

PENNSYLVANIA-AMERICAN WATER COMPANY

**2020 GENERAL BASE RATE CASE
R-2020-3019369 (WATER)
R-2020-3019371 (WASTEWATER)**

**EXHIBITS NO. 11-M, 11-N, 11-O, 11-P, 11-Q, 11-R, 11-S, 11-T
DEPRECIATION STUDY**

**WASTEWATER SSS OPERATIONS
SADSBURY AND EXETER
AS OF DECEMBER 31, 2019, 2020, 2021, 2022**

EXHIBIT NO. 11-M - DEPRECIATION STUDY
WASTEWATER SSS SADBURY OPERATIONS
AS OF DECEMBER 31, 2019

Exhibit No. 11-M
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS SADBURY OPERATIONS

2019 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2019

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-M
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS SADBURY OPERATIONS

2019 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2019

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2019. Summaries of the original cost, annual accruals and the book depreciation reserve are presented in Tables 1 through 3, beginning on page I-3 of the attached report.

A description of the methods and procedures upon which the study was based, as well as support for the service life estimates, is set forth in a companion report "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020".

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

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PART I. RESULTS OF STUDY

**PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS**

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTON OF SUMMARY TABULATIONS

Table 1 presents the development of net original cost used in the study. The net original cost is the original cost of wastewater plant less advances and contributions. The results of the depreciation study are summarized in Table 2, which sets forth the book reserve and the calculated annual depreciation related to net original cost as of December 31, 2019, and the annual amortization of net negative salvage. Table 3 presents the calculation of the amortization of experienced net salvage by account, based on the five-year period, 2015-2019.

DESCRIPTION OF DETAILED TABULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-5. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2019

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2019 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2019 (6)
DEPRECIABLE PLANT					
354.30 STRUCTURES AND IMPROVEMENTS - SPP	293,908.23				293,908.23
355.00 POWER GENERATION EQUIPMENT	54,144.46				54,144.46
360.10 COLLECTION SEWERS - FORCE MAINS	192,229.67				192,229.67
361.10 COLLECTION SEWERS - GRAVITY MAINS	7,923,189.81				7,923,189.81
361.20 MANHOLES	1,319,671.40				1,319,671.40
363.00 SERVICES	809,743.04				809,743.04
364.00 FLOW MEASURING DEVICES	126,117.71				126,117.71
371.00 PUMPING EQUIPMENT	517,464.89				517,464.89
TOTAL DEPRECIABLE PLANT	11,236,469.21	0.00	0.00	0.00	11,236,469.21
NONDEPRECIABLE PLANT					
353.40 LAND AND LAND RIGHTS - TDP	18,345.00				18,345.00
TOTAL NONDEPRECIABLE PLANT	18,345.00	0.00	0.00	0.00	18,345.00
TOTAL UTILITY PLANT	11,254,814.21	0.00	0.00	0.00	11,254,814.21

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2019

DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2019 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT							
354.30	STRUCTURES AND IMPROVEMENTS - SPP	293,908.23	121,199	172,709	5,708	1.94	30.3
355.00	POWER GENERATION EQUIPMENT	54,144.46	31,711	22,433	1,391	2.57	16.1
360.10	COLLECTION SEWERS - FORCE MAINS	192,229.67	57,547	134,683	2,779	1.45	48.5
361.10	COLLECTION SEWERS - GRAVITY MAINS	7,923,189.81	1,802,955	6,120,235	111,484	1.41	54.9
361.20	MANHOLES	1,319,671.40	427,874	891,797	29,583	2.24	30.1
363.00	SERVICES	809,743.04	327,104	482,639	16,689	2.06	28.9
364.00	FLOW MEASURING DEVICES	126,117.71	44,641	81,477	13,192	10.46	6.2
371.00	PUMPING EQUIPMENT	517,464.89	254,973	262,492	20,119	3.89	13.0
	TOTAL DEPRECIABLE PLANT	11,236,469.21	3,068,004	8,168,465	200,945	1.79	40.7
NONDEPRECIABLE PLANT							
353.30	LAND AND LAND RIGHTS - SPP	18,345.00					
	TOTAL NONDEPRECIABLE PLANT	18,345.00					
	TOTAL UTILITY PLANT	11,254,814.21	3,068,004	8,168,465	200,945		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 3. AMORTIZATION OF EXPERIENCED NET SALVAGE

ACCOUNT (1)	2015		2016		2017		2018		2019		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE (2)	COST OF REMOVAL (3)	GROSS SALVAGE (4)	COST OF REMOVAL (5)	GROSS SALVAGE (6)	COST OF REMOVAL (7)	GROSS SALVAGE (8)	COST OF REMOVAL (9)	GROSS SALVAGE (10)	COST OF REMOVAL (11)		
354.20											0	0
354.30											0	0
354.40											0	0
361.10											0	0
361.20											0	0
363.00											0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1999	3,262,134	1,169,067	2,093,067		2,093,067	25.6
2000	1,440,560	448,916	991,644		3,084,711	37.8
2001	468,314	153,952	314,362		3,399,073	41.6
2002	178,448	57,313	121,135		3,520,208	43.1
2003					3,520,208	43.1
2004	30,497	12,771	17,726		3,537,934	43.3
2005	2,046,277	493,171	1,553,106		5,091,040	62.3
2006	603,888	159,261	444,627		5,535,667	67.8
2007	1,819,097	359,011	1,460,086		6,995,753	85.6
2008					6,995,753	85.6
2009	598,122	102,344	495,778		7,491,531	91.7
2010					7,491,531	91.7
2011	579,591	83,178	496,413		7,987,944	97.8
2013	99,646	12,026	87,620		8,075,564	98.9
2014					8,075,564	98.9
2015	74,749	16,487	58,262		8,133,826	99.6
2016					8,133,826	99.6
2019	35,147	507	34,640		8,168,466	100.0
SUBTOTAL	11,236,470	3,068,004	8,168,465			
NONDEPRECIABLE	18,345		18,345			
TOTAL	11,254,815	3,068,004	8,186,810			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1999	293,908.23	118,680	121,199	172,709	30.26	5,708
	293,908.23	118,680	121,199	172,709		5,708
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						30.3 1.94

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1999	54,144.46	30,299	31,711	22,433	16.13	1,391
	54,144.46	30,299	31,711	22,433		1,391
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						16.1 2.57

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1999	192,229.67	57,131	57,547	134,683	48.47	2,779
	192,229.67	57,131	57,547	134,683		2,779
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						48.5 1.45

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1999	1,812,133.47	512,653	527,804	1,284,329	51.96	24,718
2000	1,158,870.31	314,054	323,335	835,535	52.45	15,930
2001	294,907.22	76,381	78,638	216,269	52.93	4,086
2002	105,822.97	25,927	26,693	79,130	53.93	1,467
2005	1,635,584.15	339,220	349,246	1,286,338	55.43	23,207
2006	291,555.45	56,270	57,933	233,622	56.43	4,140
2007	1,589,564.43	286,122	294,578	1,294,986	56.94	22,743
2009	506,387.39	77,629	79,923	426,464	57.99	7,354
2011	458,152.31	57,636	59,340	398,812	59.07	6,752
2013	52,912.20	5,159	5,311	47,601	60.17	791
2019	17,299.91	149	154	17,146	57.98	296
	7,923,189.81	1,751,200	1,802,955	6,120,235		111,484
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						54.9 1.41

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1999	358,731.73	157,376	148,032	210,700	26.23	8,033
2000	161,677.37	67,775	63,751	97,926	27.01	3,626
2001	85,399.67	34,126	32,100	53,300	27.80	1,917
2002	30,659.86	11,645	10,954	19,706	28.58	690
2005	186,377.59	59,194	55,680	130,698	31.16	4,194
2006	151,157.65	44,682	42,029	109,129	32.16	3,393
2007	167,759.62	45,933	43,206	124,554	33.16	3,756
2009	58,034.98	13,406	12,610	45,425	34.95	1,300
2011	81,353.98	15,213	14,310	67,044	36.95	1,814
2013	38,518.95	5,531	5,202	33,317	38.75	860
	1,319,671.40	454,881	427,874	891,797		29,583
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						30.1 2.24

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
2000	120,011.98	52,181	61,830	58,182	25.35	2,295
2001	88,006.71	36,470	43,214	44,793	26.14	1,714
2002	41,965.44	16,597	19,666	22,299	26.75	834
2004	30,496.90	10,778	12,771	17,726	28.36	625
2005	224,315.04	74,473	88,245	136,070	29.17	4,665
2006	161,175.10	50,045	59,299	101,876	29.98	3,398
2007	61,772.88	17,914	21,227	40,546	30.60	1,325
2009	33,699.65	8,280	9,811	23,889	32.24	741
2011	40,084.66	8,041	9,528	30,557	33.87	902
2013	8,214.68	1,277	1,513	6,702	35.34	190
	809,743.04	276,056	327,104	482,639		16,689

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 28.9 2.06

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1999	51,368.90	43,705	28,154	23,215	3.60	6,449
2015	74,748.81	25,594	16,487	58,262	8.64	6,743
	126,117.71	69,299	44,641	81,477		13,192
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 6.2						10.46

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1999	499,617.79	308,264	254,620	244,998	12.72	19,261
2019	17,847.10	428	353	17,494	20.38	858
	517,464.89	308,692	254,973	262,492		20,119
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.0 3.89

EXHIBIT NO. 11-N - DEPRECIATION STUDY

WASTEWATER SSS SADBURY OPERATIONS

AS OF DECEMBER 31, 2020

Exhibit No. 11-N
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY
MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS SADS BURY OPERATIONS
2020 DEPRECIATION STUDY
CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2020

Prepared by:



*Excellence Delivered **As Promised***

Exhibit No. 11-N
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY
Mechanicsburg, Pennsylvania

WASTEWATER SSS SADBURY OPERATIONS

2020 DEPRECIATION STUDY
CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2020

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Camp Hill, Pennsylvania



Gannett Fleming

*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant. The results of our study as of December 31, 2020, are presented in the attached report. The results of our study as of December 31, 2019, are presented in our report, "2019 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2019." The same methods, procedures and estimates are used in both studies.

The attached report sets forth a description of the methods and procedures upon which the studies were based, the estimates of survivor curves, and the calculated annual depreciation as of December 31, 2020.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

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PART I. INTRODUCTION

PENNSYLVANIA-AMERICAN WATER COMPANY

WASTEWATER SSS SADBURY OPERATIONS

DEPRECIATION STUDY

PART I. INTRODUCTION

SCOPE

This report sets forth the results of the depreciation study for Pennsylvania-American Water Company to determine the annual depreciation accrual rates and amounts applicable to the original cost of wastewater plant as of December 31, 2020. The rates and amounts are based on the straight line remaining life method of depreciation. This report also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates related to wastewater plant in service as of December 31, 2020.

Part I, Introduction, contains statements with respect to the basis of the study and the development of net original cost. Part II, Estimation of Survivor Curves, presents descriptions of the considerations and methods used in the service life study. Part III, Service Life Considerations, presents the results of the average service life analysis. Part IV, Calculation of Annual and Accrued Depreciation, describes the procedures used in the calculation of group depreciation. Part V, Results of Study, presents summaries by depreciable group of annual depreciation accrual rates and amounts, as well as composite remaining lives. Part VI, Service Life Statistics presents the statistical analysis of service life estimates, Part VII, Detailed Depreciation Calculations presents the detailed tabulations of annual depreciation and Part VIII, Experienced and Estimated Net Salvage presents the cost of removal and gross salvage recorded for the period 2016-2020.

BASIS OF THE STUDY

The purpose of the depreciation study was to determine the annual depreciation accruals applicable to the original cost of wastewater plant in service as of December 31, 2020. For most accounts, the straight line remaining life method using attained ages, the book depreciation reserve and estimated survivor curves, was the basis for the calculation of annual depreciation. For certain accounts, the annual and accrued amortization amounts were based on the age of the property and the selected amortization period.

The survivor curve estimates were based on judgment which incorporated (1) analyses of historical data related to wastewater property for all Pennsylvania-American Water Company Wastewater Operations; (2) consideration of the character, use and location of the property; (3) probable future events and management plans; and (4) a general knowledge of wastewater property lives. The use of Iowa type survivor curves is a generally-accepted method of estimating average service life when the actual lives of individual property units are dispersed.

DEVELOPMENT OF NET ORIGINAL COST

The original cost data used in this study were obtained from the Company's continuing property records and work order system which show in detail the original cost of the property including descriptions, locations and years of installation of property units. The net original cost was developed from the original cost data by deducting contributions in aid of construction. The development of net original cost by plant account is set forth in Table 1 on page V-4.

PART II. ESTIMATION OF SURVIVOR CURVES

PART II. ESTIMATION OF SURVIVOR CURVES

The calculation of annual depreciation based on the straight line method requires the estimation of survivor curves and the selection of group depreciation procedures. The estimation of survivor curves is discussed below and the development of net salvage is discussed in later sections of this report.

SURVIVOR CURVES

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages.

The survivor curve graphically depicts the amount of property existing at each age throughout the life of an original group. From the survivor curve, the average life of the group, the remaining life expectancy, the probable life, and the frequency curve can be calculated. In Figure 1, a typical smooth survivor curve and the derived curves are illustrated. The average life is obtained by calculating the area under the survivor curve, from age zero to the maximum age, and dividing this area by the ordinate at age zero. The remaining life expectancy at any age can be calculated by obtaining the area under the curve, from the observation age to the maximum age, and dividing this area by the percent surviving at the observation age. For example, in Figure 1, the remaining life at age 30 is equal to the crosshatched area under the survivor curve divided by 29.5 percent surviving at age 30. The probable life at any age is developed by adding the age and remaining life. If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve presents the number of units retired in each age interval. It is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

This study has incorporated the use of Iowa curves developed from a retirement rate analysis of historical retirement history. A discussion of the concepts of survivor curves and of the development of survivor curves using the retirement rate method is presented below.

Iowa Type Curves

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. There are four families in the Iowa system, labeled in accordance with the location of the modes of the retirements (or the portion of the frequency curve with the highest level of retirements) in relationship to the average life and the relative height of the modes. The left moded curves, presented in Figure 2, are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical moded curves, presented in Figure 3, are those in which the greatest frequency of retirement occurs at average service life. The right moded curves, presented in Figure 4, are those in which the greatest frequency occurs to the right of, or after, average service life. The origin moded curves, presented in Figure 5, are those in which the greatest frequency of retirement occurs at the origin, or immediately after age zero. The letter designation of each family of curves (L, S, R or O) represents the location of the mode of the associated frequency curve with respect to the average service life. The numbers represent the relative heights of the modes of the frequency curves within each family. A higher number designates a higher mode curve.

The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125. These curve types have also been presented in subsequent

Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."¹ In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student submitted a thesis presenting his development of the fourth family consisting of the four O type survivor curves.

Retirement Rate Method of Analysis

The retirement rate method is an actuarial method of deriving survivor curves using the average rates at which property of each age group is retired. The method relates to property groups for which aged accounting experience is available and is the method used to develop the original stub survivor curves in this study. The method (also known as the annual rate method) is illustrated through the use of an example in the following text, and is also explained in several publications, including "Statistical Analyses of Industrial Property Retirements,"² "Engineering Valuation and Depreciation,"³ and "Depreciation Systems."⁴

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginning of the age intervals during the same period. The period of observation is referred to as the experience band, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the placement band. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

¹Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

²Winfrey, Robley, Statistical Analyses of Industrial Property Retirements. Iowa State College, Engineering Experiment Station, Bulletin 125. 1935.

³Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 1.

⁴Wolf, Frank K. and W. Chester Fitch. Depreciation Systems. Iowa State University Press. 1994.

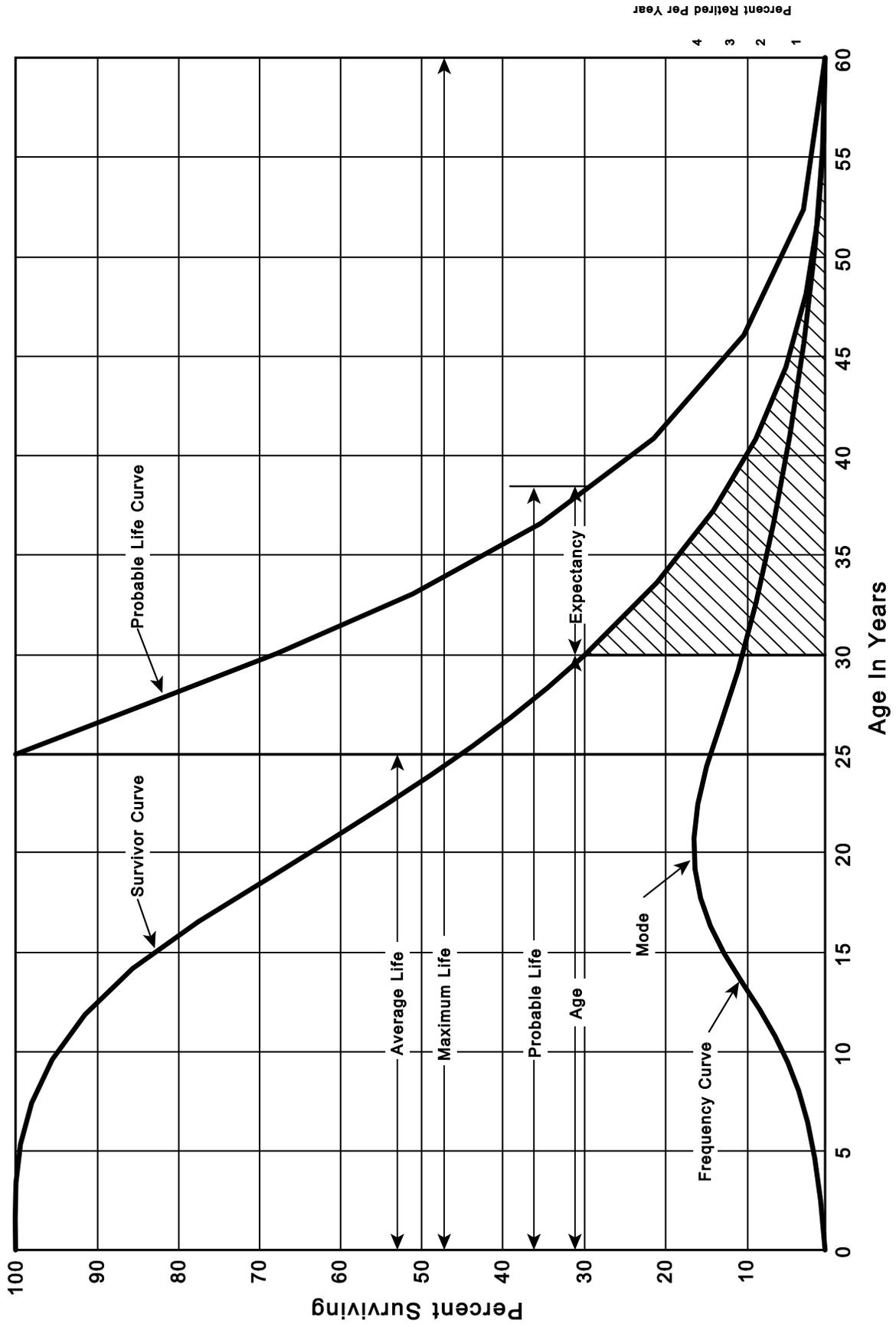


Figure 1. A Typical Survivor Curve and Derived Curves

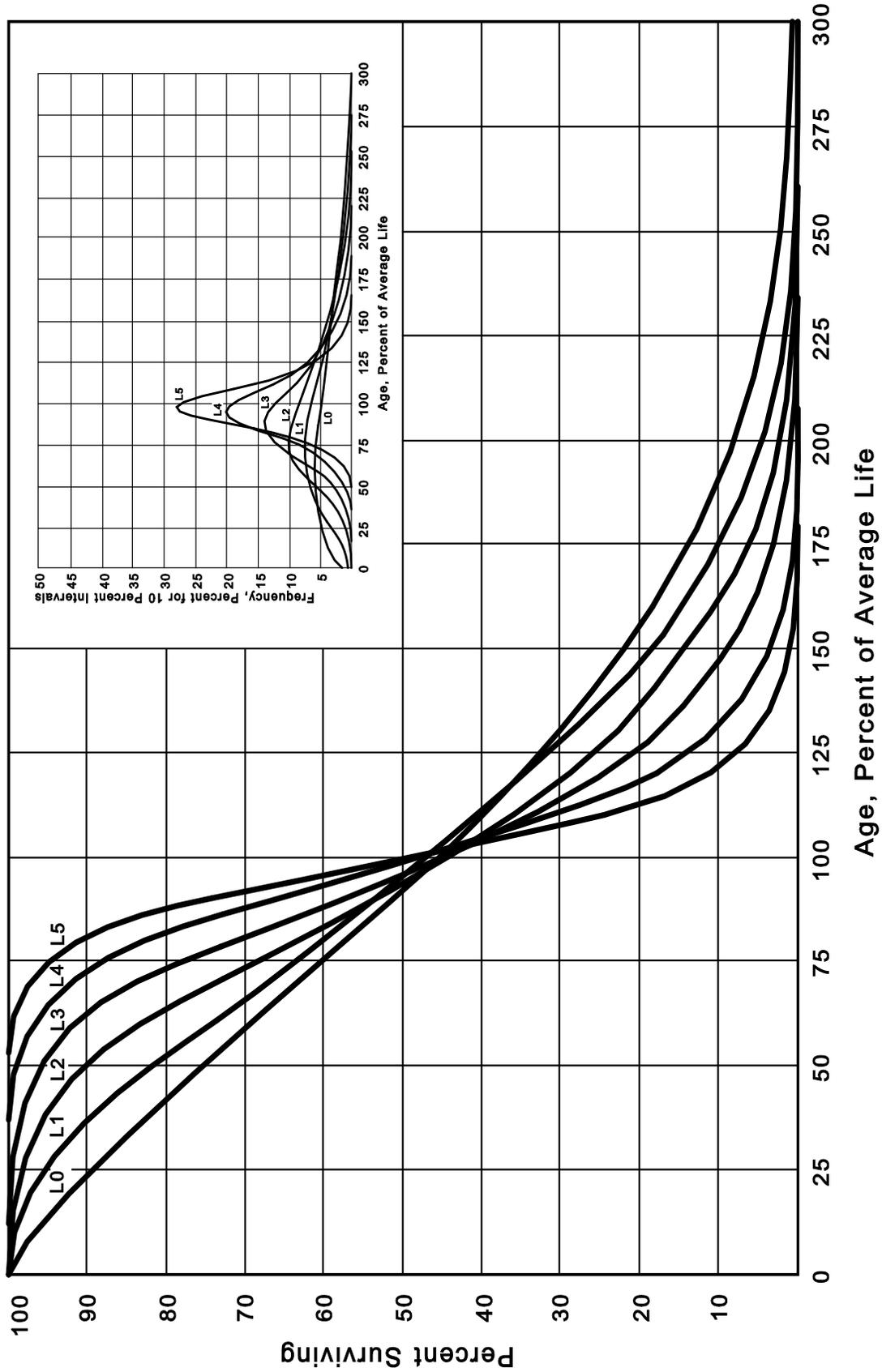


Figure 2. Left Modal or "L" lowa Type Survivor Curves

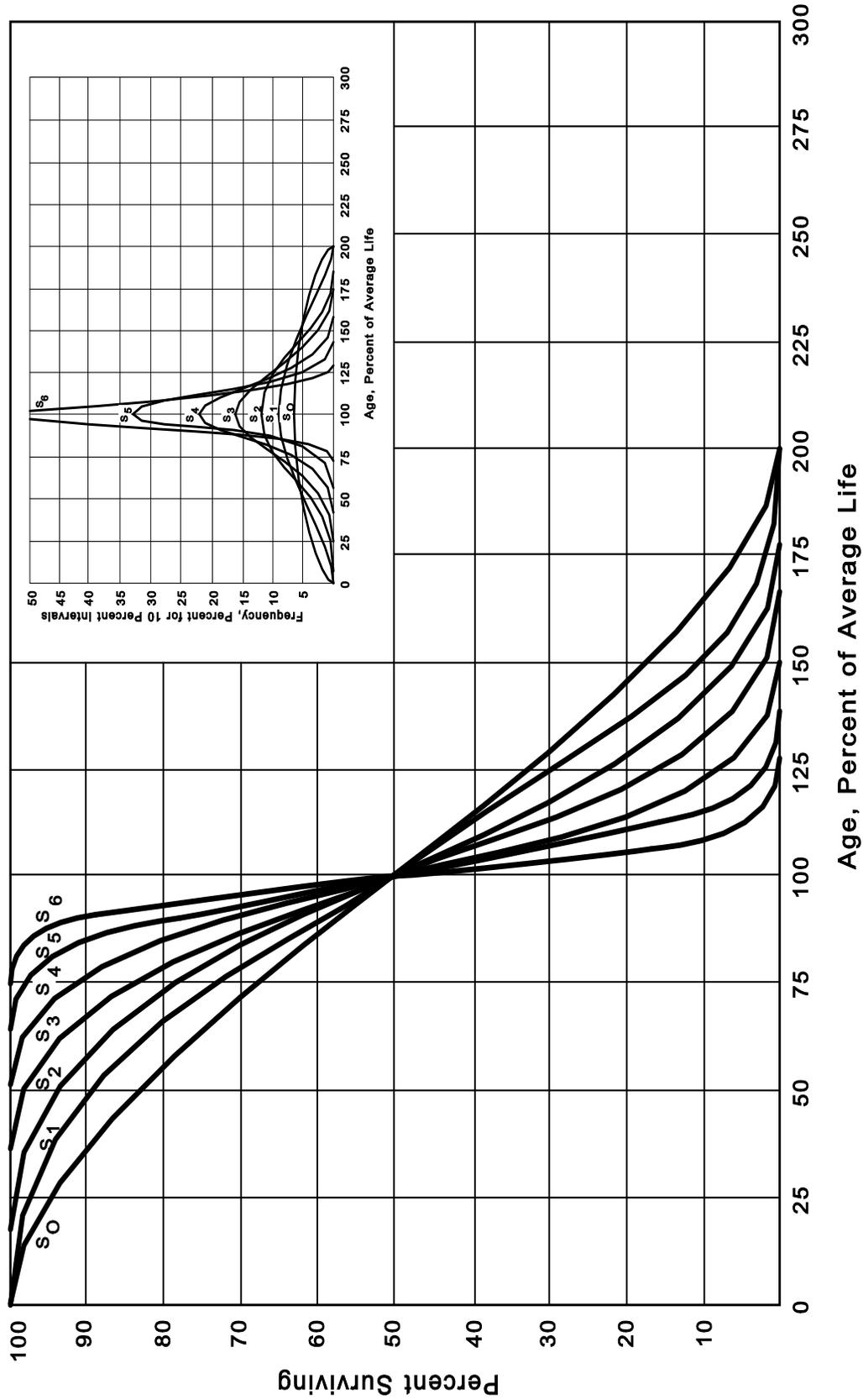


Figure 3. Symmetrical or "S" Iowa Type Survivor Curves

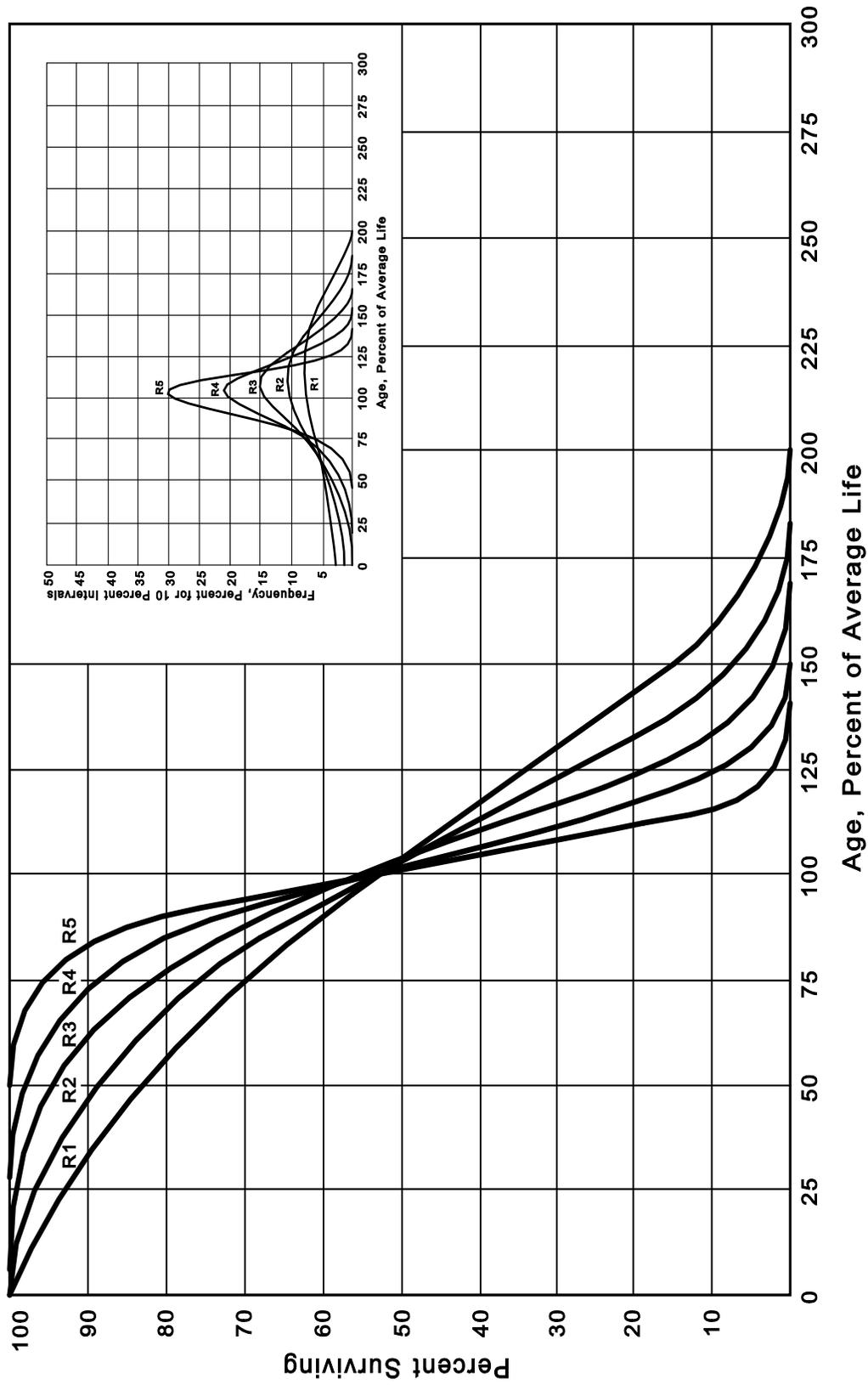


Figure 4. Right Modal or "R" Iowa Type Survivor Curves

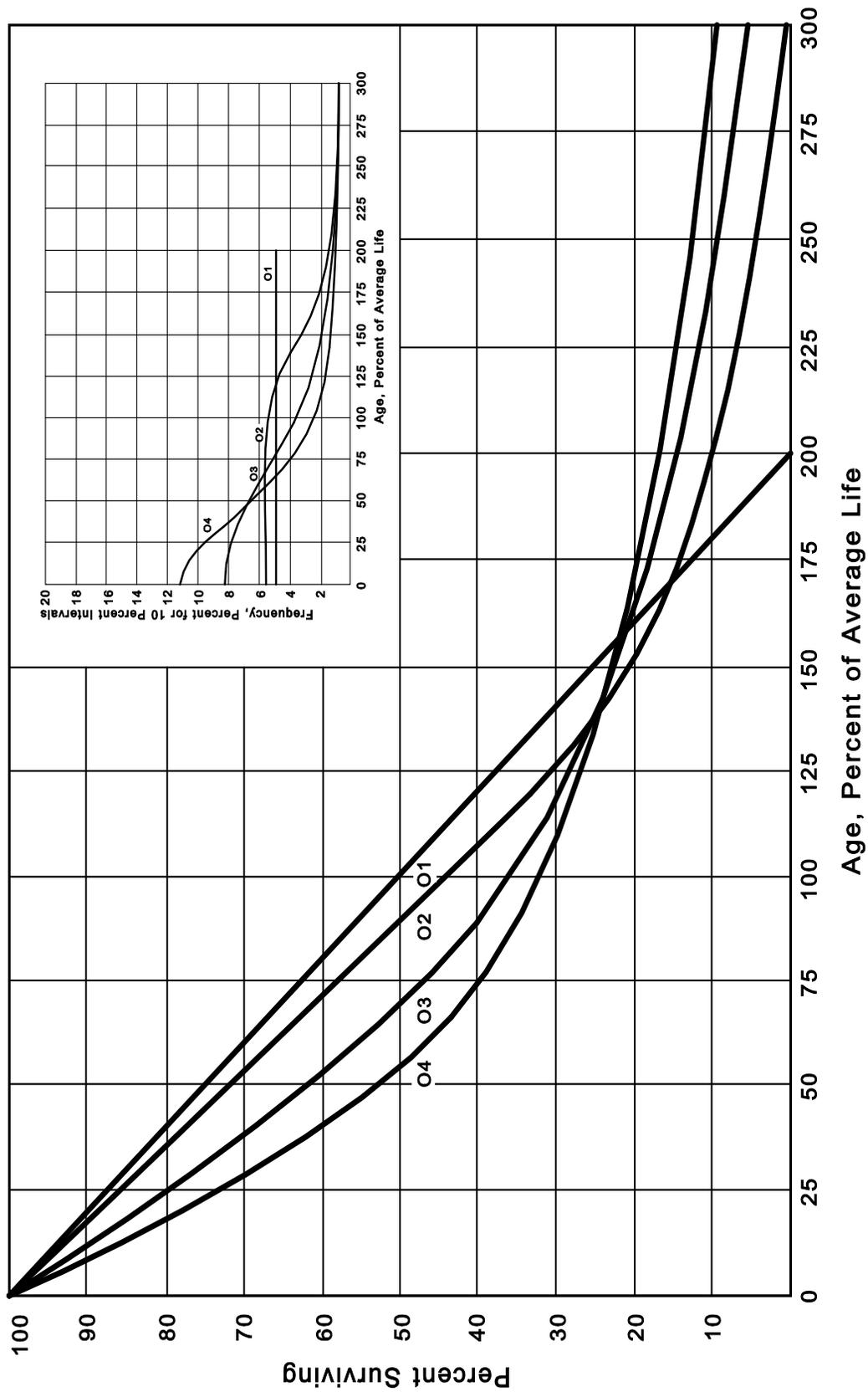


Figure 5. Origin Modal or "O" lowa Type Survivor Curves

Schedules of Annual Transactions in Plant Records

A hypothetical property group is used to illustrate the retirement rate method. This property group is observed for the experience band 2010-2019 during which there were placements (or installations) during the years 2005-2019. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Schedules 1 and 2 on pages II-11 and II-12. In Schedule 1, year placed and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the dollars invested in 2005 were retired in 2010. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2010 retirements of 2005 installations and ending with the 2019 retirements of the 2014 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

$$10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.$$

SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2010-2019
SUMMARIZED BY AGE INTERVAL

Year Placed (1)	Retirements, Thousands of Dollars										Total During Age Interval (12)	Age Interval (13)
	During Year											
	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (6)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)		
2005	10	11	12	13	14	16	23	24	25	26	26	13½-14½
2006	11	12	13	15	16	18	20	21	22	19	44	12½-13½
2007	11	12	13	14	16	17	19	21	22	18	64	11½-12½
2008	8	9	10	11	11	13	14	15	16	17	83	10½-11½
2009	9	10	11	12	13	14	16	17	19	20	93	9½-10½
2010	4	9	10	11	12	13	14	15	16	20	105	8½-9½
2011		5	11	12	13	14	15	16	18	20	113	7½-8½
2012			6	12	13	15	16	17	19	19	124	6½-7½
2013				6	13	15	16	17	19	19	131	5½-6½
2014					13	14	16	17	19	20	143	4½-5½
2015					7	8	18	20	22	23	146	3½-4½
2016						9	9	20	22	25	150	2½-3½
2017								11	23	25	151	1½-2½
2018									11	24	153	½-1½
2019										13	80	0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606	

Experience Band 2010-2019

Placement Band 2005-2019

SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2010-2019
SUMMARIZED BY AGE INTERVAL

Year Placed (1)	Experience Band 2010-2019										Placement Band 2005-2019	
	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (6)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)	Total During Age Interval (12)	Age Interval (13)
2005	-	-	-	-	-	-	60 ^a	-	-	-	-	13½-14½
2006	-	-	-	-	-	-	-	-	-	-	-	12½-13½
2007	-	-	-	-	-	-	-	-	-	-	-	11½-12½
2008	-	-	-	-	-	-	-	(5) ^b	-	-	60	10½-11½
2009	-	-	-	-	-	-	-	6 ^a	-	-	-	9½-10½
2010	-	-	-	-	-	-	-	-	-	-	(5)	8½-9½
2011	-	-	-	-	-	-	-	-	-	-	6	7½-8½
2012	-	-	-	-	-	-	-	-	-	-	-	6½-7½
2013	-	-	-	-	-	-	-	(12) ^b	-	-	-	5½-6½
2014	-	-	-	-	-	-	-	-	22 ^a	-	-	4½-5½
2015	-	-	-	-	-	-	-	(19) ^b	-	-	10	3½-4½
2016	-	-	-	-	-	-	-	-	-	-	-	2½-3½
2017	-	-	-	-	-	-	-	-	-	(102) ^c	(121)	1½-2½
2018	-	-	-	-	-	-	-	-	-	-	-	½-1½
2019	-	-	-	-	-	-	-	-	-	-	-	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	

^a Transfer Affecting Exposures at Beginning of Year

^b Transfer Affecting Exposures at End of Year

^c Sale with Continued Use

Parentheses Denote Credit Amount.

In Schedule 2, other transactions which affect the group are recorded in a similar manner. The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements, but are used in developing the exposures at the beginning of each age interval.

Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 on page II-14. The surviving plant at the beginning of each year from 2010 through 2019 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2015 are calculated in the following manner:

Exposures at age 0	= amount of addition	= \$750,000
Exposures at age ½	= \$750,000 - \$ 8,000	= \$742,000
Exposures at age 1½	= \$742,000 - \$18,000	= \$724,000
Exposures at age 2½	= \$724,000 - \$20,000 - \$19,000	= \$685,000
Exposures at age 3½	= \$685,000 - \$22,000	= \$663,000

**SCHEDULE 3. PLANT EXPOSED TO RETIREMENT
JANUARY 1 OF EACH YEAR 2010-2019
SUMMARIZED BY AGE INTERVAL**

Year Placed	Exposures, Thousands of Dollars										Total at Beginning of Age Interval	Age Interval	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)			(11)
2005	255	279	245	234	222	209	195	239	216	192	167	167	13½-14½
2006	307	338	268	256	243	228	212	194	174	153	131	323	12½-13½
2007	376	420 ^a	296	284	271	257	241	224	205	184	162	531	11½-12½
2008	376	420 ^a	330	321	311	300	289	276	262	242	226	823	10½-11½
2009	376	420 ^a	367	357	346	334	321	307	297	280	261	1,097	9½-10½
2010	420 ^a	460 ^a	416	407	397	386	374	361	347	332	316	1,503	8½-9½
2011	420 ^a	460 ^a	460 ^a	455	444	432	419	405	390	374	356	1,952	7½-8½
2012	420 ^a	460 ^a	510 ^a	510 ^a	504	492	479	464	448	431	412	2,463	6½-7½
2013	420 ^a	460 ^a	580 ^a	574	580 ^a	574	561	546	530	501	482	3,057	5½-6½
2014	420 ^a	460 ^a	660 ^a	660 ^a	660 ^a	660 ^a	653	639	623	628	609	3,789	4½-5½
2015	420 ^a	460 ^a	750 ^a	742	750 ^a	742	742	742	724	685	663	4,332	3½-4½
2016	420 ^a	460 ^a	850 ^a	850 ^a	850 ^a	850 ^a	850 ^a	850 ^a	841	821	799	4,955	2½-3½
2017	420 ^a	460 ^a	960 ^a	960 ^a	960 ^a	960 ^a	960 ^a	960 ^a	960 ^a	949	926	5,719	1½-2½
2018	420 ^a	460 ^a	1,080 ^a	1,069	6,579	½-1½							
2019	420 ^a	460 ^a	1,220 ^a	7,490	0-½								
Total	1,975	2,382	2,824	3,872	3,318	3,872	4,494	5,247	6,017	6,852	7,799	44,780	

^aAdditions during the year

For the entire experience band 2010-2019, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

$$255 + 268 + 284 + 311 + 334 + 374 + 405 + 448 + 501 + 609.$$

Original Life Table

The original life table, illustrated in Schedule 4 on page II-16, is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e. one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

Percent surviving at age 4½	=	88.15
Exposures at age 4½	=	3,789,000
Retirements from age 4½ to 5½	=	143,000
Retirement Ratio	=	143,000 ÷ 3,789,000 = 0.0377
Survivor Ratio	=	1.000 - 0.0377 = 0.9623
Percent surviving at age 5½	=	(88.15) x (0.9623) = 84.83

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless.

SCHEDULE 4. ORIGINAL LIFE TABLE

CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2010-2019

Placement Band 2005-2019

(Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Beginning of Age Interval
(1)	(2)	(3)	(4)	(5)	(6)
0.0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.60
12.5	323	44	0.1362	0.8638	48.90
13.5	167	26	0.1557	0.8443	42.24
14.5					35.66
Total	<u>44,780</u>	<u>1,606</u>			

Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement.

Column 3 from Schedule 1, Column 12, Retirements for Each Year.

Column 4 = Column 3 Divided by Column 2.

Column 5 = 1.0000 Minus Column 4.

Column 6 = Column 5 Multiplied by Column 6 as of the Preceding Age Interval.

The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

Smoothing the Original Survivor Curve

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0.

In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group.

FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

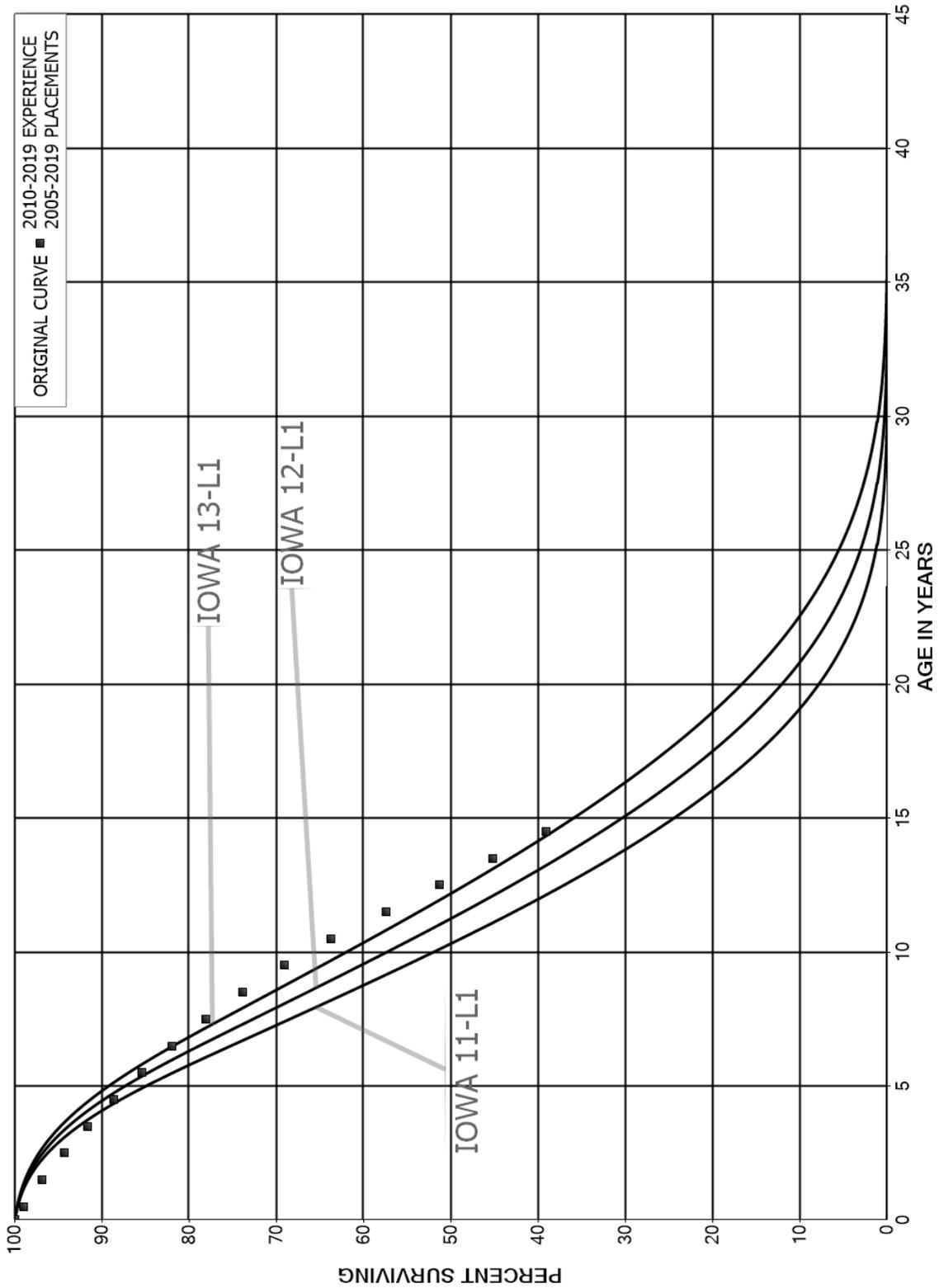


FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN S0 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

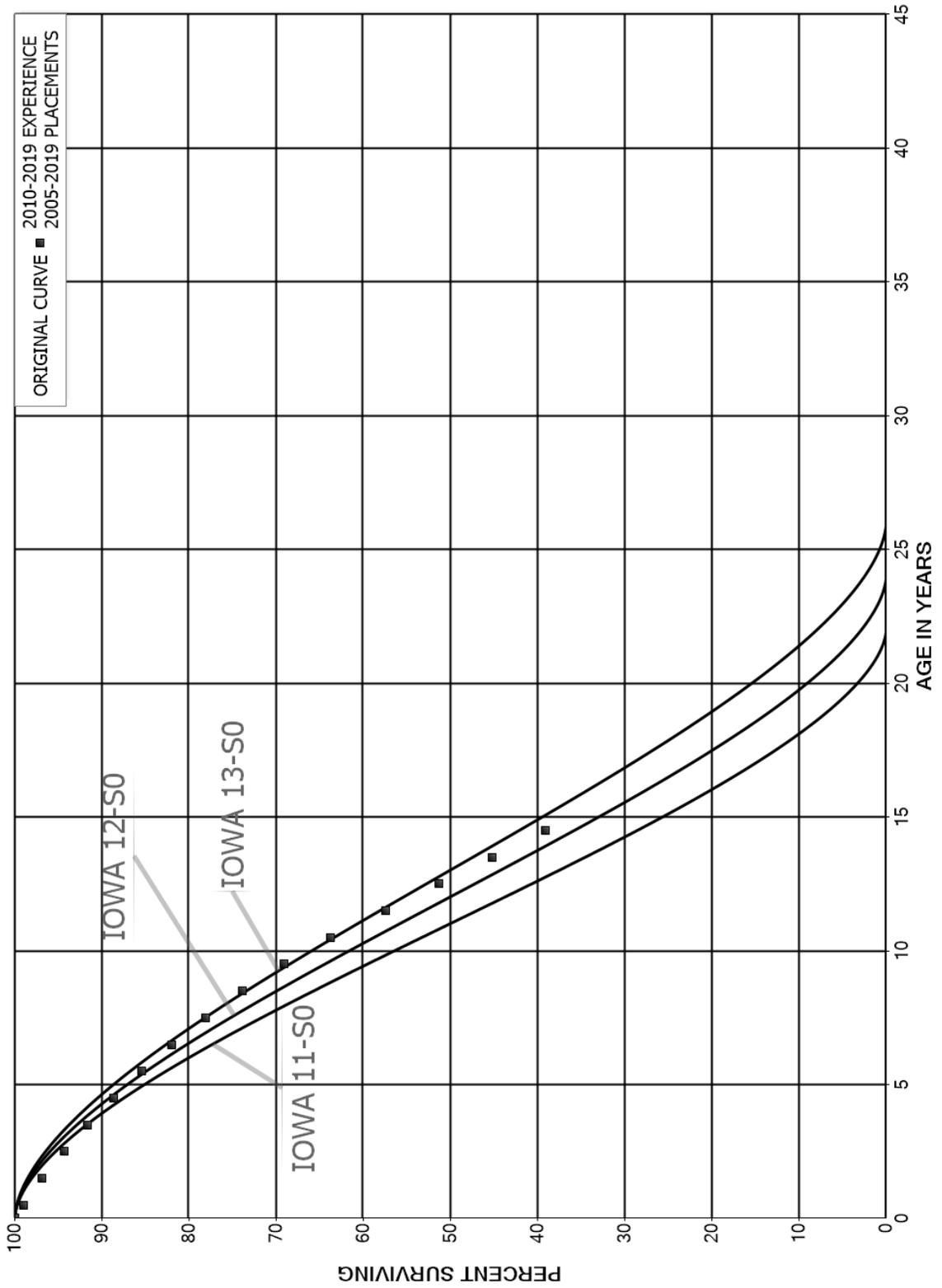


FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

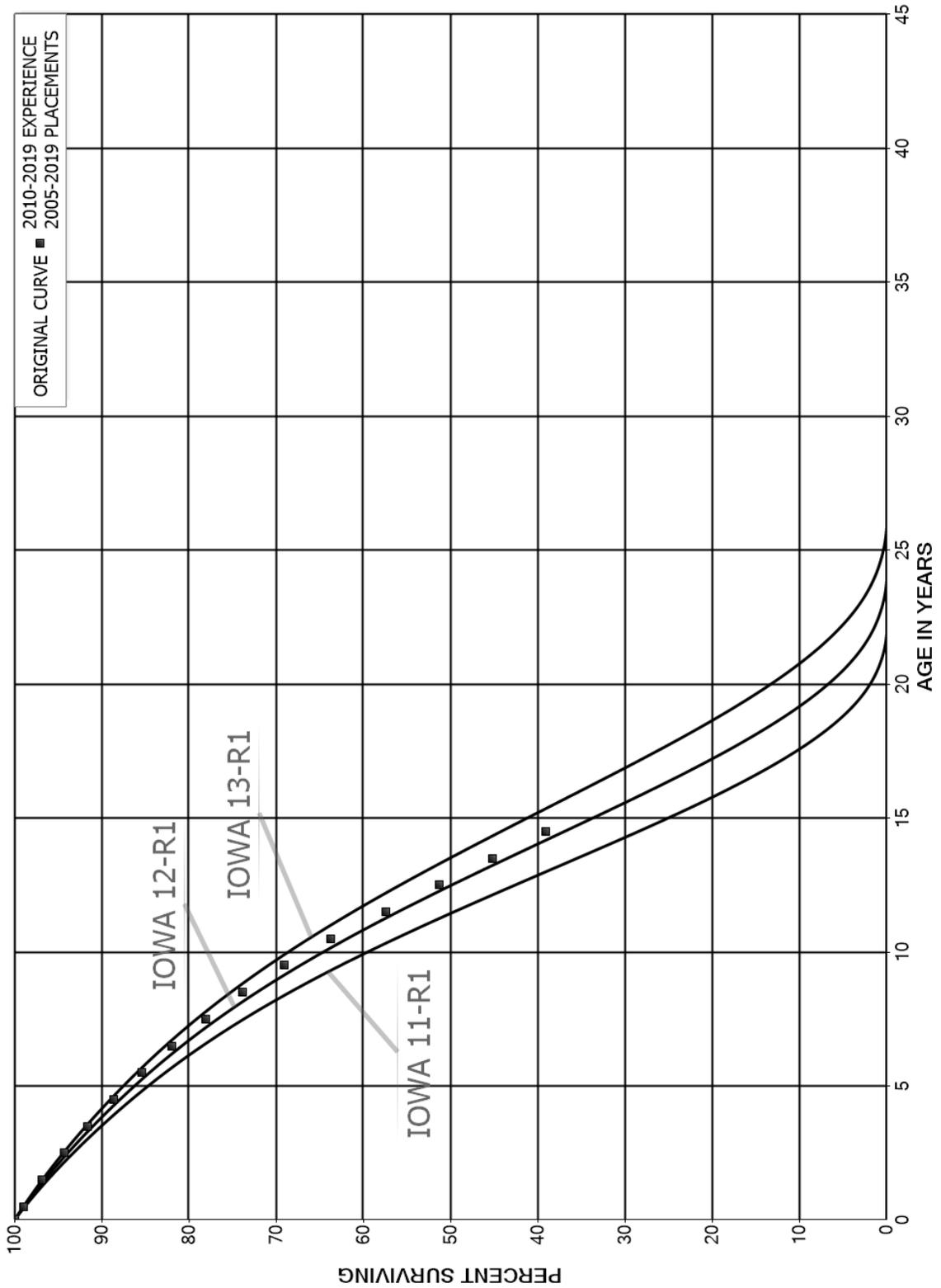
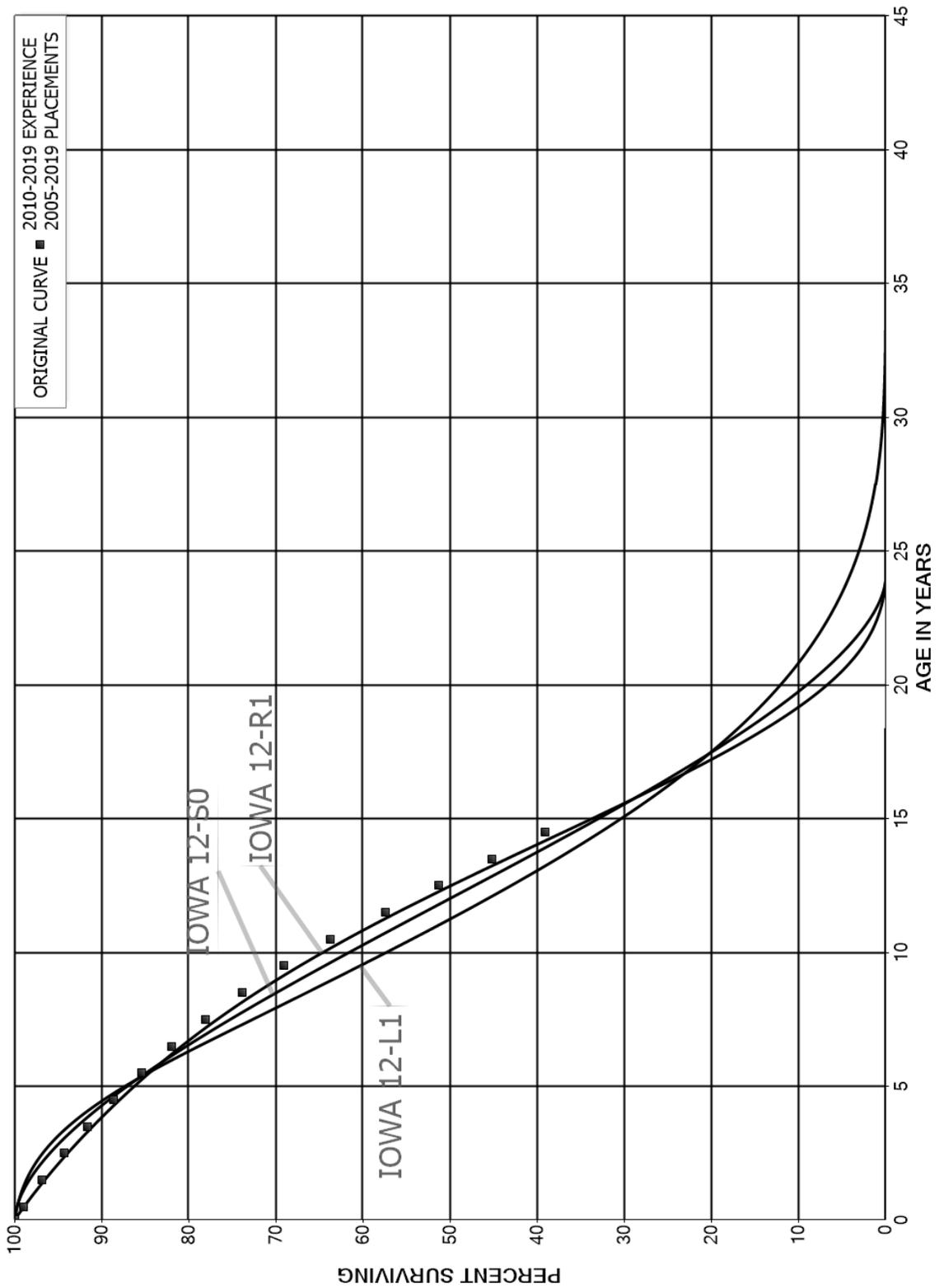


FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1, S0 AND R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



PART III. SERVICE LIFE CONSIDERATIONS

PART III. SERVICE LIFE CONSIDERATIONS

JUDGMENTS

The survivor curve estimates were based on judgment which considered factors including statistical analyses of retirements, Company policies and outlook as determined during discussions with management, and survivor curve estimates from previous studies of other Pennsylvania-American wastewater systems. For depreciable groups which consist of numerous similar items of property, the distribution of the lives of the units in the group was judged on the basis of an average survival pattern for the entire group.

The amortization periods selected for general plant Accounts 390, 393, 394, 396 and 397 are discussed in the section, "Amortization of General Plant Accounts."

**PART IV. CALCULATION OF ANNUAL AND
ACCRUED DEPRECIATION**

PART IV. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

BOOK RESERVE

The book reserve as of December 31, 2019, is the result of a bringforward of the book reserves established by the Commission for the Sadsbury wastewater operation at the time of acquisition. The projected book reserve as of December 31, 2020, is a bringforward of the December 31, 2019 book reserve based on projected accruals, retirements, cost of removal, salvage and other credits.

GROUP DEPRECIATION PROCEDURES

A group procedure for depreciation is appropriate when considering more than a single item of property. Normally the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, average service life and equal life group. In the average service life procedure, the rate of annual depreciation is based on the average life or average remaining life of the group, and this rate is applied to the surviving balances of the group's cost. A characteristic of this procedure is that the cost of plant retired prior to average life is not fully recouped at the time of retirement, whereas the cost of plant retired subsequent to average life is more than fully recouped. Over the entire life cycle, the portion of cost not recouped prior to average life is balanced by the cost recouped subsequent to average life.

Single Unit of Property

The calculation of straight line depreciation for a single unit of property is straightforward. For example, if a \$1,000 unit of property attains an age of four years and has a life expectancy of six years, the annual accrual over the total life is:

$$\frac{\$1,000}{(4 + 6)} = \$100 \text{ per year.}$$

The accrued depreciation is:

$$\$1,000 \left(1 - \frac{6}{10}\right) = \$400.$$

Remaining Life Annual Accruals

For the purpose of calculating remaining life accruals as of December 31, 2020, the depreciation reserve for each plant account is allocated among vintages in proportion to the calculated accrued depreciation for the account. Explanations of remaining life accruals and calculated accrued depreciation follow. The detailed calculations as of December 31, 2020, are set forth in the Results of Study section of the report.

Equal Life Group Procedure

In the equal life group procedure, the remaining life annual accrual for each vintage is determined by dividing future book accruals (original cost less book reserve) by the composite remaining life for the surviving original cost of that vintage. The composite remaining life is derived by compositing the individual equal life group remaining lives in accordance with the following equation:

$$\text{Composite Remaining Life} = \frac{\sum \left(\frac{\text{Book Cost}}{\text{Life}} \times \text{Remaining Life} \right)}{\sum \frac{\text{Book Cost}}{\text{Life}}}.$$

The book costs and lives of the several equal life groups which are summed in the foregoing equation are defined by the estimated survivor curve.

Inasmuch as book cost divided by life equals the whole life annual accrual, the foregoing equation reduces to the following form:

$$\text{Composite Remaining Life} = \frac{\sum \text{Whole Life Future Accruals}}{\sum \text{Whole Life Annual Accruals}}$$

or

$$\text{Composite Remaining Life} = \frac{\sum \text{Book Cost} - \text{Calc. Reserve}}{\sum \text{Whole Life Annual Accrual}}$$

The annual accrual rate for each account is equal to the sum of the remaining life annual accruals for all vintages divided by the account's total original cost. The account's "composite remaining life" is calculated by dividing the sum of the future book accruals for all vintages by the sum of the remaining life annual accruals for all vintages.

The calculated accrued depreciation in the equal life group procedure also represents that portion of depreciable cost which will not be allocated to expense through future accruals. However, the calculation is based at the equal life group level rather than the vintage group level, and does not require the use of averages. The equal life group accrued depreciation ratio is calculated as follows:

$$\text{Ratio} = 1 - \left(\frac{\text{Remaining Life}}{\text{Service Life}} \right)$$

Inasmuch as service life minus remaining life equals age, when averages are not employed, the foregoing equation reduces to:

$$\text{Ratio} = \left(\frac{\text{Age}}{\text{Service Life}} \right)$$

AMORTIZATION OF GENERAL PLANT ACCOUNTS

In order to use a more efficient and cost effective accounting process for equipment recorded in general plant Accounts 390, 393, 394, 396 and 397; amounts capitalized in these accounts are amortized rather than depreciated. Amortization as defined in the Uniform System of Accounts is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized.

The primary reasons for the amortization of certain general plant accounts is that the effort required to unitize additions, periodically inventory equipment and determine amounts to be retired for equipment recorded in these accounts is disproportionate to the original cost of the equipment when compared to other wastewater plant accounts.

Accounting for such equipment using an amortization concept consists of capitalization of amounts to these accounts based on the same criteria as used previously under depreciation accounting, amortization of the asset over a fixed period, retirement of the equipment at the end of the amortization period and recognition of any net salvage related to disposition of equipment in these accounts as a gain or loss. For equipment in these accounts that was placed in service prior to implementation of amortization accounting, the net book value by vintage amortized over the remaining amortization period specified for each account and the original cost will be retired at the end of this period.

There are no assets that currently were acquired that are classified as general plant, therefore, no amortization periods established.

NET SALVAGE

Experienced net salvage is incorporated in the results of the study as it was reported on the Company's books and records for the period January 1, 2016 through December 31, 2019, and estimated for the period January 1, 2020 through December 31, 2020. The calculation of the amortization is shown in Table 5 on page V-8. The amounts of salvage and removal cost by account for each year are set forth in the section beginning on page VIII-2.

Net salvage is presented in this manner to determine the amount of net salvage to be amortized to the cost of service for ratemaking purposes. In order to be consistent with this manner of recognizing net salvage, no adjustments for net salvage were made to the annual depreciation calculated for the individual accounts.

PART V. RESULTS OF STUDY

PART V. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Table 1 presents the development of the net original cost used in the study. The results of the depreciation study are summarized in Table 2 which sets forth, by depreciable group, the estimated survivor curve, calculated annual accruals and book reserve related to net original cost and the annual amortization of net salvage. Table 3 presents the bringforward to December 31, 2020 of the book reserve as of December 31, 2019. Table 4 sets forth the calculation of estimated depreciation accruals for the twelve months ended December 31, 2020. Table 5 presents the amortization of experienced and estimated net salvage, by account, based on the five-year period, 2016-2020. The total amortization amount is incorporated in the total annual accrual in Table 2.

DESCRIPTION OF DETAILED TABULATIONS

Supporting statistical data for the estimates of average service lives and survivor curves, the annual depreciation calculations, and salvage and cost of removal for the years 2016-2020 are presented in three sections.

The section beginning on page VI-2 sets forth, for each depreciable group analyzed by the retirement rate method, a chart depicting the original and estimated survivor curves followed by a tabular presentation of the original life table plotted on the chart. A cumulative summary, by year installed, for utility plant and the supporting data for the original cost depreciation calculations are presented in the section beginning on page VII-3. The tabulations of experienced and estimated net salvage, by year and account for the five-year period 2016-2020, are presented in the section beginning on page VIII-2.

In the first section, the survivor curves estimated for the depreciable groups are shown as dark smooth curves on the charts. Each smooth survivor curve is denoted by a numeral followed by the type curve designation. The numeral used is the average life derived from the entire curve from 100 percent to zero percent surviving. In cases where only a segment of the estimated curve is used in the depreciation calculation, the numeral used for identification purposes is not a designation of the average life of the group. The titles of the charts indicate the group, the symbol used to plot the points of the original life table, and the experience and placement bands of the life tables which were plotted. The experience band indicates the range of years for which the retirements were used to develop the stub survivor curve. The placements indicate, for the related experience band, the range of years of installations which appear in the experience.

The tables of the calculated annual depreciation related to net original cost are presented in account sequence in the second section and indicate the estimated average survivor curves used in the calculations. The tables set forth, for each installation year, the original cost, calculated accrued depreciation, allocated book reserve, remaining life expectancy, and the calculated annual accrual.

Detailed tabulations setting forth the cost of removal, gross salvage and net salvage amounts, by account and year, are presented in the third section. The net salvage amounts, by account and year, are carried forward to Table 5, which presents the five-year amortization of net salvage.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2020

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2020 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2020 (6)
DEPRECIABLE PLANT					
354.30 STRUCTURES AND IMPROVEMENTS - SPP	313,707.16				313,707.16
355.00 POWER GENERATION EQUIPMENT	62,629.72				62,629.72
360.10 COLLECTION SEWERS - FORCE MAINS	204,014.75				204,014.75
361.10 COLLECTION SEWERS - GRAVITY MAINS	8,029,255.51				8,029,255.51
361.20 MANHOLES	1,319,671.40				1,319,671.40
363.00 SERVICES	825,393.62				825,393.62
364.00 FLOW MEASURING DEVICES	126,117.71				126,117.71
371.00 PUMPING EQUIPMENT	517,464.89				517,464.89
TOTAL DEPRECIABLE PLANT	11,398,254.76	0.00	0.00	0.00	11,398,254.76
NONDEPRECIABLE PLANT					
353.30 LAND AND LAND RIGHTS - SPP	18,345.00				18,345.00
TOTAL NONDEPRECIABLE PLANT	18,345.00	0.00	0.00	0.00	18,345.00
TOTAL UTILITY PLANT	11,416,599.76	0.00	0.00	0.00	11,416,599.76

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2020

DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2020 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	CALCULATED ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT							
354.30	STRUCTURES AND IMPROVEMENTS - SPP	313,707.16	125,592	188,115	6,241	1.99	30.1
355.00	POWER GENERATION EQUIPMENT	62,629.72	32,646	29,984	1,710	2.73	17.5
360.10	COLLECTION SEWERS - FORCE MAINS	204,014.75	59,490	144,525	2,953	1.45	48.9
361.10	COLLECTION SEWERS - GRAVITY MAINS	8,029,255.51	1,907,055	6,122,200	112,703	1.40	54.3
361.20	MANHOLES	1,319,671.40	457,435	862,236	29,438	2.23	29.3
363.00	SERVICES	825,393.62	342,617	482,777	16,991	2.06	28.4
364.00	FLOW MEASURING DEVICES	126,117.71	57,833	68,285	11,549	9.16	5.9
371.00	PUMPING EQUIPMENT	517,464.89	275,102	242,363	19,027	3.68	12.7
	TOTAL DEPRECIABLE PLANT	11,398,254.76	3,257,770	8,140,485	200,612	1.76	40.6
NONDEPRECIABLE PLANT							
353.30	LAND AND LAND RIGHTS - SPP	18,345.00					
	TOTAL NONDEPRECIABLE PLANT	18,345.00					
AMORTIZATION OF NET SALVAGE							
	TOTAL UTILITY PLANT	11,416,599.76	3,257,770	8,140,485	201,187		

575

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2020, OF BOOK RESERVE AS OF DECEMBER 31, 2019

ACCOUNT (1)	BOOK RESERVE BALANCE AS OF 12/31/2019 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	+	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2020 (8)
354.30	121,199		5,894		1,201			300						125,592
355.00	31,711		1,501		515			51						32,646
360.10	57,547		2,873		715			214						59,490
361.10	1,802,955		112,465		6,434			1,930						1,907,055
361.20	427,874		29,561											457,435
363.00	327,104		16,842		949			380						342,617
364.00	44,641		13,192											57,833
371.00	254,973		20,129											275,102
TOTAL	3,068,004		202,457		9,814			2,876		0		0		3,257,770

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2020

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2019 (2)	NET ORIGINAL COST AS OF 12/31/2020 (3)	ACCRUAL RATE (4)	AVERAGE ACCRUALS $(5)=((2)+(3))/2*(4)$	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS $(7)=(5)+(6)$
354.30	293,908.23	313,707.16	1.94	5,894	5,894	5,894
355.00	54,144.46	62,629.72	2.57	1,501	1,501	1,501
360.10	192,229.67	204,014.75	1.45	2,873	2,873	2,873
361.10	7,923,189.81	8,029,255.51	1.41	112,465	112,465	112,465
361.20	1,319,671.40	1,319,671.40	2.24	29,561	29,561	29,561
363.00	809,743.04	825,393.62	2.06	16,842	16,842	16,842
364.00	126,117.71	126,117.71	10.46	13,192	13,192	13,192
371.00	517,464.89	517,464.89	3.89	20,129	20,129	20,129
TOTAL	11,236,469.21	11,398,254.76		202,457	-	202,457

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

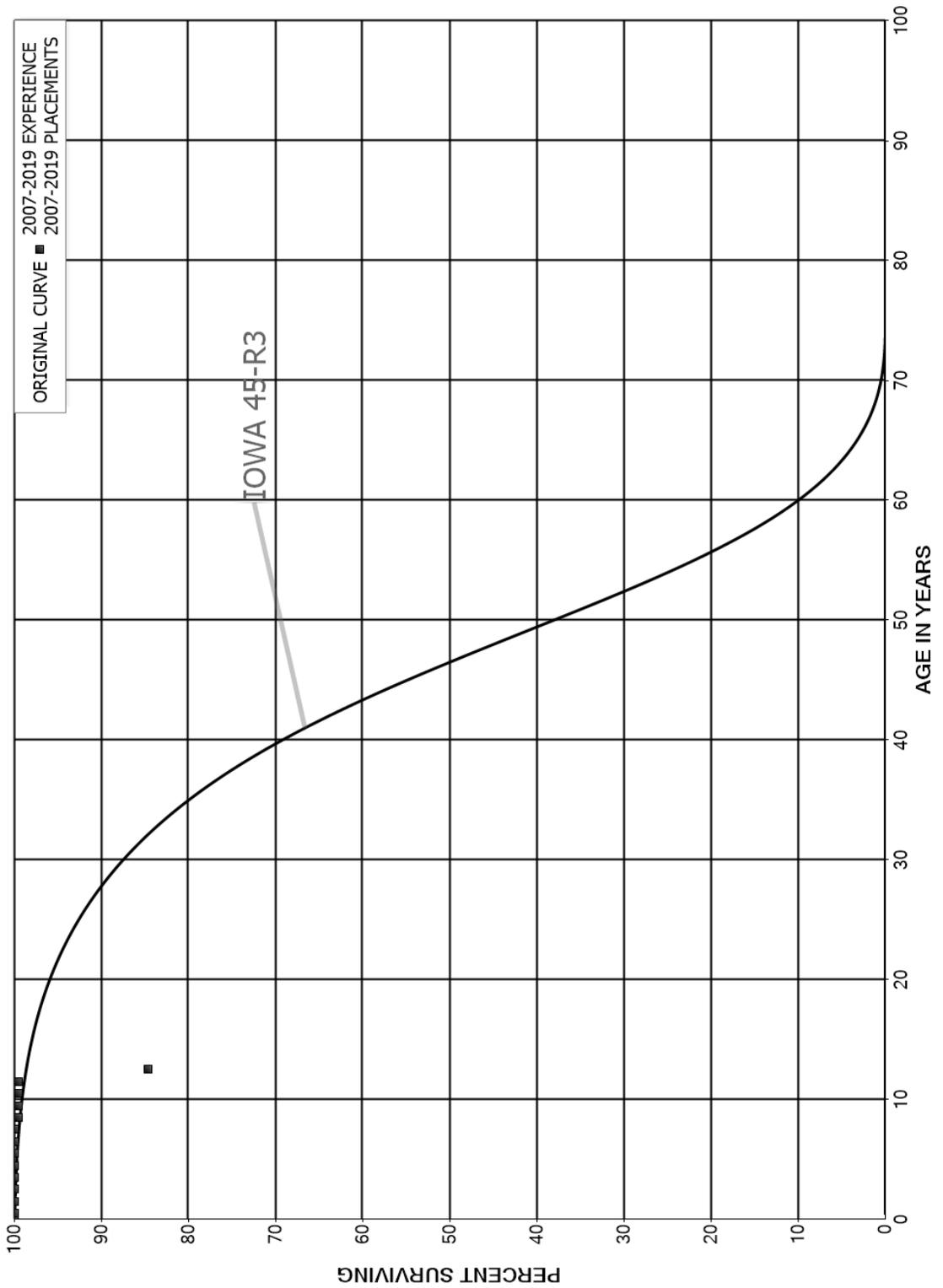
TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2016		2017		2018		2019		PROJECTED 2020		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE - (2)	COST OF REMOVAL (3)	GROSS SALVAGE - (4)	COST OF REMOVAL (5)	GROSS SALVAGE - (6)	COST OF REMOVAL (7)	GROSS SALVAGE - (8)	COST OF REMOVAL (9)	GROSS SALVAGE - (10)	COST OF REMOVAL (11)		
354.30											(300)	(60)
355.00											(51)	(10)
360.10											(214)	(43)
361.10											(1,930)	(386)
363.00											(380)	(76)
TOTAL	0	2,876	(2,876)	(575)								

* Column (12) equals the summation of Columns (2) through (11).

PART VI. SERVICE LIFE STATISTICS

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION
 ORIGINAL AND SMOOTH SURVIVOR CURVES



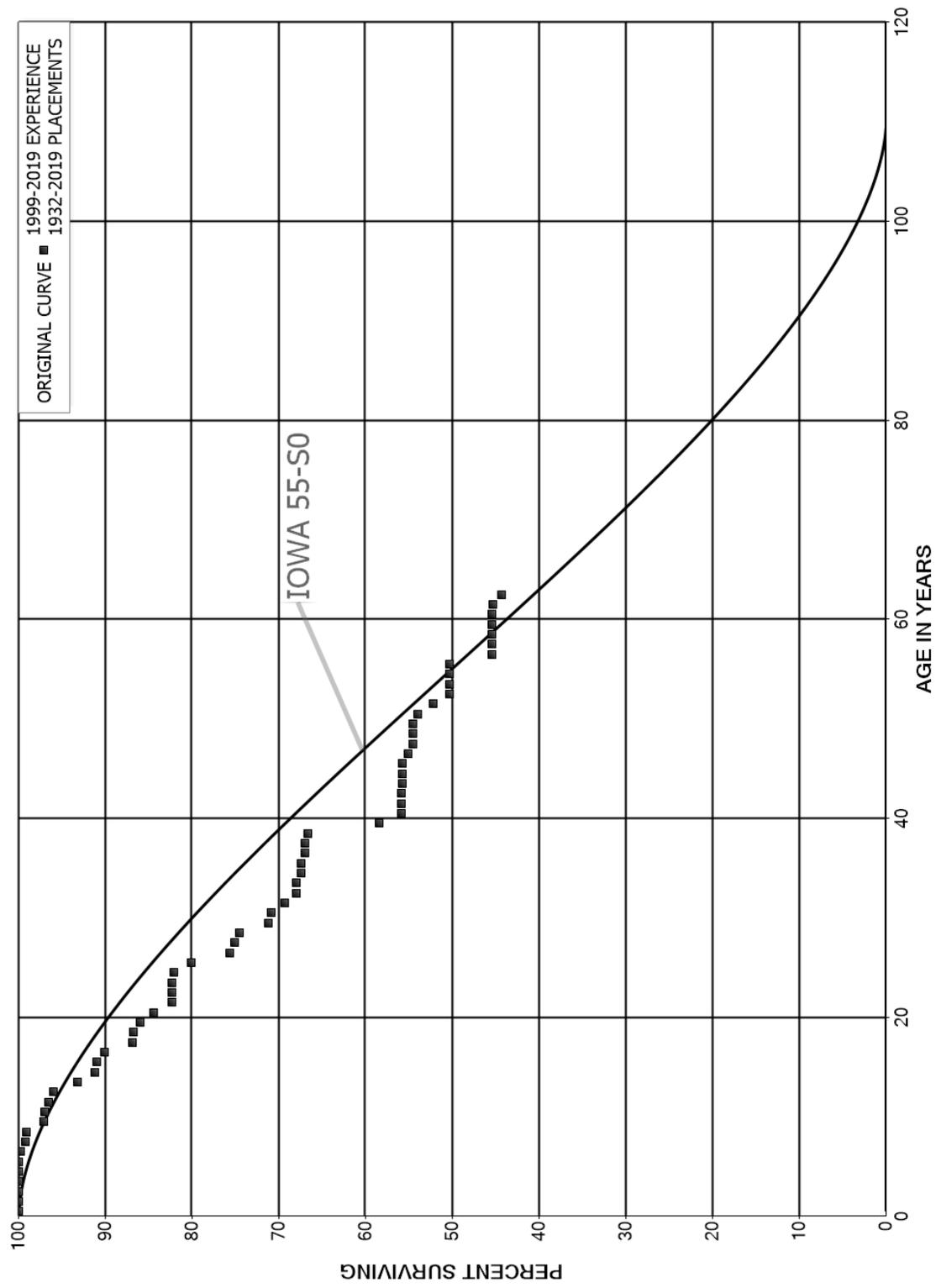
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 2007-2019			EXPERIENCE BAND 2007-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	4,844,636		0.0000	1.0000	100.00
0.5	3,478,774		0.0000	1.0000	100.00
1.5	1,864,154		0.0000	1.0000	100.00
2.5	516,452	0	0.0000	1.0000	100.00
3.5	479,797		0.0000	1.0000	100.00
4.5	437,900	416	0.0010	0.9990	100.00
5.5	422,717		0.0000	1.0000	99.90
6.5	321,516		0.0000	1.0000	99.90
7.5	321,516	1,408	0.0044	0.9956	99.90
8.5	311,522		0.0000	1.0000	99.47
9.5	311,522		0.0000	1.0000	99.47
10.5	134,415		0.0000	1.0000	99.47
11.5	20,659	3,076	0.1489	0.8511	99.47
12.5					84.66

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE

PLACEMENT BAND 1932-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	70,500,767		0.0000	1.0000	100.00
0.5	76,131,665		0.0000	1.0000	100.00
1.5	80,233,751	6,642	0.0001	0.9999	100.00
2.5	105,447,960		0.0000	1.0000	99.99
3.5	85,605,007	28,836	0.0003	0.9997	99.99
4.5	79,002,174	4,425	0.0001	0.9999	99.96
5.5	46,624,214	105,422	0.0023	0.9977	99.95
6.5	51,444,895	277,564	0.0054	0.9946	99.73
7.5	50,906,335	75,090	0.0015	0.9985	99.19
8.5	50,793,050	1,027,715	0.0202	0.9798	99.04
9.5	34,780,266	28,544	0.0008	0.9992	97.04
10.5	15,695,508	65,025	0.0041	0.9959	96.96
11.5	15,618,899	88,716	0.0057	0.9943	96.56
12.5	20,002,643	601,564	0.0301	0.9699	96.01
13.5	17,169,269	353,428	0.0206	0.9794	93.12
14.5	16,203,968	41,247	0.0025	0.9975	91.20
15.5	16,204,082	163,309	0.0101	0.9899	90.97
16.5	13,585,539	481,677	0.0355	0.9645	90.06
17.5	12,995,837	17,548	0.0014	0.9986	86.86
18.5	12,210,208	114,143	0.0093	0.9907	86.74
19.5	7,393,964	134,551	0.0182	0.9818	85.93
20.5	6,513,761	157,405	0.0242	0.9758	84.37
21.5	6,711,244	2,801	0.0004	0.9996	82.33
22.5	7,374,817	1,543	0.0002	0.9998	82.30
23.5	6,783,698	15,823	0.0023	0.9977	82.28
24.5	6,921,413	166,617	0.0241	0.9759	82.09
25.5	6,763,696	380,532	0.0563	0.9437	80.11
26.5	5,899,041	38,147	0.0065	0.9935	75.60
27.5	4,281,769	34,820	0.0081	0.9919	75.12
28.5	3,967,252	175,318	0.0442	0.9558	74.50
29.5	4,051,668	21,732	0.0054	0.9946	71.21
30.5	5,300,696	114,682	0.0216	0.9784	70.83
31.5	4,027,463	76,382	0.0190	0.9810	69.30
32.5	2,813,504	2,190	0.0008	0.9992	67.98
33.5	2,649,698	20,846	0.0079	0.9921	67.93
34.5	1,122,954		0.0000	1.0000	67.40
35.5	398,615	2,457	0.0062	0.9938	67.40
36.5	369,394		0.0000	1.0000	66.98
37.5	339,885	1,942	0.0057	0.9943	66.98
38.5	249,055	30,753	0.1235	0.8765	66.60

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1932-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	877,505	37,754	0.0430	0.9570	58.37
40.5	1,351,121		0.0000	1.0000	55.86
41.5	19,298,436	4,893	0.0003	0.9997	55.86
42.5	19,293,543	30,808	0.0016	0.9984	55.85
43.5	32,745,779		0.0000	1.0000	55.76
44.5	14,343,608	10,968	0.0008	0.9992	55.76
45.5	14,332,640	153,806	0.0107	0.9893	55.72
46.5	14,199,715	156,087	0.0110	0.9890	55.12
47.5	552,598		0.0000	1.0000	54.51
48.5	1,223,925		0.0000	1.0000	54.51
49.5	1,265,936	12,500	0.0099	0.9901	54.51
50.5	1,284,936	43,517	0.0339	0.9661	53.98
51.5	570,093	20,853	0.0366	0.9634	52.15
52.5	524,823		0.0000	1.0000	50.24
53.5	524,823		0.0000	1.0000	50.24
54.5	447,474		0.0000	1.0000	50.24
55.5	447,474	42,843	0.0957	0.9043	50.24
56.5	13,313,486	1,903	0.0001	0.9999	45.43
57.5	13,311,583		0.0000	1.0000	45.42
58.5	13,049,341	13	0.0000	1.0000	45.42
59.5	140,486		0.0000	1.0000	45.42
60.5	140,486	363	0.0026	0.9974	45.42
61.5	140,123	3,040	0.0217	0.9783	45.31
62.5					44.32
63.5					
64.5					
65.5					
66.5					
67.5					
68.5	39,928		0.0000		
69.5	39,928		0.0000		
70.5	39,928		0.0000		
71.5	39,928		0.0000		
72.5	40,428		0.0000		
73.5	39,928		0.0000		
74.5	39,928		0.0000		
75.5	39,928		0.0000		
76.5	602		0.0000		
77.5	602		0.0000		
78.5	602		0.0000		

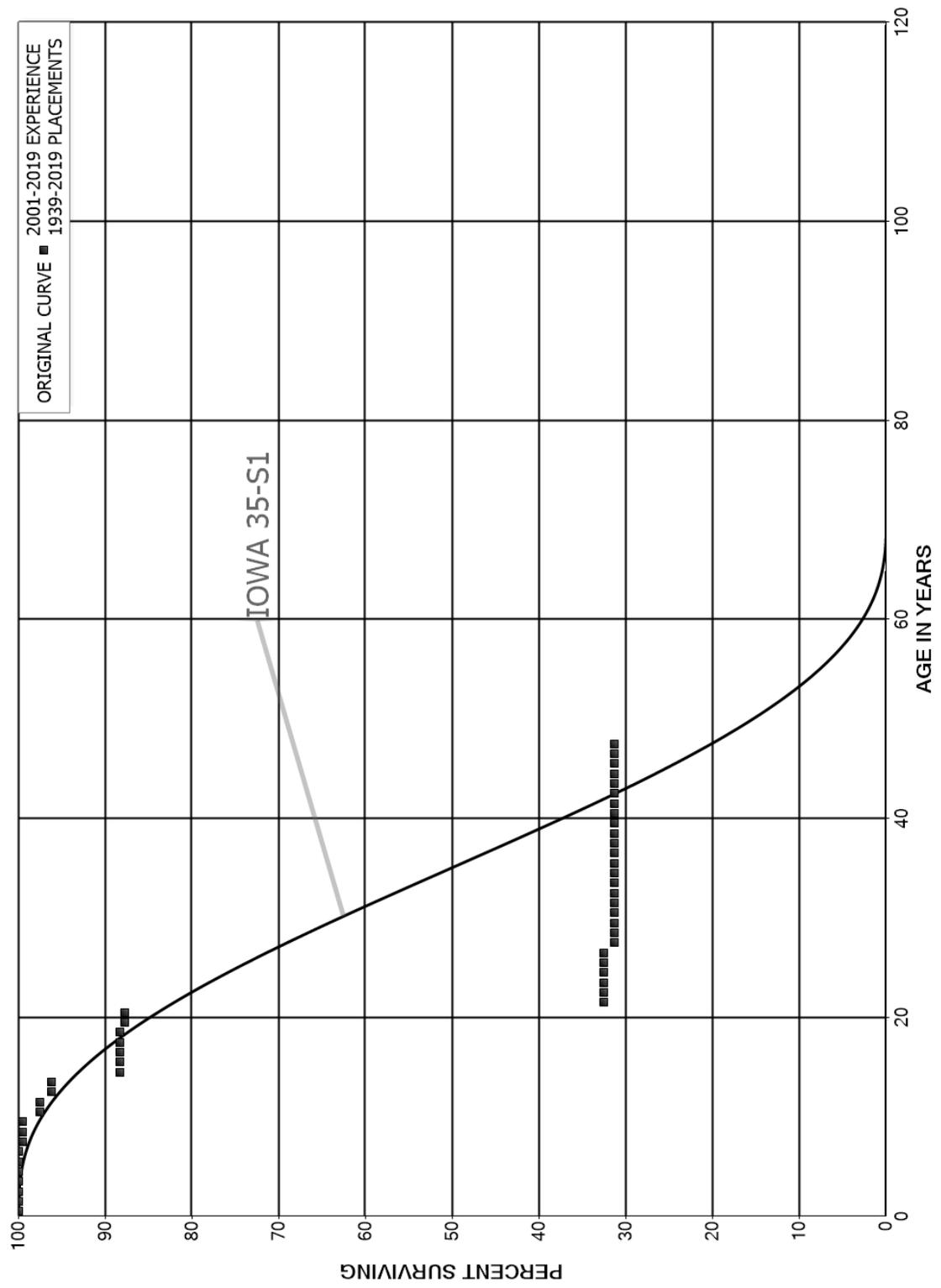
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1932-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	602		0.0000		
80.5	602		0.0000		
81.5	602		0.0000		
82.5	602		0.0000		
83.5	602		0.0000		
84.5	602		0.0000		
85.5	602		0.0000		
86.5	602		0.0000		
87.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	2,331,347		0.0000	1.0000	100.00
0.5	2,248,872	400	0.0002	0.9998	100.00
1.5	2,139,519		0.0000	1.0000	99.98
2.5	2,007,976		0.0000	1.0000	99.98
3.5	1,998,798		0.0000	1.0000	99.98
4.5	978,189		0.0000	1.0000	99.98
5.5	566,034		0.0000	1.0000	99.98
6.5	540,776	2,524	0.0047	0.9953	99.98
7.5	668,631		0.0000	1.0000	99.52
8.5	661,526		0.0000	1.0000	99.52
9.5	622,592	12,303	0.0198	0.9802	99.52
10.5	529,371	373	0.0007	0.9993	97.55
11.5	209,362	2,752	0.0131	0.9869	97.48
12.5	204,311		0.0000	1.0000	96.20
13.5	220,425	18,073	0.0820	0.9180	96.20
14.5	208,207		0.0000	1.0000	88.31
15.5	208,207		0.0000	1.0000	88.31
16.5	165,317		0.0000	1.0000	88.31
17.5	193,471		0.0000	1.0000	88.31
18.5	210,457	1,510	0.0072	0.9928	88.31
19.5	223,914		0.0000	1.0000	87.68
20.5	223,914	140,772	0.6287	0.3713	87.68
21.5	67,028		0.0000	1.0000	32.56
22.5	73,481		0.0000	1.0000	32.56
23.5	73,481		0.0000	1.0000	32.56
24.5	73,481		0.0000	1.0000	32.56
25.5	44,261		0.0000	1.0000	32.56
26.5	27,275	1,047	0.0384	0.9616	32.56
27.5	11,260		0.0000	1.0000	31.31
28.5	11,260		0.0000	1.0000	31.31
29.5	11,260		0.0000	1.0000	31.31
30.5	11,260		0.0000	1.0000	31.31
31.5	11,260		0.0000	1.0000	31.31
32.5	11,260		0.0000	1.0000	31.31
33.5	11,260		0.0000	1.0000	31.31
34.5	11,260		0.0000	1.0000	31.31
35.5	450		0.0000	1.0000	31.31
36.5	450		0.0000	1.0000	31.31
37.5	450		0.0000	1.0000	31.31
38.5	450		0.0000	1.0000	31.31

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	450		0.0000	1.0000	31.31
40.5	450		0.0000	1.0000	31.31
41.5	450		0.0000	1.0000	31.31
42.5	450		0.0000	1.0000	31.31
43.5	450		0.0000	1.0000	31.31
44.5	450		0.0000	1.0000	31.31
45.5	450		0.0000	1.0000	31.31
46.5	450		0.0000	1.0000	31.31
47.5					31.31
48.5					
49.5					
50.5					
51.5					
52.5					
53.5					
54.5					
55.5					
56.5					
57.5					
58.5					
59.5					
60.5					
61.5					
62.5					
63.5					
64.5					
65.5					
66.5					
67.5					
68.5	3,802		0.0000		
69.5	3,802		0.0000		
70.5	3,802	283	0.0744		
71.5	3,519		0.0000		
72.5	3,519		0.0000		
73.5	3,519		0.0000		
74.5	3,519		0.0000		
75.5	3,519		0.0000		
76.5	3,519		0.0000		
77.5	3,519		0.0000		
78.5	3,519		0.0000		

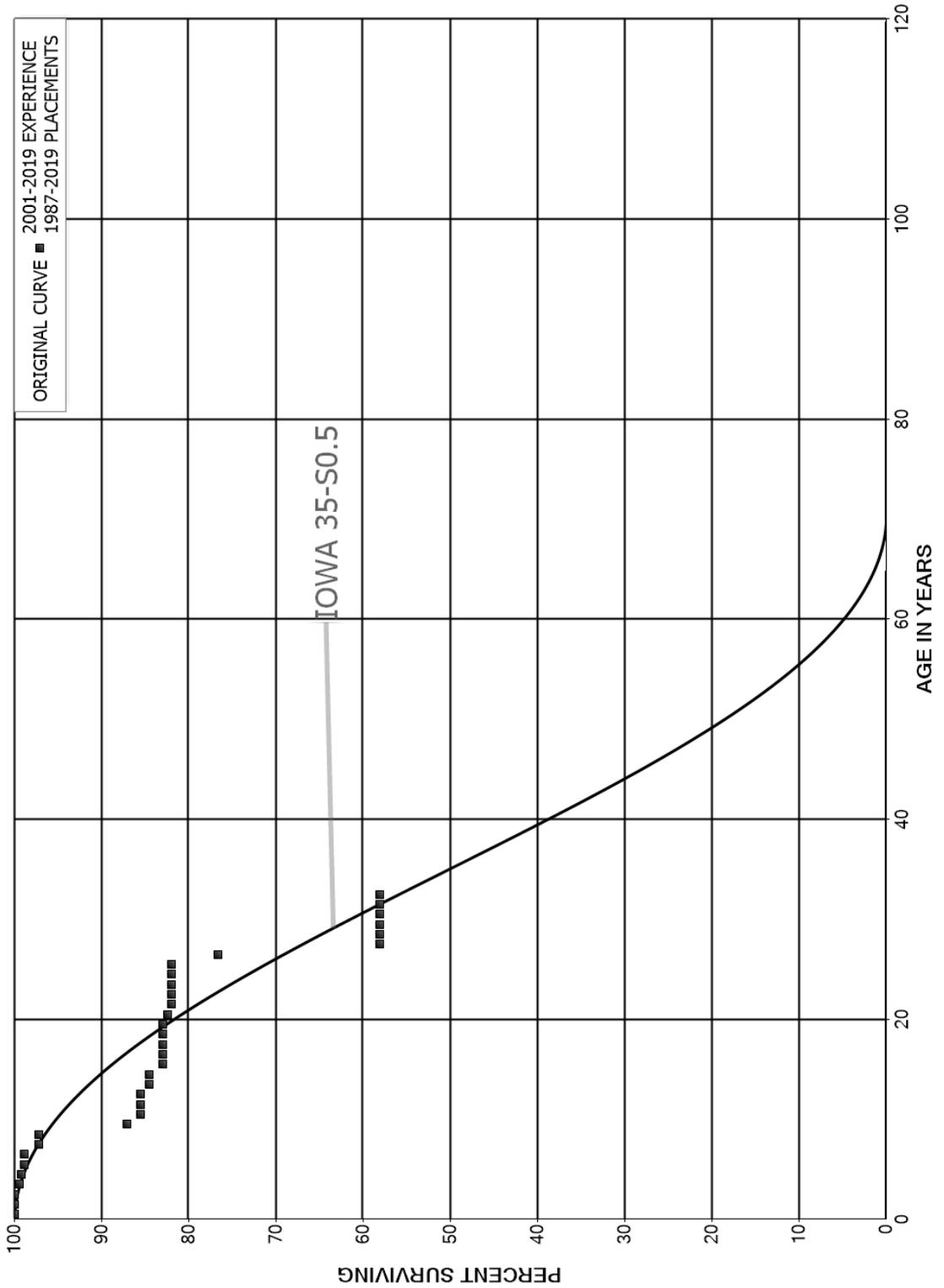
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5 80.5	3,519		0.0000		

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 355.00 POWER GENERATION EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

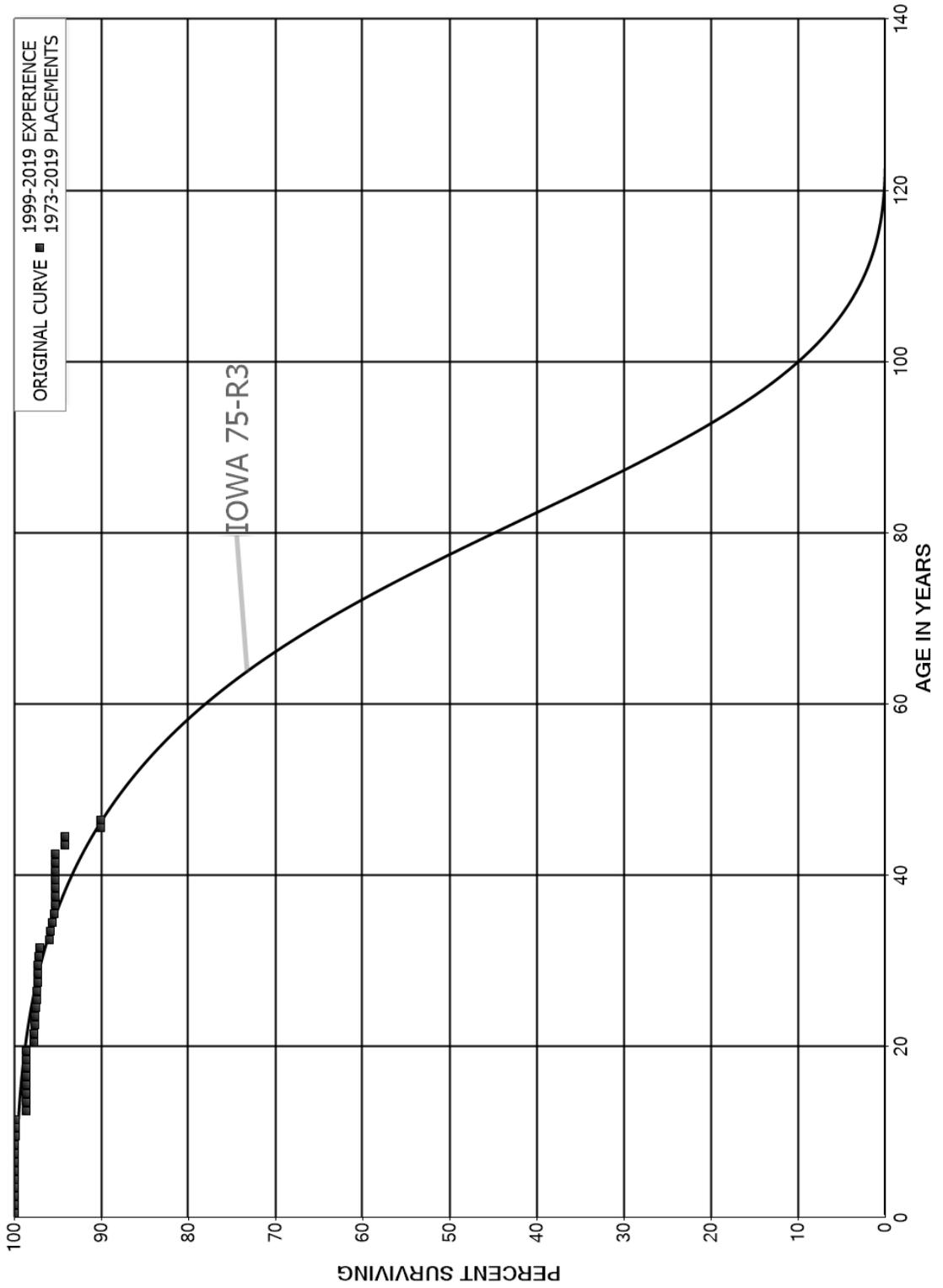
ORIGINAL LIFE TABLE

PLACEMENT BAND 1987-2019

EXPERIENCE BAND 2001-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	3,656,122		0.0000	1.0000	100.00
0.5	3,685,338		0.0000	1.0000	100.00
1.5	4,385,880		0.0000	1.0000	100.00
2.5	4,494,639	26,926	0.0060	0.9940	100.00
3.5	4,479,665	10,161	0.0023	0.9977	99.40
4.5	4,398,000	14,523	0.0033	0.9967	99.18
5.5	3,773,674	1,387	0.0004	0.9996	98.85
6.5	3,828,658	61,470	0.0161	0.9839	98.81
7.5	3,336,361		0.0000	1.0000	97.23
8.5	3,321,984	347,576	0.1046	0.8954	97.23
9.5	2,953,727	51,388	0.0174	0.9826	87.05
10.5	328,249		0.0000	1.0000	85.54
11.5	144,528		0.0000	1.0000	85.54
12.5	267,555	3,097	0.0116	0.9884	85.54
13.5	327,093		0.0000	1.0000	84.55
14.5	278,538	5,336	0.0192	0.9808	84.55
15.5	281,064		0.0000	1.0000	82.93
16.5	293,645		0.0000	1.0000	82.93
17.5	241,944		0.0000	1.0000	82.93
18.5	203,466		0.0000	1.0000	82.93
19.5	203,466	1,204	0.0059	0.9941	82.93
20.5	202,262	1,103	0.0055	0.9945	82.44
21.5	432,455		0.0000	1.0000	81.99
22.5	402,008		0.0000	1.0000	81.99
23.5	402,008		0.0000	1.0000	81.99
24.5	402,008		0.0000	1.0000	81.99
25.5	402,978	26,388	0.0655	0.9345	81.99
26.5	174,978	42,310	0.2418	0.7582	76.62
27.5	89,880		0.0000	1.0000	58.09
28.5	68,585		0.0000	1.0000	58.09
29.5	68,585		0.0000	1.0000	58.09
30.5	19,246		0.0000	1.0000	58.09
31.5	19,246		0.0000	1.0000	58.09
32.5					58.09

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

ORIGINAL LIFE TABLE

PLACEMENT BAND 1973-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	31,766,704	19	0.0000	1.0000	100.00
0.5	28,215,316	26	0.0000	1.0000	100.00
1.5	35,558,986	33	0.0000	1.0000	100.00
2.5	23,783,577	70	0.0000	1.0000	100.00
3.5	21,373,939	350	0.0000	1.0000	100.00
4.5	18,774,036	315	0.0000	1.0000	100.00
5.5	14,425,014	397	0.0000	1.0000	100.00
6.5	14,188,090	1,611	0.0001	0.9999	99.99
7.5	14,122,868	1,747	0.0001	0.9999	99.98
8.5	13,850,582	16,747	0.0012	0.9988	99.97
9.5	13,465,099	64	0.0000	1.0000	99.85
10.5	13,318,392	82	0.0000	1.0000	99.85
11.5	10,748,868	127,626	0.0119	0.9881	99.85
12.5	9,661,386		0.0000	1.0000	98.66
13.5	7,868,737	3,291	0.0004	0.9996	98.66
14.5	7,779,655	99	0.0000	1.0000	98.62
15.5	5,905,707	9	0.0000	1.0000	98.62
16.5	5,774,986	949	0.0002	0.9998	98.62
17.5	5,344,267	1,253	0.0002	0.9998	98.60
18.5	4,614,847	826	0.0002	0.9998	98.58
19.5	4,197,905	37,017	0.0088	0.9912	98.56
20.5	3,986,776	70	0.0000	1.0000	97.69
21.5	4,475,797	1,897	0.0004	0.9996	97.69
22.5	3,907,599	569	0.0001	0.9999	97.65
23.5	4,900,347	3,932	0.0008	0.9992	97.64
24.5	6,419,851	13,411	0.0021	0.9979	97.56
25.5	6,580,720	788	0.0001	0.9999	97.35
26.5	6,033,834	1,095	0.0002	0.9998	97.34
27.5	6,011,515	2,049	0.0003	0.9997	97.32
28.5	5,991,855	3,135	0.0005	0.9995	97.29
29.5	6,011,945	3,365	0.0006	0.9994	97.24
30.5	5,911,879	4,784	0.0008	0.9992	97.19
31.5	5,517,306	65,876	0.0119	0.9881	97.11
32.5	5,225,480	4,106	0.0008	0.9992	95.95
33.5	5,192,765	13,636	0.0026	0.9974	95.87
34.5	4,869,190	12,733	0.0026	0.9974	95.62
35.5	4,856,457	2,869	0.0006	0.9994	95.37
36.5	4,661,206	15	0.0000	1.0000	95.31
37.5	4,607,713		0.0000	1.0000	95.31
38.5	4,446,768	1,883	0.0004	0.9996	95.31

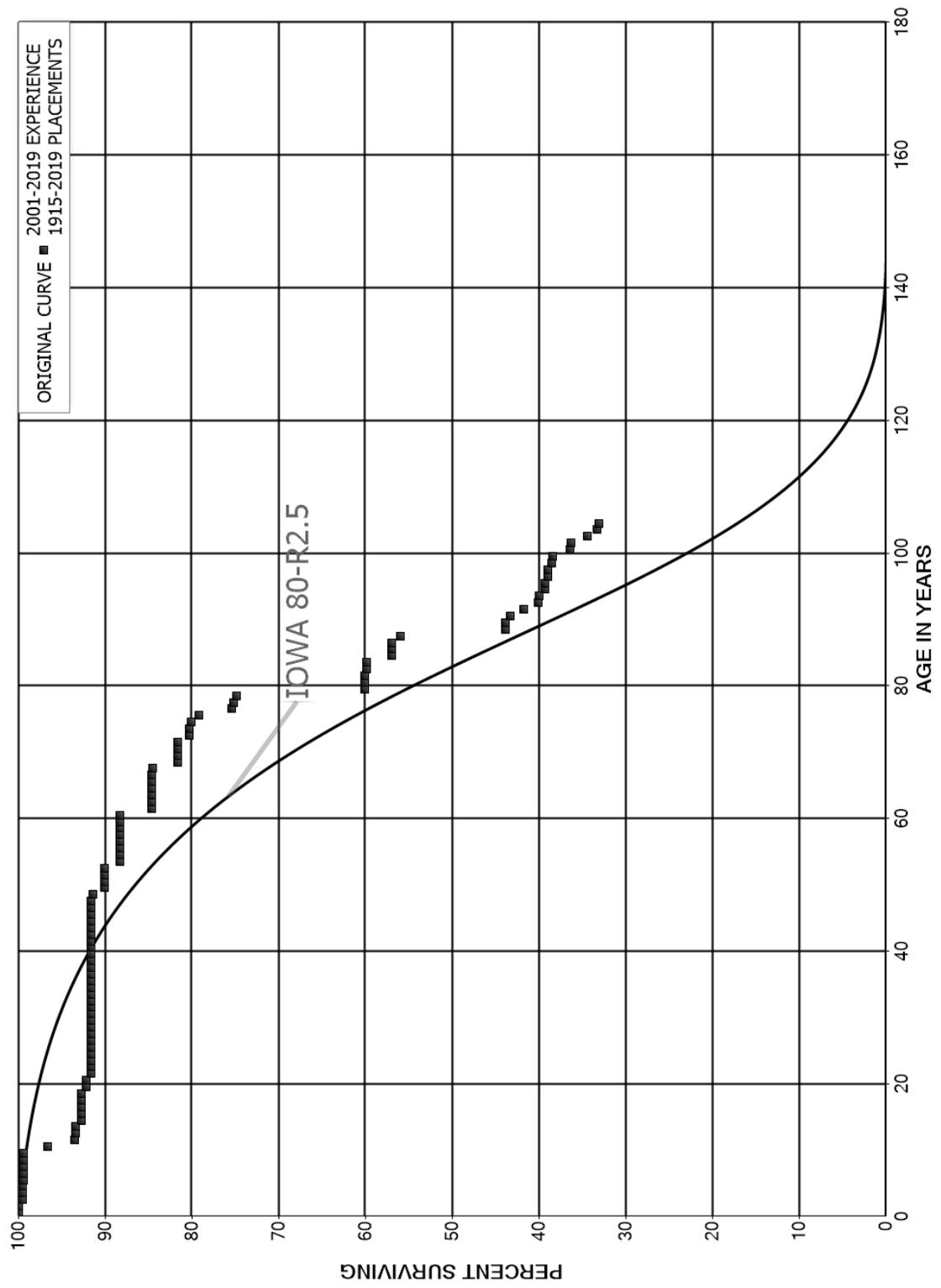
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1973-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
39.5	4,369,779	82	0.0000	1.0000	95.27	
40.5	4,295,948	6	0.0000	1.0000	95.27	
41.5	4,025,587	0	0.0000	1.0000	95.27	
42.5	3,566,737	42,283	0.0119	0.9881	95.27	
43.5	2,553,034		0.0000	1.0000	94.14	
44.5	1,703,254	73,783	0.0433	0.9567	94.14	
45.5	125,695		0.0000	1.0000	90.06	
46.5					90.06	

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	123,698,865	1,489	0.0000	1.0000	100.00
0.5	80,968,134	1,744	0.0000	1.0000	100.00
1.5	71,427,735	349,743	0.0049	0.9951	100.00
2.5	61,491,291		0.0000	1.0000	99.51
3.5	47,985,505		0.0000	1.0000	99.51
4.5	43,496,282	26,093	0.0006	0.9994	99.51
5.5	34,622,702	11,064	0.0003	0.9997	99.45
6.5	36,236,717	10,556	0.0003	0.9997	99.42
7.5	44,473,440	0	0.0000	1.0000	99.39
8.5	44,403,805	13,334	0.0003	0.9997	99.39
9.5	42,579,956	1,180,167	0.0277	0.9723	99.36
10.5	27,257,562	886,763	0.0325	0.9675	96.60
11.5	23,041,413	10,064	0.0004	0.9996	93.46
12.5	15,696,984	13,300	0.0008	0.9992	93.42
13.5	13,197,516	82,522	0.0063	0.9937	93.34
14.5	9,898,866	187	0.0000	1.0000	92.76
15.5	8,175,329	367	0.0000	1.0000	92.75
16.5	11,005,722	1,374	0.0001	0.9999	92.75
17.5	22,668,123		0.0000	1.0000	92.74
18.5	22,367,436	144,378	0.0065	0.9935	92.74
19.5	21,841,271		0.0000	1.0000	92.14
20.5	10,429,000	56,430	0.0054	0.9946	92.14
21.5	13,494,984		0.0000	1.0000	91.64
22.5	12,095,717		0.0000	1.0000	91.64
23.5	13,846,891		0.0000	1.0000	91.64
24.5	14,182,481		0.0000	1.0000	91.64
25.5	19,071,002		0.0000	1.0000	91.64
26.5	16,170,692		0.0000	1.0000	91.64
27.5	36,060,280		0.0000	1.0000	91.64
28.5	35,923,542		0.0000	1.0000	91.64
29.5	33,683,971		0.0000	1.0000	91.64
30.5	8,391,683	866	0.0001	0.9999	91.64
31.5	8,167,272	21	0.0000	1.0000	91.63
32.5	8,027,418		0.0000	1.0000	91.63
33.5	7,266,714		0.0000	1.0000	91.63
34.5	5,540,059		0.0000	1.0000	91.63
35.5	3,406,034		0.0000	1.0000	91.63
36.5	3,951,146		0.0000	1.0000	91.63
37.5	4,287,296		0.0000	1.0000	91.63
38.5	4,273,219		0.0000	1.0000	91.63

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,243,666		0.0000	1.0000	91.63
40.5	41,503,891	5,447	0.0001	0.9999	91.63
41.5	41,043,016	49	0.0000	1.0000	91.62
42.5	41,341,828		0.0000	1.0000	91.62
43.5	20,516,395		0.0000	1.0000	91.62
44.5	17,262,745	4,573	0.0003	0.9997	91.62
45.5	17,447,879		0.0000	1.0000	91.60
46.5	16,922,111	1,617	0.0001	0.9999	91.60
47.5	1,493,981	2,878	0.0019	0.9981	91.59
48.5	1,491,103	21,283	0.0143	0.9857	91.41
49.5	995,707	187	0.0002	0.9998	90.11
50.5	1,249,631		0.0000	1.0000	90.09
51.5	1,214,773		0.0000	1.0000	90.09
52.5	1,253,366	24,618	0.0196	0.9804	90.09
53.5	28,374,663		0.0000	1.0000	88.32
54.5	38,998,170		0.0000	1.0000	88.32
55.5	39,986,553		0.0000	1.0000	88.32
56.5	13,005,874		0.0000	1.0000	88.32
57.5	59,432,346		0.0000	1.0000	88.32
58.5	60,820,282	557	0.0000	1.0000	88.32
59.5	59,761,303	747	0.0000	1.0000	88.32
60.5	2,094,297	87,761	0.0419	0.9581	88.32
61.5	22,663,762	8	0.0000	1.0000	84.62
62.5	21,213,491	61	0.0000	1.0000	84.62
63.5	21,215,934	289	0.0000	1.0000	84.62
64.5	46,353		0.0000	1.0000	84.62
65.5	1,102,303		0.0000	1.0000	84.62
66.5	1,102,303	1,673	0.0015	0.9985	84.62
67.5	1,100,630	37,140	0.0337	0.9663	84.49
68.5	1,259,440		0.0000	1.0000	81.64
69.5	290,689		0.0000	1.0000	81.64
70.5	962,463	168	0.0002	0.9998	81.64
71.5	962,295	15,230	0.0158	0.9842	81.62
72.5	1,042,298	993	0.0010	0.9990	80.33
73.5	946,072	2,053	0.0022	0.9978	80.25
74.5	683,176	7,508	0.0110	0.9890	80.08
75.5	675,668	32,767	0.0485	0.9515	79.20
76.5	642,901	1,310	0.0020	0.9980	75.36
77.5	1,531,686	8,017	0.0052	0.9948	75.20
78.5	1,523,669	299,242	0.1964	0.8036	74.81

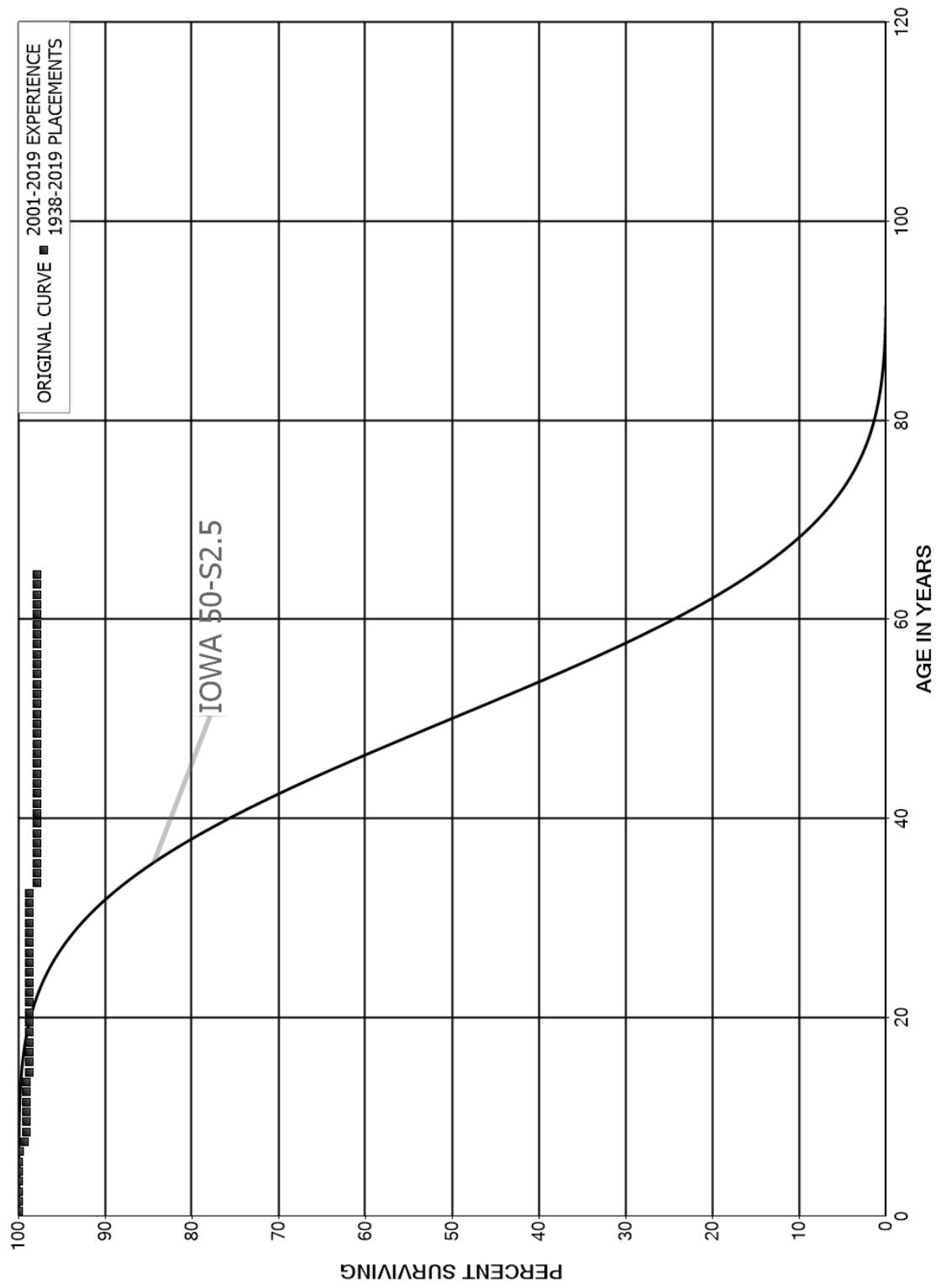
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
79.5	1,224,427	291	0.0002	0.9998	60.12	
80.5	1,522,508		0.0000	1.0000	60.10	
81.5	632,413	2,303	0.0036	0.9964	60.10	
82.5	648,868		0.0000	1.0000	59.89	
83.5	648,868	31,252	0.0482	0.9518	59.89	
84.5	601,981	10	0.0000	1.0000	57.00	
85.5	722,814		0.0000	1.0000	57.00	
86.5	722,814	13,485	0.0187	0.9813	57.00	
87.5	709,329	153,014	0.2157	0.7843	55.94	
88.5	556,315	264	0.0005	0.9995	43.87	
89.5	329,027	4,352	0.0132	0.9868	43.85	
90.5	306,175	11,276	0.0368	0.9632	43.27	
91.5	294,898	11,132	0.0377	0.9623	41.68	
92.5	283,767	1,273	0.0045	0.9955	40.10	
93.5	282,494	4,366	0.0155	0.9845	39.92	
94.5	278,128	221	0.0008	0.9992	39.31	
95.5	277,906	1,967	0.0071	0.9929	39.27	
96.5	275,939	42	0.0002	0.9998	39.00	
97.5	3,804,626	42,906	0.0113	0.9887	38.99	
98.5	3,761,720	15,091	0.0040	0.9960	38.55	
99.5	3,616,599	191,754	0.0530	0.9470	38.40	
100.5	3,424,846	6,012	0.0018	0.9982	36.36	
101.5	96,405	5,167	0.0536	0.9464	36.30	
102.5	91,238	2,967	0.0325	0.9675	34.35	
103.5	88,271	309	0.0035	0.9965	33.23	
104.5					33.12	

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 361.20 MANHOLES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1938-2019

EXPERIENCE BAND 2001-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	14,379,651		0.0000	1.0000	100.00
0.5	10,176,887		0.0000	1.0000	100.00
1.5	10,661,285	0	0.0000	1.0000	100.00
2.5	11,952,425		0.0000	1.0000	100.00
3.5	12,083,028	911	0.0001	0.9999	100.00
4.5	7,585,455		0.0000	1.0000	99.99
5.5	5,573,639	6,667	0.0012	0.9988	99.99
6.5	4,589,383	27,566	0.0060	0.9940	99.87
7.5	4,569,090	10,961	0.0024	0.9976	99.27
8.5	5,066,097		0.0000	1.0000	99.03
9.5	5,304,644		0.0000	1.0000	99.03
10.5	5,838,060		0.0000	1.0000	99.03
11.5	5,353,439		0.0000	1.0000	99.03
12.5	4,555,554		0.0000	1.0000	99.03
13.5	4,114,028	12,188	0.0030	0.9970	99.03
14.5	2,635,311		0.0000	1.0000	98.74
15.5	2,105,291	0	0.0000	1.0000	98.74
16.5	2,247,105	472	0.0002	0.9998	98.74
17.5	2,934,821		0.0000	1.0000	98.72
18.5	2,849,242		0.0000	1.0000	98.72
19.5	2,782,656		0.0000	1.0000	98.72
20.5	2,425,509	0	0.0000	1.0000	98.72
21.5	1,772,096		0.0000	1.0000	98.72
22.5	970,343		0.0000	1.0000	98.72
23.5	1,299,611		0.0000	1.0000	98.72
24.5	1,741,110		0.0000	1.0000	98.72
25.5	2,636,710		0.0000	1.0000	98.72
26.5	3,361,749		0.0000	1.0000	98.72
27.5	3,450,899		0.0000	1.0000	98.72
28.5	3,240,536		0.0000	1.0000	98.72
29.5	2,574,979		0.0000	1.0000	98.72
30.5	1,538,799		0.0000	1.0000	98.72
31.5	1,635,548		0.0000	1.0000	98.72
32.5	1,551,747	13,277	0.0086	0.9914	98.72
33.5	1,328,056		0.0000	1.0000	97.88
34.5	1,038,030		0.0000	1.0000	97.88
35.5	1,093,592		0.0000	1.0000	97.88
36.5	1,326,879		0.0000	1.0000	97.88
37.5	1,450,927		0.0000	1.0000	97.88
38.5	1,304,196		0.0000	1.0000	97.88

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	994,944		0.0000	1.0000	97.88
40.5	2,263,935		0.0000	1.0000	97.88
41.5	2,043,826		0.0000	1.0000	97.88
42.5	2,216,232		0.0000	1.0000	97.88
43.5	2,406,018		0.0000	1.0000	97.88
44.5	2,040,304		0.0000	1.0000	97.88
45.5	2,008,665		0.0000	1.0000	97.88
46.5	1,708,150		0.0000	1.0000	97.88
47.5	301,817		0.0000	1.0000	97.88
48.5	301,817		0.0000	1.0000	97.88
49.5	170,327		0.0000	1.0000	97.88
50.5	201,568		0.0000	1.0000	97.88
51.5	166,180		0.0000	1.0000	97.88
52.5	172,781		0.0000	1.0000	97.88
53.5	1,995,623		0.0000	1.0000	97.88
54.5	1,827,036		0.0000	1.0000	97.88
55.5	1,951,871		0.0000	1.0000	97.88
56.5	131,436		0.0000	1.0000	97.88
57.5	10,950,272		0.0000	1.0000	97.88
58.5	10,950,272		0.0000	1.0000	97.88
59.5	10,825,437		0.0000	1.0000	97.88
60.5	89,564		0.0000	1.0000	97.88
61.5	89,564		0.0000	1.0000	97.88
62.5	89,564		0.0000	1.0000	97.88
63.5	89,564		0.0000	1.0000	97.88
64.5					97.88
65.5	100,437		0.0000		
66.5	100,437		0.0000		
67.5	123,426		0.0000		
68.5	167,059	22,989	0.1376		
69.5	43,633		0.0000		
70.5	84,331		0.0000		
71.5	84,331		0.0000		
72.5	90,699		0.0000		
73.5	84,331		0.0000		
74.5	43,633		0.0000		
75.5	43,633		0.0000		
76.5	43,633		0.0000		
77.5	306,691		0.0000		
78.5	306,691		0.0000		

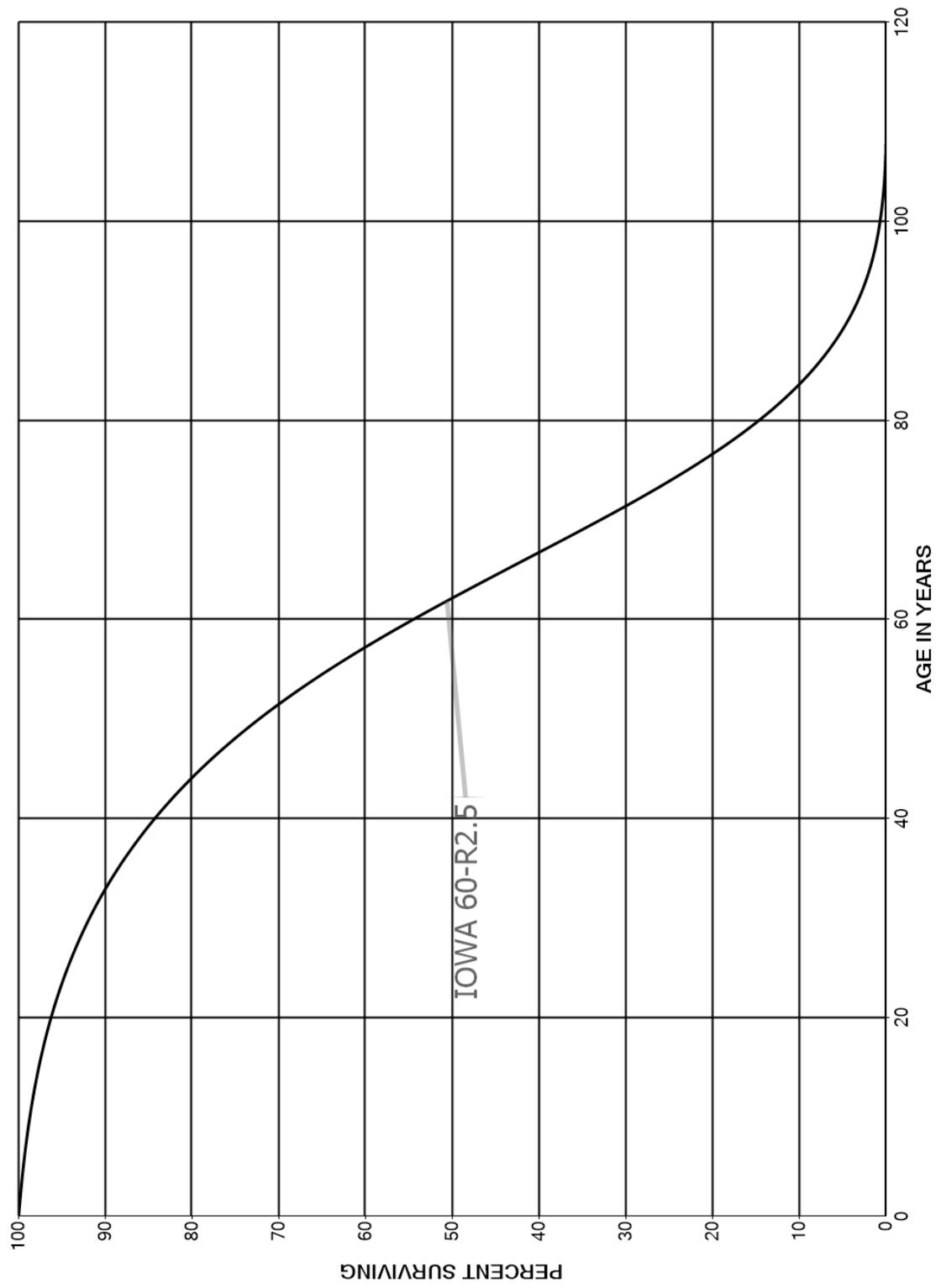
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

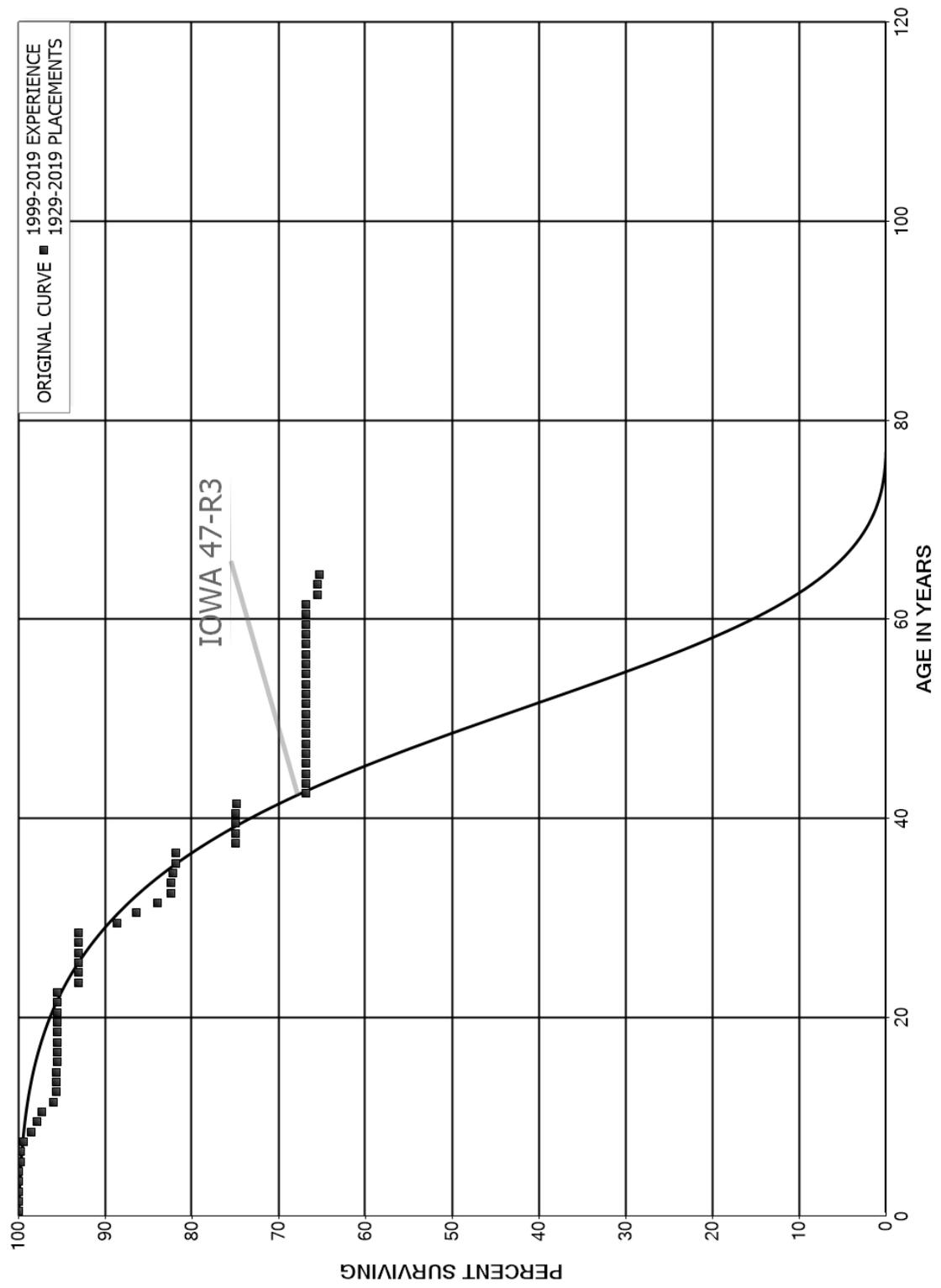
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	306,691	1,171	0.0038		
80.5	263,058		0.0000		
81.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 362.00 SPECIAL COLLECTION STRUCTURES
 SMOOTH SURVIVOR CURVE



PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 363.00 SERVICES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1929-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	10,615,796	0	0.0000	1.0000	100.00
0.5	10,038,138	0	0.0000	1.0000	100.00
1.5	9,510,472	60	0.0000	1.0000	100.00
2.5	8,790,677	5,668	0.0006	0.9994	100.00
3.5	8,679,530	421	0.0000	1.0000	99.93
4.5	7,932,683	12,635	0.0016	0.9984	99.93
5.5	6,966,530	2,890	0.0004	0.9996	99.77
6.5	8,411,000	31,963	0.0038	0.9962	99.73
7.5	8,278,555	65,894	0.0080	0.9920	99.35
8.5	8,313,922	64,649	0.0078	0.9922	98.56
9.5	8,351,147	42,617	0.0051	0.9949	97.79
10.5	6,470,010	87,729	0.0136	0.9864	97.29
11.5	6,246,021	19,892	0.0032	0.9968	95.98
12.5	5,858,877	0	0.0000	1.0000	95.67
13.5	4,698,450	4,942	0.0011	0.9989	95.67
14.5	4,095,435	871	0.0002	0.9998	95.57
15.5	3,284,377		0.0000	1.0000	95.55
16.5	3,511,888	0	0.0000	1.0000	95.55
17.5	3,953,464	0	0.0000	1.0000	95.55
18.5	3,909,166	55	0.0000	1.0000	95.55
19.5	3,630,733		0.0000	1.0000	95.55
20.5	3,925,137		0.0000	1.0000	95.55
21.5	3,646,749		0.0000	1.0000	95.55
22.5	3,395,484	87,997	0.0259	0.9741	95.55
23.5	3,780,922		0.0000	1.0000	93.07
24.5	4,115,954	497	0.0001	0.9999	93.07
25.5	5,003,579		0.0000	1.0000	93.06
26.5	5,176,777		0.0000	1.0000	93.06
27.5	4,635,070		0.0000	1.0000	93.06
28.5	4,421,930	209,578	0.0474	0.9526	93.06
29.5	3,596,999	92,585	0.0257	0.9743	88.65
30.5	2,947,708	80,733	0.0274	0.9726	86.37
31.5	2,783,645	51,927	0.0187	0.9813	84.00
32.5	2,491,265	1,241	0.0005	0.9995	82.43
33.5	2,228,511	4,871	0.0022	0.9978	82.39
34.5	1,965,612	8,461	0.0043	0.9957	82.21
35.5	1,925,423	503	0.0003	0.9997	81.86
36.5	1,973,278	167,021	0.0846	0.9154	81.84
37.5	1,839,375	192	0.0001	0.9999	74.91
38.5	1,657,395		0.0000	1.0000	74.90

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	1,207,182		0.0000	1.0000	74.90
40.5	1,197,802	385	0.0003	0.9997	74.90
41.5	1,022,673	110,064	0.1076	0.8924	74.88
42.5	886,687		0.0000	1.0000	66.82
43.5	1,408,938		0.0000	1.0000	66.82
44.5	900,914		0.0000	1.0000	66.82
45.5	855,938		0.0000	1.0000	66.82
46.5	736,586		0.0000	1.0000	66.82
47.5	156,414		0.0000	1.0000	66.82
48.5	155,860		0.0000	1.0000	66.82
49.5	82,277		0.0000	1.0000	66.82
50.5	145,022		0.0000	1.0000	66.82
51.5	132,653		0.0000	1.0000	66.82
52.5	134,754	0	0.0000	1.0000	66.82
53.5	137,757		0.0000	1.0000	66.82
54.5	20,119		0.0000	1.0000	66.82
55.5	100,869		0.0000	1.0000	66.82
56.5	100,869		0.0000	1.0000	66.82
57.5	97,866		0.0000	1.0000	66.82
58.5	256,316		0.0000	1.0000	66.82
59.5	180,162	20	0.0001	0.9999	66.82
60.5	228,822		0.0000	1.0000	66.81
61.5	228,822	4,595	0.0201	0.9799	66.81
62.5	50,781		0.0000	1.0000	65.47
63.5	50,781	162	0.0032	0.9968	65.47
64.5					65.26
65.5	60,144		0.0000		
66.5	60,144		0.0000		
67.5	60,144		0.0000		
68.5	70,211		0.0000		
69.5	13,932	819	0.0588		
70.5	36,101		0.0000		
71.5	36,101	4,521	0.1252		
72.5	31,580	1,251	0.0396		
73.5	30,329	442	0.0146		
74.5	6,899	644	0.0933		
75.5	6,255		0.0000		
76.5	6,255		0.0000		
77.5	151,010		0.0000		
78.5	151,010		0.0000		

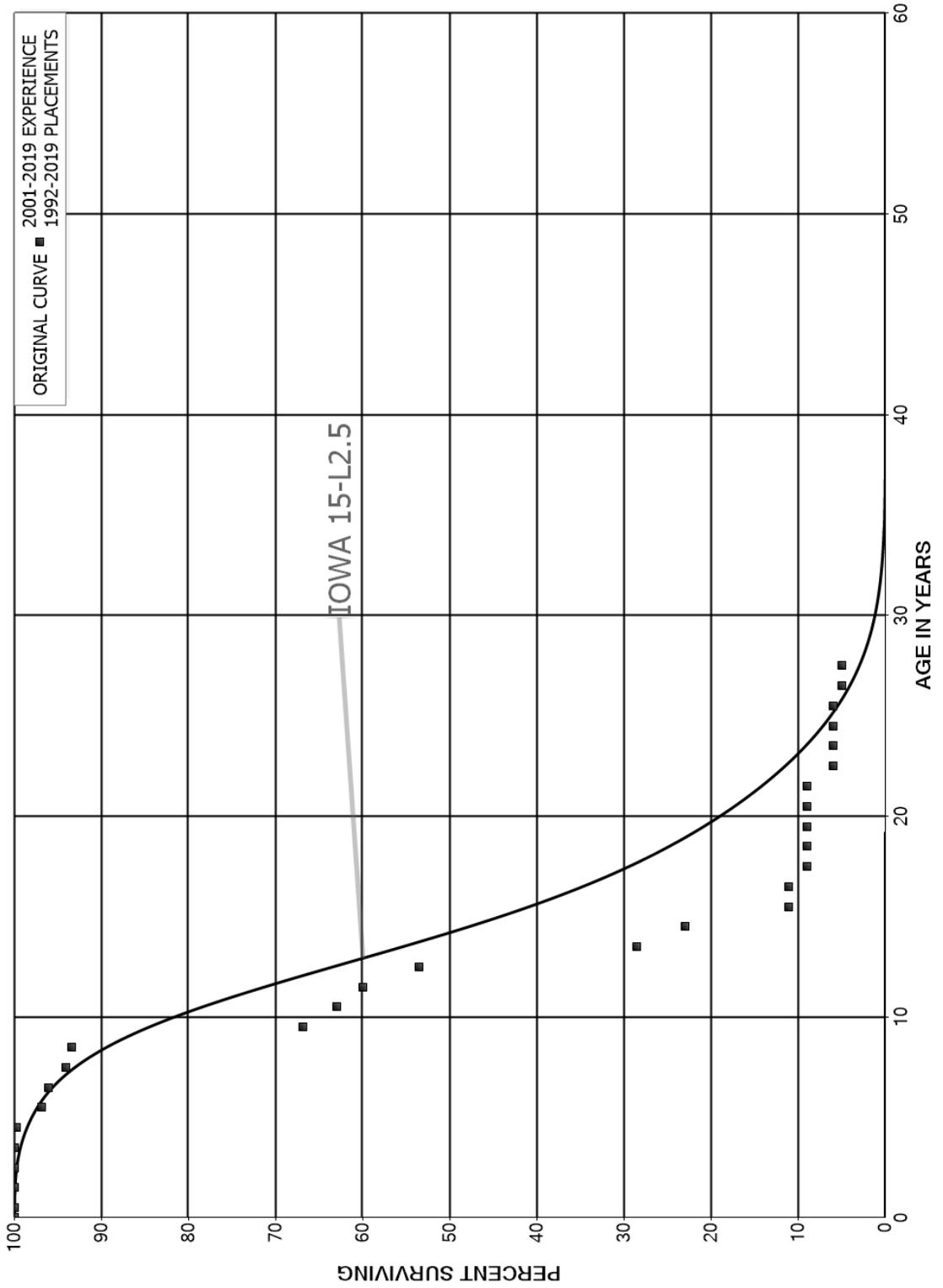
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	151,010		0.0000		
80.5	144,755	1,628	0.0112		
81.5					
82.5	717		0.0000		
83.5	717		0.0000		
84.5	717		0.0000		
85.5	717		0.0000		
86.5	717		0.0000		
87.5	717		0.0000		
88.5	717		0.0000		
89.5	717		0.0000		
90.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 364.00 FLOW MEASURING DEVICES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



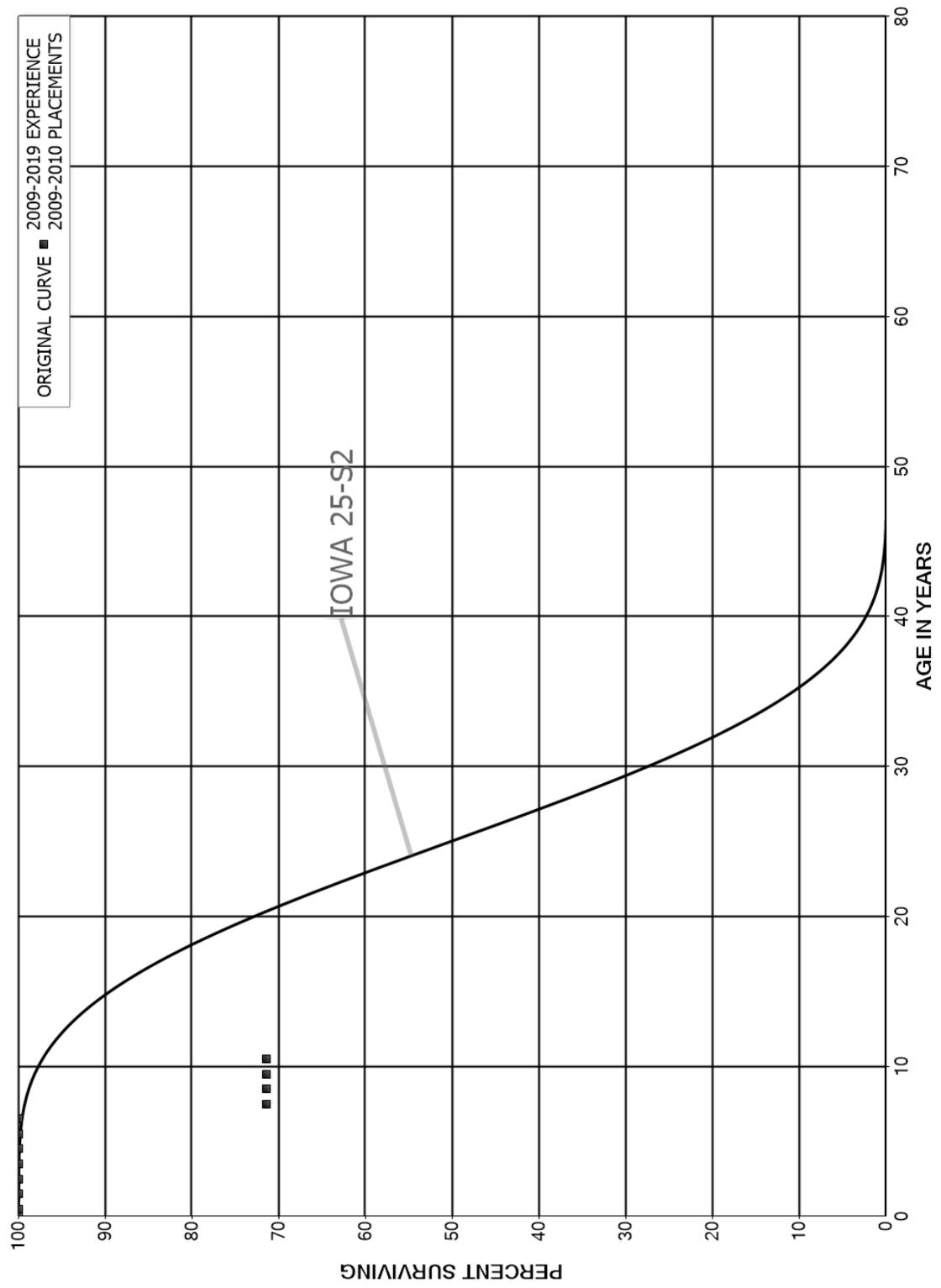
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1992-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	1,359,184		0.0000	1.0000	100.00
0.5	993,961		0.0000	1.0000	100.00
1.5	1,007,023		0.0000	1.0000	100.00
2.5	1,088,761		0.0000	1.0000	100.00
3.5	829,368	2,564	0.0031	0.9969	100.00
4.5	790,917	22,463	0.0284	0.9716	99.69
5.5	745,466	5,882	0.0079	0.9921	96.86
6.5	575,156	12,254	0.0213	0.9787	96.10
7.5	576,785	4,337	0.0075	0.9925	94.05
8.5	639,652	181,670	0.2840	0.7160	93.34
9.5	332,968	19,182	0.0576	0.9424	66.83
10.5	221,704	10,816	0.0488	0.9512	62.98
11.5	90,287	9,617	0.1065	0.8935	59.91
12.5	71,639	33,466	0.4671	0.5329	53.53
13.5	31,704	6,133	0.1934	0.8066	28.52
14.5	16,849	8,739	0.5187	0.4813	23.00
15.5	16,281		0.0000	1.0000	11.07
16.5	16,281	3,203	0.1967	0.8033	11.07
17.5	13,078		0.0000	1.0000	8.90
18.5	13,078		0.0000	1.0000	8.90
19.5	13,078		0.0000	1.0000	8.90
20.5	13,078		0.0000	1.0000	8.90
21.5	13,078	4,272	0.3266	0.6734	8.90
22.5	8,806		0.0000	1.0000	5.99
23.5	8,806		0.0000	1.0000	5.99
24.5	8,806		0.0000	1.0000	5.99
25.5	8,806	1,522	0.1728	0.8272	5.99
26.5	7,285		0.0000	1.0000	4.95
27.5					4.95

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



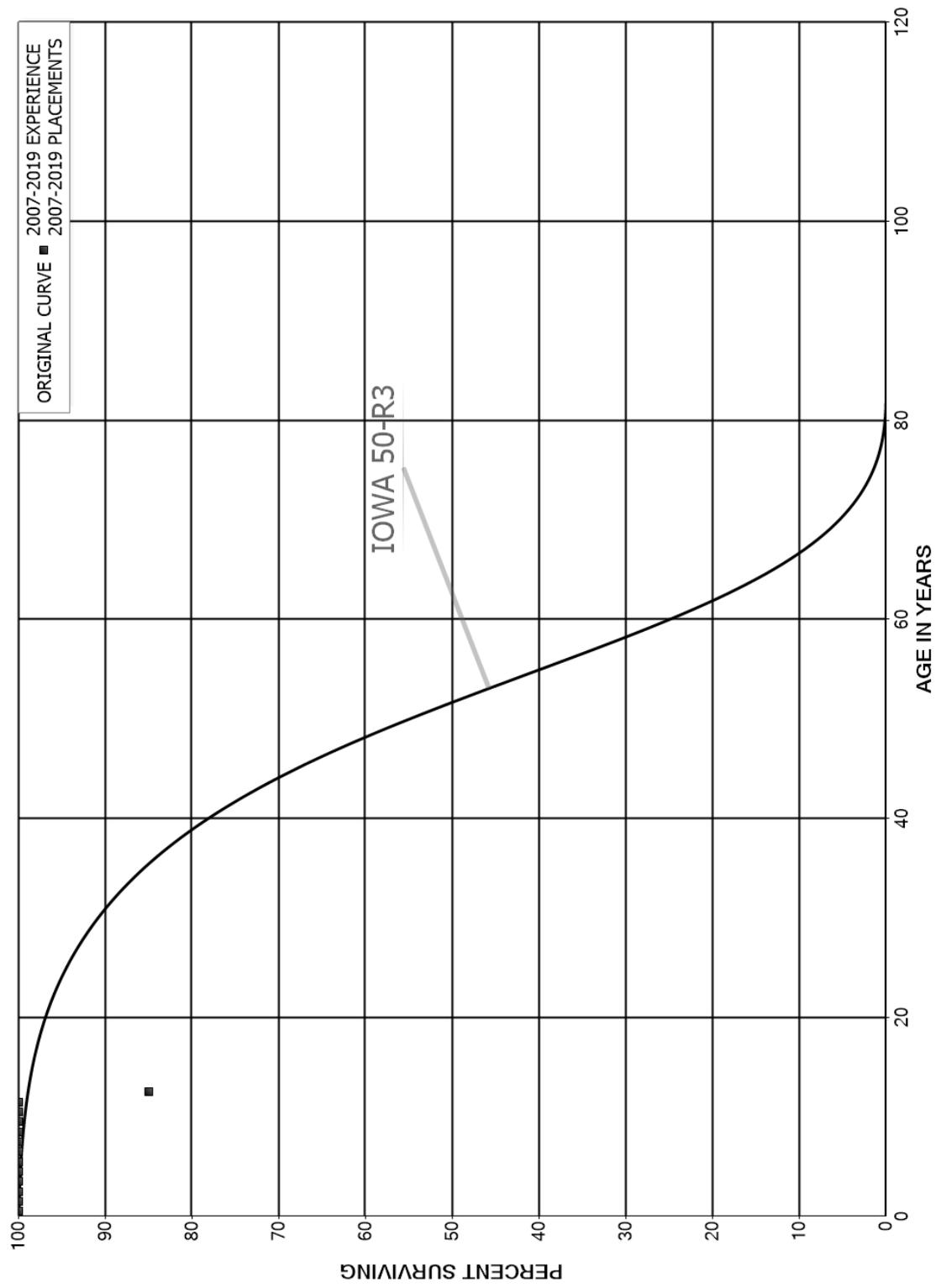
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2009-2010			EXPERIENCE BAND 2009-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	20,918		0.0000	1.0000	100.00
0.5	20,918		0.0000	1.0000	100.00
1.5	20,918		0.0000	1.0000	100.00
2.5	20,918		0.0000	1.0000	100.00
3.5	20,918		0.0000	1.0000	100.00
4.5	20,918		0.0000	1.0000	100.00
5.5	20,918		0.0000	1.0000	100.00
6.5	20,918	5,980	0.2859	0.7141	100.00
7.5	14,938		0.0000	1.0000	71.41
8.5	14,938		0.0000	1.0000	71.41
9.5	14,938		0.0000	1.0000	71.41
10.5					71.41

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 370.00 RECEIVING WELLS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



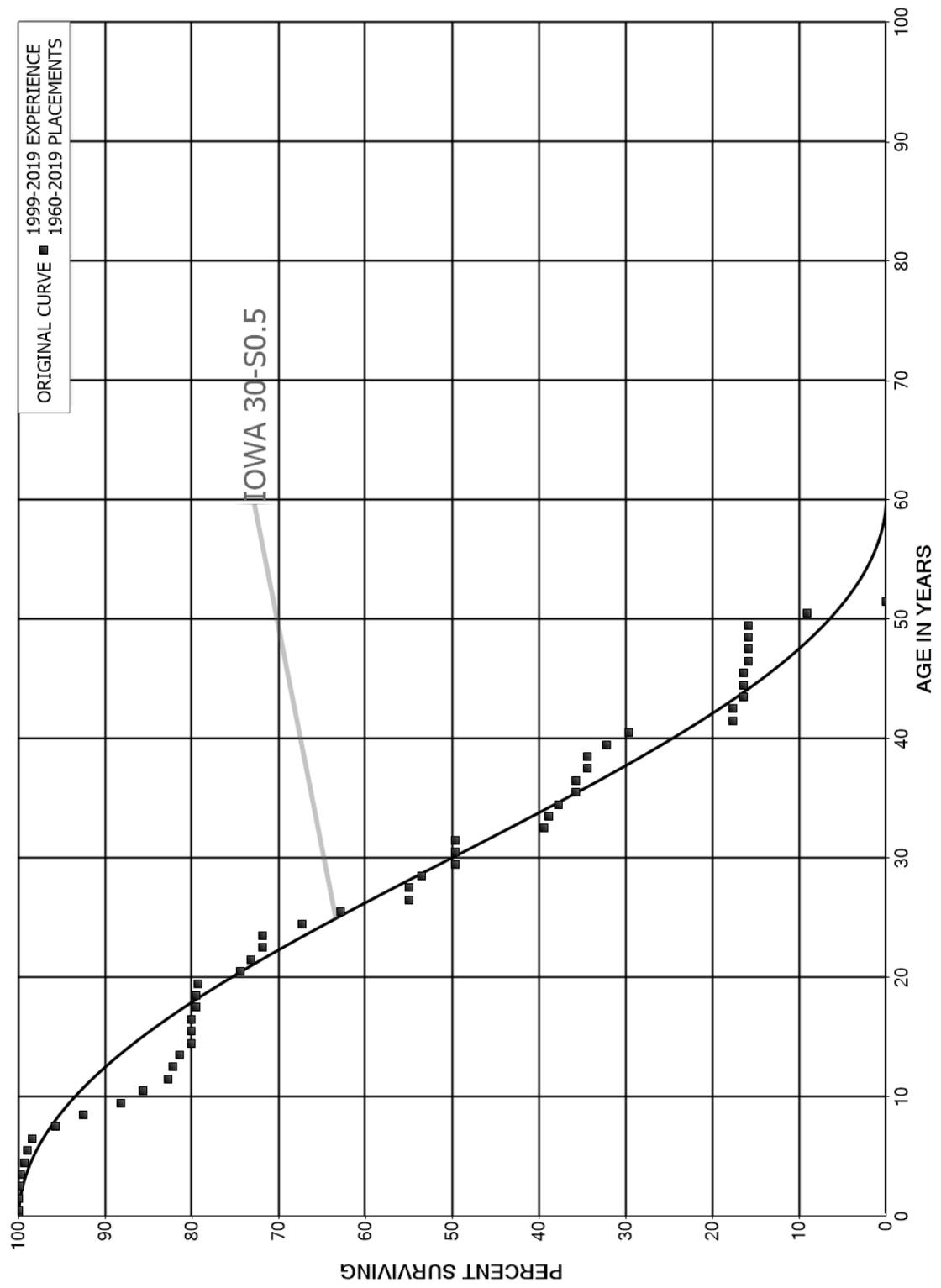
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 370.00 RECEIVING WELLS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2007-2019			EXPERIENCE BAND 2007-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	121,180		0.0000	1.0000	100.00
0.5	111,148		0.0000	1.0000	100.00
1.5	111,148		0.0000	1.0000	100.00
2.5	132,949		0.0000	1.0000	100.00
3.5	132,949		0.0000	1.0000	100.00
4.5	132,949		0.0000	1.0000	100.00
5.5	132,949		0.0000	1.0000	100.00
6.5	99,482		0.0000	1.0000	100.00
7.5	99,482		0.0000	1.0000	100.00
8.5	99,482		0.0000	1.0000	100.00
9.5	99,482		0.0000	1.0000	100.00
10.5	7,370		0.0000	1.0000	100.00
11.5	7,370	1,109	0.1505	0.8495	100.00
12.5					84.95

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 371.00 PUMPING EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	13,928,914		0.0000	1.0000	100.00
0.5	8,653,630	5,419	0.0006	0.9994	100.00
1.5	11,021,964	12,306	0.0011	0.9989	99.94
2.5	10,781,219	12,096	0.0011	0.9989	99.83
3.5	9,453,412	44,345	0.0047	0.9953	99.71
4.5	6,817,321	23,246	0.0034	0.9966	99.25
5.5	5,785,361	27,560	0.0048	0.9952	98.91
6.5	5,413,591	148,677	0.0275	0.9725	98.44
7.5	3,768,518	126,794	0.0336	0.9664	95.73
8.5	3,446,810	160,001	0.0464	0.9536	92.51
9.5	2,549,487	73,710	0.0289	0.9711	88.22
10.5	1,455,129	50,056	0.0344	0.9656	85.67
11.5	1,043,502	7,445	0.0071	0.9929	82.72
12.5	1,137,255	10,025	0.0088	0.9912	82.13
13.5	837,345	14,096	0.0168	0.9832	81.41
14.5	784,395		0.0000	1.0000	80.04
15.5	677,887		0.0000	1.0000	80.04
16.5	534,434	3,610	0.0068	0.9932	80.04
17.5	610,401	101	0.0002	0.9998	79.50
18.5	664,971	1,413	0.0021	0.9979	79.48
19.5	663,558	41,426	0.0624	0.9376	79.31
20.5	588,736	9,514	0.0162	0.9838	74.36
21.5	638,927	11,409	0.0179	0.9821	73.16
22.5	599,786		0.0000	1.0000	71.85
23.5	517,501	33,177	0.0641	0.9359	71.85
24.5	484,324	31,555	0.0652	0.9348	67.25
25.5	497,723	62,415	0.1254	0.8746	62.87
26.5	428,133		0.0000	1.0000	54.98
27.5	312,603	8,673	0.0277	0.9723	54.98
28.5	241,647	17,595	0.0728	0.9272	53.46
29.5	235,281		0.0000	1.0000	49.56
30.5	280,168		0.0000	1.0000	49.56
31.5	280,168	57,666	0.2058	0.7942	49.56
32.5	222,502	2,887	0.0130	0.9870	39.36
33.5	140,599	3,932	0.0280	0.9720	38.85
34.5	136,159	7,170	0.0527	0.9473	37.77
35.5	183,946		0.0000	1.0000	35.78
36.5	183,946	7,008	0.0381	0.9619	35.78
37.5	176,938		0.0000	1.0000	34.41
38.5	127,299	8,408	0.0660	0.9340	34.41

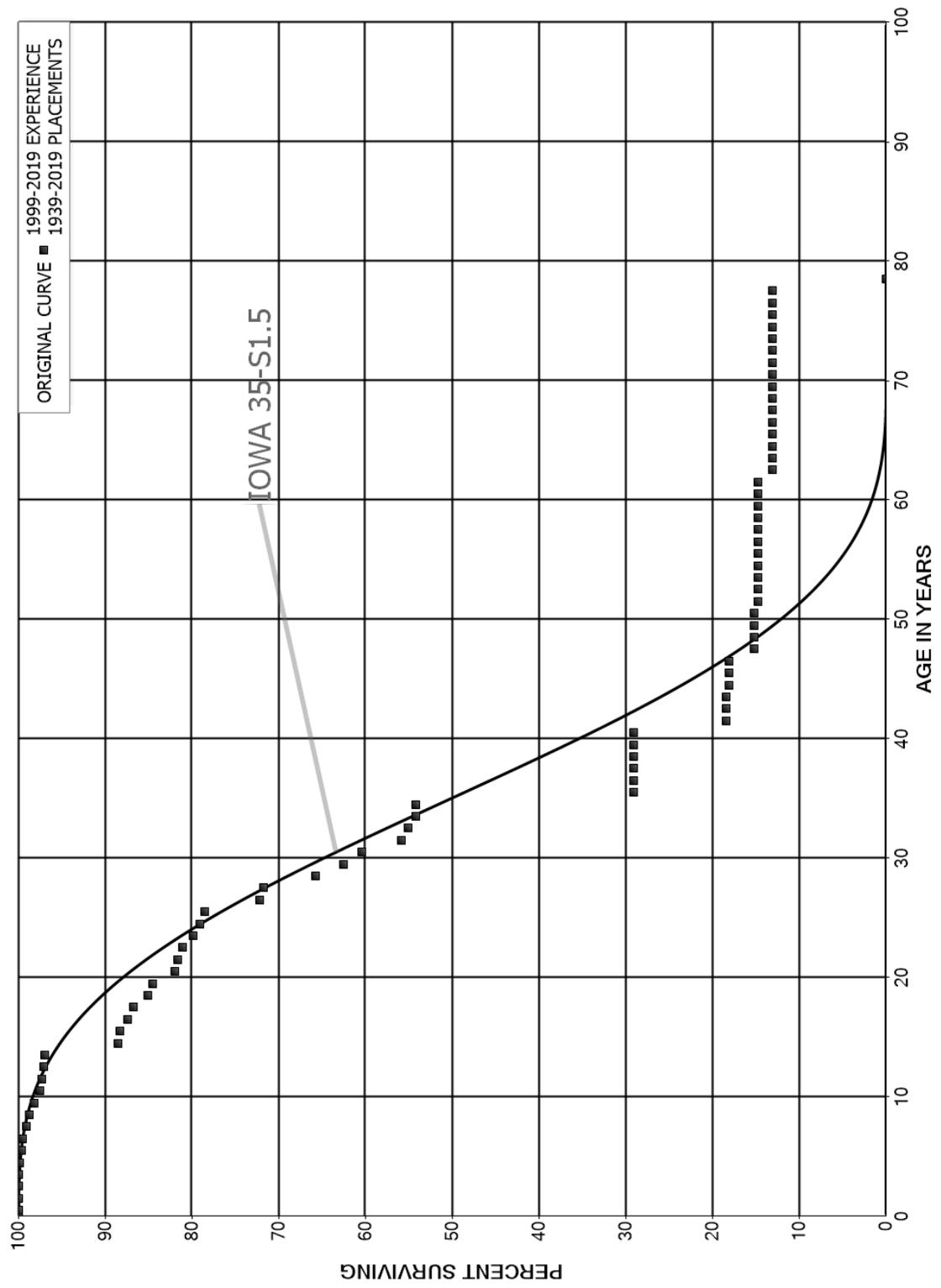
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	128,004	9,910	0.0774	0.9226	32.14
40.5	140,361	56,891	0.4053	0.5947	29.65
41.5	83,470		0.0000	1.0000	17.63
42.5	83,470	6,122	0.0733	0.9267	17.63
43.5	28,842		0.0000	1.0000	16.34
44.5	28,842		0.0000	1.0000	16.34
45.5	28,842	860	0.0298	0.9702	16.34
46.5	27,983		0.0000	1.0000	15.85
47.5	21,408		0.0000	1.0000	15.85
48.5	5,141		0.0000	1.0000	15.85
49.5	5,141	2,187	0.4255	0.5745	15.85
50.5	2,953	2,953	1.0000		9.11
51.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 380.00 TREATMENT EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1939-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	52,484,979		0.0000	1.0000	100.00
0.5	52,338,297		0.0000	1.0000	100.00
1.5	64,377,580	1,853	0.0000	1.0000	100.00
2.5	61,280,085	2,456	0.0000	1.0000	100.00
3.5	56,645,719	97,216	0.0017	0.9983	99.99
4.5	44,542,853	95,360	0.0021	0.9979	99.82
5.5	39,192,994	29,279	0.0007	0.9993	99.61
6.5	37,993,990	195,343	0.0051	0.9949	99.53
7.5	37,038,634	104,008	0.0028	0.9972	99.02
8.5	38,046,057	237,211	0.0062	0.9938	98.74
9.5	28,856,102	179,693	0.0062	0.9938	98.13
10.5	11,015,164	26,343	0.0024	0.9976	97.52
11.5	15,100,040	30,352	0.0020	0.9980	97.28
12.5	16,280,292	28,816	0.0018	0.9982	97.09
13.5	16,807,417	1,468,058	0.0873	0.9127	96.92
14.5	14,676,816	22,218	0.0015	0.9985	88.45
15.5	11,808,330	121,942	0.0103	0.9897	88.32
16.5	11,627,778	92,492	0.0080	0.9920	87.41
17.5	12,550,432	231,211	0.0184	0.9816	86.71
18.5	10,724,551	78,054	0.0073	0.9927	85.11
19.5	10,812,422	322,982	0.0299	0.9701	84.49
20.5	9,468,414	37,906	0.0040	0.9960	81.97
21.5	9,609,732	62,020	0.0065	0.9935	81.64
22.5	9,543,450	153,592	0.0161	0.9839	81.11
23.5	9,334,263	87,607	0.0094	0.9906	79.81
24.5	9,070,811	59,133	0.0065	0.9935	79.06
25.5	8,792,217	707,485	0.0805	0.9195	78.54
26.5	4,703,706	32,521	0.0069	0.9931	72.22
27.5	4,778,474	397,707	0.0832	0.9168	71.72
28.5	6,059,797	298,086	0.0492	0.9508	65.75
29.5	6,184,153	215,062	0.0348	0.9652	62.52
30.5	5,152,304	387,965	0.0753	0.9247	60.35
31.5	5,356,247	72,674	0.0136	0.9864	55.80
32.5	3,421,800	52,448	0.0153	0.9847	55.05
33.5	2,753,091		0.0000	1.0000	54.20
34.5	2,272,767	1,055,181	0.4643	0.5357	54.20
35.5	635,826		0.0000	1.0000	29.04
36.5	779,480		0.0000	1.0000	29.04
37.5	801,627		0.0000	1.0000	29.04
38.5	778,140		0.0000	1.0000	29.04

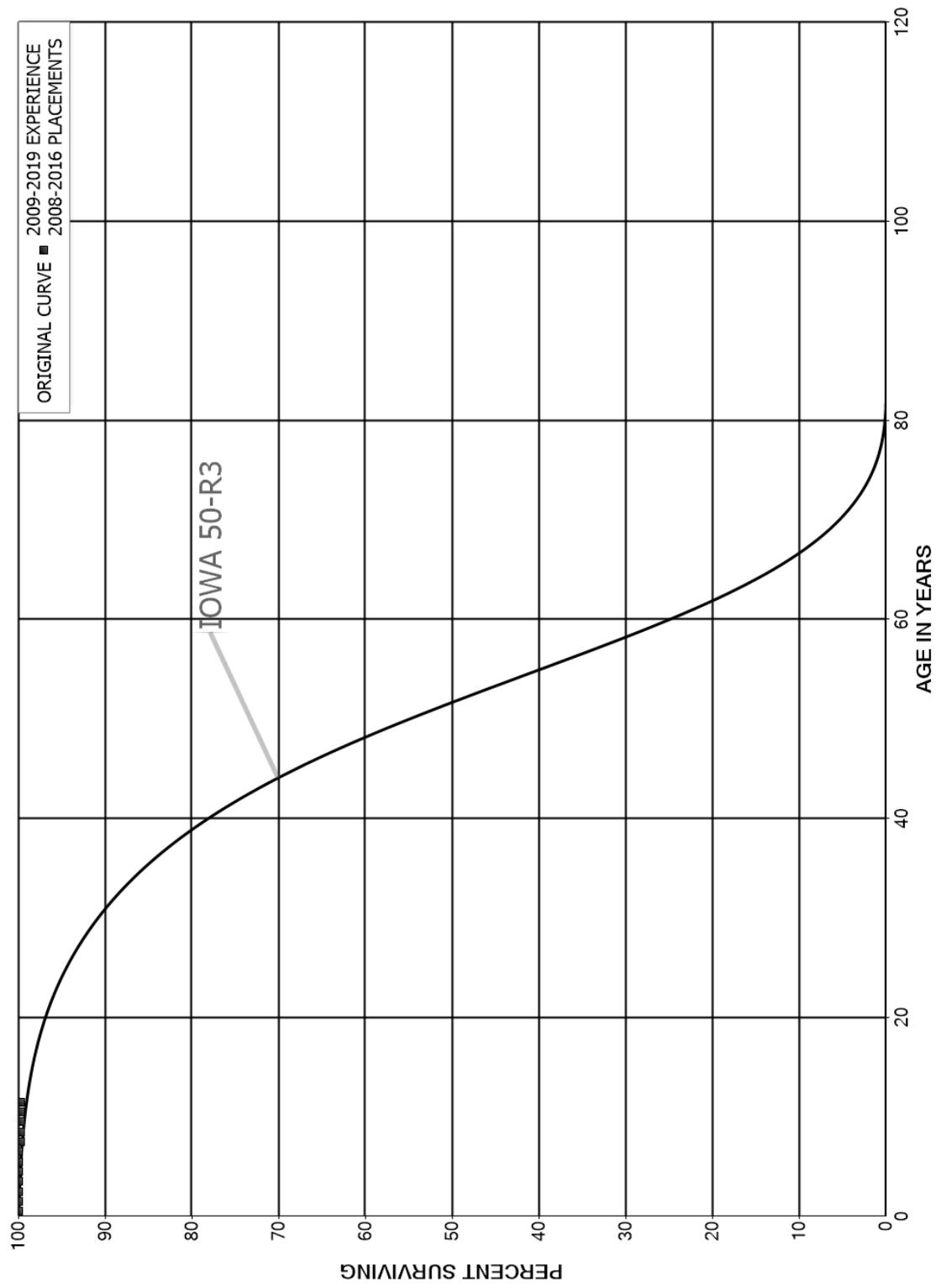
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
39.5	778,140	411	0.0005	0.9995	29.04	
40.5	777,730	285,407	0.3670	0.6330	29.02	
41.5	15,823,498		0.0000	1.0000	18.37	
42.5	15,823,498		0.0000	1.0000	18.37	
43.5	15,823,498	268,317	0.0170	0.9830	18.37	
44.5	515,644		0.0000	1.0000	18.06	
45.5	515,644		0.0000	1.0000	18.06	
46.5	371,038	60,316	0.1626	0.8374	18.06	
47.5	288,575		0.0000	1.0000	15.12	
48.5	288,575		0.0000	1.0000	15.12	
49.5	288,575		0.0000	1.0000	15.12	
50.5	288,575	6,818	0.0236	0.9764	15.12	
51.5	281,757	315	0.0011	0.9989	14.77	
52.5	107,182		0.0000	1.0000	14.75	
53.5	107,182	462	0.0043	0.9957	14.75	
54.5	23,321		0.0000	1.0000	14.69	
55.5	23,321		0.0000	1.0000	14.69	
56.5	298,010		0.0000	1.0000	14.69	
57.5	298,010		0.0000	1.0000	14.69	
58.5	298,010		0.0000	1.0000	14.69	
59.5	25,215		0.0000	1.0000	14.69	
60.5	25,215		0.0000	1.0000	14.69	
61.5	25,215	2,761	0.1095	0.8905	14.69	
62.5	1,894		0.0000	1.0000	13.08	
63.5	1,894		0.0000	1.0000	13.08	
64.5	1,894		0.0000	1.0000	13.08	
65.5	1,894		0.0000	1.0000	13.08	
66.5	1,894		0.0000	1.0000	13.08	
67.5	1,894		0.0000	1.0000	13.08	
68.5	1,894		0.0000	1.0000	13.08	
69.5	1,894		0.0000	1.0000	13.08	
70.5	1,894		0.0000	1.0000	13.08	
71.5	1,894		0.0000	1.0000	13.08	
72.5	1,894		0.0000	1.0000	13.08	
73.5	1,894		0.0000	1.0000	13.08	
74.5	1,894		0.0000	1.0000	13.08	
75.5	1,894		0.0000	1.0000	13.08	
76.5	1,894		0.0000	1.0000	13.08	
77.5	1,894	1,894	1.0000		13.08	
78.5						

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 381.00 PLANT SEWERS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



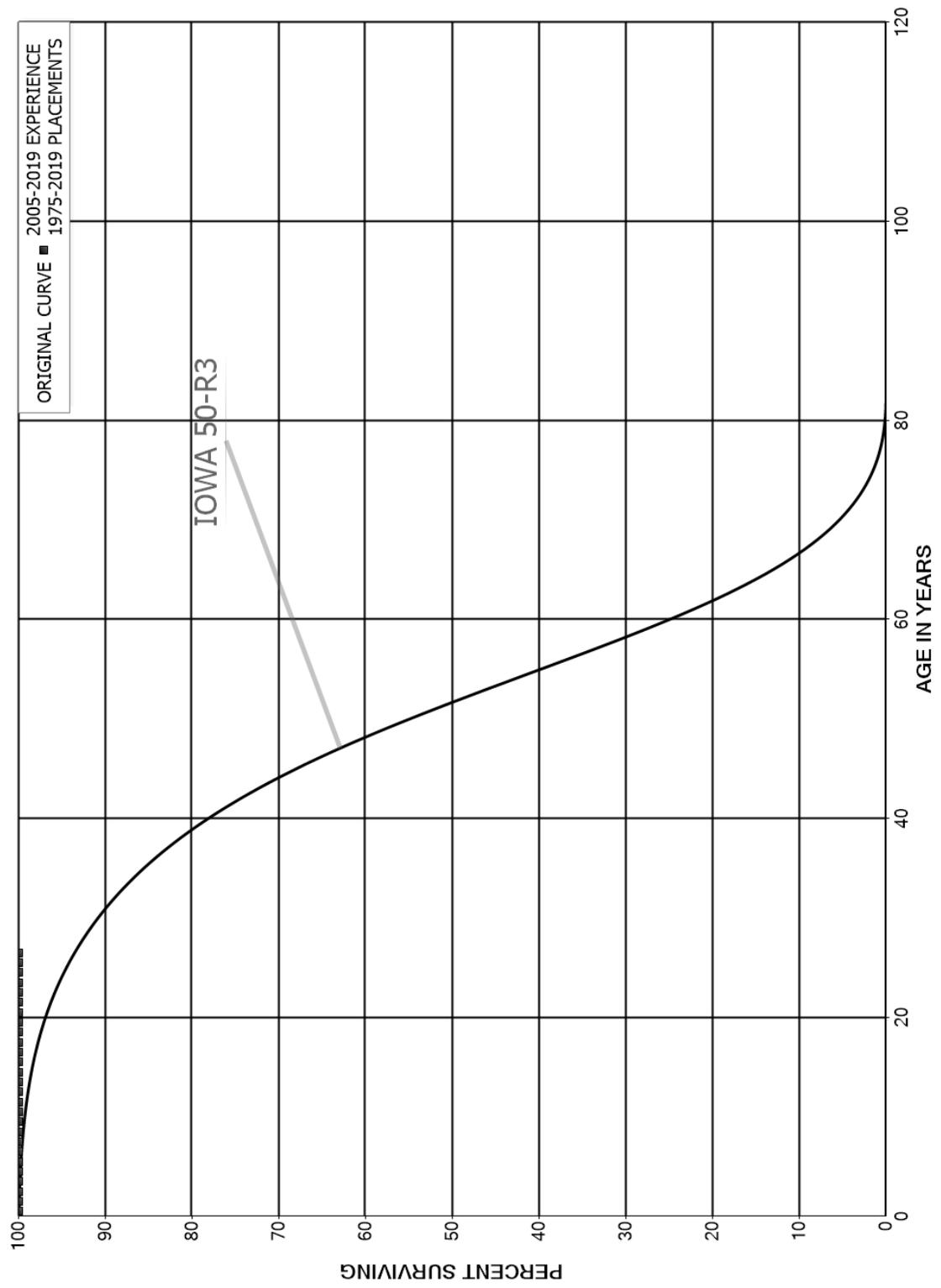
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 381.00 PLANT SEWERS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2008-2016			EXPERIENCE BAND 2009-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	5,524,134		0.0000	1.0000	100.00
0.5	6,227,961		0.0000	1.0000	100.00
1.5	6,227,961		0.0000	1.0000	100.00
2.5	6,227,961		0.0000	1.0000	100.00
3.5	6,182,721		0.0000	1.0000	100.00
4.5	6,175,263		0.0000	1.0000	100.00
5.5	5,940,945		0.0000	1.0000	100.00
6.5	5,940,945	13,300	0.0022	0.9978	100.00
7.5	5,925,961	2,120	0.0004	0.9996	99.78
8.5	5,917,243		0.0000	1.0000	99.74
9.5	4,729,279		0.0000	1.0000	99.74
10.5	294,412		0.0000	1.0000	99.74
11.5					99.74

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 382.00 OUTFALL SEWER LINES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 382.00 OUTFALL SEWER LINES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1975-2019

EXPERIENCE BAND 2005-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	1,700,716		0.0000	1.0000	100.00
0.5	1,605,061		0.0000	1.0000	100.00
1.5	360,675		0.0000	1.0000	100.00
2.5	355,425		0.0000	1.0000	100.00
3.5	355,425		0.0000	1.0000	100.00
4.5	355,425		0.0000	1.0000	100.00
5.5	255,003		0.0000	1.0000	100.00
6.5	264,243		0.0000	1.0000	100.00
7.5	265,939		0.0000	1.0000	100.00
8.5	265,939		0.0000	1.0000	100.00
9.5	238,111		0.0000	1.0000	100.00
10.5	212,060		0.0000	1.0000	100.00
11.5	244,789	6	0.0000	1.0000	100.00
12.5	244,783		0.0000	1.0000	100.00
13.5	43,666		0.0000	1.0000	100.00
14.5	34,425		0.0000	1.0000	100.00
15.5	32,729		0.0000	1.0000	100.00
16.5	32,729		0.0000	1.0000	100.00
17.5	32,729		0.0000	1.0000	100.00
18.5	32,729		0.0000	1.0000	100.00
19.5	32,729		0.0000	1.0000	100.00
20.5	32,729		0.0000	1.0000	100.00
21.5	202,476		0.0000	1.0000	100.00
22.5	202,476		0.0000	1.0000	100.00
23.5	202,476		0.0000	1.0000	100.00
24.5	202,476		0.0000	1.0000	100.00
25.5	202,476		0.0000	1.0000	100.00
26.5					100.00
27.5					
28.5					
29.5					
30.5					
31.5					
32.5					
33.5					
34.5					
35.5					
36.5	4,984		0.0000		
37.5	4,984		0.0000		
38.5	4,984		0.0000		

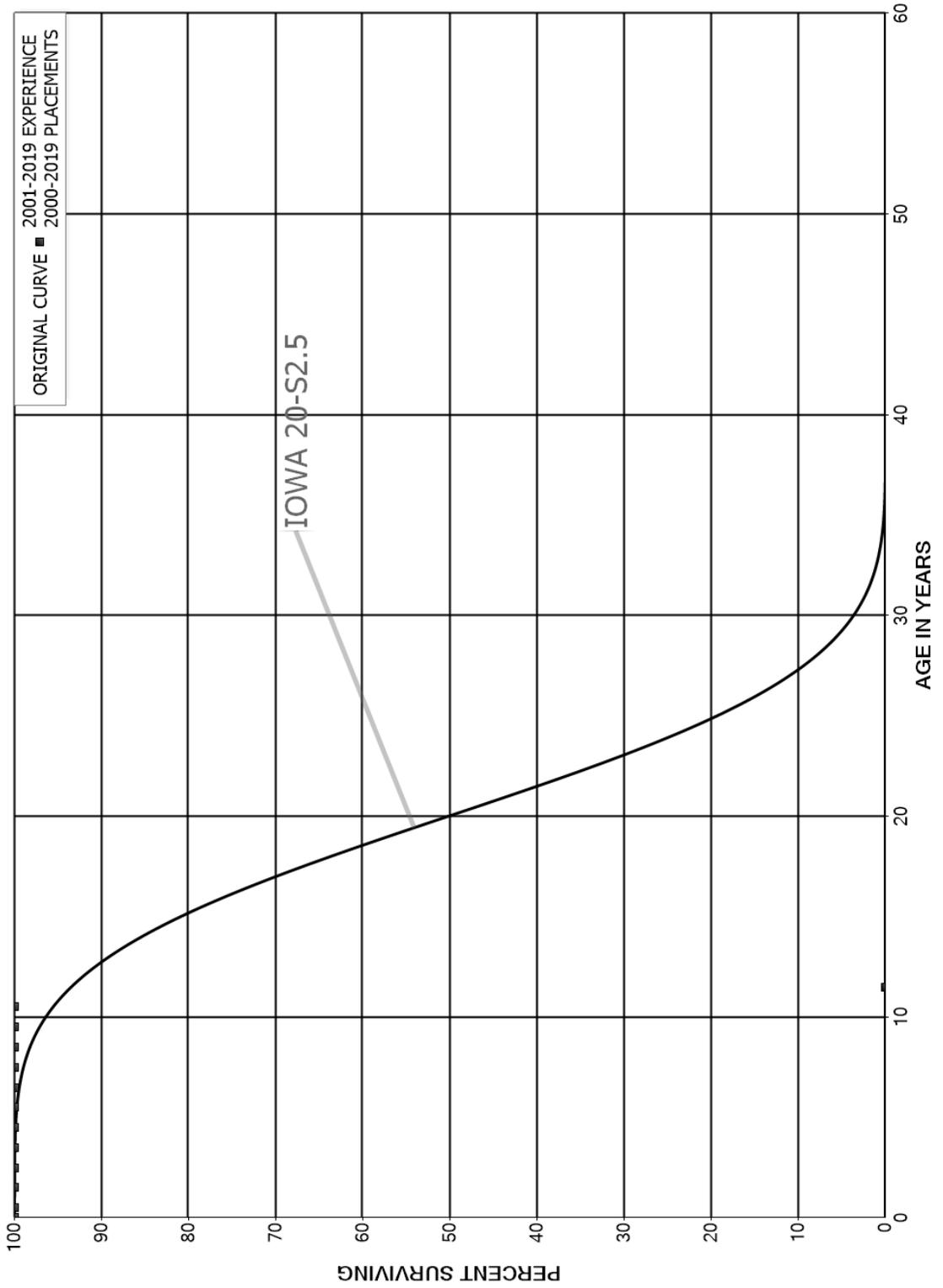
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 382.00 OUTFALL SEWER LINES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1975-2019			EXPERIENCE BAND 2005-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,984		0.0000		
40.5	4,984		0.0000		
41.5	4,984		0.0000		
42.5	4,984		0.0000		
43.5	4,984		0.0000		
44.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



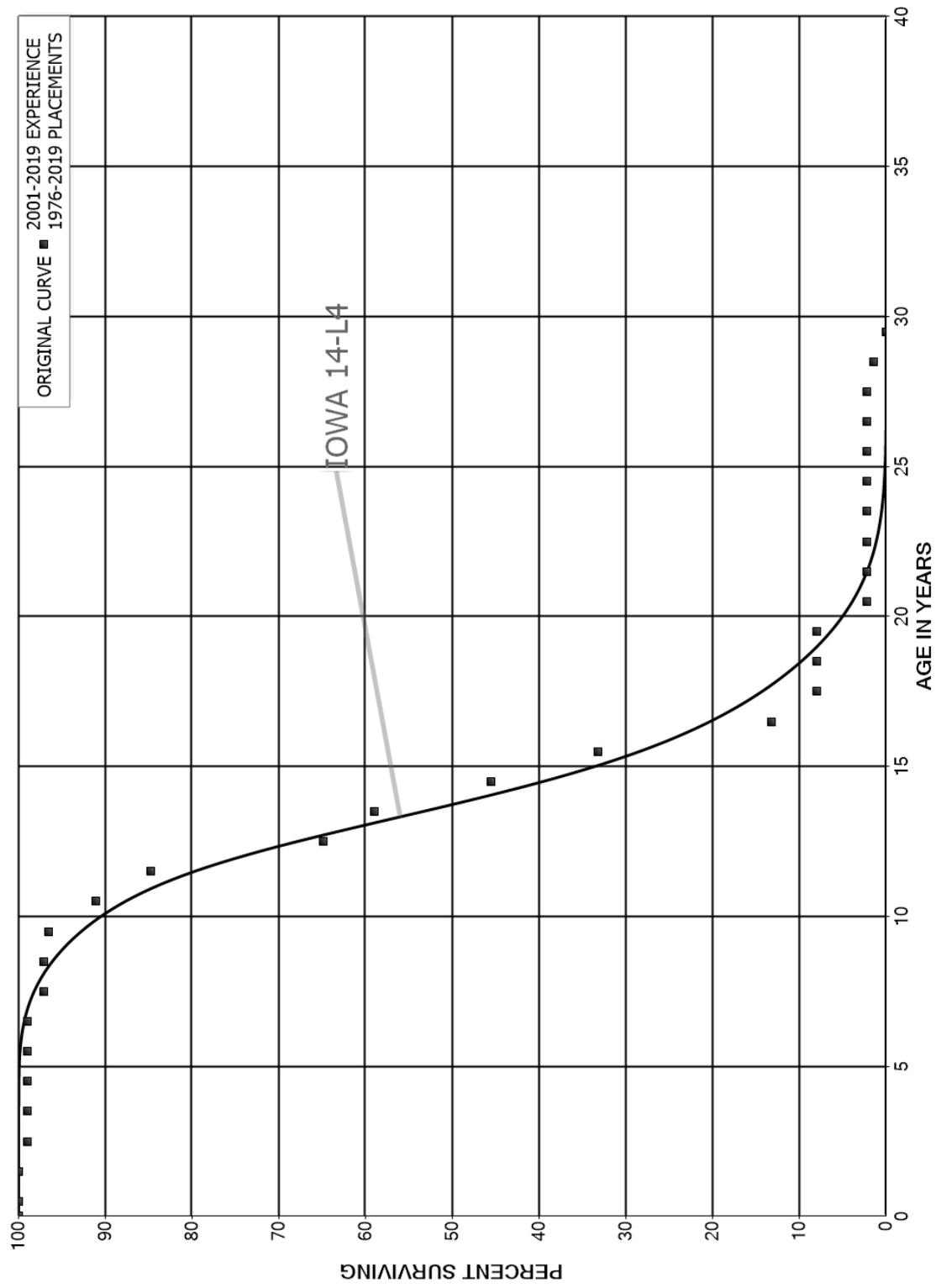
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 2000-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	737,756		0.0000	1.0000	100.00
0.5	437,340		0.0000	1.0000	100.00
1.5	405,165		0.0000	1.0000	100.00
2.5	4,547,918		0.0000	1.0000	100.00
3.5	4,547,918		0.0000	1.0000	100.00
4.5	4,547,918	2,997	0.0007	0.9993	100.00
5.5	4,544,921		0.0000	1.0000	99.93
6.5	393,353		0.0000	1.0000	99.93
7.5	393,353		0.0000	1.0000	99.93
8.5	281,642		0.0000	1.0000	99.93
9.5	8,492		0.0000	1.0000	99.93
10.5	8,492	8,492	1.0000		99.93
11.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 391.00 TRANSPORTATION EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



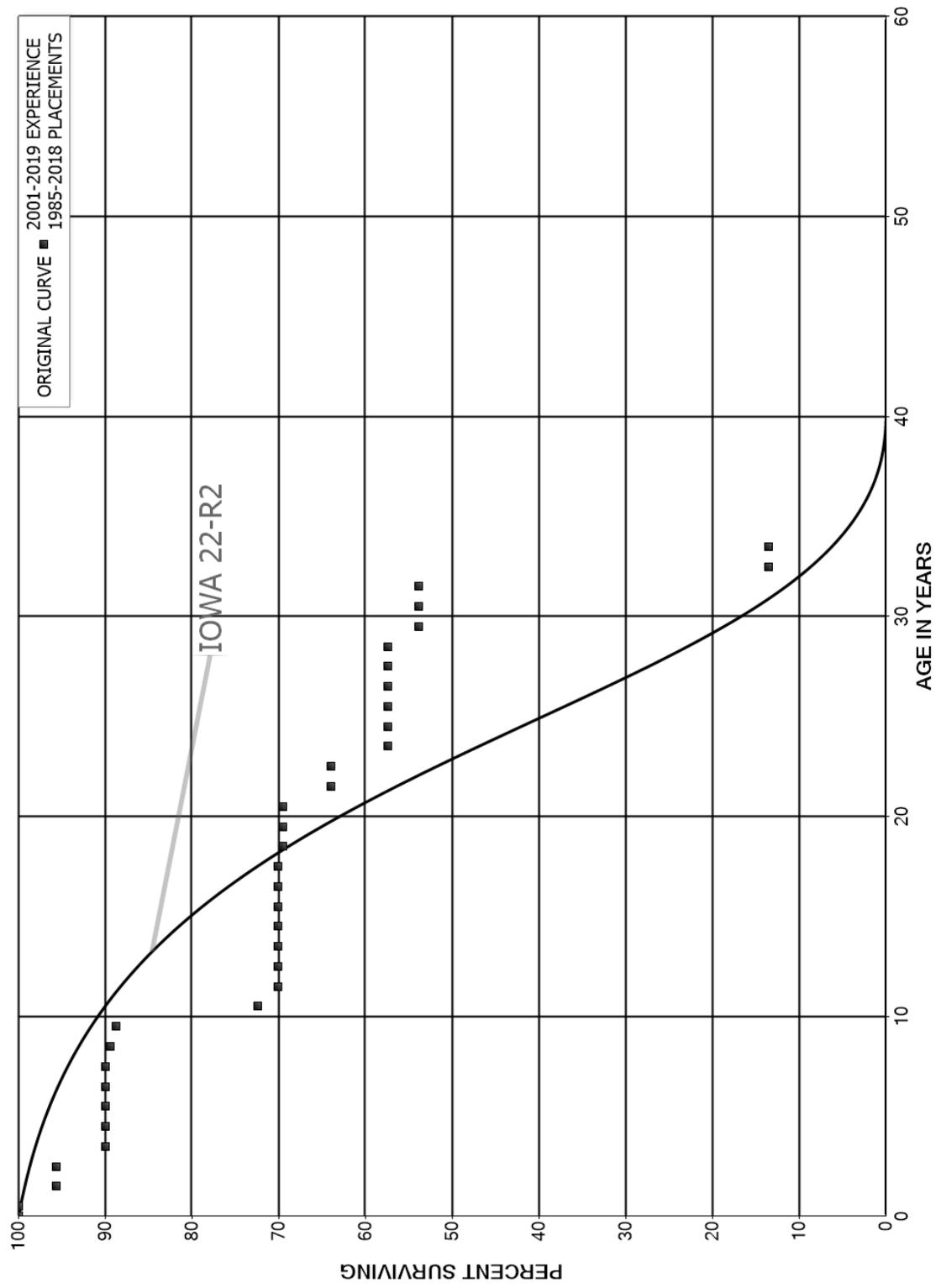
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1976-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	4,168,919		0.0000	1.0000	100.00
0.5	3,692,372		0.0000	1.0000	100.00
1.5	1,458,511	14,523	0.0100	0.9900	100.00
2.5	2,332,879		0.0000	1.0000	99.00
3.5	2,514,168		0.0000	1.0000	99.00
4.5	1,930,107		0.0000	1.0000	99.00
5.5	1,664,209		0.0000	1.0000	99.00
6.5	1,677,203	32,676	0.0195	0.9805	99.00
7.5	1,535,566		0.0000	1.0000	97.08
8.5	1,373,777	8,793	0.0064	0.9936	97.08
9.5	1,545,830	87,008	0.0563	0.9437	96.45
10.5	879,899	61,030	0.0694	0.9306	91.03
11.5	743,329	174,600	0.2349	0.7651	84.71
12.5	440,822	40,215	0.0912	0.9088	64.81
13.5	348,542	79,500	0.2281	0.7719	58.90
14.5	276,542	75,000	0.2712	0.7288	45.47
15.5	195,354	117,872	0.6034	0.3966	33.14
16.5	51,900	20,700	0.3988	0.6012	13.14
17.5	31,200		0.0000	1.0000	7.90
18.5	32,855		0.0000	1.0000	7.90
19.5	32,855	23,700	0.7214	0.2786	7.90
20.5	9,155		0.0000	1.0000	2.20
21.5	9,155		0.0000	1.0000	2.20
22.5	9,155		0.0000	1.0000	2.20
23.5	9,155		0.0000	1.0000	2.20
24.5	14,155		0.0000	1.0000	2.20
25.5	14,155		0.0000	1.0000	2.20
26.5	14,155		0.0000	1.0000	2.20
27.5	14,155	5,000	0.3532	0.6468	2.20
28.5	9,155	9,155	1.0000		1.42
29.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 395.00 POWER OPERATED EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 395.00 POWER OPERATED EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1985-2018			EXPERIENCE BAND 2001-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
0.0	192,967		0.0000	1.0000	100.00	
0.5	192,967	8,551	0.0443	0.9557	100.00	
1.5	127,706		0.0000	1.0000	95.57	
2.5	255,380	14,864	0.0582	0.9418	95.57	
3.5	324,176		0.0000	1.0000	90.01	
4.5	885,603		0.0000	1.0000	90.01	
5.5	967,489		0.0000	1.0000	90.01	
6.5	1,410,131		0.0000	1.0000	90.01	
7.5	1,250,710	8,033	0.0064	0.9936	90.01	
8.5	871,073	6,988	0.0080	0.9920	89.43	
9.5	536,633	98,717	0.1840	0.8160	88.71	
10.5	191,853	6,125	0.0319	0.9681	72.39	
11.5	137,458		0.0000	1.0000	70.08	
12.5	190,308		0.0000	1.0000	70.08	
13.5	169,091		0.0000	1.0000	70.08	
14.5	169,091		0.0000	1.0000	70.08	
15.5	169,587		0.0000	1.0000	70.08	
16.5	190,470		0.0000	1.0000	70.08	
17.5	117,685	875	0.0074	0.9926	70.08	
18.5	116,810		0.0000	1.0000	69.56	
19.5	116,810		0.0000	1.0000	69.56	
20.5	124,335	9,999	0.0804	0.9196	69.56	
21.5	124,336		0.0000	1.0000	63.97	
22.5	124,336	12,782	0.1028	0.8972	63.97	
23.5	111,554		0.0000	1.0000	57.39	
24.5	111,554		0.0000	1.0000	57.39	
25.5	111,554		0.0000	1.0000	57.39	
26.5	18,021		0.0000	1.0000	57.39	
27.5	8,021		0.0000	1.0000	57.39	
28.5	8,021	496	0.0618	0.9382	57.39	
29.5	30,053		0.0000	1.0000	53.84	
30.5	30,053		0.0000	1.0000	53.84	
31.5	30,053	22,528	0.7496	0.2504	53.84	
32.5	7,525		0.0000	1.0000	13.48	
33.5					13.48	

**PART VII. DETAILED DEPRECIATION
CALCULATIONS**

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1999	3,257,983	1,233,749	2,024,234		2,024,234	24.9
2000	1,439,294	467,962	971,332		2,995,566	36.8
2001	467,915	160,788	307,127		3,302,693	40.6
2002	178,298	60,104	118,194		3,420,887	42.0
2003					3,420,887	42.0
2004	30,460	13,345	17,115		3,438,002	42.2
2005	2,044,769	522,347	1,522,422		4,960,424	60.9
2006	603,509	170,232	433,277		5,393,701	66.3
2007	1,817,893	384,775	1,433,118		6,826,819	83.9
2008					6,826,819	83.9
2009	597,755	111,303	486,452		7,313,271	89.8
2010					7,313,271	89.8
2011	579,280	92,334	486,946		7,800,217	95.8
2013	99,611	13,849	85,762		7,885,979	96.9
2014					7,885,979	96.9
2015	74,749	23,628	51,121		7,937,100	97.5
2016					7,937,100	97.5
2019	35,139	1,503	33,636		7,970,736	97.9
2020	171,600	1,851	169,749		8,140,485	100.0
SUBTOTAL	11,398,255	3,257,770	8,140,485			
NONDEPRECIABLE	18,345		18,345			
TOTAL	11,416,600	3,257,770	8,158,830			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1999	292,707.16	122,703	125,274	167,433	29.78	5,622
2020	21,000.00	311	318	20,682	33.40	619
	313,707.16	123,014	125,592	188,115		6,241
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						30.1 1.99

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1999	53,629.72	30,901	32,452	21,178	15.81	1,340
2020	9,000.00	185	194	8,806	23.83	370
	62,629.72	31,086	32,646	29,984		1,710
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						17.5 2.73

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1999	191,514.75	59,293	59,391	132,124	47.94	2,756
2020	12,500.00	99	99	12,401	62.79	197
	204,014.75	59,392	59,490	144,525		2,953
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						48.9 1.45

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1999	1,810,413.13	537,150	552,446	1,257,967	50.96	24,685
2000	1,157,806.26	327,543	336,870	820,936	51.96	15,799
2001	294,645.25	79,849	82,123	212,522	52.45	4,052
2002	105,732.03	27,385	28,165	77,567	52.93	1,465
2005	1,634,321.22	359,714	369,957	1,264,364	54.92	23,022
2006	291,337.70	60,423	62,144	229,194	55.43	4,135
2007	1,588,416.36	306,564	315,293	1,273,123	56.43	22,561
2009	506,045.43	84,408	86,811	419,234	57.46	7,296
2011	457,865.21	63,918	65,738	392,127	58.53	6,700
2013	52,881.21	5,912	6,081	46,800	59.61	785
2019	17,291.71	420	432	16,860	60.23	280
2020	112,500.00	968	995	111,505	57.98	1,923
	8,029,255.51	1,854,254	1,907,055	6,122,200		112,703
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						54.3 1.40

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1999	358,731.73	164,299	155,950	202,782	25.45	7,968
2000	161,677.37	70,928	67,323	94,354	26.23	3,597
2001	85,399.67	35,800	33,981	51,419	27.01	1,904
2002	30,659.86	12,252	11,629	19,031	27.80	685
2005	186,377.59	62,977	59,777	126,601	30.37	4,169
2006	151,157.65	48,008	45,568	105,590	31.16	3,389
2007	167,759.62	49,590	47,070	120,690	32.16	3,753
2009	58,034.98	14,683	13,937	44,098	33.95	1,299
2011	81,353.98	17,003	16,139	65,215	35.95	1,814
2013	38,518.95	6,386	6,061	32,458	37.75	860
	1,319,671.40	481,926	457,435	862,236		29,438
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						29.3 2.23

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
2000	119,809.90	54,525	63,769	56,041	24.55	2,283
2001	87,870.36	38,206	44,684	43,186	25.35	1,704
2002	41,905.71	17,366	20,310	21,596	26.14	826
2004	30,460.41	11,410	13,345	17,115	27.55	621
2005	224,070.54	79,187	92,613	131,458	28.36	4,635
2006	161,014.13	53,457	62,520	98,494	29.17	3,377
2007	61,717.02	19,163	22,412	39,305	29.98	1,311
2009	33,674.58	9,025	10,555	23,120	31.42	736
2011	40,060.33	8,941	10,457	29,603	33.06	895
2013	8,210.64	1,460	1,707	6,504	34.69	187
2020	16,600.00	209	245	16,355	39.34	416
	825,393.62	292,949	342,617	482,777		16,991
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						28.4 2.06

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1999	51,368.90	44,398	34,205	17,164	3.38	5,078
2015	74,748.81	30,669	23,628	51,121	7.90	6,471
	126,117.71	75,067	57,833	68,285		11,549
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.9 9.16

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1999	499,617.79	316,858	274,031	225,587	12.40	18,192
2019	17,847.10	1,239	1,071	16,776	20.10	835
	517,464.89	318,097	275,102	242,363		19,027
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.7 3.68

**PART VIII. EXPERIENCED AND ESTIMATED
NET SALVAGE**

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.30	1,201.07	300.27		300.27-
355.00	514.74	51.47		51.47-
360.10	714.92	214.48		214.48-
361.10	6,434.30	1,930.29		1,930.29-
363.00	949.42	379.77		379.77-
	9,814.45	2,876.28		2,876.28-
TOTAL	9,814.45	2,876.28		2,876.28-

EXHIBIT NO. 11-O - DEPRECIATION STUDY
WASTEWATER SSS SADSBUY OPERATIONS
AS OF DECEMBER 31, 2021

Exhibit No. 11-O
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS SADBURY OPERATIONS

2021 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2021

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-O
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS SADBURY OPERATIONS

2021 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2021

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2021. The results of our study at December 31, 2020 are presented in our report titled "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020". The same methods, procedures and estimates are used in both studies.

Summaries of the original cost, annual accruals, book depreciation reserve and amortization of net salvage are presented in Tables 1 through 5, beginning on page I-3 of the attached report.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

207 Senate Avenue • Camp Hill, PA 17011-2316

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PART I. RESULTS OF STUDY

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Tables 1 through 5 presented on pages I-3 through I-7 summarize the results of the depreciation study as of December 31, 2021. Table 1 sets forth the development of the net original cost by account as of December 31, 2021. Table 2 sets forth, by depreciable group, the estimated survivor curve, original cost, book depreciation reserve as of December 31, 2021, future book accruals, calculated annual accrual amount and rate, and composite remaining life for plant in service. Table 3 presents the bringforward of the book reserve to December 31, 2021. Table 4 sets forth the calculation of the depreciation accruals for the twelve months ended December 31, 2021. Table 5 presents the annual amortization of experienced and estimated net salvage based on the period 2017 through 2021.

DESCRIPTION OF DETAILED TABULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-5. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount. The amounts of regular retirements, gross salvage and cost of removal are set forth by account for the years 2017 through 2021, beginning on page III-2.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2021

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2021 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2021 (6)
DEPRECIABLE PLANT					
354.30 STRUCTURES AND IMPROVEMENTS - SPP	332,846.13				332,846.13
355.00 POWER GENERATION EQUIPMENT	70,832.13				70,832.13
360.10 COLLECTION SEWERS - FORCE MAINS	207,785.97				207,785.97
361.10 COLLECTION SEWERS - GRAVITY MAINS	8,063,196.53				8,063,196.53
361.20 MANHOLES	1,319,671.40				1,319,671.40
363.00 SERVICES	847,455.29				847,455.29
364.00 FLOW MEASURING DEVICES	126,117.71				126,117.71
371.00 PUMPING EQUIPMENT	517,464.89				517,464.89
TOTAL DEPRECIABLE PLANT	11,485,370.05	0.00	0.00	0.00	11,485,370.05
NONDEPRECIABLE PLANT					
353.30 LAND AND LAND RIGHTS - SPP	18,345.00				18,345.00
TOTAL NONDEPRECIABLE PLANT	18,345.00	0.00	0.00	0.00	18,345.00
TOTAL UTILITY PLANT	11,503,715.05	0.00	0.00	0.00	11,503,715.05

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2021

DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2021 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	ACCUMULATED ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT							
354.30	STRUCTURES AND IMPROVEMENTS - SPP	332,846.13	130,637	202,209	6,678	2.01	30.3
355.00	POWER GENERATION EQUIPMENT	70,832.13	33,932	36,900	2,013	2.84	18.3
360.10	COLLECTION SEWERS - FORCE MAINS	207,785.97	62,221	145,565	3,014	1.45	48.3
361.10	COLLECTION SEWERS - GRAVITY MAINS	8,063,196.53	2,017,412	6,045,785	112,530	1.40	53.7
361.20	MANHOLES	1,319,671.40	486,864	832,808	29,246	2.22	28.5
363.00	SERVICES	847,455.29	358,055	489,400	17,456	2.06	28.0
364.00	FLOW MEASURING DEVICES	126,117.71	69,385	56,732	10,010	7.94	5.7
371.00	PUMPING EQUIPMENT	517,464.89	294,145	223,320	17,944	3.47	12.4
	TOTAL DEPRECIABLE PLANT	11,485,370.05	3,452,650	8,032,719	196,891	1.73	40.4
NONDEPRECIABLE PLANT							
353.30	LAND AND LAND RIGHTS - SPP	18,345.00					
	TOTAL NONDEPRECIABLE PLANT	18,345.00			888		
AMORTIZATION OF NET SALVAGE							
	TOTAL UTILITY PLANT	11,503,715.05	3,452,650	8,032,719	199,779		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2021, OF BOOK RESERVE AS OF DECEMBER 31, 2020

ACCOUNT (1)	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2020 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2021 (8)
354.30	125,592		6,496		1,161		290						130,637
355.00	32,646		1,833		498		50						33,932
360.10	59,490		3,029		229		69						62,221
361.10	1,907,055		113,033		2,059		618						2,017,412
361.20	457,435		29,429		1,338		535						486,864
363.00	342,617		17,312										358,055
364.00	57,833		11,552										69,385
371.00	275,102		19,043										294,145
TOTAL	3,257,770		201,726		5,285		1,562		0		0		3,452,650

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2021

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2020 (2)	NET ORIGINAL COST AS OF 12/31/2021 (3)	ACCRUAL RATE (4)	AVERAGE ACCRUALS (5)*	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS (7)=(5)+(6)
354.30	313,707.16	332,846.13	1.99	6,436	60	6,496
355.00	62,629.72	70,832.13	2.73	1,823	10	1,833
360.10	204,014.75	207,785.97	1.45	2,986	43	3,029
361.10	8,029,255.51	8,063,196.53	1.40	112,647	386	113,033
361.20	1,319,671.40	1,319,671.40	2.23	29,429		29,429
363.00	825,393.62	847,455.29	2.06	17,236	76	17,312
364.00	126,117.71	126,117.71	9.16	11,552		11,552
371.00	517,464.89	517,464.89	3.68	19,043		19,043
TOTAL	11,398,254.76	11,485,370.05		201,151	575	201,726

* Total accruals shown are based on average monthly balances.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2017		2018		2019		PROJECTED 2020		PROJECTED 2021		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE - (2)	COST OF REMOVAL (3)	GROSS SALVAGE - (4)	COST OF REMOVAL (5)	GROSS SALVAGE - (6)	COST OF REMOVAL (7)	GROSS SALVAGE - (8)	COST OF REMOVAL (9)	GROSS SALVAGE - (10)	COST OF REMOVAL (11)		
354.30							300		(10)	290	(591)	(118)
355.00							51			50	(101)	(20)
360.10							214			69	(283)	(57)
361.10							1,930			618	(2,548)	(510)
363.00							380			535	(915)	(183)
TOTAL	0	0	0	0	0	0	2,876	0	0	1,562	(4,438)	(888)

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1999	3,255,609	1,294,143	1,961,466		1,961,466	24.4
2000	1,438,694	490,011	948,683		2,910,149	36.2
2001	467,642	167,825	299,817		3,209,966	40.0
2002	178,185	62,828	115,357		3,325,323	41.4
2003					3,325,323	41.4
2004	30,409	13,896	16,513		3,341,836	41.6
2005	2,044,019	552,237	1,491,782		4,833,618	60.2
2006	603,214	180,604	422,610		5,256,228	65.4
2007	1,817,423	413,952	1,403,471		6,659,699	82.9
2008					6,659,699	82.9
2009	597,600	120,299	477,301		7,137,000	88.8
2010					7,137,000	88.8
2011	579,142	101,652	477,490		7,614,490	94.8
2013	99,594	15,650	83,944		7,698,434	95.8
2014					7,698,434	95.8
2015	74,749	30,552	44,197		7,742,631	96.4
2016					7,742,631	96.4
2019	35,135	2,511	32,624		7,775,255	96.8
2020	171,557	5,301	166,256		7,941,511	98.9
2021	92,400	1,189	91,211		8,032,722	100.0
SUBTOTAL	11,485,370	3,452,650	8,032,719			
NONDEPRECIABLE	18,345		18,345			
TOTAL	11,503,715	3,452,650	8,051,064			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1999	291,554.28	125,951	129,406	162,148	29.58	5,482
2020	20,991.85	898	922	20,070	33.59	597
2021	20,300.00	300	309	19,991	33.40	599
	332,846.13	127,149	130,637	202,209		6,678
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						30.3 2.01

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1999	53,137.14	31,563	33,178	19,959	15.38	1,298
2020	8,994.99	538	566	8,429	23.56	358
2021	8,700.00	179	188	8,512	23.83	357
	70,832.13	32,280	33,932	36,900		2,013
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						18.3 2.84

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1999	191,288.45	61,977	61,898	129,390	46.94	2,756
2020	12,497.52	292	291	12,207	62.60	195
2021	4,000.00	32	32	3,968	62.79	63
	207,785.97	62,301	62,221	145,565		3,014
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						48.3 1.45

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1999	1,809,910.90	557,815	574,638	1,235,273	50.50	24,461
2000	1,157,493.58	343,428	353,785	803,709	50.96	15,771
2001	294,565.70	83,333	85,846	208,720	51.96	4,017
2002	105,704.19	28,646	29,510	76,194	52.45	1,453
2005	1,633,912.86	380,048	391,510	1,242,403	54.43	22,826
2006	291,265.27	64,107	66,040	225,225	54.92	4,101
2007	1,588,023.97	329,356	339,289	1,248,735	55.43	22,528
2009	505,924.70	91,066	93,812	412,113	56.94	7,238
2011	457,760.41	70,175	72,292	385,468	57.99	6,647
2013	52,869.45	6,651	6,851	46,018	59.07	779
2019	17,288.22	683	704	16,584	60.79	273
2020	112,477.28	2,733	2,815	109,662	60.23	1,821
2021	36,000.00	310	320	35,680	57.98	615
	8,063,196.53	1,958,351	2,017,412	6,045,785		112,530
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						53.7 1.40

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1999	358,731.73	171,115	163,852	194,880	24.67	7,899
2000	161,677.37	74,048	70,905	90,772	25.45	3,567
2001	85,399.67	37,465	35,875	49,525	26.23	1,888
2002	30,659.86	12,853	12,307	18,353	27.01	679
2005	186,377.59	66,723	63,891	122,487	29.59	4,139
2006	151,157.65	51,076	48,908	102,250	30.37	3,367
2007	167,759.62	53,280	51,018	116,742	31.16	3,747
2009	58,034.98	15,890	15,215	42,820	33.16	1,291
2011	81,353.98	18,793	17,996	63,358	34.95	1,813
2013	38,518.95	7,203	6,897	31,622	36.95	856
	1,319,671.40	508,446	486,864	832,808		29,246
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						28.5 2.22

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
2000	119,522.86	56,534	65,321	54,202	23.95	2,263
2001	87,676.67	39,902	46,104	41,573	24.55	1,693
2002	41,821.06	18,184	21,011	20,810	25.35	821
2004	30,409.11	12,027	13,896	16,513	26.75	617
2005	223,728.11	83,809	96,836	126,892	27.55	4,606
2006	160,790.70	56,823	65,656	95,135	28.36	3,355
2007	61,639.02	20,464	23,645	37,994	29.17	1,303
2009	33,639.98	9,756	11,272	22,368	30.60	731
2011	40,027.20	9,835	11,364	28,663	32.24	889
2013	8,205.19	1,646	1,902	6,303	33.87	186
2020	16,595.39	612	707	15,888	39.15	406
2021	23,400.00	295	341	23,059	39.34	586
	847,455.29	309,887	358,055	489,400		17,456
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						28.0 2.06

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1999	51,368.90	44,958	38,833	12,536	3.21	3,905
2015	74,748.81	35,371	30,552	44,197	7.24	6,105
	126,117.71	80,329	69,385	56,732		10,010
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.7 7.94

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1999	499,617.79	324,851	292,338	207,280	12.10	17,131
2019	17,847.10	2,008	1,807	16,040	19.72	813
	517,464.89	326,859	294,145	223,320		17,944
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.4 3.47

PART III. EXPERIENCED AND ESTIMATED NET SALVAGE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.30	1,201.07	300.27		300.27-
355.00	514.74	51.47		51.47-
360.10	714.92	214.48		214.48-
361.10	6,434.30	1,930.29		1,930.29-
363.00	949.42	379.77		379.77-
	9,814.45	2,876.28		2,876.28-
2021 TRANSACTION YEAR				
354.30	1,161.03	290.26		290.26-
355.00	497.59	49.76		49.76-
360.10	228.78	68.63		68.63-
361.10	2,058.98	617.69		617.69-
363.00	1,338.33	535.33		535.33-
	5,284.71	1,561.67		1,561.67-
TOTAL	15,099.16	4,437.95		4,437.95-

EXHIBIT NO. 11-P - DEPRECIATION STUDY
WASTEWATER SSS SADSBUY OPERATIONS
AS OF DECEMBER 31, 2022

Exhibit No. 11-P
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS SADBURY OPERATIONS

2022 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2022

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-P
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS SADBURY OPERATIONS

2022 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2022

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2022. The results of our study at December 31, 2020 are presented in our report titled "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020". The same methods, procedures and estimates are used in both studies.

Summaries of the original cost, annual accruals, book depreciation reserve and amortization of net salvage are presented in Tables 1 through 5, beginning on page I-3 of the attached report.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

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PART I. RESULTS OF STUDY

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Tables 1 through 5 presented on pages I-3 through I-7 summarize the results of the depreciation study as of December 31, 2022. Table 1 sets forth the development of the net original cost by account as of December 31, 2022. Table 2 sets forth, by depreciable group, the estimated survivor curve, original cost, book depreciation reserve as of December 31, 2022, future book accruals, calculated annual accrual amount and rate, and composite remaining life for plant in service. Table 3 presents the bringforward of the book reserve to December 31, 2022. Table 4 sets forth the calculation of the depreciation accruals for the twelve months ended December 31, 2022. Table 5 presents the annual amortization of experienced and estimated net salvage based on the period 2018 through 2022.

DESCRIPTION OF DETAILED TABULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-5. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount. The amounts of regular retirements, gross salvage and cost of removal are set forth by account for the years 2018 through 2022, beginning on page III-2.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2022

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2022 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2022 (6)
DEPRECIABLE PLANT					
354.30 STRUCTURES AND IMPROVEMENTS - SPP	344,725.49				344,725.49
355.00 POWER GENERATION EQUIPMENT	75,923.28				75,923.28
360.10 COLLECTION SEWERS - FORCE MAINS	211,227.21				211,227.21
361.10 COLLECTION SEWERS - GRAVITY MAINS	8,094,167.71				8,094,167.71
361.20 MANHOLES	1,319,671.40				1,319,671.40
363.00 SERVICES	858,297.56				858,297.56
364.00 FLOW MEASURING DEVICES	126,117.71				126,117.71
371.00 PUMPING EQUIPMENT	517,464.89				517,464.89
TOTAL DEPRECIABLE PLANT	11,547,595.25	0.00	0.00	0.00	11,547,595.25
NONDEPRECIABLE PLANT					
353.30 LAND AND LAND RIGHTS - SPP	18,345.00				18,345.00
TOTAL NONDEPRECIABLE PLANT	18,345.00	0.00	0.00	0.00	18,345.00
TOTAL UTILITY PLANT	11,565,940.25	0.00	0.00	0.00	11,565,940.25

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2022

DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2022 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	CALCULATED ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT							
354.30	STRUCTURES AND IMPROVEMENTS - SPP	344,725.49	136,666	208,059	6,857	1.99	30.3
355.00	POWER GENERATION EQUIPMENT	75,923.28	35,698	40,226	2,155	2.84	18.7
360.10	COLLECTION SEWERS - FORCE MAINS	211,227.21	65,046	146,181	3,069	1.45	47.6
361.10	COLLECTION SEWERS - GRAVITY MAINS	8,094,167.71	2,128,592	5,965,576	111,987	1.38	53.3
361.20	MANHOLES	1,319,671.40	516,161	803,511	29,067	2.20	27.6
363.00	SERVICES	858,297.56	374,891	483,407	17,590	2.05	27.5
364.00	FLOW MEASURING DEVICES	126,117.71	79,399	46,719	8,693	6.89	5.4
371.00	PUMPING EQUIPMENT	517,464.89	312,101	205,364	17,022	3.29	12.1
	TOTAL DEPRECIABLE PLANT	11,547,595.25	3,648,553	7,899,043	196,440	1.70	40.2
NONDEPRECIABLE PLANT							
353.30	LAND AND LAND RIGHTS - SPP	18,345.00					
	TOTAL NONDEPRECIABLE PLANT	18,345.00					
AMORTIZATION OF NET SALVAGE							
	TOTAL UTILITY PLANT	11,565,940.25	3,648,553	7,899,043	1,107		
					197,547		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2022, OF BOOK RESERVE AS OF DECEMBER 31, 2021

ACCOUNT (1)	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2021 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2022 (8)
354.30	130,637		6,930		721		180						136,666
355.00	33,932		2,106		309		31						35,698
360.10	62,221		3,096		209		63						65,046
361.10	2,017,412		113,623		1,879		564						2,128,592
361.20	486,864		29,297										516,161
363.00	358,055		17,757		658		263						374,891
364.00	69,385		10,014										79,399
371.00	294,145		17,956										312,101
TOTAL	3,452,650		200,778		3,775		1,100		0		0		3,648,553

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2022

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2021 (2)	NET ORIGINAL COST AS OF 12/31/2022 (3)	ACCRUAL RATE (4)	AVERAGE ACCRUALS (5)*	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS (7)=(5)+(6)
354.30	332,846.13	344,725.49	2.01	6,812	118	6,930
355.00	70,832.13	75,923.28	2.84	2,086	20	2,106
360.10	207,785.97	211,227.21	1.45	3,039	57	3,096
361.10	8,063,196.53	8,094,167.71	1.40	113,113	510	113,623
361.20	1,319,671.40	1,319,671.40	2.22	29,297		29,297
363.00	847,455.29	858,297.56	2.06	17,574	183	17,757
364.00	126,117.71	126,117.71	7.94	10,014		10,014
371.00	517,464.89	517,464.89	3.47	17,956		17,956
TOTAL	11,485,370.05	11,547,595.25		199,890	888	200,778

* Total accruals shown are based on average monthly balances.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADSBUURY OPERATIONS

TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2018		2019		PROJECTED 2020		PROJECTED 2021		PROJECTED 2022		NET SALVAGE (12)*	SALVAGE ACCURAL (13)=(12)/5
	GROSS SALVAGE - (2)	COST OF REMOVAL (3)	GROSS SALVAGE - (4)	COST OF REMOVAL (5)	GROSS SALVAGE - (6)	COST OF REMOVAL (7)	GROSS SALVAGE - (8)	COST OF REMOVAL (9)	GROSS SALVAGE - (10)	COST OF REMOVAL (11)		
354.30						300	290		(10)	180	(771)	(154)
355.00						51	50			31	(132)	(26)
360.10						214	69			63	(346)	(69)
361.10						1,930	618			564	(3,112)	(622)
363.00						380	535			263	(1,178)	(236)
TOTAL	0	0	0	0	0	2,876	1,562	0	0	1,100	(5,538)	(1,107)

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1999	3,253,946	1,354,467	1,899,479		1,899,479	24.0
2000	1,438,276	510,790	927,486		2,826,965	35.8
2001	467,481	175,596	291,885		3,118,850	39.5
2002	178,120	65,691	112,429		3,231,279	40.9
2003					3,231,279	40.9
2004	30,384	14,424	15,960		3,247,239	41.1
2005	2,043,475	583,635	1,459,840		4,707,079	59.6
2006	603,033	191,240	411,793		5,118,872	64.8
2007	1,817,025	441,155	1,375,870		6,494,742	82.2
2008					6,494,742	82.2
2009	597,470	129,508	467,962		6,962,704	88.1
2010					6,962,704	88.1
2011	579,026	111,119	467,907		7,430,611	94.1
2013	99,579	17,500	82,079		7,512,690	95.1
2014					7,512,690	95.1
2015	74,749	37,017	37,732		7,550,422	95.6
2016					7,550,422	95.6
2019	35,132	3,509	31,623		7,582,045	96.0
2020	171,516	8,664	162,852		7,744,897	98.0
2021	92,381	3,440	88,941		7,833,838	99.2
2022	66,000	799	65,201		7,899,039	100.0
SUBTOTAL	11,547,595	3,648,553	7,899,043			
NONDEPRECIABLE	18,345		18,345			
TOTAL	11,565,940	3,648,553	7,917,388			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1999	290,846.16	129,194	134,069	156,777	29.41	5,331
2020	20,983.66	1,448	1,503	19,481	33.73	578
2021	20,295.67	869	901	19,395	33.59	577
2022	12,600.00	186	193	12,407	33.40	371
	344,725.49	131,697	136,666	208,059		6,857
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						30.3 1.99

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1999	52,836.75	32,156	34,102	18,735	15.11	1,240
2020	8,989.48	874	927	8,062	23.21	347
2021	8,697.05	520	551	8,146	23.56	346
2022	5,400.00	111	118	5,282	23.83	222
	75,923.28	33,661	35,698	40,226		2,155
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						18.7 2.84

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1999	191,082.98	64,662	64,444	126,639	45.94	2,757
2020	12,494.97	481	479	12,016	62.44	192
2021	3,999.26	94	94	3,905	62.60	62
2022	3,650.00	29	29	3,621	62.79	58
	211,227.21	65,266	65,046	146,181		3,069
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						47.6 1.45

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1999	1,809,461.94	578,304	598,286	1,211,176	50.03	24,209
2000	1,157,206.57	356,651	368,974	788,233	50.50	15,609
2001	294,493.60	87,376	90,395	204,099	50.96	4,005
2002	105,679.03	29,897	30,930	74,749	51.96	1,439
2005	1,633,539.74	400,217	414,046	1,219,494	53.93	22,613
2006	291,198.77	67,733	70,073	221,126	54.43	4,063
2007	1,587,666.80	349,445	361,520	1,226,147	54.92	22,326
2009	505,813.86	97,622	100,995	404,819	56.43	7,174
2011	457,664.19	76,338	78,976	378,688	57.46	6,590
2013	52,858.53	7,379	7,634	45,225	58.53	773
2019	17,284.94	937	969	16,316	61.02	267
2020	112,456.42	4,442	4,596	107,860	60.79	1,774
2021	35,993.32	875	905	35,088	60.23	583
2022	32,850.00	283	293	32,557	57.98	562
	8,094,167.71	2,057,499	2,128,592	5,965,576		111,987
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						53.3 1.38

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1999	358,731.73	177,859	171,623	187,109	23.90	7,829
2000	161,677.37	77,120	74,416	87,261	24.67	3,537
2001	85,399.67	39,113	37,742	47,658	25.45	1,873
2002	30,659.86	13,450	12,978	17,682	26.23	674
2005	186,377.59	70,786	68,304	118,074	28.58	4,131
2006	151,157.65	54,114	52,217	98,941	29.59	3,344
2007	167,759.62	56,686	54,698	113,062	30.37	3,723
2009	58,034.98	17,155	16,554	41,481	32.16	1,290
2011	81,353.98	20,583	19,861	61,493	33.95	1,811
2013	38,518.95	8,050	7,768	30,751	35.95	855
	1,319,671.40	534,916	516,161	803,511		29,067
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						27.6 2.20

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
2000	119,392.45	58,837	67,400	51,992	23.16	2,245
2001	87,587.32	41,429	47,459	40,128	23.95	1,675
2002	41,781.52	19,015	21,783	19,999	24.55	815
2004	30,384.22	12,591	14,424	15,960	26.14	611
2005	223,557.79	88,417	101,285	122,273	26.75	4,571
2006	160,676.99	60,190	68,950	91,727	27.55	3,329
2007	61,598.58	21,769	24,937	36,662	28.36	1,293
2009	33,621.24	10,439	11,959	21,662	29.98	723
2011	40,008.17	10,722	12,282	27,726	31.42	882
2013	8,201.89	1,831	2,098	6,104	33.06	185
2020	16,591.88	1,012	1,159	15,433	38.48	401
2021	23,395.51	863	989	22,407	39.15	572
2022	11,500.00	145	166	11,334	39.34	288
	858,297.56	327,260	374,891	483,407		17,590

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 27.5 2.05

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1999	51,368.90	45,513	42,382	8,987	3.02	2,976
2015	74,748.81	39,751	37,017	37,732	6.60	5,717
	126,117.71	85,264	79,399	46,719		8,693
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.4 6.89

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1999	499,617.79	333,445	309,561	190,057	11.71	16,230
2019	17,847.10	2,736	2,540	15,307	19.33	792
	517,464.89	336,181	312,101	205,364		17,022
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.1 3.29

PART III. EXPERIENCED AND ESTIMATED NET SALVAGE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS SADBURY OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.30	1,201.07	300.27		300.27-
355.00	514.74	51.47		51.47-
360.10	714.92	214.48		214.48-
361.10	6,434.30	1,930.29		1,930.29-
363.00	949.42	379.77		379.77-
	9,814.45	2,876.28		2,876.28-
2021 TRANSACTION YEAR				
354.30	1,161.03	290.26		290.26-
355.00	497.59	49.76		49.76-
360.10	228.78	68.63		68.63-
361.10	2,058.98	617.69		617.69-
363.00	1,338.33	535.33		535.33-
	5,284.71	1,561.67		1,561.67-
2022 TRANSACTION YEAR				
354.30	720.64	180.16		180.16-
355.00	308.85	30.88		30.88-
360.10	208.76	62.63		62.63-
361.10	1,878.82	563.64		563.64-
363.00	657.73	263.09		263.09-
	3,774.80	1,100.40		1,100.40-
TOTAL	18,873.96	5,538.35		5,538.35-

EXHIBIT NO. 11-Q - DEPRECIATION STUDY

WASTEWATER SSS EXETER OPERATIONS

AS OF DECEMBER 31, 2019

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS EXETER OPERATIONS

2019 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2019

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-Q
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS EXETER OPERATIONS

2019 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2019

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



Excellence Delivered **As Promised**

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2019. Summaries of the original cost, annual accruals and the book depreciation reserve are presented in Tables 1 through 3, beginning on page I-3 of the attached report.

A description of the methods and procedures upon which the study was based, as well as support for the service life estimates, is set forth in a companion report "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020".

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

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PART I. RESULTS OF STUDY

PENNSYLVANIA-AMERICAN WATER COMPANY

WASTEWATER SSS EXETER OPERATIONS

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Table 1 presents the development of net original cost used in the study. The net original cost is the original cost of wastewater plant less advances and contributions. The results of the depreciation study are summarized in Table 2, which sets forth the book reserve and the calculated annual depreciation related to net original cost as of December 31, 2019, and the annual amortization of net negative salvage. Table 3 presents the calculation of the amortization of experienced net salvage by account, based on the five-year period, 2015-2019.

DETAILED TABULATIONS OF DEPRECIATION CALCULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-2. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2019

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2019 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2019 (6)
DEPRECIABLE PLANT					
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	70,288.82				70,288.82
354.30 STRUCTURES AND IMPROVEMENTS - SPP	2,009,432.59				2,009,432.59
354.40 STRUCTURES AND IMPROVEMENTS - TDP	102,681,938.75				102,681,938.75
355.00 POWER GENERATION EQUIPMENT	65,932.40				65,932.40
360.10 COLLECTION SEWERS - FORCE MAINS	1,327,403.11				1,327,403.11
361.10 COLLECTION SEWERS - GRAVITY MAINS	46,426,647.25				46,426,647.25
361.20 MANHOLES	11,261,172.74				11,261,172.74
363.00 SERVICES	25,216,116.26				25,216,116.26
364.00 FLOW MEASURING DEVICES	36,936.47				36,936.47
365.00 FLOW MEASURING INSTALLATIONS	227,265.28				227,265.28
371.00 PUMPING EQUIPMENT	481,953.10				481,953.10
380.00 TREATMENT EQUIPMENT	530,488.83				530,488.83
390.00 OFFICE FURNITURE AND EQUIPMENT	84,101.78				84,101.78
391.00 TRANSPORTATION EQUIPMENT	25,437.18				25,437.18
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	43,942.40				43,942.40
394.00 LABORATORY EQUIPMENT	88,576.68				88,576.68
396.00 COMMUNICATION EQUIPMENT	3,604.32				3,604.32
397.00 MISCELLANEOUS EQUIPMENT	4,239.60				4,239.60
TOTAL DEPRECIABLE PLANT	190,585,477.56	0.00	0.00	0.00	190,585,477.56
NONDEPRECIABLE PLANT					
353.20 LAND AND LAND RIGHTS - COLLECTION	749,404.75				749,404.75
353.30 LAND AND LAND RIGHTS - SPP	99,930.18				99,930.18
353.40 LAND AND LAND RIGHTS - TDP	2,261,697.09				2,261,697.09
TOTAL NONDEPRECIABLE PLANT	3,111,032.02	0.00	0.00	0.00	3,111,032.02
TOTAL UTILITY PLANT	193,696,509.58	0.00	0.00	0.00	193,696,509.58

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2019

DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2019 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	CALCULATED ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT							
354.20	STRUCTURES AND IMPROVEMENTS - COLLECTION	70,288.82	0	70,289	1,866	2.65	37.7
354.30	STRUCTURES AND IMPROVEMENTS - SPP	2,009,432.59	1,017,853	991,580	34,309	1.71	28.9
354.40	STRUCTURES AND IMPROVEMENTS - TDP	102,681,938.75	58,778,620	43,903,319	1,665,879	1.62	26.4
355.00	POWER GENERATION EQUIPMENT	65,932.40	42,841	23,091	1,652	2.51	14.0
360.10	COLLECTION SEWERS - FORCE MAINS	1,327,403.11	437,287	890,116	18,732	1.41	47.5
361.10	COLLECTION SEWERS - GRAVITY MAINS	46,426,647.25	21,216,387	25,210,261	644,603	1.39	39.1
361.20	MANHOLES	11,261,172.74	4,945,460	6,315,713	436,027	3.87	14.5
363.00	SERVICES	25,216,116.26	14,977,369	10,238,748	781,980	3.10	13.1
364.00	FLOW MEASURING DEVICES	36,936.47	13,238	23,699	5,707	15.45	4.2
365.00	FLOW MEASURING INSTALLATIONS	227,265.28	158,069	69,196	15,010	6.60	4.6
371.00	PUMPING EQUIPMENT	481,953.10	241,902	240,051	18,405	3.82	13.0
380.00	TREATMENT EQUIPMENT	530,488.83	45,225	485,264	20,183	3.80	24.0
390.00	OFFICE FURNITURE AND EQUIPMENT	84,101.78	26,181	57,921	4,161	4.95	13.9
391.00	TRANSPORTATION EQUIPMENT	25,437.18	23,511	1,926	351	1.38	5.5
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	43,942.40	10,237	33,705	4,490	10.22	7.5
394.00	LABORATORY EQUIPMENT	88,576.68	41,732	46,845	15,888	17.94	2.9
396.00	COMMUNICATION EQUIPMENT	3,604.32	1,894	1,710	263	7.30	6.5
397.00	MISCELLANEOUS EQUIPMENT	4,239.60	1,622	2,618	407	9.60	6.4
	TOTAL DEPRECIABLE PLANT	190,585,477.56	101,979,427	88,606,052	3,669,913	1.93	24.1
NONDEPRECIABLE PLANT							
353.20	LAND AND LAND RIGHTS - COLLECTION	749,404.75					
353.30	LAND AND LAND RIGHTS - SPP	99,930.18					
353.40	LAND AND LAND RIGHTS - TDP	2,261,697.09					
	TOTAL NONDEPRECIABLE PLANT	3,111,032.02					
	TOTAL UTILITY PLANT	193,696,509.58	101,979,427	88,606,052	3,669,913		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 3. AMORTIZATION OF EXPERIENCED NET SALVAGE

ACCOUNT (1)	2015		2016		2017		2018		2019		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE (2)	COST OF REMOVAL (3)	GROSS SALVAGE (4)	COST OF REMOVAL (5)	GROSS SALVAGE (6)	COST OF REMOVAL (7)	GROSS SALVAGE (8)	COST OF REMOVAL (9)	GROSS SALVAGE (10)	COST OF REMOVAL (11)		
354.20											0	0
354.30											0	0
354.40											0	0
361.10											0	0
361.20											0	0
363.00											0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1965						0.0
1966	35,928,098	22,460,588	13,467,510		13,467,510	15.2
1967	23,979,421	17,689,478	6,289,943		19,757,453	22.3
1970	1,315,160	789,561	525,599		20,283,052	22.9
1975	4,751,939	2,682,076	2,069,863		22,352,915	25.2
1977					22,352,915	25.2
1978	20,513,094	13,360,772	7,152,322		29,505,237	33.3
1980	952,415	484,698	467,717		29,972,954	33.8
1984					29,972,954	33.8
1985	4,810,867	2,258,045	2,552,822		32,525,776	36.7
1986	245,114	140,643	104,471		32,630,247	36.8
1987	1,739,326	784,297	955,029		33,585,276	37.9
1990	8,836,119	3,716,661	5,119,458		38,704,734	43.7
1991	236,006	162,118	73,888		38,778,622	43.8
1992	52,147,280	26,353,442	25,793,838		64,572,460	72.9
1993	2,068,203	1,125,349	942,854		65,515,314	73.9
1995	18,537,344	6,656,419	11,880,925		77,396,239	87.3
1996					77,396,239	87.3
1997	124,862	62,022	62,840		77,459,079	87.4
1998					77,459,079	87.4
2000	1,166,783	342,293	824,490		78,283,569	88.4
2001	22,362	22,126	236		78,283,805	88.4
2002	628,200	235,570	392,630		78,676,435	88.8
2003	7,750	7,750			78,676,435	88.8
2004	228,108	86,311	141,797		78,818,232	89.0
2005	3,722,175	841,639	2,880,536		81,698,768	92.2
2006	67,291	25,656	41,635		81,740,403	92.3
2007	10,431	4,130	6,301		81,746,704	92.3
2008	47,818	11,863	35,955		81,782,659	92.3
2010	6,545,802	1,467,105	5,078,697		86,861,356	98.0
2011	30,014	9,704	20,310		86,881,666	98.1
2012	826,818	98,300	728,518		87,610,184	98.9
2013	262,601	40,565	222,036		87,832,220	99.1
2014	328,274	35,996	292,278		88,124,498	99.5
2015	74,497	6,766	67,731		88,192,229	99.5
2016	153,316	14,802	138,514		88,330,743	99.7
2017	23,237	1,229	22,008		88,352,751	99.7
2019	254,753	1,454	253,299		88,606,050	100.0
SUBTOTAL	190,585,478	101,979,427	88,606,052			
NONDEPRECIABLE	3,111,032		3,111,032			
TOTAL	193,696,510	101,979,427	91,717,084			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R3						
NET SALVAGE PERCENT.. 0						
2019	70,288.82	921		70,289	37.67	1,866
	70,288.82	921		70,289		1,866
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						37.7 2.65

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1993	1,685,673.63	813,000	889,333	796,341	28.45	27,991
1997	103,962.09	44,912	49,129	54,833	29.58	1,854
2004	219,796.87	72,577	79,391	140,406	31.45	4,464
	2,009,432.59	930,489	1,017,853	991,580		34,309
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						28.9 1.71

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.40 STRUCTURES AND IMPROVEMENTS - TDP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1967	23,979,421.48	17,246,000	17,689,478	6,289,943	20.50	306,826
1978	20,513,093.95	13,025,815	13,360,772	7,152,322	23.86	299,762
1986	245,114.34	137,117	140,643	104,471	26.38	3,960
1992	51,102,889.05	25,295,930	25,946,410	25,156,479	28.06	896,525
2002	622,993.92	224,589	230,364	392,630	31.04	12,649
2010	6,035,409.21	1,353,139	1,387,935	4,647,474	32.87	141,390
2013	54,275.38	8,858	9,086	45,189	33.34	1,355
2014	31,228.33	4,397	4,510	26,718	33.56	796
2016	97,513.09	9,186	9,422	88,091	33.67	2,616
	102,681,938.75	57,305,031	58,778,620	43,903,319		1,665,879
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						26.4 1.62

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1993	65,932.40	43,159	42,841	23,091	13.98	1,652
	65,932.40	43,159	42,841	23,091		1,652
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.0 2.51

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1990	29,313.30	12,194	12,770	16,543	41.42	399
1995	933,686.32	327,164	342,621	591,065	45.43	13,010
2005	364,403.49	78,201	81,896	282,507	53.07	5,323
	1,327,403.11	417,559	437,287	890,116		18,732
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						47.5 1.41

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1966	21,730,609.34	13,833,706	12,679,350	9,051,259	30.54	296,374
1970	786,262.84	470,971	431,671	354,592	33.14	10,700
1975	2,653,650.03	1,464,284	1,342,097	1,311,553	36.15	36,281
1980	588,806.30	295,345	270,700	318,106	39.24	8,107
1985	2,687,568.44	1,205,374	1,104,791	1,582,777	42.42	37,312
1987	936,417.78	398,727	365,455	570,963	43.83	13,027
1990	4,422,892.09	1,735,543	1,590,720	2,832,172	45.68	62,000
1992	580,107.59	213,770	195,932	384,176	47.13	8,151
1995	8,808,006.13	2,934,828	2,689,931	6,118,075	49.03	124,782
2000	590,189.51	159,941	146,595	443,595	52.45	8,457
2005	1,590,931.19	329,959	302,425	1,288,506	55.43	23,246
2008	15,459.73	2,579	2,364	13,096	57.46	228
2010	222,511.63	31,063	28,471	194,041	58.53	3,315
2012	628,770.50	70,297	64,431	564,340	59.61	9,467
2019	184,464.15	1,586	1,454	183,011	57.98	3,156
	46,426,647.25	23,147,973	21,216,387	25,210,261		644,603
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						39.1 1.39

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1966	4,625,810.10	3,959,693	2,552,533	2,073,277	9.00	230,364
1970	147,368.99	121,815	78,525	68,844	10.38	6,632
1975	599,973.89	469,900	302,911	297,063	12.32	24,112
1980	119,038.71	87,458	56,378	62,661	14.26	4,394
1985	599,035.97	403,031	259,805	339,231	16.78	20,216
1987	217,069.40	140,400	90,506	126,563	17.75	7,130
1990	1,270,902.17	761,016	490,573	780,329	19.76	39,490
1992	138,761.99	78,609	50,674	88,088	21.04	4,187
1995	2,687,049.33	1,382,487	891,191	1,795,858	23.12	77,676
2000	167,134.85	70,063	45,165	121,970	27.01	4,516
2005	521,885.44	165,751	106,848	415,037	31.16	13,320
2010	90,829.61	18,983	12,237	78,593	35.95	2,186
2012	75,333.20	12,490	8,051	67,282	37.75	1,782
2015	979.09	97	63	916	40.75	22
	11,261,172.74	7,671,793	4,945,460	6,315,713		436,027
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.5 3.87

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
1966	9,571,678.06	8,551,337	7,228,705	2,342,973	6.38	367,237
1970	381,528.08	330,480	279,365	102,163	7.65	13,355
1975	1,498,314.73	1,226,820	1,037,068	461,247	9.85	46,827
1980	244,570.12	186,460	157,620	86,950	12.31	7,063
1985	1,524,262.24	1,056,923	893,449	630,813	15.25	41,365
1987	585,839.23	388,411	328,336	257,503	16.52	15,587
1990	3,113,011.30	1,919,483	1,622,598	1,490,413	18.34	81,266
1992	325,521.82	189,779	160,426	165,096	19.67	8,393
1995	6,108,602.46	3,232,672	2,732,676	3,375,926	21.80	154,859
2000	407,298.18	177,093	149,702	257,596	25.35	10,162
2005	1,238,941.07	411,328	347,708	891,233	29.17	30,553
2010	186,779.34	41,689	35,241	151,538	33.06	4,584
2012	29,769.63	5,293	4,475	25,295	34.69	729
	25,216,116.26	17,717,768	14,977,369	10,238,748		781,980
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.1 3.10

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1991	8,740.98	8,121	4,049	4,692	2.17	2,162
2006	9,162.75	6,853	3,417	5,746	4.55	1,263
2010	10,272.31	6,460	3,221	7,051	5.61	1,257
2011	8,760.43	5,116	2,551	6,210	6.06	1,025
	36,936.47	26,550	13,238	23,699		5,707
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 4.2						15.45

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 25-S2						
NET SALVAGE PERCENT.. 0						
1991	227,265.28	195,607	158,069	69,196	4.61	15,010
	227,265.28	195,607	158,069	69,196		15,010
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.6 6.60

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1993	316,597.27	225,671	193,175	123,422	10.68	11,556
1997	18,055.77	11,740	10,049	8,007	12.10	662
2006	36,394.70	17,047	14,592	21,803	15.32	1,423
2011	10,181.14	3,358	2,875	7,306	17.27	423
2012	32,248.97	9,604	8,221	24,028	17.69	1,358
2013	22,545.15	5,950	5,093	17,452	18.13	963
2014	30,154.31	6,899	5,906	24,248	18.54	1,308
2015	3,761.30	723	619	3,142	18.92	166
2016	6,155.72	944	808	5,348	19.33	277
2017	5,858.77	659	564	5,295	19.72	269
	481,953.10	282,595	241,902	240,051		18,405
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.0 3.82

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S1.5						
NET SALVAGE PERCENT.. 0						
2008	11,078.37	4,064	1,818	9,260	19.85	466
2012	33,096.09	8,241	3,688	29,408	22.62	1,300
2013	139,660.30	30,320	13,567	126,093	23.44	5,379
2014	239,438.94	44,392	19,864	219,575	24.17	9,085
2015	55,452.56	8,462	3,786	51,667	25.00	2,067
2016	34,383.95	4,105	1,837	32,547	25.82	1,261
2017	17,378.62	1,486	665	16,714	26.74	625
	530,488.83	101,070	45,225	485,264		20,183
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 24.0						3.80

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 390.00 OFFICE FURNITURE AND EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	2,249.52	956	979	1,271	11.50	111
2012	22,674.60	8,503	8,705	13,970	12.50	1,118
2013	33,760.20	10,972	11,233	22,527	13.50	1,669
2014	3,709.04	1,020	1,044	2,665	14.50	184
2015	6,445.39	1,450	1,485	4,960	15.50	320
2016	15,263.03	2,671	2,735	12,528	16.50	759
	84,101.78	25,572	26,181	57,921		4,161
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.9 4.95

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 14-L4						
NET SALVAGE PERCENT.. 0						
2001	22,361.85	20,394	22,126	236	1.78	133
2014	3,075.33	1,277	1,385	1,690	7.75	218
	25,437.18	21,671	23,511	1,926		351
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.5 1.38

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 393.00 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
1997	2,843.87	2,844	2,844			
2000	2,160.09	2,106	831	1,329	0.50	1,329
2004	2,003.72	1,553	613	1,391	4.50	309
2006	10,217.68	6,897	2,723	7,495	6.50	1,153
2012	4,924.86	1,847	729	4,196	12.50	336
2013	12,359.83	4,017	1,586	10,774	13.50	798
2014	3,717.68	1,022	404	3,314	14.50	229
2015	5,714.67	1,286	507	5,207	15.50	336
	43,942.40	21,572	10,237	33,705		4,490

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.5 10.22

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 394.00 LABORATORY EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2002	4,205.61	4,206	4,206			
2003	7,749.55	7,750	7,750			
2004	6,307.46	6,307	6,307			
2005	6,013.72	5,813	2,762	3,252	0.50	3,252
2006	11,516.01	10,364	4,924	6,592	1.50	4,395
2007	10,430.63	8,692	4,130	6,301	2.50	2,520
2008	20,243.21	15,520	7,373	12,870	3.50	3,677
2011	5,218.83	2,957	1,405	3,814	6.50	587
2014	14,748.07	5,408	2,569	12,179	9.50	1,282
2015	2,143.59	643	306	1,838	10.50	175
	88,576.68	67,660	41,732	46,845		15,888

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 2.9 17.94

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 396.00 COMMUNICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	3,604.32	2,042	1,894	1,710	6.50	263
	3,604.32	2,042	1,894	1,710		263
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						6.5 7.30

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 397.00 MISCELLANEOUS EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2019

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2002	1,000.48	1,000	1,000			
2008	1,036.56	795	308	729	3.50	208
2014	2,202.56	808	314	1,889	9.50	199
	4,239.60	2,603	1,622	2,618		407
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						6.4 9.60

EXHIBIT NO. 11-R - DEPRECIATION STUDY

WASTEWATER SSS EXETER OPERATIONS

AS OF DECEMBER 31, 2020

Exhibit No. 11-R
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY
MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS EXETER OPERATIONS

2020 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2020

Prepared by:



*Excellence Delivered **As Promised***

Exhibit No. 11-R
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY
Mechanicsburg, Pennsylvania

WASTEWATER SSS EXETER OPERATIONS

2020 DEPRECIATION STUDY
CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2020

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC
Camp Hill, Pennsylvania



Excellence Delivered **As Promised**

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant. The results of our study as of December 31, 2020, are presented in the attached report. The results of our study as of December 31, 2019, are presented in our report, "2019 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2019." The same methods, procedures and estimates are used in both studies.

The attached report sets forth a description of the methods and procedures upon which the studies were based, the estimates of survivor curves, and the calculated annual depreciation as of December 31, 2020.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

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PART I. INTRODUCTION

PENNSYLVANIA-AMERICAN WATER COMPANY

WASTEWATER SSS EXETER OPERATIONS

DEPRECIATION STUDY

PART I. INTRODUCTION

SCOPE

This report sets forth the results of the depreciation study for Pennsylvania-American Water Company to determine the annual depreciation accrual rates and amounts applicable to the original cost of wastewater plant as of December 31, 2020. The rates and amounts are based on the straight line remaining life method of depreciation. This report also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates related to wastewater plant in service as of December 31, 2020.

Part I, Introduction, contains statements with respect to the basis of the study and the development of net original cost. Part II, Estimation of Survivor Curves, presents descriptions of the considerations and methods used in the service life study. Part III, Service Life Considerations, presents the results of the average service life analysis. Part IV, Calculation of Annual and Accrued Depreciation, describes the procedures used in the calculation of group depreciation. Part V, Results of Study, presents summaries by depreciable group of annual depreciation accrual rates and amounts, as well as composite remaining lives. Part VI, Service Life Statistics presents the statistical analysis of service life estimates, Part VII, Detailed Depreciation Calculations presents the detailed tabulations of annual depreciation and Part VIII, Experienced and Estimated Net Salvage presents the cost of removal and gross salvage recorded for the period 2016-2020.

BASIS OF THE STUDY

The purpose of the depreciation study was to determine the annual depreciation accruals applicable to the original cost of wastewater plant in service as of December 31, 2020. For most accounts, the straight line remaining life method using attained ages, the book depreciation reserve and estimated survivor curves, was the basis for the calculation of annual depreciation. For certain accounts, the annual and accrued amortization amounts were based on the age of the property and the selected amortization period.

The survivor curve estimates were based on judgment which incorporated (1) analyses of historical data related to wastewater property for all Pennsylvania-American Water Company Wastewater Operations; (2) consideration of the character, use and location of the property; (3) probable future events and management plans; and (4) a general knowledge of wastewater property lives. The use of Iowa type survivor curves is a generally-accepted method of estimating average service life when the actual lives of individual property units are dispersed.

DEVELOPMENT OF NET ORIGINAL COST

The original cost data used in this study were obtained from the Company's continuing property records and work order system which show in detail the original cost of the property including descriptions, locations and years of installation of property units. The net original cost was developed from the original cost data by deducting contributions in aid of construction. The development of net original cost by plant account is set forth in Table 1 on page V-4.

PART II. ESTIMATION OF SURVIVOR CURVES

PART II. ESTIMATION OF SURVIVOR CURVES

The calculation of annual depreciation based on the straight line method requires the estimation of survivor curves and the selection of group depreciation procedures. The estimation of survivor curves is discussed below and the development of net salvage is discussed in later sections of this report.

SURVIVOR CURVES

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages.

The survivor curve graphically depicts the amount of property existing at each age throughout the life of an original group. From the survivor curve, the average life of the group, the remaining life expectancy, the probable life, and the frequency curve can be calculated. In Figure 1, a typical smooth survivor curve and the derived curves are illustrated. The average life is obtained by calculating the area under the survivor curve, from age zero to the maximum age, and dividing this area by the ordinate at age zero. The remaining life expectancy at any age can be calculated by obtaining the area under the curve, from the observation age to the maximum age, and dividing this area by the percent surviving at the observation age. For example, in Figure 1, the remaining life at age 30 is equal to the crosshatched area under the survivor curve divided by 29.5 percent surviving at age 30. The probable life at any age is developed by adding the age and remaining life. If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve presents the number of units retired in each age interval. It is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

This study has incorporated the use of Iowa curves developed from a retirement rate analysis of historical retirement history. A discussion of the concepts of survivor curves and of the development of survivor curves using the retirement rate method is presented below.

Iowa Type Curves

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. There are four families in the Iowa system, labeled in accordance with the location of the modes of the retirements (or the portion of the frequency curve with the highest level of retirements) in relationship to the average life and the relative height of the modes. The left moded curves, presented in Figure 2, are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical moded curves, presented in Figure 3, are those in which the greatest frequency of retirement occurs at average service life. The right moded curves, presented in Figure 4, are those in which the greatest frequency occurs to the right of, or after, average service life. The origin moded curves, presented in Figure 5, are those in which the greatest frequency of retirement occurs at the origin, or immediately after age zero. The letter designation of each family of curves (L, S, R or O) represents the location of the mode of the associated frequency curve with respect to the average service life. The numbers represent the relative heights of the modes of the frequency curves within each family. A higher number designates a higher mode curve.

The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125. These curve types have also been presented in subsequent

Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."¹ In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student submitted a thesis presenting his development of the fourth family consisting of the four O type survivor curves.

Retirement Rate Method of Analysis

The retirement rate method is an actuarial method of deriving survivor curves using the average rates at which property of each age group is retired. The method relates to property groups for which aged accounting experience is available and is the method used to develop the original stub survivor curves in this study. The method (also known as the annual rate method) is illustrated through the use of an example in the following text, and is also explained in several publications, including "Statistical Analyses of Industrial Property Retirements,"² "Engineering Valuation and Depreciation,"³ and "Depreciation Systems."⁴

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginning of the age intervals during the same period. The period of observation is referred to as the experience band, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the placement band. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

¹Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

²Winfrey, Robley, Statistical Analyses of Industrial Property Retirements. Iowa State College, Engineering Experiment Station, Bulletin 125. 1935.

³Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 1.

⁴Wolf, Frank K. and W. Chester Fitch. Depreciation Systems. Iowa State University Press. 1994.

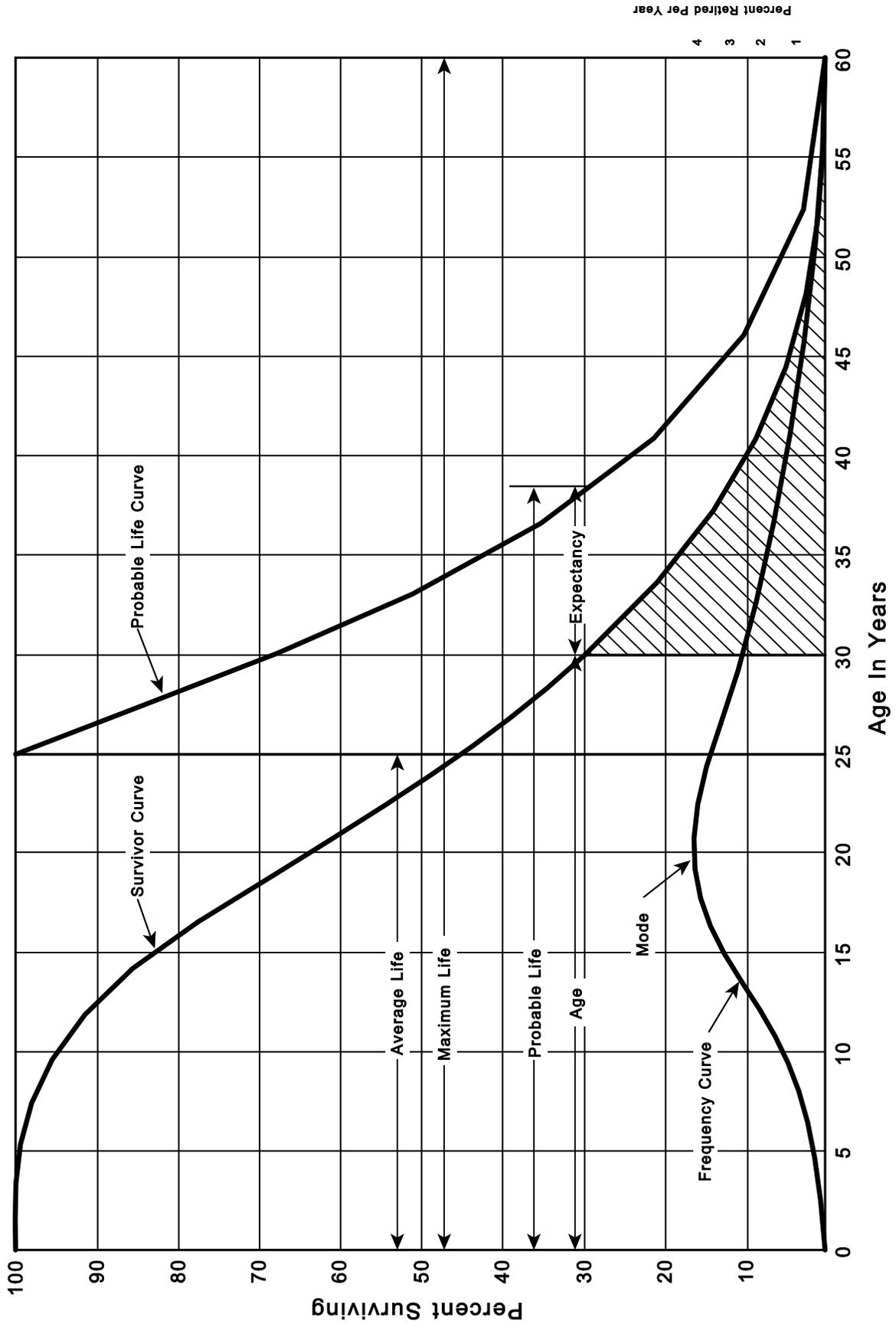


Figure 1. A Typical Survivor Curve and Derived Curves

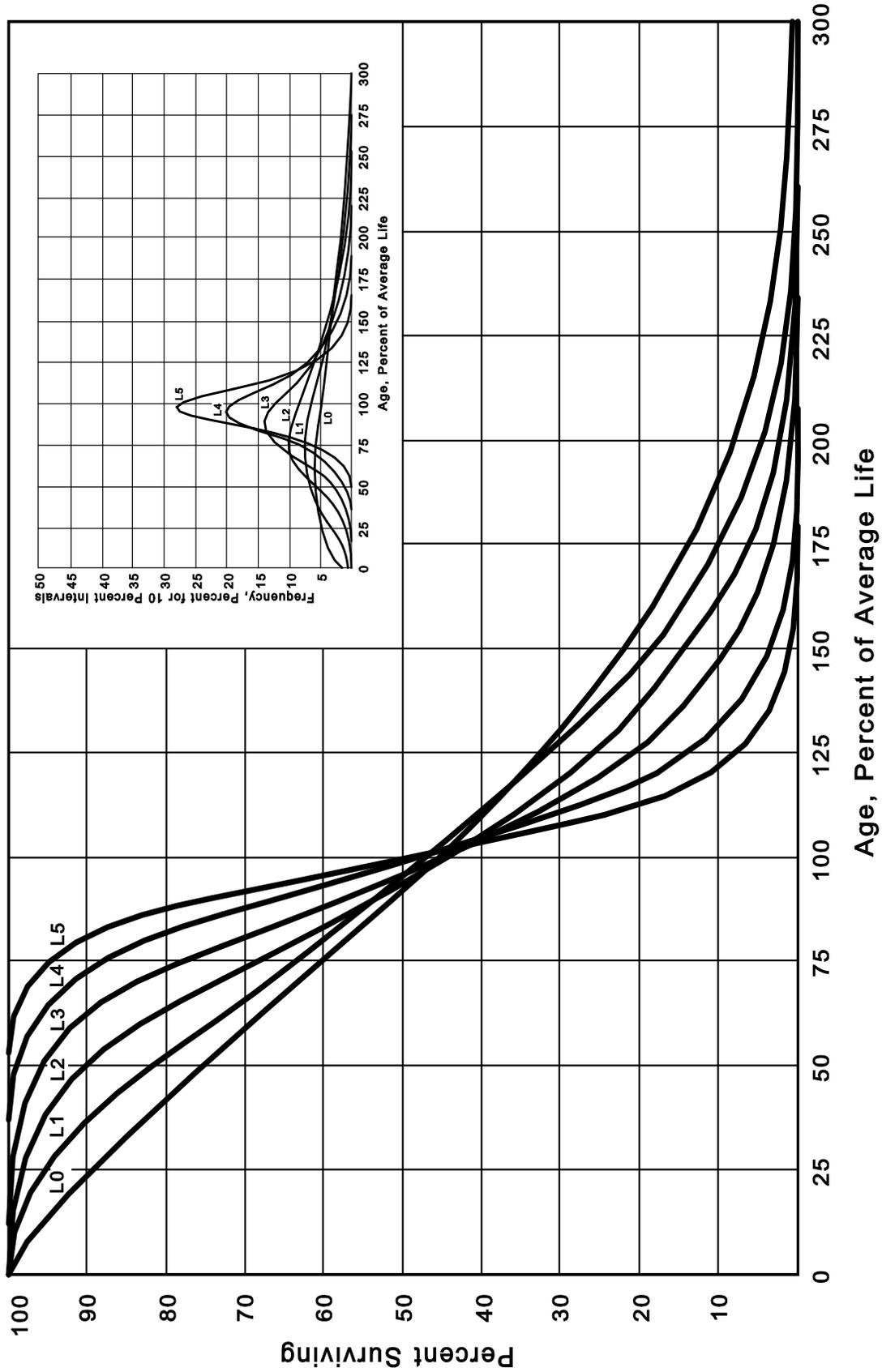


Figure 2. Left Modal or "L" lowa Type Survivor Curves

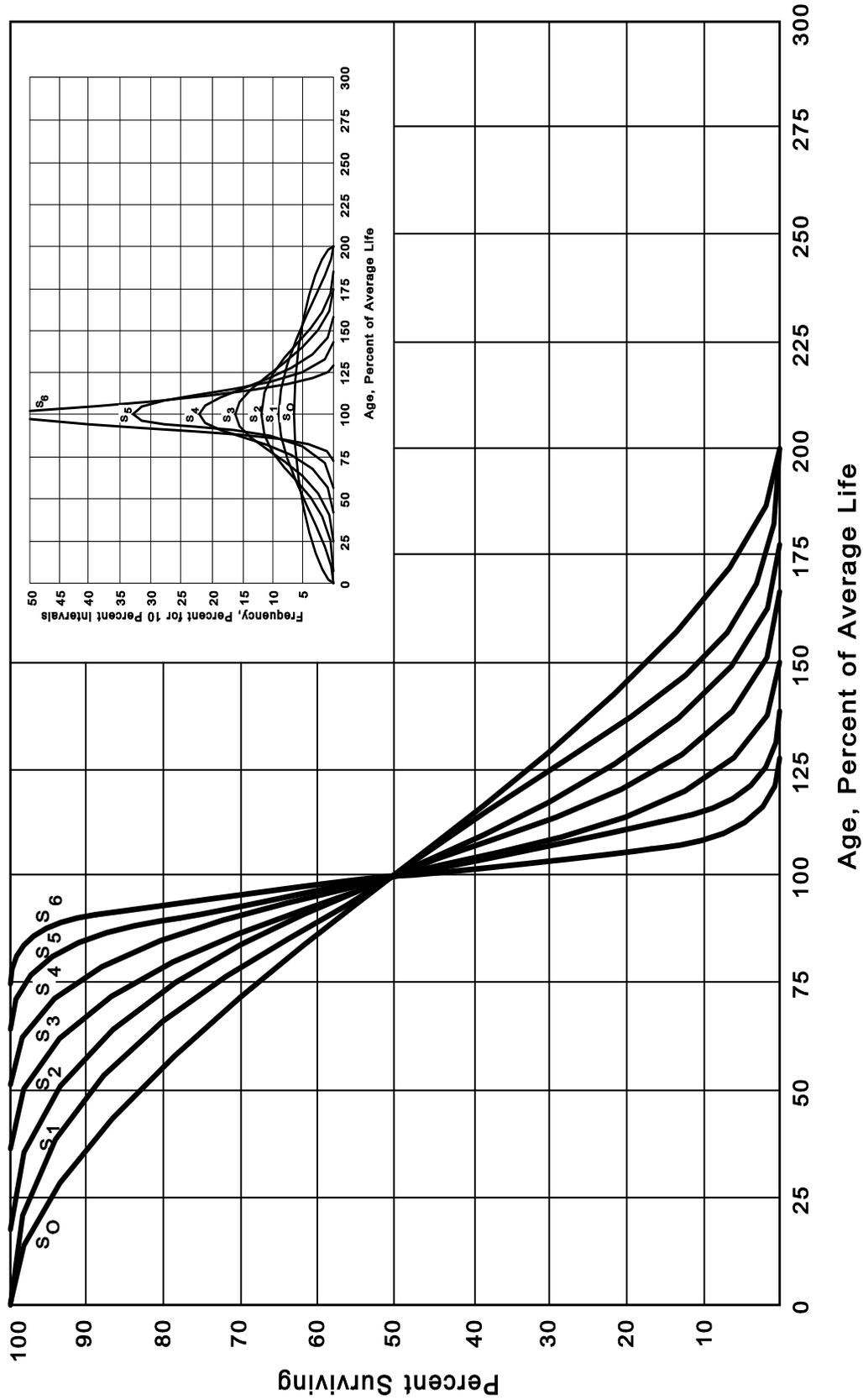


Figure 3. Symmetrical or "S" Iowa Type Survivor Curves

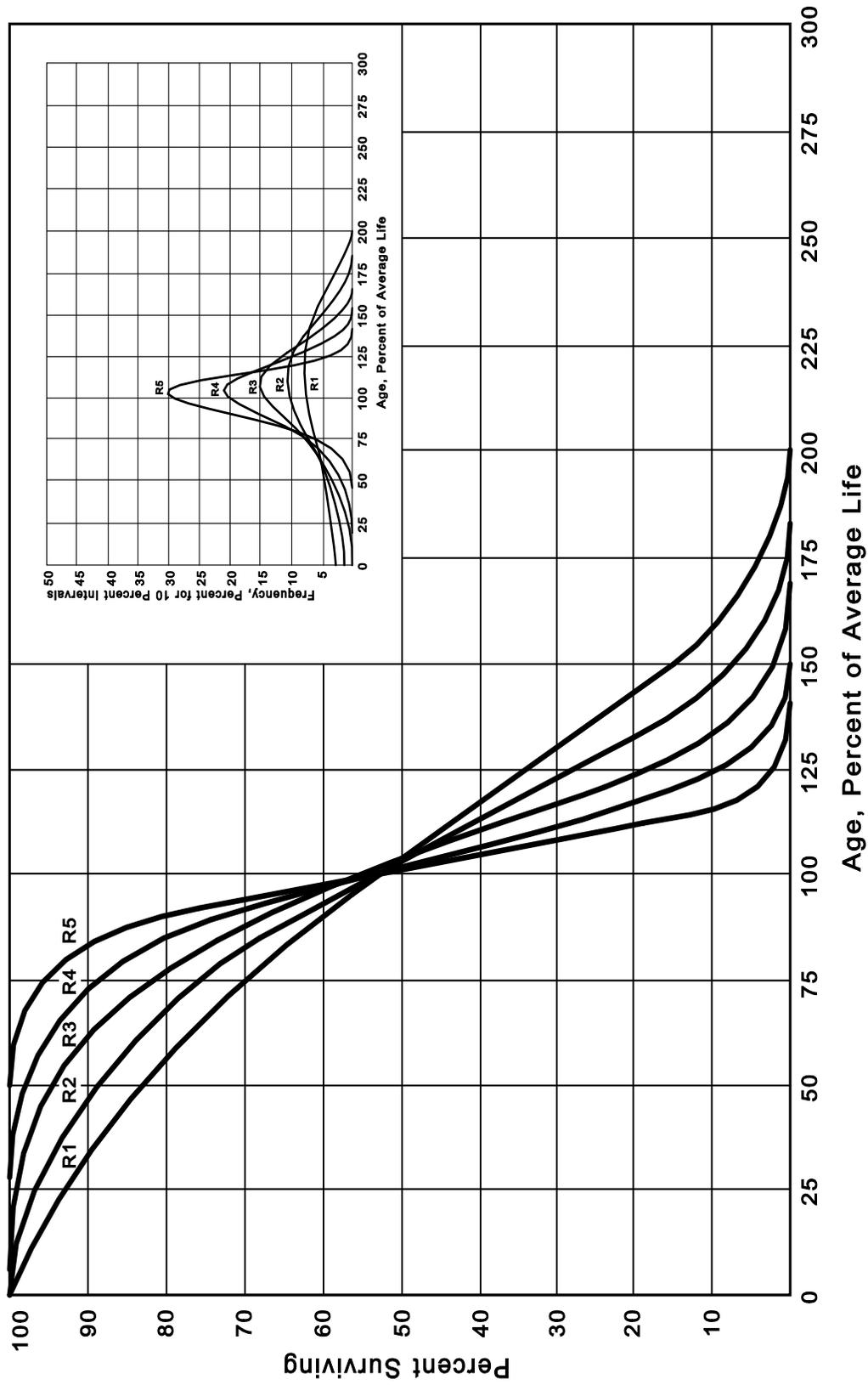


Figure 4. Right Modal or "R" IOWA Type Survivor Curves

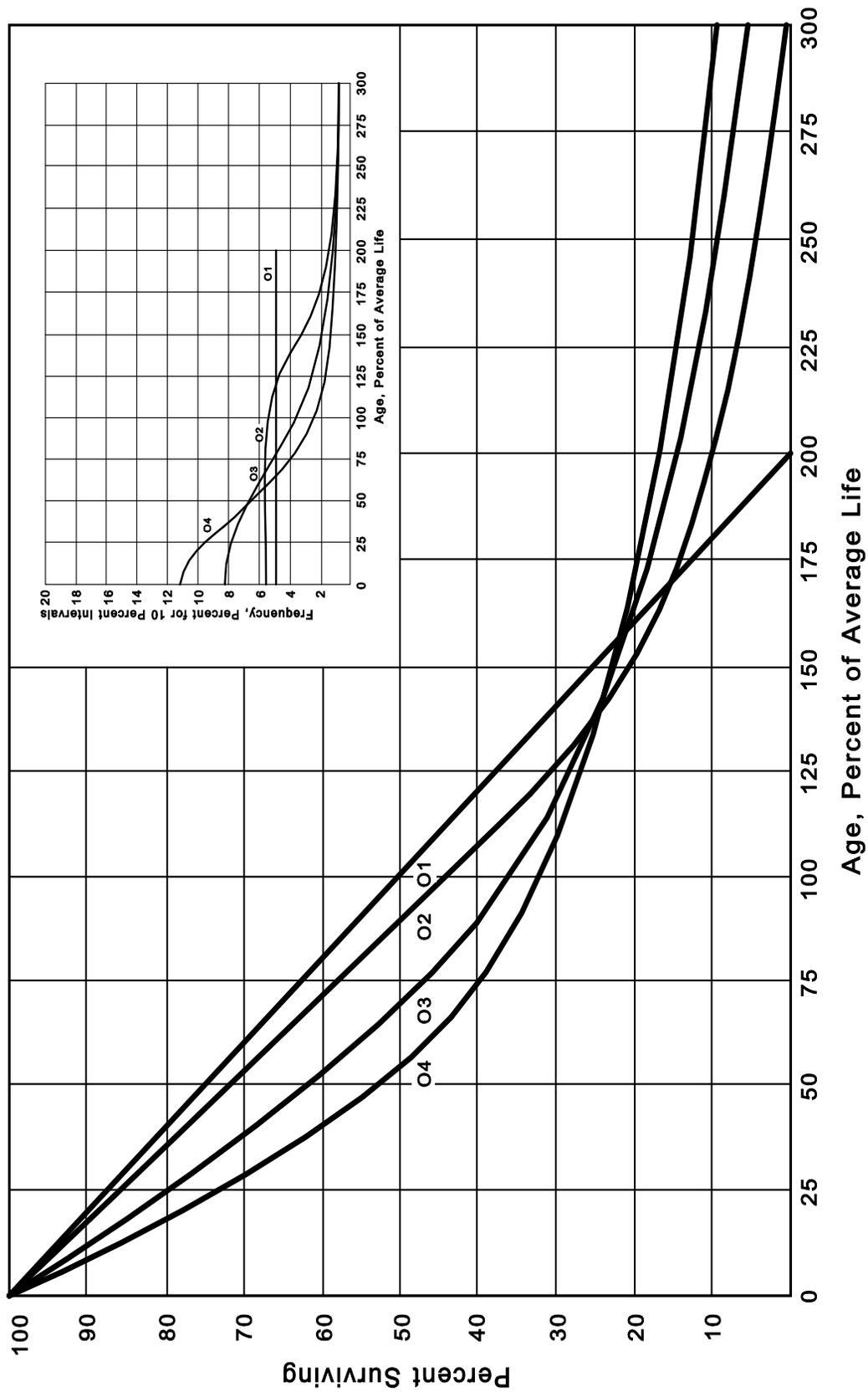


Figure 5. Origin Modal or "O" lowa Type Survivor Curves

Schedules of Annual Transactions in Plant Records

A hypothetical property group is used to illustrate the retirement rate method. This property group is observed for the experience band 2010-2019 during which there were placements (or installations) during the years 2005-2019. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Schedules 1 and 2 on pages II-11 and II-12. In Schedule 1, year placed and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the dollars invested in 2005 were retired in 2010. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2010 retirements of 2005 installations and ending with the 2019 retirements of the 2014 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

$$10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.$$

SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2010-2019
SUMMARIZED BY AGE INTERVAL

Year Placed (1)	Retirements, Thousands of Dollars										Total During		Age Interval (13)
	During Year										Age Interval (12)	Age (13)	
	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (6)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)			
2005	10	11	12	13	14	16	23	24	25	26	26	26	13½-14½
2006	11	12	13	15	16	18	20	21	22	19	44	44	12½-13½
2007	11	12	13	14	16	17	19	21	22	18	64	64	11½-12½
2008	8	9	10	11	11	13	14	15	16	17	83	83	10½-11½
2009	9	10	11	12	13	14	16	17	19	20	93	93	9½-10½
2010	4	9	10	11	12	13	14	15	16	20	105	105	8½-9½
2011		5	11	12	13	14	15	16	18	20	113	113	7½-8½
2012			6	12	13	15	16	17	19	19	124	124	6½-7½
2013				6	13	15	16	17	19	19	131	131	5½-6½
2014					13	14	16	17	19	20	143	143	4½-5½
2015					7	8	18	20	22	23	146	146	3½-4½
2016						9	9	20	22	25	150	150	2½-3½
2017								11	23	25	151	151	1½-2½
2018									11	24	153	153	½-1½
2019										13	80	80	0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606		

Experience Band 2010-2019

Placement Band 2005-2019

SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2010-2019
SUMMARIZED BY AGE INTERVAL

Year Placed (1)	During Year										Total During Age Interval (12)	Age Interval (13)	
	2010 (2)	2011 (3)	2012 (4)	2013 (5)	2014 (6)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)			
2005	-	-	-	-	-	-	60 ^a	-	-	-	-	-	13½-14½
2006	-	-	-	-	-	-	-	-	-	-	-	-	12½-13½
2007	-	-	-	-	-	-	-	-	-	-	-	-	11½-12½
2008	-	-	-	-	-	-	-	(5) ^b	-	-	60	-	10½-11½
2009	-	-	-	-	-	-	-	6 ^a	-	-	-	-	9½-10½
2010	-	-	-	-	-	-	-	-	-	-	(5)	-	8½-9½
2011	-	-	-	-	-	-	-	-	-	-	6	-	7½-8½
2012	-	-	-	-	-	-	-	-	-	-	-	-	6½-7½
2013	-	-	-	-	-	-	-	(12) ^b	-	-	-	-	5½-6½
2014	-	-	-	-	-	-	-	-	22 ^a	-	-	-	4½-5½
2015	-	-	-	-	-	-	-	(19) ^b	-	-	10	-	3½-4½
2016	-	-	-	-	-	-	-	-	-	-	-	-	2½-3½
2017	-	-	-	-	-	-	-	-	-	(102) ^c	(121)	-	1½-2½
2018	-	-	-	-	-	-	-	-	-	-	-	-	½-1½
2019	-	-	-	-	-	-	-	-	-	-	-	-	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	-	

^a Transfer Affecting Exposures at Beginning of Year

^b Transfer Affecting Exposures at End of Year

^c Sale with Continued Use

Parentheses Denote Credit Amount.

In Schedule 2, other transactions which affect the group are recorded in a similar manner. The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements, but are used in developing the exposures at the beginning of each age interval.

Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 on page II-14. The surviving plant at the beginning of each year from 2010 through 2019 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2015 are calculated in the following manner:

Exposures at age 0	= amount of addition	= \$750,000
Exposures at age ½	= \$750,000 - \$ 8,000	= \$742,000
Exposures at age 1½	= \$742,000 - \$18,000	= \$724,000
Exposures at age 2½	= \$724,000 - \$20,000 - \$19,000	= \$685,000
Exposures at age 3½	= \$685,000 - \$22,000	= \$663,000

SCHEDULE 3. PLANT EXPOSED TO RETIREMENT
 JANUARY 1 OF EACH YEAR 2010-2019
 SUMMARIZED BY AGE INTERVAL

Year Placed	Exposures, Thousands of Dollars										Total at Beginning of Age Interval	Age Interval	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)			(11)
2005	255	279	245	234	222	209	195	239	216	192	167	167	13½-14½
2006	307	338	268	256	243	228	212	194	174	153	131	323	12½-13½
2007	376	420 ^a	296	284	271	257	241	224	205	184	162	531	11½-12½
2008	376	420 ^a	330	321	311	300	289	276	262	242	226	823	10½-11½
2009	376	420 ^a	367	357	346	334	321	307	297	280	261	1,097	9½-10½
2010	420 ^a	460 ^a	416	407	397	386	374	361	347	332	316	1,503	8½-9½
2011	420 ^a	460 ^a	460 ^a	455	444	432	419	405	390	374	356	1,952	7½-8½
2012	420 ^a	460 ^a	510 ^a	510 ^a	504	492	479	464	448	431	412	2,463	6½-7½
2013	420 ^a	460 ^a	580 ^a	574	580 ^a	574	561	546	530	501	482	3,057	5½-6½
2014	420 ^a	460 ^a	660 ^a	660 ^a	660 ^a	660 ^a	653	639	623	628	609	3,789	4½-5½
2015	420 ^a	460 ^a	750 ^a	742	750 ^a	742	724	685	663	663	663	4,332	3½-4½
2016	420 ^a	460 ^a	850 ^a	850 ^a	850 ^a	850 ^a	841	821	799	799	799	4,955	2½-3½
2017	420 ^a	460 ^a	960 ^a	960 ^a	960 ^a	960 ^a	960 ^a	949	926	926	926	5,719	1½-2½
2018	420 ^a	460 ^a	1,080 ^a	1,080 ^a	1,080 ^a	1,080 ^a	1,069	1,069	1,069	1,069	1,069	6,579	½-1½
2019	420 ^a	460 ^a	1,220 ^a	7,490	0-½								
Total	1,975	2,382	2,824	3,872	3,318	3,872	4,494	5,247	6,017	6,852	7,799	44,780	

^aAdditions during the year

For the entire experience band 2010-2019, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

$$255 + 268 + 284 + 311 + 334 + 374 + 405 + 448 + 501 + 609.$$

Original Life Table

The original life table, illustrated in Schedule 4 on page II-17, is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e. one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

Percent surviving at age 4½	=	88.15	
Exposures at age 4½	=	3,789,000	
Retirements from age 4½ to 5½	=	143,000	
Retirement Ratio	=	$143,000 \div 3,789,000$	= 0.0377
Survivor Ratio	=	$1.000 - 0.0377$	= 0.9623
Percent surviving at age 5½	=	$(88.15) \times (0.9623)$	= 84.83

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless.

The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

Smoothing the Original Survivor Curve

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0.

In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group.

SCHEDULE 4. ORIGINAL LIFE TABLE

CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2010-2019

Placement Band 2005-2019

(Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Beginning of Age Interval
(1)	(2)	(3)	(4)	(5)	(6)
0.0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.60
12.5	323	44	0.1362	0.8638	48.90
13.5	167	26	0.1557	0.8443	42.24
14.5					35.66
Total	<u>44,780</u>	<u>1,606</u>			

Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement.

Column 3 from Schedule 1, Column 12, Retirements for Each Year.

Column 4 = Column 3 Divided by Column 2.

Column 5 = 1.0000 Minus Column 4.

Column 6 = Column 5 Multiplied by Column 6 as of the Preceding Age Interval.

FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

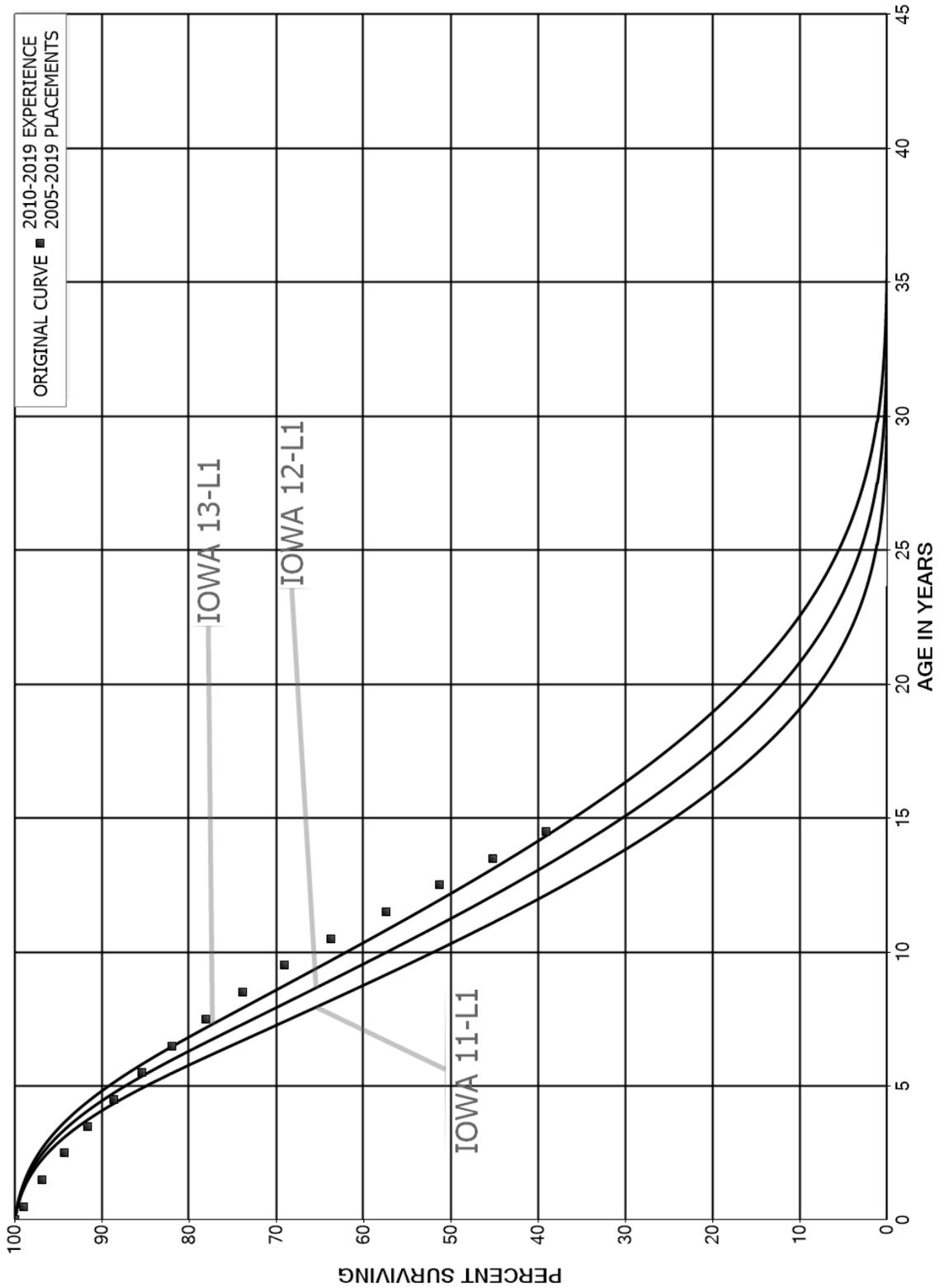


FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN S0 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

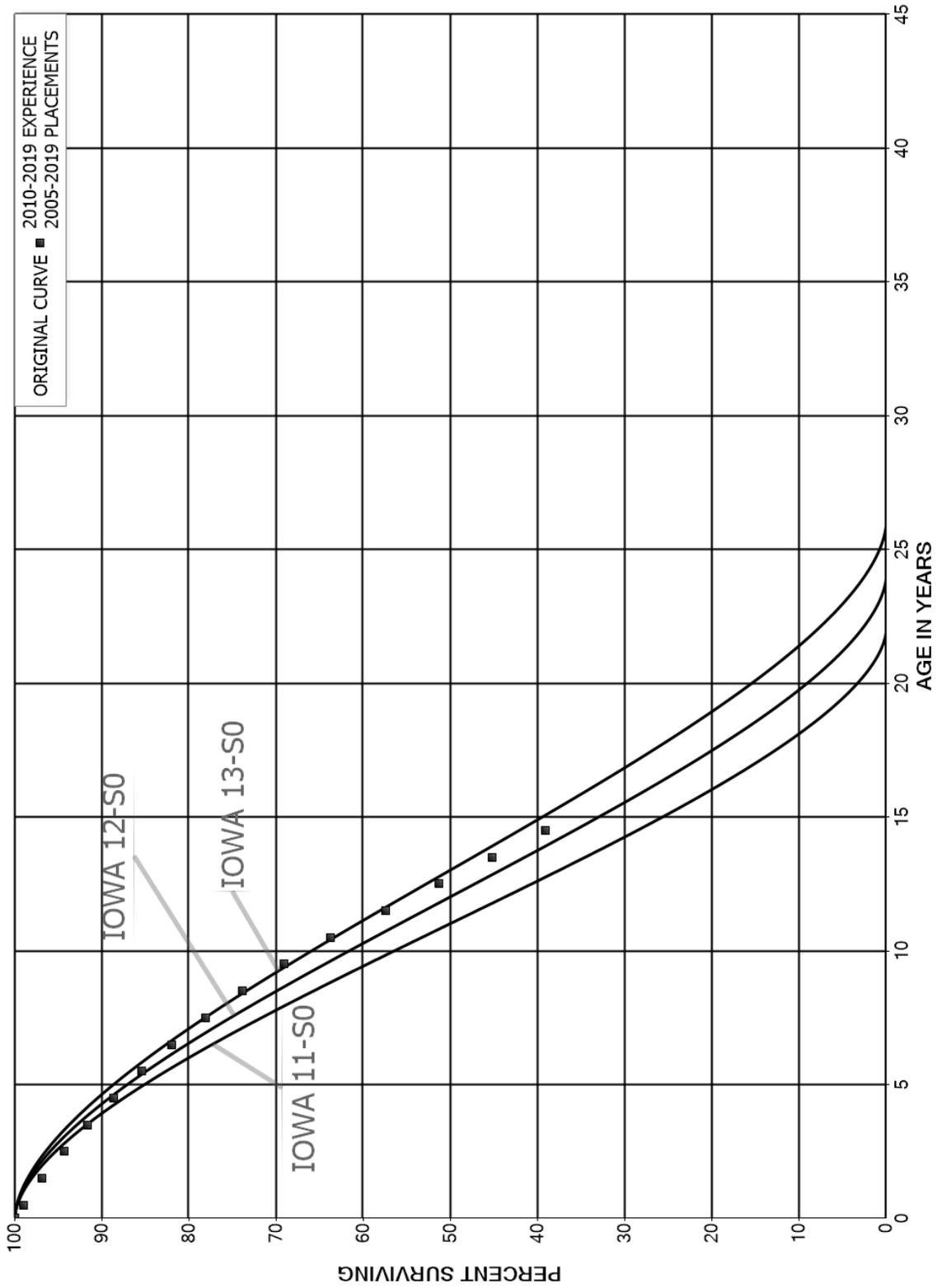


FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

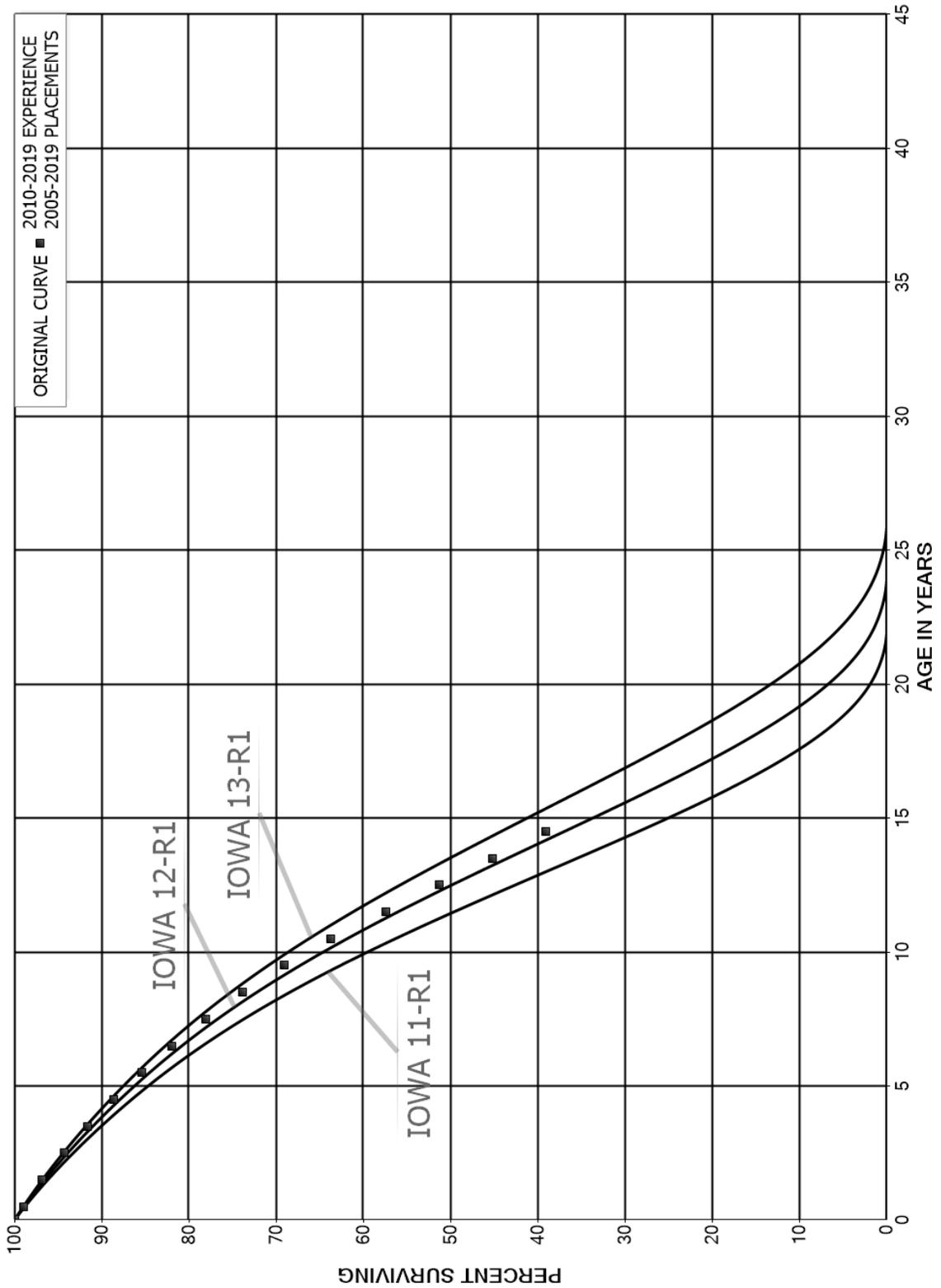
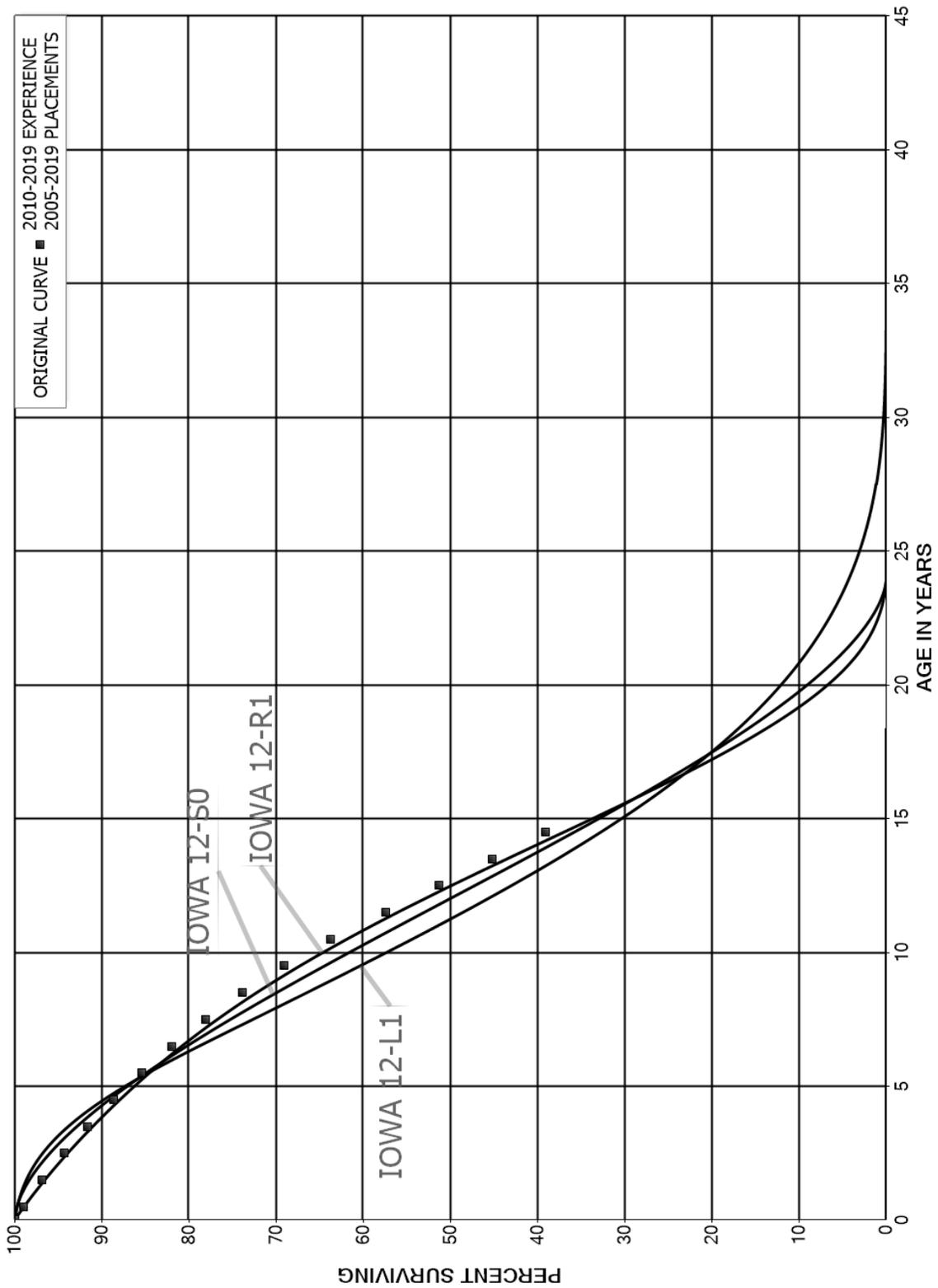


FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1, S0 AND R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



PART III. SERVICE LIFE CONSIDERATIONS

PART III. SERVICE LIFE CONSIDERATIONS

JUDGMENTS

The survivor curve estimates were based on judgment which considered factors including statistical analyses of retirements, Company policies and outlook as determined during discussions with management, and survivor curve estimates from previous studies of other Pennsylvania-American wastewater systems. For depreciable groups which consist of numerous similar items of property, the distribution of the lives of the units in the group was judged on the basis of an average survival pattern for the entire group.

The amortization periods selected for general plant Accounts 390, 393, 394, 396 and 397 are discussed in the section, "Amortization of General Plant Accounts."

**PART IV. CALCULATION OF ANNUAL AND
ACCRUED DEPRECIATION**

PART IV. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

BOOK RESERVE

The book reserve as of December 31, 2019, is the result of a bringforward of the book reserves established by the Commission for the Exeter wastewater operation at the time of acquisition. The projected book reserve as of December 31, 2020, is a bringforward of the December 31, 2019 book reserve based on projected accruals, retirements, cost of removal, salvage and other credits.

GROUP DEPRECIATION PROCEDURES

A group procedure for depreciation is appropriate when considering more than a single item of property. Normally the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, average service life and equal life group. In the average service life procedure, the rate of annual depreciation is based on the average life or average remaining life of the group, and this rate is applied to the surviving balances of the group's cost. A characteristic of this procedure is that the cost of plant retired prior to average life is not fully recouped at the time of retirement, whereas the cost of plant retired subsequent to average life is more than fully recouped. Over the entire life cycle, the portion of cost not recouped prior to average life is balanced by the cost recouped subsequent to average life.

Single Unit of Property

The calculation of straight line depreciation for a single unit of property is straightforward. For example, if a \$1,000 unit of property attains an age of four years and has a life expectancy of six years, the annual accrual over the total life is:

$$\frac{\$1,000}{(4 + 6)} = \$100 \text{ per year.}$$

The accrued depreciation is:

$$\$1,000 \left(1 - \frac{6}{10} \right) = \$400.$$

Remaining Life Annual Accruals

For the purpose of calculating remaining life accruals as of December 31, 2020, the depreciation reserve for each plant account is allocated among vintages in proportion to the calculated accrued depreciation for the account. Explanations of remaining life accruals and calculated accrued depreciation follow. The detailed calculations as of December 31, 2020, are set forth in the Results of Study section of the report.

Equal Life Group Procedure

In the equal life group procedure, the remaining life annual accrual for each vintage is determined by dividing future book accruals (original cost less book reserve) by the composite remaining life for the surviving original cost of that vintage. The composite remaining life is derived by compositing the individual equal life group remaining lives in accordance with the following equation:

$$\text{Composite Remaining Life} = \frac{\sum \left(\frac{\text{Book Cost}}{\text{Life}} \times \text{Remaining Life} \right)}{\sum \frac{\text{Book Cost}}{\text{Life}}}$$

The book costs and lives of the several equal life groups which are summed in the foregoing equation are defined by the estimated survivor curve.

Inasmuch as book cost divided by life equals the whole life annual accrual, the foregoing equation reduces to the following form:

$$\text{Composite Remaining Life} = \frac{\sum \text{Whole Life Future Accruals}}{\sum \text{Whole Life Annual Accruals}}$$

or

$$\text{Composite Remaining Life} = \frac{\sum \text{Book Cost} - \text{Calc. Reserve}}{\sum \text{Whole Life Annual Accrual}}$$

The annual accrual rate for each account is equal to the sum of the remaining life annual accruals for all vintages divided by the account's total original cost. The account's "composite remaining life" is calculated by dividing the sum of the future book accruals for all vintages by the sum of the remaining life annual accruals for all vintages.

The calculated accrued depreciation in the equal life group procedure also represents that portion of depreciable cost which will not be allocated to expense through future accruals. However, the calculation is based at the equal life group level rather than the vintage group level, and does not require the use of averages. The equal life group accrued depreciation ratio is calculated as follows:

$$\text{Ratio} = 1 - \left(\frac{\text{Remaining Life}}{\text{Service Life}} \right)$$

Inasmuch as service life minus remaining life equals age, when averages are not employed, the foregoing equation reduces to:

$$\text{Ratio} = \left(\frac{\text{Age}}{\text{Service Life}} \right)$$

AMORTIZATION OF GENERAL PLANT ACCOUNTS

In order to use a more efficient and cost effective accounting process for equipment recorded in general plant Accounts 390, 393, 394, 396 and 397; amounts capitalized in these accounts are amortized rather than depreciated. Amortization as defined in the Uniform System of Accounts is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized.

The primary reasons for the amortization of certain general plant accounts is that the effort required to unitize additions, periodically inventory equipment and determine amounts to be retired for equipment recorded in these accounts is disproportionate to the original cost of the equipment when compared to other wastewater plant accounts.

Accounting for such equipment using an amortization concept consists of capitalization of amounts to these accounts based on the same criteria as used previously under depreciation accounting, amortization of the asset over a fixed period, retirement of the equipment at the end of the amortization period and recognition of any net salvage related to disposition of equipment in these accounts as a gain or loss. For equipment in these accounts that was placed in service prior to implementation of amortization accounting, the net book value by vintage amortized over the remaining amortization period specified for each account and the original cost will be retired at the end of this period.

The amortization periods selected for each account or subaccount are based on a review of the existing depreciation rates for the accounts, typical service lives used for each type of equipment and a consideration of the period during which it is anticipated

that most of the benefit of the equipment will be realized. The amortization periods are as follows:

<u>Account Number</u>	<u>Description</u>	<u>Amortization Period, Years</u>
390	Office Furniture and Equipment	20
393	Tools, Shop and Garage Equipment	20
394	Laboratory Equipment	15
396	Communication Equipment	15
397	Miscellaneous Equipment	15

NET SALVAGE

Experienced net salvage is incorporated in the results of the study as it was reported on the Company's books and records for the period January 1, 2016 through December 31, 2019, and estimated for the period January 1, 2020 through December 31, 2020. The calculation of the amortization is shown in Table 5 on page V-8. The amounts of salvage and removal cost by account for each year are set forth in the section beginning on page VIII-2.

Net salvage is presented in this manner to determine the amount of net salvage to be amortized to the cost of service for ratemaking purposes. In order to be consistent with this manner of recognizing net salvage, no adjustments for net salvage were made to the annual depreciation calculated for the individual accounts.

PART V. RESULTS OF STUDY

PART V. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Table 1 presents the development of the net original cost used in the study. The results of the depreciation study are summarized in Table 2 which sets forth, by depreciable group, the estimated survivor curve, calculated annual accruals and book reserve related to net original cost and the annual amortization of net salvage. Table 3 presents the bringforward to December 31, 2020 of the book reserve as of December 31, 2019. Table 4 sets forth the calculation of estimated depreciation accruals for the twelve months ended December 31, 2020. Table 5 presents the amortization of experienced and estimated net salvage, by account, based on the five-year period, 2016-2020. The total amortization amount is incorporated in the total annual accrual in Table 2.

DESCRIPTION OF DETAILED TABULATIONS

Supporting statistical data for the estimates of average service lives and survivor curves, the annual depreciation calculations, and salvage and cost of removal for the years 2016-2020 are presented in three sections.

The section beginning on page VI-2 sets forth, for each depreciable group analyzed by the retirement rate method, a chart depicting the original and estimated survivor curves followed by a tabular presentation of the original life table plotted on the chart. A cumulative summary, by year installed, for utility plant and the supporting data for the original cost depreciation calculations are presented in the section beginning on page VII-3. The tabulations of experienced and estimated net salvage, by year and account for the five-year period 2016-2020, are presented in the section beginning on page VIII-2.

In the first section, the survivor curves estimated for the depreciable groups are shown as dark smooth curves on the charts. Each smooth survivor curve is denoted by a numeral followed by the type curve designation. The numeral used is the average life derived from the entire curve from 100 percent to zero percent surviving. In cases where only a segment of the estimated curve is used in the depreciation calculation, the numeral used for identification purposes is not a designation of the average life of the group. The titles of the charts indicate the group, the symbol used to plot the points of the original life table, and the experience and placement bands of the life tables which were plotted. The experience band indicates the range of years for which the retirements were used to develop the stub survivor curve. The placements indicate, for the related experience band, the range of years of installations which appear in the experience.

The tables of the calculated annual depreciation related to net original cost are presented in account sequence in the second section and indicate the estimated average survivor curves used in the calculations. The tables set forth, for each installation year, the original cost, calculated accrued depreciation, allocated book reserve, remaining life expectancy, and the calculated annual accrual.

Detailed tabulations setting forth the cost of removal, gross salvage and net salvage amounts, by account and year, are presented in the third section. The net salvage amounts, by account and year, are carried forward to Table 5, which presents the five-year amortization of net salvage.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2020

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2020 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2020 (6)
DEPRECIABLE PLANT					
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	70,529.38				70,529.38
354.30 STRUCTURES AND IMPROVEMENTS - SPP	2,045,541.67				2,045,541.67
354.40 STRUCTURES AND IMPROVEMENTS - TDP	103,004,134.28				103,004,134.28
355.00 POWER GENERATION EQUIPMENT	65,932.40				65,932.40
360.10 COLLECTION SEWERS - FORCE MAINS	1,327,403.11				1,327,403.11
361.10 COLLECTION SEWERS - GRAVITY MAINS	46,907,178.98				46,907,178.98
361.20 MANHOLES	11,356,457.82				11,356,457.82
363.00 SERVICES	25,288,169.43				25,288,169.43
364.00 FLOW MEASURING DEVICES	36,936.47				36,936.47
365.00 FLOW MEASURING INSTALLATIONS	227,265.28				227,265.28
371.00 PUMPING EQUIPMENT	481,953.10				481,953.10
380.00 TREATMENT EQUIPMENT	530,488.83				530,488.83
390.00 OFFICE FURNITURE AND EQUIPMENT	84,101.78				84,101.78
391.00 TRANSPORTATION EQUIPMENT	25,437.18				25,437.18
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	238,938.44				238,938.44
394.00 LABORATORY EQUIPMENT	64,300.34				64,300.34
396.00 COMMUNICATION EQUIPMENT	267,604.32				267,604.32
397.00 MISCELLANEOUS EQUIPMENT	333,239.12				333,239.12
TOTAL DEPRECIABLE PLANT	192,355,611.93	0.00	0.00	0.00	192,355,611.93
NONDEPRECIABLE PLANT					
353.20 LAND AND LAND RIGHTS - COLLECTION	749,404.75				749,404.75
353.30 LAND AND LAND RIGHTS - SPP	99,930.18				99,930.18
353.40 LAND AND LAND RIGHTS - TDP	2,261,697.09				2,261,697.09
TOTAL NONDEPRECIABLE PLANT	3,111,032.02	0.00	0.00	0.00	3,111,032.02
TOTAL UTILITY PLANT	195,466,643.95	0.00	0.00	0.00	195,466,643.95

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2020

	(1) DEPRECIABLE GROUP	(2) SURVIVOR CURVE	(3) ORIGINAL COST AS OF DECEMBER 31, 2020	(4) BOOK RESERVE	(5) FUTURE ACCRUALS	(6) CALCULATED ANNUAL ACCRUAL AMOUNT	(7)=(6)/(3) ANNUAL ACCRUAL RATE	(8) COMPOSITE REMAINING LIFE
	DEPRECIABLE PLANT							
354.20	STRUCTURES AND IMPROVEMENTS - COLLECTION	45-R3	70,529.38	1,849	68,680	1,836	2.60	37.4
354.30	STRUCTURES AND IMPROVEMENTS - SPP	55-S0	2,045,541.67	1,052,049	993,493	34,604	1.69	28.7
354.40	STRUCTURES AND IMPROVEMENTS - TDP	55-S0	103,004,134.28	60,420,467	42,583,667	1,621,984	1.57	26.3
355.00	POWER GENERATION EQUIPMENT	35-S0.5	65,932.40	44,496	21,436	1,570	2.38	13.7
360.10	COLLECTION SEWERS - FORCE MAINS	75-R3	1,327,403.11	456,003	871,400	18,680	1.41	46.6
361.10	COLLECTION SEWERS - GRAVITY MAINS	80-R2.5	46,907,178.98	21,829,695	25,077,484	641,968	1.37	39.1
361.20	MANHOLES	50-S2.5	11,356,457.82	5,377,453	5,979,005	416,219	3.67	14.4
363.00	SERVICES	47-R3	25,288,169.43	15,756,943	9,531,226	737,949	2.92	12.9
364.00	FLOW MEASURING DEVICES	15-L2.5	36,936.47	18,945	17,992	4,459	12.07	4.0
365.00	FLOW MEASURING INSTALLATIONS	25-S2	227,265.28	173,069	54,196	12,317	5.42	4.4
371.00	PUMPING EQUIPMENT	30-S0.5	481,953.10	260,313	221,640	17,354	3.60	12.8
380.00	TREATMENT EQUIPMENT	35-S1.5	530,488.83	65,384	465,105	19,984	3.77	23.3
390.00	OFFICE FURNITURE AND EQUIPMENT	20-SQ	84,101.78	30,344	53,758	4,161	4.95	12.9
391.00	TRANSPORTATION EQUIPMENT	14-L4	25,437.18	23,862	1,575	286	1.12	5.5
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	20-SQ	238,938.44	19,688	219,250	12,413	5.20	17.7
394.00	LABORATORY EQUIPMENT	15-SQ	64,300.34	31,169	33,132	12,827	19.95	2.6
396.00	COMMUNICATION EQUIPMENT	15-SQ	267,604.32	11,793	255,811	17,775	6.64	14.4
397.00	MISCELLANEOUS EQUIPMENT	15-SQ	333,239.12	16,820	316,419	21,968	6.56	14.5
	TOTAL DEPRECIABLE PLANT		192,355,611.93	105,590,343	86,765,269	3,598,254	1.87	24.1
	NONDEPRECIABLE PLANT							
353.20	LAND AND LAND RIGHTS - COLLECTION		749,404.75					
353.30	LAND AND LAND RIGHTS - SPP		99,930.18					
353.40	LAND AND LAND RIGHTS - TDP		2,261,697.09					
	TOTAL NONDEPRECIABLE PLANT		3,111,032.02			1,876		
	AMORTIZATION OF NET SALVAGE							
	TOTAL UTILITY PLANT		195,466,643.95	105,590,343	86,765,269	3,600,130		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2020, OF BOOK RESERVE AS OF DECEMBER 31, 2019

ACCOUNT (1)	BOOK RESERVE BALANCE AS OF 12/31/2019 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2020 (8)
354.20	0		1,866		15		2						1,849
354.30	1,017,853		34,670		431		43						1,052,049
354.40	58,778,620		1,666,057		22,009		2,201						60,420,467
355.00	42,841		1,655										44,496
360.10	437,287		18,716										456,003
361.10	21,216,387		648,670		29,468		5,894						21,829,695
361.20	4,945,460		437,651		4,715		943						5,377,453
363.00	14,977,369		782,816		2,947		295						15,756,943
364.00	13,238		5,707										18,945
365.00	158,069		15,000										173,069
371.00	241,902		18,411										260,313
380.00	45,225		20,159										65,384
390.00	26,181		4,163										30,344
391.00	23,511		351										23,862
393.00	10,237		14,455		5,004								19,688
394.00	41,732		13,713		24,276								31,169
396.00	1,894		9,899										11,793
397.00	1,622		16,199		1,000								16,820
TOTAL	101,979,427		3,710,158		89,866		9,377		0		0		105,590,343

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2020

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2019 (2)	NET ORIGINAL COST AS OF 12/31/2020 (3)	ACCRUAL RATE (4)	AVERAGE ACCRUALS (5)=[(2)+(3)]/2*(4)	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS (7)=(5)+(6)
354.20	70,288.82	70,529.38	2.65	1,866		1,866
354.30	2,009,432.59	2,045,541.67	1.71	34,670		34,670
354.40	102,681,938.75	103,004,134.28	1.62	1,666,057		1,666,057
355.00	65,932.40	65,932.40	2.51	1,655		1,655
360.10	1,327,403.11	1,327,403.11	1.41	18,716		18,716
361.10	46,426,647.25	46,907,178.98	1.39	648,670		648,670
361.20	11,261,172.74	11,356,457.82	3.87	437,651		437,651
363.00	25,216,116.26	25,288,169.43	3.10	782,816		782,816
364.00	36,936.47	36,936.47	15.45	5,707		5,707
365.00	227,265.28	227,265.28	6.60	15,000		15,000
371.00	481,953.10	481,953.10	3.82	18,411		18,411
380.00	530,488.83	530,488.83	3.80	20,159		20,159
390.00	84,101.78	84,101.78	4.95	4,163		4,163
391.00	25,437.18	25,437.18	1.38	351		351
393.00	43,942.40	238,938.44	10.22	14,455		14,455
394.00	88,576.68	64,300.34	17.94	13,713		13,713
396.00	3,604.32	267,604.32	7.30	9,899		9,899
397.00	4,239.60	333,239.12	9.60	16,199		16,199
TOTAL	190,585,477.56	192,355,611.93		3,710,158	-	3,710,158

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

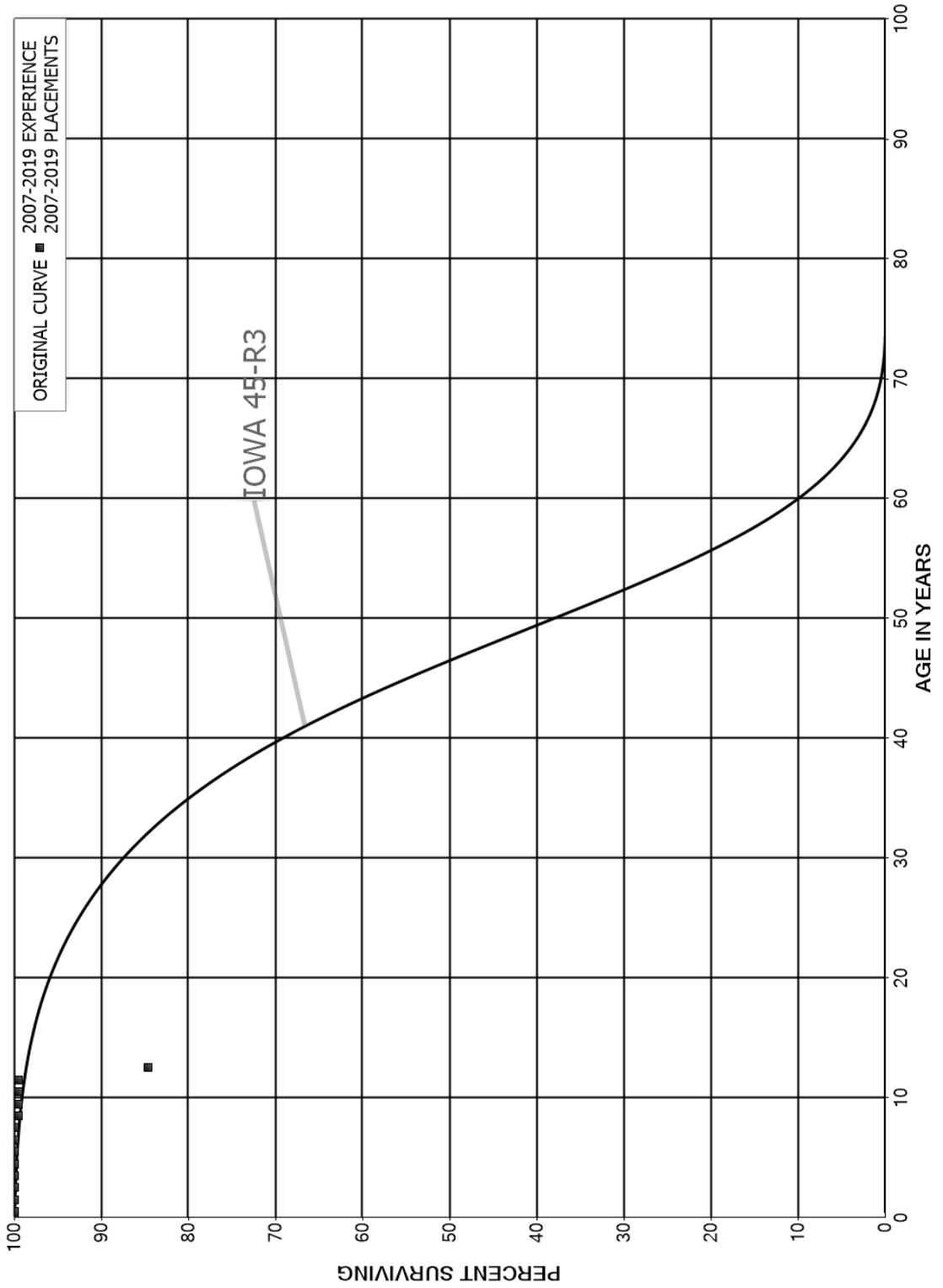
TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2016		2017		2018		2019		PROJECTED 2020		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE - (2)	COST OF REMOVAL (3)	GROSS SALVAGE - (4)	COST OF REMOVAL (5)	GROSS SALVAGE - (6)	COST OF REMOVAL (7)	GROSS SALVAGE - (8)	COST OF REMOVAL (9)	GROSS SALVAGE - (10)	COST OF REMOVAL (11)		
354.20												0
354.30												(9)
354.40												(440)
361.10												(1,179)
361.20												(189)
363.00												(59)
TOTAL	0	9,377	(9,377)	(1,876)								

* Column (12) equals the summation of Columns (2) through (11).

PART VI. SERVICE LIFE STATISTICS

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION
 ORIGINAL AND SMOOTH SURVIVOR CURVES



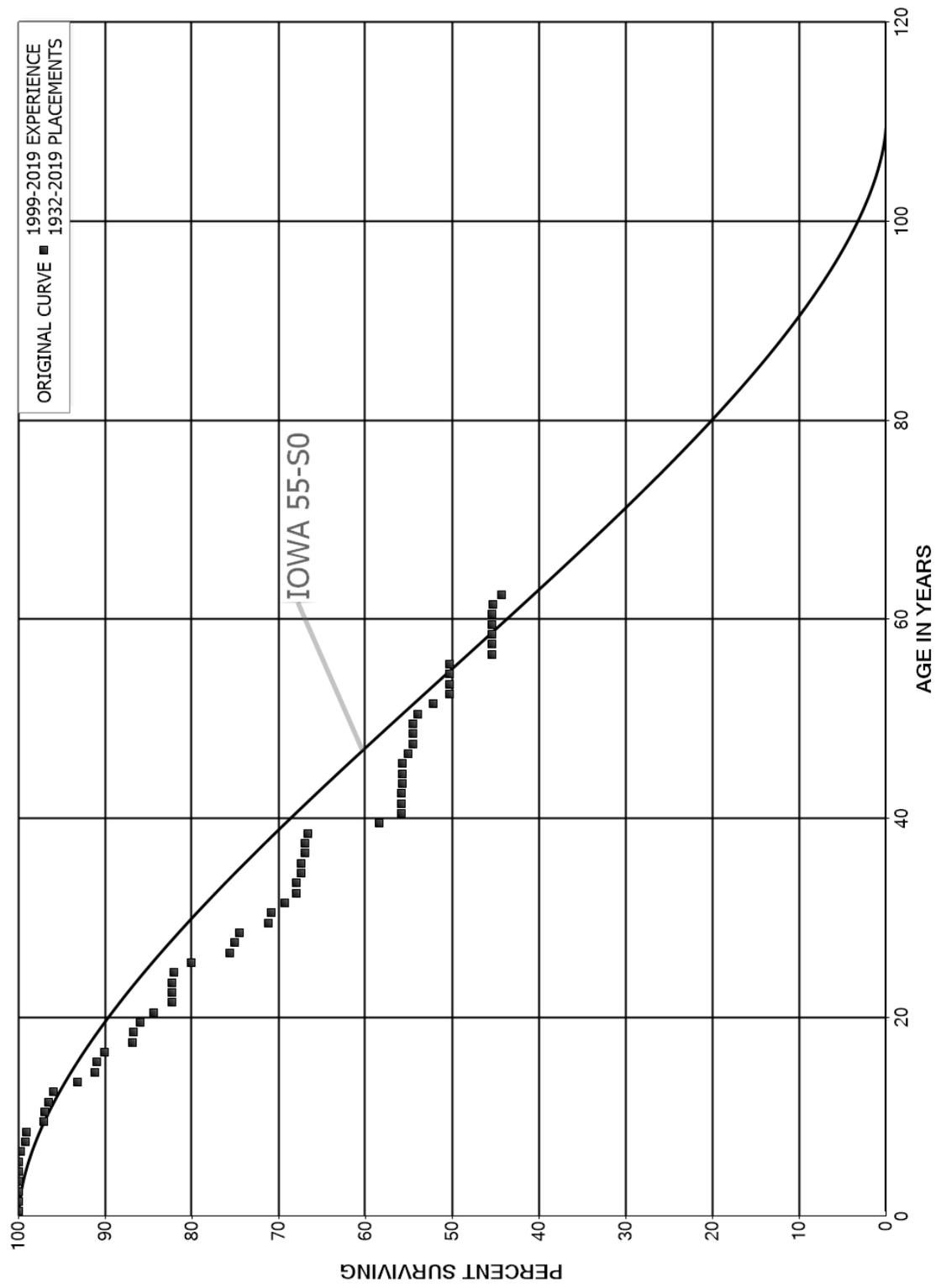
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

ORIGINAL LIFE TABLE

PLACEMENT BAND 2007-2019			EXPERIENCE BAND 2007-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	4,844,636		0.0000	1.0000	100.00
0.5	3,478,774		0.0000	1.0000	100.00
1.5	1,864,154		0.0000	1.0000	100.00
2.5	516,452	0	0.0000	1.0000	100.00
3.5	479,797		0.0000	1.0000	100.00
4.5	437,900	416	0.0010	0.9990	100.00
5.5	422,717		0.0000	1.0000	99.90
6.5	321,516		0.0000	1.0000	99.90
7.5	321,516	1,408	0.0044	0.9956	99.90
8.5	311,522		0.0000	1.0000	99.47
9.5	311,522		0.0000	1.0000	99.47
10.5	134,415		0.0000	1.0000	99.47
11.5	20,659	3,076	0.1489	0.8511	99.47
12.5					84.66

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE

PLACEMENT BAND 1932-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	70,500,767		0.0000	1.0000	100.00
0.5	76,131,665		0.0000	1.0000	100.00
1.5	80,233,751	6,642	0.0001	0.9999	100.00
2.5	105,447,960		0.0000	1.0000	99.99
3.5	85,605,007	28,836	0.0003	0.9997	99.99
4.5	79,002,174	4,425	0.0001	0.9999	99.96
5.5	46,624,214	105,422	0.0023	0.9977	99.95
6.5	51,444,895	277,564	0.0054	0.9946	99.73
7.5	50,906,335	75,090	0.0015	0.9985	99.19
8.5	50,793,050	1,027,715	0.0202	0.9798	99.04
9.5	34,780,266	28,544	0.0008	0.9992	97.04
10.5	15,695,508	65,025	0.0041	0.9959	96.96
11.5	15,618,899	88,716	0.0057	0.9943	96.56
12.5	20,002,643	601,564	0.0301	0.9699	96.01
13.5	17,169,269	353,428	0.0206	0.9794	93.12
14.5	16,203,968	41,247	0.0025	0.9975	91.20
15.5	16,204,082	163,309	0.0101	0.9899	90.97
16.5	13,585,539	481,677	0.0355	0.9645	90.06
17.5	12,995,837	17,548	0.0014	0.9986	86.86
18.5	12,210,208	114,143	0.0093	0.9907	86.74
19.5	7,393,964	134,551	0.0182	0.9818	85.93
20.5	6,513,761	157,405	0.0242	0.9758	84.37
21.5	6,711,244	2,801	0.0004	0.9996	82.33
22.5	7,374,817	1,543	0.0002	0.9998	82.30
23.5	6,783,698	15,823	0.0023	0.9977	82.28
24.5	6,921,413	166,617	0.0241	0.9759	82.09
25.5	6,763,696	380,532	0.0563	0.9437	80.11
26.5	5,899,041	38,147	0.0065	0.9935	75.60
27.5	4,281,769	34,820	0.0081	0.9919	75.12
28.5	3,967,252	175,318	0.0442	0.9558	74.50
29.5	4,051,668	21,732	0.0054	0.9946	71.21
30.5	5,300,696	114,682	0.0216	0.9784	70.83
31.5	4,027,463	76,382	0.0190	0.9810	69.30
32.5	2,813,504	2,190	0.0008	0.9992	67.98
33.5	2,649,698	20,846	0.0079	0.9921	67.93
34.5	1,122,954		0.0000	1.0000	67.40
35.5	398,615	2,457	0.0062	0.9938	67.40
36.5	369,394		0.0000	1.0000	66.98
37.5	339,885	1,942	0.0057	0.9943	66.98
38.5	249,055	30,753	0.1235	0.8765	66.60

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1932-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	877,505	37,754	0.0430	0.9570	58.37
40.5	1,351,121		0.0000	1.0000	55.86
41.5	19,298,436	4,893	0.0003	0.9997	55.86
42.5	19,293,543	30,808	0.0016	0.9984	55.85
43.5	32,745,779		0.0000	1.0000	55.76
44.5	14,343,608	10,968	0.0008	0.9992	55.76
45.5	14,332,640	153,806	0.0107	0.9893	55.72
46.5	14,199,715	156,087	0.0110	0.9890	55.12
47.5	552,598		0.0000	1.0000	54.51
48.5	1,223,925		0.0000	1.0000	54.51
49.5	1,265,936	12,500	0.0099	0.9901	54.51
50.5	1,284,936	43,517	0.0339	0.9661	53.98
51.5	570,093	20,853	0.0366	0.9634	52.15
52.5	524,823		0.0000	1.0000	50.24
53.5	524,823		0.0000	1.0000	50.24
54.5	447,474		0.0000	1.0000	50.24
55.5	447,474	42,843	0.0957	0.9043	50.24
56.5	13,313,486	1,903	0.0001	0.9999	45.43
57.5	13,311,583		0.0000	1.0000	45.42
58.5	13,049,341	13	0.0000	1.0000	45.42
59.5	140,486		0.0000	1.0000	45.42
60.5	140,486	363	0.0026	0.9974	45.42
61.5	140,123	3,040	0.0217	0.9783	45.31
62.5					44.32
63.5					
64.5					
65.5					
66.5					
67.5					
68.5	39,928		0.0000		
69.5	39,928		0.0000		
70.5	39,928		0.0000		
71.5	39,928		0.0000		
72.5	40,428		0.0000		
73.5	39,928		0.0000		
74.5	39,928		0.0000		
75.5	39,928		0.0000		
76.5	602		0.0000		
77.5	602		0.0000		
78.5	602		0.0000		

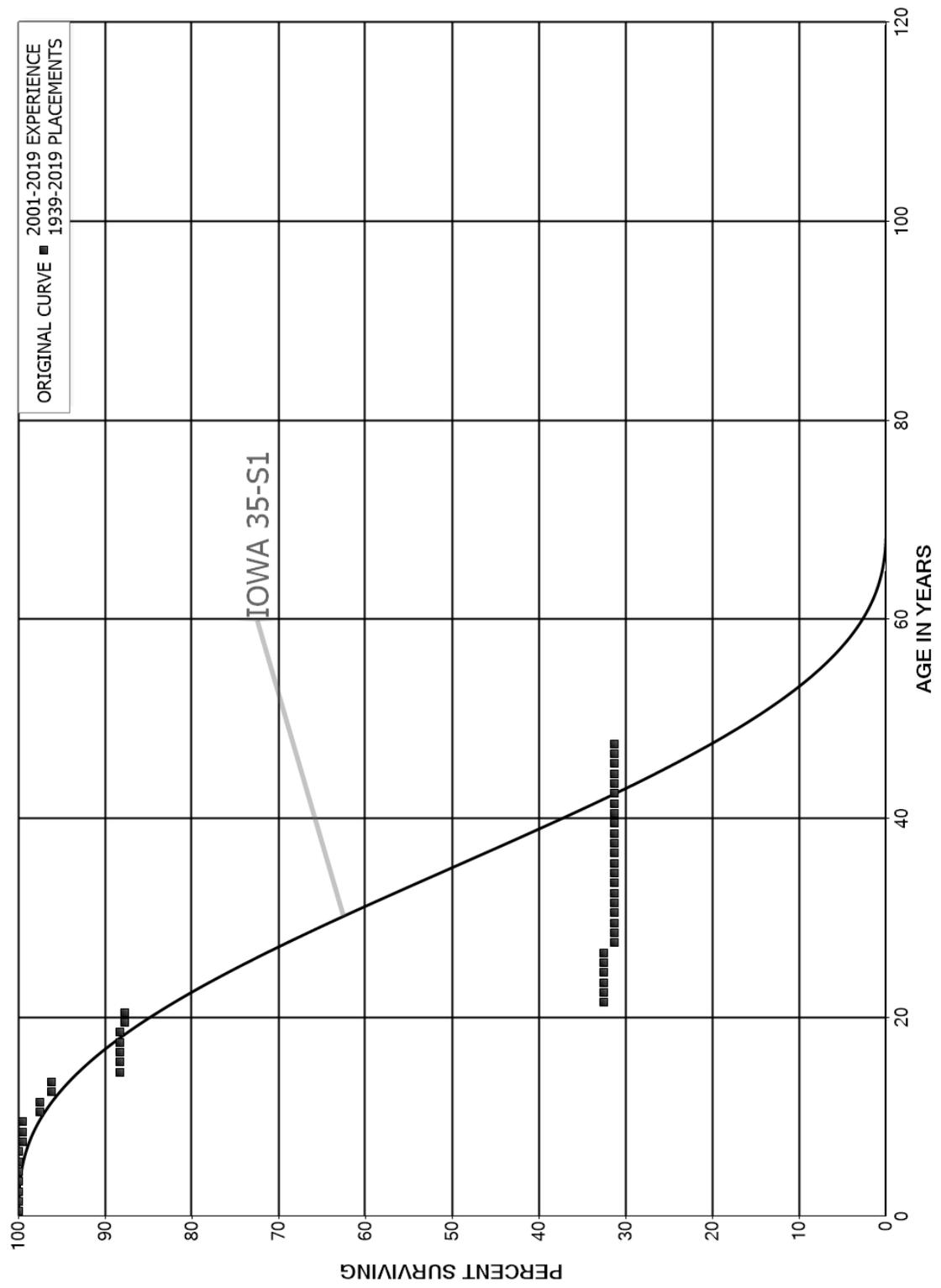
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNTS 354.30 AND 354.40 STRUCTURES AND IMPROVEMENTS - SPP AND TDP

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1932-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	602		0.0000		
80.5	602		0.0000		
81.5	602		0.0000		
82.5	602		0.0000		
83.5	602		0.0000		
84.5	602		0.0000		
85.5	602		0.0000		
86.5	602		0.0000		
87.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	2,331,347		0.0000	1.0000	100.00
0.5	2,248,872	400	0.0002	0.9998	100.00
1.5	2,139,519		0.0000	1.0000	99.98
2.5	2,007,976		0.0000	1.0000	99.98
3.5	1,998,798		0.0000	1.0000	99.98
4.5	978,189		0.0000	1.0000	99.98
5.5	566,034		0.0000	1.0000	99.98
6.5	540,776	2,524	0.0047	0.9953	99.98
7.5	668,631		0.0000	1.0000	99.52
8.5	661,526		0.0000	1.0000	99.52
9.5	622,592	12,303	0.0198	0.9802	99.52
10.5	529,371	373	0.0007	0.9993	97.55
11.5	209,362	2,752	0.0131	0.9869	97.48
12.5	204,311		0.0000	1.0000	96.20
13.5	220,425	18,073	0.0820	0.9180	96.20
14.5	208,207		0.0000	1.0000	88.31
15.5	208,207		0.0000	1.0000	88.31
16.5	165,317		0.0000	1.0000	88.31
17.5	193,471		0.0000	1.0000	88.31
18.5	210,457	1,510	0.0072	0.9928	88.31
19.5	223,914		0.0000	1.0000	87.68
20.5	223,914	140,772	0.6287	0.3713	87.68
21.5	67,028		0.0000	1.0000	32.56
22.5	73,481		0.0000	1.0000	32.56
23.5	73,481		0.0000	1.0000	32.56
24.5	73,481		0.0000	1.0000	32.56
25.5	44,261		0.0000	1.0000	32.56
26.5	27,275	1,047	0.0384	0.9616	32.56
27.5	11,260		0.0000	1.0000	31.31
28.5	11,260		0.0000	1.0000	31.31
29.5	11,260		0.0000	1.0000	31.31
30.5	11,260		0.0000	1.0000	31.31
31.5	11,260		0.0000	1.0000	31.31
32.5	11,260		0.0000	1.0000	31.31
33.5	11,260		0.0000	1.0000	31.31
34.5	11,260		0.0000	1.0000	31.31
35.5	450		0.0000	1.0000	31.31
36.5	450		0.0000	1.0000	31.31
37.5	450		0.0000	1.0000	31.31
38.5	450		0.0000	1.0000	31.31

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	450		0.0000	1.0000	31.31
40.5	450		0.0000	1.0000	31.31
41.5	450		0.0000	1.0000	31.31
42.5	450		0.0000	1.0000	31.31
43.5	450		0.0000	1.0000	31.31
44.5	450		0.0000	1.0000	31.31
45.5	450		0.0000	1.0000	31.31
46.5	450		0.0000	1.0000	31.31
47.5					31.31
48.5					
49.5					
50.5					
51.5					
52.5					
53.5					
54.5					
55.5					
56.5					
57.5					
58.5					
59.5					
60.5					
61.5					
62.5					
63.5					
64.5					
65.5					
66.5					
67.5					
68.5	3,802		0.0000		
69.5	3,802		0.0000		
70.5	3,802	283	0.0744		
71.5	3,519		0.0000		
72.5	3,519		0.0000		
73.5	3,519		0.0000		
74.5	3,519		0.0000		
75.5	3,519		0.0000		
76.5	3,519		0.0000		
77.5	3,519		0.0000		
78.5	3,519		0.0000		

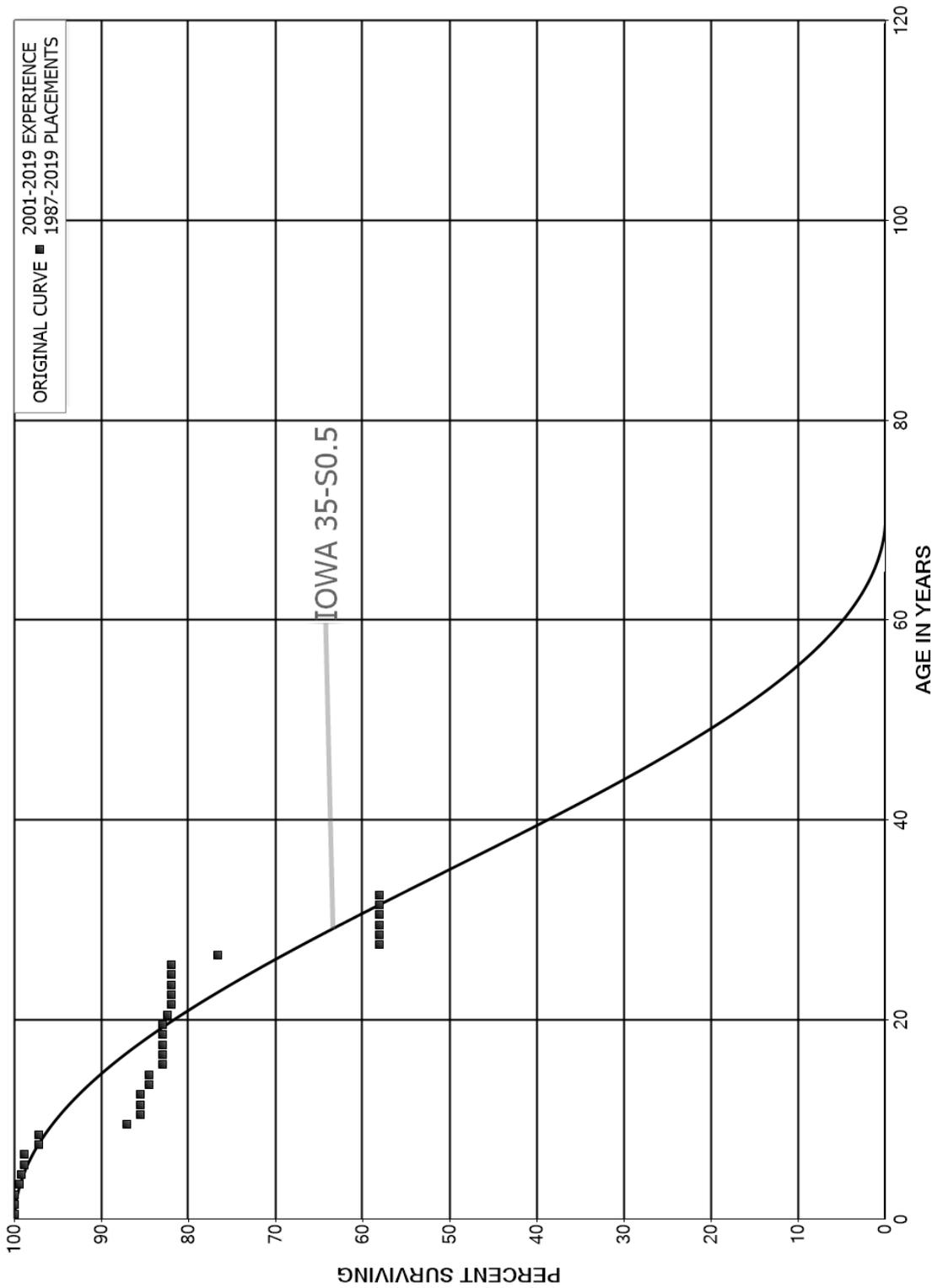
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 354.70 STRUCTURES AND IMPROVEMENTS - GENERAL

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5 80.5	3,519		0.0000		

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 355.00 POWER GENERATION EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



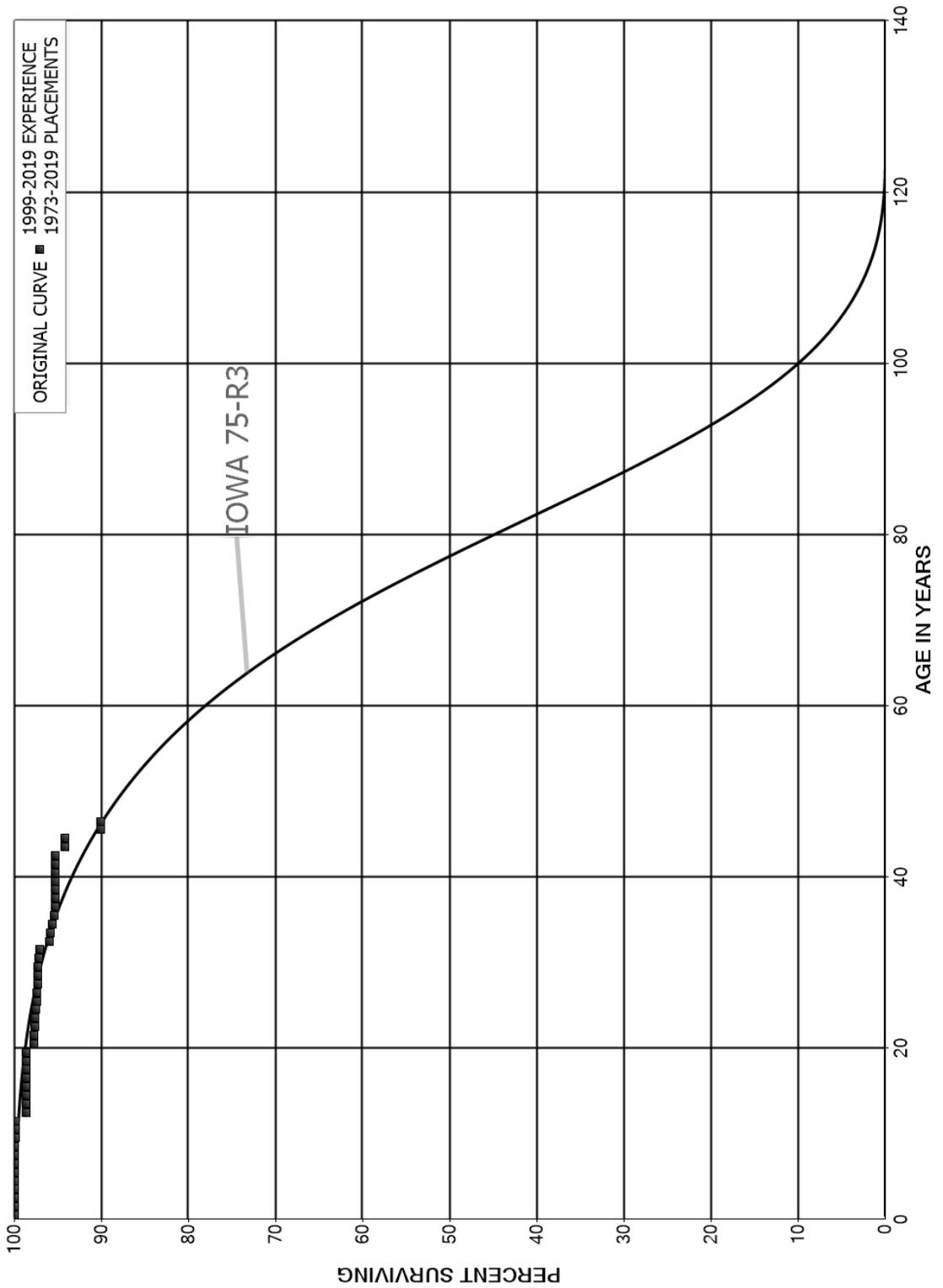
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1987-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	3,656,122		0.0000	1.0000	100.00
0.5	3,685,338		0.0000	1.0000	100.00
1.5	4,385,880		0.0000	1.0000	100.00
2.5	4,494,639	26,926	0.0060	0.9940	100.00
3.5	4,479,665	10,161	0.0023	0.9977	99.40
4.5	4,398,000	14,523	0.0033	0.9967	99.18
5.5	3,773,674	1,387	0.0004	0.9996	98.85
6.5	3,828,658	61,470	0.0161	0.9839	98.81
7.5	3,336,361		0.0000	1.0000	97.23
8.5	3,321,984	347,576	0.1046	0.8954	97.23
9.5	2,953,727	51,388	0.0174	0.9826	87.05
10.5	328,249		0.0000	1.0000	85.54
11.5	144,528		0.0000	1.0000	85.54
12.5	267,555	3,097	0.0116	0.9884	85.54
13.5	327,093		0.0000	1.0000	84.55
14.5	278,538	5,336	0.0192	0.9808	84.55
15.5	281,064		0.0000	1.0000	82.93
16.5	293,645		0.0000	1.0000	82.93
17.5	241,944		0.0000	1.0000	82.93
18.5	203,466		0.0000	1.0000	82.93
19.5	203,466	1,204	0.0059	0.9941	82.93
20.5	202,262	1,103	0.0055	0.9945	82.44
21.5	432,455		0.0000	1.0000	81.99
22.5	402,008		0.0000	1.0000	81.99
23.5	402,008		0.0000	1.0000	81.99
24.5	402,008		0.0000	1.0000	81.99
25.5	402,978	26,388	0.0655	0.9345	81.99
26.5	174,978	42,310	0.2418	0.7582	76.62
27.5	89,880		0.0000	1.0000	58.09
28.5	68,585		0.0000	1.0000	58.09
29.5	68,585		0.0000	1.0000	58.09
30.5	19,246		0.0000	1.0000	58.09
31.5	19,246		0.0000	1.0000	58.09
32.5					58.09

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

ORIGINAL LIFE TABLE

PLACEMENT BAND 1973-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	31,766,704	19	0.0000	1.0000	100.00
0.5	28,215,316	26	0.0000	1.0000	100.00
1.5	35,558,986	33	0.0000	1.0000	100.00
2.5	23,783,577	70	0.0000	1.0000	100.00
3.5	21,373,939	350	0.0000	1.0000	100.00
4.5	18,774,036	315	0.0000	1.0000	100.00
5.5	14,425,014	397	0.0000	1.0000	100.00
6.5	14,188,090	1,611	0.0001	0.9999	99.99
7.5	14,122,868	1,747	0.0001	0.9999	99.98
8.5	13,850,582	16,747	0.0012	0.9988	99.97
9.5	13,465,099	64	0.0000	1.0000	99.85
10.5	13,318,392	82	0.0000	1.0000	99.85
11.5	10,748,868	127,626	0.0119	0.9881	99.85
12.5	9,661,386		0.0000	1.0000	98.66
13.5	7,868,737	3,291	0.0004	0.9996	98.66
14.5	7,779,655	99	0.0000	1.0000	98.62
15.5	5,905,707	9	0.0000	1.0000	98.62
16.5	5,774,986	949	0.0002	0.9998	98.62
17.5	5,344,267	1,253	0.0002	0.9998	98.60
18.5	4,614,847	826	0.0002	0.9998	98.58
19.5	4,197,905	37,017	0.0088	0.9912	98.56
20.5	3,986,776	70	0.0000	1.0000	97.69
21.5	4,475,797	1,897	0.0004	0.9996	97.69
22.5	3,907,599	569	0.0001	0.9999	97.65
23.5	4,900,347	3,932	0.0008	0.9992	97.64
24.5	6,419,851	13,411	0.0021	0.9979	97.56
25.5	6,580,720	788	0.0001	0.9999	97.35
26.5	6,033,834	1,095	0.0002	0.9998	97.34
27.5	6,011,515	2,049	0.0003	0.9997	97.32
28.5	5,991,855	3,135	0.0005	0.9995	97.29
29.5	6,011,945	3,365	0.0006	0.9994	97.24
30.5	5,911,879	4,784	0.0008	0.9992	97.19
31.5	5,517,306	65,876	0.0119	0.9881	97.11
32.5	5,225,480	4,106	0.0008	0.9992	95.95
33.5	5,192,765	13,636	0.0026	0.9974	95.87
34.5	4,869,190	12,733	0.0026	0.9974	95.62
35.5	4,856,457	2,869	0.0006	0.9994	95.37
36.5	4,661,206	15	0.0000	1.0000	95.31
37.5	4,607,713		0.0000	1.0000	95.31
38.5	4,446,768	1,883	0.0004	0.9996	95.31

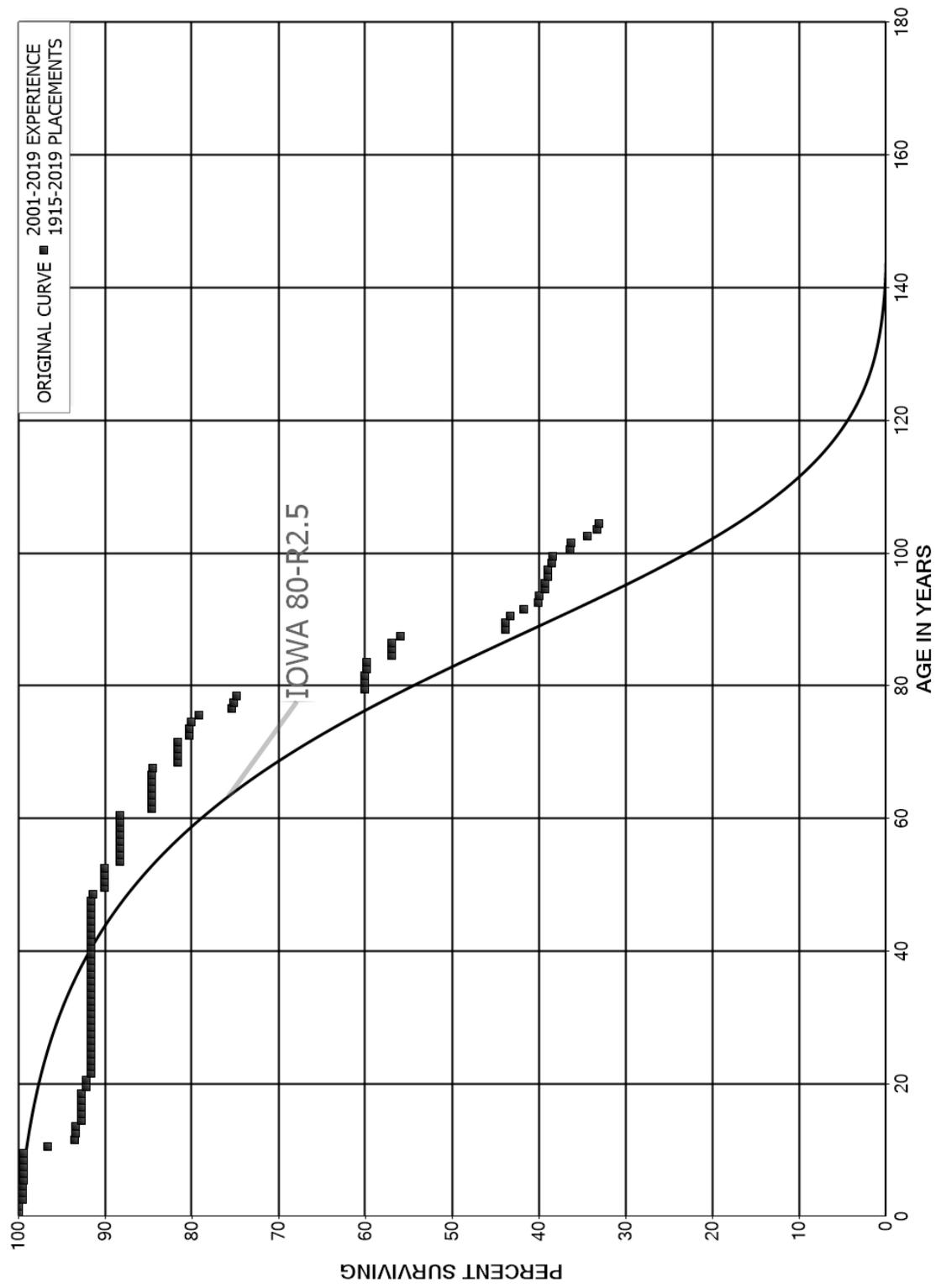
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1973-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
39.5	4,369,779	82	0.0000	1.0000	95.27	
40.5	4,295,948	6	0.0000	1.0000	95.27	
41.5	4,025,587	0	0.0000	1.0000	95.27	
42.5	3,566,737	42,283	0.0119	0.9881	95.27	
43.5	2,553,034		0.0000	1.0000	94.14	
44.5	1,703,254	73,783	0.0433	0.9567	94.14	
45.5	125,695		0.0000	1.0000	90.06	
46.5					90.06	

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	123,698,865	1,489	0.0000	1.0000	100.00
0.5	80,968,134	1,744	0.0000	1.0000	100.00
1.5	71,427,735	349,743	0.0049	0.9951	100.00
2.5	61,491,291		0.0000	1.0000	99.51
3.5	47,985,505		0.0000	1.0000	99.51
4.5	43,496,282	26,093	0.0006	0.9994	99.51
5.5	34,622,702	11,064	0.0003	0.9997	99.45
6.5	36,236,717	10,556	0.0003	0.9997	99.42
7.5	44,473,440	0	0.0000	1.0000	99.39
8.5	44,403,805	13,334	0.0003	0.9997	99.39
9.5	42,579,956	1,180,167	0.0277	0.9723	99.36
10.5	27,257,562	886,763	0.0325	0.9675	96.60
11.5	23,041,413	10,064	0.0004	0.9996	93.46
12.5	15,696,984	13,300	0.0008	0.9992	93.42
13.5	13,197,516	82,522	0.0063	0.9937	93.34
14.5	9,898,866	187	0.0000	1.0000	92.76
15.5	8,175,329	367	0.0000	1.0000	92.75
16.5	11,005,722	1,374	0.0001	0.9999	92.75
17.5	22,668,123		0.0000	1.0000	92.74
18.5	22,367,436	144,378	0.0065	0.9935	92.74
19.5	21,841,271		0.0000	1.0000	92.14
20.5	10,429,000	56,430	0.0054	0.9946	92.14
21.5	13,494,984		0.0000	1.0000	91.64
22.5	12,095,717		0.0000	1.0000	91.64
23.5	13,846,891		0.0000	1.0000	91.64
24.5	14,182,481		0.0000	1.0000	91.64
25.5	19,071,002		0.0000	1.0000	91.64
26.5	16,170,692		0.0000	1.0000	91.64
27.5	36,060,280		0.0000	1.0000	91.64
28.5	35,923,542		0.0000	1.0000	91.64
29.5	33,683,971		0.0000	1.0000	91.64
30.5	8,391,683	866	0.0001	0.9999	91.64
31.5	8,167,272	21	0.0000	1.0000	91.63
32.5	8,027,418		0.0000	1.0000	91.63
33.5	7,266,714		0.0000	1.0000	91.63
34.5	5,540,059		0.0000	1.0000	91.63
35.5	3,406,034		0.0000	1.0000	91.63
36.5	3,951,146		0.0000	1.0000	91.63
37.5	4,287,296		0.0000	1.0000	91.63
38.5	4,273,219		0.0000	1.0000	91.63

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,243,666		0.0000	1.0000	91.63
40.5	41,503,891	5,447	0.0001	0.9999	91.63
41.5	41,043,016	49	0.0000	1.0000	91.62
42.5	41,341,828		0.0000	1.0000	91.62
43.5	20,516,395		0.0000	1.0000	91.62
44.5	17,262,745	4,573	0.0003	0.9997	91.62
45.5	17,447,879		0.0000	1.0000	91.60
46.5	16,922,111	1,617	0.0001	0.9999	91.60
47.5	1,493,981	2,878	0.0019	0.9981	91.59
48.5	1,491,103	21,283	0.0143	0.9857	91.41
49.5	995,707	187	0.0002	0.9998	90.11
50.5	1,249,631		0.0000	1.0000	90.09
51.5	1,214,773		0.0000	1.0000	90.09
52.5	1,253,366	24,618	0.0196	0.9804	90.09
53.5	28,374,663		0.0000	1.0000	88.32
54.5	38,998,170		0.0000	1.0000	88.32
55.5	39,986,553		0.0000	1.0000	88.32
56.5	13,005,874		0.0000	1.0000	88.32
57.5	59,432,346		0.0000	1.0000	88.32
58.5	60,820,282	557	0.0000	1.0000	88.32
59.5	59,761,303	747	0.0000	1.0000	88.32
60.5	2,094,297	87,761	0.0419	0.9581	88.32
61.5	22,663,762	8	0.0000	1.0000	84.62
62.5	21,213,491	61	0.0000	1.0000	84.62
63.5	21,215,934	289	0.0000	1.0000	84.62
64.5	46,353		0.0000	1.0000	84.62
65.5	1,102,303		0.0000	1.0000	84.62
66.5	1,102,303	1,673	0.0015	0.9985	84.62
67.5	1,100,630	37,140	0.0337	0.9663	84.49
68.5	1,259,440		0.0000	1.0000	81.64
69.5	290,689		0.0000	1.0000	81.64
70.5	962,463	168	0.0002	0.9998	81.64
71.5	962,295	15,230	0.0158	0.9842	81.62
72.5	1,042,298	993	0.0010	0.9990	80.33
73.5	946,072	2,053	0.0022	0.9978	80.25
74.5	683,176	7,508	0.0110	0.9890	80.08
75.5	675,668	32,767	0.0485	0.9515	79.20
76.5	642,901	1,310	0.0020	0.9980	75.36
77.5	1,531,686	8,017	0.0052	0.9948	75.20
78.5	1,523,669	299,242	0.1964	0.8036	74.81

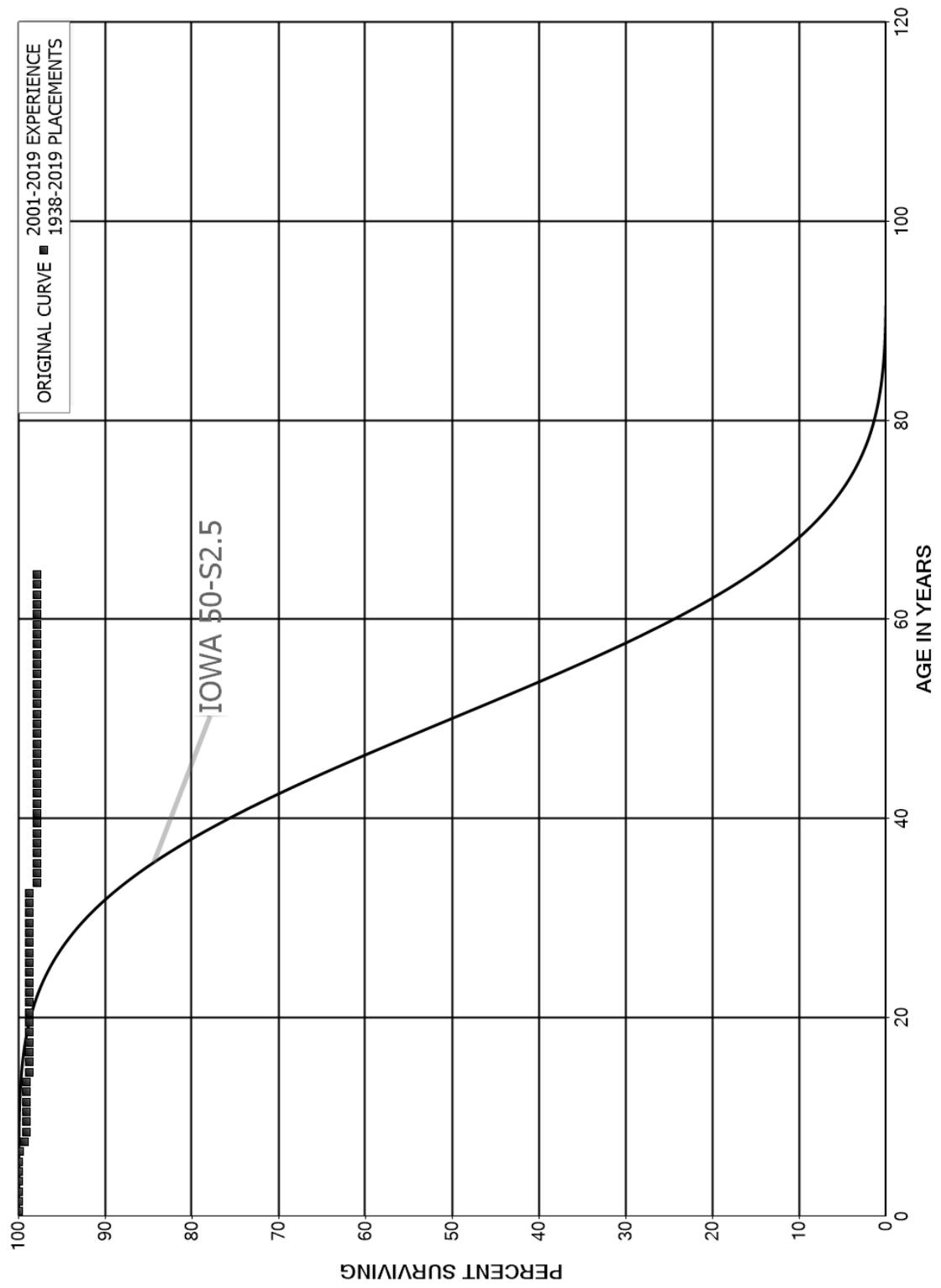
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1915-2019			EXPERIENCE BAND 2001-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
79.5	1,224,427	291	0.0002	0.9998	60.12	
80.5	1,522,508		0.0000	1.0000	60.10	
81.5	632,413	2,303	0.0036	0.9964	60.10	
82.5	648,868		0.0000	1.0000	59.89	
83.5	648,868	31,252	0.0482	0.9518	59.89	
84.5	601,981	10	0.0000	1.0000	57.00	
85.5	722,814		0.0000	1.0000	57.00	
86.5	722,814	13,485	0.0187	0.9813	57.00	
87.5	709,329	153,014	0.2157	0.7843	55.94	
88.5	556,315	264	0.0005	0.9995	43.87	
89.5	329,027	4,352	0.0132	0.9868	43.85	
90.5	306,175	11,276	0.0368	0.9632	43.27	
91.5	294,898	11,132	0.0377	0.9623	41.68	
92.5	283,767	1,273	0.0045	0.9955	40.10	
93.5	282,494	4,366	0.0155	0.9845	39.92	
94.5	278,128	221	0.0008	0.9992	39.31	
95.5	277,906	1,967	0.0071	0.9929	39.27	
96.5	275,939	42	0.0002	0.9998	39.00	
97.5	3,804,626	42,906	0.0113	0.9887	38.99	
98.5	3,761,720	15,091	0.0040	0.9960	38.55	
99.5	3,616,599	191,754	0.0530	0.9470	38.40	
100.5	3,424,846	6,012	0.0018	0.9982	36.36	
101.5	96,405	5,167	0.0536	0.9464	36.30	
102.5	91,238	2,967	0.0325	0.9675	34.35	
103.5	88,271	309	0.0035	0.9965	33.23	
104.5					33.12	

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 361.20 MANHOLES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1938-2019

EXPERIENCE BAND 2001-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	14,379,651		0.0000	1.0000	100.00
0.5	10,176,887		0.0000	1.0000	100.00
1.5	10,661,285	0	0.0000	1.0000	100.00
2.5	11,952,425		0.0000	1.0000	100.00
3.5	12,083,028	911	0.0001	0.9999	100.00
4.5	7,585,455		0.0000	1.0000	99.99
5.5	5,573,639	6,667	0.0012	0.9988	99.99
6.5	4,589,383	27,566	0.0060	0.9940	99.87
7.5	4,569,090	10,961	0.0024	0.9976	99.27
8.5	5,066,097		0.0000	1.0000	99.03
9.5	5,304,644		0.0000	1.0000	99.03
10.5	5,838,060		0.0000	1.0000	99.03
11.5	5,353,439		0.0000	1.0000	99.03
12.5	4,555,554		0.0000	1.0000	99.03
13.5	4,114,028	12,188	0.0030	0.9970	99.03
14.5	2,635,311		0.0000	1.0000	98.74
15.5	2,105,291	0	0.0000	1.0000	98.74
16.5	2,247,105	472	0.0002	0.9998	98.74
17.5	2,934,821		0.0000	1.0000	98.72
18.5	2,849,242		0.0000	1.0000	98.72
19.5	2,782,656		0.0000	1.0000	98.72
20.5	2,425,509	0	0.0000	1.0000	98.72
21.5	1,772,096		0.0000	1.0000	98.72
22.5	970,343		0.0000	1.0000	98.72
23.5	1,299,611		0.0000	1.0000	98.72
24.5	1,741,110		0.0000	1.0000	98.72
25.5	2,636,710		0.0000	1.0000	98.72
26.5	3,361,749		0.0000	1.0000	98.72
27.5	3,450,899		0.0000	1.0000	98.72
28.5	3,240,536		0.0000	1.0000	98.72
29.5	2,574,979		0.0000	1.0000	98.72
30.5	1,538,799		0.0000	1.0000	98.72
31.5	1,635,548		0.0000	1.0000	98.72
32.5	1,551,747	13,277	0.0086	0.9914	98.72
33.5	1,328,056		0.0000	1.0000	97.88
34.5	1,038,030		0.0000	1.0000	97.88
35.5	1,093,592		0.0000	1.0000	97.88
36.5	1,326,879		0.0000	1.0000	97.88
37.5	1,450,927		0.0000	1.0000	97.88
38.5	1,304,196		0.0000	1.0000	97.88

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	994,944		0.0000	1.0000	97.88
40.5	2,263,935		0.0000	1.0000	97.88
41.5	2,043,826		0.0000	1.0000	97.88
42.5	2,216,232		0.0000	1.0000	97.88
43.5	2,406,018		0.0000	1.0000	97.88
44.5	2,040,304		0.0000	1.0000	97.88
45.5	2,008,665		0.0000	1.0000	97.88
46.5	1,708,150		0.0000	1.0000	97.88
47.5	301,817		0.0000	1.0000	97.88
48.5	301,817		0.0000	1.0000	97.88
49.5	170,327		0.0000	1.0000	97.88
50.5	201,568		0.0000	1.0000	97.88
51.5	166,180		0.0000	1.0000	97.88
52.5	172,781		0.0000	1.0000	97.88
53.5	1,995,623		0.0000	1.0000	97.88
54.5	1,827,036		0.0000	1.0000	97.88
55.5	1,951,871		0.0000	1.0000	97.88
56.5	131,436		0.0000	1.0000	97.88
57.5	10,950,272		0.0000	1.0000	97.88
58.5	10,950,272		0.0000	1.0000	97.88
59.5	10,825,437		0.0000	1.0000	97.88
60.5	89,564		0.0000	1.0000	97.88
61.5	89,564		0.0000	1.0000	97.88
62.5	89,564		0.0000	1.0000	97.88
63.5	89,564		0.0000	1.0000	97.88
64.5					97.88
65.5	100,437		0.0000		
66.5	100,437		0.0000		
67.5	123,426		0.0000		
68.5	167,059	22,989	0.1376		
69.5	43,633		0.0000		
70.5	84,331		0.0000		
71.5	84,331		0.0000		
72.5	90,699		0.0000		
73.5	84,331		0.0000		
74.5	43,633		0.0000		
75.5	43,633		0.0000		
76.5	43,633		0.0000		
77.5	306,691		0.0000		
78.5	306,691		0.0000		

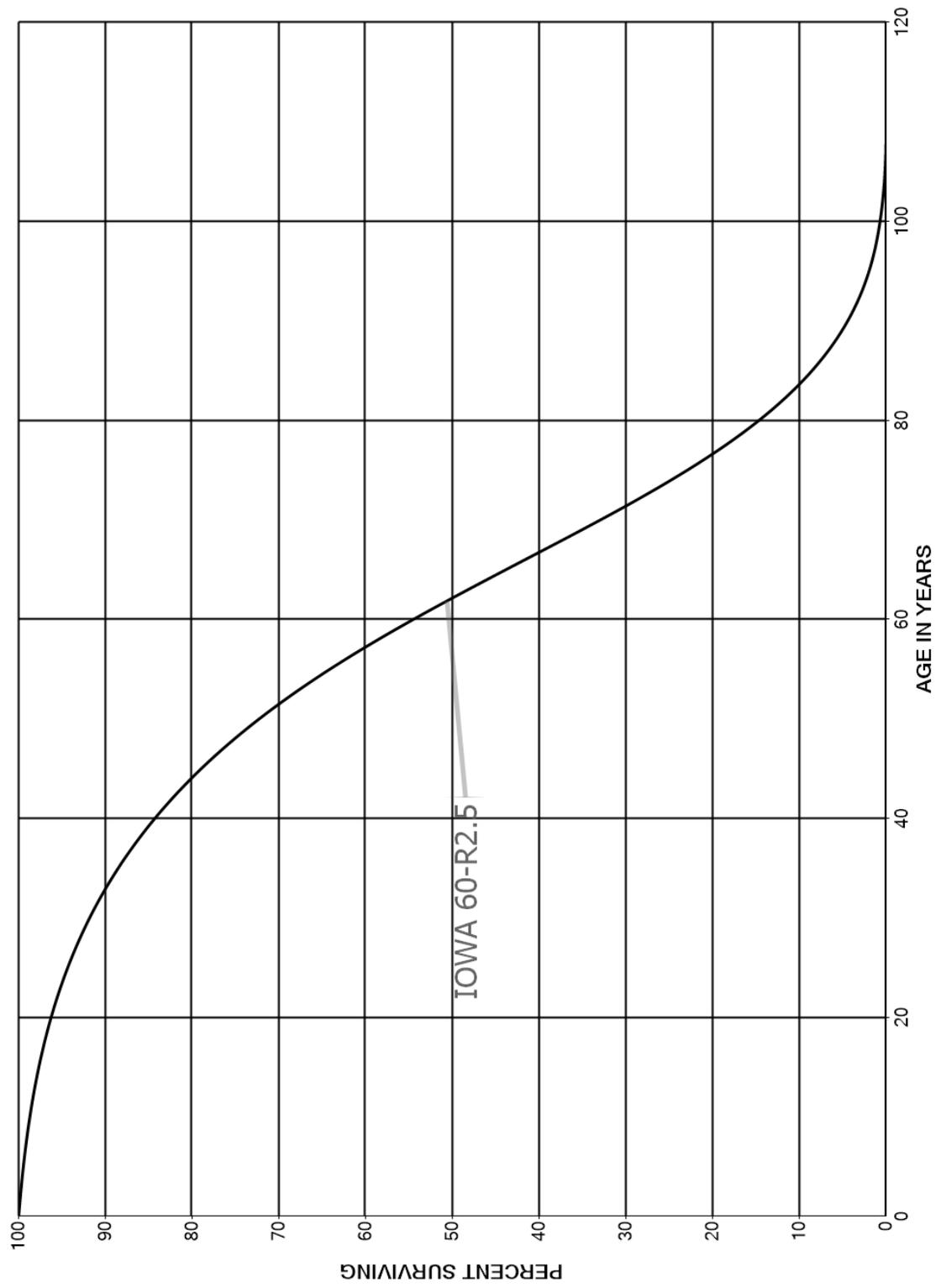
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 361.20 MANHOLES

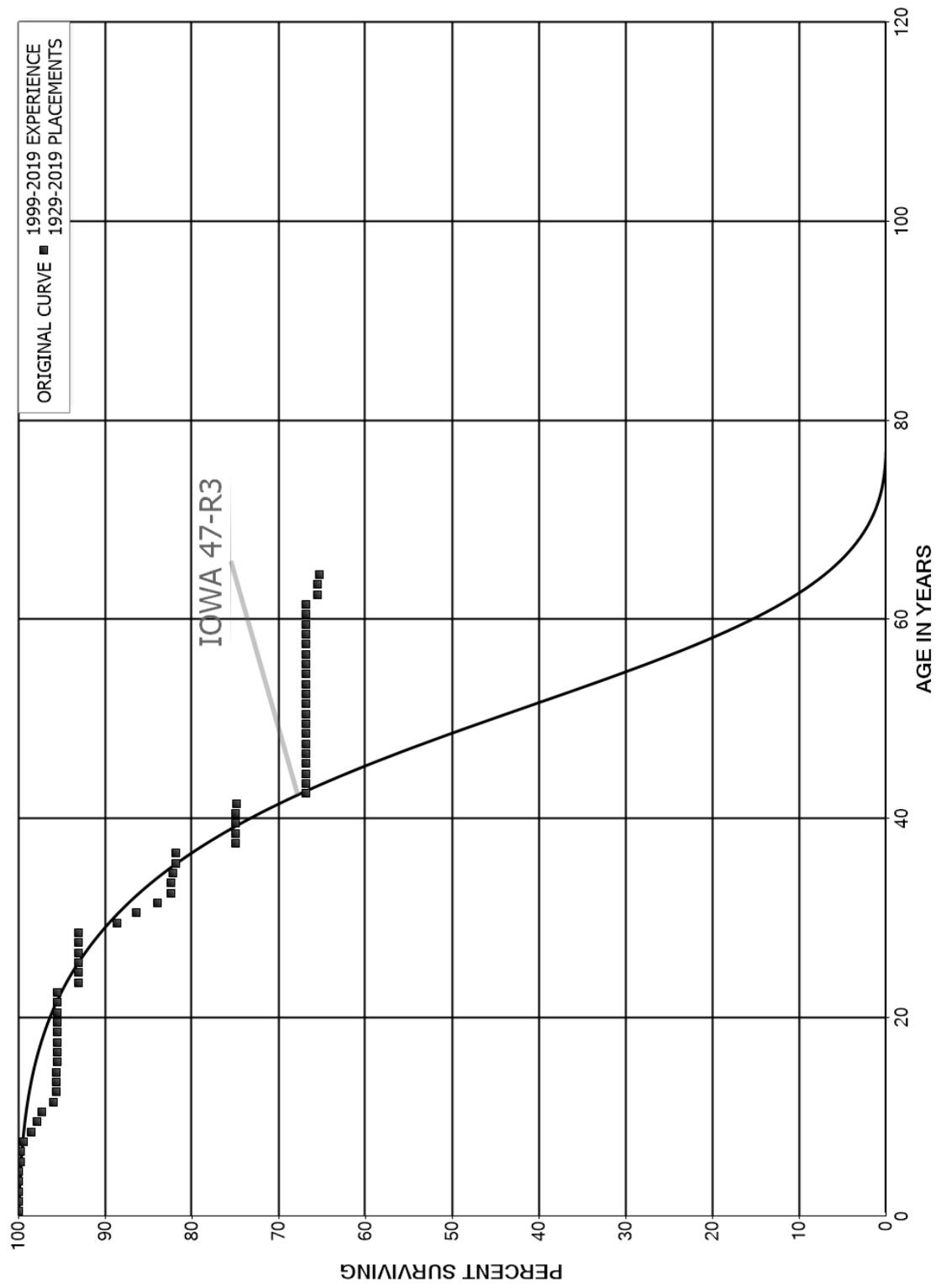
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	306,691	1,171	0.0038		
80.5	263,058		0.0000		
81.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 362.00 SPECIAL COLLECTION STRUCTURES
 SMOOTH SURVIVOR CURVE



PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 363.00 SERVICES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1929-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
0.0	10,615,796	0	0.0000	1.0000	100.00	
0.5	10,038,138	0	0.0000	1.0000	100.00	
1.5	9,510,472	60	0.0000	1.0000	100.00	
2.5	8,790,677	5,668	0.0006	0.9994	100.00	
3.5	8,679,530	421	0.0000	1.0000	99.93	
4.5	7,932,683	12,635	0.0016	0.9984	99.93	
5.5	6,966,530	2,890	0.0004	0.9996	99.77	
6.5	8,411,000	31,963	0.0038	0.9962	99.73	
7.5	8,278,555	65,894	0.0080	0.9920	99.35	
8.5	8,313,922	64,649	0.0078	0.9922	98.56	
9.5	8,351,147	42,617	0.0051	0.9949	97.79	
10.5	6,470,010	87,729	0.0136	0.9864	97.29	
11.5	6,246,021	19,892	0.0032	0.9968	95.98	
12.5	5,858,877	0	0.0000	1.0000	95.67	
13.5	4,698,450	4,942	0.0011	0.9989	95.67	
14.5	4,095,435	871	0.0002	0.9998	95.57	
15.5	3,284,377		0.0000	1.0000	95.55	
16.5	3,511,888	0	0.0000	1.0000	95.55	
17.5	3,953,464	0	0.0000	1.0000	95.55	
18.5	3,909,166	55	0.0000	1.0000	95.55	
19.5	3,630,733		0.0000	1.0000	95.55	
20.5	3,925,137		0.0000	1.0000	95.55	
21.5	3,646,749		0.0000	1.0000	95.55	
22.5	3,395,484	87,997	0.0259	0.9741	95.55	
23.5	3,780,922		0.0000	1.0000	93.07	
24.5	4,115,954	497	0.0001	0.9999	93.07	
25.5	5,003,579		0.0000	1.0000	93.06	
26.5	5,176,777		0.0000	1.0000	93.06	
27.5	4,635,070		0.0000	1.0000	93.06	
28.5	4,421,930	209,578	0.0474	0.9526	93.06	
29.5	3,596,999	92,585	0.0257	0.9743	88.65	
30.5	2,947,708	80,733	0.0274	0.9726	86.37	
31.5	2,783,645	51,927	0.0187	0.9813	84.00	
32.5	2,491,265	1,241	0.0005	0.9995	82.43	
33.5	2,228,511	4,871	0.0022	0.9978	82.39	
34.5	1,965,612	8,461	0.0043	0.9957	82.21	
35.5	1,925,423	503	0.0003	0.9997	81.86	
36.5	1,973,278	167,021	0.0846	0.9154	81.84	
37.5	1,839,375	192	0.0001	0.9999	74.91	
38.5	1,657,395		0.0000	1.0000	74.90	

PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	1,207,182		0.0000	1.0000	74.90
40.5	1,197,802	385	0.0003	0.9997	74.90
41.5	1,022,673	110,064	0.1076	0.8924	74.88
42.5	886,687		0.0000	1.0000	66.82
43.5	1,408,938		0.0000	1.0000	66.82
44.5	900,914		0.0000	1.0000	66.82
45.5	855,938		0.0000	1.0000	66.82
46.5	736,586		0.0000	1.0000	66.82
47.5	156,414		0.0000	1.0000	66.82
48.5	155,860		0.0000	1.0000	66.82
49.5	82,277		0.0000	1.0000	66.82
50.5	145,022		0.0000	1.0000	66.82
51.5	132,653		0.0000	1.0000	66.82
52.5	134,754	0	0.0000	1.0000	66.82
53.5	137,757		0.0000	1.0000	66.82
54.5	20,119		0.0000	1.0000	66.82
55.5	100,869		0.0000	1.0000	66.82
56.5	100,869		0.0000	1.0000	66.82
57.5	97,866		0.0000	1.0000	66.82
58.5	256,316		0.0000	1.0000	66.82
59.5	180,162	20	0.0001	0.9999	66.82
60.5	228,822		0.0000	1.0000	66.81
61.5	228,822	4,595	0.0201	0.9799	66.81
62.5	50,781		0.0000	1.0000	65.47
63.5	50,781	162	0.0032	0.9968	65.47
64.5					65.26
65.5	60,144		0.0000		
66.5	60,144		0.0000		
67.5	60,144		0.0000		
68.5	70,211		0.0000		
69.5	13,932	819	0.0588		
70.5	36,101		0.0000		
71.5	36,101	4,521	0.1252		
72.5	31,580	1,251	0.0396		
73.5	30,329	442	0.0146		
74.5	6,899	644	0.0933		
75.5	6,255		0.0000		
76.5	6,255		0.0000		
77.5	151,010		0.0000		
78.5	151,010		0.0000		

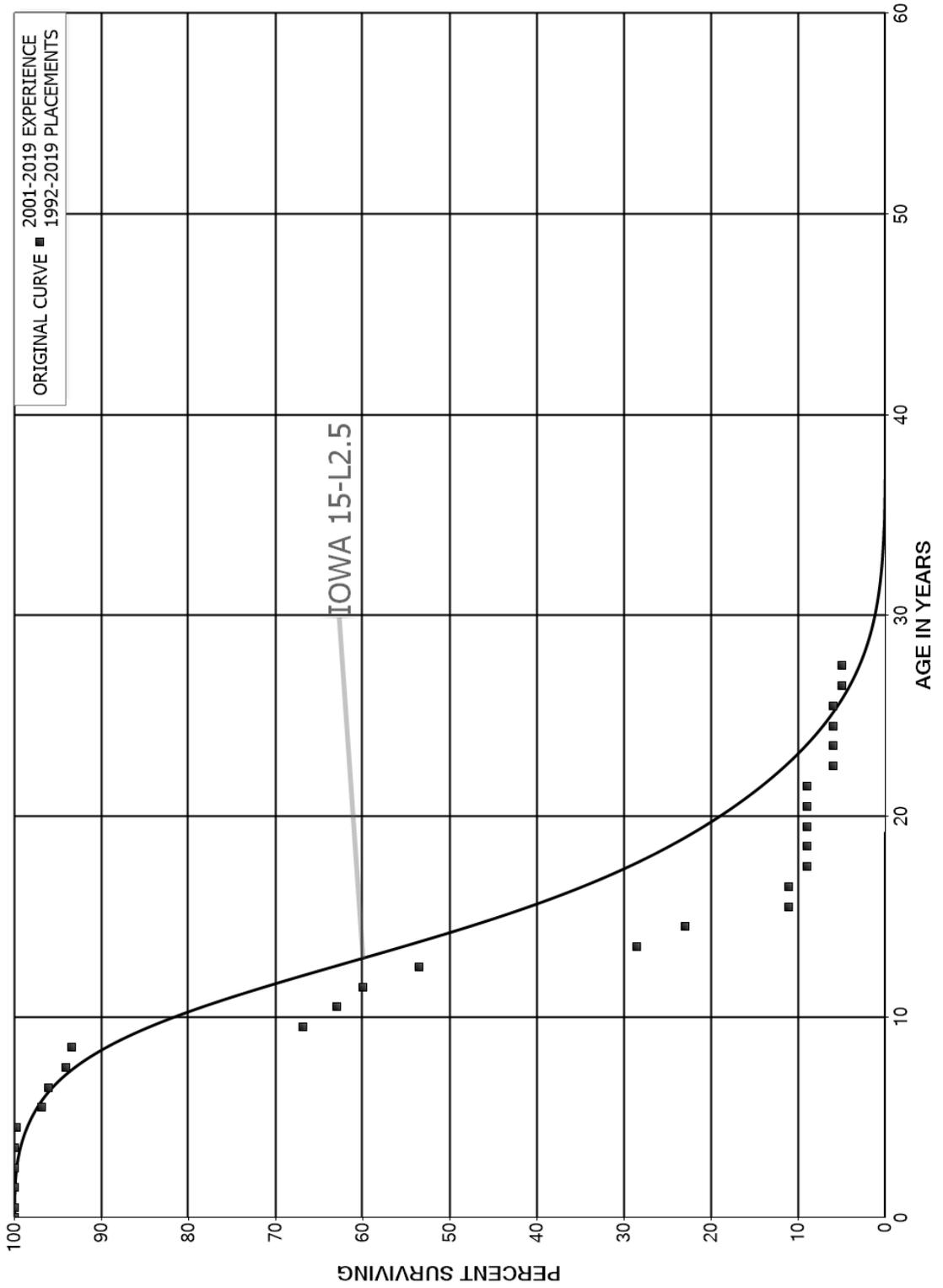
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 363.00 SERVICES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2019			EXPERIENCE BAND 1999-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	151,010		0.0000		
80.5	144,755	1,628	0.0112		
81.5					
82.5	717		0.0000		
83.5	717		0.0000		
84.5	717		0.0000		
85.5	717		0.0000		
86.5	717		0.0000		
87.5	717		0.0000		
88.5	717		0.0000		
89.5	717		0.0000		
90.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 364.00 FLOW MEASURING DEVICES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



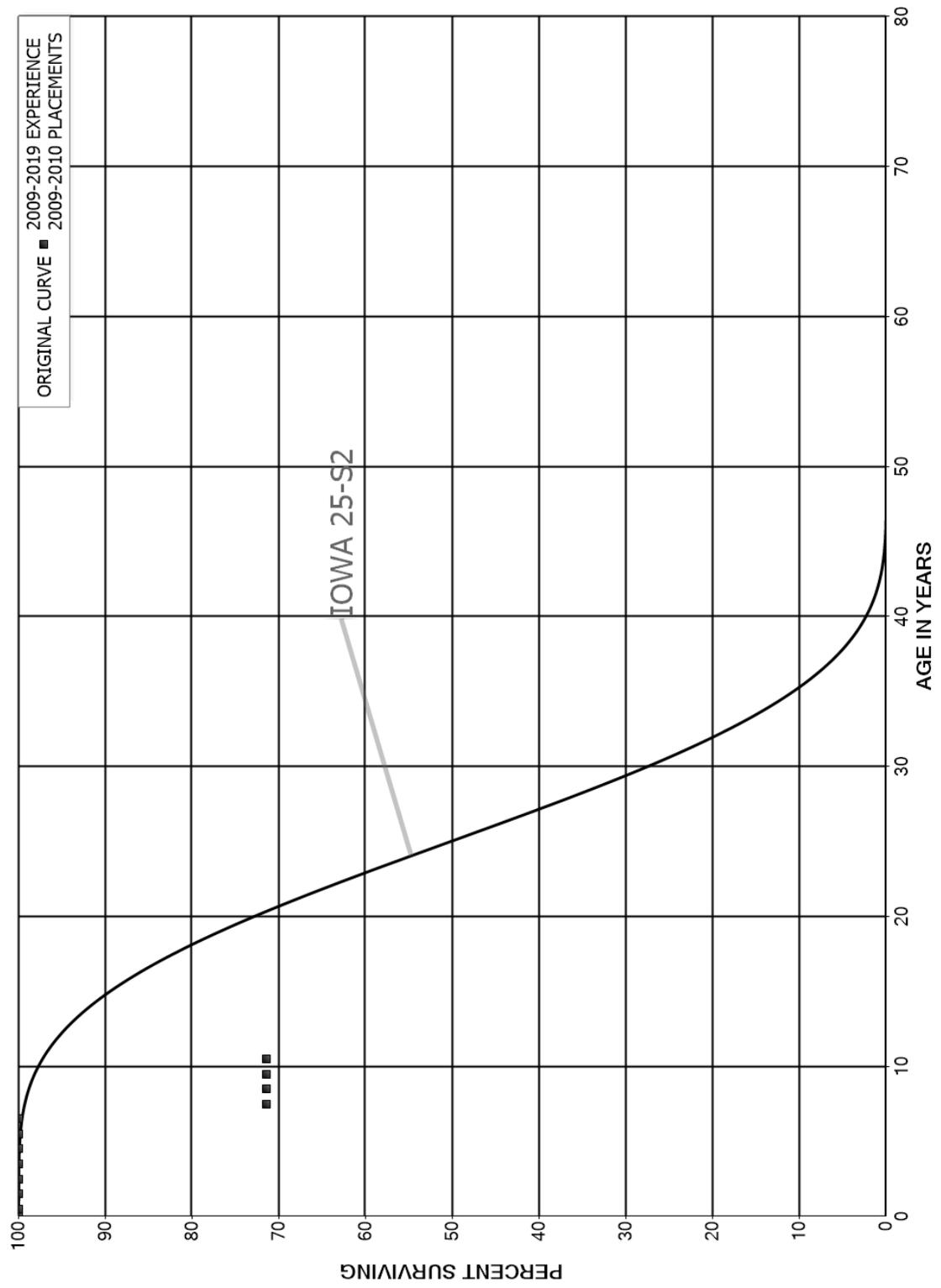
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1992-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	1,359,184		0.0000	1.0000	100.00
0.5	993,961		0.0000	1.0000	100.00
1.5	1,007,023		0.0000	1.0000	100.00
2.5	1,088,761		0.0000	1.0000	100.00
3.5	829,368	2,564	0.0031	0.9969	100.00
4.5	790,917	22,463	0.0284	0.9716	99.69
5.5	745,466	5,882	0.0079	0.9921	96.86
6.5	575,156	12,254	0.0213	0.9787	96.10
7.5	576,785	4,337	0.0075	0.9925	94.05
8.5	639,652	181,670	0.2840	0.7160	93.34
9.5	332,968	19,182	0.0576	0.9424	66.83
10.5	221,704	10,816	0.0488	0.9512	62.98
11.5	90,287	9,617	0.1065	0.8935	59.91
12.5	71,639	33,466	0.4671	0.5329	53.53
13.5	31,704	6,133	0.1934	0.8066	28.52
14.5	16,849	8,739	0.5187	0.4813	23.00
15.5	16,281		0.0000	1.0000	11.07
16.5	16,281	3,203	0.1967	0.8033	11.07
17.5	13,078		0.0000	1.0000	8.90
18.5	13,078		0.0000	1.0000	8.90
19.5	13,078		0.0000	1.0000	8.90
20.5	13,078		0.0000	1.0000	8.90
21.5	13,078	4,272	0.3266	0.6734	8.90
22.5	8,806		0.0000	1.0000	5.99
23.5	8,806		0.0000	1.0000	5.99
24.5	8,806		0.0000	1.0000	5.99
25.5	8,806	1,522	0.1728	0.8272	5.99
26.5	7,285		0.0000	1.0000	4.95
27.5					4.95

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



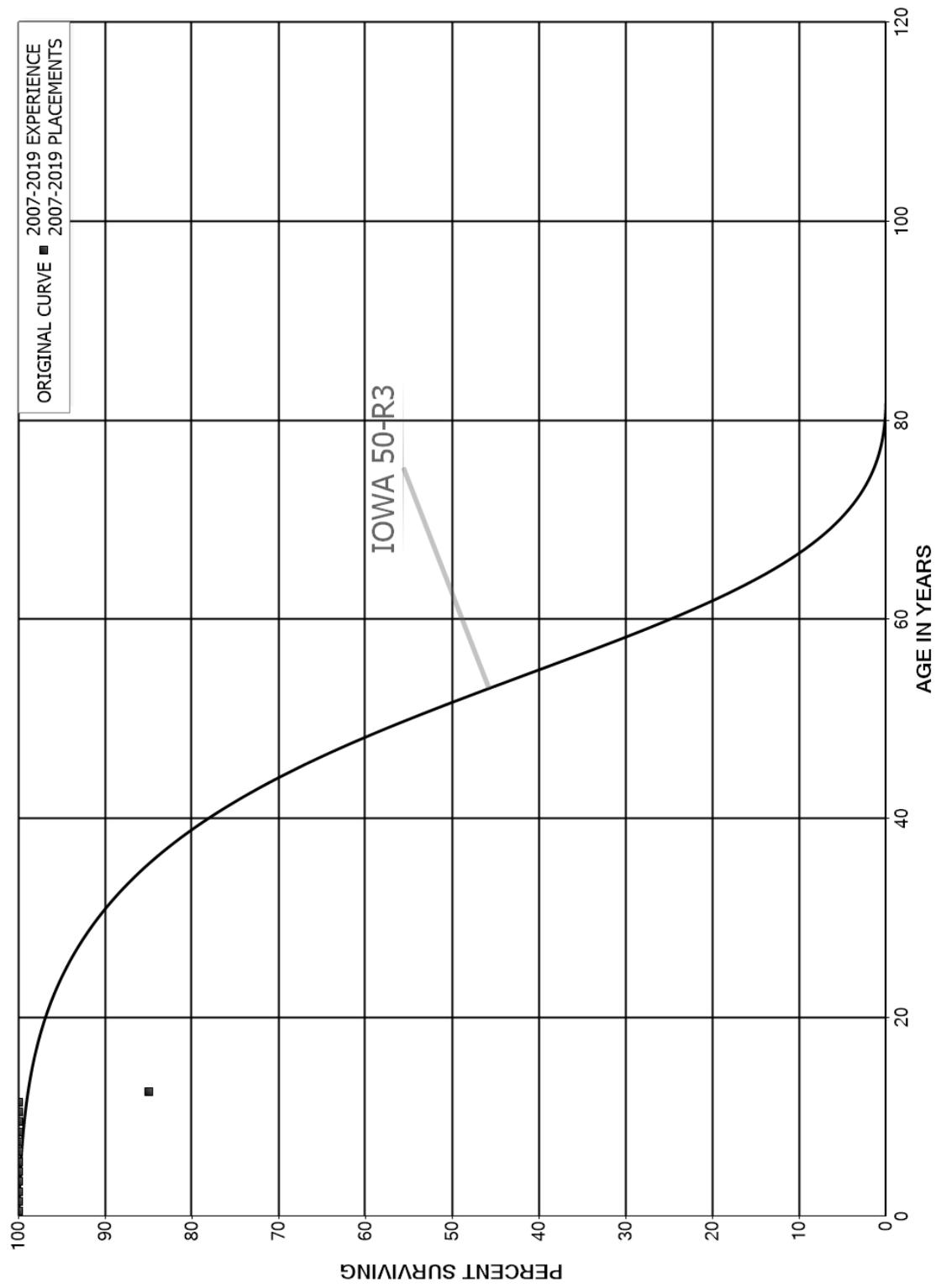
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2009-2010			EXPERIENCE BAND 2009-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	20,918		0.0000	1.0000	100.00
0.5	20,918		0.0000	1.0000	100.00
1.5	20,918		0.0000	1.0000	100.00
2.5	20,918		0.0000	1.0000	100.00
3.5	20,918		0.0000	1.0000	100.00
4.5	20,918		0.0000	1.0000	100.00
5.5	20,918		0.0000	1.0000	100.00
6.5	20,918	5,980	0.2859	0.7141	100.00
7.5	14,938		0.0000	1.0000	71.41
8.5	14,938		0.0000	1.0000	71.41
9.5	14,938		0.0000	1.0000	71.41
10.5					71.41

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 370.00 RECEIVING WELLS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



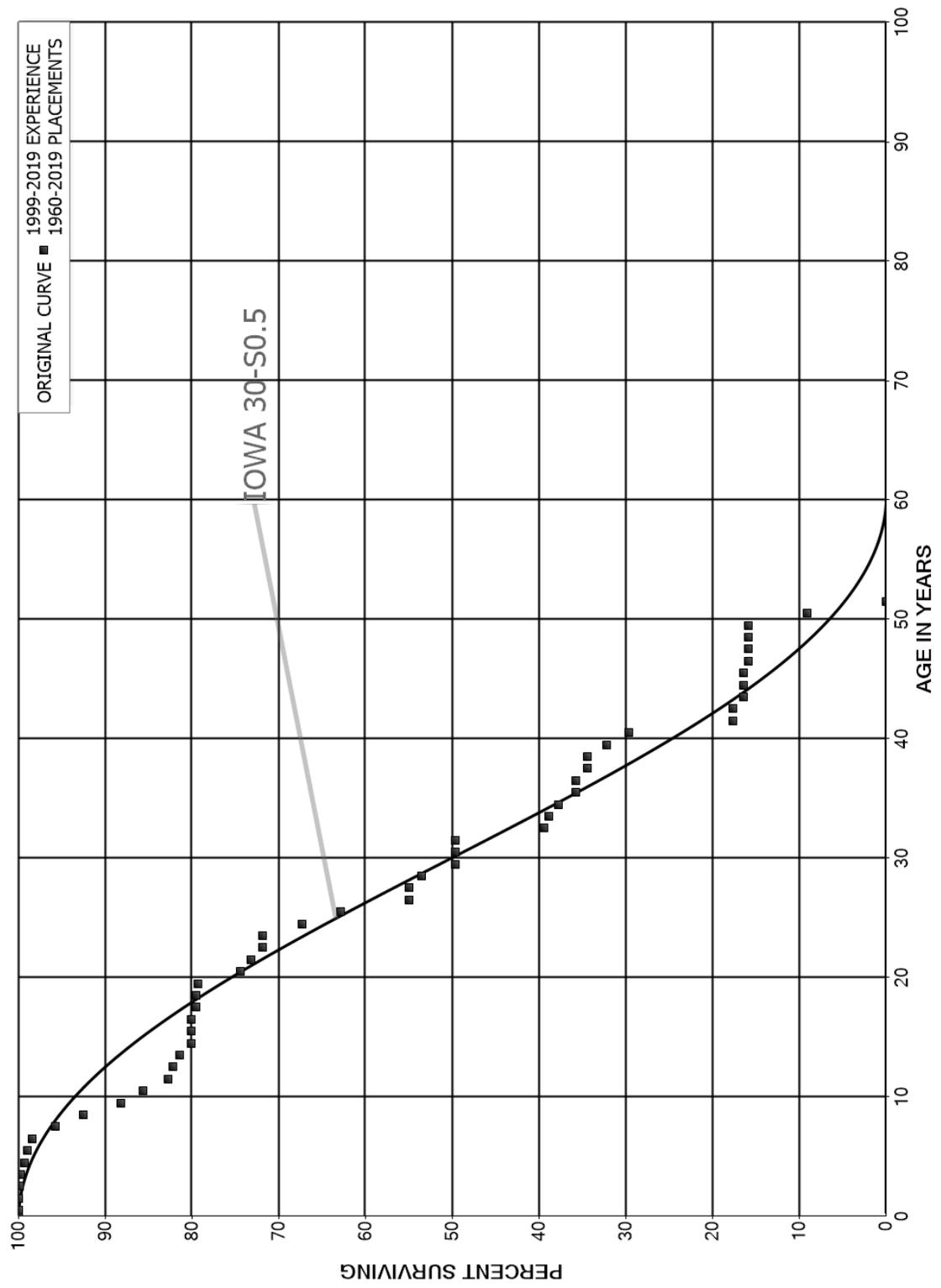
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 370.00 RECEIVING WELLS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2007-2019			EXPERIENCE BAND 2007-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	121,180		0.0000	1.0000	100.00
0.5	111,148		0.0000	1.0000	100.00
1.5	111,148		0.0000	1.0000	100.00
2.5	132,949		0.0000	1.0000	100.00
3.5	132,949		0.0000	1.0000	100.00
4.5	132,949		0.0000	1.0000	100.00
5.5	132,949		0.0000	1.0000	100.00
6.5	99,482		0.0000	1.0000	100.00
7.5	99,482		0.0000	1.0000	100.00
8.5	99,482		0.0000	1.0000	100.00
9.5	99,482		0.0000	1.0000	100.00
10.5	7,370		0.0000	1.0000	100.00
11.5	7,370	1,109	0.1505	0.8495	100.00
12.5					84.95

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 371.00 PUMPING EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1960-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	13,928,914		0.0000	1.0000	100.00
0.5	8,653,630	5,419	0.0006	0.9994	100.00
1.5	11,021,964	12,306	0.0011	0.9989	99.94
2.5	10,781,219	12,096	0.0011	0.9989	99.83
3.5	9,453,412	44,345	0.0047	0.9953	99.71
4.5	6,817,321	23,246	0.0034	0.9966	99.25
5.5	5,785,361	27,560	0.0048	0.9952	98.91
6.5	5,413,591	148,677	0.0275	0.9725	98.44
7.5	3,768,518	126,794	0.0336	0.9664	95.73
8.5	3,446,810	160,001	0.0464	0.9536	92.51
9.5	2,549,487	73,710	0.0289	0.9711	88.22
10.5	1,455,129	50,056	0.0344	0.9656	85.67
11.5	1,043,502	7,445	0.0071	0.9929	82.72
12.5	1,137,255	10,025	0.0088	0.9912	82.13
13.5	837,345	14,096	0.0168	0.9832	81.41
14.5	784,395		0.0000	1.0000	80.04
15.5	677,887		0.0000	1.0000	80.04
16.5	534,434	3,610	0.0068	0.9932	80.04
17.5	610,401	101	0.0002	0.9998	79.50
18.5	664,971	1,413	0.0021	0.9979	79.48
19.5	663,558	41,426	0.0624	0.9376	79.31
20.5	588,736	9,514	0.0162	0.9838	74.36
21.5	638,927	11,409	0.0179	0.9821	73.16
22.5	599,786		0.0000	1.0000	71.85
23.5	517,501	33,177	0.0641	0.9359	71.85
24.5	484,324	31,555	0.0652	0.9348	67.25
25.5	497,723	62,415	0.1254	0.8746	62.87
26.5	428,133		0.0000	1.0000	54.98
27.5	312,603	8,673	0.0277	0.9723	54.98
28.5	241,647	17,595	0.0728	0.9272	53.46
29.5	235,281		0.0000	1.0000	49.56
30.5	280,168		0.0000	1.0000	49.56
31.5	280,168	57,666	0.2058	0.7942	49.56
32.5	222,502	2,887	0.0130	0.9870	39.36
33.5	140,599	3,932	0.0280	0.9720	38.85
34.5	136,159	7,170	0.0527	0.9473	37.77
35.5	183,946		0.0000	1.0000	35.78
36.5	183,946	7,008	0.0381	0.9619	35.78
37.5	176,938		0.0000	1.0000	34.41
38.5	127,299	8,408	0.0660	0.9340	34.41

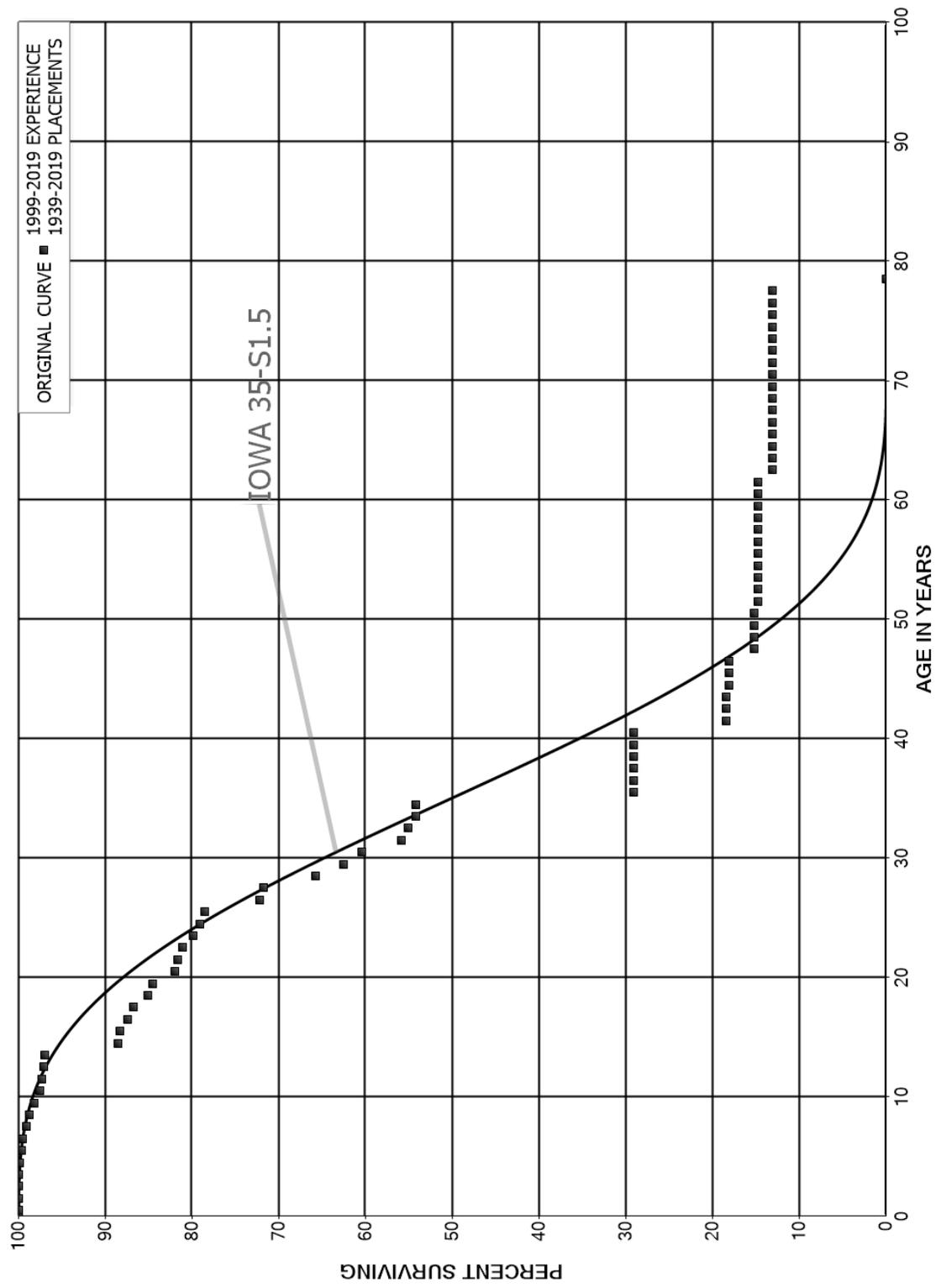
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1960-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
39.5	128,004	9,910	0.0774	0.9226	32.14	
40.5	140,361	56,891	0.4053	0.5947	29.65	
41.5	83,470		0.0000	1.0000	17.63	
42.5	83,470	6,122	0.0733	0.9267	17.63	
43.5	28,842		0.0000	1.0000	16.34	
44.5	28,842		0.0000	1.0000	16.34	
45.5	28,842	860	0.0298	0.9702	16.34	
46.5	27,983		0.0000	1.0000	15.85	
47.5	21,408		0.0000	1.0000	15.85	
48.5	5,141		0.0000	1.0000	15.85	
49.5	5,141	2,187	0.4255	0.5745	15.85	
50.5	2,953	2,953	1.0000		9.11	
51.5						

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 380.00 TREATMENT EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1939-2019

EXPERIENCE BAND 1999-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	52,484,979		0.0000	1.0000	100.00
0.5	52,338,297		0.0000	1.0000	100.00
1.5	64,377,580	1,853	0.0000	1.0000	100.00
2.5	61,280,085	2,456	0.0000	1.0000	100.00
3.5	56,645,719	97,216	0.0017	0.9983	99.99
4.5	44,542,853	95,360	0.0021	0.9979	99.82
5.5	39,192,994	29,279	0.0007	0.9993	99.61
6.5	37,993,990	195,343	0.0051	0.9949	99.53
7.5	37,038,634	104,008	0.0028	0.9972	99.02
8.5	38,046,057	237,211	0.0062	0.9938	98.74
9.5	28,856,102	179,693	0.0062	0.9938	98.13
10.5	11,015,164	26,343	0.0024	0.9976	97.52
11.5	15,100,040	30,352	0.0020	0.9980	97.28
12.5	16,280,292	28,816	0.0018	0.9982	97.09
13.5	16,807,417	1,468,058	0.0873	0.9127	96.92
14.5	14,676,816	22,218	0.0015	0.9985	88.45
15.5	11,808,330	121,942	0.0103	0.9897	88.32
16.5	11,627,778	92,492	0.0080	0.9920	87.41
17.5	12,550,432	231,211	0.0184	0.9816	86.71
18.5	10,724,551	78,054	0.0073	0.9927	85.11
19.5	10,812,422	322,982	0.0299	0.9701	84.49
20.5	9,468,414	37,906	0.0040	0.9960	81.97
21.5	9,609,732	62,020	0.0065	0.9935	81.64
22.5	9,543,450	153,592	0.0161	0.9839	81.11
23.5	9,334,263	87,607	0.0094	0.9906	79.81
24.5	9,070,811	59,133	0.0065	0.9935	79.06
25.5	8,792,217	707,485	0.0805	0.9195	78.54
26.5	4,703,706	32,521	0.0069	0.9931	72.22
27.5	4,778,474	397,707	0.0832	0.9168	71.72
28.5	6,059,797	298,086	0.0492	0.9508	65.75
29.5	6,184,153	215,062	0.0348	0.9652	62.52
30.5	5,152,304	387,965	0.0753	0.9247	60.35
31.5	5,356,247	72,674	0.0136	0.9864	55.80
32.5	3,421,800	52,448	0.0153	0.9847	55.05
33.5	2,753,091		0.0000	1.0000	54.20
34.5	2,272,767	1,055,181	0.4643	0.5357	54.20
35.5	635,826		0.0000	1.0000	29.04
36.5	779,480		0.0000	1.0000	29.04
37.5	801,627		0.0000	1.0000	29.04
38.5	778,140		0.0000	1.0000	29.04

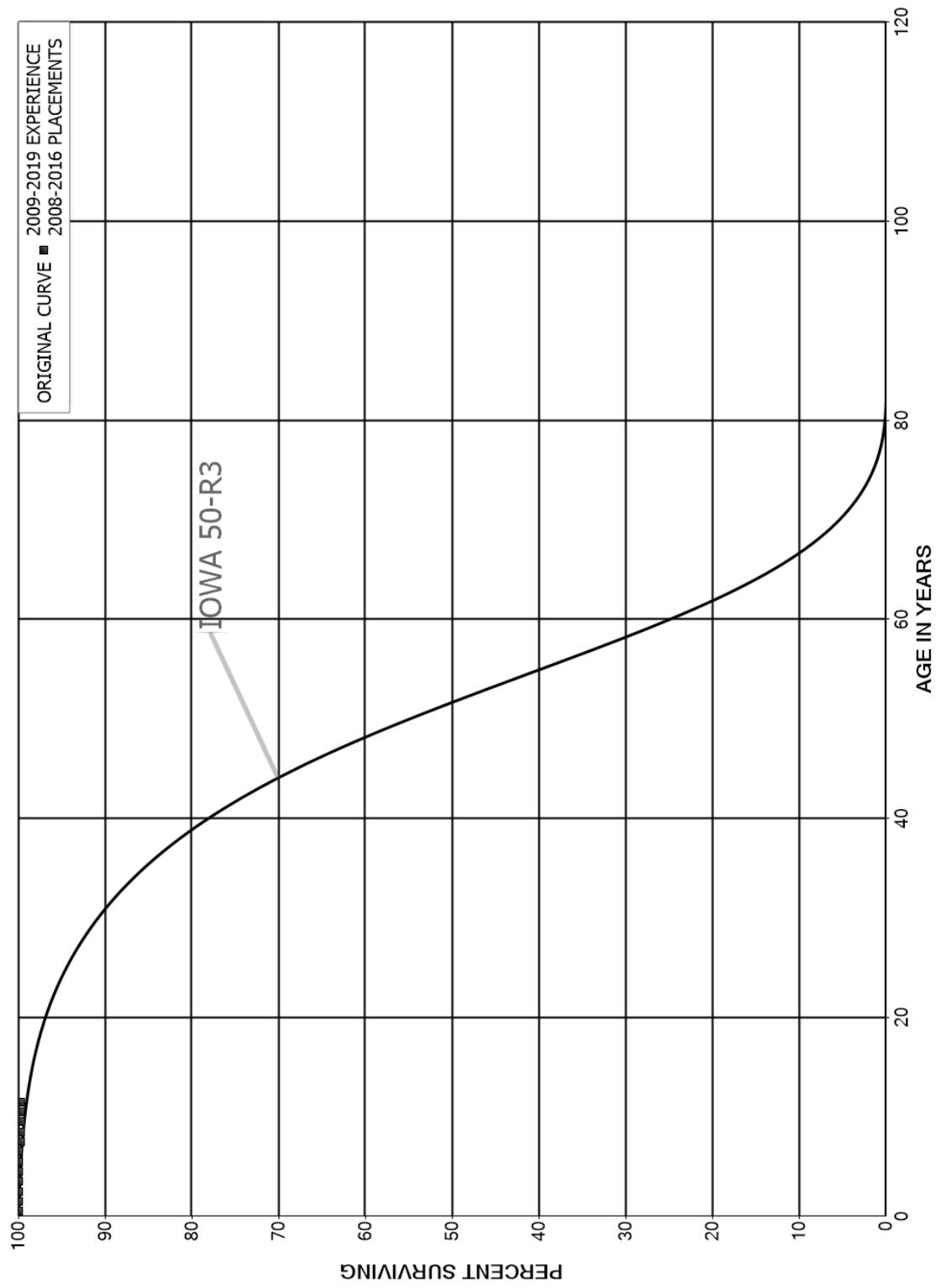
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1939-2019			EXPERIENCE BAND 1999-2019			
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL	
39.5	778,140	411	0.0005	0.9995	29.04	
40.5	777,730	285,407	0.3670	0.6330	29.02	
41.5	15,823,498		0.0000	1.0000	18.37	
42.5	15,823,498		0.0000	1.0000	18.37	
43.5	15,823,498	268,317	0.0170	0.9830	18.37	
44.5	515,644		0.0000	1.0000	18.06	
45.5	515,644		0.0000	1.0000	18.06	
46.5	371,038	60,316	0.1626	0.8374	18.06	
47.5	288,575		0.0000	1.0000	15.12	
48.5	288,575		0.0000	1.0000	15.12	
49.5	288,575		0.0000	1.0000	15.12	
50.5	288,575	6,818	0.0236	0.9764	15.12	
51.5	281,757	315	0.0011	0.9989	14.77	
52.5	107,182		0.0000	1.0000	14.75	
53.5	107,182	462	0.0043	0.9957	14.75	
54.5	23,321		0.0000	1.0000	14.69	
55.5	23,321		0.0000	1.0000	14.69	
56.5	298,010		0.0000	1.0000	14.69	
57.5	298,010		0.0000	1.0000	14.69	
58.5	298,010		0.0000	1.0000	14.69	
59.5	25,215		0.0000	1.0000	14.69	
60.5	25,215		0.0000	1.0000	14.69	
61.5	25,215	2,761	0.1095	0.8905	14.69	
62.5	1,894		0.0000	1.0000	13.08	
63.5	1,894		0.0000	1.0000	13.08	
64.5	1,894		0.0000	1.0000	13.08	
65.5	1,894		0.0000	1.0000	13.08	
66.5	1,894		0.0000	1.0000	13.08	
67.5	1,894		0.0000	1.0000	13.08	
68.5	1,894		0.0000	1.0000	13.08	
69.5	1,894		0.0000	1.0000	13.08	
70.5	1,894		0.0000	1.0000	13.08	
71.5	1,894		0.0000	1.0000	13.08	
72.5	1,894		0.0000	1.0000	13.08	
73.5	1,894		0.0000	1.0000	13.08	
74.5	1,894		0.0000	1.0000	13.08	
75.5	1,894		0.0000	1.0000	13.08	
76.5	1,894		0.0000	1.0000	13.08	
77.5	1,894	1,894	1.0000		13.08	
78.5						

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 381.00 PLANT SEWERS
 ORIGINAL AND SMOOTH SURVIVOR CURVES



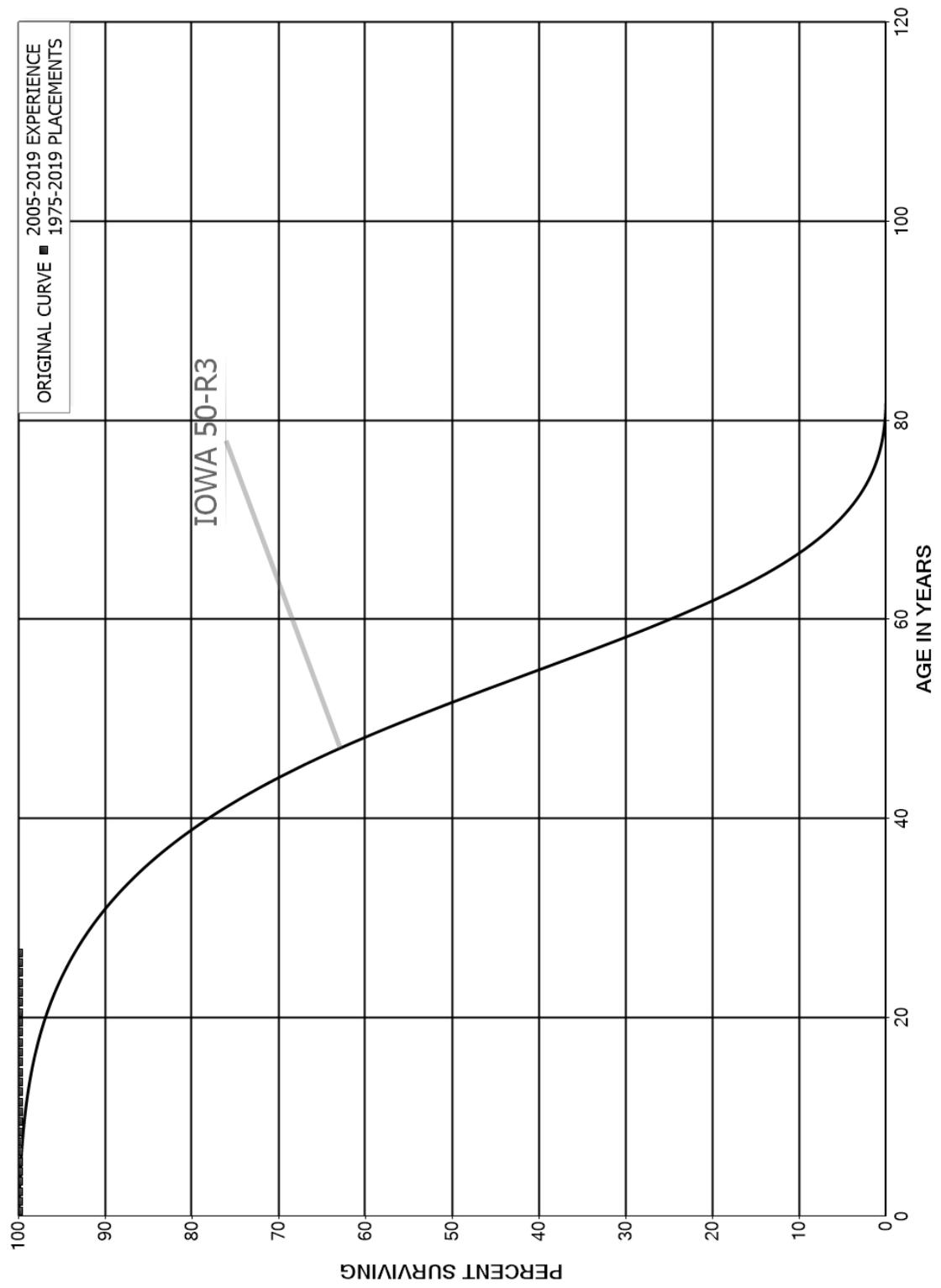
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 381.00 PLANT SEWERS

ORIGINAL LIFE TABLE

PLACEMENT BAND 2008-2016			EXPERIENCE BAND 2009-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	5,524,134		0.0000	1.0000	100.00
0.5	6,227,961		0.0000	1.0000	100.00
1.5	6,227,961		0.0000	1.0000	100.00
2.5	6,227,961		0.0000	1.0000	100.00
3.5	6,182,721		0.0000	1.0000	100.00
4.5	6,175,263		0.0000	1.0000	100.00
5.5	5,940,945		0.0000	1.0000	100.00
6.5	5,940,945	13,300	0.0022	0.9978	100.00
7.5	5,925,961	2,120	0.0004	0.9996	99.78
8.5	5,917,243		0.0000	1.0000	99.74
9.5	4,729,279		0.0000	1.0000	99.74
10.5	294,412		0.0000	1.0000	99.74
11.5					99.74

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 382.00 OUTFALL SEWER LINES
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 382.00 OUTFALL SEWER LINES

ORIGINAL LIFE TABLE

PLACEMENT BAND 1975-2019

EXPERIENCE BAND 2005-2019

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	1,700,716		0.0000	1.0000	100.00
0.5	1,605,061		0.0000	1.0000	100.00
1.5	360,675		0.0000	1.0000	100.00
2.5	355,425		0.0000	1.0000	100.00
3.5	355,425		0.0000	1.0000	100.00
4.5	355,425		0.0000	1.0000	100.00
5.5	255,003		0.0000	1.0000	100.00
6.5	264,243		0.0000	1.0000	100.00
7.5	265,939		0.0000	1.0000	100.00
8.5	265,939		0.0000	1.0000	100.00
9.5	238,111		0.0000	1.0000	100.00
10.5	212,060		0.0000	1.0000	100.00
11.5	244,789	6	0.0000	1.0000	100.00
12.5	244,783		0.0000	1.0000	100.00
13.5	43,666		0.0000	1.0000	100.00
14.5	34,425		0.0000	1.0000	100.00
15.5	32,729		0.0000	1.0000	100.00
16.5	32,729		0.0000	1.0000	100.00
17.5	32,729		0.0000	1.0000	100.00
18.5	32,729		0.0000	1.0000	100.00
19.5	32,729		0.0000	1.0000	100.00
20.5	32,729		0.0000	1.0000	100.00
21.5	202,476		0.0000	1.0000	100.00
22.5	202,476		0.0000	1.0000	100.00
23.5	202,476		0.0000	1.0000	100.00
24.5	202,476		0.0000	1.0000	100.00
25.5	202,476		0.0000	1.0000	100.00
26.5					100.00
27.5					
28.5					
29.5					
30.5					
31.5					
32.5					
33.5					
34.5					
35.5					
36.5	4,984		0.0000		
37.5	4,984		0.0000		
38.5	4,984		0.0000		

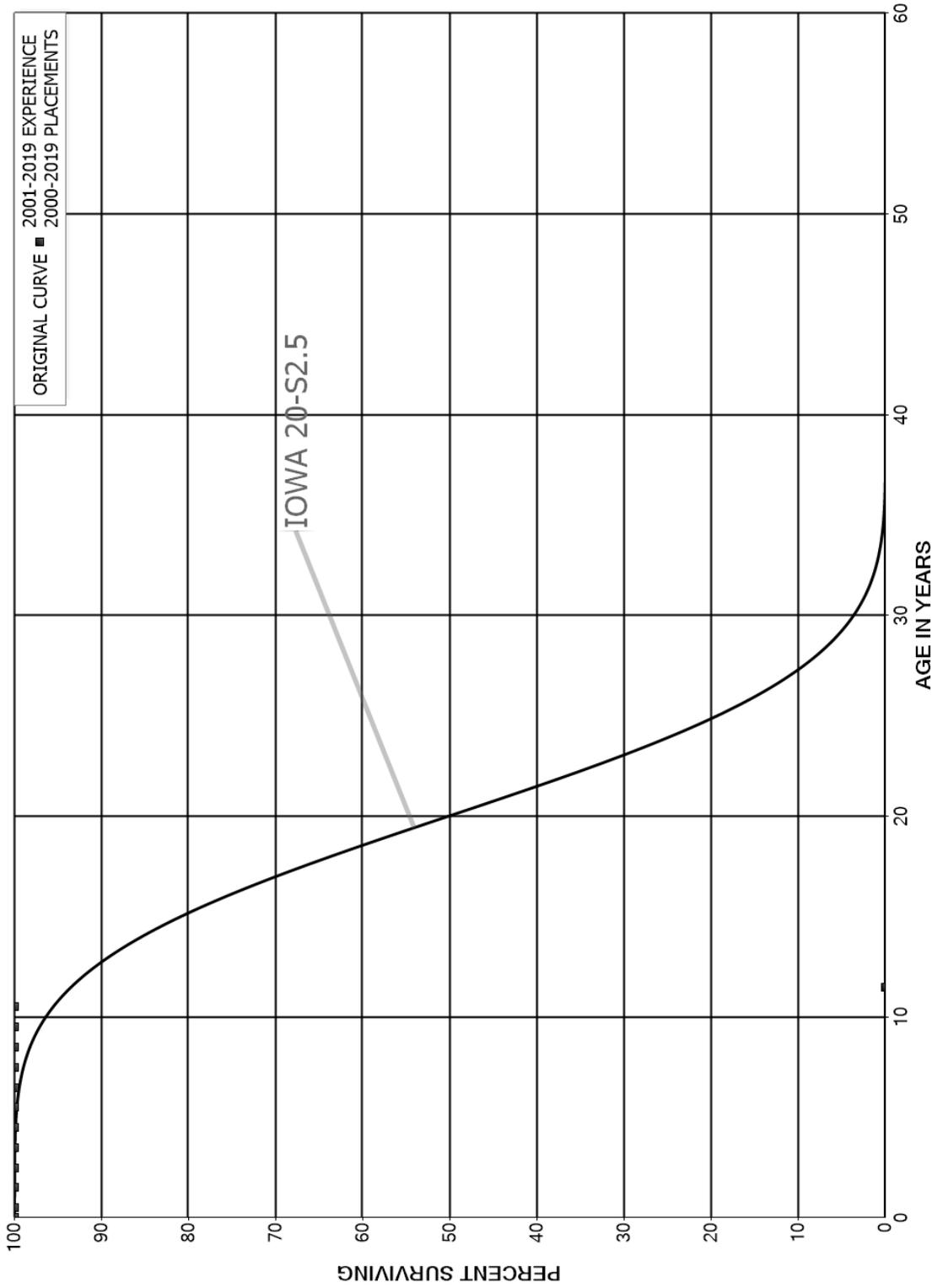
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 382.00 OUTFALL SEWER LINES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1975-2019			EXPERIENCE BAND 2005-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	4,984		0.0000		
40.5	4,984		0.0000		
41.5	4,984		0.0000		
42.5	4,984		0.0000		
43.5	4,984		0.0000		
44.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



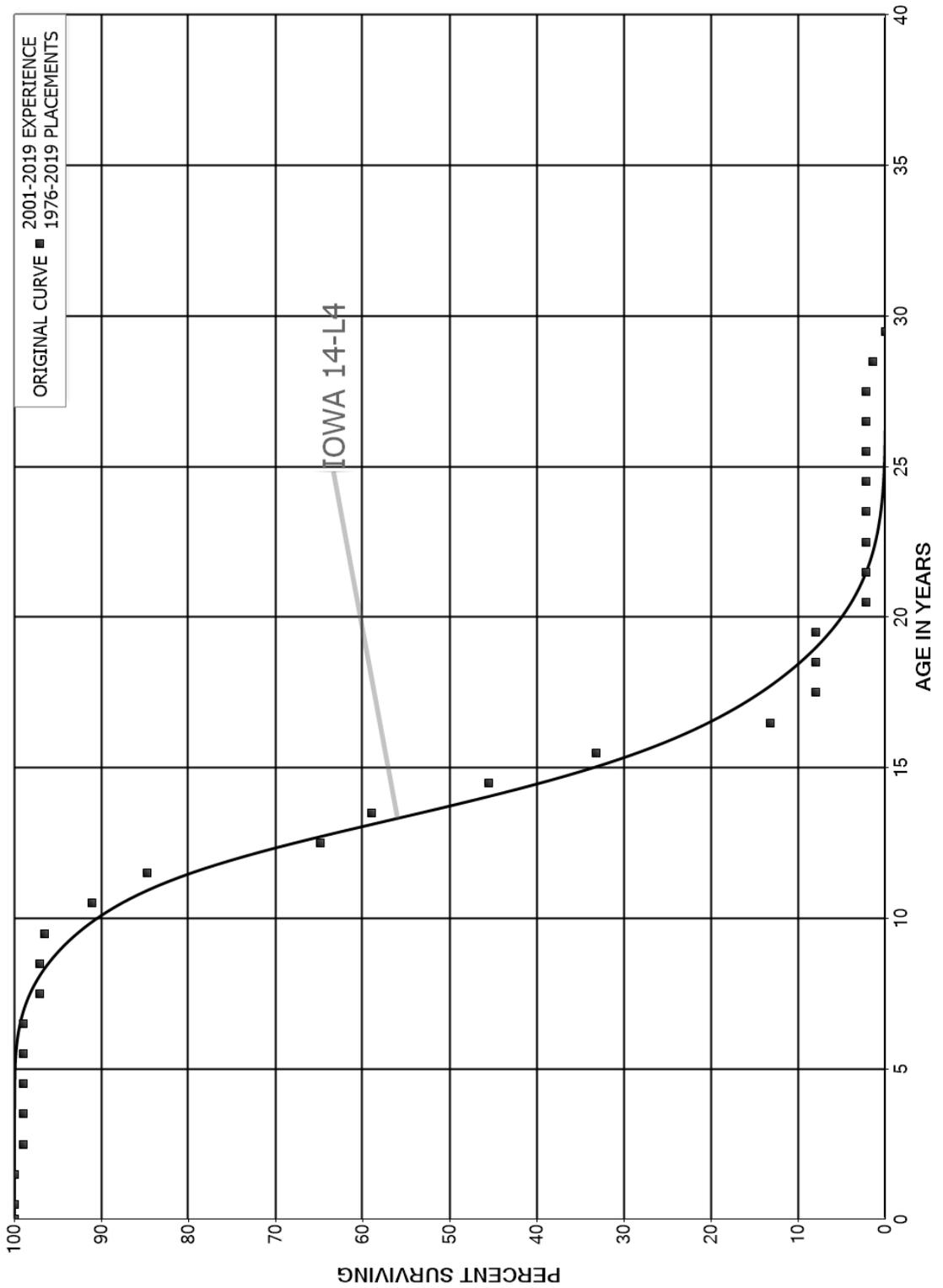
PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS

ACCOUNT 389.10 OTHER PLANT AND MISCELLANEOUS EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 2000-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	737,756		0.0000	1.0000	100.00
0.5	437,340		0.0000	1.0000	100.00
1.5	405,165		0.0000	1.0000	100.00
2.5	4,547,918		0.0000	1.0000	100.00
3.5	4,547,918		0.0000	1.0000	100.00
4.5	4,547,918	2,997	0.0007	0.9993	100.00
5.5	4,544,921		0.0000	1.0000	99.93
6.5	393,353		0.0000	1.0000	99.93
7.5	393,353		0.0000	1.0000	99.93
8.5	281,642		0.0000	1.0000	99.93
9.5	8,492		0.0000	1.0000	99.93
10.5	8,492	8,492	1.0000		99.93
11.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 391.00 TRANSPORTATION EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



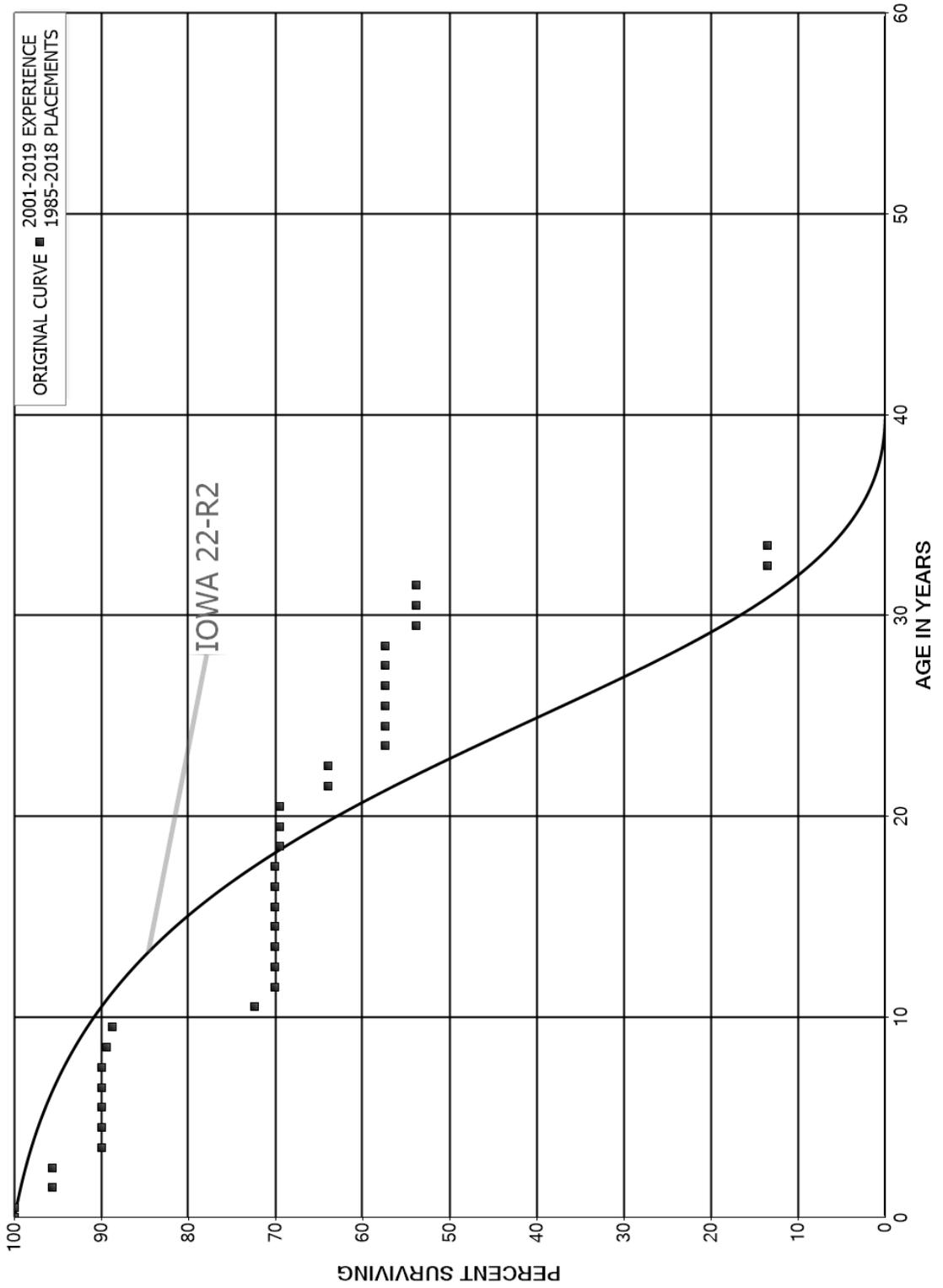
PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1976-2019			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	4,168,919		0.0000	1.0000	100.00
0.5	3,692,372		0.0000	1.0000	100.00
1.5	1,458,511	14,523	0.0100	0.9900	100.00
2.5	2,332,879		0.0000	1.0000	99.00
3.5	2,514,168		0.0000	1.0000	99.00
4.5	1,930,107		0.0000	1.0000	99.00
5.5	1,664,209		0.0000	1.0000	99.00
6.5	1,677,203	32,676	0.0195	0.9805	99.00
7.5	1,535,566		0.0000	1.0000	97.08
8.5	1,373,777	8,793	0.0064	0.9936	97.08
9.5	1,545,830	87,008	0.0563	0.9437	96.45
10.5	879,899	61,030	0.0694	0.9306	91.03
11.5	743,329	174,600	0.2349	0.7651	84.71
12.5	440,822	40,215	0.0912	0.9088	64.81
13.5	348,542	79,500	0.2281	0.7719	58.90
14.5	276,542	75,000	0.2712	0.7288	45.47
15.5	195,354	117,872	0.6034	0.3966	33.14
16.5	51,900	20,700	0.3988	0.6012	13.14
17.5	31,200		0.0000	1.0000	7.90
18.5	32,855		0.0000	1.0000	7.90
19.5	32,855	23,700	0.7214	0.2786	7.90
20.5	9,155		0.0000	1.0000	2.20
21.5	9,155		0.0000	1.0000	2.20
22.5	9,155		0.0000	1.0000	2.20
23.5	9,155		0.0000	1.0000	2.20
24.5	14,155		0.0000	1.0000	2.20
25.5	14,155		0.0000	1.0000	2.20
26.5	14,155		0.0000	1.0000	2.20
27.5	14,155	5,000	0.3532	0.6468	2.20
28.5	9,155	9,155	1.0000		1.42
29.5					

PENNSYLVANIA-AMERICAN WATER COMPANY
 ALL WASTEWATER OPERATIONS
 ACCOUNT 395.00 POWER OPERATED EQUIPMENT
 ORIGINAL AND SMOOTH SURVIVOR CURVES



PENNSYLVANIA-AMERICAN WATER COMPANY
ALL WASTEWATER OPERATIONS

ACCOUNT 395.00 POWER OPERATED EQUIPMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1985-2018			EXPERIENCE BAND 2001-2019		
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	192,967		0.0000	1.0000	100.00
0.5	192,967	8,551	0.0443	0.9557	100.00
1.5	127,706		0.0000	1.0000	95.57
2.5	255,380	14,864	0.0582	0.9418	95.57
3.5	324,176		0.0000	1.0000	90.01
4.5	885,603		0.0000	1.0000	90.01
5.5	967,489		0.0000	1.0000	90.01
6.5	1,410,131		0.0000	1.0000	90.01
7.5	1,250,710	8,033	0.0064	0.9936	90.01
8.5	871,073	6,988	0.0080	0.9920	89.43
9.5	536,633	98,717	0.1840	0.8160	88.71
10.5	191,853	6,125	0.0319	0.9681	72.39
11.5	137,458		0.0000	1.0000	70.08
12.5	190,308		0.0000	1.0000	70.08
13.5	169,091		0.0000	1.0000	70.08
14.5	169,091		0.0000	1.0000	70.08
15.5	169,587		0.0000	1.0000	70.08
16.5	190,470		0.0000	1.0000	70.08
17.5	117,685	875	0.0074	0.9926	70.08
18.5	116,810		0.0000	1.0000	69.56
19.5	116,810		0.0000	1.0000	69.56
20.5	124,335	9,999	0.0804	0.9196	69.56
21.5	124,336		0.0000	1.0000	63.97
22.5	124,336	12,782	0.1028	0.8972	63.97
23.5	111,554		0.0000	1.0000	57.39
24.5	111,554		0.0000	1.0000	57.39
25.5	111,554		0.0000	1.0000	57.39
26.5	18,021		0.0000	1.0000	57.39
27.5	8,021		0.0000	1.0000	57.39
28.5	8,021	496	0.0618	0.9382	57.39
29.5	30,053		0.0000	1.0000	53.84
30.5	30,053		0.0000	1.0000	53.84
31.5	30,053	22,528	0.7496	0.2504	53.84
32.5	7,525		0.0000	1.0000	13.48
33.5					13.48

**PART VII. DETAILED DEPRECIATION
CALCULATIONS**

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1965						0.0
1966	35,905,538	23,216,447	12,689,091		12,689,091	14.6
1967	23,957,412	18,081,408	5,876,004		18,565,095	21.4
1970	1,314,434	817,470	496,964		19,062,059	22.0
1975	4,749,698	2,789,836	1,959,862		21,021,921	24.2
1977					21,021,921	24.2
1978	20,513,094	13,656,221	6,856,873		27,878,794	32.1
1980	951,996	504,993	447,003		28,325,797	32.6
1984					28,325,797	32.6
1985	4,809,116	2,364,906	2,444,210		30,770,007	35.5
1986	245,114	144,721	100,393		30,870,400	35.6
1987	1,738,740	824,929	913,811		31,784,211	36.6
1990	8,833,500	3,921,217	4,912,283		36,696,494	42.3
1991	236,006	178,689	57,317		36,753,811	42.4
1992	52,146,963	27,167,423	24,979,540		61,733,351	71.1
1993	2,067,773	1,166,942	900,831		62,634,182	72.2
1995	18,532,716	7,080,385	11,452,331		74,086,513	85.4
1996					74,086,513	85.4
1997	122,018	61,535	60,483		74,146,996	85.5
1998					74,146,996	85.5
2000	1,164,349	367,329	797,020		74,944,016	86.4
2001	22,362	22,247	115		74,944,131	86.4
2002	622,994	242,722	380,272		75,324,403	86.8
2003					75,324,403	86.8
2004	221,801	84,720	137,081		75,461,484	87.0
2005	3,715,492	915,681	2,799,811		78,261,295	90.2
2006	67,291	34,224	33,067		78,294,362	90.2
2007	10,431	6,112	4,319		78,298,681	90.2
2008	47,813	17,027	30,786		78,329,467	90.3
2010	6,545,718	1,615,961	4,929,757		83,259,224	96.0
2011	30,014	12,728	17,286		83,276,510	96.0
2012	826,617	114,460	712,157		83,988,667	96.8
2013	262,601	52,422	210,179		84,198,846	97.0
2014	328,274	50,466	277,808		84,476,654	97.4
2015	74,497	10,178	64,319		84,540,973	97.4
2016	153,316	19,390	133,926		84,674,899	97.6
2017	23,237	1,952	21,285		84,696,184	97.6
2019	254,687	6,003	248,684		84,944,868	97.9
2020	1,860,000	39,599	1,820,401		86,765,269	100.0
SUBTOTAL	192,355,612	105,590,343	86,765,269			
NONDEPRECIABLE	3,111,032		3,111,032			
TOTAL	195,466,644	105,590,343	89,876,301			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R3						
NET SALVAGE PERCENT.. 0						
2019	70,273.75	2,713	1,847	68,427	37.41	1,829
2020	255.63	3	2	253	37.67	7
	70,529.38	2,716	1,849	68,680		1,836
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						37.4 2.60

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1993	1,685,242.92	834,195	917,333	767,910	28.06	27,367
1997	103,962.09	46,180	50,782	53,180	29.41	1,808
2004	219,796.87	75,786	83,339	136,458	31.35	4,353
2020	36,539.79	541	595	35,945	33.40	1,076
	2,045,541.67	956,702	1,052,049	993,493		34,604
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						28.7 1.69

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.40 STRUCTURES AND IMPROVEMENTS - TDP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1967	23,957,412.43	17,431,413	18,081,408	5,876,004	20.03	293,360
1978	20,513,093.95	13,165,304	13,656,221	6,856,873	23.72	289,076
1986	245,114.34	139,519	144,721	100,393	26.11	3,845
1992	51,102,889.05	25,776,297	26,737,463	24,365,426	28.00	870,194
2002	622,993.92	233,997	242,722	380,272	30.76	12,363
2010	6,035,409.21	1,470,226	1,525,049	4,510,360	32.60	138,355
2013	54,275.38	10,014	10,387	43,888	33.15	1,324
2014	31,228.33	5,096	5,286	25,942	33.34	778
2016	97,513.09	11,497	11,926	85,587	33.67	2,542
2020	344,204.58	5,094	5,284	338,920	33.40	10,147
	103,004,134.28	58,248,457	60,420,467	42,583,667		1,621,984
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						26.3 1.57

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1993	65,932.40	44,056	44,496	21,436	13.65	1,570
	65,932.40	44,056	44,496	21,436		1,570
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.7 2.38

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1990	29,313.30	12,517	13,093	16,220	40.93	396
1995	933,686.32	340,422	356,081	577,605	44.43	13,000
2005	364,403.49	83,011	86,829	277,574	52.53	5,284
	1,327,403.11	435,950	456,003	871,400		18,680
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						46.6 1.41

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1966	21,713,403.47	13,963,890	12,952,778	8,760,625	30.25	289,607
1970	785,686.51	476,126	441,650	344,037	32.83	10,479
1975	2,651,867.59	1,483,985	1,376,531	1,275,337	35.80	35,624
1980	588,451.29	300,287	278,544	309,907	38.87	7,973
1985	2,686,088.85	1,230,229	1,141,149	1,544,940	42.02	36,767
1987	935,922.60	407,594	378,081	557,842	43.42	12,848
1990	4,420,705.42	1,779,776	1,650,904	2,769,801	45.26	61,198
1992	579,832.04	219,756	203,844	375,988	46.69	8,053
1995	8,804,044.61	3,030,352	2,810,927	5,993,118	48.58	123,366
2000	589,950.89	166,897	154,812	435,139	51.96	8,374
2005	1,590,348.08	350,036	324,690	1,265,658	54.92	23,045
2008	15,454.42	2,782	2,581	12,873	56.94	226
2010	222,438.23	34,100	31,631	190,807	57.99	3,290
2012	628,571.41	79,074	73,348	555,223	59.07	9,399
2019	184,413.57	4,481	4,156	180,258	60.23	2,993
2020	510,000.00	4,386	4,069	505,931	57.98	8,726
	46,907,178.98	23,533,751	21,829,695	25,077,484		641,968
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						39.1 1.37

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1966	4,621,959.23	3,979,969	2,742,273	1,879,686	8.79	213,844
1970	147,275.61	122,710	84,549	62,727	10.11	6,204
1975	599,707.76	477,487	328,997	270,711	11.65	23,237
1980	119,003.90	88,682	61,104	57,900	13.85	4,181
1985	598,922.71	410,382	282,761	316,162	16.31	19,385
1987	217,036.58	143,244	98,698	118,339	17.26	6,856
1990	1,270,764.37	782,918	539,445	731,319	19.00	38,490
1992	138,749.54	81,057	55,850	82,900	20.28	4,088
1995	2,686,886.23	1,432,110	986,750	1,700,136	22.34	76,103
2000	167,130.36	73,320	50,519	116,611	26.23	4,446
2005	521,879.93	176,343	121,504	400,376	30.37	13,183
2010	90,829.39	20,982	14,457	76,372	34.95	2,185
2012	75,333.12	14,087	9,706	65,627	36.95	1,776
2015	979.09	119	82	897	39.75	23
2020	100,000.00	1,100	758	99,242	44.75	2,218
	11,356,457.82	7,804,510	5,377,453	5,979,005		416,219
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.4 3.67

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
1966	9,570,175.47	8,605,502	7,521,396	2,048,779	6.11	335,316
1970	381,472.10	333,254	291,271	90,201	7.31	12,339
1975	1,498,123.14	1,240,596	1,084,308	413,815	9.45	43,790
1980	244,541.11	189,177	165,345	79,196	11.85	6,683
1985	1,524,104.86	1,076,628	940,996	583,109	14.75	39,533
1987	585,780.78	398,331	348,150	237,631	15.76	15,078
1990	3,112,716.51	1,965,369	1,717,775	1,394,942	17.81	78,324
1992	325,492.84	194,807	170,266	155,227	19.12	8,119
1995	6,108,098.34	3,348,460	2,926,627	3,181,471	21.01	151,427
2000	407,267.72	185,348	161,998	245,270	24.55	9,991
2005	1,238,860.14	437,813	382,658	856,202	28.36	30,190
2010	186,768.44	45,889	40,108	146,660	32.24	4,549
2012	29,767.98	5,971	5,219	24,549	33.87	725
2020	75,000.00	945	826	74,174	39.34	1,885
	25,288,169.43	18,028,090	15,756,943	9,531,226		737,949
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.9 2.92

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1991	8,740.98	8,175	5,620	3,121	2.04	1,530
2006	9,162.75	7,015	4,822	4,341	4.44	978
2010	10,272.31	6,860	4,716	5,556	5.22	1,064
2011	8,760.43	5,509	3,787	4,974	5.61	887
	36,936.47	27,559	18,945	17,992		4,459
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 4.0						12.07

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 25-S2						
NET SALVAGE PERCENT.. 0						
1991	227,265.28	197,766	173,069	54,196	4.40	12,317
	227,265.28	197,766	173,069	54,196		12,317
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.4 5.42

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1993	316,597.27	229,850	205,113	111,484	10.38	10,740
1997	18,055.77	12,050	10,753	7,303	11.71	624
2006	36,394.70	17,892	15,966	20,429	15.00	1,362
2011	10,181.14	3,665	3,271	6,910	16.89	409
2012	32,248.97	10,636	9,491	22,758	17.27	1,318
2013	22,545.15	6,714	5,992	16,553	17.69	936
2014	30,154.31	7,958	7,101	23,053	18.13	1,272
2015	3,761.30	861	768	2,993	18.54	161
2016	6,155.72	1,183	1,056	5,100	18.92	270
2017	5,858.77	898	802	5,057	19.33	262
	481,953.10	291,707	260,313	221,640		17,354
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.8 3.60

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S1.5						
NET SALVAGE PERCENT.. 0						
2008	11,078.37	4,376	2,425	8,653	19.15	452
2012	33,096.09	9,254	5,128	27,968	21.90	1,277
2013	139,660.30	34,775	19,270	120,390	22.62	5,322
2014	239,438.94	51,982	28,806	210,633	23.44	8,986
2015	55,452.56	10,281	5,697	49,756	24.17	2,059
2016	34,383.95	5,247	2,908	31,476	25.00	1,259
2017	17,378.62	2,075	1,150	16,229	25.82	629
	530,488.83	117,990	65,384	465,105		19,984
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						23.3 3.77

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 390.00 OFFICE FURNITURE AND EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	2,249.52	1,069	1,089	1,161	10.50	111
2012	22,674.60	9,637	9,820	12,855	11.50	1,118
2013	33,760.20	12,660	12,901	20,859	12.50	1,669
2014	3,709.04	1,205	1,228	2,481	13.50	184
2015	6,445.39	1,772	1,806	4,639	14.50	320
2016	15,263.03	3,434	3,500	11,763	15.50	759
	84,101.78	29,777	30,344	53,758		4,161
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.9 4.95

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 14-L4						
NET SALVAGE PERCENT.. 0						
2001	22,361.85	20,669	22,247	115	1.60	72
2014	3,075.33	1,501	1,615	1,460	6.81	214
	25,437.18	22,170	23,862	1,575		286
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.5 1.12

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 393.00 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2004	2,003.72	1,653	1,381	623	3.50	178
2006	10,217.68	7,408	6,188	4,030	5.50	733
2012	4,924.86	2,093	1,748	3,177	11.50	276
2013	12,359.83	4,635	3,872	8,488	12.50	679
2014	3,717.68	1,208	1,009	2,709	13.50	201
2015	5,714.67	1,572	1,313	4,402	14.50	304
2020	200,000.00	5,000	4,177	195,823	19.50	10,042
	238,938.44	23,569	19,688	219,250		12,413
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						17.7 5.20

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 394.00 LABORATORY EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2006	11,516.01	11,132	7,248	4,268	0.50	4,268
2007	10,430.63	9,388	6,112	4,319	1.50	2,879
2008	20,243.21	16,869	10,984	9,259	2.50	3,704
2011	5,218.83	3,305	2,152	3,067	5.50	558
2014	14,748.07	6,391	4,161	10,587	8.50	1,246
2015	2,143.59	786	512	1,632	9.50	172
	64,300.34	47,871	31,169	33,132		12,827
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 2.6						19.95

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 396.00 COMMUNICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	3,604.32	2,283	2,429	1,175	5.50	214
2020	264,000.00	8,799	9,364	254,636	14.50	17,561
	267,604.32	11,082	11,793	255,811		17,775
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.4 6.64

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 397.00 MISCELLANEOUS EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2020

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2008	1,036.56	864	1,037			
2014	2,202.56	954	1,260	943	8.50	111
2020	330,000.00	10,999	14,523	315,477	14.50	21,757
	333,239.12	12,817	16,820	316,419		21,868
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.5 6.56

**PART VIII. EXPERIENCED AND ESTIMATED
NET SALVAGE**

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.20	15.07	1.51		1.51-
354.30	430.71	43.07		43.07-
354.40	22,009.05	2,200.90		2,200.90-
361.10	29,468.27	5,893.65		5,893.65-
361.20	4,714.92	942.98		942.98-
363.00	2,946.83	294.68		294.68-
393.00	5,003.96			
394.00	24,276.34			
397.00	1,000.48			
	89,865.63	9,376.79		9,376.79-
TOTAL	89,865.63	9,376.79		9,376.79-

EXHIBIT NO. 11-S - DEPRECIATION STUDY

WASTEWATER SSS EXETER OPERATIONS

AS OF DECEMBER 31, 2021

Exhibit No. 11-S
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS EXETER OPERATIONS

2021 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2021

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-S
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS EXETER OPERATIONS

2021 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2021

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2021. The results of our study at December 31, 2020 are presented in our report titled "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020". The same methods, procedures and estimates are used in both studies.

Summaries of the original cost, annual accruals, book depreciation reserve and amortization of net salvage are presented in Tables 1 through 5, beginning on page I-3 of the attached report.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

207 Senate Avenue • Camp Hill, PA 17011-2316

t: 717.763.7211 • f: 717.763.4590

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PART I. RESULTS OF STUDY

PENNSYLVANIA-AMERICAN WATER COMPANY

WASTEWATER SSS EXETER OPERATIONS

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Tables 1 through 5 presented on pages I-3 through I-7 summarize the results of the depreciation study as of December 31, 2021. Table 1 sets forth the development of the net original cost by account as of December 31, 2021. Table 2 sets forth, by depreciable group, the estimated survivor curve, original cost, book depreciation reserve as of December 31, 2021, future book accruals, calculated annual accrual amount and rate, and composite remaining life for plant in service. Table 3 presents the bringforward of the book reserve to December 31, 2021. Table 4 sets forth the calculation of the depreciation accruals for the twelve months ended December 31, 2021. Table 5 presents the annual amortization of experienced and estimated net salvage based on the period 2017 through 2021.

DESCRIPTION OF DETAILED TABULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-6. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount. The amounts of regular retirements, gross salvage and cost of removal are set forth by account for the years 2017 through 2021, beginning on page III-2.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2021

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2021 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2021 (6)
DEPRECIABLE PLANT					
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	71,424.71				71,424.71
354.30 STRUCTURES AND IMPROVEMENTS - SPP	2,180,185.03				2,180,185.03
354.40 STRUCTURES AND IMPROVEMENTS - TDP	104,203,025.21				104,203,025.21
355.00 POWER GENERATION EQUIPMENT	65,932.40				65,932.40
360.10 COLLECTION SEWERS - FORCE MAINS	1,327,403.11				1,327,403.11
361.10 COLLECTION SEWERS - GRAVITY MAINS	48,053,835.63				48,053,835.63
361.20 MANHOLES	11,451,568.26				11,451,568.26
363.00 SERVICES	25,360,113.46				25,360,113.46
364.00 FLOW MEASURING DEVICES	36,936.47				36,936.47
365.00 FLOW MEASURING INSTALLATIONS	227,265.28				227,265.28
371.00 PUMPING EQUIPMENT	840,166.45				840,166.45
380.00 TREATMENT EQUIPMENT	1,026,217.76				1,026,217.76
389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	200,000.00				200,000.00
390.00 OFFICE FURNITURE AND EQUIPMENT	84,101.78				84,101.78
391.00 TRANSPORTATION EQUIPMENT	25,437.18				25,437.18
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	438,938.44				438,938.44
394.00 LABORATORY EQUIPMENT	52,784.33				52,784.33
396.00 COMMUNICATION EQUIPMENT	267,604.32				267,604.32
397.00 MISCELLANEOUS EQUIPMENT	333,239.12				333,239.12
TOTAL DEPRECIABLE PLANT	196,246,178.94	0.00	0.00	0.00	196,246,178.94
NONDEPRECIABLE PLANT					
353.20 LAND AND LAND RIGHTS - COLLECTION	749,404.75				749,404.75
353.30 LAND AND LAND RIGHTS - SPP	99,930.18				99,930.18
353.40 LAND AND LAND RIGHTS - TDP	2,261,697.09				2,261,697.09
TOTAL NONDEPRECIABLE PLANT	3,111,032.02	0.00	0.00	0.00	3,111,032.02
TOTAL UTILITY PLANT	199,357,210.96	0.00	0.00	0.00	199,357,210.96



PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND
CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2021

	(1) DEPRECIABLE GROUP	(2) SURVIVOR CURVE	(3) ORIGINAL COST AS OF DECEMBER 31, 2021	(4) BOOK RESERVE	(5) FUTURE ACCRUALS	(6) CALCULATED ANNUAL ACCRUAL AMOUNT	(7)=(6)/(3) ANNUAL ACCRUAL RATE	(8) COMPOSITE REMAINING LIFE
DEPRECIABLE PLANT								
354.20	STRUCTURES AND IMPROVEMENTS - COLLECTION	45-R3	71,424.71	3,625	67,800	1,846	2.58	36.7
354.30	STRUCTURES AND IMPROVEMENTS - SPP	55-S0	2,180,185.03	1,085,324	1,094,861	37,599	1.72	29.1
354.40	STRUCTURES AND IMPROVEMENTS - TDP	55-S0	104,203,025.21	61,948,791	42,254,234	1,621,941	1.56	26.1
355.00	POWER GENERATION EQUIPMENT	35-S0.5	65,932.40	46,065	19,867	1,489	2.26	13.3
360.10	COLLECTION SEWERS - FORCE MAINS	75-R3	1,327,403.11	474,720	852,684	18,539	1.40	46.0
361.10	COLLECTION SEWERS - GRAVITY MAINS	80-R2.5	48,053,835.63	22,391,129	25,662,707	655,938	1.37	39.1
361.20	MANHOLES	50-S2.5	11,451,588.26	5,790,187	5,661,382	395,778	3.46	14.3
363.00	SERVICES	47-R3	25,360,113.46	16,493,069	8,867,045	694,636	2.74	12.8
364.00	FLOW MEASURING DEVICES	15-L2.5	36,936.47	23,403	13,533	3,395	9.19	4.0
365.00	FLOW MEASURING INSTALLATIONS	25-S2	227,265.28	185,387	41,878	10,214	4.49	4.1
371.00	PUMPING EQUIPMENT	30-S0.5	840,166.45	251,384	588,783	35,642	4.24	16.5
380.00	TREATMENT EQUIPMENT	35-S1.5	1,026,217.76	49,050	977,168	38,458	3.75	25.4
389.60	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	5-SQ	200,000.00	1,667	198,333	44,074	22.04	4.5
390.00	OFFICE FURNITURE AND EQUIPMENT	20-SQ	84,101.78	34,507	49,595	4,161	4.95	11.9
391.00	TRANSPORTATION EQUIPMENT	14-L4	25,437.18	24,147	1,290	240	0.94	5.4
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	20-SQ	438,938.44	36,295	402,644	22,413	5.11	18.0
394.00	LABORATORY EQUIPMENT	15-SQ	52,784.33	31,236	21,548	8,579	16.25	2.5
396.00	COMMUNICATION EQUIPMENT	15-SQ	267,604.32	29,562	238,042	17,785	6.65	13.4
397.00	MISCELLANEOUS EQUIPMENT	15-SQ	333,239.12	38,681	294,558	21,883	6.57	13.5
	TOTAL DEPRECIABLE PLANT		196,246,178.94	108,938,227	87,307,952	3,634,610	1.85	24.0
NONDEPRECIABLE PLANT								
353.20	LAND AND LAND RIGHTS - COLLECTION		749,404.75					
353.30	LAND AND LAND RIGHTS - SPP		99,930.18					
353.40	LAND AND LAND RIGHTS - TDP		2,261,697.09					
	TOTAL NONDEPRECIABLE PLANT		3,111,032.02					
AMORTIZATION OF NET SALVAGE								
	TOTAL UTILITY PLANT		199,357,210.96	108,938,227	87,307,952	8,470		
						3,643,080		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2021, OF BOOK RESERVE AS OF DECEMBER 31, 2020

ACCOUNT (1)	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2020 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2021 (8)
354.20	1,849		1,839		58		6						3,625
354.30	1,052,049		35,108		1,666		167						1,085,324
354.40	60,420,467		1,621,983		85,144		8,514						61,948,791
355.00	44,496		1,569										46,065
360.10	456,003		18,716										474,720
361.10	21,829,695		649,446		73,343		14,669						22,391,129
361.20	5,377,453		418,601		4,890		978						5,790,187
363.00	15,756,943		739,487		3,056		306						16,493,069
364.00	18,945		4,458										23,403
365.00	173,069		12,318										185,387
371.00	260,313		17,888		23,319		3,498						251,384
380.00	65,384		20,778		32,271		4,841						49,050
389.60	0		1,667										1,667
390.00	30,344		4,163										34,507
391.00	23,862		285										24,147
393.00	19,688		16,606										36,295
394.00	31,169		11,583		11,516								31,236
396.00	11,793		17,769										29,562
397.00	16,820		21,860										38,681
TOTAL	105,590,343		3,616,126		235,264		32,978		0		0		108,938,227

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2021

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2020 (2)	NET ORIGINAL COST AS OF 12/31/2021 (3)	ACCRUAL RATE (4)	DEPRECIATION ACCRUALS (5)*	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS (7)=(5)+(6)
354.20	70,529.38	71,424.71	2.60	1,839		1,839
354.30	2,045,541.67	2,180,185.03	1.69	35,099	9	35,108
354.40	103,004,134.28	104,203,025.21	1.57	1,621,543	440	1,621,983
355.00	65,932.40	65,932.40	2.38	1,569		1,569
360.10	1,327,403.11	1,327,403.11	1.41	18,716		18,716
361.10	46,907,178.98	48,053,835.63	1.37	648,267	1,179	649,446
361.20	11,356,457.82	11,451,568.26	3.67	418,412	189	418,601
363.00	25,288,169.43	25,360,113.46	2.92	739,428	59	739,487
364.00	36,936.47	36,936.47	12.07	4,458		4,458
365.00	227,265.28	227,265.28	5.42	12,318		12,318
371.00	481,953.10	840,166.45	3.60	17,888		17,888
380.00	530,488.83	1,026,217.76	3.77	20,778		20,778
389.60	0.00	200,000.00	20.00	1,667		1,667
390.00	84,101.78	84,101.78	4.95	4,163		4,163
391.00	25,437.18	25,437.18	1.12	285		285
393.00	238,938.44	438,938.44	5.20	16,606		16,606
394.00	64,300.34	52,784.33	19.95	11,583		11,583
396.00	267,604.32	267,604.32	6.64	17,769		17,769
397.00	333,239.12	333,239.12	6.56	21,860		21,860
TOTAL	192,355,611.93	196,246,178.94		3,614,250	1,876	3,616,126

* Total accruals shown are based on average monthly balances.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2017		2018		2019		PROJECTED 2020		PROJECTED 2021		NET SALVAGE (12)*	SALVAGE ACCRUAL (13)=(12)/5
	GROSS SALVAGE - (2)	COST OF REMOVAL (3)	GROSS SALVAGE - (4)	COST OF REMOVAL (5)	GROSS SALVAGE - (6)	COST OF REMOVAL (7)	GROSS SALVAGE - (8)	COST OF REMOVAL (9)	GROSS SALVAGE - (10)	COST OF REMOVAL (11)		
354.20							2			6	(7)	(1)
354.30						43				167	(210)	(42)
354.40						2,201				8,514	(10,715)	(2,143)
361.10						5,894				14,669	(20,562)	(4,112)
361.20						943				978	(1,921)	(384)
363.00						295				306	(600)	(120)
371.00										3,498	(3,498)	(700)
380.00										4,841	(4,841)	(968)
TOTAL	0	0	0	0	0	9,377	0	0	0	32,978	(42,354)	(8,470)

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1965						0.0
1966	35,853,632	23,850,366	12,003,266		12,003,266	13.7
1967	23,930,910	18,372,664	5,558,246		17,561,512	20.1
1970	1,312,778	845,088	467,690		18,029,202	20.7
1975	4,744,808	2,894,673	1,850,135		19,879,337	22.8
1977					19,879,337	22.8
1978	20,493,743	13,952,593	6,541,150		26,420,487	30.3
1980	951,080	525,179	425,901		26,846,388	30.7
1984					26,846,388	30.7
1985	4,805,476	2,477,131	2,328,345		29,174,733	33.4
1986	244,911	147,856	97,055		29,271,788	33.5
1987	1,737,547	863,663	873,884		30,145,672	34.5
1990	8,828,314	4,130,378	4,697,936		34,843,608	39.9
1991	236,006	192,150	43,856		34,887,464	40.0
1992	52,109,604	27,958,071	24,151,533		59,038,997	67.6
1993	2,046,341	1,174,760	871,581		59,910,578	68.6
1995	18,523,914	7,491,092	11,032,822		70,943,400	81.3
1996					70,943,400	81.3
1997	121,038	62,791	58,247		71,001,647	81.3
1998					71,001,647	81.3
2000	1,163,845	392,575	771,270		71,772,917	82.2
2001	22,362	22,321	41		71,772,958	82.2
2002	622,673	253,383	369,290		72,142,248	82.6
2003					72,142,248	82.6
2004	221,672	89,301	132,371		72,274,619	82.8
2005	3,714,320	991,956	2,722,364		74,996,983	85.9
2006	54,785	28,616	26,169		75,023,152	85.9
2007	10,431	7,823	2,608		75,025,760	85.9
2008	45,714	19,325	26,389		75,052,149	86.0
2010	6,543,603	1,753,008	4,790,595		79,842,744	91.4
2011	29,840	14,765	15,075		79,857,819	91.5
2012	822,766	125,613	697,153		80,554,972	92.3
2013	252,140	50,318	201,822		80,756,794	92.5
2014	314,500	45,494	269,006		81,025,800	92.8
2015	72,164	9,651	62,513		81,088,313	92.9
2016	152,254	22,033	130,221		81,218,534	93.0
2017	22,875	1,906	20,969		81,239,503	93.0

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST	PCT OF
			(2)	(3)	CUMULATIVE AMOUNT (5)	COL 4 TOTAL (6)
2019	254,549	10,408	244,141		81,483,644	93.3
2020	1,859,753	110,453	1,749,300		83,232,944	95.3
2021	4,125,831	50,823	4,075,008		87,307,952	100.0
SUBTOTAL	196,246,179	108,938,227	87,307,952			
NONDEPRECIABLE	3,111,032		3,111,032			
TOTAL	199,357,211	108,938,227	90,418,984			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R3						
NET SALVAGE PERCENT.. 0						
2019	70,215.63	4,480	3,607	66,609	36.71	1,814
2020	255.47	10	8	247	37.41	7
2021	953.61	12	10	944	37.67	25
	71,424.71	4,502	3,625	67,800		1,846
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						36.7 2.58

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1993	1,683,788.13	849,303	940,894	742,894	28.00	26,532
1997	103,882.00	47,599	52,732	51,150	28.97	1,766
2004	219,668.53	79,191	87,731	131,938	31.04	4,251
2020	36,536.78	1,564	1,733	34,804	33.59	1,036
2021	136,309.59	2,017	2,234	134,075	33.40	4,014
	2,180,185.03	979,674	1,085,324	1,094,861		37,599
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						29.1 1.72

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.40 STRUCTURES AND IMPROVEMENTS - TDP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1967	23,930,910.08	17,608,364	18,372,664	5,558,246	19.57	284,019
1978	20,493,742.90	13,372,167	13,952,593	6,541,150	23.17	282,311
1986	244,910.96	141,705	147,856	97,055	25.85	3,755
1992	51,066,158.66	26,360,351	27,504,535	23,561,624	27.65	852,138
2002	622,673.00	242,842	253,383	369,290	30.50	12,108
2010	6,033,436.54	1,581,967	1,650,632	4,382,805	32.36	135,439
2013	54,261.57	11,113	11,595	42,667	33.00	1,293
2014	31,220.39	5,760	6,010	25,210	33.15	760
2016	97,496.15	13,727	14,323	83,173	33.56	2,478
2020	344,179.55	14,731	15,371	328,809	33.59	9,789
2021	1,284,035.41	19,004	19,829	1,264,207	33.40	37,851
	104,203,025.21	59,371,731	61,948,791	42,254,234		1,621,941
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						26.1 1.56

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1993	65,932.40	44,913	46,065	19,867	13.34	1,489
	65,932.40	44,913	46,065	19,867		1,489
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.3 2.26

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1990	29,313.30	12,927	13,556	15,757	39.93	395
1995	933,686.32	351,346	368,455	565,231	43.92	12,870
2005	364,403.49	88,404	92,709	271,695	51.52	5,274
	1,327,403.11	452,677	474,720	852,684		18,539
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						46.0 1.40

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1966	21,666,994.34	14,070,546	13,142,521	8,524,473	29.97	284,434
1970	784,185.63	484,627	452,663	331,523	31.83	10,415
1975	2,647,461.60	1,514,348	1,414,469	1,232,993	34.80	35,431
1980	587,602.84	307,258	286,993	300,610	37.87	7,938
1985	2,682,735.40	1,263,032	1,179,729	1,503,006	41.02	36,641
1987	934,827.80	419,270	391,617	543,211	42.42	12,806
1990	4,415,980.75	1,836,165	1,715,060	2,700,921	44.26	61,024
1992	579,246.45	227,296	212,305	366,941	45.68	8,033
1995	8,795,950.43	3,147,191	2,939,618	5,856,332	47.57	123,110
2000	589,484.02	174,900	163,364	426,120	50.96	8,362
2005	1,589,266.54	369,663	345,282	1,243,985	54.43	22,855
2008	15,444.88	2,981	2,784	12,661	56.43	224
2010	222,308.43	37,081	34,635	187,673	57.46	3,266
2012	628,229.13	87,701	81,917	546,312	58.53	9,334
2019	184,332.94	7,281	6,801	177,532	60.79	2,920
2020	509,784.45	12,388	11,571	498,213	60.23	8,272
2021	1,220,000.00	10,492	9,800	1,210,200	57.98	20,873
	48,053,835.63	23,972,220	22,391,129	25,662,707		655,938
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						39.1 1.37

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1966	4,618,002.49	3,998,267	2,919,158	1,698,844	8.60	197,540
1970	147,177.12	123,540	90,197	56,980	9.85	5,785
1975	599,430.13	482,182	352,044	247,386	11.31	21,873
1980	118,965.81	89,855	65,604	53,362	13.45	3,967
1985	598,803.22	419,641	306,382	292,421	15.58	18,769
1987	216,999.60	145,997	106,593	110,407	16.78	6,580
1990	1,270,605.77	800,482	584,437	686,169	18.50	37,090
1992	138,736.11	83,075	60,654	78,082	19.76	3,952
1995	2,686,708.48	1,480,914	1,081,224	1,605,484	21.58	74,397
2000	167,124.94	76,543	55,884	111,241	25.45	4,371
2005	521,873.41	186,831	136,406	385,467	29.59	13,027
2010	90,829.10	22,980	16,778	74,051	33.95	2,181
2012	75,332.99	15,745	11,496	63,837	35.95	1,776
2015	979.09	141	103	876	38.75	23
2020	100,000.00	3,320	2,424	97,576	43.75	2,230
2021	100,000.00	1,100	803	99,197	44.75	2,217
	11,451,568.26	7,930,613	5,790,187	5,661,382		395,778
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.3 3.46

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
1966	9,568,635.16	8,655,787	7,788,687	1,779,948	5.85	304,265
1970	381,415.38	335,874	302,228	79,187	6.98	11,345
1975	1,497,916.02	1,253,756	1,128,160	369,756	9.06	40,812
1980	244,511.58	191,795	172,582	71,930	11.41	6,304
1985	1,523,937.08	1,101,349	991,020	532,917	14.01	38,038
1987	585,719.51	406,138	365,453	220,267	15.25	14,444
1990	3,112,414.04	2,019,645	1,817,325	1,295,089	17.04	76,003
1992	325,463.01	200,680	180,577	144,886	18.34	7,900
1995	6,107,569.07	3,447,112	3,101,795	3,005,774	20.45	146,982
2000	407,236.20	192,623	173,327	233,909	23.95	9,767
2005	1,238,776.63	464,046	417,559	821,218	27.55	29,808
2010	186,757.04	50,051	45,037	141,720	31.42	4,511
2012	29,766.31	6,644	5,979	23,787	33.06	720
2020	74,996.43	2,767	2,490	72,506	39.15	1,852
2021	75,000.00	945	850	74,150	39.34	1,885
	25,360,113.46	18,329,212	16,493,069	8,867,045		694,636
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.8 2.74

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1991	8,740.98	8,211	6,763	1,978	1.97	1,004
2006	9,162.75	7,158	5,896	3,267	4.34	753
2010	10,272.31	7,195	5,926	4,346	4.92	883
2011	8,760.43	5,850	4,818	3,942	5.22	755
	36,936.47	28,414	23,403	13,533		3,395
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.0 9.19

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 25-S2						
NET SALVAGE PERCENT.. 0						
1991	227,265.28	200,312	185,387	41,878	4.10	10,214
	227,265.28	200,312	185,387	41,878		10,214
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.1 4.49

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1993	296,620.69	218,965	187,801	108,820	10.11	10,764
1997	17,155.72	11,728	10,059	7,097	11.34	626
2006	35,404.52	18,219	15,626	19,779	14.62	1,353
2011	10,006.61	3,888	3,335	6,672	16.53	404
2012	31,755.89	11,432	9,805	21,951	16.89	1,300
2013	22,241.43	7,335	6,291	15,950	17.27	924
2014	29,801.50	8,875	7,612	22,190	17.69	1,254
2015	3,723.72	983	843	2,881	18.13	159
2016	6,104.45	1,397	1,198	4,906	18.54	265
2017	5,819.52	1,119	960	4,860	18.92	257
2021	381,532.40	9,157	7,854	373,679	20.38	18,336
	840,166.45	293,098	251,384	588,783		35,642
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.5						4.24

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S1.5						
NET SALVAGE PERCENT.. 0						
2008	8,989.33	3,786	1,375	7,614	18.55	410
2012	30,082.26	9,316	3,385	26,697	21.17	1,261
2013	129,516.96	36,213	13,156	116,361	21.90	5,313
2014	226,025.89	56,280	20,447	205,579	22.62	9,088
2015	53,157.25	11,540	4,193	48,964	23.44	2,089
2016	33,390.80	6,191	2,249	31,142	24.17	1,288
2017	17,055.27	2,603	946	16,109	25.00	644
2021	528,000.00	9,082	3,299	524,701	28.57	18,365
	1,026,217.76	135,011	49,050	977,168		38,458
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						25.4 3.75

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 5-SQUARE						
NET SALVAGE PERCENT.. 0						
2021	200,000.00	20,000	1,667	198,333	4.50	44,074
	200,000.00	20,000	1,667	198,333		44,074
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 4.5						22.04

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 390.00 OFFICE FURNITURE AND EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	2,249.52	1,181	1,199	1,051	9.50	111
2012	22,674.60	10,770	10,936	11,739	10.50	1,118
2013	33,760.20	14,348	14,570	19,190	11.50	1,669
2014	3,709.04	1,391	1,412	2,297	12.50	184
2015	6,445.39	2,095	2,127	4,318	13.50	320
2016	15,263.03	4,197	4,263	11,000	14.50	759
	84,101.78	33,982	34,507	49,595		4,161
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						11.9 4.95

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 14-L4						
NET SALVAGE PERCENT.. 0						
2001	22,361.85	20,949	22,321	41	1.38	30
2014	3,075.33	1,714	1,826	1,249	5.96	210
	25,437.18	22,663	24,147	1,290		240
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.4 0.94

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 393.00 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2004	2,003.72	1,753	1,570	434	2.50	174
2006	10,217.68	7,919	7,094	3,124	4.50	694
2012	4,924.86	2,339	2,095	2,830	10.50	270
2013	12,359.83	5,253	4,706	7,654	11.50	666
2014	3,717.68	1,394	1,249	2,469	12.50	198
2015	5,714.67	1,857	1,664	4,051	13.50	300
2020	200,000.00	15,000	13,438	186,562	18.50	10,084
2021	200,000.00	5,000	4,479	195,521	19.50	10,027
	438,938.44	40,515	36,295	402,644		22,413

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 18.0 5.11

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 394.00 LABORATORY EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2007	10,430.63	10,083	7,823	2,608	0.50	2,608
2008	20,243.21	18,219	14,136	6,107	1.50	4,071
2011	5,218.83	3,653	2,834	2,385	4.50	530
2014	14,748.07	7,374	5,722	9,026	7.50	1,203
2015	2,143.59	929	721	1,423	8.50	167
	52,784.33	40,258	31,236	21,548		8,579
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						2.5 16.25

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 396.00 COMMUNICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	3,604.32	2,523	2,579	1,025	4.50	228
2020	264,000.00	26,400	26,983	237,017	13.50	17,557
	267,604.32	28,923	29,562	238,042		17,785
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.4 6.65

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 397.00 MISCELLANEOUS EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2021

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2008	1,036.56	933	1,030	7	1.50	5
2014	2,202.56	1,101	1,216	987	7.50	132
2020	330,000.00	33,000	36,435	293,565	13.50	21,746
	333,239.12	35,034	38,681	294,558		21,883
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.5 6.57

PART III. EXPERIENCED AND ESTIMATED NET SALVAGE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.20	15.07	1.51		1.51-
354.30	430.71	43.07		43.07-
354.40	22,009.05	2,200.90		2,200.90-
361.10	29,468.27	5,893.65		5,893.65-
361.20	4,714.92	942.98		942.98-
363.00	2,946.83	294.68		294.68-
393.00	5,003.96			
394.00	24,276.34			
397.00	1,000.48			
	89,865.63	9,376.79		9,376.79-
2021 TRANSACTION YEAR				
354.20	58.28	5.83		5.83-
354.30	1,666.23	166.62		166.62-
354.40	85,144.48	8,514.45		8,514.45-
361.10	73,343.35	14,668.67		14,668.67-
361.20	4,889.56	977.91		977.91-
363.00	3,055.97	305.60		305.60-
371.00	23,319.05	3,497.86		3,497.86-
380.00	32,271.07	4,840.66		4,840.66-
394.00	11,516.01			
	235,264.00	32,977.60		32,977.60-
TOTAL	325,129.63	42,354.39		42,354.39-

EXHIBIT NO. 11-T - DEPRECIATION STUDY

WASTEWATER SSS EXETER OPERATIONS

AS OF DECEMBER 31, 2022

Exhibit No. 11-T
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

MECHANICSBURG, PENNSYLVANIA

WASTEWATER SSS EXETER OPERATIONS

2022 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO WASTEWATER PLANT

AS OF DECEMBER 31, 2022

Prepared by:



Gannett Fleming

*Excellence Delivered **As Promised***

Exhibit No. 11-T
Witness: J. J. Spanos

PENNSYLVANIA-AMERICAN WATER COMPANY

Mechanicsburg, Pennsylvania

WASTEWATER SSS EXETER OPERATIONS

2022 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO WASTEWATER PLANT
AS OF DECEMBER 31, 2022

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

Camp Hill, Pennsylvania



*Excellence Delivered **As Promised***

April 22, 2020

Pennsylvania-American Water Company
852 Wesley Drive
Mechanicsburg, PA 17055

Attention: Ashley E. Everette
Director, Rates & Regulatory

Ladies and Gentlemen:

Pursuant to your request, we have determined the annual depreciation accruals applicable to wastewater plant as of December 31, 2022. The results of our study at December 31, 2020 are presented in our report titled "2020 Depreciation Study - Calculated Annual Depreciation Accruals Related to Wastewater Plant as of December 31, 2020". The same methods, procedures and estimates are used in both studies.

Summaries of the original cost, annual accruals, book depreciation reserve and amortization of net salvage are presented in Tables 1 through 5, beginning on page I-3 of the attached report.

Respectfully submitted,

GANNETT FLEMING VALUATION
AND RATE CONSULTANTS, LLC

A handwritten signature in black ink that reads "John J. Spanos".

JOHN J. SPANOS
President

JJS:mle

066548.100

Gannett Fleming Valuation and Rate Consultants, LLC

207 Senate Avenue • Camp Hill, PA 17011-2316

t: 717.763.7211 • f: 717.763.4590

www.gfvrc.com

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PART I. RESULTS OF STUDY

PENNSYLVANIA-AMERICAN WATER COMPANY

WASTEWATER SSS EXETER OPERATIONS

DEPRECIATION STUDY

PART I. RESULTS OF STUDY

DESCRIPTION OF SUMMARY TABULATIONS

Tables 1 through 5 presented on pages I-3 through I-7 summarize the results of the depreciation study as of December 31, 2022. Table 1 sets forth the development of the net original cost by account as of December 31, 2022. Table 2 sets forth, by depreciable group, the estimated survivor curve, original cost, book depreciation reserve as of December 31, 2022, future book accruals, calculated annual accrual amount and rate, and composite remaining life for plant in service. Table 3 presents the bringforward of the book reserve to December 31, 2022. Table 4 sets forth the calculation of the depreciation accruals for the twelve months ended December 31, 2022. Table 5 presents the annual amortization of experienced and estimated net salvage based on the period 2018 through 2022.

DESCRIPTION OF DETAILED TABULATIONS

The supporting data for the depreciation calculations are presented in account sequence in the section beginning on page II-6. The original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual are shown for each vintage of each account or subaccount. The amounts of regular retirements, gross salvage and cost of removal are set forth by account for the years 2018 through 2022, beginning on page III-2.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 1. DEVELOPMENT OF NET ORIGINAL COST AS OF DECEMBER 31, 2022

DEPRECIABLE GROUP (1)	ORIGINAL COST AS OF DECEMBER 31, 2022 (2)	CUSTOMER ADVANCES (3)	CONTRIBUTIONS IN AID OF CONSTRUCTION (4)	EXCLUDED PROPERTY (5)	NET ORIGINAL COST AS OF DECEMBER 31, 2022 (6)
DEPRECIABLE PLANT					
354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION	71,673.85				71,673.85
354.30 STRUCTURES AND IMPROVEMENTS - SPP	2,218,764.25				2,218,764.25
354.40 STRUCTURES AND IMPROVEMENTS - TDP	104,535,522.46				104,535,522.46
355.00 POWER GENERATION EQUIPMENT	65,932.40				65,932.40
360.10 COLLECTION SEWERS - FORCE MAINS	1,327,403.11				1,327,403.11
361.10 COLLECTION SEWERS - GRAVITY MAINS	49,387,060.34				49,387,060.34
361.20 MANHOLES	11,488,738.43				11,488,738.43
363.00 SERVICES	25,430,397.07				25,430,397.07
364.00 FLOW MEASURING DEVICES	36,936.47				36,936.47
365.00 FLOW MEASURING INSTALLATIONS	227,265.28				227,265.28
371.00 PUMPING EQUIPMENT	840,166.45				840,166.45
380.00 TREATMENT EQUIPMENT	1,026,217.76				1,026,217.76
389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	1,437,040.00				1,437,040.00
390.00 OFFICE FURNITURE AND EQUIPMENT	94,101.78				94,101.78
391.00 TRANSPORTATION EQUIPMENT	25,437.18				25,437.18
393.00 TOOLS, SHOP AND GARAGE EQUIPMENT	458,938.44				458,938.44
394.00 LABORATORY EQUIPMENT	42,353.70				42,353.70
396.00 COMMUNICATION EQUIPMENT	277,604.32				277,604.32
397.00 MISCELLANEOUS EQUIPMENT	343,239.12				343,239.12
TOTAL DEPRECIABLE PLANT	199,334,792.41	0.00	0.00	0.00	199,334,792.41
NONDEPRECIABLE PLANT					
353.20 LAND AND LAND RIGHTS - COLLECTION	749,404.75				749,404.75
353.30 LAND AND LAND RIGHTS - SPP	99,930.18				99,930.18
353.40 LAND AND LAND RIGHTS - TDP	2,261,697.09				2,261,697.09
TOTAL NONDEPRECIABLE PLANT	3,111,032.02	0.00	0.00	0.00	3,111,032.02
TOTAL UTILITY PLANT	202,445,824.43	0.00	0.00	0.00	202,445,824.43

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 2. SUMMARY OF ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK RESERVE, AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO WASTEWATER PLANT AS OF DECEMBER 31, 2022

	DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	ORIGINAL COST AS OF DECEMBER 31, 2022 (3)	BOOK RESERVE (4)	FUTURE ACCRUALS (5)	CALCULATED ANNUAL ACCRUAL AMOUNT (6)	CALCULATED ANNUAL ACCRUAL RATE (7)=(6)/(3)	COMPOSITE REMAINING LIFE (8)
DEPRECIABLE PLANT								
354.20	STRUCTURES AND IMPROVEMENTS - COLLECTION	45-R3	71,673.85	5,442	66,232	1,838	2.56	36.0
354.30	STRUCTURES AND IMPROVEMENTS - SPP	55-S0	2,218,764.25	1,122,293	1,096,471	37,823	1.70	29.0
354.40	STRUCTURES AND IMPROVEMENTS - TDP	55-S0	104,535,522.46	63,536,707	40,998,816	1,586,643	1.52	25.8
355.00	POWER GENERATION EQUIPMENT	35-S0.5	65,932.40	47,556	18,377	1,407	2.13	13.1
360.10	COLLECTION SEWERS - FORCE MAINS	75-R3	1,327,403.11	493,303	834,100	18,482	1.39	45.1
361.10	COLLECTION SEWERS - GRAVITY MAINS	80-R2.5	49,387,060.34	22,895,896	26,491,164	675,442	1.37	39.2
361.20	MANHOLES	50-S2.5	11,488,738.43	6,184,024	5,304,714	373,877	3.25	14.2
363.00	SERVICES	47-R3	25,430,397.07	17,183,797	8,246,601	652,321	2.57	12.6
364.00	FLOW MEASURING DEVICES	15-L2.5	36,936.47	26,797	10,139	2,564	6.94	4.0
365.00	FLOW MEASURING INSTALLATIONS	25-S2	227,265.28	195,591	31,674	8,248	3.63	3.8
371.00	PUMPING EQUIPMENT	30-S0.5	840,166.45	287,707	552,460	33,870	4.03	16.3
380.00	TREATMENT EQUIPMENT	35-S1.5	1,026,217.76	88,501	937,717	38,030	3.71	24.7
389.60	OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS	5-SQ	1,437,040.00	57,107	1,379,933	318,166	22.14	4.3
390.00	OFFICE FURNITURE AND EQUIPMENT	20-SQ	94,101.78	38,732	55,370	4,676	4.97	11.8
391.00	TRANSPORTATION EQUIPMENT	14-L4	25,437.18	24,386	1,051	204	0.80	5.2
393.00	TOOLS, SHOP AND GARAGE EQUIPMENT	20-SQ	458,938.44	58,767	400,171	23,416	5.10	17.1
394.00	LABORATORY EQUIPMENT	15-SQ	42,353.70	28,465	13,889	5,191	12.26	2.7
396.00	COMMUNICATION EQUIPMENT	15-SQ	277,604.32	47,385	230,219	18,480	6.66	12.5
397.00	MISCELLANEOUS EQUIPMENT	15-SQ	343,239.12	60,602	282,637	22,571	6.58	12.5
	TOTAL DEPRECIABLE PLANT		199,334,792.41	112,383,058	86,951,735	3,823,249	1.92	22.7
NONDEPRECIABLE PLANT								
353.20	LAND AND LAND RIGHTS - COLLECTION		749,404.75					
353.30	LAND AND LAND RIGHTS - SPP		99,930.18					
353.40	LAND AND LAND RIGHTS - TDP		2,261,697.09					
	TOTAL NONDEPRECIABLE PLANT		3,111,032.02			14,922		
AMORTIZATION OF NET SALVAGE								
	TOTAL UTILITY PLANT		202,445,824.43	112,383,058	86,951,735	3,838,171		

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 3. BRINGFORWARD TO DECEMBER 31, 2022, OF BOOK RESERVE AS OF DECEMBER 31, 2021

ACCOUNT (1)	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2021 (2)	+	PROJECTED DEPRECIATION ACCRUALS (3)	-	PROJECTED RETIREMENTS (4)	-	+	PROJECTED COST OF REMOVAL (5)	+	PROJECTED SALVAGE (6)	+	ACQUISITIONS (7)	=	PROJECTED BOOK RESERVE BALANCE AS OF 12/31/2022 (8)
354.20	3,625		1,846		26			3						5,442
354.30	1,085,324		37,785		742			74						1,122,293
354.40	61,948,791		1,629,613		37,907			3,791						63,536,707
355.00	46,065		1,490											47,556
360.10	474,720		18,584											493,303
361.10	22,391,129		668,897		136,775			27,355						22,895,896
361.20	5,790,187		397,233		2,830			566						6,184,024
363.00	16,493,069		695,916		4,716			472						17,183,797
364.00	23,403		3,394											26,797
365.00	185,387		10,204											195,591
371.00	251,384		36,323											287,707
380.00	49,050		39,451											88,501
389.60	1,667		55,440											57,107
390.00	34,507		4,225											38,732
391.00	24,147		239											24,386
393.00	36,295		22,472											58,767
394.00	31,236		7,659		10,431									28,465
396.00	29,562		17,823											47,385
397.00	38,681		21,921											60,602
TOTAL	108,938,227		3,670,517		193,427			32,260		0				112,383,058

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 4. CALCULATION OF DEPRECIATION ACCRUALS FOR THE TWELVE MONTHS ENDED DECEMBER 31, 2022

ACCOUNT (1)	NET ORIGINAL COST AS OF 12/31/2021 (2)	NET ORIGINAL COST AS OF 12/31/2022 (3)	ACCRUAL RATE (4)	DEPRECIATION ACCRUALS (5)*	AMORTIZATION OF NET SALVAGE (6)	PROJECTED DEPRECIATION ACCRUALS (7)=(5)+(6)
354.20	71,424.71	71,673.85	2.58	1,845	1	1,846
354.30	2,180,185.03	2,218,764.25	1.72	37,743	42	37,785
354.40	104,203,025.21	104,535,522.46	1.56	1,627,470	2,143	1,629,613
355.00	65,932.40	65,932.40	2.26	1,490		1,490
360.10	1,327,403.11	1,327,403.11	1.40	18,584		18,584
361.10	48,053,835.63	49,387,060.34	1.37	664,785	4,112	668,897
361.20	11,451,568.26	11,488,738.43	3.46	396,849	384	397,233
363.00	25,360,113.46	25,430,397.07	2.74	695,796	120	695,916
364.00	36,936.47	36,936.47	9.19	3,394		3,394
365.00	227,265.28	227,265.28	4.49	10,204		10,204
371.00	840,166.45	840,166.45	4.24	35,623	700	36,323
380.00	1,026,217.76	1,026,217.76	3.75	38,483	968	39,451
389.60	200,000.00	1,437,040.00	22.04	55,440		55,440
390.00	84,101.78	94,101.78	4.95	4,225		4,225
391.00	25,437.18	25,437.18	0.94	239		239
393.00	438,938.44	458,938.44	5.11	22,472		22,472
394.00	52,784.33	42,353.70	16.25	7,659		7,659
396.00	267,604.32	277,604.32	6.65	17,823		17,823
397.00	333,239.12	343,239.12	6.57	21,921		21,921
TOTAL	196,246,178.94	199,334,792.41		3,662,047	8,470	3,670,517

* Total accruals shown are based on average monthly balances.

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

TABLE 5. AMORTIZATION OF EXPERIENCED AND ESTIMATED NET SALVAGE

ACCOUNT (1)	2018		PROJECTED 2020		PROJECTED 2021		PROJECTED 2022		NET SALVAGE (12)*	SALVAGE ACCURAL (13)=(12)/5
	GROSS SALVAGE (2)	COST OF REMOVAL (3)	GROSS SALVAGE (4)	COST OF REMOVAL (5)	GROSS SALVAGE (8)	COST OF REMOVAL (9)	GROSS SALVAGE (10)	COST OF REMOVAL (11)		
354.20						6			(10)	(2)
354.30						167			(10)	(57)
354.40						8,514			(10)	(2,901)
361.10						14,669			(10)	(9,583)
361.20						978			(10)	(497)
363.00						306			(10)	(214)
371.00						3,498			(10)	(700)
380.00						4,841			(10)	(968)
TOTAL	0	0	0	0	9,377	32,978	0	32,260	(74,614)	(14,922)

* Column (12) equals the summation of Columns (2) through (11).

PART II. DETAILED DEPRECIATION CALCULATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST CUMULATIVE AMOUNT (5)	PCT OF COL 4 TOTAL (6)
			(2)	(3)		
1965						0.0
1966	35,758,358	24,478,706	11,279,652		11,279,652	13.0
1967	23,893,003	18,688,225	5,204,778		16,484,430	19.0
1970	1,309,773	865,145	444,628		16,929,058	19.5
1975	4,736,205	2,975,506	1,760,699		18,689,757	21.5
1977					18,689,757	21.5
1978	20,493,743	14,195,233	6,298,510		24,988,267	28.7
1980	949,499	540,925	408,574		25,396,841	29.2
1984					25,396,841	29.2
1985	4,799,380	2,565,143	2,234,237		27,631,078	31.8
1986	244,911	151,353	93,558		27,724,636	31.9
1987	1,735,561	896,327	839,234		28,563,870	32.9
1990	8,819,846	4,307,711	4,512,135		33,076,005	38.0
1991	236,006	203,186	32,820		33,108,825	38.1
1992	52,108,585	28,809,338	23,299,247		56,408,072	64.9
1993	2,045,599	1,215,138	830,461		57,238,533	65.8
1995	18,509,910	7,868,870	10,641,040		67,879,573	78.1
1996					67,879,573	78.1
1997	121,038	65,026	56,012		67,935,585	78.1
1998					67,935,585	78.1
2000	1,163,069	416,425	746,644		68,682,229	79.0
2001	22,362	22,362			68,682,229	79.0
2002	622,673	264,439	358,234		69,040,463	79.4
2003					69,040,463	79.4
2004	221,672	93,504	128,168		69,168,631	79.5
2005	3,712,579	1,066,292	2,646,287		71,814,918	82.6
2006	54,785	31,744	23,041		71,837,959	82.6
2008	45,700	23,027	22,673		71,860,632	82.6
2010	6,543,402	1,890,129	4,653,273		76,513,905	88.0
2011	29,840	16,933	12,907		76,526,812	88.0
2012	822,277	141,197	681,080		77,207,892	88.8
2013	252,140	62,745	189,395		77,397,287	89.0
2014	314,500	62,429	252,071		77,649,358	89.3
2015	72,164	13,445	58,719		77,708,077	89.4
2016	152,254	26,997	125,257		77,833,334	89.5
2017	22,875	2,864	20,011		77,853,345	89.5
2019	254,415	14,750	239,665		78,093,010	89.8

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

CUMULATIVE DEPRECIATED ORIGINAL COST BY YEAR INSTALLED
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR INST (1)	ORIGINAL COST (2)	ACCRUED DEPRECIATION (3)	AMOUNT		DEPRECIATED ORIGINAL COST	PCT OF
			(2)	(3)	CUMULATIVE AMOUNT (5)	COL 4 TOTAL (6)
2020	1,859,461	180,618	1,678,843		79,771,853	91.7
2021	4,125,166	167,993	3,957,173		83,729,026	96.3
2022	3,282,040	59,332	3,222,708		86,951,734	100.0
SUBTOTAL	199,334,792	112,383,058	86,951,735			
NONDEPRECIABLE	3,111,032		3,111,032			
TOTAL	202,445,824	112,383,058	90,062,767			

NET UTILITY PLANT IN SERVICE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.20 STRUCTURES AND IMPROVEMENTS - COLLECTION

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 45-R3						
NET SALVAGE PERCENT.. 0						
2019	70,190.03	6,219	5,393	64,797	36.02	1,799
2020	255.39	16	14	241	36.71	7
2021	953.34	37	32	921	37.41	25
2022	275.09	4	3	272	37.67	7
	71,673.85	6,276	5,442	66,232		1,838
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						36.0 2.56

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.30 STRUCTURES AND IMPROVEMENTS - SPP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1993	1,683,046.32	868,789	966,363	716,683	27.65	25,920
1997	103,882.00	48,741	54,215	49,667	28.85	1,722
2004	219,668.53	82,507	91,774	127,895	30.76	4,158
2020	36,536.78	2,521	2,804	33,733	33.73	1,000
2021	136,309.59	5,834	6,489	129,821	33.59	3,865
2022	39,321.03	582	648	38,673	33.40	1,158
	2,218,764.25	1,008,974	1,122,293	1,096,471		37,823
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 29.0						1.70

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 354.40 STRUCTURES AND IMPROVEMENTS - TDP

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 55-S0						
NET SALVAGE PERCENT.. 0						
1967	23,893,003.45	17,769,227	18,688,225	5,204,778	19.13	272,074
1978	20,493,742.90	13,497,179	14,195,233	6,298,510	23.07	273,017
1986	244,910.96	143,910	151,353	93,558	25.61	3,653
1992	51,066,158.66	26,942,505	28,335,930	22,730,229	27.31	832,304
2002	622,673.00	251,435	264,439	358,234	30.26	11,839
2010	6,033,436.54	1,689,362	1,776,733	4,256,704	32.14	132,443
2013	54,261.57	12,165	12,794	41,468	32.87	1,262
2014	31,220.39	6,394	6,725	24,495	33.00	742
2016	97,496.15	15,911	16,734	80,762	33.34	2,422
2020	344,179.55	23,748	24,976	319,204	33.73	9,464
2021	1,284,035.41	54,957	57,799	1,226,236	33.59	36,506
2022	370,403.88	5,482	5,766	364,638	33.40	10,917
	104,535,522.46	60,412,275	63,536,707	40,998,816		1,586,643
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						25.8 1.52

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 355.00 POWER GENERATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S0.5						
NET SALVAGE PERCENT.. 0						
1993	65,932.40	45,704	47,556	18,377	13.06	1,407
	65,932.40	45,704	47,556	18,377		1,407
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						13.1 2.13

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 360.10 COLLECTION SEWERS - FORCE MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 75-R3						
NET SALVAGE PERCENT.. 0						
1990	29,313.30	13,244	13,872	15,441	39.44	392
1995	933,686.32	364,605	381,908	551,778	42.92	12,856
2005	364,403.49	93,105	97,523	266,880	50.99	5,234
	1,327,403.11	470,954	493,303	834,100		18,482
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						45.1 1.39

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.10 COLLECTION SEWERS - GRAVITY MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 80-R2.5						
NET SALVAGE PERCENT.. 0						
1966	21,576,492.83	14,262,062	13,365,507	8,210,986	28.97	283,431
1970	781,325.60	488,172	457,484	323,842	31.53	10,271
1975	2,639,330.00	1,529,492	1,433,344	1,205,986	34.47	34,987
1980	586,087.61	311,330	291,759	294,329	37.50	7,849
1985	2,676,955.00	1,284,938	1,204,163	1,472,792	40.62	36,258
1987	932,954.11	427,293	400,432	532,522	42.02	12,673
1990	4,408,048.71	1,876,947	1,758,957	2,649,092	43.83	60,440
1992	578,280.00	232,816	218,180	360,100	45.26	7,956
1995	8,782,826.45	3,236,472	3,033,018	5,749,808	47.13	121,999
2000	588,755.94	181,455	170,048	418,708	50.50	8,291
2005	1,587,646.76	388,973	364,521	1,223,126	53.93	22,680
2008	15,430.87	3,200	2,999	12,432	55.43	224
2010	222,122.24	39,982	37,469	184,653	56.94	3,243
2012	627,742.74	96,233	90,183	537,560	57.99	9,270
2019	184,224.82	9,985	9,357	174,868	61.02	2,866
2020	509,497.16	20,125	18,860	490,637	60.79	8,071
2021	1,219,339.50	29,630	27,768	1,191,572	60.23	19,784
2022	1,470,000.00	12,642	11,847	1,458,153	57.98	25,149
	49,387,060.34	24,431,747	22,895,896	26,491,164		675,442
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						39.2 1.37

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 361.20 MANHOLES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 50-S2.5						
NET SALVAGE PERCENT.. 0						
1966	4,615,718.96	4,016,137	3,084,320	1,531,399	8.44	181,445
1970	147,121.73	124,347	95,496	51,626	9.61	5,372
1975	599,270.03	486,727	373,797	225,473	10.98	20,535
1980	118,944.11	90,992	69,880	49,064	13.06	3,757
1985	598,732.15	426,597	327,619	271,113	15.13	17,919
1987	216,978.75	148,674	114,179	102,800	16.31	6,303
1990	1,270,513.66	821,768	631,103	639,411	17.75	36,023
1992	138,728.25	85,470	65,639	73,089	19.00	3,847
1995	2,686,599.27	1,521,958	1,168,836	1,517,763	21.04	72,137
2000	167,121.57	79,717	61,221	105,901	24.67	4,293
2005	521,869.08	198,206	152,219	369,650	28.58	12,934
2010	90,828.88	24,869	19,099	71,730	33.16	2,163
2012	75,332.90	17,402	13,365	61,968	34.95	1,773
2015	979.09	162	124	855	37.75	23
2020	100,000.00	5,520	4,239	95,761	42.75	2,240
2021	100,000.00	3,320	2,550	97,450	43.75	2,227
2022	40,000.00	440	338	39,662	44.75	886
	11,488,738.43	8,052,306	6,184,024	5,304,714		373,877
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						14.2 3.25

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 363.00 SERVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 47-R3						
NET SALVAGE PERCENT.. 0						
1966	9,566,146.25	8,701,367	8,028,879	1,537,267	5.61	274,023
1970	381,325.26	338,312	312,165	69,160	6.67	10,369
1975	1,497,605.25	1,266,225	1,168,365	329,240	8.68	37,931
1980	244,467.20	194,303	179,286	65,181	10.97	5,942
1985	1,523,693.07	1,119,914	1,033,361	490,332	13.52	36,267
1987	585,627.90	413,688	381,716	203,912	14.75	13,825
1990	3,111,970.81	2,063,237	1,903,779	1,208,192	16.52	73,135
1992	325,418.33	205,469	189,589	135,829	17.81	7,627
1995	6,106,798.26	3,560,263	3,285,108	2,821,690	19.67	143,451
2000	407,191.37	200,664	185,156	222,035	23.16	9,587
2005	1,238,659.60	489,890	452,029	786,631	26.75	29,407
2010	186,741.95	54,155	49,969	136,773	30.60	4,470
2012	29,764.09	7,313	6,748	23,016	32.24	714
2020	74,992.08	4,575	4,221	70,771	38.48	1,839
2021	74,995.65	2,767	2,553	72,443	39.15	1,850
2022	75,000.00	945	873	74,127	39.34	1,884
	25,430,397.07	18,623,087	17,183,797	8,246,601		652,321
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.6 2.57

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 364.00 FLOW MEASURING DEVICES

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 15-L2.5						
NET SALVAGE PERCENT.. 0						
1991	8,740.98	8,260	7,595	1,146	1.83	626
2006	9,162.75	7,287	6,701	2,462	4.25	579
2010	10,272.31	7,460	6,859	3,413	4.71	725
2011	8,760.43	6,136	5,642	3,118	4.92	634
	36,936.47	29,143	26,797	10,139		2,564
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.0 6.94

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 365.00 FLOW MEASURING INSTALLATIONS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 25-S2						
NET SALVAGE PERCENT.. 0						
1991	227,265.28	202,584	195,591	31,674	3.84	8,248
	227,265.28	202,584	195,591	31,674		8,248
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						3.8 3.63

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 371.00 PUMPING EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 30-S0.5						
NET SALVAGE PERCENT.. 0						
1993	296,620.69	223,118	201,219	95,402	9.72	9,815
1997	17,155.72	11,987	10,811	6,345	11.00	577
2006	35,404.52	19,044	17,175	18,230	14.17	1,287
2011	10,006.61	4,166	3,757	6,250	16.12	388
2012	31,755.89	12,337	11,126	20,630	16.53	1,248
2013	22,241.43	8,007	7,221	15,020	16.89	889
2014	29,801.50	9,829	8,864	20,938	17.27	1,212
2015	3,723.72	1,109	1,000	2,724	17.69	154
2016	6,104.45	1,611	1,453	4,651	18.13	257
2017	5,819.52	1,332	1,201	4,619	18.54	249
2021	381,532.40	26,478	23,880	357,653	20.10	17,794
	840,166.45	319,018	287,707	552,460		33,870
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						16.3 4.03

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 380.00 TREATMENT EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 35-S1.5						
NET SALVAGE PERCENT.. 0						
2008	8,989.33	4,015	2,111	6,878	17.97	383
2012	30,082.26	10,204	5,365	24,717	20.46	1,208
2013	129,516.96	40,111	21,091	108,426	21.17	5,122
2014	226,025.89	63,197	33,230	192,796	21.90	8,803
2015	53,157.25	13,236	6,960	46,197	22.62	2,042
2016	33,390.80	7,249	3,812	29,579	23.44	1,262
2017	17,055.27	3,162	1,663	15,392	24.17	637
2021	528,000.00	27,139	14,269	513,731	27.66	18,573
	1,026,217.76	168,313	88,501	937,717		38,030
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						24.7 3.71

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 389.60 OTHER PLANT AND MISCELLANEOUS EQUIPMENT - CPS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 5-SQUARE						
NET SALVAGE PERCENT.. 0						
2021	200,000.00	60,000	18,652	181,348	3.50	51,814
2022	1,237,040.00	123,704	38,455	1,198,585	4.50	266,352
	1,437,040.00	183,704	57,107	1,379,933		318,166
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						4.3 22.14

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 390.00 OFFICE FURNITURE AND EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	2,249.52	1,293	1,303	947	8.50	111
2012	22,674.60	11,904	11,996	10,679	9.50	1,124
2013	33,760.20	16,036	16,159	17,601	10.50	1,676
2014	3,709.04	1,576	1,588	2,121	11.50	184
2015	6,445.39	2,417	2,436	4,009	12.50	321
2016	15,263.03	4,960	4,998	10,265	13.50	760
2022	10,000.00	250	252	9,748	19.50	500
	94,101.78	38,436	38,732	55,370		4,676
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						11.8 4.97

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 391.00 TRANSPORTATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 14-L4						
NET SALVAGE PERCENT.. 0						
2001	22,361.85	21,154	22,362			
2014	3,075.33	1,913	2,024	1,051	5.16	204
	25,437.18	23,067	24,386	1,051		204
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						5.2 0.80

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 393.00 TOOLS, SHOP AND GARAGE EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 20-SQUARE						
NET SALVAGE PERCENT.. 0						
2004	2,003.72	1,853	1,730	274	1.50	183
2006	10,217.68	8,430	7,868	2,350	3.50	671
2012	4,924.86	2,586	2,414	2,511	9.50	264
2013	12,359.83	5,871	5,480	6,880	10.50	655
2014	3,717.68	1,580	1,475	2,243	11.50	195
2015	5,714.67	2,143	2,000	3,715	12.50	297
2020	200,000.00	25,000	23,333	176,667	17.50	10,095
2021	200,000.00	15,000	14,001	185,999	18.50	10,054
2022	20,000.00	500	466	19,534	19.50	1,002
	458,938.44	62,963	58,767	400,171		23,416
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						17.1 5.10

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 394.00 LABORATORY EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2008	20,243.21	19,569	16,880	3,363	0.50	3,363
2011	5,218.83	4,001	3,451	1,768	3.50	505
2014	14,748.07	8,357	7,209	7,539	6.50	1,160
2015	2,143.59	1,072	925	1,219	7.50	163
	42,353.70	32,999	28,465	13,889		5,191
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						2.7 12.26

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 396.00 COMMUNICATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2011	3,604.32	2,763	2,780	824	3.50	235
2020	264,000.00	44,001	44,270	219,730	12.50	17,578
2022	10,000.00	333	335	9,665	14.50	667
	277,604.32	47,097	47,385	230,219		18,480
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.5 6.66

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

ACCOUNT 397.00 MISCELLANEOUS EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AS OF DECEMBER 31, 2022

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. 15-SQUARE						
NET SALVAGE PERCENT.. 0						
2008	1,036.56	1,002	1,037			
2014	2,202.56	1,248	1,314	889	6.50	137
2020	330,000.00	55,001	57,901	272,099	12.50	21,768
2022	10,000.00	333	350	9,650	14.50	666
	343,239.12	57,584	60,602	282,637		22,571
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT ..						12.5 6.58

PART III. EXPERIENCED AND ESTIMATED NET SALVAGE

PENNSYLVANIA-AMERICAN WATER COMPANY
WASTEWATER SSS EXETER OPERATIONS

EXPERIENCED AND ESTIMATED RETIREMENTS BY ACCOUNT AND ASSOCIATED
COST OF REMOVAL, GROSS SALVAGE, AND NET SALVAGE

ACCT	REGULAR RETIREMENTS	COST OF REMOVAL	GROSS SALVAGE	NET SALVAGE
2020 TRANSACTION YEAR				
354.20	15.07	1.51		1.51-
354.30	430.71	43.07		43.07-
354.40	22,009.05	2,200.90		2,200.90-
361.10	29,468.27	5,893.65		5,893.65-
361.20	4,714.92	942.98		942.98-
363.00	2,946.83	294.68		294.68-
393.00	5,003.96			
394.00	24,276.34			
397.00	1,000.48			
	89,865.63	9,376.79		9,376.79-
2021 TRANSACTION YEAR				
354.20	58.28	5.83		5.83-
354.30	1,666.23	166.62		166.62-
354.40	85,144.48	8,514.45		8,514.45-
361.10	73,343.35	14,668.67		14,668.67-
361.20	4,889.56	977.91		977.91-
363.00	3,055.97	305.60		305.60-
371.00	23,319.05	3,497.86		3,497.86-
380.00	32,271.07	4,840.66		4,840.66-
394.00	11,516.01			
	235,264.00	32,977.60		32,977.60-
2022 TRANSACTION YEAR				
354.20	25.95	2.59		2.59-
354.30	741.81	74.18		74.18-
354.40	37,906.63	3,790.66		3,790.66-
361.10	136,775.29	27,355.06		27,355.06-
361.20	2,829.83	565.97		565.97-
363.00	4,716.39	471.64		471.64-
394.00	10,430.63			
	193,426.53	32,260.10		32,260.10-
TOTAL	518,556.16	74,614.49		74,614.49-