

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

DOCKET NO. R-2024-3047822 (WATER)

DOCKET NO. R-2024-3047824 (WASTEWATER)

**AQUA PENNSYLVANIA, INC.
AQUA PENNSYLVANIA WASTEWATER, INC.**

Lead-Lag Schedules

Schedule HW-1 Through Schedule HW-27

To Accompany the

Direct Testimony of Harold Walker, III

On Lead-Lag Study – Cash Working Capital

AQUA PENNSYLVANIA, INC.

CALCULATION OF CASH WORKING CAPITAL REQUIREMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

INDEX TO SCHEDULES

Schedules	Schedule Subject
Schedule HW-1	Summary of Calculation of Cash Working Capital Requirements
Schedule HW-2, Page 1	Summary of Total Revenue Lag Days
Schedule HW-2, Page 2	Service Period Billing Lag Days
Schedule HW-2, Page 3	Calculation of Collection Lag Days
Schedule HW-3	Summary of Operating Expenses and Taxes Lead Days
Schedule HW-4	Hourly Labor Lead Days
Schedule HW-5	Non-Union Labor Lead Days
Schedule HW-6	Management Fee Lead Days
Schedule HW-7	Electric Power Lead Days
Schedule HW-8	Water Purchased Lead Days
Schedule HW-9	Wastewater Purchased Lead Days
Schedule HW-10	Employee Group Insurance Lead Days
Schedule HW-11	Liability Insurance Lead Days
Schedule HW-12	SFI Postage Lead Days
Schedule HW-13	Pension Lead Days
Schedule HW-14	SFAS106 Lead Days
Schedule HW-15	All Other Expenses Lead Days
Schedule HW-16	PA PUC - General Assessments Lead Days
Schedule HW-17	OCA & SBA - General Assessments Lead Days
Schedule HW-18	Public Utility Realty Tax Lead Days
Schedule HW-19	Local, County, School, & Municipal Tax Lead Days
Schedule HW-20	FICA Taxes - Hourly Lead Days
Schedule HW-21	FICA Taxes - Executive & Exempt Lead Days
Schedule HW-22	Federal Unemployment Tax Lead Days
Schedule HW-23	PA Unemployment Tax Lead Days
Schedule HW-24	PA State Income Tax Lead Days
Schedule HW-25	Federal Income Tax Lead Days
Schedule HW-26	Long Term Debt- Interest Lead Days
Schedule HW-27	PennVest-Interest Lead Days

AQUA PENNSYLVANIA, INC. - BASE
SUMMARY OF CALCULATION OF CASH WORKING CAPITAL REQUIREMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

	A	B	C	D	E	F	G	H	I
	Amount	Expense Lead Days	Weighted Amount [A x B]	Revenue Lag Days	Weighted Lead Days [C ÷ A]	Net (Lead) Lag Days [D - E]	Pro-forma Expense Per Day [A ÷ 365]	Cash Working Capital [F x G]	Recommended Cash Working Capital [H rounded]
Expenses									
Hourly Labor	\$23,668,323	5.5	\$130,175,779						
Non-Union Labor	\$14,218,799	9.0	\$127,969,193						
Management Fee	\$27,013,703	15.7	\$424,115,142						
Electric Power	\$11,062,148	43.3	\$478,991,022						
Water Purchased	\$5,343,613	41.6	\$222,294,297						
Employee Group Insurance	\$6,334,692	16.3	\$103,255,487						
Liability Insurance	\$6,313,061	(46.4)	(\$292,926,026)						
SFI Postage	\$1,406,166	(5.4)	(\$7,593,296)						
Pension	\$1,366,600	440.0	\$601,304,000						
SFAS106	(\$677,072)	45.1	(\$30,552,882)						
All Other Expenses	\$41,189,170	31.3	\$1,289,221,013						
Sub Total - Expenses	137,239,204		3,046,253,729	51.5	22.2	29.3	\$375,998	\$11,016,736	\$11,017,000
Taxes									
PA PUC - General Assessments	\$2,580,688	(198.5)	(\$512,266,544)						
OCA & SBA - General Assessments	\$1,221,220	(198.5)	(\$242,412,225)						
Public Utility Realty Tax	\$4,700,000	(48.3)	(\$227,010,000)						
Local, County, School, & Municipal Tax	\$1,162,341	(92.9)	(\$107,981,517)						
FICA Taxes - Hourly	\$2,765,833	5.5	\$15,212,079						
FICA Taxes - Executive & Exempt	\$1,935,527	9.0	\$17,419,742						
Federal Unemployment Tax	\$26,872	75.9	\$2,038,883						
PA Unemployment Tax	\$135,117	75.9	\$10,252,013						
PA State Income Tax	\$4,337,358	36.5	\$158,313,571						
Federal Income Tax	\$18,534,310	36.5	\$676,502,303						
Sub Total - Taxes	37,399,265		(209,931,695)	51.5	(5.6)	57.1	102,464	5,850,680	5,851,000
Interest									
Long Term Debt- Interest	\$85,492,226	90.8	\$7,758,419,488						
PennVest-Interest	\$420,204	14.7	\$6,180,507						
Sub Total - Interest	85,912,430		7,764,599,995	51.5	90.4	(38.9)	235,377	(9,156,147)	(9,156,000)
Total Cash Working Capital Requirement									\$7,712,000

AQUA PENNSYLVANIA WASTEWATER, INC. - BASE
SUMMARY OF CALCULATION OF CASH WORKING CAPITAL REQUIREMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

	A	B	C	D	E	F	G	H	I
	Amount	Expense Lead Days	Weighted Amount [A x B]	Revenue Lag Days	Weighted Lead Days [C ÷ A]	Net (Lead) Lag Days [D - E]	Pro-forma Expense Per Day [A ÷ 365]	Cash Working Capital [F x G]	Recommended Cash Working Capital [H rounded]
Expenses									
Hourly Labor	\$1,803,177	5.5	\$9,917,472						
Non-Union Labor	\$1,720,692	9.0	\$15,486,229						
Management Fee	\$2,529,850	15.7	\$39,718,640						
Electric Power	\$1,767,231	43.3	\$76,521,113						
Wastewater Purchased	\$8,825,200	49.8	\$439,494,967						
Employee Group Insurance	\$2,114,321	16.3	\$34,463,437						
Liability Insurance	\$31,224	(46.4)	(\$1,448,815)						
SFI Postage	\$132,592	(5.4)	(\$715,996)						
Pension	\$0	440.0	\$0						
SFAS106	\$0	45.1	\$0						
All Other Expenses	\$9,788,145	31.3	\$306,368,942						
Sub Total - Expenses	28,712,433		919,805,990	53.7	32.0	21.7	\$78,664	\$1,707,013	\$1,707,000
Taxes									
PA PUC - General Assessments	\$249,469	(198.5)	(\$49,519,626)						
OCA & SBA - General Assessments	\$118,053	(198.5)	(\$23,433,431)						
Public Utility Realty Tax	\$0	(48.3)	\$0						
Local, County, School, & Municipal Tax	\$306,067	(92.9)	(\$28,433,634)						
FICA Taxes - Hourly	\$0	5.5	\$0						
FICA Taxes - Executive & Exempt	\$0	9.0	\$0						
Federal Unemployment Tax	\$0	75.9	\$0						
PA Unemployment Tax	\$0	75.9	\$0						
PA State Income Tax	\$138,551	36.5	\$5,057,100						
Federal Income Tax	(\$1,098,918)	36.5	(\$40,110,510)						
Sub Total - Taxes	(286,779)		(136,440,100)	53.7	475.8	(422.1)	(786)	331,642	332,000
Interest									
Long Term Debt- Interest	\$7,810,195	90.8	\$708,775,160						
PennVest-Interest	\$4,617	14.7	\$67,911						
Sub Total - Interest	7,814,812		708,843,071	53.7	90.7	(37.0)	21,410	(792,186)	(792,000)
Total Cash Working Capital Requirement									\$1,247,000

AQUA PENNSYLVANIA WASTEWATER, INC. - LOWER MAKEFIELD
SUMMARY OF CALCULATION OF CASH WORKING CAPITAL REQUIREMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

	A	B	C	D	E	F	G	H	I
	Amount	Expense Lead Days	Weighted Amount [A x B]	Revenue Lag Days	Weighted Lead Days [C ÷ A]	Net (Lead) Lag Days [D - E]	Pro-forma Expense Per Day [A ÷ 365]	Cash Working Capital [F x G]	Recommended Cash Working Capital [H rounded]
<u>Expenses</u>									
Hourly Labor	\$160,932	5.5	\$885,128						
Non-Union Labor	\$0	9.0	\$0						
Management Fee	\$699,392	15.7	\$10,980,455						
Electric Power	\$65,314	43.3	\$2,828,108						
Wastewater Purchased	\$6,154,656	49.8	\$306,501,868						
Employee Group Insurance	\$96,559	16.3	\$1,573,919						
Liability Insurance	\$8,632	(46.4)	(\$400,533)						
SFI Postage	\$36,656	(5.4)	(\$197,941)						
Pension	\$0	440.0	\$0						
SFAS106	\$0	45.1	\$0						
All Other Expenses	\$308,992	31.3	\$9,671,444						
Sub Total - Expenses	\$7,531,134		\$331,842,447	32.1	44.1	(12.0)	\$20,633	(\$247,599)	(\$248,000)
<u>Taxes</u>									
PA PUC - General Assessments	\$50,228	(198.5)	(\$9,970,294)						
OCA & SBA - General Assessments	\$23,769	(198.5)	(\$4,718,093)						
Public Utility Realty Tax	\$0	(48.3)	\$0						
Local, County, School, & Municipal Tax	\$0	(92.9)	\$0						
FICA Taxes - Hourly	\$0	5.5	\$0						
FICA Taxes - Executive & Exempt	\$0	9.0	\$0						
Federal Unemployment Tax	\$0	75.9	\$0						
PA Unemployment Tax	\$0	75.9	\$0						
PA State Income Tax	\$64,478	36.5	\$2,353,435						
Federal Income Tax	\$155,925	36.5	\$5,691,277						
Sub Total - Taxes	294,400		(6,643,675)	32.1	(22.6)	54.7	807	44,120	44,000
<u>Interest</u>									
Long Term Debt- Interest	\$1,003,658	90.8	\$91,081,972						
PennVest-Interest	\$0	14.7	\$0						
Sub Total - Interest	1,003,658		91,081,972	32.1	90.8	(58.7)	2,750	(161,410)	(161,000)
Total Cash Working Capital Requirement									(\$365,000)

AQUA PENNSYLVANIA WASTEWATER, INC. - EAST WHITELAND
SUMMARY OF CALCULATION OF CASH WORKING CAPITAL REQUIREMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

	A	B	C	D	E	F	G	H	I
	Amount	Expense Lead Days	Weighted Amount [A x B]	Revenue Lag Days	Weighted Lead Days [C ÷ A]	Net (Lead) Lag Days [D - E]	Pro-forma Expense Per Day [A ÷ 365]	Cash Working Capital [F x G]	Recommended Cash Working Capital [H rounded]
Expenses									
Hourly Labor	\$169,833	5.5	\$934,080						
Non-Union Labor	\$0	9.0	\$0						
Management Fee	\$245,902	15.7	\$3,860,668						
Electric Power	\$66,574	43.3	\$2,882,661						
Wastewater Purchased	\$1,369,146	49.8	\$68,183,462						
Employee Group Insurance	\$101,900	16.3	\$1,660,965						
Liability Insurance	\$3,035	(46.4)	(\$140,825)						
SFI Postage	\$12,888	(5.4)	(\$69,595)						
Pension	\$0	440.0	\$0						
SFAS106	\$0	45.1	\$0						
All Other Expenses	\$371,613	31.3	\$11,631,473						
Sub Total - Expenses	2,340,890		88,942,889	55	38.0	17.0	\$6,413	\$109,028	\$109,000
Taxes									
PA PUC - General Assessments	\$15,245	(198.5)	(\$3,026,228)						
OCA & SBA - General Assessments	\$7,214	(198.5)	(\$1,432,057)						
Public Utility Realty Tax	\$0	(48.3)	\$0						
Local, County, School, & Municipal Tax	\$0	(92.9)	\$0						
FICA Taxes - Hourly	\$0	5.5	\$0						
FICA Taxes - Executive & Exempt	\$0	9.0	\$0						
Federal Unemployment Tax	\$0	75.9	\$0						
PA Unemployment Tax	\$0	75.9	\$0						
PA State Income Tax	(\$203,028)	36.5	(\$7,410,535)						
Federal Income Tax	(\$490,981)	36.5	(\$17,920,789)						
Sub Total - Taxes	(671,549)		(29,789,609)	55	44.4	10.6	(1,840)	(19,503)	(20,000)
Interest									
Long Term Debt- Interest	\$1,205,856	90.8	\$109,431,397						
PennVest-Interest	\$0	14.7	\$0						
Sub Total - Interest	1,205,856		109,431,397	55	90.8	(35.8)	3,304	(118,273)	(118,000)
Total Cash Working Capital Requirement									(\$29,000)

AQUA PENNSYLVANIA, INC.
CALCULATION OF TOTAL REVENUE LAG DAYS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Description	Aqua Pennsylvania, Inc. - Base	Aqua Pennsylvania, Inc. - Shenandoah	Aqua Pennsylvania Wastewater, Inc. - Base	Aqua Pennsylvania Wastewater, Inc. - Lower Makefield	Aqua Pennsylvania Wastewater, Inc. - East Whiteland
<u>Operating Revenues - Water, Sewer, & Other:</u>					
Service Period & Billing Lag Days:					
(From mid-point of service period to A/R Posting Date. See page 2 of this Schedule)					
	17.2	17.2	17.2	17.2	17.2
Collection Lag:					
(Sum of daily accounts receivable balance receipts. See page 3 of this Schedule)					
	34.3	40.2	36.5	14.9	37.8
Total Revenue Lag Days	51.5	57.4	53.7	32.1	55.0

AQUA PENNSYLVANIA, INC.

CALCULATION OF SERVICE PERIOD AND BILLING LAG DAYS

Description	Aqua Pennsylvania, Inc. - Base	Aqua Pennsylvania, Inc. - Shenandoah	Aqua Pennsylvania Wastewater, Inc. - Base	Aqua Pennsylvania Wastewater, Inc. - Lower Makefield	Aqua Pennsylvania Wastewater, Inc. - East Whiteland
Annual Service Days	365.0	365.0	365.0	365.0	365.0
Months	÷ 12	12	12	12	12
Average Monthly Service Days	30.4	30.4	30.4	30.4	30.4
Mid-point Service Conversion	÷ 2	2	2	2	2
Service Lag Days	15.2	15.2	15.2	15.2	15.2
Billing Lag Days	+ 2.0	2.0	2.0	2.0	2.0
Total Service Period & Billing Lag Days	<u>17.2</u>	<u>17.2</u>	<u>17.2</u>	<u>17.2</u>	<u>17.2</u>
Test Year Revenues	<u>\$ 564,324,528</u>	<u>\$ 732,434</u>	<u>\$ 58,270,675</u>	<u>\$ 11,809,110</u>	<u>\$ 3,516,854</u>

AQUA PENNSYLVANIA, INC.

CALCULATION OF COLLECTION LAG DAYS

Description	Aqua Pennsylvania, Inc. - Base	Aqua Pennsylvania, Inc. - Shenandoah	Aqua Pennsylvania Wastewater, Inc. - Base	Aqua Pennsylvania Wastewater, Inc. - Lower Makefield	Aqua Pennsylvania Wastewater, Inc. - East Whiteland
Sum of Sampled Daily Accounts Receivable Balance	\$690,025,877	\$968,447	\$75,658,040	\$6,259,671	\$4,732,241
Divided By Number of Days of Daily Accounts Receivable Sampled	÷ 13	5	13	13	13
Average Sampled Daily Accounts Receivable Balance	<u>\$53,078,914</u>	<u>\$193,689</u>	<u>\$5,819,849</u>	<u>\$481,513</u>	<u>\$364,019</u>
The Sum of Daily Revenue For Test Year	\$ 564,324,528	\$ 732,434	\$ 58,270,675	\$ 11,809,110	\$ 3,516,854
Divided By Number of Days of Daily Revenue For Test Year	÷ 365	152	365	365	365
Average Daily Revenue For Test Year	<u>\$1,546,095</u>	<u>\$4,819</u>	<u>\$159,646</u>	<u>\$32,354</u>	<u>\$9,635</u>
Average Daily Accounts Receivable Balance in Test Year	\$53,078,914	\$193,689	\$5,819,849	\$481,513	\$364,019
Divided By the Average of Daily Receipts in Test Year	÷ 1,546,095	4,819	159,646	32,354	9,635
Total Service Period Collection Lag	<u>34.3</u>	<u>40.2</u>	<u>36.5</u>	<u>14.9</u>	<u>37.8</u>

AQUA PENNSYLVANIA, INC.
SUMMARY OF OPERATING EXPENSES AND TAXES LEAD DAYS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Description (1)	Schedule Reference (2)	Amount (3)	Weighted Amount (4)	(Lead)/ Lag Days (5)=(4)/(3)
<u>Partial Expenses & Taxes</u>				
Hourly Labor	Schedule HW-4			5.5
Non-Union Labor	Schedule HW-5			9.0
Management Fee	Schedule HW-6	28,887,839	454,847,300	15.7
Electric Power	Schedule HW-7	8,805,222	381,047,432	43.3
Water Purchased	Schedule HW-8	220,721	9,176,188	41.6
Wastewater Purchased	Schedule HW-9	3,058,221	152,333,494	49.8
Employee Group Insurance	Schedule HW-10	9,701,657	158,173,374	16.3
Liability Insurance	Schedule HW-11	7,639,816	(354,768,229)	(46.4)
SFI Postage	Schedule HW-12	478,699	(2,592,824)	(5.4)
Pension	Schedule HW-13	12,000,000	5,280,000,000	440.0
SFAS106	Schedule HW-14			45.1
All Other Expenses	Schedule HW-15	12,303,005	384,806,667	31.3
PA PUC - General Assessments	Schedule HW-16			(198.5)
OCA & SBA - General Assessments	Schedule HW-17			(198.5)
Public Utility Realty Tax	Schedule HW-18			(48.3)
Local, County, School, & Municipal Tax	Schedule HW-19	777,957	(72,284,821)	(92.9)
FICA Taxes - Hourly	Schedule HW-20			5.5
FICA Taxes - Executive & Exempt	Schedule HW-21			9.0
Federal Unemployment Tax	Schedule HW-22			75.9
PA Unemployment Tax	Schedule HW-23			75.9
PA State Income Tax	Schedule HW-24			36.5
Federal Income Tax	Schedule HW-25			36.5
Long Term Debt- Interest	Schedule HW-26			90.8
PennVest-Interest	Schedule HW-27			14.7

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR HOURLY LABOR
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Facts (1)	(Lead)/ Lag Days (2)
All union labor employees are paid for a two week period (i.e., Days 1 through 7).	
Pay date is four days following the end of the payroll period (i.e., Day 11, where $11 = 7 + 4$).	
Thrid party vendor, ADP, recives funds 1 to 2 days before paydays (i.e., Day 9.5, where $9.5 = 11 - 1.5$).	
Salaries and Wages (4 days) LEAD [$9.5 - 4.0 = 5.5$; where $4.0 = (1 + 7 = 8 \div 2 = 4.0)$]	5.5
	5.5
Total Hourly Labor	5.5

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR NON-UNION LABOR
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Facts (1)	(Lead)/ Lag Days (2)
All non-union labor employees are paid for a two week period (i.e., Days 1 through 14).	
Pay date is four days following the end of the payroll period (i.e., Day 18, where $18 = 14 + 4$).	
Thrid party vendor, ADP, recives funds 1 to 2 days before paydays (i.e., Day 16.5, where $16.5 = 18 - 1.5$).	
Salaries and Wages (4 days) LEAD [$16.5 - 7.5 = 9.0$; where $7.5 = (1 + 14 \div 2 = 7.5)$]	9.0
	9.0
Total Non-Union Labor	9.0

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR MANAGEMENT FEE
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	16.0	\$2,356,592.48	\$37,705,479.68
February-23	14.5	1,869,671.65	27,110,238.93
March-23	16.0	2,617,594.45	41,881,511.20
April-23	15.5	2,225,370.58	34,493,243.99
May-23	16.0	2,379,506.32	38,072,101.12
June-23	15.5	2,485,263.76	38,521,588.28
July-23	16.0	2,059,644.55	32,954,312.80
August-23	16.0	2,280,778.93	36,492,462.88
September-23	15.5	2,125,371.39	32,943,256.55
October-23	16.0	2,465,420.43	39,446,726.88
November-23	15.5	2,271,228.29	35,204,038.50
December-23	16.0	3,751,396.20	60,022,339.20
Total Management Fee	15.7	\$28,887,839.03	\$454,847,300.00

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR ELECTRIC POWER
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	48.8	\$359,380.34	\$17,523,563.24
February-23	38.4	872,777.04	33,544,755.40
March-23	32.2	685,363.37	22,072,172.81
April-23	29.8	431,785.79	12,858,351.54
May-23	51.7	662,174.21	34,248,855.76
June-23	65.3	1,165,622.14	76,140,587.62
July-23	43.2	845,782.49	36,527,221.75
August-23	36.3	784,390.14	28,499,638.94
September-23	36.7	743,850.59	27,305,088.79
October-23	38.4	831,645.87	31,930,578.61
November-23	42.6	724,636.80	30,887,538.46
December-23	42.3	697,813.59	29,509,078.73
Total Electric Power	43.3	\$8,805,222.37	\$381,047,431.63

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR WATER PURCHASED
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	56.5	\$83,466.63	\$4,715,376.60
February-23	37.8	376.00	14,204.58
March-23	27.8	4,451.34	123,630.81
April-23	29.5	36,570.94	1,077,902.86
May-23	41.5	5,815.23	241,115.00
June-23	28.9	1,446.89	41,885.50
July-23	45.9	12,405.40	569,115.35
August-23	27.5	51,618.65	1,419,005.00
September-23	40.4	5,756.54	232,361.26
October-23	37.7	6,130.94	231,317.72
November-23	40.1	6,523.34	261,878.37
December-23	40.3	6,159.54	248,394.78
Total Water Purchased	41.6	\$220,721.44	\$9,176,187.83

AQUA PENNSYLVANIA, INC.
CALCULATION OF LEAD DAYS FOR WASTEWATER PURCHASED
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	73.9	\$656,900.07	\$48,537,196.33
February-23	1.1	591,428.73	628,096.57
March-23	32.5	87,249.72	2,836,061.60
April-23	52.2	47,613.00	2,486,137.50
May-23	50.8	158,218.41	8,034,769.94
June-23	52.2	12,607.11	657,549.09
July-23	105.8	648,504.32	68,625,598.06
August-23	0.7	366,288.74	259,202.97
September-23	31.8	134,982.07	4,294,305.20
October-23	44.3	120,640.20	5,348,664.98
November-23	46.4	174,480.97	8,099,952.25
December-23	42.6	59,307.69	2,525,959.94
Total Wastewater Purchased	49.8	\$3,058,221.03	\$152,333,494.42

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR EMPLOYEE GROUP INSURANCE
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	15.0	\$800,963.09	\$12,014,446.35
February-23	13.5	793,086.21	10,706,663.84
March-23	15.0	807,670.24	12,115,053.60
April-23	14.5	802,200.90	11,631,913.05
May-23	15.0	810,733.89	12,161,008.35
June-23	32.5	859,692.52	27,936,833.12
July-23	15.0	810,383.94	12,143,231.70
August-23	15.0	809,182.27	12,137,734.05
September-23	14.5	800,398.71	11,605,781.30
October-23	15.0	808,744.89	12,139,923.35
November-23	14.5	796,453.64	11,548,577.78
December-23	15.0	802,147.16	12,032,207.40
Total Employee Group Insurance	<u>16.3</u>	<u>\$9,701,657.46</u>	<u>\$158,173,373.88</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR LIABILITY INSURANCE
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment <u>(1)</u>	(Lead)/ Lag Days <u>(2)</u>	Amount <u>(3)</u>	Weighted Amount <u>(4)</u>
March-23	(46.4)	\$1,909,954.00	-\$88,565,453.50
June-23	(46.5)	1,909,954.00	-88,812,861.00
September-23	(46.9)	1,909,954.00	-89,532,030.00
December-23	<u>(46.0)</u>	<u>1,909,954.00</u>	<u>-87,857,884.00</u>
 Total Liability Insurance	 <u>(46.4)</u>	 <u>\$7,639,816.00</u>	 <u>-\$354,768,228.50</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR SFI POSTAGE
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	0.0	\$37,700.50	\$0.00
February-23	0.0	11,654.89	\$0.00
March-23	(6.0)	35,268.88	-\$211,613.28
April-23	(5.7)	70,059.75	-397,842.91
May-23	(7.2)	59,745.80	-428,799.60
June-23	(2.0)	35,153.67	-71,161.79
July-23	(7.0)	35,229.59	-246,607.13
August-23	(6.7)	35,530.23	-238,108.10
September-23	(7.8)	63,129.65	-490,897.47
October-23	(6.0)	47,482.32	-284,893.92
November-23	(6.0)	37,149.89	-222,899.34
December-23	0.0	10,594.00	0.00
Total SFI Postage	(5.4)	\$478,699.17	-\$2,592,823.54

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PENSION
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment <u>(1)</u>	(Lead)/ Lag Days <u>(2)</u>	Amount <u>(3)</u>	Weighted Amount <u>(4)</u>
September-23	<u>440.0</u>	<u>\$12,000,000.00</u>	<u>\$5,280,000,000.00</u>
Total Pension	<u><u>440.0</u></u>	<u><u>\$12,000,000.00</u></u>	<u><u>\$5,280,000,000.00</u></u>

AQUA PENNSYLVANIA, INC.

CALCULATION OF LEAD DAYS FOR SFAS106

BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>		<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>Amount</u>	<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
1/1/23	3/31/23	3/31/23	44.5	25%	11.1
4/1/23	6/30/23	6/30/23	45.0	25%	11.3
7/1/23	9/30/23	9/30/23	45.5	25%	11.4
10/1/23	12/31/23	12/31/23	45.5	25%	11.4
Total SFAS106			<u>45.1</u>	<u>100%</u>	<u>45.1</u>

AQUA PENNSYLVANIA, INC.
CALCULATION OF LEAD DAYS FOR ALL OTHER EXPENSES
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
January-23	1.2	\$1,217,160.57	\$1,404,607.03
February-23	104.2	1,306,124.26	\$136,146,507.27
March-23	26.1	1,965,133.72	\$51,299,672.72
April-23	27.2	1,057,651.82	28,780,713.40
May-23	22.4	1,309,593.14	29,383,612.53
June-23	22.3	565,745.95	12,613,267.11
July-23	36.4	827,814.86	30,099,603.92
August-23	20.6	1,140,652.12	23,547,525.37
September-23	22.1	809,079.10	17,867,342.60
October-23	30.9	709,095.85	21,917,843.32
November-23	23.6	693,325.22	16,391,915.30
December-23	21.9	701,628.39	15,354,056.36
Total All Other Expenses	<u>31.3</u>	<u>\$12,303,005.00</u>	<u>\$384,806,666.91</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PA PUC - GENERAL ASSESSMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>(5)</u>	<u>Amount</u>
(1)	(2)	(3)	(4)		(6)
7/1/23	6/30/24	6/15/23	<u>(198.5)</u>	<u>100%</u>	<u>(198.5)</u>
Total PA PUC - General Assessments			<u>(198.5)</u>	<u>100%</u>	<u>(198.5)</u>

AQUA PENNSYLVANIA, INC.

CALCULATION OF LEAD DAYS FOR OCA & SBA - GENERAL ASSESSMENTS
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>(5)</u>	<u>Amount</u>
(1)	(2)	(3)	(4)		(6)
7/1/23	6/30/24	6/15/23	<u>(198.5)</u>	<u>100%</u>	<u>(198.5)</u>
Total OCA & SBA - General Assessments			<u>(198.5)</u>	<u>100%</u>	<u>(198.5)</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PUBLIC UTILITY REALTY TAX
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>		<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
1/1/23	12/31/23	5/1/23	(62.0)	90%	(55.8)
1/1/23	12/31/23	9/15/23	75.0	10%	7.5
Total Public Utility Realty Tax			<u>(48.3)</u>	<u>100%</u>	<u>(48.3)</u>

AQUA PENNSYLVANIA, INC.CALCULATION OF LEAD DAYS FOR LOCAL, COUNTY, SCHOOL, & MUNICIPAL TAX
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Month of Payment	(Lead)/ Lag Days	Amount	Weighted Amount
(1)	(2)	(3)	(4)
March-23	(93.0)	\$2,247.29	-\$208,997.97
April-23	(83.5)	150,466.36	-12,564,505.04
May-23	(42.6)	6,218.82	-264,647.02
June-23	(2.0)	24,347.98	-48,695.96
July-23	2.4	1,070.21	2,517.81
August-23	(121.5)	409,809.28	-49,791,827.52
September-23	(115.2)	\$61,858.43	-\$7,128,163.66
November-23	(33.8)	62,695.73	-2,118,411.22
December-23	(2.7)	59,242.83	-162,090.20
Total Local, County, School, & Municipal Tax	<u>(92.9)</u>	<u>\$777,956.93</u>	<u>-\$72,284,820.78</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR FICA TAXES - HOURLY
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Facts (1)	(Lead)/ Lag Days (2)
All union labor employees are paid for a two week period (i.e., Days 1 through 7).	
Pay date is four days following the end of the payroll period (i.e., Day 11, where $11 = 7 + 4$).	
Thrid party vendor, ADP, recives funds 1 to 2 days before paydays (i.e., Day 9.5, where $9.5 = 11 - 1.5$).	
Salaries and Wages (4 days) LEAD [$9.5 - 4.0 = 5.5$; where $4.0 = (1 + 7 = 8 \div 2 = 4.0)$]	5.5
	5.5
Total FICA Taxes - Hourly	5.5

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR FICA TAXES - EXECUTIVE & EXEMPT
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

Facts (1)	(Lead)/ Lag Days (2)
All non-union labor employees are paid for a two week period (i.e., Days 1 through 14).	
Pay date is four days following the end of the payroll period (i.e., Day 18, where $18 = 14 + 4$).	
Thrid party vendor, ADP, recives funds 1 to 2 days before paydays (i.e., Day 16.5, where $16.5 = 18 - 1.5$).	
Salaries and Wages (4 days) LEAD [$16.5 - 7.5 = 9.0$; where $7.5 = (1 + 14 \div 2 = 7.5)$]	9.0
	9.0
Total FICA Taxes - Executive & Exempt	9.0

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR FEDERAL UNEMPLOYMENT TAX
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>		<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
10/1/22	12/31/22	1/31/23	76.5	25%	19.1
1/1/23	3/31/23	4/30/23	74.5	25%	18.6
4/1/23	6/30/23	7/31/23	76.0	25%	19.0
7/1/23	9/30/23	10/31/23	<u>76.5</u>	<u>25%</u>	<u>19.1</u>
Total Federal Unemployment Tax			<u>75.9</u>	<u>100%</u>	<u>75.9</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PA UNEMPLOYMENT TAX
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>		<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>Amount</u>	<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
10/1/22	12/31/22	1/31/23	76.5	25%	19.1
1/1/23	3/31/23	4/30/23	74.5	25%	18.6
4/1/23	6/30/23	7/31/23	76.0	25%	19.0
7/1/23	9/30/23	10/31/23	<u>76.5</u>	<u>25%</u>	<u>19.1</u>
Total PA Unemployment Tax			<u>75.9</u>	<u>100%</u>	<u>75.9</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PA STATE INCOME TAX
 BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>		<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>Amount</u>	<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
<u>State Income Taxes (Current)</u>					
1/1/23	12/31/23	4/15/23	(78.0)	25%	(19.5)
1/1/23	12/31/23	6/15/23	(17.0)	25%	(4.3)
1/1/23	12/31/23	9/15/23	75.0	25%	18.8
1/1/23	12/31/23	12/15/23	<u>166.0</u>	<u>25%</u>	<u>41.5</u>
Total PA State Income Tax			<u>36.5</u>	<u>100%</u>	<u>36.5</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR FEDERAL INCOME TAX
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>(5)</u>	<u>Amount</u>
(1)	(2)	(3)	(4)		(6)
<u>Federal Income Taxes (Current)</u>					
1/1/23	12/31/23	4/15/23	(78.0)	25%	(19.5)
1/1/23	12/31/23	6/15/23	(17.0)	25%	(4.3)
1/1/23	12/31/23	9/15/23	75.0	25%	18.8
1/1/23	12/31/23	12/15/23	166.0	25%	41.5
Total Federal Income Tax			<u>36.5</u>	<u>100%</u>	<u>36.5</u>

AQUA PENNSYLVANIA, INC.

CALCULATION OF LEAD DAYS FOR LONG TERM DEBT- INTEREST
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>	<u>(5)</u>	<u>Amount</u>
(1)	(2)	(3)	(4)		(6)
1/1/23	6/30/23	6/30/23	90.0	50%	45.0
7/1/23	12/31/23	12/31/23	<u>91.5</u>	<u>50%</u>	<u>45.8</u>
Total Long Term Debt- Interest			<u>90.8</u>	<u>100%</u>	<u>90.8</u>

AQUA PENNSYLVANIA, INC.
 CALCULATION OF LEAD DAYS FOR PENNVEST-INTEREST
BASED ON LEAD-LAG STUDY FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2023

<u>Service Period</u>		<u>Payment</u>	<u>(Lead)/</u>	<u>Amount</u>	<u>Weighted</u>
<u>From</u>	<u>To</u>	<u>Date</u>	<u>Lag Days</u>		<u>Amount</u>
(1)	(2)	(3)	(4)	(5)	(6)
1/1/23	1/31/23	1/31/23	15.0	8.33%	1.3
2/1/23	2/28/23	2/28/23	13.5	8.33%	1.1
3/1/23	3/31/23	3/31/23	15.0	8.33%	1.3
4/1/23	4/30/23	4/30/23	14.5	8.33%	1.2
5/1/23	5/31/23	5/31/23	15.0	8.33%	1.3
6/1/23	6/30/23	6/30/23	14.5	8.33%	1.2
7/1/23	7/31/23	7/31/23	15.0	8.33%	1.3
8/1/23	8/31/23	8/31/23	15.0	8.33%	1.3
9/1/23	9/30/23	9/30/23	14.5	8.33%	1.2
10/1/23	10/31/23	10/31/23	15.0	8.33%	1.3
11/1/23	11/30/23	11/30/23	14.5	8.33%	1.2
12/1/23	12/31/23	12/31/23	15.0	8.33%	1.3
Total PennVest-Interest			<u>14.7</u>	<u>100%</u>	<u>14.7</u>