Ago (9/28/16)	Year Ago (12/29/15)	
Market Rates				Mortgage-Backed Securities			
Discount Rate	1.25	1.00	1.00	GNMA 5.5%	1.99	1.49	2 21
Federal Funds	0.50-0.75	0.25-0,50	0.25-0.50	FHLMC 5.5% (Gold)	2.50	1 58	2.32
Prime Rate	3 75	3.50	3.50	FNMA 5.5%	2 28	1.34	1,94
30-day CP (A1/P1)	0.50	0 35	0.25	FNMA ARM	176	1 92	1.81
3-month LIBOR	1 00	0.85	0.61	Corporate Bonds			
U.S. Treasury Securities				Financial (10-year) A	3 69	2 87	374
3-month	0,51	0.27	0.20	Industrial (25/30-year) A	4 18	3.57	4.35
6-month	0 61	0.44	0 50	Utility (25/30-year) A	(12)	3 65	4 42
1-year	0 85	0 58	0.64	Utility (25/30-year) Baa/BBB	4.72	4 09	4.88
5-year	2.00	1 14	1.79	Foreign Bonds (10-Year)			
10-year	2.51	1 57	2.31	Canada	1.73	0 98	1 42
10-year (inflation-protected)	0.54	0 01	0.85	Germany	0 20	-0.15	0.63
30-year	3.09	2.29	3 04	Japan	0.06	-0.09	0.03
30-year Zero	3 17	2.38	3.17	United Kingdom	1 30	0.68	1 97
Common Stocks				Preferred Stock	. •	0.00	, .,
VL Stocks (Median)	2.00	2.30	2.30	Utility A	5.93	5.57	6 01
DJ Industrials (12-mo. est.)	2.50	2.70	2.60	Financial BBB	6.11	5.67	594
VL Utilities	3.50	3.40	3 77	Financial Adjustable A	5.48	5.48	5.48



TAX-EXEMPT

Bond Buyer Indexes			
20-Bond Index (GOs)	3 83	2.98	3 57
25-Bond Index (Revs)	3 96	3.23	3.97
General Obligation Bonds (GOs)			
1-year AAA	1 01	0.63	0 51
1-year A	1.45	0.68	0.78
5-year AAA	1 82	1.04	1.31
5-year A	2.17	1.34	2 01
10-year AAA	2.39	1 50	1 99
10-year A	2 94	1.98	2 74
25/30-year AAA	3.06	2.19	2 85
25/30-year A	4.03	2 86	3 63
Revenue Bonds (Revs) (15 Years)			
Education AA	3.16	2 21	2 74
Electric AA	3 10	2.16	2 25
Housing AA	3.35	2.45	3.09
Hospital AA	3.32	2.32	2.22
Toll Road AA	3.14	2.20	2.70
Source Rhomborn Finance 1 P			

Federal Reserve Data

BANK RESERVES (Two-Week Period; in Millions, Not Seasonally Adjusted)

		Recent Levels		Average Level Over the Last					
	12/21/16	12/7/16	Change	12 Wks.	26 Wks.	52 Wks.			
Excess Reserves	1979295	2010077	-30782	2014158	2126946	2219261			
Borrowed Reserves	33	38	-5	96	143	105			
Net Free/Borrowed Reserves	1979262	2010039	-30777	2014063	2126804	2219156			

MONEY SUPPLY (One-Week Period; in Billions, Seasonally Adjusted)

		Recent Levels		Annual Growth Rates Over the Last					
•	12/12/16	12/5/16	Change	3 mo.	6 mo.	12 Mos.			
M1 (Currency+demand deposits)	3359.5	3369.9	-10 4	4.6%	8.9%	9.2%			
M2 (M1+savings+small time deposits)	13234 1	13231.8	2.3	5.7%	7.0%	7.6%			
Source: United States Federal Reserve Bank									

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AUS Cost of Capital / Required Return Sadsbury

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Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return
Cost of Equity

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AUS Cost of Capital / Required Return Sadsbury

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 Value Line Investorner) Surveys

Water Industry
As of First Duarter 2017 (1.1.2017)

Сотпрыту	Exchange	Ticker	Valueline No	Valueline Issue	Bets	Drydend	Past 10	Revenues	Est'd 13 15 to 19	Past 10	Cash Flews	Est'd 13 15 to 19-	Past 10	Earnings	Est W 13 15 to 19	Past 10	Dividends	Est'd 13 15 to 19	Past 10	Book Value	Est # 13 15 to 19
ingus Value Late	traut Value Lan	ingut hater time	ing-st Value tone	hajiya Yalur Late	Frank Yaha Line	Ingus Valus Links	yrs Input Value (ane	Past 5 yrs Ingul Value Little	21 Ingut Yake Lave	yrs Iraid Value Liter	Past 5 yrs Ingul Value Line	Z1 Input Value Lene	yrs Input Value Leur	Past 5 yrs Ingul Value Late	21 Ingul Value Lave	yrs Ingsk Value Late	Past 5 yrs Ingili Value Line	21 Ingun Valug Later	yrs Input Velon Litte	Past 5 y/s Input Value Little	21 Ingus Value Lete
American States Water American Water Aqua American Califerna Water Cennosicated Water Cennosicated Water Cempany Nill disposition York Water	NYSE NYSE NYSE NYSE NDQ NDQ NDQ NDQ NDQ	AWR AWK WTR CWT CTWS CWCO MSEX SJW YORW	1781 1782 1783 1784 1785 1786 1787 1788 1789	1/1/2017 1/1/2017 1/1/2017 1/1/2017 1/1/2017	0 75 0 65 0 7 0 75 0 63 0 95 0 75 0 75	2 2% 2 7% 2 1% 2 0% 2 8% 2 1% 1 5%	5 0% 5 0% 4 0% 4 0% 10 0% 1 5% 5 0% 4 5%	3 0% 2 5% 5 0% 4 5% 1 0% 2 0% 4 5%	4 D% 4 5% 4 5% 3 0% 8 0% 14 5% 4 D% 7 5%	9 0% 8 0% 6 0% 4 0% 4 0% 6 5% 7 0%	9 0% 8 0% 5 5% 7 5% 2 5% 4 5%	6 0% 5 5% 6 0% 4 0% 4 0% 10 5% 3 0% 6 0%	12 0% 6 5% 5 0% 4 0% 3 0% 5 0% 6 5%	13 0% 13 0% 4 0% 9 0%	6 0% 8 0% 7 0% 7 5% 5 0% 15 5% 8 5% 6 0%	6 5% # 0% 1 5% 2 0% 5 0% 1 5% 4 0%	10 0% 7 5% 2 0% 2 0%	7 0% 10 5% 9 0% 7 0% 5 0% 5 0% 8 5%	5 5% 7 0% 5 5% 6 5% 4 3% 6 0% 6 5%	6 0% 2 5% 7 0% 5 0% 9 5% 2 5% 3 0% 5 0% 4 5%	4 0% 4 0% 7 0% 3 5% 3 0% 3 5% 4 0% 5 0% 3 5%
Misimum wid Mean Mean Median Maumum					0 65 0 74 0 75 0 95	1 50% 2 14% 2 10% 2 80%	1 50% 5 00% 4 75% 10 00%	3 33% 3 00%	3 00% 6 00% 4 50% 14 50%	4 00% 6 06% 6 25% 9 00%	2 50% 6 28% 7 50% 10 00%	3 00% 6.11% 6 00% 10 50%	3 00% 6 19% 5.25% 12 00%	2 00% 8 39% 9 00% 15 00%	5 00% 7 67% 7 00% 15 50%	1 50% 4 06% 4 00% 8 00%		3 50% 6 56% 6.50% 10 50%	4 50% 6 50% 6 25% 10 50%	2 50% 5 00% 5 00% 9 50%	3 00% 4 17% 4 00% 7 00%

Cost of Equity Dividend Growth Mode Cost of Equity Capital Asset Pricing Model (CAPI

Doudend 2 14% mean Col

Est d 13
Pest 10 515 to 19
Pest 20 55 to 19
Pest 30 5 to 19
Pe

Growth 5 50% Input

 Cost of Equity Dividend Growth Mode
 2.14%
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 Dividenal
 2.14%
 Risk

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 Cest of Equity
 7.64%
 Beta

k Free Rate \$ 02% Input 10 year treasure per PA PI
R Premium 3 0 74

| Size Prettia | Micro | 3 67% | report seal | Street | 1 75% | Jopon Sell | Mid | 1 02% | Topon Sell | Large | 0 0076 | topon Sell | Large | 0 0076 | topon Sell | Control Sell | Control

Cost of Equity 10 19%

| Cast of Equity | Value | Cast of Equity | Cast of Equit

2017 Valuation HandbookU.S. Guide to Cost of Capital

Market Results Through 2016 Duff & Phelps



Exhibit 7.2: Largest Company (by market capitalization) in CRSP (NYSE/NYSE MKT/NASDAQ) Deciles and Size Groupings September 30, 2016

		Recent Market Capitalization
Decile	Company Name	(in \$thousands)
1-Largest	Apple Inc.	609,163,498
2	Apache Corp.	24,233,747
3	Textron Inc	10,711,194
4	C F Industries Holdings Inc.	5,676,716
5	Ellie Mae Inc	3,512,913
6	Generac Holdings Inc.	2,390,899
7	Flagstar Bancorp Inc.	1,569,984
8	SEACOR Holdings Inc.	1,030,426
9	Kadant Inc.	567,843
10-Smallest	Pioneer Energy Services Corp.	262,891

Source of underlying data: CRSP databases © 2017 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business (2017)

In the following sections we provide an example of (i) calculating a CRSP Deciles Size Premium and (ii) a Risk Premium Report size premium, using example data from each of the two data sets.

Size Premium Calculation: CRSP Deciles Size Premia

In the 2017 Valuation Handbook – U.S. Guide to Cost of Capital, the CRSP Deciles Size Premia are calculated over the years 1926–2016. The following statistics are calculated over this time period:

- The "historical" average annual long-term equity risk premium is 6.94%.
- The average annual risk-free rate is 5.02%.
- CRSP portfolio 10b average annual return equals 23.14%.
- CRSP portfolio 10b OLS beta equals 1 37

The beta-adjusted size premium for CRSP portfolio 10b is calculated as follows:

10b Size Premium = actual excess return - excess return predicted by CAPM

Looking at Exhibit 7.3, the *actual* excess return of portfolio 10b is 18.12% (23.14% – 5.02%), and the excess return that CAPM *predicted* is 9.49% (1.37 x 6.94%) (difference due to rounding). The size premium for CRSP portfolio 10b is therefore 8.64%, which is "what actually happened" (18.12%) minus "what CAPM predicted" (9.49%) (difference due to rounding). This is what is meant when we say that the beta of smaller companies doesn't explain all of their returns. In this simple example, beta fell 8.64% short of explaining what actually happened.

Exhibit 7.3: CRSP (NYSE/NYSE MKT/NASDAQ) Deciles; Returns in Excess of CAPM (i.e., beta-adjusted Size Premium, as of December 31, 2016)

					Return in	
				Return in	Excess of	
				Excess of	Risk-free Rate	
			Arithmetic	Risk-free Rate	(as predicted by	Size
Size Grouping		OLS Beta	Mean	(actual)	CAPM)	Premium
Mid-Cap (3-5)		1 12	13.82%	8.80%	7.79%	1.02%
Low-Cap (6-8)		1.22	15.26%	10.24%	8.49%	1.75%
Micro-Cap (9–10)		1.35	18.04%	13.02%	9.35%	3.67%
Breakdown of Decile	es 1-10					
1-Largest		0.92	11.05%	6.04%	6.38%	-0.35%
2		1.04	12.82%	7.81%	7.19%	0.61%
3		1 11	13.57%	8.55%	7.66%	0.89%
4		1.13	13.80%	8.78%	7.80%	0.98%
5		1.17	14.62%	9.60%	8.09%	1.51%
6		1 17	14.81%	9.79%	8.14%	1 66%
7		1.25	15.41%	10 39%	8.67%	1 72%
8		1.30	16.14%	11.12%	9.04%	2.08%
9		1.34	16.97%	11.96%	9.28%	2.68%
10-Smallest		1.39	20.27%	15.25%	9.66%	5.59%
Breakdown of 10th [Decile					
10a		1.41	18.85%	13.84%	9.75%	4.09%
	10w	1.38	17 69%	12.67%	9.58%	3.10%
	10x	1.45	20.37%	15.36%	10.03%	5.33%
10b		1.37	23.14%	18.12%	9.49%	8.64%
	10y	1.42	22.07%	17.06%	9.85%	7.21%
	10z	1.28	25.54%	20.53%	8.90%	11.63%

Source of underlying data: Calculated (or derived) based on data from CRSP © 2017 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business (2017). Calculations by Duff & Phelps, LLC

Size Premium Calculation: Risk Premium Report

In the 2017 Valuation Handbook – U.S. Guide to Cost of Capital, the Risk Premium Report size studies are calculated over the years 1963–2016. The following statistics are calculated over this time period:

- The "historical" average annual long-term equity risk premium is 5.02%.
- The average annual risk-free rate is 6.46%.
- In Risk Premium Report Exhibit B-3 (25 portfolios sorted from largest companies to smallest companies by net income), portfolio 25 average annual return equals 21.44%.
- In Risk Premium Report Exhibit B-3, portfolio 25 has a sum beta of 1.31.

In Exhibit 7.2, the largest company in each of the CRSP (NYSE/NYSE MKT/NASDAQ) deciles and size groupings (by market capitalization) as of September 30, 2016. $^{7\,13}$

Exhibit 7.1: Aggregate Market Capitalization and Company Counts of the CRSP (NYSE/NYSE MKT/NASDAQ) Deciles and Size Groupings
December 31, 2016

Decile	Historic Average Percentage of Total Capitalization	Recent Number of Companies	Recent Decile Market Capitalization (in \$thousands)	Recent Percentage of Total Capitalization
1-Largest	63 13%	191	15,290,475,300	66.12%
2	13.95%	200	3,010,671,018	13.02%
3	7.55%	202	1,609,575,618	6.96%
4	4.73%	221	1,010,851,810	4.37%
5	3 26%	227	677,120,067	2 93%
6	2 41%	259	541,037,999	2.34%
7	1 79%	283	384,129,198	1.66%
8	1 33%	361	297,164,943	1 28%
9	1.03%	487	212,609,644	0.92%
10-Smallest	0.82%	790	92,882,169	0.40%
Mid-Cap 3-5	15 54%	650	3,297,547,494	14.26%
Low-Cap 6-8	5.53%	903	1,222,332,139	5 29%
Micro-Cap 9-10	1.85%	1,277	305,491,813	1.32%

Source of underlying data: Calculated (or derived) based on data from CRSP © 2017 Center for Research in Security Prices (CRSP®), The University of Chicago Booth School of Business (2017) Calculations by Duff & Phelps, LLC

The CRSP deciles are re-constituted and rebalanced at the end of each calendar quarter (March, June, September, and December)
These quarter-end portfolios are then followed for the subsequent three months. For example, the breakpoints in Exhibit 7.2 were a key input in defining the companies placed in each decile at the end of September 2016, these portfolio compositions were then used to calculate the October, November, and December 2016 returns associated with each decile

Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return
2016 Stocks, Bonds, Bills, and Inflation
Duff & Phelps

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Source: Ibbotson SBBI 2013 Valuation Yearbook

Source: It	iootson SBBI	SOT3 ASINS!	ion Yearbook												
	A-1	A-2	A-3	A-4	A -5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15
	Large Company Stocks	Large Company Stocks	Large Company Stocks Capital	Small Company Stocks	Long-Term Corporate Bonds	Long-Term Government Bonds	Long-Term Government Bonds	Long-Term Government Bonds Capital	Long-Term Government Bonds	Intermediate- Term Government Bonds	Intermediate- Term Government Bonds	Intermediate- Term Government Bonds Capital	Intermediate- Term Government Bonds	Bills	Inflation
	Total	Income	Appreciation	Total	Total		Income	Appreciation				Appreciation		Total	•
	Returns	Returns	Returns	Returns	Returns	Total Returns	Returns	Returns	Yields	Total Returns	Income Returns	Returns	Yields	Returns	
Year	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *
1926	0.1162	0.0541	0.0572	0.0028	0 0737	0.0777	0,0373	0 0391	0.0354	0.0538	0.0378	0.0151	0.0361	0.0327	-0.0149
1927	0.3749	0.0571	0 3091	0 2210	0.0744	0.0893	0 0341	0 0540	0.0316	0.0452	0.0349	0.0096	0.0340	0.0312	-0.0208
1928	0.4361	0 0481	0.3788	0 3969	0 0284	0.0010	0 0322	-0.0312	0.0340	0.0092	0.0364	-0.0273	0.0401	0.0356	-0.0097
1929	-0.0842	0.0398	-0 1191	-0.5136	0.0327	0.0342	0.0347	-0.0020	0.0340	-0.0601	0.0407	0.0177	0.0362	0.0475	0 0020
1930	-0.2490	0.0457	-0 2848	-0.3815	0 0798	0.0466	0,0332	0 0128	0.0330	0.0672	0.0330	0.0333	0.0291	0.0241	-0.0603
1931	-0.4334	0.0535	-0.4707	-0.4975	-0.0185	-0.0531	0 0333	-0.0846	0.0407	-0.0232	0.0316	-0.0540	0.0412	0 0107	-0 0952
1932	-0.0819	0 0616	-0.1515	-0.0539	0.1082	0.1684	0.0369	0.1294	0.0315	0.0810	0.0363	0.0502	0.0304	0.0096	-0.1030
1933	0.5399	0.0639	0.4659	1.4287	0.1038	-0.0007	0.0312	-0 0314	0.0336	0.0183	0.0283	-0.0099	0.0325	0.0030	0 0051
1934	-0.0144	0.0446	-0.0594	0.2422	0 1384	0.1003	0 0318	0.0676	0.0293	0.0900	0 0293	0.0597	0.0249	0.0016	0 0203
1935	0 4767	0 0495	0.4137	0.4019	0.0961	0.0498	0.0281	0.0214	0.0276	0.0701	. 0 0202	0.0494	0.0163	0.0017	0 0299
1936	0.3392	0.0536	0 2792	0.6480	0.0674	0.0752	0.0277	0.0464	0 0255	0.0306	0.0144	0.0160	0.0129	0.0018	0 0121
1937	-0.3503	0.0466	-0.3859		0 0275	0.0023	0.0266	-0 0248	0.0273	0,0156	0 0148	0.0005	0 0114	0.0031	0.0310
1938	0.3112	0.0483	0.2521	0.3280	0.0613	0.0553	0.0264	0.0283	0.0252		0.0182	0.0437	0.0152	-0.0002	-0.0278
1939	-0.0041	0.0469	-0.0545	0.0035	0 0397	0.0594	0 0240	0 0348	0 0226	0.0452	0 0131	0.0318	0 0098	0 0002	-0 0048
1940	-0 0978	0.0536	-0.1529		0.0339	0.0609	0.0223	0 0377	0 0194			0.0204	0.0057	0 0000	
1941	-0 1159	0.0671	-0.1786		0.0273	0.0093	0 0194	-0 0101	0.0204			-0.0017	0 0082	0 0006	
1942	0 0234	0.0679	0.1243	0.4451	0.0260	0.0322	0 0246	0.0074	0.0246			0.0117	0.0072	0.0027	
1943	0.2590	0.0624	0,1945	0.8837	0.0283	0 0208	0.0244	-0.0037	0.0248			0.0123	0.0145	0.0035	
1944	0 1975	0.0548	0.1380	0 5372	0.0473	0.0281	0.0246	0 0032	0.0246			0.0035	0.0140	0.0033	
1945	0 3611	0.0497	0.3072		0.0408	0.1073	0.0234	0.0827	0.0199			0 0102	0 0103	0.0033	
1946	-0.0807	0.0409	-0.1187	-0 1163	0.0172	-0.0010	0.0204	-0.0215	0 0212			-0.0008	0.0112	0.0035	
1947	0.0571	0.0549	0.0000		-0.0234	-0.0262	0.0213	-0.0470	0.0243			-0.0030	0.0134	0.0050	
1948	0.0550	0 0608	-0.0065		0.0414	0.0340	0 0240	0.0096	0.0237			0.0027	0.0151	0 0081	0.0271
1949	0 1879	0.0750	0.1026		0.0331	0.0645	0.0225	0.0415	0.0209			0.0095	0 0123	0 0110	
1950	0.3171	0.0877	0.2178	0.3875	0.0212	0.0006	0.0212	-0.0206	0.0224			-0.0069	0 0162	0.0120	
1951 1952	0.2402 0.1837	0.0691	0.1646	0.0780 0.0303	-0.0269 0.0352	-0.0393	0.0238	-0.0627	0.0269 0.0279			-0.0163	0.0217	0.0149	
	-0.0099	0.0593 0.0546	0.1178 -0.0662		0.0352	0.0116 0.0364	0.0266 0 0284	-0.0148 0.0067	0.0279			-0.0057 0.0061	0.0235 0.0218	0.0166 0.0182	
1953 1954	0.0099	0.0546	0.0662		0.0539	0.0364	0.0279	0.0067	0.0274			0.0061	0.0218	0.0182	0.0062
1954	0 3262	0.0456	0.2640		0.0048	-0.0129	0.0279	-0,0407	0.0272			-0 0310	0 0172	0.0086	-0.0050 0.0037
1955	0,0656	0.0383	0.2640		-0.0681	-0.0129	0.0299	-0.0846	0.0295			-0 0310	0.0363	0.0157	0.0037
1957	-0.1078	0.0384	-0.1431	-0.1457	0.0871	0.0746	0.0233	0.0382	0.0343			0 0405	0.0284	0.0246	0.0302
1957	0.1076	0.0384	0.3806	0.6489	-0.0271	-0.0609	0.0344	-0.0923	0.0382			-0 0417	0.0381	0.0314	0.0302
1958	0.1196	0.0331	0.3808	0.1640	-0.0097	-0.0226	0.0327	-0.0620	0.0362			-0.0417	0.0498	0.0134	0.0176
1960	0.1130	0.0331	-0.0297	-0.0329	0.0907	0.1378	0.0426	0.0929	0.0380			0.0742	0.0331	0.0255	
1961	0 2689	0.0348	0.2313	0.3209	0.0482	0.0097	0.0383	-0.0286	0.0415			-0.0172	0.0384	0.0203	0.0148
1962	-0.0873	0.0298	-0.1110	-0.1190	0.0795	0.0689	0.0400	0.0278	0.0395			0.0173	0.0350	0.0273	0.0122
1963	0.2280	0.0361	0.1889	0.2357	0.0219	0.0121	0.0389	-0.0270	0.0417			-0.0210	0.0404	0.0312	0.0165
1964	0.1648	0.0333	0.1297	0.2352	0.0477	0.0351	0.0415	-0.0072	0.0423			-0 0003	0.0403	0.0354	0.0119
1965	0.1245	0.0321	0.0906	0.4175	-0.0046	0.0071	0.0419	-0.0345	0.0450			-0.0310	0.0490	0 0393	0.0192
															_

Source. Ibbotson SBBI 2013 Valuation Yearbook

		A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15
:		Large Company	Large Company	Large Company	Small Company	Long-Term Corporate	Long-Term Government	Long-Term Government	Long-Term Government	Long-Term Government	Intermediate- Term Government	Intermediate- Term Government	Intermediate- Term Government	Intermediate- Term Government	U.S. Treasury	
,		Stocks	Stocks	Stocks Capital	Stocks	Bonds	Bonds	Bonds	Bonds Capital	Bonds	Bonds	Bonds	Bonds Capital	Bonds	Bills	Inflation
•		Total Returns	income Returns	Appreciation Returns	Total Returns	Total	Total Returns	Income	Appreciation	W-14-	T-1-10-1		Appreciation		Total	
1	Year		Jan-Dec *	Jan-Dec *	Jan-Dec *	Returns Jan-Dec *	Jan-Dec *	Returns Jan-Oec *	Returns Jan-Dec *	Yields Jan-Dec *	Total Returns Jan-Dec *	Income Returns Jan-Dec *	Returns Jan-Dec *	Yields Jan-Dec *	Returns Jan-Dec *	Jan-Dec *
	1966 1967	-0 1006 0 2398	0.0311 0.0364	-0 1309 0.2090		0.0020	0.0365	0.0449	-0.0106	0.0455		0 0493	-0 0041		0.0476	0.0335
)	1968	0 1106	0.0318			-0 0495 0.0257	-0.0918 -0 0026	0.0459 0.0550	-0 1355 -0 0551	0 0556 0.0598		0.0488 0.0549	-0.0385 -0.00 9 9		0.0421 0.0521	0.0304
-	1969	-0.0850	0.0304	-0.1142		-0.0237	-0 0026	0 0595	-0.1083	0.0598		0.0665	-0.0099		0.0521	0.0472 0.0611
•	1970	0.0401	0.0341	0.0016			0.1211	0.0674	0.0484	0.0648		0.0749	0.0871		0.0652	0.0549
	1971	0.1431	0.0333	0.1079			0 1323	0.0632	0.0661	0.0597		0.0575	0.0272		0.0439	0.0336
	1972	0 1898	0.0309	0.1563			0.0569	0.0587	-0.0035	0.0599		0.0575	-0.0075		0.0384	0.0341
	1973	-0.1466	0.0286	-0.1737	-0 3090	0 0114	-0 0111	0.0651	-0.0770	0.0726	0.0461	0.0658	-0.0219		0.0693	0.0880
	1974	-0.2647	0.0369	-0.2972	-0 1995	-0.0306	0.0435	0.0727	-0.0345	0.0760	0 0569	0.0724	-0.0199	0.0712	0.0800	0.1220
	1975	0 3720	0.0537	0.3155	0.5282	0.1464	0.0920	0.0799	0.0073	0.0805	0.0783	0.0735	0.0012	0.0719	0.0580	0.0701
	1976	0.2384	0.0438	0.1915	0.5738	0.1865	0.1675	0.0789	0.0807	0.0721	0 1287	0.0710	0 0525	0.0600	0.0508	0 0481
	1977	-0 0718	0.0431	-0.1150			-0.0069	0.0714	-0.0786	0.0803	0.0141	0.0649	-0.0515	0.0751	0.0512	0.0677
	1978	0.0656	0.0533	0.0106			-0.0118	0.0790	-0.0905	0.0898		0.0783	-0.0449	0.0883	0.0718	0.0903
	1979	0.1844	0.0571	0.1231	0.4346		-0.0123	0.0886	-0.0984	0.1012		0.0904	-0.0507	0.1033	0.1038	0.1331
	1980	0.3242	0.0573	0.2577	0 3988	-0 0276	-0 0395	0.0997	-0.1400	0.1199		0.1055	-0.0681	0.1245	0.1124	0.1240
	1981	-0.0491	0.0489	-0.0 9 72		-0.0124	0.0186	0 1155	-0 1033	0.1334		0.1297	-0.0455	0.1396	0.1471	0.0894
	1982	0.2141	0.0550	0.1476		0.4256	0 4036	0.1350	0 2395	0 1095		0 1281	0.1423	0 0990	0.1054	0 0387
	1983	0.2251	0.0500	0.1727	0.3967	0.0626	0 0065	0 1038	-0 0982	0.1197		0.1035	-0.0330		0.0880	0 0380
	1984	0.0627	0.0456	0.0139		0.1686	0 1548	0.1174	0.0232	0.1170		0.1168	0.0122	0.1104	0.0985	0.0395
	1985	0.3216	0.0510	0.2634	0 2466	0.3009	0.3097	0.1125	0.1784	0.0956		0.1029	0,0901	0.0855	0,0772	0.0377
	1986 1987	0.1847 0.0523	0.0374	0.1463 0.0203	0.0685 -0.0930	0.1985 -0 0027	0.2453 -0 0271	0.0898 0.0792	0.1499 -0.1069	0.0789 0.0920		0.0772 0.0747	0 0699	0.0685	0.0616	0.0113
	1988	0.0523	0.0364	0.0203	0.2287	0,1070	0.0967	0.0792	0.0036	0.0920		0.0747	-0.0475 -0.0226	0.0832 0.0917	0.0547	0.0441 0.0442
	1989	0.3149	0.0385	0.1241	0.1018	0.1623	0.1811	0.0881	0.0862	0.0916		0.0824	0.0434	0.0794	0.0837	0.0442
	1990	-0.0317	0.0336	-0.0656	-0.2156		0.0618	0.0819	-0.0261	0.0844		0.0815	0.0102	0.0770	0.0781	0.0403
	1991	0.3055	0.0382	0.2631	0.4463	0.0070	0 1930	D 0822	0.1010	0.0730		0.0743	0.0736	0.0597	0.0560	0.0306
	1992	0.0767	0.0303	0.0446	0 2335	0 0939	0 0805	0.0726	0.0034	0.0726		0 0627	0 0064	0.0610	0.0351	0.0290
	1993	0 0999	0.0283	0.0706	0.2098	0.1319	0.1824	0.0717	0 1071	0.0654		0.0553	0.0556	0.0522	0.0290	0.0275
	1994	0 0131	0.0282	-0.0154	0 0311	-0.0576	-0.0777	0.0659	-0.1429	0.0799	-0.0514	0.0607	-0.1114	0.0780	0.0390	0.0267
	1995	0 3743	0.0291	0.3411	0 3446	0 2720	0 3167	0.0760	0.2304	0.0603	0.1680	0.0669	0.0966	0.0538	0.0560	0 0254
	1996	0.2307	0 0254	0.2026	0 1762	0.0140	-0.0093	0.0618	-0.0737	0.0673	0.0210	0.0582	-0.0390	0.0616	0.0521	0 0332
	1997	0 3336	0.0211	0.3101	0 2278	0 1295	0 1585	0.0664	0 0851	0.0602	0.0838	0.0614	0.0195	0.0573	0.0526	0.0170
	1998	0.2858	0.0168	0.2667	-0 0731	0 1076	0.1306	0.0583	0.0689	0.0542	0.1210	0.0529	0.0466	0.0468	0.0486	0.0161
	1999	0.2104	0.0136	0.1953	0.2979	-0.0745	-0.0896	0.0557	-0.1435	0.0682		0.0530	-0.0706	0.0645	0 0468	0.0268
	2000	-0.0911	0.0110	-0.1014	-0.0359	0 1287	0.2148	0.0650	0.1436	0.0558		0.0619	0 0594	0.0507	0.0589	0.0339
	2001	-0 1188	0.0118	-0.1304	0.2277	0.1065	0 0370	0.0553	-0.0189	0 0575		0.0427	0 0323	0.0442	0.0383	0.0155
•	2002	-0.2210	0.0139	-0.2337	-0.1328	0.1633	0.1784	0.0559	0.1169	0.0484		0.0398	0 0865	0.0261	0.0165	0.0238
	2003	0.2870	0.0200	0.2638	0.6070	0.0527	0 0145	0.0480	-0.0336	0 0511		0.0285	-0 0048	0.0297	0.0102	0.0188
:	2004	0.1087	0.0175	0.0899	0.1839 0.0569	0 0872	0 0851	0 0502	0.0326	0.0484		0.0328	-0 0107	0.0347	0.0120	0.0326
•	2005	0.0491	0.0184	0.0300	0.0569	0.0587	0.0781	0 0469	0.0302	0.0461	0.0136	0.0392	-0 0258	0.0434	0.0298	0.0342
•																

Source: Ibbotson SBBI 2013 Valuation Yearbook

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Capital /	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15
<u>2</u>	Large	Large	Large	Small	Long-Term	Long-Term	Long-Term	Long-Term	Long-Term	Intermediate-	Intermediate-	Intermediate-	Intermediate-	U.S.	
	Company	Company	Company	Company	Corporate	Government	Government	Government	Government	Term Government	Term Government		Term Government		
Required	Stocks	Stocks	Stocks	Stocks	Bonds	Bonds	Bonds	Bonds	Bonds	Bonds	Bands	Bonds	Bonds	Bills	Inflation
≘			Capital					Capital				Capital			
<u>.</u>	Total	Income	Appreciation	Total	Total		Income	Appreciation				Appreciation		Total	
<u>5</u>	Returns	Returns	Returns	Returns	Returns	Total Returns	Returns	Returns	Yields	Total Returns	Income Returns	Returns	Yields	Returns	
Year 2006	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *	Jan-Dec *
2006	0,1580	0.0201	0.1362	0.1617	0.0324	0.0119	0.0468	-0.0364	0.0491	0.0314	0.0454	-0.0151	0.0465	0.0480	0.0254
	0.0549	0.0196	0.0353	-0.0522	0.0260	0.0988	0.0486	0,0469	0.0450	0,1005	0.0444	0.0533	0.0328	0.0466	0.0408
2008	-0.3700	0.0192	-0.3849	-0.3672	0.0878	0.2587	0.0445	0,2050	0.0303	0.1311	0.0296	0.0992	0.0126	0.0160	0.0009
2009 2009 2010	0.2646	0.0248	0.2345	0.2809	0.0302	-0.1490	0.0347	-0.1825	0.0458	-0.0240	0.0201	-0.0442	0.0242	0.0010	0.0272
2010	0.1506	0.0202	0.1278	0.3126	0.1244	0.1014	0.0425	0.0589	0.0414	0.0712	0.0192	0.0516	0.0170	0.0012	0.0150
2011	0.0211	0.0213	0.0000	-0,0326	0.1795	0.2823	0.0381	0.2374	0.0248	0.0946	0.0158	0.0779	0.0059	0.0004	0.0296
2012	0.1600	0.0250	0.1341	0,1824	0.1068	0.0331	0.0240	0,0088	0.0241	0.0207	0.0058	0.0148	0.0046	0.0006	0.0174
2013	0.3239	0.0248	0.2960	0.4507	-0.0707	-0.1278	0.0288	-0.1570	0.0378	-0.0368	0.0102	-0.0468	0.0149	0.0002	0.0151
2014	0.1369	0.0216	0.1139	0.0292	0.1728	0.2471	0.0341	0.2093	0.0246	0.0300	0.0163	0.0135	0.0155	0.0002	0.0076
2015	0,0138	0.0210	-0.0073	-0,0360	-0.0102	-0.0065	0.0247	-0.0311	0.0268	0.0179	0,0151	0.0029	0.0169	0.0002	0.0118
2016															
Average	0.1175	0.0401	0.0771	0.1678	0.0630	0.0603	0.0505	0.0075	0.0509	0.0522	0.0447	0.0069	0.0443	0.0346	0.0299
Median	0.1307	0.0384	0.1053	0.1832	0.0475	0.0368	0.0422	0.0033	0.0435	0.0370	0.0385	0.0032	0.0383	0.0305	0.0272
High	0.5399	0.0877	0.4659	1.4287	0.4256	0.4036	0.1350	0.2395	0.1334	0.2910	0.1297	0.1423	0.1396	0.1471	0.1816
Low	-0.4334	0.0110	-0.4707	-0.5801	-0.0809	-0.1490	0.0194	-0.1825	0.0194	-0.0601	0.0058	-0.1114	0.0046	-0.0002	-0.1030
Last 5 yea	r (60 month	s)													
Average	0.1311	0.0227	0.1073	0.1187	0.0756	0.0856	0.0299	0.0535	0.0276	0.0253	0.0126	0.0125	0.0116	0.0003	0.0163
Median	0.1369	0.0216	0.1139	0.0292	0.1068	0.0331	0.0288	0.0088	0.0248	0.0207	0.0151	0.0135	0.0149	0.0002	0.0151
High	0.3239		0.2960		0.1795	0.2823	0.0381	0.2374	0.0378		0.0163	0.0779	0.0169	0.0006	
Low	0.0138		-0.0073		-0.0707	-0.1278	0.0240	-0.1570	0.0241	-0.0368	0.0058	-0.0468	0.0046	0.0002	0.0076

^{*} Compound Annual Return

Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return
Capital Structure

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Value Line Investment Surveys

Survey Line Industries*

Survey Line Industries

**Survey Line Industr

Water Industry	
As of First Quarter 2017 (1-1-2017)	

Company	Exchange	Ticker	Valueline No	Valueime Issue	Total Debt	Market Debt	Long Term Debt	Long Term Interest	Long Term Interest Rate (embedde d)		Book Debt	Book Equity	Professed Stock	% Preferred	Shares Outstanding	Price per Share	Market Equity	Pertion Market Equity	Capitalization	Total Market Capital
Organi Value Lane	تجريط لاجليت إيحد	Ingral Value	Input Value Life	logia Value Lose	Input Value Less	14)/1231	Ingut Jake Unr	orqual Value Lore	(9) / (a)	Input Yave Line	input Value Line	rigus Value Line	imput Value Lave	249/ <u>(21)</u>	Input Value Line	Irmus Value Line	16aul Value Leve	110}/(21)	Ingral Value Live	{e}-,5 e}-(78)
					S Millers	*	Sa Lit Blan	\$1 MATERIA	*		*		\$ Meon	*	Shares Million	\$1 per Share	St Mitma	*		§s Million
American States Water	NYSE	AWR	1781	1/1/2017	398 2	19 50%	320 9	21 1	6 58%	40 0%	40 0%	60 0%		0 00%	36 56574600	44 95	1,643 8	80 50%	Mid Cap	2,042.0
American Water	NYSE	AWK	1782	1/1/2017	6,857 0	34 76%	5,853 0	297 0	5 07%	\$3.0%	55 0%	45 0%	110	0.06%	178 00336700	72 25	12,860 7	65 19%	Large Cap	19,728 7
Aqua American	NYSE	WTR	1783	1/1/2017	1,880 5	26 13%	1,748 7	78 6	4 49%	49 0%	50 0%	50 0%		0.00%	177 35825700	29 94	5,317.2	73 27%	Large Cap	7,197 7
California Water	NYSE	CWT	1784	1/1/2017	618 7	27 45%	555 5	27 2	4 90%	47 0%		54 ON			47 96800000				Mid Cap	2,237 6
Connecticut Water	NDQ	CTWS	1785		203 1	24.48%		8 0	4 00%	47 0%		54 ON		0 10%	11 24041700				Small Cap	829 7
Consolidated Water Company	NDQ	CWCD	1786		0 5	0.31%		•	0 00%	0.0%		100 0%		0 00%					Small Cap	161 3
Middlesex Water	NDQ	MSEX	1787	1/1/2017	150 5	18 22%	130 2	5 6	4 28%	36 0%		62 5%							Small Cap	826 0
SJW Corporation	NYSE	SJW	1788		435 7	28 05%	364 2	210	\$ 77%	48 0%		52 5%		0 00%					Mid Cap	1,567 7
Yerk Water	NDQ	YORW	1789	1/1/2017	84 6	14 65%	84 6	5 1	€ 03%	44 0%	43 5%	56 5%		0.00%	12 16969600	38 30			Small Cap	577 5
⁷ otal					10,632 8	10 23%	9,257 9	463 6	5 01%				14 2	0 04%			24,521 1	69 73%		35,168.1
Minimum						0 31%			0.00%	0 00%	0.00%	45 00%		0.00%				65 19%		
wid Mean						30 23%			5 01%					0.04%				69 73%		
Mean						21 53%			4 57%	40 67%	40.61%	59 39N		0.05%				78 47%		
Median						24.48%			4 90%	47 00%	46 00%	54 00%		0.00%				75 42%		
Maximum						34 76%			6 58%	53 00%	55 00%	100 00%		0 29%				99 69%		
Wa	ter Industry Cap	ital Structur																		
		rket		edded																
Capital Structure	Proportion	Reference	Propertion	Reference																
		wtd mean																		
Debt	30 23%			mean cal 11																
		wid mean																		
Preferred	0.04%	6 col 15	0.05%	mean col 15																

Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return
Income Tax Rate

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Сотрелу	Exchange	Ticker	Valueline No	Valueline Issure		Tax	Rate	
input Value time	ingng Value Late	meu Value Line	ingst Välus Ling	Input ridne Lane	2015 (spet Value Little	2016 Imput Value Lone	2017 Input Value Leve	19-21 Input Value Lore
American States Water	NYSE	AWE	1781	1/1/2017	18 AN	33 0%	36 0%	36 0%
American Water	NYSE	AWK		1/1/2017	39 1%	39.0%	34 5%	37 0%
Agua American	NYSE	WTR		1/1/2017	5 9%	7 0%	7.0%	20 0%
California Water	NYSE	CWT		1/1/2017	35 3%	32 0%	32 0%	35 0%
Connecticut Water	NDO	CTWS		1/1/2017	4 2%	7 5%	19 0%	28 0%
Consolidated Water Company	NDQ	CWCO		1/1/2017	727	. 2.4	15 0,4	2000
Muldlesex Water	NDQ	MSEX		1/1/2017	34 5%	35.0%	35.0%	35.0%
SIW Corporation	NYSE	SIW		1/1/2017	30 1%	38 0%	39.0%	39 0%
Yerk Water	NDQ	YORW	1789	1/1/2017	27 2%	28 5%	29 0%	32 5%
Menmum					4 20h	7 00%	7 00%	20 00%
wtd Mean								
Mean					27 95%	27 50%	25 44%	32 81%
Median					34 90%	32 50%	33 50%	35 00%
Viaumum					39 10%	39 00%	39 00%	39 00%
Historical	34 00%	Medius						
Marginal	35 00%	AUS HOW						
US SO-state average	4 91%	AUS Input						
Pennsylvania	9 99%	AUS Input						
Tax Rate	41 49%	Chindred						

Pennsylvania American Water Company Sadsbury Township, Pennsylvania Wastewater Utility

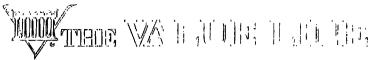
Appraisal Work Papers As of January 1, 2017

Income Approach
Cost of Capital / Required Return

Value Line Investment Surveys Water Industry January 2017

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January 18, 2017

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ESPECIALLY NOTEWORES -

We welcome a trio of companies to The Value Line Investment Survey this week, with two of the new additions taking up residence in the e-commerce space. Specifically, LoyMeln, Loc. which provides cloud-based services for remote access, device management data management, customer care, and collaboration worldwide, is making its debut on page 1820. In addition Canada-based Shopify Loc., which provides a cloud-based and multi-channel commerce platform for small and medium-sized businesses, can be found on page 1826 of the Survey.

Separately, Raven Indestries, which designs and manufactures a variety of products for the industrial, agricultural, energy, construction, and defense markets, joins the ranks of the Diversified Industry on page 1767.

Despite persistent currency headwinds. Siemens AG seems set for a strong carnings advance in the current fescal year. What's more, at this juncture, the issue seems to have someth. (4) to offer investors of all ilks. Read our take on the company's prospects on page 1711.

Stanley Black & Dectar has been quite busy on the acquisition trad to early October, it inked a deal to acquire the tools business of Newetl Brands, and more recently, agreed to purchase the Craftman brand from Sears Holdings, Learn more on page 1729.

	1837
Ultimate Software Group (The)	1828
* Workday, Inc	1829
Zendesk, Inc	1830
FUNERAL SERVICES	
INDUSTRY	1824
Carriage Services, Inc	180%
Hillenbrand, Inc	
Matthews International Corp	1834
Service Corp. International	1835
** StoneMor Partners L P	1836
SUPPLEMENTARY REPORTS	68 69
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(Above Average).

In three parts: Part I is the Summary & Index. To 42 is Relection." Opinion. This is Part 3, Ratings & Reports. Volume 157/14, 116, 21

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Stocks in the Water Utility Industry have traditionally been purchased by income-oriented investors for their yield and dividend growth prospects. Accounts interested in these equities typically are villing to sacrifice capital appreciation in return for a well-defined income stream and a reduced amount of risk. This may be changing, however, as the yields of many water utility stocks are now lower than the Value Line median.

Five of the eight regulated utility stocks we follow outperformed the market averages since we last reviewed the group three months ago. Of these, the best performers were the small capitalization equities.

From an operational standpoint, the group continued to post decent earnings. Much of this is the result of positive regulatory climates in many states around the country.

Capital spending in the industry is significant as the water infrastructure in the United States had long been neglected. Utilities are now investing heavily to replace aging pipelines and valves, and to modernize waste water facilities.

Consolidation remains an ongoing trend in the industry. Smaller municipally run water districts do not have sufficient funds to bring their plant and equipment up to EPA-mandated standards. As a result, they are being merged with larger utilities that have better access to capital. In addition, because this industry is plagued with redundancies, mergers are leading to economies of scale.

Are Water Utility Stocks Still Yield Plays?

The average dividend yield on the eight regulated water utilities we follow is currently 2.1%, or exactly the same as the median for all stocks in the Value Line universe. Historically, the yield on these stocks has been much higher. As an example, the typical yield on an electric utility equity is about 3.6%, or 150 basis points higher than the water utility industry. Why is this? One reason is that when taken as a whole, the market capitalization of the group is very modest. Thus, it doesn't take a large shift into the sector by institutional investors to drive the price of these stocks higher and their yields lower. Indeed, the three stocks with the best returns over the past three months were all small cap stocks. York Water and SJW each surged 30% while Middlesex Water rose about 25%. Before these moves, the market capitalization of each individual stock was \$375 million, \$850 million, and \$550 million, respectively. The spike in prices has also left the equities with respective yields of 1.7%, 1.5%, and 2.1%. Taking a look at the three biggest members of the group, only American Water Works performed well, while Aqua America and American States Water both only rose a meager 1%.

Operations And Earnings Are Solid

For the most part, water companies have been experiencing reasonable earnings growth. This comes despite a nationwide trend aimed at getting households to reduce their consumption of water. How can the bottom line do well when state authorities and the utilities themselves are discouraging water usage? The answer is that many states have implemented strategies that not only don't penatize utilities for selling less water, but provides incentives for households to conserve more.

INDUSTRY TIMELINESS: C9 (of 97)

State regulatory authorities are actively working with the industry in a way that is benefited both parties. In drought-stricken California, regulators have changed the compensation methodology for water utilities. Now they earn income on a fee basis, regardless of the amount of water sold. This has proven to be successful in cutting consumption without hurting the utilities bottom line.

As we often point out, the most important factor in a any utility's success, whether it provides electricity, gas, or water, is the regulatory climate in which it operates. Harsh regulatory conditions can make it nearly impossible for the best run utilities to earn a reasonable return on their investment.

Looking forward, the outlook for continued successful cooperation between states and utilities seems likely. Both parties realize that for decades much-needed capital improvements were deferred. Industry experts are now in agreement that large sums have to be made to bring the nation's water infrastructure up to par. Because water bills have been less than homeowners have been paying for other utility services, there appears to be less resistant in increasing them.

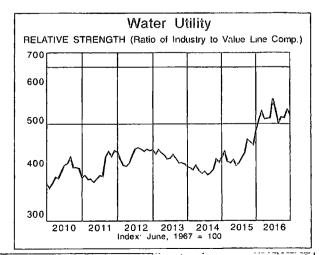
Consolidation

There are over 50,000 mostly small water authorities in the U. S. Many of these districts find themselves without the sums needed to modernize their facilities. As a result, many are merging with larger entities that have the financial wherewithal to make the required investment. American Water Works, American States Water, and Aqua America are three of the most active acquirers. Another benefit from these mergers is that there are a large amounts of redundancies in the industry and substantial cost savings can be achieved.

Conclusion

Our ranking system suggests that stock prices in this group are fully valued. None of the eight stocks are timely with American Water Works, Connecticut Water Service, Middlesex Water, SJW Corp, and York Water all ranked to underperform the market averages in the year ahead.

James A. Flood



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LT Deb	t \$5853 C		T interest 53% of Ca		mil.			37.4%	37.9%	40.4%	39.5%	40.7%	39 1%	39 4%	39.1%	39.0%	38.5%	Income 1	ax Rate	37.0%
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Pfd Sto	ck \$11.0		'fd Div'd		.	8720.6	9318 0	8750.2 9991.8	10524	11059	11021	11739	9940 7 12391	12900	13933	11610 14600	12300 15400	Net Plan	pital (\$milf) t (\$mill)	14540 17200
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as of 10		840 O L W	<i>(</i> 1	- 01		NMF	NMF	4.6%	5.2%	6.5%	7.2%	B.4%	7.8%	8.7%	94%	9.0%	10.0%	Return o	n Com Equ	ity 10.5%
CURRE	NT POS		ion (Larg 2014		9/30/16	NMF	NMF	3.0% 34%	1.8% 65%	2.8% 56%	3.5% 52%	3.6% 57%	4.7% 40%	4.3% 50%	4 7% 50%	4.0% 57%	5.0% 53%		to Com Eq s to Net Pro	
(\$MII) Cash A	ssels	ı_ o		45.0	69.0							is the					market a	accounting	g for 25 7%	of regulated
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Cunent ANNUA	L RATES		Pas		13-15	Ame	rican enced	Wat a ra	er Wa	orks arniz	prob gs de	ably eclino	ex- e in							ng in ex- y in the
	e (per sh)	10 Yrs.	5 Yrs - 3.0	i. to '1	19-'21 !.5%	2016	. In t	he th	ird q	uartei	, the	comp ge res	any	indus	try, Λ	meric	an Wa	aler V	/orks is	able to
'Cash f Earning	S	-	- 9.0 - 13.0)% 8	.5% 1.0%	ing fi	om a	2014	chemi	ical sp	ni Hic	West	Vir-							that do
Dividen Book V			- 10.0 - 2.5		0%							oe sec m Wa								nd keep require-
Cal-			VENUES (\$ Sep. 30		Full	Work	s has	not i	oosted	last	rong	year-o	ver-	ment	s. Bec	ause	there	are s	such re	dundan-
ndar 2013	636.1	724.3		712.3	Year 2901.9							the d y's sh								Water utilities
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2016 2017	743.0 7 60	827.0 870	930.0 <i>990</i>	825 880	3325 3500	We c	xpect	the				get b		by th	ie ma	inten	ance	expen	se-to-o	perating
Cal-	EAR	NINGS P	R SHARE	A .	Full	Wate	r Wor	ks' bı	oad g	geogra	phic	Ameri footpr	int,	we es	timat	e il e	nded	2016	at arou	l.2% and nd 35%.
ndar 2013	.32	Jun. 30 .57	.84	.33	Year 2.06	the f	īrm (contin	ually	has	pendi	ing ca nt sta	ases	Over	the i	next 1	five y	rears,	the go	oal is to rould be
2014	.39	.62	.86	.52	2.39	This	year,	we th	ink a	dded	rever	wes f	rom	the [rımaı	ry dri	ver }	behind		carnings
015 1016	.44 .46	.68 .77	.96 .83	.56 .54	2.64 2.60							nt for 05, a			livider e sha				vored	by our
2017 Cal-	.50	. <i>82</i> Erly divi	1.08 Dends Pa	.65 ID B _B	3.05 Full	rise o	ver 20)16's d	lepres	ssed n	umbe			Rank	dng f	lyste	m. Do	espite	all of t	he posi-
ndar		Jun.30	Sep.30	Dec.31	Year	profi	t gro	wth o	of 7%	10%	throu	ıgh 20	021.	pegge	d to	under	perfo	rm th	e mark	et aver-
2013 2014	.28	.28 31	.28 .31	.28 .31	.84 1.21	This indus	rate i try a	s con	sidera se. H	ibly h	igher loes	than Ameri	the ican							over the Lreturn
2015 2016	.31 34	34 375	.34	.34	1.33	Water	r Wor	ks ac	hieve	thes	e resi	ults i	n a	poten	tial is	s una	ttract	ive a	s the e	quity is
2017	J-1	5/5	.0/3	.5,5	''7'							s thro gy, c		alreae Jame			n otti			Range. <i>13, 2017</i>
			ludes noi			Next 6	arnings	report	due mid	l-Feb. a	vailable	Two pay	ments n					Financia e Stabilit	Strength	B+ 100
nlinued	operatio	ns. '06, (33; '11, \$((\$0.04), '1 3AAP us	11, \$0.03	i; ing. (B) Divide	nds paid	in Marc	h, June,	Sep- ta	angibles	In 6/16.	\$1.31 b	villien. \$7	.38/share	. Pric	e Growt	e Stabiii h Persisi edictabil	ence	90 95
			ghts reserv ONSIBLE FO												l any kana usa Nove				مر ب ه	ATOLETONIS .
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April																
	AQUA AMERICA	NYSE-WIR			ECENT RICE	29.9	P/E RATIO	21.	3 (Traili	ng: 25.0) an: 22.0)	RELATIVI P/E RATI	1.0	g div'd	2.7		783
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ECHNICAL 3 Leavest Wint Security Securit		LEGENDS		- 13 1	36	12,3	13.2	15.4	10.8	20.0	22.4	24.4	20.0		2019 2020) 2021
## 2019-93 PRODECTIONS ## 201	TECHNICAL 3 Lowered 10/7/16	i divided by li	deresi Bate	. -										-	1	- 1
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Tobst \$1748.7 mill LT Interes \$786.0 mill (49% of Capri) 17.0 mill (49% of Capri) 20.0 mill (49%														875		
Pension Assets-12/15 \$238 6 mill 14 Stock None Common Slock 177,358,257 shares 5 of 10/20/16 ARKET CAP; \$5.3 billion (Large Cap) LURRENT POSITION 2014 2015 9/30/16 LURRENT POSITION 2014 2016 10/30/16 LUR	Total Debt \$1880.5 mill Due in 5	Yrs \$441 5 mill.		i	97 9	104.4	124.0	1448	153.1	205.0	213.9	201.8	240	260	Net Profit (\$mill)	
Persion Assets 12/15 \$2/36 mill Oblig. \$3/06 5 mill Oblig. \$			L	38 9%	39 7%			l		I			I .			
Value Valu	Daniela Annata 1845 6400 C will	, ,	1	55.4%	54 1%											
2506.0 279.8 2997.4 3227.3 3469.3 3612.9 3936.2 4167.3 4402.0 4688.9 4700 5075 Net Plant (\$mill) 5700 570		olig. \$306 5 mill.		1					1						•	
ARKET CAP: \$5.3 billion (Large Cap)	Pfd Stock None	ae	,	•					3		j.				1	1
ARRICET CAP: \$5.3 billion (Large Cap) 10.0% 97% 93% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 13.0% 13.0% Return on Shr. Equity 12.5% (SMAL) 2015 97.00 99 1 10.0% 97% 93% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 13.0% 13.0% Return on Shr. Equity 12.5% (SMAL) 2016 97% 93% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 13.0% 13.0% Return on Shr. Equity 12.5% (SMAL) 2018 97.00 99 1 10.0% 97% 93% 9.4% 10.6% 11.6% 11.0% 13.4% 12.9% 11.7% 13.0% 13.0% Return on Shr. Equity 12.5% (SMAL) 2018 12.8 12.4 12.9 11.0 12.8 12.4 12.9 11.0 12.8 12.4 12.9 11.0 12.8 12.4 12.9 11.0 12.8 12.4 12.9 11.0 12.8 12.5 12.5 12.8 12.4 12.9 11.0 12.8 12.5 12.5 12.8 12.4 12.9 11.0 12.8 12.5 12.5 12.8 12.4 12.9 12.5 12.5 12.5 12.8 12.4 12.9 12.5 12.5 12.5 12.8 12.4 12.9 12.5 12.5 12.5 12.8 12.5 12.5 12.5 12.5 12.5 12.5 12.5 12.5	as of 10/20/16	ÇO														4 -
ARKET CAP: \$5.3 billion (Large Cap) CURRENT POSITION 2014 2015 9/30/16 (\$\frac{1}{3}\text{MLL})\$ CURRENT POSITION 2014 2015 9/30/16 (\$\frac{1}{3}\text{MLL})\$ SMLL) SMLL) SMLL) SMLL) 37/8 32/8 20/8 27/8 3.7% 4.6% 43/8 6.7% 61% 6.0% 60% 60% 60% 60% 60% 60% 60% 60% 60% 6				1							Į.	1	í	ı		1
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Unrent Assets 1525 1284 1414 dents in Pennsylvania, Ohio, North Carolina, Iffinois, Texas, New Jobb Due 1523 131.6 70.0 523 131.6 70.0 523 131.6 70.0 523 193.2 252.0 June Liab 2253 1932 252.0 Library Past Past Est'd 13-15 (dange (pe sh) 10 frs. Covenues 5.0% 2.5% 8.0% 6.0% Cash Flow 8.0% 8.0% 6.0% 2.5% 8.0% 6.0% 2.5% 8.0% 6.0% 2.5% 130 120 2016. Regulators in six different states granted the company's various conviends 8.0% 7.5% 9.0% 7.0% 7.0% 7.0% 7.0% 7.0% 7.0% 7.0% 7	Inventory (AvgCst) 12.8	124 123														
Acts Payable both Due 95.3 84.4 76.1 131.8 7																
Other Strict Lab	Accts Payable 60.0	56.5 44.1														
ANNUAL RATES Past Past Est'd '13-'15 solid 2016. Regulators in six different are many redundant functions in the industry, economies of scale and cost savings solid 2016. Regulators in six different are many redundant functions in the industry, economies of scale and cost savings are very achievable. The company made 13 states granted the company's various water utilities permission to raise rates at different times during the year. We think these higher revenues enabled the company to post share earnings of \$1.35, versus are very achievable. The company made 13 states granted the company made 13 states	Other 95.3	84.4 76 [nıa 190	10 Tel.:	610-525-	1400. Int	ernel: www.aquaamerica	.com
Case Company Case																
Revenues 5.0% 2.5% 4.5% to the company made 13 are very achievable. The company made 13 are very achievable. The company made 13 are very achievable. The company made 13 acquisitions in the past year and plans on acquisitions in the past year and plans on the past	of change (per sh) 10 Yrs. 5 Yrs	s. lo '19-'21														
definings 8.5% 13.0% 7.0% 7.0% 1.0% 1.0% 13.0% 7.0% 15	Hevenues 5.0% 2.5	5% 4.5% 0% 6.0%									are v	ery ac	chieva	ble. T	he company ma	de 13
OUNTIERLY REVENUES (S mill.) OUNTIERLY REVENUES (S mill.) Mar.31 Jun.30 Sep.30 Dec.31 Year taken in last year's final quarter made the companies on better than it otherwise would last. 195.3 210.5 191.4 (779.9) have appeared.	Earnings 8.5% 13.0	0% / 0°5	diffe	rent t	imes	during	the t	year.	We th	hink	acqu	sition	s in t	he pa	ist year and pla	ns on
Cal OUARTERLY REVENUES (\$ mill.) Full year Mar.31 Jun.30 Sep.30 Dec.31 Year taken in last year's final quarter made the rate base helps expands profits. Projected capital expenditures are manageable. The company plans on spending \$1.20 15 1914 779.9 have appeared.	Dividends 8.0% 7	ა‰ 9.0% 0% 2.0%														
Mar.31 Jun.30 Sep.30 Dec.31 Year taken in last year's final quarter made the 2013 180.0 195.7 204.3 188.6 768.6 comparison better than it otherwise would 182.7 195.3 210.5 191.4 779.9 have appeared.		\$ miff.) Full														aising
2014 182.7 195.3 210.5 191.4 779.9 have appeared. spending \$1.1 billion over the next three	endar Mar.31 Jun.30 Sep.30	Dec.31 Year									Proj	ected	cap	ital	expenditures	
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2015 1903 2058 221.0 197.1 814.2 Bottom-line results should be solid in years upgrading and maintaining its plant		197.1 814.2				enlie	chon	ild ba	soli.	d in						

Bottom-line results should be solid in 2017, as well. Aqua has rate cases pending in Indiana, Ohio, and Virginia. With the carryover rate relief from 2016 and our assumption of reasonable regulatory treatment in 2017, we expect the company's share not to increase a healthy 7.4%.

Tuck-in acquisitions will continue to play a major role in Aqua's expansion.
The water utility industry in the United States is comprised of over 50,000 mostly small municipal authorities. Many of these are under pressure because they do not have the funds to upgrade their anti-quated infrastructure. Larger companies such as Aqua have been purchasing many of these water districts and integrating years upgrading and maintaining its plant and equipment. While internally generated funds won't be sufficient to cover all of the outlays, only a modest amount of debt will be required to meet the shortfall Thus, Aqua's balance sheet should remain very sound.

Shares of Aqua are an Average selection for the year ahead. Looking further out to late decade, the stock may have some appeal for conservative investors. Potential total returns are close to the Value Line median, but this is good on a risk-adjusted basis because the equity has a Safety ranking of 2, and well-defined carnings and dividends.

January 13, 2017 James A. Flood

(A) Diluted egs Excl nonrec gains. '00, 2e' 01, 2e; '02, 4e; '03, 3e; '12, 18e. Excl gain from disc operations '12, 7e; '13, 9e; '14, 11c. May not sum due to rounding. Next earnings

1926

.26 .24 .27

.29

152

165

178

2017 205

Cal-

endar

2013

2014

2015

2016

2017

Cal-

endar

2013

2014

2015

208.4 226.6

EARNINGS PER SHARE A

Mar.31 Jun.30 Sep.30 Dec.31

QUARTERLY DIVIDENDS PAID B 11

Mar.31 Jun.30 Sep.30 Dec.31

240

36

.38

38

.45

152

165

178

1913

220

.30

.31

32

.33

.37

152

165 178

202.4

.24 .27 17

.32

165

178

1913

210

830

875

Year

116

1.20

1 14

1.45

Full

Year

69 74

report due January 17 (B) Dwidends Instoncally paid in early March, June, Sopt & Doc " Div'd reinvestment plan available (5% discount)

(C) In millions, adjusted for stock splits.

Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability 90

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Pension Assets-12/15 \$56.6 mill. Oblig. \$75	lim 8.5		55 1% 174.1	51 8% 193.2	52.7% 196.5	49.1% 221.3	50.2% 225.6	46.5% 254.2	50.8% 364.6	52.9% 373 6	54 1% 386 8	55.8% 401.7	54.0% 435	53.0% 470	Common Equit Total Capital (S		5.
Pfd Stock \$0 8 mill Pfd Divd	NMF		268.1 4.9%	284.3 5.5%	302.3 5.9%	325.2 5.5%	344.2 5.4%	362.4 4.9%	447.9 4 8%	471.9 5 9%	506.9 6.4%	546.3 6.6%	565 6.5%	590 6.5%	Net Plant (Smil Return on Tota		١,
Common Stock 11,240,417 shs		ļ	6.9%	8.7%	9.0%	9.3%	8.6%	8 3%	7.3%	9.2%	10.1%	10 1%	10.5%	10.5%	Return on Shr.	Equity	1
MARKET CAP: \$625 million (Sma			7.0% NMF	1.6%	9.1%	9.4% 2.3%	8.7% 1.6%	8.3% 1.4%	7 3% 2.8%	9.2%	10.2%	10.1%	10.5% 5.0%	10.5% 5.0%	Return on Com Retained to Co	m Eq	- 1
CURRENT POSITION 2014	2015 7	9/30/16	105%	82%	79%	76% Water	81% Service	83% Inc. is a	62%	59%	53%	52%	51%	53%	All Divids to No		2012
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Dividends 2.0% 2. Book Value 6.5% 9	0% : 5% :	5.0% 3.0%						pprov The d							nik-maddos Acvidoval		
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2013 19.7 22.6 27.6	21.6	91.5	ford,	Con	nectic	ut. Á	s me	ntione	d in	our	bette	er-thai	ı-expe	eted	performa	nce n	ı t
2014 20.3 25.4 27.6 2015 20.0 26.6 28.4	20.7 21.0	94.0 96.0	stock	tran	sactio	n, va	lued	is a at \$2	0 mil	lion.	singl	e-digi	t reve	oue :	expect love and share-	net gr	rov
2016 21.6 26.1 29.5 2017 23.0 20.0 32.0	22.3 23.0	99.5 106						r app istom							Several po er custom		
Cal- EARNINGS PER SHARI Indar Mar.31 Jun. 30 Sep. 30		Full Year	40,00	00 pe	ople)	will b	e ado	ded to oper	the	fold.					ater, and ice expen		
2013 .24 .39 .86	17	1.66	its c	แบรษา	t nan	ıe, bu	t as	a who	olly-ov	vned	stay	in pla	ce for	some	time.	-	
2014 .27 .67 .76 2015 .28 .77 .79	.22 .20	1.92 2.04	to clo	se in	the fi	rst qu	arter	deal is of 20	17.		oppe	ortun	e tin	ae fo	ism, this r invest	ors to	0 8
2016 .28 89 .84 2017 .30 .79 .88	.19 .28	2.20 2.25						coup inve							oue vie // dip in pi		
Cai- endar Mar.31 Jun.30 Sep.30		Full Year	are	likely	in s	tore ·	over	the loned	ong h	aul.	mont	ths a	igo,	but	has rega trading a	ined	so
2013 .2425 .2425 .2475	.2475	.98	necti	cut ai	าทดนท	ced th	ne acq	uisitic	on of A	∆von	end o	of our	3- to	5-yea	r Target 1	Price B	ใสก
2014 2475 .2475 .2575 2015 2575 .2575 .2675	.2575 .2675	1.01 1.05	close	next	year,	for a	ibout	also \$30 j	nillio	n, in	pegg	ed to	trail	t the	ow untime year-ahe		
2016 .2675 .2825 2825 2017	.2825	1 12	cash	and	stock	. The	e com	pany' ee ca	s hea	ilthy			erages ! <i>Patr</i>		Janu	ary 13	3, 2
) Diluled earnings. Next earnings	report d	tie vestr	neni plan	availabi	e.								Co	กลุวสกรุ'ร	Financial Stre		
				o di nata	a for enli	1							1 50	KK S PT	ce Stability		
te February i) Dividends historically paid in inc. September, and December	mid-Marc	ch, (D)	n millions Includes	intangibl	es. In 2) 15. \$30	.4 mil-						Pri	ce Grow	th Persistence redictability		

AUS Cost of Capital / Required Return Sadsbury

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B+ 9L 35 75

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<u>((()</u>			MIE			Q-cwc	0 F	PRICE	10.8			u i M edia	an: 25.0/	P/E RAT	0 1.9		2.8	}% 数	腦	1	706
TIMELIN				High: Low:	22.5 13 6				21.3 6.4	15.1 8.1	73	9.2 6.7	16.9 7.5	14.5 8.4	13.8 9.6	14.7 9.8				Price 2020	
SAFETY TECHNIO		New 1/1 Lowered		LEGE	NDS 00 x Divid /Ided by Ir	ends p sh Herest Nati	,											<u> </u>			40
	5 (100 =		i iroi ir	2-for-1 sp Options:	elative Pric ilit B/05	e Strength	Thi				ر ا	/- <	-								32
			n <u>n'i</u> Total	Shadod	area indic	ales roces	5101				-			-							16
	Price 30 (+1 20 (4	Gain 175%) ⊧85%)	Return 30%	-1444						Ψ _u .		-	الأن _{اب}	14111114		711111					12
Insider	Decisi	ions	18%	White The			\leq	1	III - :	. . 11		11,111111,	;"" -:	[""]				ļ <u></u>			-10 8
In Bury		0 0 0			-				-1] " ' -		-						·	-6
lo Self		0 0 0								·						٠.		% TOT	. RETURI	l N 12/16	-4
	102016	Decisio 202016	302916	Percent	24 -		<u></u>		 ,					<u> </u>		,			STOCK	L ARITHL*	_
lo Buy lo Sell Hid's(000)	37 30 6967	43 29 6934	28 36 6830	shares traded	16 · 8 ·						المسارا		المامنيا		التأليد			1 yr. 3 yr. 5 yr.	-9.1 -16.9 44.4	20.7 20.2 95.2	
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		JE LINE PL		19-21
1.24	1.41 52	1.52 50	1.68	202	1.12 .37	2 71 87	3 41 1.20	4 52 .95	3.99 1.18	3 49	3.79 83	4 49 1.17	4 35 96	4.46 80	3.86 88	3.90 .65	4.00 1.00	Revenue "Cash Fl	s per sh ow" per s	_{th}	9.4 1.6
.34	35	.32	.42	.49	23	.59	79	.50	74	43	12	64	.58	.42	51	.28	.60	Earnings	per sh ^	١	1.2
.30	.24	.21 .39	.19	.23	.12 .77	.24 1.83	.20	.46	.18	.30	.30 96	<u>.30</u> 31	.30	.30	.30	.30 .45	.30 1,10	Div'd De Cap'l Sp	ci'd per si ending pe		<u>.4</u> .4
2.30 j 7.73	2 45 7.84	2.64 7.99	3.89 11.37	4 20 11.51	2.54	7.49 14.13	8.21	8.36 14.53	8.53 14.54	8 69 14 55	8.83 14.57	9.20 14 59	9.44	9 58 14.72	9.81 14.78	9.75 14.90	10.00	Book Val	ue per sh	D	11.8 16.0
10.4	13.9	21.6	19.3	23.1	NMF	43.0	35.4	37 8	19.0	26 9	22.4	12.4	200	28.3	22.7	43.2	13.00	Avg Ann	I P/E Rati		21.
.68 4.9%	.71 4.2%	1.18 3.1%	1.10	1 22	NMF .7%	2.32 .9%	1.88	2.27 1.7%	1.27 2.0%	1.71 2.6%	1 41 3.2%	.79 3.8%	1.12 2.6%	1.49 2.5%	1.15 2.6%	2.27 2.5%		Relative Ava Ann	P/E Ratio 'l Div'd Yi	eld	1.3 1.6%
CAPITAL	STRUC	CTURE a	s of 9/30/	/16		36.2	49.2	65.7	58.0	50.7	55 2	G5 5	63.8	65.6	57.1	58.0	60.0	Revenue	s (\$mill)		15
fotal Del .T Debt I	bt \$0 .5 r None		due in 5 Y Tinteres		n.	7.5	11.4	72	10.8	- <u>6.3</u>	61	93	8.6	6.3	7.5	4.0 NMF	9.0 NMF	Net Profi			19. NM
.eases,	Uncapit	alized: A	nnual ren	ntals \$ 7 n	nifl					<u> </u>	1.0%					NMF	NMF	AFUDC 9	6 to Net P		NM
lo Defin	ed Bene	efit Pens	ion Plan			18.2% 81.8%	15.9% 84.1%	14.8% 85.2%	13.8% 86.2%	11.8% 88.2%	5 1% 94.9%	3.7% 96.3%	99.8%	3.7% 99.8%	100.0%	NII 100%	Nii 100%	Long-Ter Common	m Debt R Equity R		N 1009
fd Stoc	k NMF (38,804 s	hares out	.) Div'd N	IMF	129.3 63.6	140.7 65.0	142.7 65.1	143.9 61.2	143.3 56.2	135.6 64.3	139.4 61.6	138.9 58.6	141 2 56.4	145 0 53.7	145 53.0	150 65.0	Total Cap Net Plant	oital (\$mili)	19 24
ommon	1 Stock	14,818,6	99 shs.			6.5%	8.8%	5.7%	8.1%	4.9%	5.0%	7.0%	62%	4.4%	5.2%	3.0%	6.0%	Return o	n Total Ca		10.0%
is of 11/4	4/16					7.1% 7.1%	9.6% 9.6%	5.9% 5.9%	8.7% 8.7%	5.0% 5.0%	4 7% 4 7%	6.9% 6.9%	6 2% 6.2%	4.4% 4.4%	5.2% 5.1%	3.0% 3.0%		Return o			10.09
MARKET			ion (Sma 2014		/30/16	4.2% 41%	6.5% 33%	2.8% 52%	4.6% 46%	1.5% 69%	1.0% 79%	3.6% 48%	3.0% 51%	1.2% 73%	2.1% 60%	NMF 107%	3.5% 50%	Retained All Div'd:			6.57 339
(\$MILL) Cash As) sets		40.7	50.4	37.1	BUSIN	SS: Co	nsolidate	J Water	Co. Lid.	develop	s and op	erates	ted 14 p	olants wit	h a capa	acity of 2	26.5 millio	n gallons	per da	ay. Inc
Accts Re Other			11.8 6.9	9.5 5.5	15.1 6.9					d water supplies					Islands. Frederici						
ccts Pa	yable		59.4 6.0	65.4 4.8	59 1					tion proc the Cayr					1/16 proxy or, West						
ebt Due Other		_	9.0 1.2 16.2	7.0 1.4 13.2	1.2 7.0	Bahama	s, the B	ritish Virg	in Island	s, and Ba	ali. At 12	/31/15, it	opera-	1102, C	ayman Is	lands. Te	l.: (345)	945-4277	Int.: ww	W.CWCO.	.com.
Ourrent L			Pas				solida e do		Wate the '	r wa value		rced its l	to Bali		with						
f change i Revenue	es :	10 Yrs. 10.09	5 Yrs 1.0	14	9-21 .5% .5%	proj	ect. T	'nc Νι	ısa Dı	ua des he Inc	salina	tion p		Baug	hers I I in 2	Зау рі	roject	was v	von by	/ Con	ısoli-
Cash Fl arnings	;	4.09 3.09	% -2.0	1% 10 1% 15	.5% .5% .0%	to m	eet ti	ne gro	wing	dema	ınd fo	r pot	able	conti	nues (o figh	it the	court	rulin	g. In	any
ividend ook Val		5.09 10.59		% 3	.0% 5%					d tour istruc					the B					ve to	pay
Cal- ndar N			/ENUES (\$ Sep. 30		Full Year	spec	mean	ing t	hat U	here v	were	ոսև ոռ	any	On a	posi	tive_n	ote, j	plans	for a		
013	16.6	16.6	15.4	152	63.8	gan (perat	ions.	Conso	olidate	ed did	not v	iew	ing v	onstr well.	Almos	st all	the r	egulat	ory 1	mat-
	16.3 14.7	16.9 14.4	17.0 14.6	15.4 13.4	65.6 57.1					the i popu					concer projec						
	14.0 14.5	15.4 15.5	14 4 15.0	14.2 15.0	58.0 60.0	even	thou	gĥ su	pplies	าได้	resh y	water	are	state	of B	aja h	ave l	een 1	esolve	ed. W	Vhen
Cal-	EAR	NINGS P	R SHARE	A	Full					cility une o				the c	ing, tl Irough	ıt-stri	cken	cities	of S	an D	diego
odar (N	.26	.19	.06	.07	Year 58					ough t n las					Tijuan ructio			36 m	onths	of w	vhen
014 015	.04	.19 15	.13 .12	.06	42 51	quart	er, Co	onsoli	lated	was f	orced	to tal	ce a	Thes	e tim	ely s	hares				
016	.14	15	d.13	.12	.28					refle plant					ore r grou						
017 Cal-	.15 Quarte	.15 Erly Divi	. 15 Dends Pai	.15 ID ⁸ n	.60 Full	ters	worse	e, the	com	pany mesti	is a	lso b	eing	lated	wate	r uti	lity 2	and, a	s suc	h, o	ffers
ndar N	Nar.31 .	Jun.30	Sep.30	Dec.31	Year	der t	obta	in the	requi	ired li	cense	s.		sumi	ng the	e situ	ation	in B	ali ca	n be	rec
013	.075 075	.075 .075	.075 .075	.075 .075	30 .30					Carik lated				tified co is	and t	ne de leted.	salina CW	ation _t CO co	project uld o	in M Ner v	1exi- well-
	.075	.075 .075	.075 .075	.075 .075	30	in th	e Gra	nd Ca	iymai	ı, the	Baha	mas,	and	above	e-avera	age l	long-t	erm	total		
014	075													1 1115	18 HOL.						
014 015 016	.075 .075	.010						h Vir here		profit				Jame	s A. F	lood	e um		nuar	y 13,	201
014 015 016 017 Fully di	.075 luted ea	rnings. N	lext earnii vidends t	ngs repor	t (C) In	busin millions		here for stock	are split.	profit				Jame	s A. F	lood Con	npany's		unuar:		201 B+ 30

										1									e a pa	×-1	
W	MIL		(WA	MER		MSEX	P	ECENT RICE	41.3	2 PIE RATI	o 26,	7 (Trailir Media	ng: 28.1) in: 20.0)	RELATIV PÆ RATI	613	OND AFT	2.1	%		1	767
TIMEL	INESS 2	Lowered	1/13/17	High: Low:	23.5 17 1	20.5 16.5	20.2 16.9	19.8 12.0	17.9 11.6	19.3 14.7	19.4 16.5	19.6 17.5	22,5 18.6	23.7 19.1	28.0 21.2	44.5 25.0			Target	Price	Range
SAFET	Υ 2	New 10/	21/11	LEGE	NDS 20 v Dlade												1		2019	2020	2021
TECHN	NCAL 3	3 Raised 1	2/9/16	di Re	vided by Ir	ends p sh Ilarest Rate e Strength	· [_									J	<u> </u>			l	164 48
	75 (100:		NIO	Options	Yes	ales recess										11/11/1	ā				-40
20	19-21 PR	A	nn'i Totai	-									-			 	 -				32 24
High	45 (Gain +10%)	Return 5%	+11.[4]	1111	րույլի	المالالسا	111111111111111111111111111111111111111			dust h	are comp	man Hatte	المثنيلة	ittiini.		F				20
Low	35 (er Decis	(-15%)_	-1%			٠٠.,			1	o squar						••		<u> </u>		<u> </u>	16
inside	M A M	JJA								··								-			1
to Buy Options	100	700	0 0 0															 			8 6
to Self	1 2 0	0 0 0		{														707 %	RETUR		Γ
1	102016	202016	302016	Percen	1 12 -	 		<u> </u>		 -							<u> </u>		THIS V STOCK 65.6	L ARITH* INDEX 20.7	_
lo Buy to Seli	62 45	59 52	50 56	shares traded	8 -	le de le				had lim		100.7736		udidi		la Hilli jä	<u> </u>		125 2	20.2	
2000		7208	7495 2003	2004	2005	2006	անկիրը 2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017		172.8 Je line pi	95.2 IB LLC	19-21
5.39	5.87	5.98	6 12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.30	8.50	Hevenue			9.40
.99	1.18	1.20	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.30	2.45		ow" per s		2.90
.51	.66	.73	,61 .65	.73	.71 .67	.82 .68	.87 .69	.89 .70	.72 .71	.96 .72	.84 .73	.90 .74	1 03	1.13	1.22	1.50 .81	1.60 .84		per sh ^ cl'd per s		1.85 .95
1.32	1.25	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	1.75	1.80		ending pe		2.05
6.98	7.11	7 39	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12 24	12.74	13.50	13.95				15.60
10 11 28.7	10 17	10 36 23.5	10.48	11.36 26.4	11.58 27.4	13 17 22.7	13.25 21.6	13.40	13.52 21.0	15.57 17.8	15 70 21.7	15.82 20.8	15.96 19.7	16.12	16.23 19.1	16.30 23.6	16.50	Commor	'I P/E Rat		17.00 21.0
1 87	1.26	1.28	171	1.39	1.46	1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.97	1.25	}	_	P/E Ratio	- 1	1.30
4.2%	3.8%	3 7%	3.5%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4 0%	4.0%	3.7%	3.7%	3.3%	23%	ļ. <u>.</u>	+	'i Div'd Yi	ield	2.4%
	AL STRU Pebt \$150				l mill	81.1	861	91.0	91.2	102,7	102 1	110.4	114.8	117 1	126.0	135	140			- 1	160
LT Det	t \$130.8	mill (.T Interes			10 0 33.4%	11 8 32.6%	12.2 33.2%	10.0 34.1%	14.3 32.1%	13.4 32.7%	33.9%	16.6 34.1%	18.4 35.0%	20.0 34.5%	24.5 35.0%	26.5 35.0%	Net Prof			31.5 35.0%
(Totali	nterest co		12,4x) 38% of C	ao'l)						6.8%	6.1%	3.4%	19%	1.7%	1.9%	2.0%	2.0%		6 to Net F	rofit	2.5%
D!-	- 6				1	49.5% 47.5%	49.0% 49.6%	45.6% 51.8%	46.6% 52.1%	43.1% 55.8%	42.3% 56.6%	41.5% 57.4%	40.4% 58.7%	40.5% 58.8%	39 4% 59 8%	37.5% 62.5%	37.5% 62.5%	1 -	m Debt A		38.5%
1	n Assets	i	Oblig. \$72			264.0	268.8	259.4	267.9	310.5	312.5	316.5	321,4	335.8	345.4	355	370	Commor Total Ca	oital (\$mil		61.5% 430
Pfd St	ock \$2 4 r	nd Pid	Div'd: \$.1	mil		317.1	333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	4819	510	525	Net Plan	t (\$mill)	.	575
	on Stock	16,209,	172 shs.		1	5.1% 7.5%	5.6% 8.6%	5.8% 8.6%	5.0% 7.0%	57% 8.1%	5.2% 7.5%	5.4% 7.8%	5.9% 8.7%	6 3% 9.2%	9.6%	7.5%	8.0% 11.5%		n Total Co n Shr. Eq		8.0% 12.0%
as of 1	0/31/16				1	7.8%	8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	11.0%		Return o			12.0%
MARK	ET CAP:	5675 mil	llon (Sma	all Can)		1.3%	1.8%	2.0%	.1%	2.1%	1.0%	1.4%	2.4%	3.1%	3.5%	5.0%	5.5%		to Com I		6.0%
CURR	NT POS		2014		9/30/16	84%	79%	78%	98%	75%	87%	83%	73%	67%	63%	54%	52%	All Div'd			51%
Cash /	ILL.)		27	3.5	1,5			idiesex V I regulate										ounted for lad 293 e			
Other	ıt Assets	_	20.2 22.9	20.9	<u>29.0</u> 30.5	aware,	and Per	ınsylvani	a II also	operate	s water	and was	lewater	NJ. Pre	esident, (CEO, an	d Chairr	nan Den	nis W [Ool Oil	icers &
Accts	Payable		6.4	6.5	10.3			contract o										ion stock; d. 1500 l			
Debt L Other			24.9 12.6	8.7 13 1	19 7 14.4	retail c	ustomers	primari	ly in Mid	ddesex	County,	New Jer	sey. In	08830.	Tel.: 732	634-150	0. Intern	et: www.ii	iddlesex	water.co	mı .
Currer			439	28.3	44.4	Mide	diese:	x Wat	er Co	ompa	ny pe	rfor	ned	able	to ke	ep the	e good	d time	s roll	ing, o	espe-
of chan	AL RATES gc (per sh)	S Past 10 Yrs	Pas 5 Yr	st Est'd	1 '13-'15 '19-'21			y in y-base						frast	ructui	e rep	aison lacem	and S ent pi	outa 2 viects	ambo are (y in- com-
Reven "Cash	ues	1.5 4.0	% 20	0% 4	4.0% 8.0%	er its	s seco	nd-cor	isecut	ive qu	ıarter	of be	tter-	plete	d (\$1	2 mi	llion	of wa	iter r	nain	and
Earnin Divide:	gs	5.0 1.5	% 5.3	5% i	8.5% 3.5%			cted fi stors'										s are oution			
Book \	/alue	4.5		0%	4.0%			ole. R							area		110011	Jucion	справ	0111616	.5 111
Cal-			VENUES (Full	lion	impro	ved 9	%, on	an ai	nual	basis,	un-	The	stock	c is t		ig nea			
2013	War.31 27.0	29.	Sep. 30 31.3	27.4	Year 114.8			by t proval										t the nt qua			
2014	27.1	29 2	327	26 1	117.1	of Pt	ıblic l	Jtiliti	es, as	well	as ge	nerall	y fa-	ance.	Mid	dlesex	c sha	res a	re up	app	roxi-
2015 2016	28 8 30 6	31.7 32.7	34.7 37.8	30.8 <i>33.9</i>	126.0 135			cathe sump										e sinc ingeri			
2017	32.0	34.0	39.0	35.0	140			sump int of										ingeri h valu			
Cal-			ER SHARE		Full	flow	throu	gh to	the l	ootton	n line	as s	hare	lier i	n 2010	6.	_	_			į
endar 2013	.20	Jun. 30 .28	Sep. 30 .36	Dec. 31	1.03			d alm ne re										ed as ket (1			
2013	.20	.29	.42	.22	1 13	main	tenan	ce en	d gav	e the	figur	e a b	oost,					al is f			
2015	.22 .29	.31 .36	41 54	.28 .31	1.22	along	y wit	h hig						recer	nt lev	els. T	Iowev	er, th	is eq	uity	may
2016 2017	.33	.37	.55	.35	1.50 1.60	pens Acco		gly, w	e are	rais	ing o	ur fir	ıan-					est of Chough			
			HUENUG D	4 th D				9-37									ma				

cial projections across the board. Our endar Mar.31 Jun.30 Sep.30 Dec.31 model now calls for revenues of \$135 million this year and \$140 million in the next. 2013 .1875 .1875 1875 19 .75 Moreover, we are lifting our 2016 and 2017 bottom-line estimates to \$1.50 a 19 1925 .19 76 2014 19 2015 .1925 1925 1925 19875 .78 19875 19875 share and \$1.60 a share, respectively. Indeed, we think the company ought to be

lag the year imeliness, 4). urly limited at s equity may still pique the interest of pure income-seeking accounts. Though the current yield has lost some of its luster due to the recent price surge, we think the annual return should be increasingly attractive over the long-term, as consistent annual dividend hikes are likely in the cards out to 2019-2021

Nicholas P. Patrikis January 13, 2017

(A) Diluted earnings May not sum due to rounding Next earnings report due early February.

(B) Diluted earnings May not sum due to plan available.

(C) In millions, adjusted for split. (B) Dividends historically paid in mid-Feb.,

QUARTERLY DIVIDENDS PAID 811

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Company's Financial Strength Stock's Price Stability Price Growth Persistence Earnings Predictability B++ 85 85 ENTRANCOS EN PERCENTAGO

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	2016 20!7	2025	.2025	.2025	.2025	81															v 13	2017
1) Diluted earnings Excludes nonrecuring February Quarterly earnings may not add due vestment plan available	(A) Dilot	or com	ings Ev	cludes no	Diet Frida	n Fehr																B1

(A) Divided commings Excludes nonrecurring (1998) (2014) (

Company's Financial Strength
Stock's Price Stability 80
Price Growth Porsistence 25
Earnings Predictability 50
Total 133 183 0: 184 180 VALUA 113

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			j. \$39 .5 n	nıll.		51.7%	53.5%	45 5%	54.3%	51 7%	52 9%	54.0%	54.9%	55.2%	55.5%	56.5%	54.0%		Equity F		53.09
rld Sto	ck None					126.5 174.4	125.7 191.6	153 4 211.4	160.1 222.0	176.4 228.4	180.2 233.0	184 8 240.3	188.4 244.2	189.4 253.2	196 4 261.4	195 270	205 275	Net Plan	pital (\$mil t (\$milh	11)	23 29
Commo	n Stock	12,869,6	96 shs.			6.2%	6.7%	5.7%	6 2%	6.5%	6 4%	G 4%	6.5%	7.4%	7.7%	7.5%	7.5%	Return o	n Total C		7.59
		\$500 mill		II Con\		9.3% 9.3%	9.5% 9.5%	9.2% 9.2%	8.6% 8.6%	9.8% 9.8%	9 5% 9 5%	9.3% 9.3%	9.3%	11 0% 11 0%	11.5% 11.5%	11.0% 11.0%	11.5%		n Shr. Eq n Com Ec	• •	12.59
	NT POS		2014		9/30/16	2.2%	1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2 4%	3.9%	4.5%	4.0%	4.5%		to Com		4.01
(\$MII Cash A	LL.)		15	2.9	6.2	77%	82%	85%	78%	72%	73%	74%	74%	64%	61%	66%	63%	All Div'd	s to Net P	Prof	689
Accour	ls Recei ry (Avg		4.0 .8	3.5 8	4.4 8					pany is to							dustrial (2 corporate				
Other	Assets		1.9 11.2	4 6 11.8	<u>24</u> 14.8	uously	since 18	16 Asol	Decemb	er 31, 20	015, the o	company	's aver-	ployees	al 12/	31/15.	President	VCEO.	leffrey F	R. Hine	s. O
Accls F	ayable		1.6	1.8	1.6					illion gall of 194,00							of the of Street, \				
Debt D Other			4.9	4.4	4.6					account							nternet: w				
Curren			5.9	6.2	6.2					conti				a lon	g-stan	ding	track	record	lofar	nnual	div
	L RATES e (per sh)	S Past 10 Yrs.	Pas 5 Yrs	s. to	'13-'15 19-'21					as ad ie sin				notic	l hike eably	s, th lower	ough than	the c	urren ical a	t yie. verse	ld is res
levenu Cash l	Flow"	4.5° 7.0°	% 6.5	5% (7.5% 6.0%	revie	w, wi	th the	majo	rity o	f its p	ains (com-	Long	er t	erm,	we	rema	in o	ptim	istic
arning Ividen	ıs ds	5.5° 4.0°	% 6.0 % 2.5	0% (5% (5.0% 5.5%					of No anno							exec sition				
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Cal- ndar		TERLY RE' Jun. 30			Full Year			ng do	ubled	in p	rice s	ince	mid-	ing l	oudge	et. Th	e nev	year	ough	it to	star
2013	10.1	10.7	10.9	10.7	42 4	2015 Fro r		valua	tion	pers	ectiv	re, ils	s fi-				rms o ase o				
2014	10.6	11.8	12.0	11.5	45.9	nanc	cials	may	not i	be ab	le to	sup	port	Mobi	le Ho	me I	Park	and t	he a	nticip	atec
2015 2016	11.2 11.3	11.9 11.8	12.4 12.6	11.6 12.3	47.1 48. 0					level. L third							cquisi vater.				
017	12.0	12.5	13.0	13.5	51.0	ing,	which	wasi	oughl	y on p	par w	ith ou	r ex-	acqui	sition	s to l	be a :	staple	in th	ne co	mpa
Cal- ndar		RNINGS Pi Jun. 30			Full Year	pecta	tions.	. Rev	enues	edge	d hig	her,	year	ny's	growt	h pro	ofile, ch ba	helpe	l alor	ng by	its
2013	17	.18	19	.21	75					mill const							en ba nts to				
2014 2015	.16	.22 .22	23 28	.28 .27	.89 .97	net i	ncome	cont	racted	by a	penn	y, Lo \$	0.27	its p	ipes a	and s	service	e line	s, wa	ter t	reat
2016	.20 19	.23	.27	.27	.96					ır 12-ı share							and des ou				
017	.22	.25	.30	.28	1.05	think	IOY 3	₹W si	ares	are n	ow o	zerval	ued,	cours	e over	the p	pull to	late	decad	e.	
Cal- ndar		TERLY DIV Jun.30			Full Year					E rați				Inve	stmei	nt ap	peal	is lir	nited	here	e, at
2013	138	138	138	138	.552					ns, t. · in 20							equit				
2014 2015	.1431 1495	1431 1495	1431 1495	1431 1555	.572 .604	as g	enera	l rate	activ	vity s				(Time	dines	s: 4),	and	is a	lready	y tra	ding
2016	1555	1555	1555	1602	.627			the pi		l its e	4022224	aulu i	13:5%/-		e the l rice R		end of	our 3	- to 5	-year	Tar
117						ıne	comp	rany 1	raise(. DS 6	g K = 2 2 8 * 8.	CHIV	Jily-	getr	nce K	wiige.					

 (A) Diluted earnings. Next earnings report due late February
 (B) Dividends historically paid in late-December, February, June, and September. (C) In millions, adjusted for splits

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move into the picture.

The company raised its quarterly payout by 3%, to \$0.1602. This keeps intact

Above the high-end of our 3- to 5-year Target Price Range.

Nicholas P. Patrikis

January 13, 2017 January 13, 2017

Company's Financial Strength B+ Stock's Price Stability 80 Price Growth Persistence 55 Earnings Predictability 95

THE VALUE LINE

Investment Survey®

---Small and Mid-Cap

ISSUE 9

Pages 4600-4740
File in the binder in order of issue number, removing previous issue bearing the same number.

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Part 2

Ratings & Reports

January 13, 2017

New Rank 1 Stocks:

Archrock Partners: Aviat Networks Inc.; Black Diamond Inc.: Cardiovascular Sys.; Century Alum Co; Dorchester; Eclipse Resources; Empire Resorts; First South; GP Strategies; GrubHub, Inc.; Hooker Furniture; Iberiabank Corp; Matrix Scrvice Co.; Novabay Pharma.; Park City Group; SPX FLOW, Inc.; Square Inc.; XPO Logistics Inc.

Especially Noteworthy: In this Issue 9, we are initiating coverage of 11 "New Additions companies (CB Financial Services Inc., FS Bancorp Inc., First Community Corp., Investar Holding Corp., Peoples Bancorp of North Carolina, Two River Bancorp., Kura Oncology Inc., OncoCyte Corp., Syndax Pharmaceuticals Inc.,

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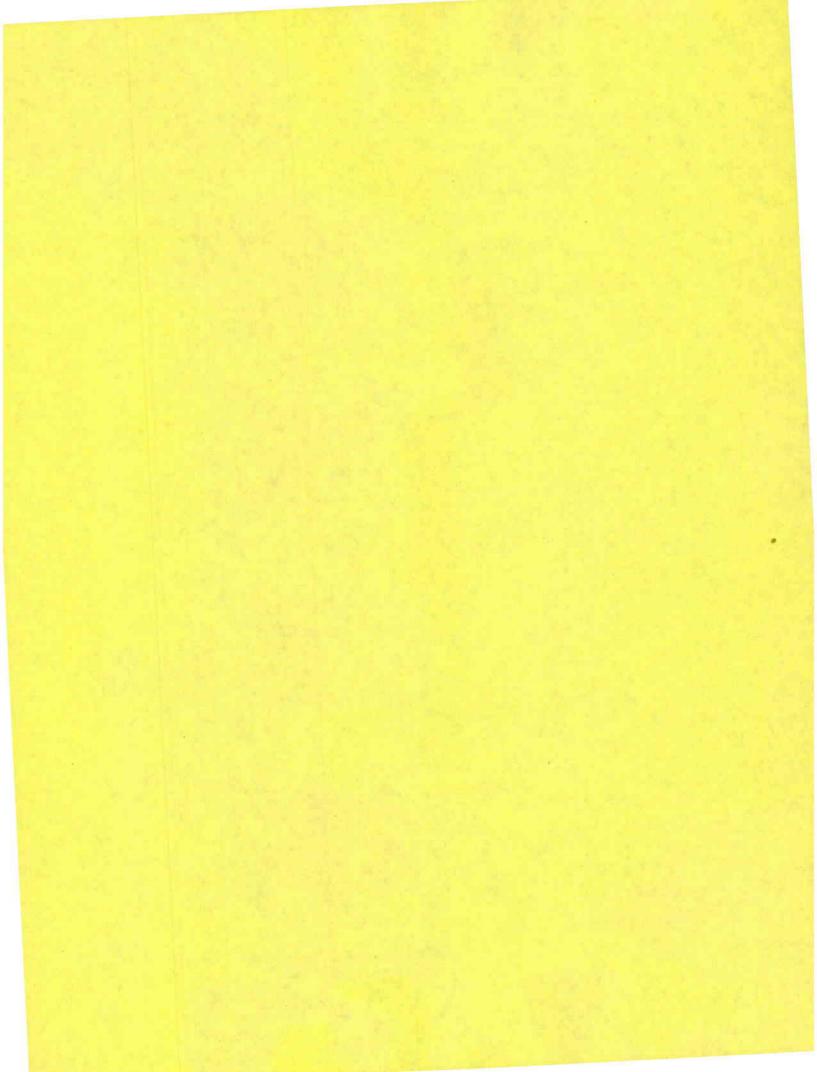
in Two Parts:

Part 1 is the Summary & Index. This is Part 2, Ratings & Reports. Volume XXII, Number 48.

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RAN		19.3 13.0	18.73	19.59 16.43	19.99 15.16	24.43 18.20	24.27 21.52	23.82 19.85	29.16 20.00	35.00 25.17	Hi
PERFORMANCE	3 Average	LE	GENDS Mos Moy Avg		 -	 			· · · · · · · · · · · · · · · · · · ·		
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Earnings Predicta	bility 75										
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O VALUE LINE PU	JBLISHING LLC	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017/2018
SALES PER SH		7.59	8.11	8.48	7.56	8.10	7.82	8.13	8.50		
"CASH FLOW" PE		1.65	1.84	1.92	1.64	2.04	1.87	2.04	2.22		
EARNINGS PER S DIV'DS DECL'D PI		.86 .71	.97 .72	1.00 .75	.83 .76	1.13	.94	1.07	1.26 .87	NA	NA/NA
CAP'L SPENDING		6.09	2.32	2.57	1.83	2.36	2.40	2.66	2.28		
BOOK VALUE PER		11.86	12.15	12.44	13.12	13.57	13.80	14.09_	14.61		
COMMON SHS OL AVG ANN'L P/E RA		7.40	7.51 16,4	7.65 18.2	8.61 22.5	8.71 18 3	8.83 23.9	8.91 20.5	9.06 18.0	NA	NA/NA
RELATIVE P/E RA		1.21	1.09	1.16	1.41	1.17	1.34	1.08	.93	NA	NAVNA
AVG ANN'L DIV'D		4.1%	4.5%	4.1%	4.1%	3.8%	3.7%	3.9%	3.8%		
SALES (\$MILL)	CINI	56.2	60.9	64.9 46.5%	65.1 45.5%	70.6	69.1	72.5	77.0		Bold figures
DEPRECIATION (\$		45.1% 5.8	6.6	7.0	7.4	48.7% 7.9	47.0% 8.3	48.8% 8 7	43.0% 8.8		are consensu: earnings
NET PROFIT (\$MIL		6.4	7.3	7.6	6.7	9.8	8.3	9.5	11.3		estimates
INCOME TAX RAT		40.8%		40.0%	40.8%	40.2%	40.2%	40.1%			and, using the
WORKING CAP'L		11.4% d20.9	d23.3	11.7% d27.9	10.4% d11.4	14.0% d11.4	12.0% d12.3	13.1% d13.5	14.7% d8.8		recent prices, P/E ratios.
LONG-TERM DEB	• •	107.6	106.0	105.1	106.5	106.3	105.5	105.0	103.6		I-7E Tados.
SHR. EQUITY (\$MI		87.8	91.2	95.1	113.0	118.2	121.8	125.6	132.3	<u> </u>	
RETURN ON TOTA RETURN ON SHR.		4.7% 7.3%	1	5.6 % 8.0%	4.6% 6.0%	5.9% 8.3%	5.1% 6.8%	5.5 % 7.6%	6.3% 8.5%		
RETAINED TO CO		1 4%		2.0%	.5%	2.5%	.9%	1.6%	2.6%		
ALL DIV'DS TO NE	T PROF	81%	74%	75%	92%	70%	87%	79%	69%		
Note: No analyst o		ile.								·	
	INUAL RATES		ASSETS (\$n	nili.) 20	014 2015	9/30/16		UGNI	STRY: Wa	iter Utility	
of change (per sha Sales	are) 5 Yrs.	1 Yr. 4,5%	Cash Assets Receivables		.2 .2 8.4 6.4	.2 7.8	RUCINIRO	S. Artovio	Doroniya	e Coro, opo	rates as a holo
	2.5%	9.0%	Inventory		1.9 1.7	2.1	ing compa	nv of wholl	v owned s	absidiaries	offering wate
"Cash Flow"					<u>6.1 6.1</u>	5.8				services.	
	3.0% 3.0%	18.0% 3.0%		ha 1:	00 144	15.0	With the William				titestan maic
"Cash Flow" Earnings	3.0%		Current Asse	ts 1	6.6 14.4	15.9	Co., the	orincipal su	ıbsidiary,	is the olde	st and large:
"Cash Flow" Earnings Dividends Book Value Fiscal QUART	3.0% 3.0% 3.0% FERLY SALES (\$	3.0% 3.5% (mill.) Fu	Current Asse	nt			Co., the processor-over	orincipal su vned water	utility on	the Delma	st and large: rva Peninsula
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q	3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q	3.0% 3.5% mill.) Fu 4Q Ye	Current Asse	nt at cost 49 eclation 9	6.2 514.8 8.4 105.2		Co., the property investor-over supplying	orincipal su vned water roughly 7.0	utility on 6 billion g	the Delma gaflons of v	st and larges rva Peninsula vater per yea
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 12/31/14 16.9	3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6	3.0% 3.5% mill.) Fu 4Q Yes 18 1 72	Current Asset	nt at cost 49 eciation 9	6.2 514.8 8.4 105.2 7.8 409.6	423.8	Co., the printed investor-over supplying through 1,3	orincipal su vned water roughly 7.0 218 miles of	utility on 6 billion g water mai	the Delma gallons of y in to about 3	st and large: rva Peninsula vater per yea 04,000 people
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"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 2/31/14 16.9 2/31/15 18.0 2/31/17 Fiscal EARI	3.0% 3.0% 3.0% IERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA	3.0% 3.5% mill.) Fu 4Q Yes 18.1 72 18.7 77	Current Asse Current Asse Property, Pla & Equip, 2 Accum Depre Net Property Other Total Assets LIABILITIES Accis Payable	nt at cost 491 eciation 90 391 423	6.2 514.8 8.4 105.2 7.8 409.6 7.8 7.6	423.8 7.2	Co., the pinvestor-ov supplying through L. Artesian W that owns v and provid as a regula	orincipal su wned water roughly 7.0 218 miles of /astewater N wastewater of es wastewa ated public	utility on the state of the sta	the Delma gatlons of y in to about 3 nt, Inc. is a r and treatmen is to custome r service co	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur rs in Delawar impany. It cur
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal Year 1Q	3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q	3.0% 3.5% mill.) Fu 4Q Yei 18 1 72 18.7 77	Current Asset Property, Pla & Equip, a Accum Depre Accum Depre Other Total Assets LIABILITIES Accts Payabl Debt Due	nt t cost 499 eciation 9. 39 42: (\$mill.) e	6.2 514.8 8.4 105.2 7.8 409.6 7.8 7.6 2.2 431.6 3.8 5.5 9.9 11.8	423.8 7.2 446 9 5.3 5 3	Co., the pinvestor-ov supplying through L. Artesian W that owns wand provid as a regularently open	orincipal su wned water roughly 7.0 218 miles of /astewater N wastewater of es wastewa ated public rates wastev	utility on 6 billion 6 billion 6 water mai Managemer collection a ter services wastewater treatment.	the Delma gaflons of y in to about 3 nt, Inc. is a r and treatmen is to custome ir service conent facilitie	st and larges rva Peninsuls water per yes 01,000 people egulated entit it infrastructur irs in Delawar impany. It cur es for the tow
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 12/31/14 16.9 12/31/16 18.4 12/31/17 Fiscal Year 1Q 12/31/17 20	3.0% 3.0% 3.0% IERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 .29	3.0% 3.5% Fmil.) Fu 4Q Yei 18.1 72 18.7 77 RE Fu 4Q Yei	Current Asset Properly, Pla & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accts Payabl Debt Due Other	nt tost 499 Acidion 90	6.2 514.8 8.4 105.2 7.8 409.6 7.8 7.6 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9	423.8 7.2 446.9 5.3 5.3 10.3	Co., the pinvestor-over supplying through L., Artesian Withat owns wand provid as a regularently open of Middlet	orincipal su whed water roughly 7.0 218 miles of /astewater N wastewater of es wastewa ited public rates wastev own, in sou	utility on billion go water mai Managemer collection a ter services wastewater treatruthern New	the Delma gallons of v in to about 3 at, Inc. is a r and treatmen is to custome r service co- nent facilitie (Castle Cou	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ers in Delawar empany. It cur es for the tow enty, Delaware
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 12/31/14 16.9 2/31/15 18.0 2/31/17 Fiscal 1Q 12/31/17 Fiscal Year 1Q 2/31/13 .20 2/31/14 .24	3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q	3.0% 3.5% mill.) Fu 4Q Yei 18 1 72 18.7 77	Current Asset Properly, Pla & Equip, a & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accis Payable Debt Due Other Current Liab	nt tost 499 Acidion 90	6.2 514.8 8.4 105.2 7.8 409.6 7.8 7.6 2.2 431.6 3.8 5.5 9.9 11.8	423.8 7.2 446 9 5.3 5 3	Co., the pinvestor-oxsupplying through L. Artesian W that owns v and provid as a regularently oper of Middlet under a 20	orincipal su wned water roughly 7.0 218 miles of /astewater of es wastewa atted public attes wastev own, in sou 0-year cont	utility on 6 billion g water mai Aanagemer collection a ter services wastewater treatment hern New ract that c	the Delma gallons of v in to about 3 at, Inc. is a r and treatmen is to custome r service co- nent facilitie Castle Cou- expires in Ju	st and larges rva Peninsula water per yea 01,000 people egulated entit t infrastructur rrs in Delawar impany. It cur es for the tow inty, Delawaruly 2022. The
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 1Q 12/31/14 16.9 12/31/15 18.0 12/31/16 18.4 12/31/17 Fiscal Vear 1Q 12/31/13 .20 12/31/14 .24 12/31/15 .28 12/31/16 .31	3.0% 3.0% 3.0% 3.0% FERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 .29 .22 37	3.0% 3.5% imil.) Fu 4Q Yei 18.1 72 18.7 77 RE Fu 4Q Yei .17 .9 .24 1.0	Current Asset Property, Pla & Equip, & Accum Depre Net Property Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab	nt toost 499 299 299 42: (\$milt.) e 11	6.2 514.8 8.4 105.2 7.8 409.6 7.6 7.6 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 232	423.8 7.2 446.9 5.3 5.3 10.3	Co., the pinvestor-oxsupplying through L., Artesian W that owns and provide as a regularently open of Middlet under a 2 facilities i capacities	orincipal surved water roughly 7.0218 miles of astewater Newstewater described wastewarded public rates wastewown, in souther two of up to about the asteroid survey wasteward wastew own, in souther two of up to about the asteroid wasteward wastew	utility on 6 billion a water mai danagemer collection a ter services wastewater treatmenthern New ract that e wastewateout 2.5 mg	the Delma gallons of v in to about 3 at, Inc. is a r ind treatmen is to custome r service co ment facilitic Castle Cou expires in Ji cr treatment d and 250.0	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ers in Delawar impany. It cur se for the tow inty, Delawar uly 2022. The stations wit 900 gallons pe
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 12/31/14 16.9 12/31/15 18.0 12/31/17 18.4 12/31/17 Fiscal 1Q 12/31/17 20 12/31/13 20 12/31/14 24 12/31/15 28 12/31/16 31 12/31/17	3.0% 3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 29 22 37 .36 .41 .33 .48	3.0% 3.5% Smill.) Fu 4Q Yes 18.1 72 77 RE Fu 4Q Yes 17 .9 .24 1.0 .21 1.2	Current Asset Property, Pla & Equip, a Accum Depre Net Property Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab LONG-TERN as of 9/30	1 d cost 49 d ciation 99 d ciation 42d (\$mill.) e 11 d cost 49 d ciation 99 d ciation 99 d ciation 199 d ciation	6.2 514.8 8.4 105.2 7.8 409.6 7.6 7.6 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 232	423.8 7.2 446.9 5.3 5.3 10.3	Co., the pinvestor-oxsupplying through L., Artesian W that owns and provide as a regular ently open of Middlet under a 2 facilities is capacities day, respe	orincipal surved water roughly 7.0218 miles of astewater A wastewater of the control of the cont	utility on 6 billion go water mai danagemer collection a ter services wastewater treatmenthern New ract that e wastewateout 2.5 mg also operate	the Delma gallons of von to about 3 nt, Inc. is a rund treatmen a to custome reservice coment facilitie. Castle Couperpires in Just treatment d and 250.0 les a waste	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ars in Delawar ampany. It cur ses for the tow unty, Delaware uly 2022. The stations wit 000 gallons po- water disposa
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal 1Q 2/31/13 20 2/31/14 24 2/31/15 28 2/31/16 31 2/31/17 Cal- QUARTE	3.0% 3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 29 22 37 .36 .41 .33 .48 ERLY DIVIDENDS	3.0% 3.5% Smill.) Fu 4Q Yei 18.1 72 18.7 77 RE Fu 4Q Yei 17 .9 .24 1.0 .21 1.2	Current Asset Property, Pla & Equip, a Accum Depre Net Property Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab LONG-TERN as of 9/30	11 toost 499 tolation 99 422 (\$mill.) e 19 31 DEBT AND Ed 1/16	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2	423.8 7.2 446 9 5.3 5 3 10.3 20.9	Co., the pinvestor-over supplying through L., Artesian Withat owns vand provid as a regular rently oper of Middlet under a 22 facilities i capacities day, respefacility in	orincipal surved water roughly 7.0218 miles of astewater Newstewater of es wastewater des wastewown, in sour continuity to abortively. It a Middletow	utility on 6 billion g water mai Managemer collection a ter services wastewate vater treatment New ract that c wastewate out 2.5 mg also operal m. Has 2	the Delma gallons of von to about 3 at, Inc. is a rund treatment is to custome reservice connent facilities. Castle Court expires in Just treatment d and 250,0 tes a waste 31 employee	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ars in Delawar empany. It cue mty, Delawar uly 2022. The stations wit 000 gallons pe water disposa ees. Chairman
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 10 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal 10 2/31/13 .20 2/31/14 .24 2/31/15 .28 2/31/16 .31 2/31/17 Calendar 10	3.0% 3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 29 .22 37 .36 .41 .33 .48 ERLY DIVIDENDS 2Q 3Q	3.0% 3.5% Smill.) Fu 4Q Yes 18.7 77 RE 4Q Yes 17 .94 .24 1.0 .21 1.2 S PAID Fu 4Q Yes	Current Asset Properly, Pla & Equip, a & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accis Payable Debt Due Other Current Liab LONG-TERN as of 9/30 Total Debt \$10 LT Debt \$10	nt toost 49 (sciation 9 9 42: (\$mill.) e 11: 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2	423.8 7.2 446.9 5.3 5.3 10.3	Co., the pinvestor-ovsupplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 22 facilities is capacities day, respectacility in C.E.O.	orincipal su whed water roughly 7.0 218 miles of astewater N wastewater oes wastewa ated public rates wastewa own, in sou O-year cont include two of up to ab- ctively. It a Middletow President: E	utility on 6 billion g water mai Managemer collection a ter services wastewater treatm. Hern New ract that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay	the Delma gallons of von to about 3 at, Inc. is a rund treatment to custome reservice concent facilities. Castle Court expires in Just treatment d and 250.0 at a waste 31 employedor. Address	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ers in Delawar empany. It cur es for the tow mity, Delaware uly 2022. The stations wit 500 gallons per water disposa ees. Chairmar es: 664 Church
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal 1Q 2/31/13 20 2/31/14 24 2/31/15 28 2/31/16 31 2/31/17 Cal- QUARTE	3.0% 3.0% 3.0% 3.0% FERLY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 29 22 37 .36 .41 .33 .48 ERLY DIVIDENDS	3.0% 3.5% Smill.) Fu 4Q Yei 18.1 72 18.7 77 RE Fu 4Q Yei 17 .9 .24 1.0 .21 1.2	Current Asset Properly, Pla & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab as of 9/30 Total Debt \$ LONG-TERM as of 9/30 Total Debt \$ Long-term line of the control of the	11 cost 49 colation 99 39 42: (\$mill.) e 11 6 31 DEBT AND Ed/16 107.9 mill.	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due In	423.8 7.2 446.9 5.3 5.3 10.3 20.9	Co., the pinvestor-ovsupplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 2d facilities i capacities day, respefacility in C.E.O. & Smans Rd.,	orincipal su whed water roughly 7.0 218 miles of astewater N wastewater oes wastewa ated public rates wastewa own, in sou O-year cont include two of up to ab- ctively. It a Middletow President: E	utility on 6 billion g water mai Aanagemer collection a ter services wastewate water treatm them New ract that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay E 19702. T	the Delma gallons of von to about 3 at, Inc. is a rund treatment to custome reservice coment facilities (Castle Courter treatment d and 250.0 des a waste 31 employedor, Address et.: (302) 45	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ers in Delawar empany. It cur es for the town ty, Delawar uly 2022. The stations wit 1000 gallons pewater disposates. Chairmar s: 664 Church 53-6900. Inter
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 12/31/14 16.9 12/31/15 18.0 12/31/17 18.0 12/31/17 Fiscal EARI Year 1Q 12/31/13 .20 12/31/13 .20 12/31/15 .28 12/31/16 .31 12/31/17 Cal- QUARTE endar 1Q 1014 .209 2014 .209 2015 .215 2016 .222	3.0% 3.0% 3.0% 3.0% 3.0% IERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.6 NINGS PER SHA 2Q 3Q 28 29 22 37 .36 .41 .33 .48 ERLY DIVIDENDS 2Q 3Q .212 .212	3.0% 3.5% mill.) Fu 4Q Ye: 18.1 72 18.7 77 RE Fu 4Q Ye: .17 .9 .24 1.0 .21 1.2	Current Asset Froperly, Pla & Equip, a & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab LONG-TERM as of 9/30 Total Debt \$ LT Debt \$100 Including Ca	nt toost 49 (sciation 9 9 42: (\$mill.) e 11: 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due In (433)	423.8 7.2 446 9 5.3 5 3 10.3 20.9	Co., the pinvestor-ovsupplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 2d facilities i capacities day, respefacility in C.E.O. & Smans Rd.,	orincipal surved water roughly 7.02 l8 miles of lastewater Mastewater Mastewater Mastewater Mastewater public rates wastewown, in south of up to about two lastewater lastewarts. It a Middletow President: L Newark, Dowww.artesia	utility on 6 billion a water mai Managemer collection a ter services wastewate water treatmenthern New ract that c wastewate out 2.5 mg also operam. Has 2: Dian C. Tay E 19702. Tanwater.com	the Delma gallons of wan to about 3 at, Inc. is a rund treatment is to custome or service coment facilitie. Castle Couperies in Judent treatment dand 250.0 des a waste 31 employed (or. Address etc.) (302) 45 m.	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ers in Delawar empany. It cur es for the town ty, Delawar uly 2022. The stations wit 1000 gallons pewater disposates. Chairmar s: 664 Church 53-6900. Inter
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 18.0 2/31/17 2.3 2/31/17 2.20 2/31/17 2.8 2/31/16 .31 2/31/16 .31 2/31/17 2.8 2/31/17 2.8 2/31/17 2.8 2/31/17 2.9 2/31/17 2.10 2	3.0% 3.0% 3.0% 3.0% 3.0% FERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 29 22 37 .36 .41 .33 .48 ERLY DIVIDENDS 2Q 3Q 212 212 218 .218	3.0% 3.5% mill.) Fu 4Q Ye 18.1 72 18.7 77 RE Fu 4Q Ye 24 1.0 21 1.2 S PAID Fu 4Q Ye 215 .88 .222 .87	Current Asset Property, Pla & Equip, a Accum Depre Net Property Other Total Assets LIABILITIES Accis Payabl Debt Due Other Current Liab Current Liab LONG-TERN as of 9/30 Total Debt \$100 Including Ca Leases, Unc	ont at cost 490 clation 990 september 422 (\$mill.) e 190 september 422 september 423 september 424 september 425 s	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due in (439) ual rentals NA	423.8 7.2 446.9 5.3 5.3 10.3 20.9 5 Yrs. NA	Co., the pinvestor-ovsupplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 2d facilities i capacities day, respefacility in C.E.O. & Smans Rd.,	orincipal surved water roughly 7.02 l8 miles of lastewater Mastewater Mastewater Mastewater Mastewater public rates wastewown, in south of up to about two lastewater lastewarts. It a Middletow President: L Newark, Dowww.artesia	utility on 6 billion g water mai Aanagemer collection a ter services wastewate water treatm them New ract that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay E 19702. T	the Delma gallons of wan to about 3 at, Inc. is a rund treatment is to custome or service coment facilitie. Castle Couperies in Judent treatment dand 250.0 des a waste 31 employed (or. Address etc.: (302) 4: m.	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur ars in Delawar mpany. It company. It company. It company. It company are to be stations with 200 gallons pewater disposates. Chairmans: 664 Church 53-6900. Inter
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal Vear 1Q 2/31/17 22/31/14 24 2/31/15 28 2/31/16 31 2/31/17 Calendar 1Q 2014 209 2015 225 2017 INSTITUT	3.0% 3.0% 3.0% 3.0% 3.0% 3.0% FERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 .29 .22 37 .36 .41 .33 .48 ERLY DIVIDENDS 2Q 3Q .212 .212 .218 .218 .225 .225	3.0% 3.5% mill.) Fu 4Q Ye 18.1 72 18.7 77 RE 4Q Ye 4Q Ye 21 1.2 S PAID Fu 4Q Ye 221 1.2 S PAID Fu 4Q Ye 221 90 NNS	Current Asset Equip, 2 Accum Deprir Net Property Other Total Assets Accis Payabl Debit Due Other Current Liab LONG-TERN as of 9/30 ar Total Debit \$10 including Ca Leases, Unc Pension Lial	station 49 science 49 science 49 science 49 science 42	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due in (43? ual rentals NA n '15 vs. \$.3 mill.	423.8 7.2 446 9 5.3 5 3 10.3 20.9 5 Yrs. NA	Co., the investor-or supplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 22 facilities i capacities day, respe facility in C.E.O. & mans Rd., net: http://	orincipal surved water roughly 7.02 l8 miles of lastewater Mastewater Mastewater Mastewater Mastewater public rates wastewown, in south of up to about two lastewater lastewarts. It a Middletow President: L Newark, Dowww.artesia	utility on 6 billion g water mai Aanagemer collection a ter services wastewate vater treatm them New wastewate that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay E 19702. Tamwater.com	the Delma gallons of von to about 3 at, Inc. is a rund treatment is to custome reservice content facilitie. Castle Couter treatment d and 250.0 des a waste 31 employedor. Address et.: (302) 4: m. 2017	st and larges rva Peninsula water per yea 01,000 people egulated entit it infrastructur irs in Delawar impany. It cur is for the towarty, Delawar uly 2022. The stations wit 000 gallons powater disposa is 64 Churrel 53-6900. Inter J.
"Cash Flow" Earnings Dividends Book Value Fiscal QUART Year 1Q 2/31/14 16.9 2/31/15 18.0 2/31/16 18.4 2/31/17 Fiscal EARI Year 1Q 2/31/13 .20 2/31/14 .24 2/31/15 .28 2/31/16 .31 2/31/17 Cal- QUART endar 1Q 2014 .209 2015 .215 2016 .222 2017	3.0% 3.0% 3.0% 3.0% 3.0% 3.0% 3.0% 3.0%	3.0% 3.5% mill.) Fu 4Q Ye: 18 1 72 18.7 77 RE 4Q Ye: 24 1.0 21 1.2 S PAID Fu 4Q Ye: 215 .8: 222 .8: 228 .9: DNS 3Q'16	Current Asset Equip, 2 Accum Deprir Net Property Other Total Assets Accis Payabl Debit Due Other Current Liab LONG-TERN as of 9/30 ar Total Debit \$10 including Ca Leases, Unc Pension Lial	station 49 science 49 science 49 science 49 science 42	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due in (43? ual rentals NA n '15 vs. \$.3 mill.	423.8 7.2 446.9 5.3 5.3 10.3 20.9 5 Yrs. NA	Co., the investor-or supplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 22 facilities i capacities day, respe facility in C.E.O. & mans Rd., net: http://	orincipal surved water roughly 7.0218 miles of astewater Nastewater of swastewater own, in sour one to about two of up to abottively. It a Middletow President: E Newark, Dowww.artesia.	utility on 6 billion g water mai Aanagemer collection a ter services wastewate vater treatm them New wastewate that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay E 19702. Tamwater.com	the Delma gallons of von to about 3 at, Inc. is a rund treatment is to custome reservice content facilitie. Castle Couter treatment d and 250.0 des a waste 31 employedor. Address et.: (302) 4: m. 2017	st and larges rva Peninsula water per yea 01,000 people egulated entit t infrastructur rrs in Delawar mpany. It cur is for the towarty, Delawar uly 2022. The stations wit 000 gallons pewater disposa ses. Chairman is: 664 Church 53-6900. Inter J. 1
"Cash Flow" Earnings Dividends Book Value Fiscal Vear 1Q 12/31/14 16.9 12/31/15 18.0 12/31/16 18.4 12/31/17 Fiscal Vear 1Q 12/31/17 Cal- endar 1Q 2014 209 2015 2215 2017 INSTITUT	3.0% 3.0% 3.0% 3.0% 3.0% 3.0% FERILY SALES (\$ 2Q 3Q 17 9 19 6 19.5 20 8 19.4 21.8 NINGS PER SHA 2Q 3Q 28 .29 .22 37 .36 .41 .33 .48 ERLY DIVIDENDS 2Q 3Q .212 .212 .218 .218 .225 .225	3.0% 3.5% mill.) Fu 4Q Ye 18.1 72 18.7 77 RE 4Q Ye 4Q Ye 21 1.2 S PAID Fu 4Q Ye 221 1.2 S PAID Fu 4Q Ye 221 90 NNS	Current Asset Properly, Pla & Equip, a Accum Depre Net Properly Other Total Assets LIABILITIES Accts Payabl Debt Due Other Current Liab LONG-TERM as of 9/30 Total Debt \$ LT Debt \$100 Including Ca Leases, Unc Pension Lial	station 49 science 49 science 49 science 49 science 42	6.2 514.8 8.4 105.2 7.8 409.6 7.8 76 2.2 431.6 3.8 5.5 9.9 11.8 6.5 5.9 0.2 23.2 QUITY Due in (437 ual rentals NA n '15 vs. \$.3 mill. Pid Div'd ares	423.8 7.2 446 9 5.3 5 3 10.3 20.9 5 Yrs. NA	Co., the investor-or supplying through L., Artesian Withat owns vand provid as a regular rently open of Middlet under a 22 facilities i capacities day, respe facility in C.E.O. & mans Rd., net: http://	orincipal surved water roughly 7.0218 miles of astewater Nastewater of swastewater own, in sour one to about two of up to abottively. It a Middletow President: E Newark, Dowww.artesia.	utility on 6 billion g water mai Aanagemer collection a ter services wastewate vater treatm them New wastewate that c wastewate out 2.5 mg also operaton. Has 2: Dian C. Tay E 19702. Tamwater.com	the Delma gallons of von to about 3 at, Inc. is a rund treatment is to custome reservice content facilitie. Castle Couter treatment d and 250.0 des a waste 31 employedor. Address et.: (302) 4: m. 2017	st and larges rva Peninsula vater per yea 01,000 people egulated entity it infrastructurers in Delawarempany. It cures for the town inty, Delaware uly 2022. The stations will 200 gallons pewater disposa ess. Chairman s: 664 Church 53-6900. Inter J. J. J. J. J. J. J. J. J. J. J. J. J.



Pennsylvania American Water Company Sadsbury Township, Pennsylvania Wastewater Utility

Appraisal Work Papers As of January 1, 2017

Market Approach

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371

J. Weinert's E-Mail: weinertj@auswest.net

Pennsylvania American Water Company Sadsbury Township Wastewater Utility Wastewater Potential Purchaser: Investor-Owned Utility

As of January 1, 2017

Market Approach Summary

Comparable Sales New Garden McKeesport Mean	Purchase Price to Depreciated Original Cost (Book Value) 1.59 1.53 1.56 Market Value per Share to Book Value		
Financial Markets	per Share	American	Aqua
Market to Book (equity)	2.79	2.48	2.87
Market to Book (equity and debt)	1.96	1.64	1.93
Minumum Mean Median Maximum	1.53 1.89 1.59 2.79		
	Value to		
	Depreciated		
	Original Cost (Book		
Market Conclusion	Value)		
Use	1.56		
Sadsbury Market to Book Ratio Market Value Use	5,540,079 1.56 8,642,523 8,642,523		

Pennsylvania American Water Company Sadsbury Township Wastewater Utility Wastewater Potential Purchaser: Investor-Owned Utility As of January 1, 2017

Comparable Sales Approach

Market Sales Basis

OCLD Financials RCNLD	
New Garden Statistics	
Purchase Price (Aqua-PA and New Garden) 29,500,000 29,500,000 29,500	,000
AUS Depreciated Original Cost 6-30-2016 18,567,728 17967319 30,615	,410
Purchase to DOC 1.59 1.64	0.96
McKeesport Wastewater System	
Purchase Price (America-PA and McKeesport) 156,000,000 156,000,000	
AUS Depreciated Original Cost 3-31-2016 \$ 101,915,080 \$ 85,320,322	
Contibuted Property \$ 14,647,396	
Rate Base OCLD \$ 87,267,683 \$ 73,813,794	
Purchase to DOC 1.53 1.83	

Pennsylvania American Water Company Sadsbury Township Wastewater Utility Wastewater Potential Purchaser: Investor-Owned Utility January 1, 2017

Comparable Sales Approach

Financial Basis¹

fillendigit besis											
		American	American		California	Connecticut	Consolidated	Middlesex			
	Industry Averages	States Water	Water	Aqua America	Water	Water	Water	Water	SJW Corp	York	
Price per Share		44.95	72 05	29.98	33 75	55 67	10 85	41.32	55 14	38 3	
Book value per share		13 7	29.05	10 45	13 55	20.7	9 75	13 5	20.25	8 65	
Market to Book Ratio		3.28	2.48	2.87	2 49	2 69	1 11	3.06	2.72	4 43	
Minimum	1.11										
Mean	2 79		2 48	2 87							
Median	2.72										
Maximum	4.43										
Debt (Total)		398 2	6,857 0	1,880 5	618 7	203 1	0 5	150 5	439.7	84.6	
Outstanding Shares		36 60	178 00	177 40	48 00	11 20	14 80	16 30	20 46	12.87	
Debt per share		10 88	38 52	10.6	12 89	18.13	0.03	9 23	21.49	6 57	
Market Value per Share (Equity+Debt)		55.83	110 57	40.58	46 64	73 8	10.88	50 55	76.63	44 87	
Book Value per Share (Equity+Debt)		24.58	67 57	21.05			9 78			15 22	
Market to Book Ratio		2 27	164	1 93			1 11			2 95	
Minimum	1 11		104	1 3 3	1,0	1,		2 2 2	1.04	2 33	
			2.54	1.00							
Mean	1 96		1 64	1 93							
Median	1.9										
Maximum	2 95										

^{1.} Value Line Investment Survey

Pennsylvania American Water Company Sadsbury Township, Pennsylvania Wastewater Utility

Appraisal Work Papers As of January 1, 2017

Market Approach
Aqua Pennsylvania Wastewater, Inc.
Acquisition of
New Garden Township Sewer Authority

AUS Consultants
Suite 201
8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
J. Weinert's Cell: 414-698-8371

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New Garden Township Sewer System

Summary of Original Cost, Calculated Depreciation and Development of Depreciated Original Cost as of June 30, 2016

Acct.			Original	Curve	Calculated Depreciation	D	epreciated Original Cost at
No	<u>Description</u>		Cost	/Life	Reserve	<u>.</u> ju	ne 30, 2016
	NON-DEPRECIABLE						
353 10 353 40	· · · · · · · · · · · · · · · · · · ·	\$	919,506 5,043,671			\$	919,506 5,043,671
	Total Non-Depreciable Plant	\$	5,963,177			\$	5,963,177
	DEPRECIABLE						
	Treatment Structures						
354.10	·		1,975,241	45-R4	800,848		1,174,393
354 20			8,190,011 285,200	45-R4 30-R4	3,858,427		4,331,584
354 30	Structure - Other building	_	283,200	3U-K4	 227,852		57,348
	Total Account 354	\$	10,450,452		\$ 4,887,127	\$	5,563,325
355 00	Power Generator Equipment		224,878	55-R3	65,495		159,383
	Collection Mains - Force						
360.11	Conveyance Mains Force - 4" & Under Plastic Pipe		902,143	60-R3	199,611		702,532
360 12			697,346	65-R3	119,005		578,341
360.13			51,462	70-R3	7,872		43,590
360 21	·		17,115	75-R3	11,129		5,986
	Conveyance Mains Force - 6"- 8" AC Pipe		210,590	75-R3	136,931		73,659
360.31 360.41	Air Release Valves		50,900 39,731	35-R3 35-R3	11,971		38,929
360 51			73,662	65-R3	10,079 15,918		29,652 56,744
360 51	-		67,152	35-R3	18,396		48,756
360 71	Manholes		3,374	45-R3	294		3,080
	Total Account 360	\$	2,113,475		\$ 532,206	\$	1,581,269
	Calleghan Marine County						
361 12	Collection Mains - Gravity Collection Mains Gravity - 6" - 8" Plastic Pipe		2,890,048	65-R3	783,455		2,106,593
361 13	Collection Mains Gravity - 10"-12" Plastic Pipe		1,510,172	65-R3	527,6 8 3		982,489
361.21	Collection Mains Gravity - 4" & Under AC Pipe		15,966	75-R3	8,826		7,140
361 22	•		434,215	75-R3	240,041		194,174
361 23			273,682	75-R3	100,313		173,369
361 51	Crossings		39,270	35-R3	23,260		16,010
361 61	Cleanouts		10,600	35-R3	3,582		7,018
361 71	Manholes		1,290,565	45-R3	 556,090		734,475
	Total Account 361	\$	6,464,517		\$ 2,243,250	\$	4,221,267
363 00	Service Laterals		1,180,945	60-R3	439,122		741,823
364.00	Flow Meter		29,216	40-R3	6,105		23,111
371.00	Pumping Equipment		590,127	25-R3	327,950		262,177
390 00	Office Furniture & Equipment		67,342	10-R3	31,465		35,877
391 00	Transportation Equipment		8,605	8-R3	5,60\$		3,000
395 00	Power Operated Equipment		54,118	12-R3	 40,799		13,319
	Total Depreciable Plant	\$	21,183,675		\$ 8,579,124	\$	12,604,551
	Total Plant	\$	27,146,852		\$ 8,579,124	\$	18,567,728

¹ Excluding Assets detailed in the Asset Purchase Agreement between New Garden Township and New Garden Township Sewer Authority and Aqua Pennsylvania Wastewater, Inc

ASSET PURCHASE AGREEMENT

Between

NEW GARDEN TOWNSHIP

And

NEW GARDEN TOWNSHIP SEWER AUTHORITY

And

AQUA PENNSYLVANIA WASTEWATER, INC.

August _____, 2016

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ASSET PURCHASE AGREEMENT

THIS ASSET PURCHASE AGREEMENT ("Agreement") dated August _____, 2016 by and between New Garden Township, Chester County, a Pennsylvania second-class township having a mailing address of 299 Starr Road, Landenberg, PA 19350 (hereinafter referred to as the "Township") and New Garden Township Sewer Authority, a Pennsylvania municipal authority having a mailing address of 299 Starr Road, Landenberg, PA 19350 (hereinafter referred to as the "Authority" and collectively with the Township, "Seller"), and Aqua Pennsylvania Wastewater, Inc., a Pennsylvania corporation, with a business address located at 762 W. Lancaster Avenue, Bryn Mawr, PA 19010 (hereinafter referred to as "Aqua" or "Buyer").

RECITALS

- A. The Township and Authority each own portions of a community wastewater system that provides sewage collection and treatment services ("System") within portions of New Garden Township, Chester County, Pennsylvania. The System is located within New Garden Township except for one 4" force discharge main, a portion of which is in Kennett Township.
- B. Seller issued a Request for Proposal, including addenda (the "RFP"), for the sale and acquisition of its System.
- C. Seller has reviewed all offers to purchase the System and has determined that Buyer is the most responsible bidder, and that Buyer's December 4, 2014 proposal and March 18, 2016 supplemental proposal (collectively, the "Proposal") represents the best reasonable offer for the System to continue the services to the customers within the System, and its current and future operation.
- D. The provisions of the RFP, including, without limitation, Exhibit B to the RFP dated November 7, 2014, and the Proposal are hereby incorporated by reference herein and deemed a part of this Agreement. In the event of any conflict between this Agreement and the RFP and/or Proposal, the terms of this Agreement shall prevail.
- E. The purpose of this Agreement is to memorialize the agreements between Seller and Buyer for the sale of the System.
- F. Seller desires to sell, and Buyer desires to purchase, the Assets (as defined herein), all upon the terms and conditions set forth herein.
- G. Buyer is a public wastewater utility regulated by the Pennsylvania Public Utility Commission ("PA PUC") that furnishes wastewater services to the public in portions of the Commonwealth of Pennsylvania, including Chester County.
- NOW, THEREFORE, in consideration of the recitals and the covenants, warranties, representations, and agreements herein contained, and intending to be legally bound hereby, Buyer and Seller hereto agree as follows.
- 1. <u>INCORPORATION OF RECITALS</u>. The recitals set forth above are incorporated by reference herein and deemed a part of this Agreement.

2. SALE AND PURCHASE OF THE ASSETS

2.1 <u>Sale and Delivery of the Assets.</u> Subject to the terms and conditions hereinafter set forth, Buyer shall purchase from Seller, and Seller shall sell, assign, transfer, grant, convey and deliver to Buyer at the Closing (hereinafter defined) the Assets. The Assets are to be sold free and clear of all liens, pledges, security interests, charges, claims, restrictions and encumbrances of any nature whatsoever.

2.2 Assets Defined

The Assets are herein defined to be: all of the assets, properties and rights of Seller (whether tangible or intangible, real, personal or mixed), which are held and used in connection with the System. Seller provides wastewater service to its customers exclusively in the area depicted on Schedule 4(c)(1) as the "Service Area". All Assets are situated within New Garden Township, Chester County, Pennsylvania except for one discharge main located outside the Township as depicted on Schedule 2.2.

The Assets shall, without limitation to the definition stated above, include the specific assets, properties, powers and rights set forth in <u>Schedule 2.2</u>.

2.3 Customer Billing; Accounts Receivable. Unless Buyer and Seller agree to a different procedure prior to Closing, Seller shall issue final bills for all customer accounts in accordance with its current billing practices after the Closing Date. Seller shall be solely responsible for the collection of payments and/or accounts receivable including delinquent amounts due on these and any final bills to its customers. Except as set forth below, Buyer shall not be responsible for the payment of and/or collection for any amounts due to Seller from Seller's former customers. If Buyer and Seller agree to a different procedure prior to Closing, upon receipt of the next scheduled meter readings after the Closing Date and as mutually agreed upon, either Seller or Buyer shall issue the currently due billings with the billing receipts apportioned between Seller and Buyer on a prorated basis based on the number of days in the billing cycle each party had ownership of the System. The billing for next billing cycle and collection will be the sole responsibility of the Buyer. Following the issuance of Seller's final bill and Buyer's initial bill. Buyer shall thereafter issue bills for all customer accounts on the next scheduled billing date and all future billing dates and shall be solely responsible for the collection of payments and/or its accounts receivable. Buyer and Seller shall work in good faith to resolve uncollectible amounts and to coordinate volumetric block billing and base changes for Seller's final bills and Buyer's initial bills so that both parties bills are consistent as to such volumetric billing and base charges.

2.4 Excluded Assets

The Assets shall not include any of the following:

a. Any and all customer service laterals that run from the curb area (or edge of road) to each of the individual customer's residences or structures.

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- b. Any and all piping and fixtures (excluding Seller's meters, which shall be included in the Assets) internal to each of the individual customer's residences or structures.
- c. Any of Seller's accounts, including cash, investments, and account receivables up to the date of Closing.
- d. The real and personal property, including the improvements on said real property, described in Schedule 2.4.
- e. The real property (the "Cell Tower Parcel") consisting of 2,500 square feet described in the Site Lease With Option between New Garden Township Sewer Authority and Omnipoint Communications Enterprises L.P., dated June 29, 2001 (the "Cell Tower Lease"), and as depicted in the plan, dated November 9, 2001, prepared by OPCS Philadelphia Holdings, LLC for Omnipoint Communications Enterprises L.P. titled "Proposed Unmanned Wireless Communications Site", a copy of which is attached as <u>Schedule 2.4e(1)</u>. The Cell Tower Parcel is managed and operated by CCTMO LLC pursuant to a Master Prepaid Lease and Management Agreement and Management Agreement, each effective November 30, 2012, between CCTMO LLC and T-Mobile USA Tower LLC. A true and complete copy of the Cell Tower Lease is attached as <u>Schedule 2.4(e)(2)</u>.
 - f. Any other asset, property, easement or interest as is shown in Schedule 2.4.

2.5 Consideration

- a. Upon its execution and delivery of this Agreement to Seller, Buyer shall obtain a performance bond equal to ten percent (10%) of the Purchase Price (the "Bond"). The Bond shall be a bond form issued by a bonding company or surety that is approved by the Federal Treasury Board and acceptable to Seller, in Seller's reasonable discretion. The Bond amount shall be paid or released and returned as following:
- (1) The Bond amount shall be paid to Seller in the event that the Closing does not occur and Buyer defaults under this Agreement.
- (2) If Closing does not occur due to Seller's default under this Agreement (including, without limitation, Seller's inability to convey good title to the Assets free and clear of encumbrances and liens of record), a failure of a condition precedent under Section 4 below, or Seller's termination of this Agreement under Article 3 hereof, this Agreement shall terminate, the Seller shall promptly return the original Bond to Buyer with written acknowledgment that the Bond is no longer needed, and thereafter neither party shall have any further obligations or liability to the other party.
- (3) If Closing does not occur for any other reason not listed in clauses (1) or (2) above, Buyer shall pay Seller \$300,000 as liquidated damages, and upon receipt of such payment Seller shall promptly return the original Bond to Buyer with written acknowledgment that the Bond is no longer needed and thereafter neither party shall have any further obligations or liability to the other party.

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- b. The purchase price for the Assets will consist of payment of Twenty-nine Million Five Hundred Thousand Dollars (\$29,500,000.00) (the "Purchase Price") to be paid by Buyer at Closing in one lump sum payment of immediately available funds. Buyer and Seller agree that the results of the appraisals pursuant to Act 12 (as defined herein) shall have no effect on the Purchase Price.
- c. Buyer also agrees to contribute Twenty Thousand Dollars (\$20,000.00) toward Seller's closing costs.

2.6 Assumption of Liabilities and Contracts

- a. Buyer will (a) satisfy and comply with all conditions and requirements of the permits specified in Schedule 2.6(a) upon transfer of such permits to Aqua.
- b. Seller and Buyer shall: (I) obtain consents to the assignment of the contracts listed on Schedule 2.6(b), section I from all parties to said contracts if required by the terms of the respective contracts; and (II) arrange for the termination or amendment of the contract listed on Schedule 2.6(b), section II and the execution of a new agreement or, in the case of an amendment, an assignment, that is agreeable to Aqua in its sole discretion, with any such new agreement to replace the terminated contract. The contracts listed on Schedule 2.6(b) are collectively referred to herein as the "Assumed Liabilities".
- c. Seller hereby acknowledges that, following the effective time of Closing, Aqua shall be responsible for the provision of wastewater service to the customers of Seller.
- d. All other liabilities and obligations of Seller shall remain the sole responsibility of Seller. Other than the Assumed Liabilities, Buyer shall not assume and shall not be liable for, and Seller shall indemnify and hold harmless Aqua and its officers, employees and agents from and against, any and all liabilities or obligations of Seller of any nature whatsoever whether express or implied, fixed or contingent, known or unknown at the time of Closing.

3. CLOSING

Closing hereunder (the "Closing") shall take place at the offices of Lamb McErlane PC located at 24 E. Market St., West Chester, PA 19381 or other mutually agreed upon location, commencing at 10:00 a.m. local time, on the later to occur of: (i) one hundred fifty (150) days from the date Seller accepts Buyer's offer, as evidenced by the date of Seller's execution of this Agreement, and (ii) forty-five (45) days (a) after receipt of the last required unappealed regulatory approval of the transactions contemplated herein and (b) fulfillment of all conditions precedent under Section 4 hereof. Seller may terminate this Agreement should Buyer fail to obtain unappealed regulatory approval of the transactions contemplated herein within 365 days of the Effective Date, unless mutually extended in writing. The date of the Closing is referred to herein as the "Closing Date". The effective time of the Closing shall be 12:01 a.m. on the day following the Closing Date.

Pennsylvania American Water Company Sadsbury Township, Pennsylvania Wastewater Utility

Appraisal Work Papers As of January 1, 2017

Market Approach
American Pennsylvania, Inc.
Acquisition of the
City of McKeesport Wastewater System

AUS Consultants
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8555 West Forest Home Avenue
Greenfield, Wisconsin 53228
Office Telephone: 414-529-5755
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AUS Market

Pennsylvania American Water Announces Agreement to Acquire McKeesport

Scompany Release - 09/09/2016 10:19

TTSBURGH--(BUSINESS WIRE)-- Pennsylvania American Water, a subsidiary of American Water (NYSE: SAWK), announced today that it has signed an asset purchase agreement to acquire the McKeesport wastewater system. The agreement signing follows recent votes by the McKeesport City Council and the Municipal Authority of the City of McKeesport (MACM) in favor of Pennsylvania American Water purchasing the wastewater assets.

"I firmly believe this transaction is being made in the best interest of the wastewater customers served by this system now and in the future," Mayor Michael Cherepko said. "It became very clear to this administration that the only way to save our community from municipal bankruptcy, while continuing to offer the same level of services our residents deserve, would be to transfer our local sewage system to a regional or national utility company. This transaction will balance the city's current financial problems, allow this administration to safeguard the city's future and ensure reliable wastewater service for 22, 000 customers."

The total value of the transaction is approximately \$156 million, subject to certain adjustments provided in the agreement. The McKeesport wastewater system serves approximately 22,000 customers.

"Our company and our employees have been providing water service in the Mon Valley for decades, and we are excited for the opportunity to be the future wastewater provider to the residents of McKeesport, Dravosburg, Duquesne and Port Vue," said Pennsylvania American Water President Kathy L. Pape. "We look forward to closing the proposed acquisition and to providing wastewater services that reflect our commitment to environmental stewardship and quality customer service."

Pennsylvania American Water and the City of McKeesport will seek approval of the acquisition from the Pennsylvania Public Utility Commission (PUC) and other necessary approvals, such as the Pennsylvania Department of Environmental Protection. The MACM initially issued a request for bids in June 2016 for the potential acquisition of its wastewater system.

Pape said long-term rate stability is one of the most important benefits for wastewater customers. Under the purchase agreement, Pennsylvania American Water will not increase base wastewater rates any earlier than one calendar year after the closing.

The company's rates are regulated by the PUC and any future rate changes would have to be reviewed and approved by the PUC. Pennsylvania American Water offers its low-income wastewater customers grants and iscounted service to those who qualify through its H2O Help to Others Program.

Pape said upon closing the proposed acquisition that "we look forward to welcoming the MACM's employees and customers to the Pennsylvania American Water family." The company currently expects to close the transaction in the second half of 2017, pending regulatory approvals and the satisfaction of other closing conditions.

Pennsylvania American Water, a subsidiary of American Water, is the largest investor-owned water utility in

Pennsylvania, providing high-quality and reliable water and/or wastewater services to approximately 2.3 million people. Founded in 1886, American Water is the largest publicly traded U.S. water and wastewater utility empany. Marking its 130th anniversary this year, the company employs more than 6,700 dedicated for the following services and other related services an estimated 15 million people in 47 states and Ontario, Canada. More information can be found at www.ajmydier.com.

Cautionary Statement Concerning Forward-Looking Statements

Certain statements in this press release are forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements relate to, among The things, the execution of a definitive purchase agreement; the completion of the proposed acquisition; the ability to satisfy closing and other conditions related to the proposed transaction, including obtaining regulatory approvals; anticipated capital investments; and the ability to achieve certain benefits, synergies and goals relating to the transaction and the operations to be acquired. These statements are based on the current expectations of management of Pennsylvania American Water. There are a number of risks and uncertainties that could cause actual results to differ materially from these forward-looking statements, including with respect to (1) obtaining the regulatory and other approvals required for the acquisition; (2) satisfying other conditions to the closing of the acquisition; (3) the occurrence of the benefits and synergies expected or predicted to occur as a result of the acquisition; (4) unexpected costs, liabilities or delays associated with the acquisition or the integration of the acquired business; (5) regulatory, legislative, local or municipal actions affecting the water and wastewater industries, which could adversely affect Pennsylvania American Water; and (6) other economic, business and other factors. Forward-looking statements are not guarantees or assurances of future performance or results, and Pennsylvania American Water and its affiliates do not undertake any duty to update any forward-looking statement.

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Pennsylvania American Water Gary Lobaugh T: 724-873-8674 M: 724-944-5148 -arv.lopaugh@anwater.s.id

Source: Pennsylvania American Water

Page 14 of 29

S:\water industry\PA American McKeesport\Water Industry Valuation Summary Created 4-8-2017.xlsx

Pennsylvania American, Inc.
The Municipal Authority of the City of McKeesport
Wastewater
Investor-Owned Utility
September 2016

Cost Approach Summary

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Service Area	Original Cost	Original Cost less Depreciation	Cost New	Cost New less Depreciation	Cost New less Depreciation adjusted for External Obsolescence
McKeesport	35,663,314.30	24,781,311	125,338,615	61,696,103	61,696,103
Duquesne	8,488,374.00	4,009,366	57,112,541	22,405,247	22,405,247
Dravosburg	1,188,766.76	398,682	11,821,704	3,718,174	3,718,174
Port Vue	1,455,194.00	362,190	20,893,663	4,942,794	4,942,794
Summary	46,795,649.06	29,551,549	215,166,523	92,762,318	92,762,318
Treatment & Pumping Plant	61,374,789	50,472,921	106,863,107	62,652,591	62,652,591
Subtotal	108,170,438.06	80,024,470	322,029,630	155,414,909	155,414,909
Land	61,132	61,132	1,110,000	-	1,110,000
Total	108,231,570.06	80,085,602	323,139,630	155,414,909	156,524,909

Pennsylvania American Water Company Sadsbury Township, Pennsylvania Wastewater Utility

Appraisal Work Papers As of January 1, 2017

Market Approach
Value Line Investment Surveys
Water Industry
Market and Financial Ratios
January 2017

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