STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA-AMERICAN WATER COMPANY, INC. FOR (1) AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR WATER AND WASTEWATER UTILITY SERVICE THROUGH A THREE-STEP RATE IMPLEMENTATION, (2) APPROVAL OF NEW SCHEDULES OF RATES AND CHARGES APPLICABLE TO WATER AND WASTEWATER UTILITY SERVICE, INCLUDING A NEW UNIVERSAL AFFORDABILITY RATE, (3) APPROVAL OF REVISED DEPRECIATION RATES APPLICABLE TO WATER AND WASTEWATER PLANT IN SERVICE, (4) APPROVAL OF NECESSARY AND APPROPRIATE ACCOUNTING RELIEF, (5) APPROVAL OF THE EXTENSION OF SERVICE TO AN INFRASTRUCTURE DEVELOPMENT ZONE IN MONTGOMERY COUNTY, INDIANA AND AUTHORITY TO IMPLEMENT A SURCHARGE UNDER IND. CODE § 8-1-2-46.2, AND (6) APPROVAL OF PETITIONER'S PLANS TO DEVELOP FUTURE WATER SOURCES OF SUPPLY UNDER IND. CODE § 8-1-2-23.5.	)	**CAUSE NO. 45870**

PUBLIC'S EXHIBIT NO. 7

TESTIMONY OF DAVID J. GARRETT

ON BEHALF OF

THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

July 21, 2023

Respectfully submitted,

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CERTIFICATE OF SERVICE

This is to certify that a copy of the ***Public's Exhibit No. 7 OUCC's Testimony of David J. Garrett on behalf of the OUCC*** has been served upon the following in the captioned proceeding by electronic service on July 21, 2023.

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TESTIMONY OF OUCC WITNESS DAVID J. GARRETT
CAUSE NO. 45870
INDIANA AMERICAN WATER COMPANY, INC.

I. INTRODUCTION

Q. State your name and occupation.

A. My name is David J. Garrett. I am a consultant specializing in public utility regulation. I am the managing member of Resolve Utility Consulting, PLLC. I focus my practice on the primary capital recovery mechanisms for public utility companies: cost of capital and depreciation.

Q. Summarize your educational background and professional experience.

A. I received a B.B.A. degree with a major in Finance, an M.B.A. degree, and a Juris Doctor degree from the University of Oklahoma. I worked in private legal practice for several years before accepting a position as assistant general counsel at the Oklahoma Corporation Commission in 2011, where I worked in the Office of General Counsel in regulatory proceedings. In 2012, I began working for the Public Utility Division as a regulatory analyst providing testimony in regulatory proceedings. In 2016 I formed Resolve Utility Consulting, PLLC, where I have represented various consumer groups and state agencies in utility regulatory proceedings, primarily in the areas of cost of capital and depreciation. I am a Certified Depreciation Professional with the Society of Depreciation Professionals. I am also a Certified Rate of Return Analyst with the Society of Utility and Regulatory

Financial Analysts. A more complete description of my qualifications and regulatory experience is included in my curriculum vitae.[1]

Q. Describe the purpose and scope of your testimony in this proceeding.

A. I am testifying on behalf of the Indiana Office of Utility Consumer Counselor ("OUCC") regarding the depreciation rates proposed by the petitioner in this Cause, Indiana-American Water Company, Inc. ("INAWC" or the "Company"). I respond to the direct testimony of Company witness Larry Kennedy, who sponsors the Company's depreciation study.

Q. If you do not discuss a specific topic or adjustment, does that mean you agree with the Petitioner?

A. No. My silence on any specific topic or adjustment does not indicate my approval or agreement. My testimony is limited only to the issues I discuss herein.

I. EXECUTIVE SUMMARY

Q. Summarize the key points of your testimony.

A. In this case, Mr. Kennedy is recommending revised depreciation rates for INAWC's water and wastewater based on plant balances as of the depreciation study date – December 31, 2022. Mr. Kennedy's proposed depreciation rates would result in a total annual depreciation accrual in the amount of $69.3 million.[2] I analyzed the same retirement and net salvage data used to conduct the depreciation study to analyze the Company's proposed service lives and net salvage rates. Based on my analysis, the Indiana Utility Regulatory

[1] Attachment DJG-1.

[2] *See* Attachment DJG-2.

Commission ("Commission" or "IURC") should consider several adjustments to the Company's proposed depreciation rates. The following figure summarizes my proposed adjustments.[3]

Figure 1:
Summary of Depreciation Adjustment Scenarios

Plant Function	Company Position Rate	Company Position Accrual	OUCC Position Rate	OUCC Position Accrual	OUCC Adjustment Rate	OUCC Adjustment Accrual
Water Plant						
Structures and Improvements	1.94%	$ 4,274,824	1.94%	$ 4,274,824	0.00%	$ -
Transmission and Distribution	2.59%	52,622,303	2.25%	45,636,678	-0.34%	(6,985,625)
General Plant	9.34%	11,474,988	9.34%	11,474,988	0.00%	-
Total Water Plant	2.88%	68,372,115	2.58%	61,386,490	-0.29%	(6,985,625)
Wastewater Plant						
Structures and Improvements	4.97%	184,993	4.97%	184,993	0.00%	-
Collecting, Treatment, and General Plant	4.43%	695,720	4.43%	695,720	0.00%	-
Total Wastewater Plant	4.53%	880,713	4.53%	880,713	0.00%	-
Total Plant Studied	**2.89%**	**$ 69,252,828**	**2.60%**	**$ 62,267,203**	**-0.29%**	**$ (6,985,625)**

As shown in this figure, my proposed depreciation rate adjustments would result in a $6.9 million decrease to the Company's proposed accrual, based on plant balances at 12-31-22. My depreciation rate adjustments are based on different service life estimates for several of the Company's water transmission and distribution accounts. My proposed service life adjustments are discussed in more detail later in my testimony.

Q. Are you recommending any adjustments to Mr. Kennedy's proposed net salvage rates in this case?

A. No. I analyzed the Company's historical net salvage rates, and in my opinion the net salvage rates proposed by Mr. Kennedy are reasonable in this case.

[3] *See also id.*

Q. Please describe why it is important not to overestimate depreciation rates, as INAWC has done here.

A. Under the regulatory model we use, the utility is allowed to recover the original cost of its prudent investments required to provide service. Depreciation systems are designed to allocate those costs in a systematic and rational manner – specifically, over the service lives of the utility's assets. If depreciation rates are overestimated (i.e., service lives are underestimated), it may unintentionally incent economic inefficiency. When an asset is fully depreciated and no longer in rate base, but still being used, a utility may be incented to retire and replace the asset to increase rate base, even though the retired asset may not have reached the end of its economic useful life. If, on the other hand, an asset must be retired and taken out of service before it is fully depreciated, there are regulatory mechanisms that can ensure the utility fully recovers its prudent investment in the retired asset. Thus, it is preferable for regulators to ensure that assets are not depreciated before the end of their economic useful lives.

II. REGULATORY STANDARDS AND SYSTEMS

Q. Discuss the standard by which regulated utilities are allowed to recover depreciation expense.

A. In *Lindheimer v. Illinois Bell Telephone Co.*, the U.S. Supreme Court stated "depreciation is the loss, not restored by current maintenance, which is due to all the factors causing the ultimate retirement of the property. These factors embrace wear and tear, decay, inadequacy, and obsolescence."[4] The *Lindheimer* Court also recognized that the original

[4] *Lindheimer v. Illinois Bell Tel. Co.*, 292 U.S. 151, 167 (1934).

cost of plant assets, rather than present value or some other measure, is the proper basis for calculating depreciation expense.[5] Moreover, the *Lindheimer* Court found:

> [T]he company has the burden of making a convincing showing that the amounts it has charged to operating expenses for depreciation have not been excessive. That burden is not sustained by proof that its general accounting system has been correct. The calculations are mathematical, but the predictions underlying them are essentially matters of opinion.[6]

Thus, the Commission must ultimately determine if INAWC has met its burden of proof by making a convincing showing that its proposed depreciation rates are not excessive.

Q. Please discuss the definition and purpose of a depreciation system as well as the depreciation system you employed for this project.

A. The legal and technical standards set forth above do not mandate a specific procedure for conducting depreciation analysis. These standards, however, direct that analysts use a system for estimating depreciation rates that will result in the "systematic and rational" allocation of capital recovery for the utility. Over the years, analysts have developed "depreciation systems" designed to analyze grouped property in accordance with this standard. A depreciation system may be defined by several primary parameters: 1) a method of allocation; 2) a procedure for applying the method of allocation; 3) a technique of applying the depreciation rate; and 4) a model for analyzing the characteristics of vintage

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[5] *Id*. (Referring to the straight-line method, the *Lindheimer* Court stated that "[a]ccording to the principle of this accounting practice, the loss is computed upon the actual cost of the property as entered upon the books, less the expected salvage, and the amount charged each year is one year's pro rata share of the total amount."). The original cost standard was reaffirmed by the Court in *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 606 (1944). The *Hope* Court stated: "Moreover, this Court recognized in [*Lindheimer*], supra, the propriety of basing annual depreciation on cost. By such a procedure the utility is made whole and the integrity of its investment maintained. No more is required."

[6] *Id*. at 169.

property groups.[7] In this case, I used the straight line method, the average life grouping procedure, the remaining life technique, and the broad group model to develop my proposed depreciation rates for the accounts in dispute.[8] The terminology used to describe depreciation systems in not strictly uniform across the industry. I provide a more detailed discussion of depreciation system parameters, theories, and equations in Appendix A.

Q. Did Mr. Kennedy rely on a similar depreciation system in conducting his analysis?

A. Yes. Although our approaches are not exactly the same, the overall depreciation systems are substantially similar. Pertinently, Mr. Kennedy relied on the average life group ("ALG") procedure rather than the equal life group ("ELG") procedure, which has been an issue in prior cases before the Commission. Likewise, my adjusted depreciation rates are based on the ALG procedure. While there are some technical differences between the way in which Mr. Kennedy and I calculate the composite remaining lives for each account, both approaches nonetheless consider one Iowa curve for each account to describe the mortality characteristics of the assets in those accounts and calculate the remaining life for each vintage in the account in order to determine one composite remaining for each account. For the accounts to which I do not propose a service life adjustment, I do not recommend any adjustments to Mr. Kennedy's proposed depreciation rate calculations.

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[7] Frank K. Wolf & W. Chester Fitch, *Depreciation Systems* 70, 140 (Iowa State University Press 1994).

[8] The terminology used to describe depreciation systems in not strictly uniform across the industry, particular with certain components of the depreciation system. By using a "broad group" model, I am referring to the fact that I use one Iowa curve for all vintages within an account but calculate a separate remaining life for each vintage based upon the same Iowa curve, which ultimately results in one composite remaining life calculation for each account.

Q. Has the IURC recently approved the use of the ALG procedure?

A. Yes. In Duke Energy Indiana's ("DEI") 2019 rate case, Mr. Kennedy conducted DEI's depreciation study and proposed depreciation rates under the ELG procedure. Representing the OUCC in that case, I argued that that the ELG procedure resulted in unreasonably high depreciation rates. Brian Andrews, the Industrial Group's depreciation witness in the DEI case, also criticized the ELG procedure as producing unreasonably high depreciation rates relative to the ALG procedure. In its final order, the IURC stated: "we find the evidence presented by OUCC witness Mr. Garrett and Industrial Group witness Mr. Andrews persuasive, as both witnesses showed that the ELG method results in unreasonably high depreciation rates. ALG depreciation rates result in systematical and rational cost recovery with near term customer rate relief and full cost recovery of utility investments."[9]

III. SERVICE LIFE ANALYSIS

Q. Describe the methodology used to estimate the service lives of grouped depreciable assets.

A. The process used to study industrial property retirement is rooted in the actuarial process used to study human mortality. Just as actuarial analysts study historical human mortality data to predict how long a group of people will live, depreciation analysts study historical plant data to estimate the average lives of property groups. The most common actuarial method used by depreciation analysts is called the "retirement rate method." In the

[9] Cause No. 45253, Order of the Commission, p. 90, June 29, 2020.

retirement rate method, original property data, including additions, retirements, transfers, and other transactions, are organized by vintage and transaction year.[10] The retirement rate method is ultimately used to develop an "observed life table," ("OLT") which shows the percentage of property surviving at each age interval. This pattern of property retirement is described as a "survivor curve." The survivor curve derived from the observed life table, however, must be fitted and smoothed with a complete curve in order to determine the ultimate average life of the group.[11] The most widely used survivor curves for this curve fitting process were developed at Iowa State University in the early 1900s and are commonly known as the "Iowa curves."[12] A more detailed explanation of how the Iowa curves are used in the actuarial analysis of depreciable property is set forth in Appendix C.

Q. Describe how you statistically analyzed INAWC's historical retirement data in order to determine the most reasonable Iowa curve to apply to each account.

A. I used the aged property data provided by the Company to create an OLT for each account. The data points on the OLT can be plotted to form a curve (the "OLT curve"). The OLT curve is not a theoretical curve, rather, it is actual observed data from the Company's records that indicate the rate of retirement for each property group. An OLT curve by itself, however, is rarely a smooth curve, and is often not a "complete" curve (i.e., it does not end at zero percent surviving). In order to calculate average life (the area under a

[10] The "vintage" year refers to the year that a group of property was placed in service (aka "placement" year). The "transaction" year refers to the accounting year in which a property transaction occurred, such as an addition, retirement, or transfer (aka "experience" year).

[11] *See* Appendix C for a more detailed discussion of the actuarial analysis used to determine the average lives of grouped industrial property.

[12] *See* Appendix B for a more detailed discussion of the Iowa curves.

curve), a complete survivor curve is required. The Iowa curves are empirically-derived curves based on the extensive studies of the actual mortality patterns of many different types of industrial property. The curve-fitting process involves selecting the best Iowa curve to fit the OLT curve. This can be accomplished through a combination of visual and mathematical curve-fitting techniques, as well as professional judgment. The first step of my approach to curve-fitting involves visually inspecting the OLT curve for any irregularities. For example, if the "tail" end of the curve is erratic and shows a sharp decline over a short period of time, it may indicate that this portion of the data is less reliable, as further discussed below. After inspecting the OLT curve, I use a mathematical curve-fitting technique which essentially involves measuring the distance between the OLT curve and the selected Iowa curve to get an objective, mathematical assessment of how well the curve fits. After selecting an Iowa curve, I observe the OLT curve along with the Iowa curve on the same graph to determine how well the curve fits. As part of my analysis, I may repeat this process several times for any given account to ensure that the most reasonable Iowa curve is selected.

Q. Do you always select the mathematically best-fitting curve?

A. Not necessarily. Mathematical fitting is an important part of the curve-fitting process because it promotes objective, unbiased results. While mathematical curve-fitting is important, however, it may not always yield the optimum result. For example, if there is insufficient historical data in a particular account and the OLT curve derived from that data is relatively short and flat, the mathematically "best" curve may be one with a very long

average life. However, when there is sufficient data available, mathematical curve fitting can be used as part of an objective service life analysis.

Q. Should every portion of the OLT curve be given equal weight?

A. Not necessarily. Many analysts have observed that the points comprising the "tail end" of the OLT curve may often have less analytical value than other portions of the curve. In fact, "[p]oints at the end of the curve are often based on fewer exposures and may be given less weight than points based on larger samples. The weight placed on those points will depend on the size of the exposures."[13] In accordance with this standard, an analyst may decide to truncate the tail end of the OLT curve at a certain percent of initial exposures, such as one percent. Using this approach puts greater emphasis on the most valuable portions of the curve. For my analysis in this case, I not only considered the entirety of the OLT curve, but also conducted further analyses that involved fitting Iowa curves to the most significant part of the OLT curve for certain accounts. In other words, to verify the accuracy of my curve selection, I narrowed the focus of my additional calculation to consider approximately the top 99% of the "exposures" (i.e., dollars exposed to retirement) and to eliminate the tail end of the curve representing the bottom 1% of exposures for some accounts, if necessary. I will illustrate an example of this approach in the discussion below.

[13] Wolf *supra* n. 7, at 46.

Q. Generally, describe the differences between the Company's service life proposals and your service life proposals.

A. For each of the accounts to which I propose adjustments, the Company's proposed average service life, as estimated through an Iowa curve, is too short to provide the most reasonable mortality characteristics of the account. Generally, for the accounts in which I propose a longer service life, that proposal is based on the objective approach of choosing an Iowa curve that provides a better mathematical fit to the observed historical retirement pattern derived from the Company's plant data, in addition to applying judgment to the analysis.

Q. In support of its service life estimates, did INAWC present substantial evidence in addition to the historical plant data for each account?

A. No. It appears that INAWC is relying primarily on its historical retirement data in order to make predictions about the remaining average life for the assets in each account. Therefore, I think the Commission should focus primarily on this historical data and objective Iowa curve fitting when assessing fair and reasonable depreciation rates for INAWC. The service lives I propose in this case are based on Iowa curves that provide better mathematical fits to INAWC's historical retirement data, and they result in more reasonable service life estimates and depreciation rates for the accounts to which I propose adjustments.

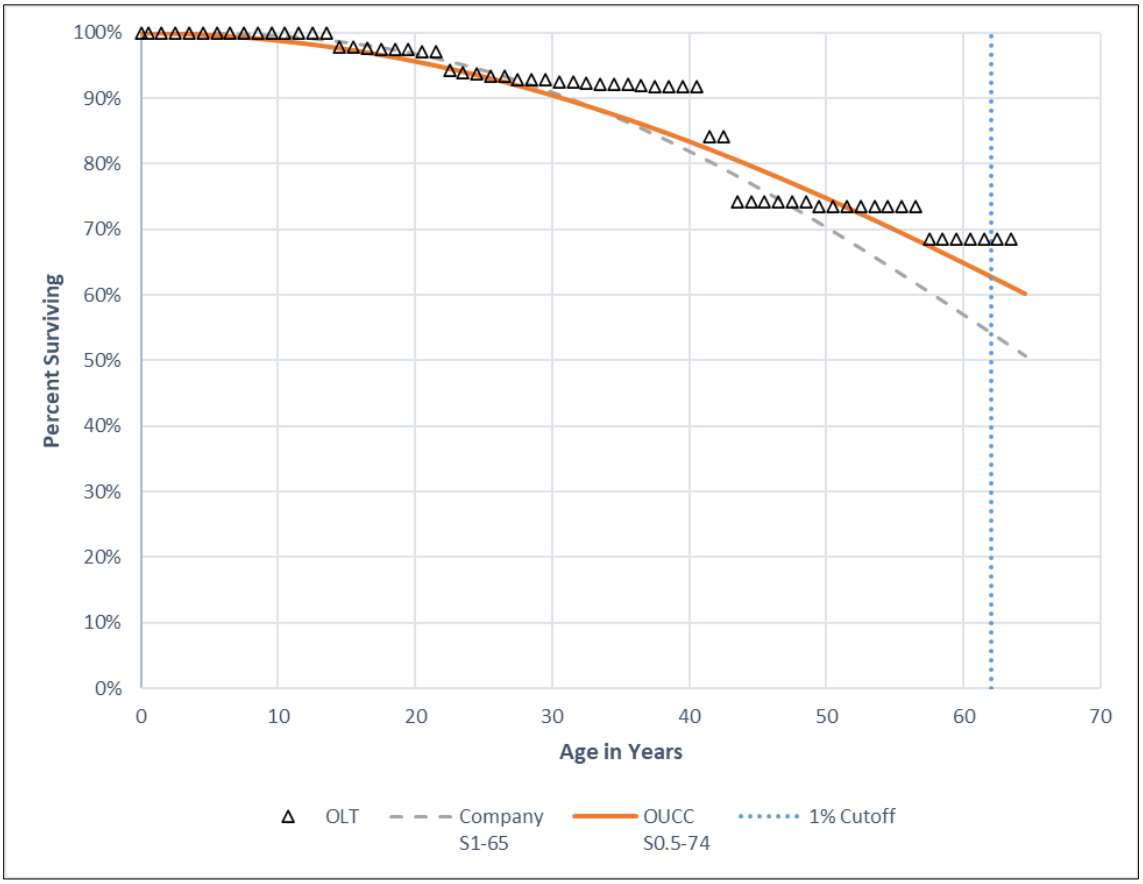
A. <u>Account 306.000 – Lake, River, and Other Intakes</u>

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. The observed survivor curve (OLT curve) derived from the Company's data for this account is presented in the graph below. The graph also shows the Iowa curves Mr.

Kennedy and I selected to represent the average remaining life of the assets in this account. For this account, Mr. Kennedy selected the S1-65 Iowa curve and I selected the S0.5-74 Iowa curve. Both of these Iowa curves are shown the graph below along with the OLT curve.

Figure 2:
Account 306.000 – Lake, River, and Other Intakes



The OLT curve for this account is fairly well suited for conventional Iowa curve fitting techniques because it is relatively smooth and displays a typical retirement pattern for utility property. The vertical line in the graph represents a truncation point based on the 1% of beginning exposures discussed above. For this account, the vast majority of this OLT curve is statistically relevant based on this benchmark. As shown in the graph, the

flatter trajectory and longer average life of the S0.5-74 appears to result in a better fit to the OLT curve. We can use mathematical curve fitting to confirm the results.

Q. Does your selected Iowa curve provide a better mathematical fit to the truncated OLT curve?

A. Yes. While visual curve-fitting techniques (though not exclusively) can help an analyst identify the most statistically relevant portions of the OLT curve for this account, mathematical curve-fitting techniques can help us determine which of the two Iowa curves provides the better fit (especially in cases where it is not obvious from a visual standpoint which curve provides the better fit). Mathematical curve-fitting essentially involves measuring the "distance" between the OLT curve and the selected Iowa curve. The best mathematically-fitted curve is the one that minimizes the distance between the OLT curve and the Iowa curve, thus providing the closest fit. The distance between the curves is calculated using the "sum-of-squared differences" ("SSD") technique. In this account, the total SSD, or distance, between the Company's curve and the truncated OLT curve is 0.1621, and the SSD between the S0.5-74 curve and the truncated OLT curve is only 0.0637, which means it results in the closer mathematical fit.[14] Thus, the S0.5-74 curve results in a more reasonable depreciation rate for this account since there is no convincing evidence presented outside of the statistical data that would outweigh these results in my opinion.

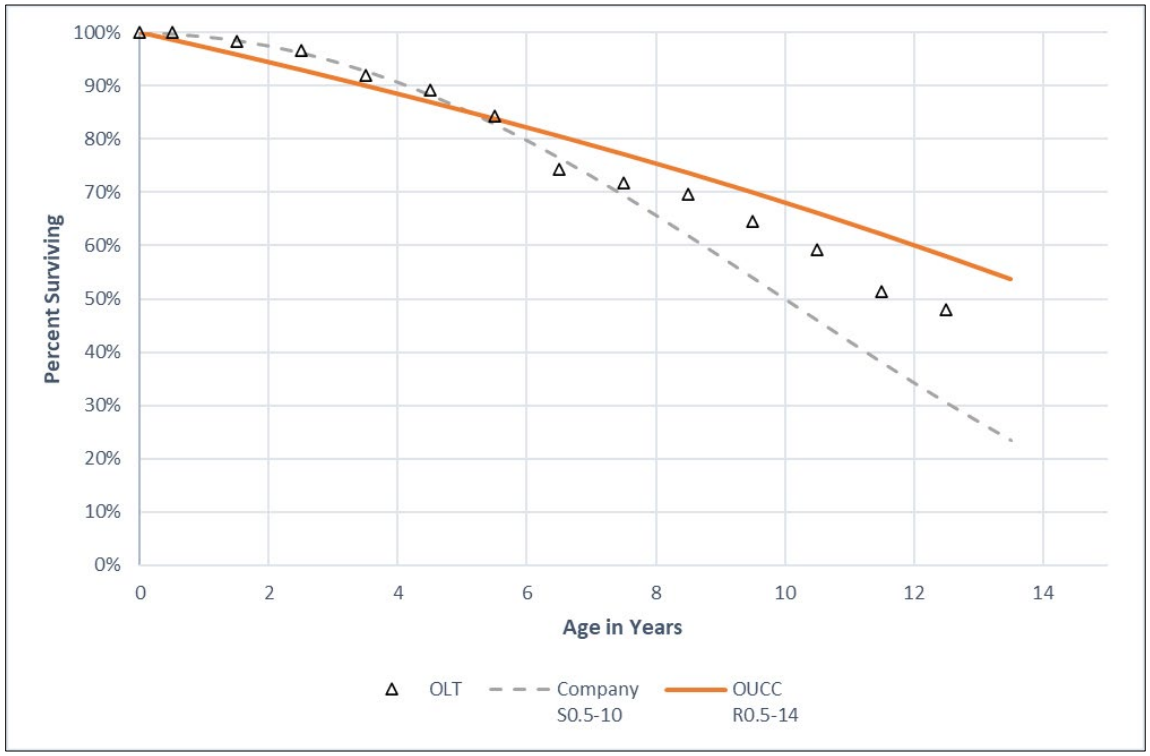
[14] Attachment DJG-7.

B. Account 320.200 – Water Treatment Equipment – Filter Media

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the S0.5-10 curve, and I selected the R0.5-14 curve. Both of these Iowa curves are illustrated in the graph below along with the OLT curve.

Figure 3:
Account 320.200 – Water Treatment Equipment – Filter Media



Unlike Account 306.000 discussed above, there is no vertical truncation line shown in this graph because each data point on this OLT curve meets the 1% truncation benchmark. Thus, in my opinion, the Iowa curve selected by Mr. Kennedy appears to give an insufficient amount of consideration to several relevant data points on this OLT curve which currently indicate a retirement pattern with a slightly longer, flatter trajectory. We can use mathematical curve fitting for further analyses.

Q. Does your selected Iowa curve provide a better mathematical fit to the relevant portion of the OLT curve?

A. Yes. In this account, the SSD between the Company's curve and the truncated OLT curve is 0.0846, and the SSD between the R0.5-14 curve I selected and the truncated OLT curve is 0.0400, which means it results in a closer fit to the OLT curve.[15]

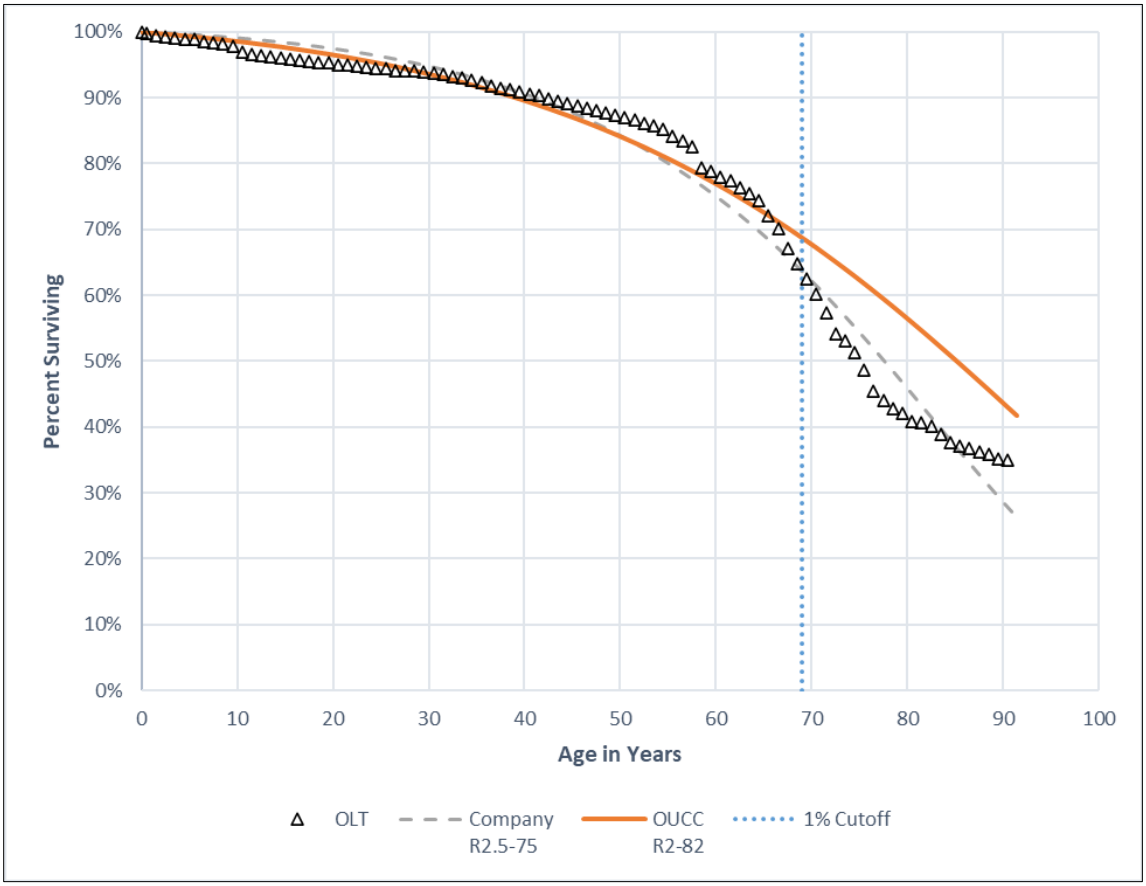
C. Account 333.000 – Services

Q. Describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the R2.5-75 curve, and I selected the R2-82 curve. Both of these Iowa curves are shown in the graph below along with the OLT curve.

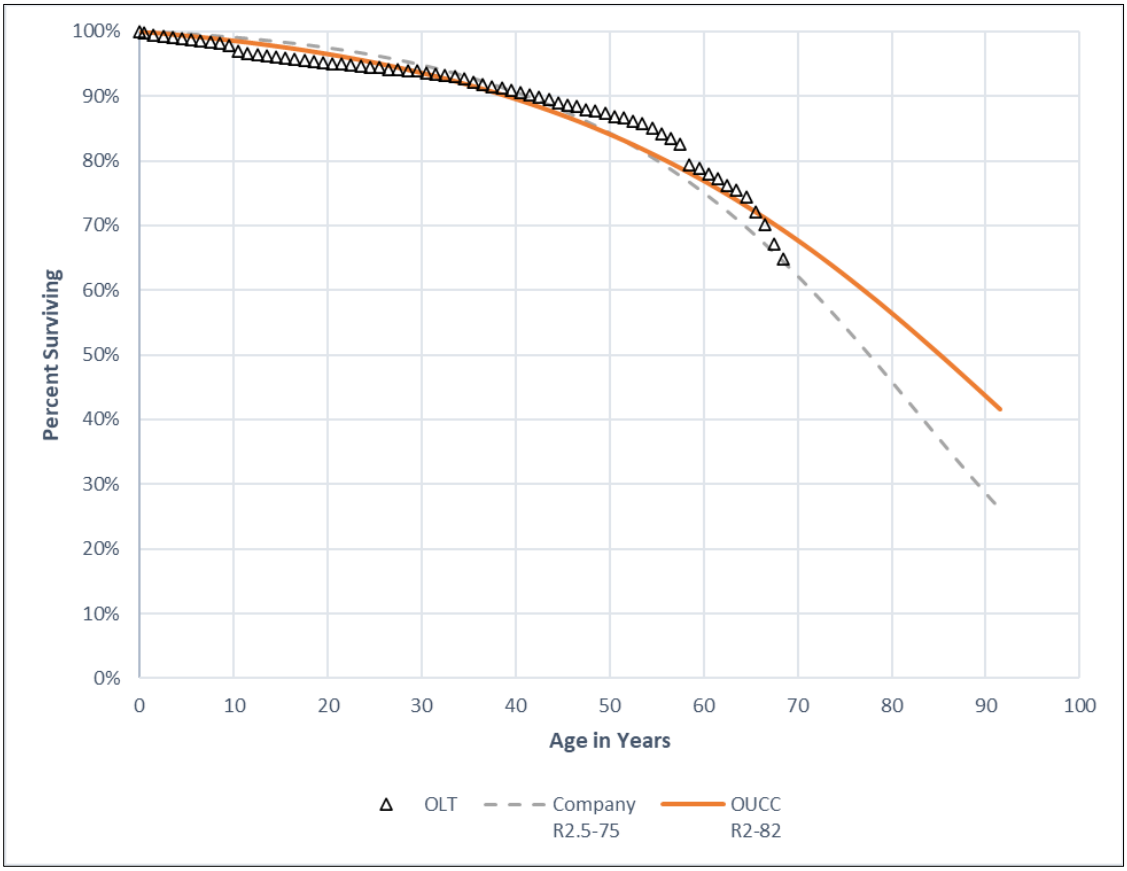
[15] Attachment DJG-8.

Figure 4:
Account 333.000 – Services



As shown in the graph, both Iowa curves provide a relatively close fit to the OLT curve through the most relevant portion of the OLT curve – up to the truncation line. After that point, the Iowa curve selected by Mr. Kennedy tacks more closely with the observed data. In my opinion, the Iowa curve selected by Mr. Kennedy for this account is not outside the range of reasonableness. However, the Commission should consider the alternative Iowa curve I present for this account, as it provides a closer fit to the most relevant portion of the OLT curve and would have a mitigating effect on the overall rate increase proposed by the Company in this case. The following graph shows the same data presented in the graph above, but with the OLT curve truncated.

Figure 5:
Account 333.000 – Services (Truncated OLT Curve)



We can use mathematical curve fitting to further assess the results.

Q. Does your selected Iowa curve provide a better mathematical fit to the truncated OLT curve?

A. When the entire OLT curve is measured, the Iowa curve selected by Mr. Kennedy results in the closer mathematical fit, however, when the truncated OLT curve is measured, the R2-82 curve I selected results in the closer fit. Specifically, the SSD between the

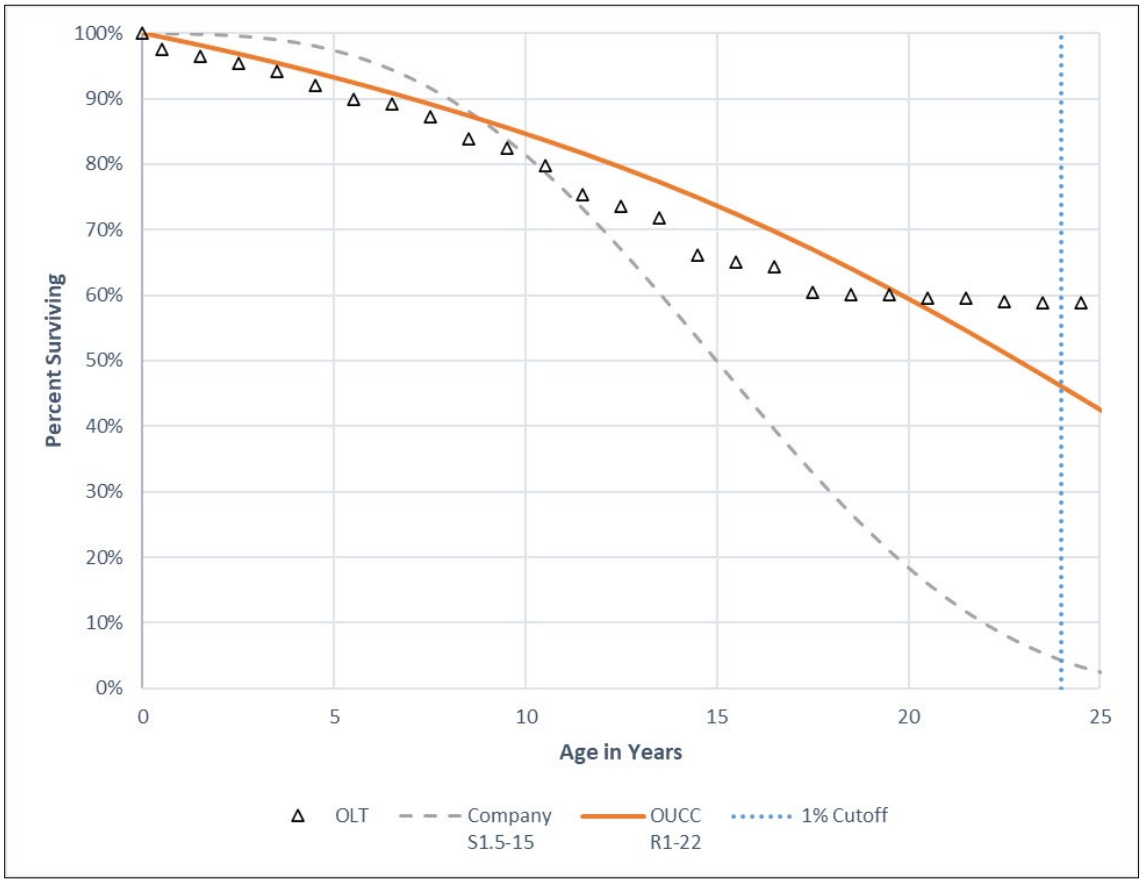
Company's curve and the truncated OLT curve is 0.0392, and the SSD between the R2-82 curve I selected and the truncated OLT curve is 0.0233.[16]

D. Account 334.100 – Meters

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the S1.5-15 curve, and I selected the R1-22 curve. Both curves are displayed in the graph below along with the OLT curve.

Figure 6:
Account 334.100 – Meters



[16] Attachment DJG-9.

As shown in this graph, nearly the entire OLT curve for this account is considered statistically relevant under the 1% exposure benchmark. It is clear from this analysis that the Iowa curve selected by Mr. Kennedy does not result in a close fit to the observed data. As a result, his proposed service life for this account is too short in my opinion, which results in an unreasonably high depreciation rate.

Q. Does the Iowa curve you selected for this account provide a better mathematical fit to the OLT curve?

A. Yes. Regardless of whether the entire OLT curve or truncated OLT curve is measured, the Iowa curve I selected results in the closer fit. Specifically, the SSD between the Company's curve and the truncated OLT curve is 1.4509, and the SSD between the R1-22 curve I selected and the OLT curve is only 0.0598, which means it results in the closer fit.[17]

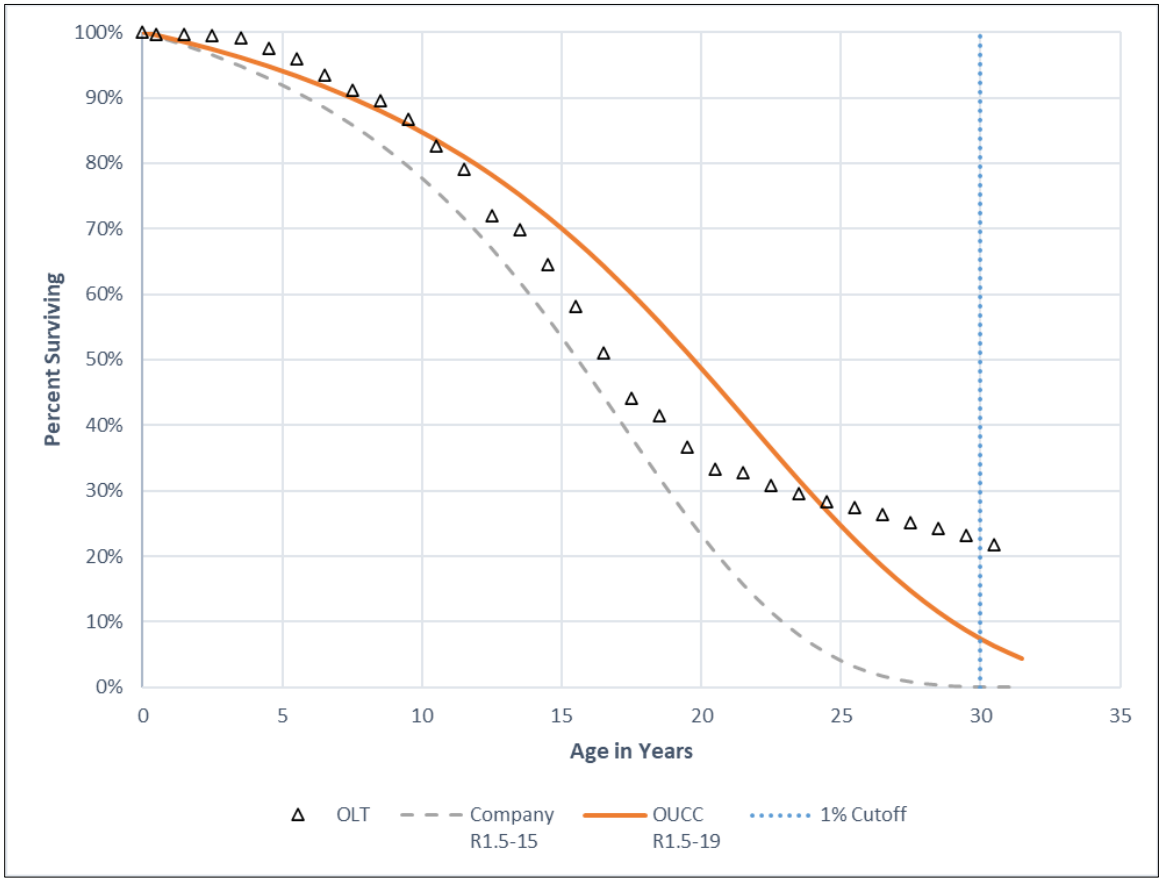
E. Account 334.110 – Meters – Bronze Case

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the R1.5-15 curve, and I selected the R1.5-19 curve. Thus, both Iowa curves have the same shape, but a 4-year difference in average life. Both of these Iowa curves are shown in the graph below along with the OLT curve.

[17] Attachment DJG-10.

Figure 7:
Account 334.110 – Meters



As with the meters account discussed above, nearly all the data points on the OLT curve for this account are statistically relevant under the 1% exposure benchmark. It is clear from this analysis that the Iowa curve selected by Mr. Kennedy is shorter than the retirement pattern otherwise indicated in this OLT curve. As a result, his proposed service life for this account is too short in my opinion, which results in an unreasonably high depreciation rate.

Q. Does the Iowa curve you selected for this account provide a better mathematical fit to the OLT curve?

A. Yes. Regardless of whether the entire OLT curve or truncated OLT curve is measured, the Iowa curve I selected results in the closer fit. The SSD between the Company's curve and the truncated OLT curve is 0.5566, and the SSD between the R1.5-19 curve I selected and the OLT curve is only 0.1962, which means it results in the closer fit.[18]

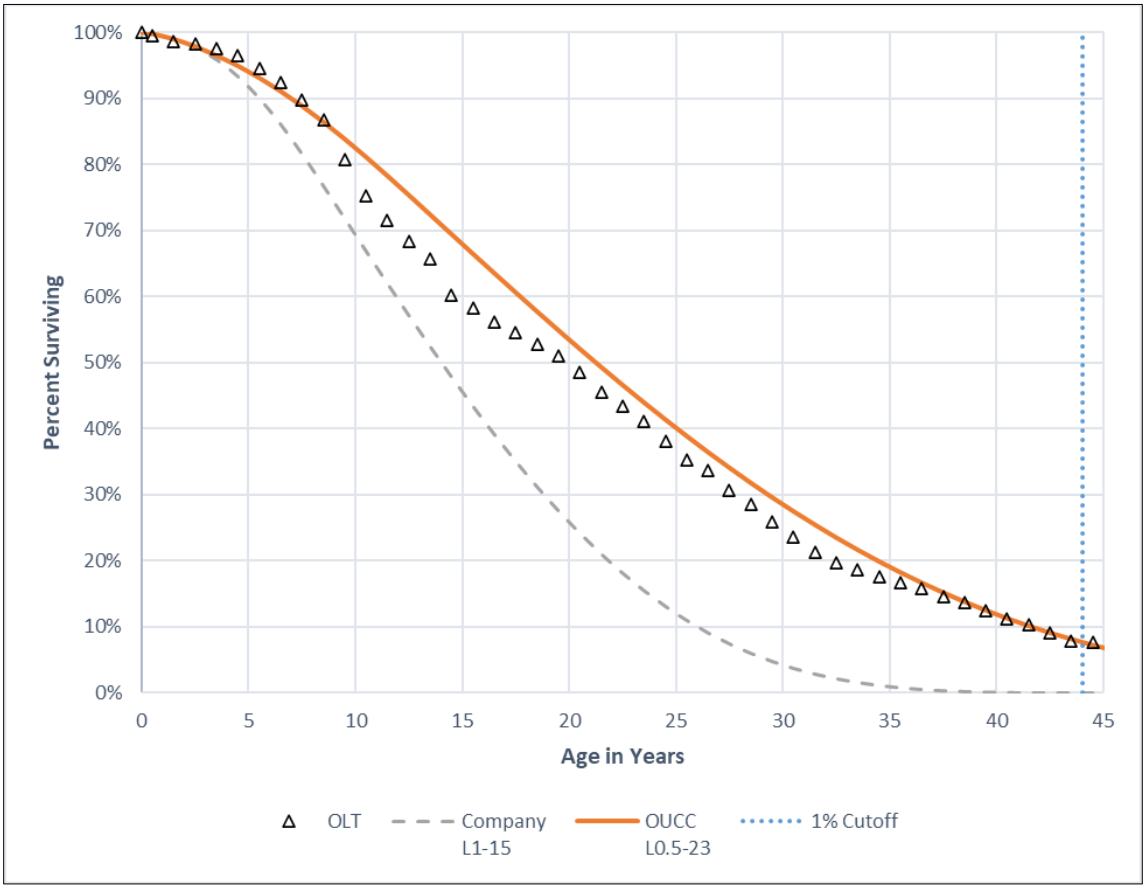
F. Account 334.130 – Meters – Other

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. The OLT curve for Account 334.130 is especially well suited for conventional Iowa curve fitting techniques. This is because the OLT curve is relatively smooth and complete (i.e., it nearly reaches 0% surviving), and displays a retirement pattern than is typical for utility property. For this account, Mr. Kennedy selected the L1-15 curve, and I selected the L0.5-23 curve. Both of these Iowa curves are shown in the graph below along with the OLT curve.

[18] Attachment DJG-11.

Figure 8:
Account 334.130 – Meters – Other



Out of all the disputed accounts discussed in my testimony, Mr. Kennedy's proposed Iowa curve for this account is one of the most unreasonable. Adopting the L1-15 Iowa curve proposed by Mr. Kennedy for this account would essentially negate the purpose of statistical analysis under the retirement rate method and Iowa curve fitting altogether. Nearly every portion of the L1-15 Iowa curve is notably shorter than the OLT curve for this account. As a result, the depreciation rate proposed by Mr. Kennedy for this account is unreasonably high.

Q. Does the Iowa curve you selected for this account provide a better mathematical fit to the OLT curve?

A. Yes. The SSD between the Company's curve and the truncated OLT curve is 1.1622, and the SSD between the L0.5-23 curve I selected and the OLT curve is only 0.0638, which means it results in the closer fit.[19]

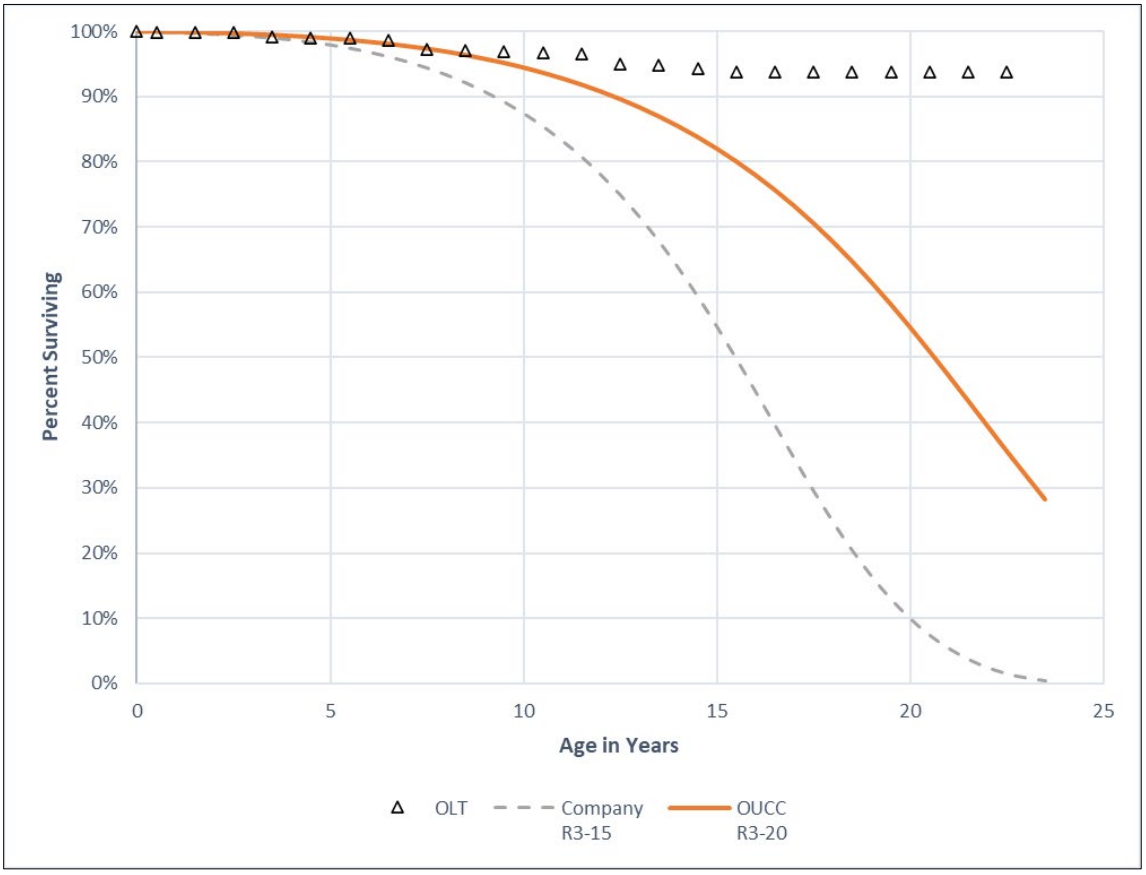
G. Account 334.131 – Meter Reading Units

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the R3-15 curve, and I selected the R3-20 curve. Both of these Iowa curves are shown in the graph below along with the OLT curve.

[19] Attachment DJG-12.

Figure 9:
Account 334.131 – Meter Reading Units



For this account, the OLT curve does not drop low enough to indicate a good retirement dispersion pattern. Nonetheless, all of the data points on this OLT curve are statistically relevant under the 1% exposure benchmark. Mr. Kennedy proposes an average life of 15 years. However, over 93% of the assets (dollars) that reach age 22 in this account are still surviving. This indicates that the average life is notably longer than only 15 years. While both of the proposed Iowa curves essentially suggest that the retirement rate going forward will be greater than the one experienced thus far (i.e., the OLT curve will decline), the data are more indicative of a longer average life than the 15-year life proposed by Mr. Kennedy.

Q. Does the Iowa curve you selected for this account provide a better mathematical fit to the OLT curve?

A. Yes. The SSD between the Company's curve and the OLT curve is 4.7732, and the SSD between the R3-20 curve I selected and the OLT curve is 1.1050, which means it results in the closer fit.[20]

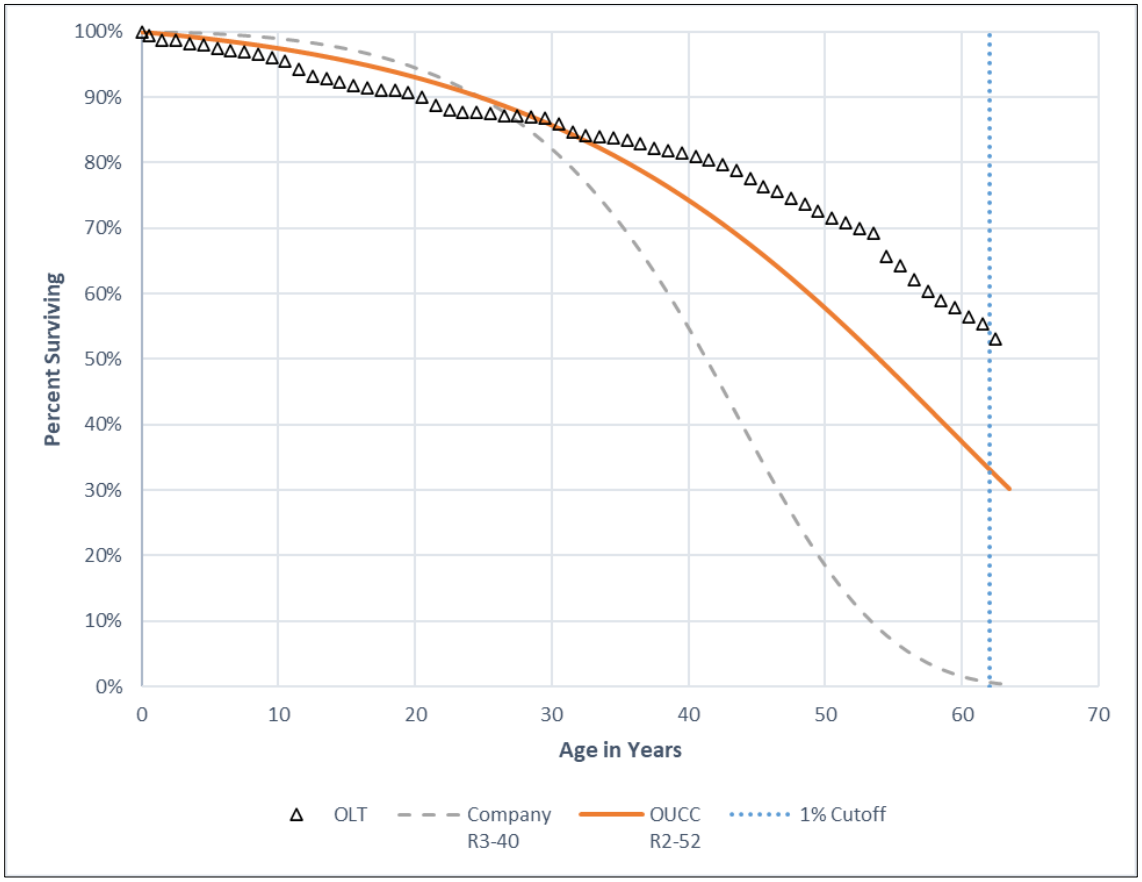
H. Account 334.200 – Meter Installations

Q. Please describe your service life estimate for this account and compare it with the Company's estimate.

A. For this account, Mr. Kennedy selected the R3-40 curve, and I selected the R2-52 curve. Both of these Iowa curves are shown in the graph below along with the OLT curve.

[20] Attachment DJG-13.

Figure 10:
Account 334.200 – Meter Installations



As with Account 334.130 discussed above, Mr. Kennedy's proposed Iowa curve does not provide an accurate reflection of retirement rate otherwise indicated by an OLT curve that is adequate for conventional Iowa curve-fitting techniques. Adopting the R3-40 Iowa curve proposed by Mr. Kennedy for this account would essentially negate the purpose of Iowa curve fitting. The R3-40 curve completely ignores relevant observed data between ages 30-60, which is a significant portion of the OLT curve. I conservatively propose the R2-52 curve as a reasonable alternative, which give some consideration to the idea the retirement rate going forward may increase relative to the rate observed thus far in this account.

Q. Does the Iowa curve you selected for this account provide a better mathematical fit to the OLT curve?

A. Yes. The SSD between the Company's curve and the truncated OLT curve is 5.8865, and the SSD between the R2-52 curve I selected and the OLT curve is 0.5257, which means it results in the closer fit.[21]

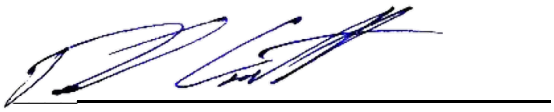
Q. Does this conclude your testimony?

A. Yes.

[21] Attachment DJG-14.

AFFIRMATION

I affirm the representations I made in the foregoing testimony are true to the best of my knowledge, information, and belief.



By: David J. Garrett, Consultant
Cause No. 45870
Office of Utility Consumer Counselor (OUCC)

Date: July 21, 2023

APPENDIX A:

THE DEPRECIATION SYSTEM

A depreciation accounting system may be thought of as a dynamic system in which estimates of life and salvage are inputs to the system, and the accumulated depreciation account is a measure of the state of the system at any given time.[1] The primary objective of the depreciation system is the timely recovery of capital. The process for calculating the annual accruals is determined by the factors required to define the system. A depreciation system should be defined by four primary factors: 1) a method of allocation; 2) a procedure for applying the method of allocation to a group of property; 3) a technique for applying the depreciation rate; and 4) a model for analyzing the characteristics of vintage groups comprising a continuous property group.[2] The figure below illustrates the basic concept of a depreciation system and includes some of the available parameters.[3]

There are hundreds of potential combinations of methods, procedures, techniques, and models, but in practice, analysts use only a few combinations. Ultimately, the system selected must result in the systematic and rational allocation of capital recovery for the utility. Each of the four primary factors defining the parameters of a depreciation system is discussed further below.

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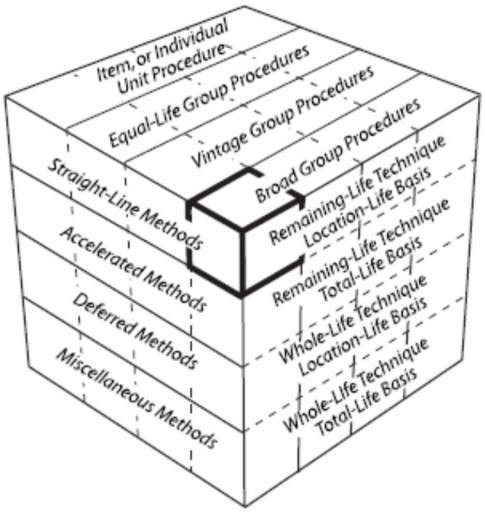
[1] Wolf & W. Chester Fitch, Depreciation Systems 69-70 (Iowa State University Press 1994).

[2] *Id.* at 70, 139–40.

[3] Edison Electric Institute, *Introduction to Depreciation* (inside cover) (EEI April 2013). Some definitions of the terms shown in this diagram are not consistent among depreciation practitioners and literature because depreciation analysis is a relatively small and fragmented field. This diagram simply illustrates some of the available parameters of a depreciation system.

Figure 1:
The Depreciation System Cube



1. Allocation Methods

The "method" refers to the pattern of depreciation in relation to the accounting periods. The method most commonly used in the regulatory context is the "straight-line method"—a type of age-life method in which the depreciable cost of plant is charged in equal amounts to each accounting period over the service life of plant.[4] Because group depreciation rates and plant balances often change, the amount of the annual accrual rarely remains the same, even when the straight-line method is employed.[5] The basic formula for the straight-line method is as follows:[6]

[4] National Association of Regulatory Utility Commissioners, Public Utility Depreciation Practices 56 (NARUC 1996).

[5] *Id*.

[6] *Id*.

Equation 1:
Straight-Line Accrual

$$Annual\ Accrual = \frac{Gross\ Plant - Net\ Salavage}{Service\ Life}$$

Gross plant is a known amount from the utility's records, while both net salvage and service life must be estimated to calculate the annual accrual. The straight-line method differs from accelerated methods of recovery, such as the "sum-of-the-years-digits" method and the "declining balance" method. Accelerated methods are primarily used for tax purposes and are rarely used in the regulatory context for determining annual accruals.[7] In practice, the annual accrual is expressed as a rate which is applied to the original cost of plant to determine the annual accrual in dollars. The formula for determining the straight-line rate is as follows:[8]

Equation 2:
Straight-Line Rate

$$Depreciation\ Rate\ \% = \frac{100 - Net\ Salvage\ \%}{Service\ Life}$$

2. Grouping Procedures

The "procedure" refers to the way the allocation method is applied through subdividing the total property into groups.[9] While single units may be analyzed for depreciation, a group plan of depreciation is particularly adaptable to utility property. Employing a grouping procedure allows for a composite application of depreciation rates to groups of similar property, rather than conducting calculations for each unit. Whereas an individual unit of property has a single life, a group of property displays a dispersion of lives and the life characteristics of the group must be

[7] *Id*. at 57.

[8] *Id*. at 56.

[9] Wolf *supra* n. 1, at 74-75.

described statistically.[10] When analyzing mass property categories, it is important that each group contains homogenous units of plant that are used in the same general manner throughout the plant and operated under the same general conditions.[11]

The "average life" and "equal life" grouping procedures are the two most common. In the average life procedure, a constant annual accrual rate based on the average life of all property in the group is applied to the surviving property. While property having shorter lives than the group average will not be fully depreciated, and likewise, property having longer lives than the group average will be over-depreciated, the ultimate result is that the group will be fully depreciated by the time of the final retirement.[12] Thus, the average life procedure treats each unit as though its life is equal to the average life of the group. By contrast, the equal life procedure treats each unit in the group as though its life was known.[13] Under the equal life procedure the property is divided into subgroups that each has a common life.[14]

3. Application Techniques

The third factor of a depreciation system is the "technique" for applying the depreciation rate. There are two commonly used techniques: "whole life" and "remaining life." The whole life technique applies the depreciation rate on the estimated average service life of a group, while the remaining life technique seeks to recover undepreciated costs over the remaining life of the plant.[15]

In choosing the application technique, consideration should be given to the proper level of the accumulated depreciation account. Depreciation accrual rates are calculated using estimates

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[10] *Id*. at 74.

[11] NARUC *supra* n. 4, at 61–62.

[12] Wolf *supra* n. 1, at 74-75.

[13] *Id*. at 75.

[14] *Id*.

[15] NARUC *supra* n. 4, at 63–64.

of service life and salvage. Periodically these estimates must be revised due to changing conditions, which cause the accumulated depreciation account to be higher or lower than necessary. Unless some corrective action is taken, the annual accruals will not equal the original cost of the plant at the time of final retirement.[16] Analysts can calculate the level of imbalance in the accumulated depreciation account by determining the "calculated accumulated depreciation," (a.k.a. "theoretical reserve" and referred to in these appendices as "CAD"). The CAD is the calculated balance that would be in the accumulated depreciation account at a point in time using current depreciation parameters.[17] An imbalance exists when the actual accumulated depreciation account does not equal the CAD. The choice of application technique will affect how the imbalance is dealt with.

Use of the whole life technique requires that an adjustment be made to accumulated depreciation after calculation of the CAD. The adjustment can be made in a lump sum or over a period of time. With use of the remaining life technique, however, adjustments to accumulated depreciation are amortized over the remaining life of the property and are automatically included in the annual accrual.[18] This is one reason that the remaining life technique is popular among practitioners and regulators. The basic formula for the remaining life technique is as follows:[19]

[16] Wolf *supra* n. 1, at 83.

[17] NARUC *supra* n. 4, at 325.

[18] NARUC *supra* n. 4, at 65 ("The desirability of using the remaining life technique is that any necessary adjustments of [accumulated depreciation] . . . are accrued automatically over the remaining life of the property. Once commenced, adjustments to the depreciation reserve, outside of those inherent in the remaining life rate would require regulatory approval.").

[19] *Id*. at 64.

Equation 3:
Remaining Life Accrual

$$Annual\ Accrual = \frac{Gross\ Plant - Accumulated\ Depreciation - Net\ Salvage}{Average\ Remaining\ Life}$$

The remaining life accrual formula is similar to the basic straight-line accrual formula above with two notable exceptions. First, the numerator has an additional factor in the remaining life formula: the accumulated depreciation. Second, the denominator is "average remaining life" instead of "average life." Essentially, the future accrual of plant (gross plant less accumulated depreciation) is allocated over the remaining life of plant. Thus, the adjustment to accumulated depreciation is "automatic" in the sense that it is built into the remaining life calculation.[20]

4. Analysis Model

The fourth parameter of a depreciation system, the "model," relates to the way of viewing the life and salvage characteristics of the vintage groups that have been combined to form a continuous property group for depreciation purposes.[21] A continuous property group is created when vintage groups are combined to form a common group. Over time, the characteristics of the property may change, but the continuous property group will continue. The two analysis models used among practitioners, the "broad group" and the "vintage group," are two ways of viewing the life and salvage characteristics of the vintage groups that have been combined to form a continuous property group.

The broad group model views the continuous property group as a collection of vintage groups that each have the same life and salvage characteristics. Thus, a single survivor curve and a single salvage schedule are chosen to describe all the vintages in the continuous property group.

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[20] Wolf *supra* n. 1, at 178.

[21] *See* Wolf *supra* n. 1, at 139 (I added the term "model" to distinguish this fourth depreciation system parameter from the other three parameters).

By contrast, the vintage group model views the continuous property group as a collection of vintage groups that may have different life and salvage characteristics. Typically, there is not a significant difference between vintage group and broad group results unless vintages within the applicable property group experienced dramatically different retirement levels than anticipated in the overall estimated life for the group. For this reason, many analysts utilize the broad group procedure because it is more efficient.

APPENDIX B:

IOWA CURVES

Early work in the analysis of the service life of industrial property was based on models that described the life characteristics of human populations.[22] This history explains why the word "mortality" is often used in the context of depreciation analysis. In fact, a group of property installed during the same accounting period is analogous to a group of humans born during the same calendar year. Each period the group will incur a certain fraction of deaths / retirements until there are no survivors. Describing this pattern of mortality is part of actuarial analysis and is regularly used by insurance companies to determine life insurance premiums. The pattern of mortality may be described by several mathematical functions, particularly the survivor curve and frequency curve. Each curve may be derived from the other so that if one curve is known, the other may be obtained. A survivor curve is a graph of the percent of units remaining in service expressed as a function of age.[23] A frequency curve is a graph of the frequency of retirements as a function of age. Several types of survivor and frequency curves are illustrated in the figures below.

1. Development

The survivor curves used by analysts today were developed over several decades from extensive analysis of utility and industrial property. In 1931, Edwin Kurtz and Robley Winfrey used extensive data from a range of 65 industrial property groups to create survivor curves representing the life characteristics of each group of property.[24] They generalized the 65 curves into 13 survivor curve types and published their results in *Bulletin 103: Life Characteristics of*

[22] Wolf *supra* n. 1, at 276.

[23] *Id*. at 23.

[24] *Id*. at 34.

Physical Property. The 13 type curves were designed to be used as valuable aids in forecasting probable future service lives of industrial property. Over the next few years, Winfrey continued gathering additional data, particularly from public utility property and expanded the examined property groups from 65 to 176.[25] This research resulted in 5 additional survivor curve types for a total of 18 curves. In 1935, Winfrey published *Bulletin 125: Statistical Analysis of Industrial Property Retirements*. According to Winfrey, "[t]he 18 type curves are expected to represent quite well all survivor curves commonly encountered in utility and industrial practices."[26] These curves are known as the "Iowa curves" and are used extensively in depreciation analysis in order to obtain the average service lives of property groups. (Use of Iowa curves in actuarial analysis is further discussed in Appendix C.)

In 1942, Winfrey published *Bulletin 155: Depreciation of Group Properties*. In Bulletin 155, Winfrey made some slight revisions to a few of the 18 curve types, and published the equations, tables of the percent surviving, and probable life of each curve at five-percent intervals.[27] Rather than using the original formulas, analysts typically rely on the published tables containing the percentages surviving. This reliance is necessary because, absent knowledge of the integration technique applied to each age interval, it is not possible to recreate the exact original published table values. In the 1970s, John Russo collected data from over 2,000 property accounts reflecting observations during the period 1965 – 1975 as part of his Ph.D. dissertation at Iowa State. Russo essentially repeated Winfrey's data collection, testing, and analysis methods used to

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[25] *Id*.

[26] Robley Winfrey, *Bulletin 125: Statistical Analyses of Industrial Property Retirements* 85, Vol. XXXIV, No. 23 (Iowa State College of Agriculture and Mechanic Arts 1935).

[27] Robley Winfrey, Bulletin 155: Depreciation of Group Properties 121-28, Vol XLI, No. 1 (The Iowa State College Bulletin 1942); see also Wolf supra n.7, at 305–38 (publishing the percent surviving for each Iowa curve, including "O" type curve, at one percent intervals).

develop the original Iowa curves, except that Russo studied industrial property in service several decades after Winfrey published the original Iowa curves. Russo drew three major conclusions from his research:[28]

1. No evidence was found to conclude that the Iowa curve set, as it stands, is not a valid system of standard curves;

2. No evidence was found to conclude that new curve shapes could be produced at this time that would add to the validity of the Iowa curve set; and

3. No evidence was found to suggest that the number of curves within the Iowa curve set should be reduced.

Prior to Russo's study, some had criticized the Iowa curves as being potentially obsolete because their development was rooted in the study of industrial property in existence during the early 1900s. Russo's research, however, negated this criticism by confirming that the Iowa curves represent a sufficiently wide range of life patterns and that, though technology will change over time, the underlying patterns of retirements remain constant and can be adequately described by the Iowa curves.[29]

Over the years, several more curve types have been added to Winfrey's 18 Iowa curves. In 1967, Harold Cowles added four origin-modal curves. In addition, a square curve is sometimes used to depict retirements which are all planned to occur at a given age. Finally, analysts commonly rely on several "half curves" derived from the original Iowa curves. Thus, the term "Iowa curves" could be said to describe up to 31 standardized survivor curves.

[28] *See* Wolf *supra* n. 1, at 37.

[29] *Id*.

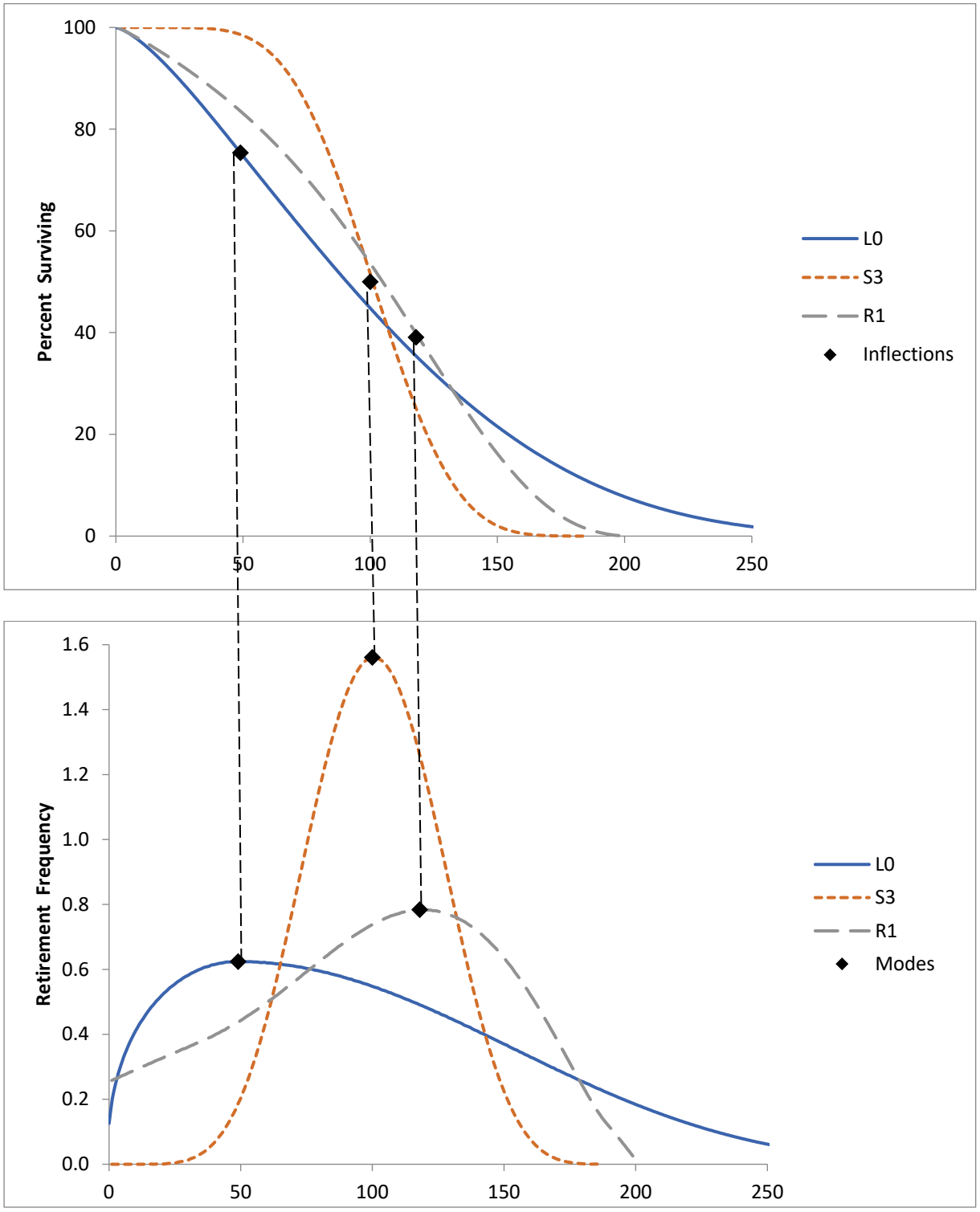
2. Classification

The Iowa curves are classified by three variables: modal location, average life, and variation of life. First, the mode is the percent life that results in the highest point of the frequency curve and the "inflection point" on the survivor curve. The modal age is the age at which the greatest rate of retirement occurs. As illustrated in the figure below, the modes appear at the steepest point of each survivor curve in the top graph, as well as the highest point of each corresponding frequency curve in the bottom graph.

The classification of the survivor curves was made according to whether the mode of the retirement frequency curves was to the left, to the right, or coincident with average service life. There are three modal "families" of curves: six left modal curves (L0, L1, L2, L3, L4, L5); five right modal curves (R1, R2, R3, R4, R5); and seven symmetrical curves (S0, S1, S2, S3, S4, S5, S6).[30] In the figure below, one curve from each family is shown: L0, S3 and R1, with average life at 100 on the x-axis. It is clear from the graphs that the modes for the L0 and R1 curves appear to the left and right of average life respectively, while the S3 mode is coincident with average life.

[30] In 1967, Harold A. Cowles added four origin-modal curves known as "O type" curves. There are also several "half" curves and a square curve, so the total amount of survivor curves commonly called "Iowa" curves is about 31.

Figure 2:
Modal Age Illustration



The second Iowa curve classification variable is average life. The Iowa curves were designed using a single parameter of age expressed as a percent of average life instead of actual age. This design was necessary for the curves to be of practical value. As Winfrey notes:

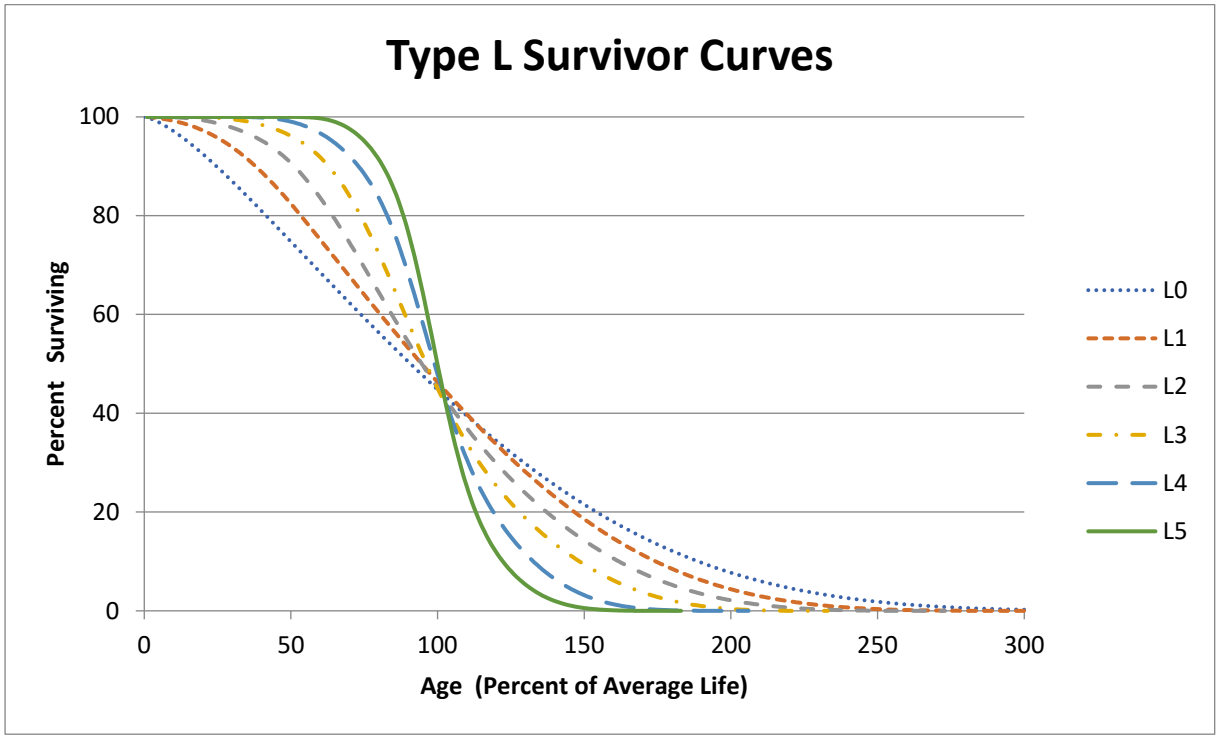
> Since the location of a particular survivor on a graph is affected by both its span in years and the shape of the curve, it is difficult to classify a group of curves unless one of these variables can be controlled. This is easily done by expressing the age in percent of average life."[31]

Because age is expressed in terms of percent of average life, any particular Iowa curve type can be modified to forecast property groups with various average lives.

The third variable, variation of life, is represented by the numbers next to each letter. A lower number (e.g., L1) indicates a relatively low mode, large variation, and large maximum life; a higher number (e.g., L5) indicates a relatively high mode, small variation, and small maximum life. All three classification variables – modal location, average life, and variation of life – are used to describe each Iowa curve. For example, a 13-L1 Iowa curve describes a group of property with a 13-year average life, with the greatest number of retirements occurring before (or to the left of) the average life, and a relatively low mode. The graphs below show these 18 survivor curves, organized by modal family.

[31] Winfrey *supra* n. 26, at 60.

Figure 3:
Type L Survivor and Frequency Curves



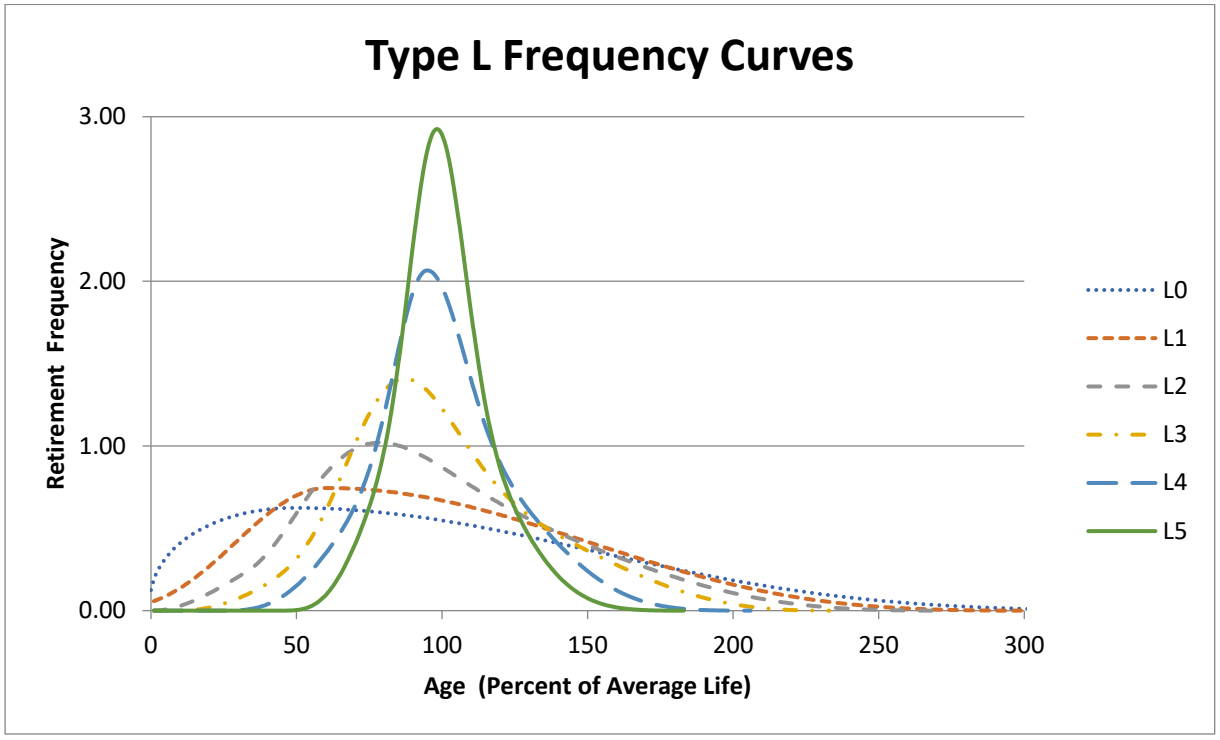
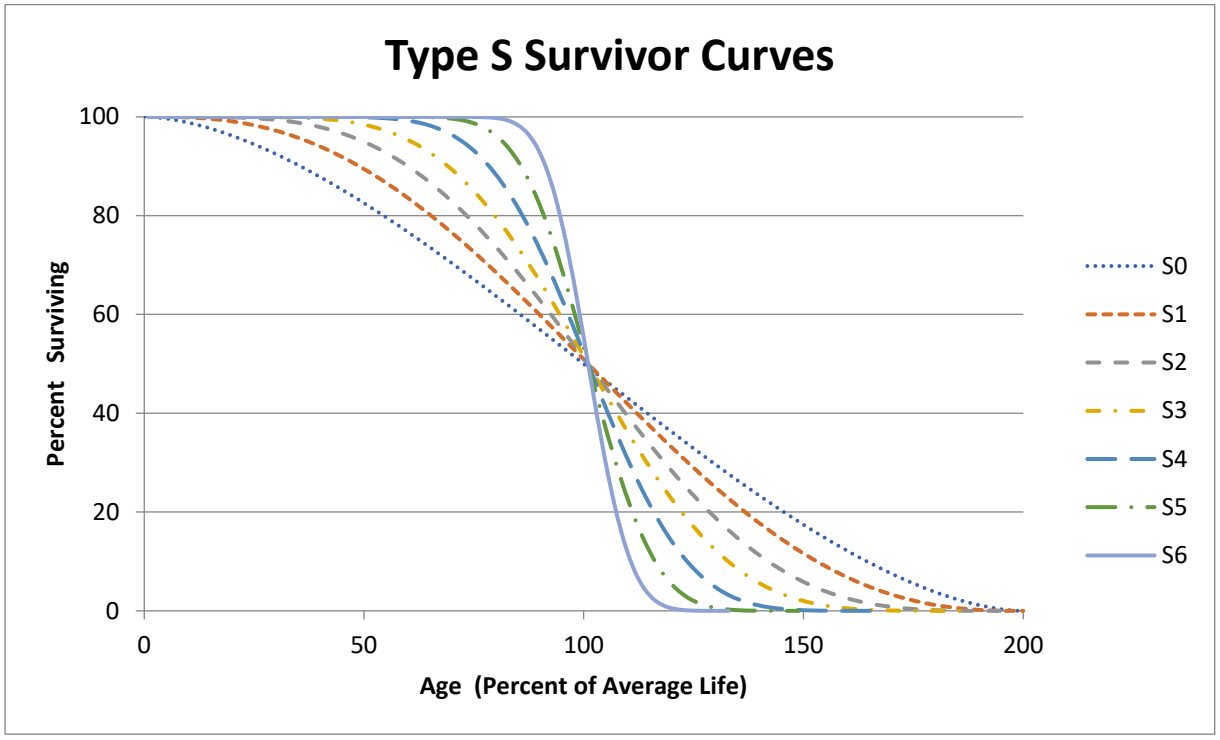


Figure 4:
Type S Survivor and Frequency Curves



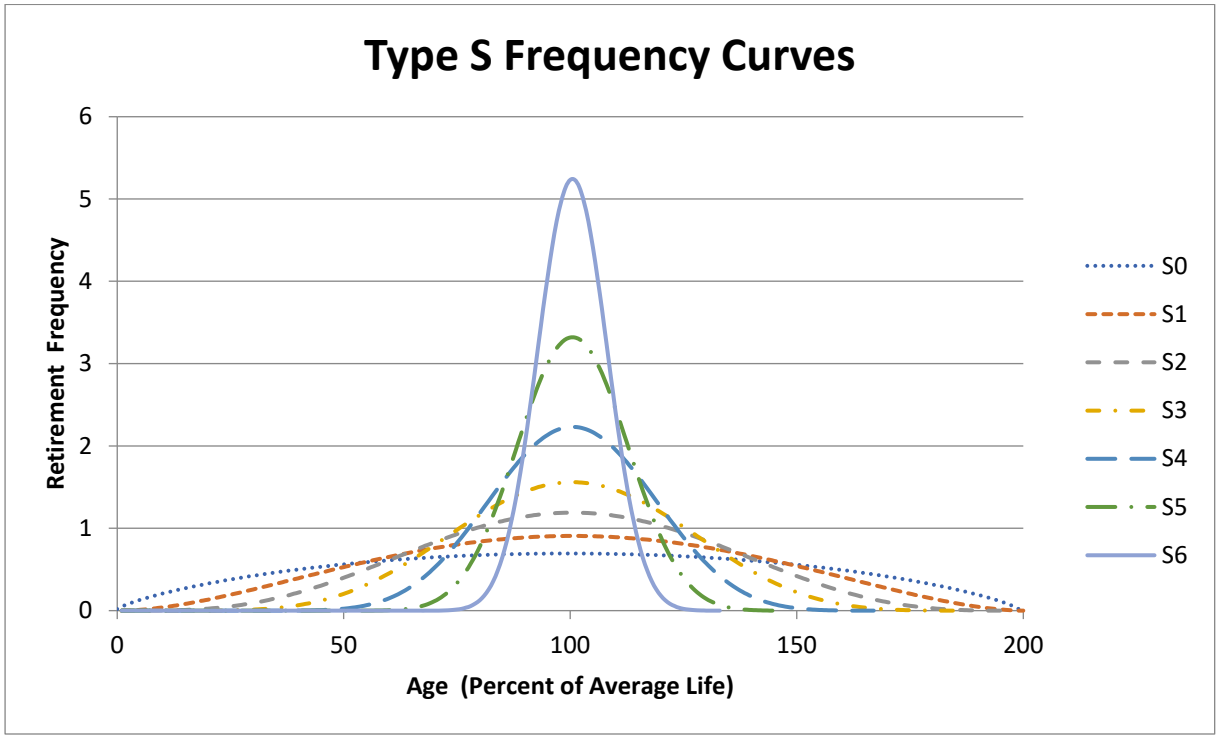
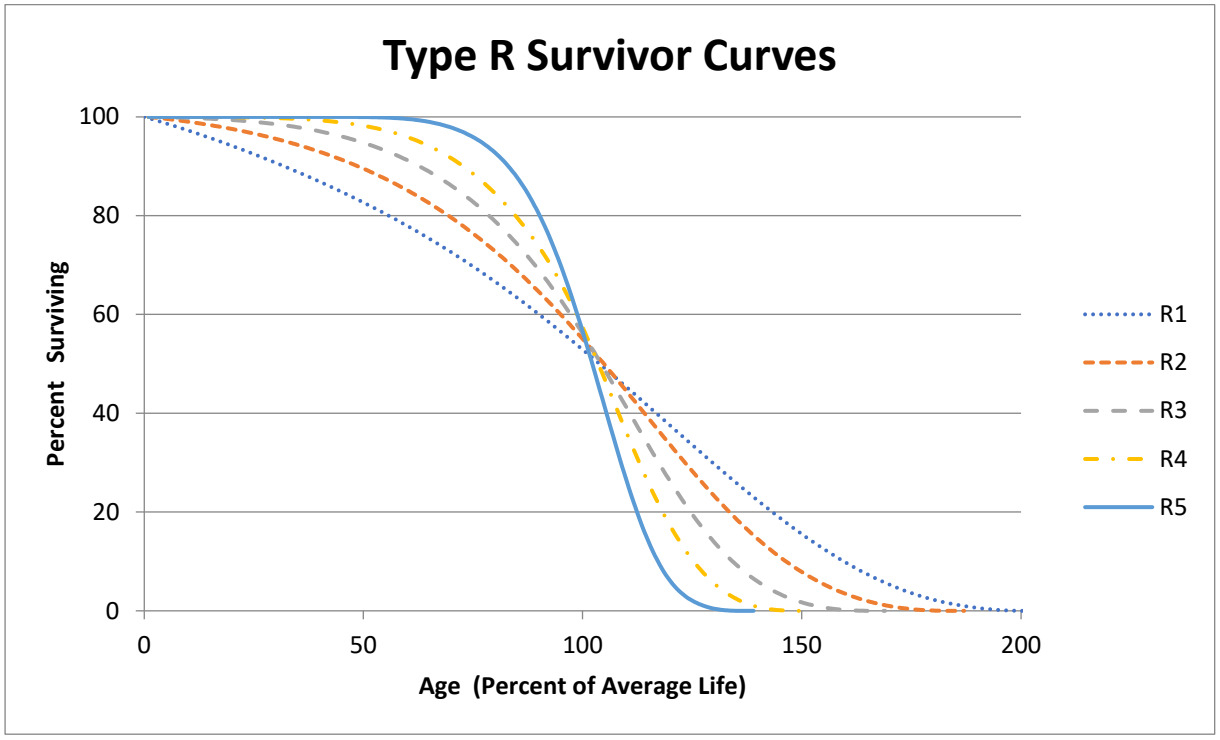
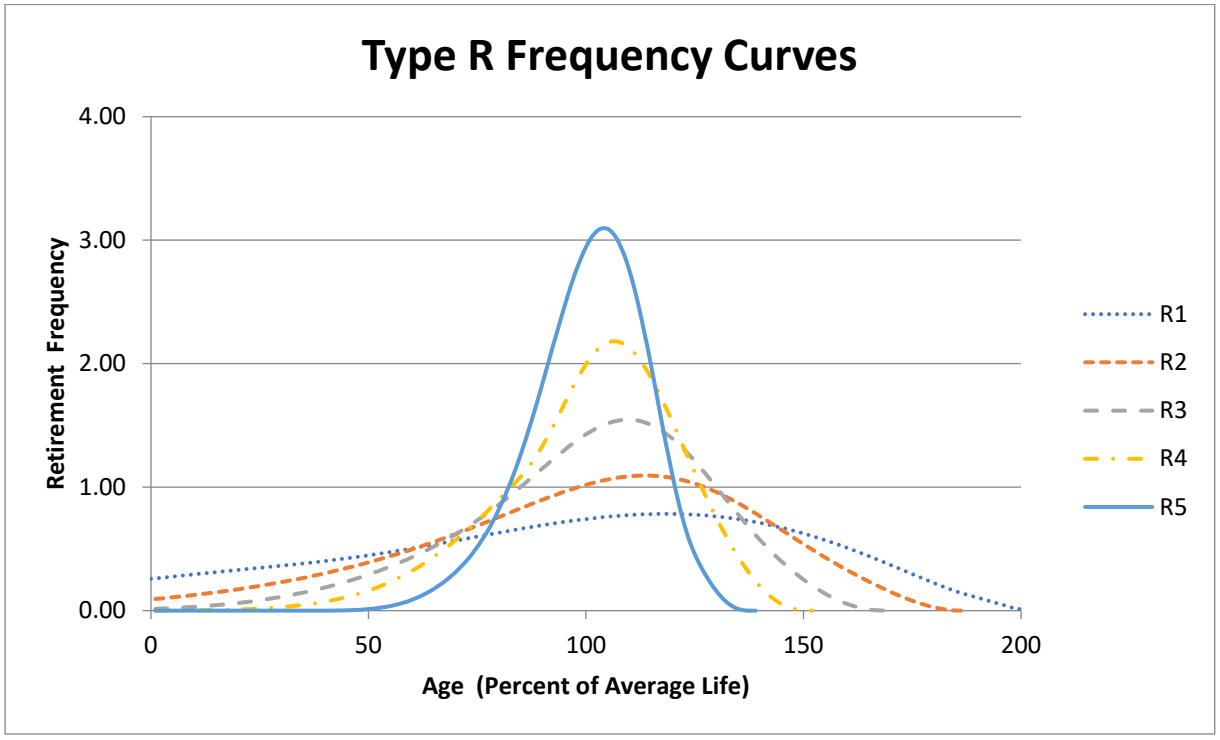


Figure 5:
Type R Survivor and Frequency Curves





As shown in the graphs above, the modes for the L family frequency curves occur to the left of average life (100% on the x-axis), while the S family modes occur at the average, and the R family modes occur after the average.

3. Types of Lives

Several other important statistical analyses and types of lives may be derived from an Iowa curve. These include: 1) average life; 2) realized life; 3) remaining life; and 4) probable life. The figure below illustrates these concepts. It shows the frequency curve, survivor curve, and probable life curve. Age M_x on the x-axis represents the modal age, while age AL_x represents the average age. Thus, this figure illustrates an "L type" Iowa curve since the mode occurs before the average.[32]

First, average life is the area under the survivor curve from age zero to maximum life. Because the survivor curve is measured in percent, the area under the curve must be divided by 100% to convert it from percent-years to years. The formula for average life is as follows:[33]

Equation 4:
Average Life

$$Average\ Life\ = \frac{Area\ Under\ Survivor\ Curve\ from\ Age\ 0\ to\ Max\ Life}{100\%}$$

Thus, average life may not be determined without a complete survivor curve. Many property groups being analyzed will not have experienced full retirement. This dynamic results in a "stub" survivor curve. Iowa curves are used to extend stub curves to maximum life in order to make the average life calculation (see Appendix C).

[32] From age zero to age M_x on the survivor curve, it could be said that the percent surviving from this property group is decreasing at an increasing rate. Conversely, from point M_x to maximum on the survivor curve, the percent surviving is decreasing at a decreasing rate.

[33] NARUC *supra* n. 4, at 71.

Realized life is similar to average life, except that realized life is the average years of service experienced to date from the vintage's original installations.[34] As shown in the figure below, realized life is the area under the survivor curve from zero to age RL_X. Likewise, unrealized life is the area under the survivor curve from age RL_X to maximum life. Thus, it could be said that average life equals realized life plus unrealized life.

Average remaining life represents the future years of service expected from the surviving property.[35] Remaining life is sometimes referred to as "average remaining life" and "life expectancy." To calculate average remaining life at age x, the area under the estimated future portion of the survivor curve is divided by the percent surviving at age x (denoted S_X). Thus, the average remaining life formula is:

Equation 5:
Average Remaining Life

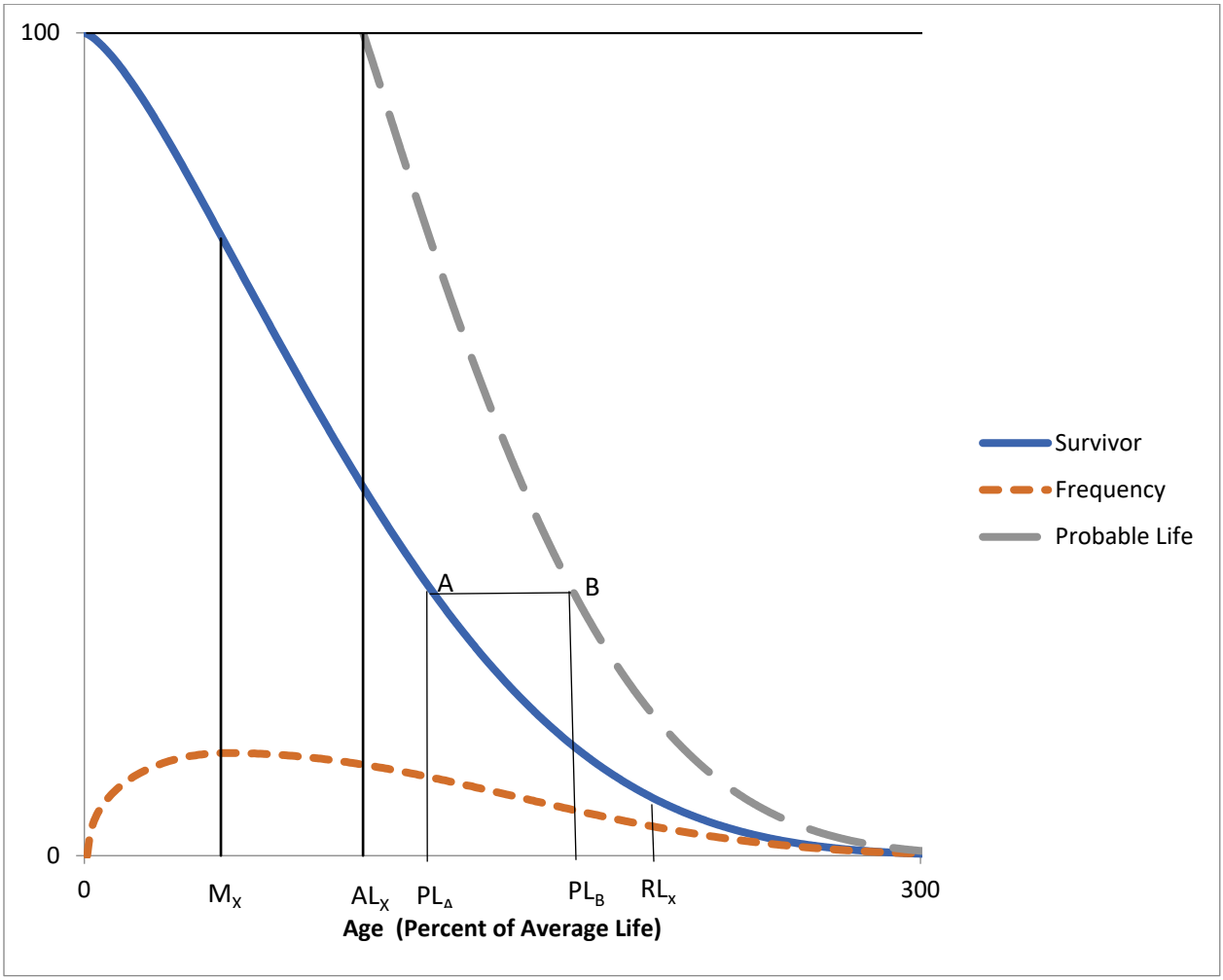
$$Average\ Remaining\ Life\ = \frac{Area\ Under\ Survivor\ Curve\ from\ Age\ x\ to\ Max\ Life}{S_X}$$

It is necessary to determine average remaining life to calculate the annual accrual under the remaining life technique.

[34] *Id*. at 73.

[35] *Id*. at 74.

Figure 6:
Iowa Curve Derivations



Finally, the probable life may also be determined from the Iowa curve. The probable life of a property group is the total life expectancy of the property surviving at any age and is equal to the remaining life plus the current age.[36] The probable life is also illustrated in this figure. The probable life at age PL_A is the age at point PL_B. Thus, to read the probable life at age PL_A, see the corresponding point on the survivor curve above at point "A," then horizontally to point "B" on

[36] Wolf *supra* n. 1, at 28.

the probable life curve, and back down to the age corresponding to point "B." It is no coincidence that the vertical line from AL_X connects at the top of the probable life curve. This connection occurs because at age zero, probable life equals average life.

APPENDIX C:

ACTUARIAL ANALYSIS

Actuarial science is a discipline that applies various statistical methods to assess risk probabilities and other related functions. Actuaries often study human mortality. The results from historical mortality data are used to predict how long similar groups of people who are alive today will live. Insurance companies rely on actuarial analysis in determining premiums for life insurance policies.

The study of human mortality is analogous to estimating service lives of industrial property groups. While some humans die solely from chance, most deaths are related to age; that is, death rates generally increase as age increases. Similarly, physical plant is also subject to forces of retirement. These forces include physical, functional, and contingent factors, as shown in the table below.[37]

Figure 7:
Forces of Retirement

Physical Factors	Functional Factors	Contingent Factors
Wear and tear Decay or deterioration Action of the elements	Inadequacy Obsolescence Changes in technology Regulations Managerial discretion	Casualties or disasters Extraordinary obsolescence

While actuaries study historical mortality data in order to predict how long a group of people will live, depreciation analysts must look at a utility's historical data in order to estimate the average lives of property groups. A utility's historical data is often contained in the Continuing Property Records ("CPR"). Generally, a CPR should contain 1) an inventory of property record

[37] NARUC *supra* n. 4, at 14-15.

units; 2) the association of costs with such units; and 3) the dates of installation and removal of plant. Since actuarial analysis includes the examination of historical data to forecast future retirements, the historical data used in the analysis should not contain events that are anomalous or unlikely to recur.[38] Historical data is used in the retirement rate actuarial method, which is discussed further below.

The Retirement Rate Method

There are several systematic actuarial methods that use historical data to calculate observed survivor curves for property groups. Of these methods, the retirement rate method is superior, and is widely employed by depreciation analysts.[39] The retirement rate method is ultimately used to develop an observed survivor curve, which can be fitted with an Iowa curve discussed in Appendix B to forecast average life. The observed survivor curve is calculated by using an observed life table ("OLT"). The figures below illustrate how the OLT is developed. First, historical property data are organized in a matrix format, with placement years on the left forming rows, and experience years on the top forming columns. The placement year (a.k.a. "vintage year" or "installation year") is the year of placement into service of a group of property. The experience year (a.k.a. "activity year") refers to the accounting data for a particular calendar year. The two matrices below use aged data—that is, data for which the dates of placements, retirements, transfers, and other transactions are known. Without aged data, the retirement rate actuarial method may not be employed. The first matrix is the exposure matrix, which shows the exposures

[38] *Id*. at 112–13.

[39] Anson Marston, Robley Winfrey & Jean C. Hempstead, *Engineering Valuation and Depreciation* 154 (2nd ed., McGraw-Hill Book Company, Inc. 1953).

at the beginning of each year.[40] An exposure is simply the depreciable property subject to retirement during a period. The second matrix is the retirement matrix, which shows the annual retirements during each year. Each matrix covers placement years 2003–2015, and experience years 2008–2015. In the exposure matrix, the number in the 2012 experience column and the 2003 placement row is $192,000. This means at the beginning of 2012, there was $192,000 still exposed to retirement from the vintage group placed in 2003. Likewise, in the retirement matrix, $19,000 of the dollars invested in 2003 were retired during 2012.

Figure 8:
Exposure Matrix

	Experience Years Exposures at January 1 of Each Year (Dollars in 000's)									
Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	261	245	228	211	**192**	173	152	131	131	11.5 - 12.5
2004	267	252	236	220	202	**184**	165	145	297	10.5 - 11.5
2005	304	291	277	263	248	232	**216**	198	536	9.5 - 10.5
2006	345	334	322	310	298	284	270	**255**	**847**	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	1,201	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	1,581	6.5 - 7.5
2009		377	366	356	346	336	327	319	1,986	5.5 - 6.5
2010			381	369	358	347	336	327	2,404	4.5 - 5.5
2011				386	372	359	346	334	2,559	3.5 - 4.5
2012					395	380	366	352	2,722	2.5 - 3.5
2013						401	385	370	2,866	1.5 - 2.5
2014							410	393	2,998	0.5 - 1.5
2015								416	3,141	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	23,268	

[40] Technically, the last numbers in each column are "gross additions" rather than exposures. Gross additions do not include adjustments and transfers applicable to plant placed in a previous year. Once retirements, adjustments, and transfers are factored in, the balance at the beginning of the next accounting period is called an "exposure" rather than an addition.

Figure 9:
Retirement Matrix

	Experience Years Retirements During the Year (000's)									
Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	16	17	18	19	19	20	21	23	23	11.5 - 12.5
2004	15	16	17	17	18	19	20	21	43	10.5 - 11.5
2005	13	14	14	15	16	17	17	18	59	9.5 - 10.5
2006	11	12	12	13	13	14	15	15	71	8.5 - 9.5
2007	10	11	11	12	12	13	13	14	82	7.5 - 8.5
2008	9	9	10	10	11	11	12	13	91	6.5 - 7.5
2009		11	10	10	9	9	9	8	95	5.5 - 6.5
2010			12	11	11	10	10	9	100	4.5 - 5.5
2011				14	13	13	12	11	93	3.5 - 4.5
2012					15	14	14	13	91	2.5 - 3.5
2013						16	15	14	93	1.5 - 2.5
2014							17	16	100	0.5 - 1.5
2015								18	112	0.0 - 0.5
Total	74	89	104	121	139	157	175	194	1,052	

These matrices help visualize how exposure and retirement data are calculated for each age interval. An age interval is typically one year. A common convention is to assume that any unit installed during the year is installed in the middle of the calendar year (i.e., July 1st). This convention is called the "half-year convention" and effectively assumes that all units are installed uniformly during the year.[41] Adoption of the half-year convention leads to age intervals of 0–0.5 years, 0.5–1.5 years, etc., as shown in the matrices.

The purpose of the matrices is to calculate the totals for each age interval, which are shown in the second column from the right in each matrix. This column is calculated by adding each number from the corresponding age interval in the matrix. For example, in the exposure matrix, the total amount of exposures at the beginning of the 8.5–9.5 age interval is $847,000. This number was calculated by adding the numbers shown on the "stairs" to the left (192+184+216+255=847). The same calculation is applied to each number in the column. The amounts retired during the

[41] Wolf *supra* n. 1, at 22.

year in the retirements matrix affect the exposures at the beginning of each year in the exposures matrix. For example, the amount exposed to retirement in 2008 from the 2003 vintage is $261,000. The amount retired during 2008 from the 2003 vintage is $16,000. Thus, the amount exposed to retirement at the beginning of 2009 from the 2003 vintage is $245,000 ($261,000 - $16,000). The company's property records may contain other transactions which affect the property, including sales, transfers, and adjusting entries. Although these transactions are not shown in the matrices above, they would nonetheless affect the amount exposed to retirement at the beginning of each year.

The totaled amounts for each age interval in both matrices are used to form the exposure and retirement columns in the OLT, as shown in the chart below. This chart also shows the retirement ratio and the survivor ratio for each age interval. The retirement ratio for an age interval is the ratio of retirements during the interval to the property exposed to retirement at the beginning of the interval. The retirement ratio represents the probability that the property surviving at the beginning of an age interval will be retired during the interval. The survivor ratio is simply the complement to the retirement ratio (1 – retirement ratio). The survivor ratio represents the probability that the property surviving at the beginning of an age interval will survive to the next age interval.

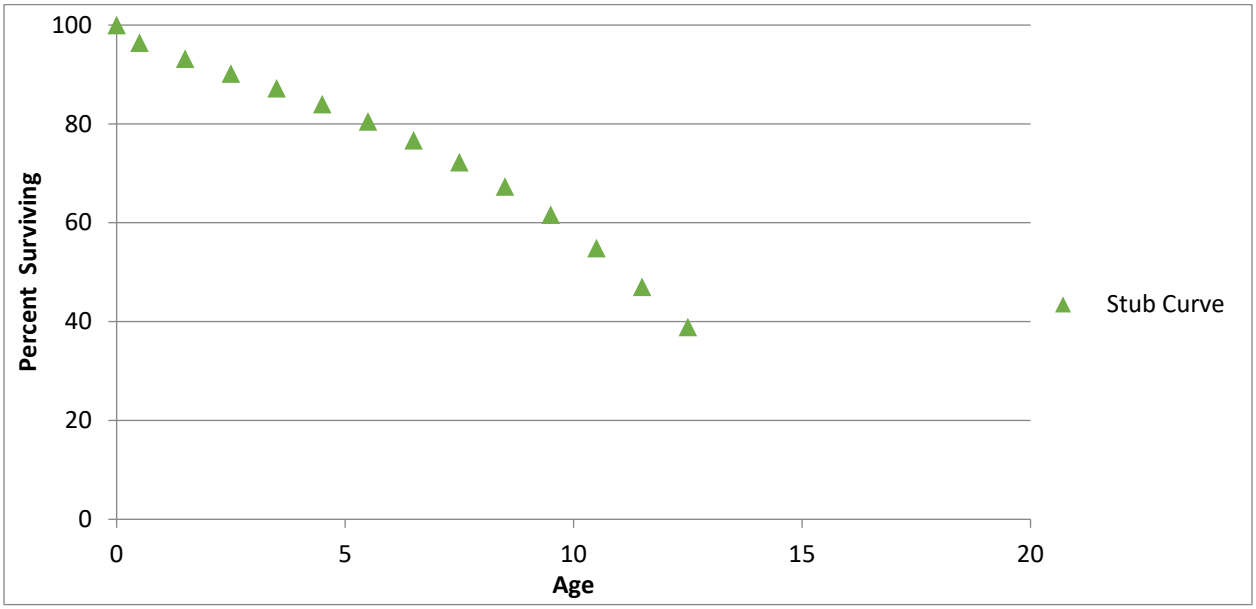
Figure 10:
Observed Life Table

Age at Start of Interval	Exposures at Start of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Start of Age Interval
A	B	C	D = C / B	E = 1 - D	F
0.0	3,141	112	0.036	0.964	**100.00**
0.5	2,998	100	0.033	0.967	**96.43**
1.5	2,866	93	0.032	0.968	**93.21**
2.5	2,722	91	0.033	0.967	**90.19**
3.5	2,559	93	0.037	0.963	**87.19**
4.5	2,404	100	0.042	0.958	**84.01**
5.5	1,986	95	0.048	0.952	**80.50**
6.5	1,581	91	0.058	0.942	**76.67**
7.5	1,201	82	0.068	0.932	**72.26**
8.5	847	71	0.084	0.916	**67.31**
9.5	536	59	0.110	0.890	**61.63**
10.5	297	43	0.143	0.857	**54.87**
11.5	131	23	0.172	0.828	**47.01**
					38.91
Total	23,268	1,052			

Column F on the right shows the percentages surviving at the beginning of each age interval. This column starts at 100 percent surviving. Each consecutive number below is calculated by multiplying the percent surviving from the previous age interval by the corresponding survivor ratio for that age interval. For example, the percent surviving at the start of age interval 1.5 is 93.21 percent, which was calculated by multiplying the percent surviving for age interval 0.5 (96.43 percent) by the survivor ratio for age interval 0.5 (0.967).

The percentages surviving in Column F are the numbers that are used to form the original survivor curve. This particular curve starts at 100 percent surviving and ends at 38.91 percent surviving. An observed survivor curve such as this that does not reach zero percent surviving is called a "stub" curve. The figure below illustrates the stub survivor curve derived from the OLT above.

Figure 11:
Original "Stub" Survivor Curve



The matrices used to develop the basic OLT and stub survivor curve provide a basic illustration of the retirement rate method in that only a few placement and experience years were used. In reality, analysts may have several decades of aged property data to analyze. In that case, it may be useful to use a technique called "banding" in order to identify trends in the data.

Banding

The forces of retirement and characteristics of industrial property are constantly changing. A depreciation analyst may examine the magnitude of these changes. Analysts often use a technique called "banding" to assist with this process. Banding refers to the merging of several years of data into a single data set for further analysis, and it is a common technique associated with the retirement rate method.[42] There are three primary benefits of using bands in depreciation analysis:

[42] NARUC *supra* n. 4, at 113.

1. Increasing the sample size. In statistical analyses, the larger the sample size in relation to the body of total data, the greater the reliability of the result;

2. Smooth the observed data. Generally, the data obtained from a single activity or vintage year will not produce an observed life table that can be easily fit; and

3. Identify trends. By looking at successive bands, the analyst may identify broad trends in the data that may be useful in projecting the future life characteristics of the property.[43]

Two common types of banding methods are the "placement band" method and the "experience band" method." A placement band, as the name implies, isolates selected placement years for analysis. The figure below illustrates the same exposure matrix shown above, except that only the placement years 2005–2008 are considered in calculating the total exposures at the beginning of each age interval.

Figure 12:
Placement Bands

	Experience Years									
	Exposures at January 1 of Each Year (Dollars in 000's)									
Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	261	245	228	211	192	173	152	131		11.5 - 12.5
2004	267	252	236	220	202	184	165	145		10.5 - 11.5
2005	304	291	277	263	248	232	216	198	198	9.5 - 10.5
2006	345	334	322	310	298	284	270	255	471	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	788	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	1,133	6.5 - 7.5
2009		377	366	356	346	336	327	319	1,186	5.5 - 6.5
2010			381	369	358	347	336	327	1,237	4.5 - 5.5
2011				386	372	359	346	334	1,285	3.5 - 4.5
2012					395	380	366	352	1,331	2.5 - 3.5
2013						401	385	370	1,059	1.5 - 2.5
2014							410	393	733	0.5 - 1.5
2015								416	375	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	9,796	

The shaded cells within the placement band equal the total exposures at the beginning of age interval 4.5–5.5 ($1,237). The same placement band would be used for the retirement matrix

[43] *Id*.

covering the same placement years of 2005–2008. This use of course would result in a different OLT and original stub survivor curve than those that were calculated above without the restriction of a placement band.

Analysts often use placement bands for comparing the survivor characteristics of properties with different physical characteristics.[44] Placement bands allow analysts to isolate the effects of changes in technology and materials that occur in successive generations of plant. For example, if in 2005 an electric utility began placing transmission poles into service with a special chemical treatment that extended the service lives of those poles, an analyst could use placement bands to isolate and analyze the effect of that change in the property group's physical characteristics. While placement bands are very useful in depreciation analysis, they also possess an intrinsic dilemma. A fundamental characteristic of placement bands is that they yield fairly complete survivor curves for older vintages. However, with newer vintages, which are arguably more valuable for forecasting, placement bands yield shorter survivor curves. Longer "stub" curves are considered more valuable for forecasting average life. Thus, an analyst must select a band width broad enough to provide confidence in the reliability of the resulting curve fit yet narrow enough so that an emerging trend may be observed.[45]

Analysts also use "experience bands." Experience bands show the composite retirement history for all vintages during a select set of activity years. The figure below shows the same data presented in the previous exposure matrices, except that the experience band from 2011–2013 is isolated, resulting in different interval totals.

[44] Wolf *supra* n. 1, at 182.

[45] NARUC *supra* n. 4, at 114.

Figure 13:
Experience Bands

Placement Years	Experience Years: Exposures at January 1 of Each Year (Dollars in 000's) 2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
2003	261	245	228	211	192	173	152	131		11.5 - 12.5
2004	267	252	236	220	202	184	165	145		10.5 - 11.5
2005	304	291	277	263	248	232	216	198	173	9.5 - 10.5
2006	345	334	322	310	298	284	270	255	376	8.5 - 9.5
2007	367	357	347	335	324	312	299	286	645	7.5 - 8.5
2008	375	366	357	347	336	325	314	302	752	6.5 - 7.5
2009		377	366	356	346	336	327	319	872	5.5 - 6.5
2010			381	369	358	347	336	327	959	4.5 - 5.5
2011				386	372	359	346	334	1,008	3.5 - 4.5
2012					395	380	366	352	1,039	2.5 - 3.5
2013						401	385	370	1,072	1.5 - 2.5
2014							410	393	1,121	0.5 - 1.5
2015								416	1,182	0.0 - 0.5
Total	1919	2222	2514	2796	3070	3333	3586	3827	9,199	

The shaded cells within the experience band equal the total exposures at the beginning of age interval 4.5–5.5 ($1,237). The same experience band would be used for the retirement matrix covering the same experience years of 2011–2013. This use of course would result in a different OLT and original stub survivor than if the band had not been used. Analysts often use experience bands to isolate and analyze the effects of an operating environment over time.[46] Likewise, the use of experience bands allows analysis of the effects of an unusual environmental event. For example, if an unusually severe ice storm occurred in 2013, destruction from that storm would affect an electric utility's line transformers of all ages. That is, each of the line transformers from each placement year would be affected, including those recently installed in 2012, as well as those installed in 2003. Using experience bands, an analyst could isolate or even eliminate the 2013 experience year from the analysis. In contrast, a placement band would not effectively isolate the ice storm's effect on life characteristics. Rather, the placement band would show an unusually

[46] *Id*.

large rate of retirement during 2013, making it more difficult to accurately fit the data with a smooth Iowa curve. Experience bands tend to yield the most complete stub curves for recent bands because they have the greatest number of vintages included. Longer stub curves are better for forecasting. The experience bands, however, may also result in more erratic retirement dispersion making the curve-fitting process more difficult.

Depreciation analysts must use professional judgment in determining the types of bands to use and the band widths. In practice, analysts may use various combinations of placement and experience bands in order to increase the data sample size, identify trends and changes in life characteristics, and isolate unusual events. Regardless of which bands are used, observed survivor curves in depreciation analysis rarely reach zero percent. They rarely reach zero percent because, as seen in the OLT above, relatively newer vintage groups have not yet been fully retired at the time the property is studied. An analyst could confine the analysis to older, fully retired vintage groups to get complete survivor curves, but such analysis would ignore some of the property currently in service and would arguably not provide an accurate description of life characteristics for current plant in service. Because a complete curve is necessary to calculate the average life of the property group, however, curve-fitting techniques using Iowa curves or other standardized curves may be employed in order to complete the stub curve.

Curve Fitting

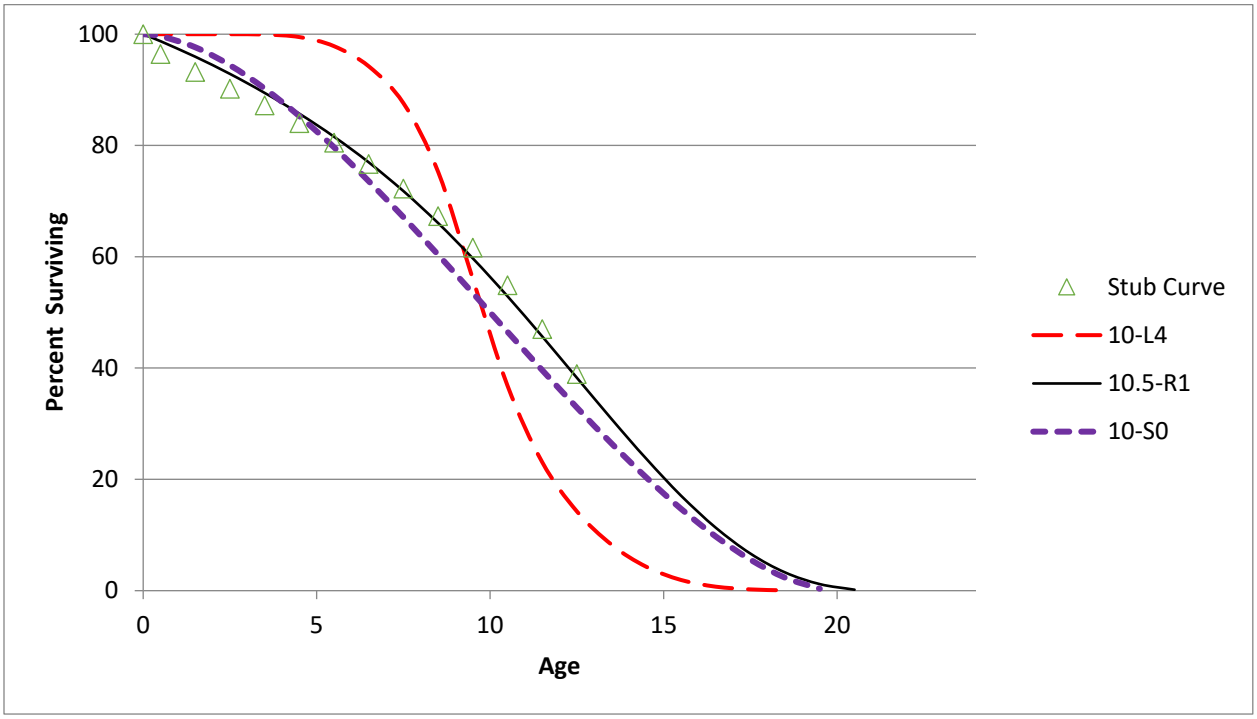
Depreciation analysts typically use the survivor curve rather than the frequency curve to fit the observed stub curves. The most commonly used generalized survivor curves in the curve-fitting process are the Iowa curves discussed above. As Wolf notes, if "the Iowa curves are adopted

as a model, an underlying assumption is that the process describing the retirement pattern is one of the 22 [or more] processes described by the Iowa curves."[47]

Curve fitting may be done through visual matching or mathematical matching. In visual curve fitting, the analyst visually examines the plotted data to make an initial judgment about the Iowa curves that may be a good fit. The figure below illustrates the stub survivor curve shown above. It also shows three different Iowa curves: the 10-L4, the 10.5-R1, and the 10-S0. Visually, the 10.5-R1 curve is clearly a better fit than the other two curves.

[47] Wolf *supra* n. 1, at 46 (22 curves includes Winfrey's 18 original curves plus Cowles's four "O" type curves).

Figure 14:
Visual Curve Fitting



In mathematical fitting, the least squares method is used to calculate the best fit. This mathematical method would be excessively time consuming if done by hand. With the use of modern computer software however, mathematical fitting is an efficient and useful process. The typical logic for a computer program, as well as the software employed for the analysis in this testimony is as follows:

> First (an Iowa curve) curve is arbitrarily selected. . . . If the observed curve is a stub curve, . . . calculate the area under the curve and up to the age at final data point. Call this area the realized life. Then systematically vary the average life of the theoretical survivor curve and calculate its realized life at the age corresponding to the study date. This trial and error procedure ends when you find an average life such that the realized life of the theoretical curve equals the realized life of the observed curve. Call this the average life.
>
> Once the average life is found, calculate the difference between each percent surviving point on the observed survivor curve and the corresponding point on the Iowa curve. Square each difference and sum them. The sum of squares is used as a measure of goodness of fit for that particular Iowa type curve. This procedure is

> repeated for the remaining 21 Iowa type curves. The "best fit" is declared to be the type of curve that minimizes the sum of differences squared.[48]

Mathematical fitting requires less judgment from the analyst and is thus less subjective. Blind reliance on mathematical fitting, however, may lead to poor estimates. Thus, analysts should employ both mathematical and visual curve fitting in reaching their final estimates. This way, analysts may utilize the objective nature of mathematical fitting while still employing professional judgment. As Wolf notes: "The results of mathematical curve fitting serve as a guide for the analyst and speed the visual fitting process. But the results of the mathematical fitting should be checked visually, and the final determination of the best fit be made by the analyst."[49]

In the graph above, visual fitting was sufficient to determine that the 10.5-R1 Iowa curve was a better fit than the 10-L4 and the 10-S0 curves. Using the sum of least squares method, mathematical fitting confirms the same result. In the chart below, the percentages surviving from the OLT that formed the original stub curve are shown in the left column, while the corresponding percentages surviving for each age interval are shown for the three Iowa curves. The right portion of the chart shows the differences between the points on each Iowa curve and the stub curve. These differences are summed at the bottom. Curve 10.5-R1 is the best fit because the sum of the squared differences for this curve is less than the same sum for the other two curves. Curve 10-L4 is the worst fit, which was also confirmed visually.

---

[48] Wolf *supra* n. 1, at 47.

[49] *Id*. at 48.

Figure 15:
Mathematical Fitting

Age Interval	Stub Curve	Iowa Curves			Squared Differences		
		10-L4	10-S0	10.5-R1	10-L4	10-S0	10.5-R1
0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
0.5	96.4	100.0	99.7	98.7	12.7	10.3	5.3
1.5	93.2	100.0	97.7	96.0	46.1	19.8	7.6
2.5	90.2	100.0	94.4	92.9	96.2	18.0	7.2
3.5	87.2	100.0	90.2	89.5	162.9	9.3	5.2
4.5	84.0	99.5	85.3	85.7	239.9	1.6	2.9
5.5	80.5	97.9	79.7	81.6	301.1	0.7	1.2
6.5	76.7	94.2	73.6	77.0	308.5	9.5	0.1
7.5	72.3	87.6	67.1	71.8	235.2	26.5	0.2
8.5	67.3	75.2	60.4	66.1	62.7	48.2	1.6
9.5	61.6	56.0	53.5	59.7	31.4	66.6	3.6
10.5	54.9	36.8	46.5	52.9	325.4	69.6	3.9
11.5	47.0	23.1	39.6	45.7	572.6	54.4	1.8
12.5	38.9	14.2	32.9	38.2	609.6	36.2	0.4
SUM					**3004.2**	**371.0**	**41.0**

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Society of Depreciation Professionals
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Society of Utility and Regulatory Financial Analysts
Certified Rate of Return Analyst (CRRA)

WORK EXPERIENCE

Resolve Utility Consulting PLLC — Oklahoma City, OK
Managing Member — 2016 – Present
Provide expert analysis and testimony specializing in depreciation and cost of capital issues for clients in utility regulatory proceedings.

Oklahoma Corporation Commission — Oklahoma City, OK
Public Utility Regulatory Analyst — 2012 – 2016
Assistant General Counsel — 2011 – 2012
Represented commission staff in utility regulatory proceedings and provided legal opinions to commissioners. Provided expert analysis and testimony in depreciation, cost of capital, incentive compensation, payroll and other issues.

Perebus Counsel, PLLC — Oklahoma City, OK
Managing Member — 2009 – 2011
Represented clients in the areas of family law, estate planning, debt negotiations, business organization, and utility regulation.

Moricoli & Schovanec, P.C. — Oklahoma City, OK
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Adjunct Instructor – "Ethics in Leadership"

Rose State College — Midwest City, OK
Adjunct Instructor – "Legal Research" — 2013 – 2015
Adjunct Instructor – "Oil & Gas Law"

PROFESSIONAL ASSOCIATIONS

Oklahoma Bar Association — 2007 – Present

Society of Depreciation Professionals — 2014 – Present
Board Member – President — 2017
Participate in management of operations, attend meetings, review performance, organize presentation agenda.

Society of Utility Regulatory Financial Analysts — 2014 – Present

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 2022-000093	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Public Service Commission of the State of Montana	NorthWestern Energy	2022.07.078	Cost of capital, depreciation rates, net salvage	Montana Consumer Counsel and Montana Large Customer Group
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45772	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Service Commission of South Carolina	Duke Energy Progress	2022-254-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Wyoming Public Service Commission	Cheyenne Light, Fuel and Power Company D/B/A Black Hills Energy	20003-214-ER-22	Depreciation rates, service lives, net salvage	Wyoming Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	OS-22-00009896	Depreciation rates, service lives, net salvage	The City of El Paso
Public Utilities Commission of Nevada	Sierra Pacific Power Company	22-06014	Depreciation rates, service lives, net salvage	Bureau of Consumer Protection
Washington Utilities & Transportation Commission	Puget Sound Energy	UE-220066 UG-220067 UG-210918	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
Public Utility Commission of Texas	Oncor Electric Delivery Company LLC	PUC 53601	Depreciation rates, service lives, net salvage	Alliance of Oncor Cities
Florida Public Service Commission	Florida Public Utilities Company	20220067-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 53719	Depreciation rates, decommissioning costs	Texas Municipal Group
Florida Public Service Commission	Florida City Gas	2020069-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Connecticut Public Utilities Regulatory Authority	Aquarion Water Company of Connecticut	22-07-01	Depreciation rates, service lives, net salvage	PURA Staff
Washington Utilities & Transportation Commission	Avista Corporation	UE-220053 UG-220054 UE-210854	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Federal Energy Regulatory Commission	ANR Pipeline Company	RP22-501-000	Depreciation rates, service lives, net salvage	Ascent Resources - Utica, LLC
Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania, Inc.	R-2022-3031211	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Service Commission of South Carolina	Piedmont Natural Gas Company	2022-89-G	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	UGI Utilities, Inc. - Gas Division	R-2021-3030218	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	A.21-06-021	Depreciation rates, service lives, net salvage	The Utility Reform Network
Pennsylvania Public Utility Commission	PECO Energy Company - Gas Division	R-2022-3031113	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 202100164	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Massachusetts Department of Public Utilities	NSTAR Electric Company D/B/A Eversource Energy	D.P.U. 22-22	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Michigan Public Service Company	DTE Electric Company	U-20836	Cost of capital, awarded rate of return, capital structure	Michigan Environmental Council and Citizens Utility Board of Michigan
New York State Public Service Commission	Consolidated Edison Company of New York, Inc.	22-E-0064 22-G-0065	Depreciation rates, service lives, net salvage, depreciation reserve	The City of New York
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / East Whiteland Township	A-2021-3026132	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
Public Service Commission of South Carolina	Kiawah Island Utility, Inc.	2021-324-WS	Cost of capital, awarded rate of return, capital structure	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / Willistown Township	A-2021-3027268	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45621	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Arkansas Public Service Commission	Southwestern Electric Power Company	21-070-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers
Federal Energy Regulatory Commission	Southern Star Central Gas Pipeline	RP21-778-002	Depreciation rates, service lives, net salvage	Consumer-Owned Shippers
Railroad Commission of Texas	Participating Texas gas utilities in consolidated proceeding	OS-21-00007061	Securitization of extraordinary gas costs arising from winter storms	The City of El Paso
Public Service Commission of South Carolina	Palmetto Wastewater Reclamation, Inc.	2021-153-S	Cost of capital, awarded rate of return, capital structure, ring-fencing	South Carolina Office of Regulatory Staff
Public Utilties Commission of the State of Colorado	Public Service Company of Colorado	21AL-0317E	Cost of capital, depreciation rates, net salvage	Colorado Energy Consumers
Pennsylvania Public Utility Commission	City of Lancaster - Water Department	R-2021-3026682	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 51802	Depreciation rates, service lives, net salvage	The Alliance of Xcel Municipalities
Pennsylvania Public Utility Commission	The Borough of Hanover - Hanover Municipal Waterworks	R-2021-3026116	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Delmarva Power & Light Company	9670	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 202100063	Cost of capital, awarded rate of return, capital structure	Oklahoma Industrial Energy Consumers
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45576	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	El Paso Electric Company	PUC 52195	Depreciation rates, service lives, net salvage	The City of El Paso
Pennsylvania Public Utility Commission	Aqua Pennsylvania	R-2021-3027385	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Public Service Commission of the State of Montana	NorthWestern Energy	D2021.02.022	Cost of capital, awarded rate of return, capital structure	Montana Consumer Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Pennsylvania Public Utility Commission	PECO Energy Company	R-2021-3024601	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	20-00238-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 202100055	Cost of capital, depreciation rates, net salvage	Oklahoma Industrial Energy Consumers
Pennsylvania Public Utility Commission	Duquesne Light Company	R-2021-3024750	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Maryland Public Service Commission	Columbia Gas of Maryland	9664	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Southern Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45447	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 51415	Depreciation rates, service lives, net salvage	Cities Advocating Reasonable Deregulation
New Mexico Public Regulatory Commission	Avangrid, Inc., Avangrid Networks, Inc., NM Green Holdings, Inc., PNM, and PNM Resources	20-00222-UT	Ring fencing and capital structure	The Albuquerque Bernalillo County Water Utility Authority
Indiana Utility Regulatory Commission	Indiana Gas Company, d/b/a Vectren Energy Delivery of Indiana, Inc.	45468	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of Nevada	Nevada Power Company and Sierra Pacific Power Company, d/b/a NV Energy	20-07023	Construction work in progress	MGM Resorts International, Caesars Enterprise Services, LLC, and the Southern Nevada Water Authority
Massachusetts Department of Public Utilities	Boston Gas Company, d/b/a National Grid	D.P.U. 20-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Public Service Commission of the State of Montana	ABACO Energy Services, LLC	D2020.07.082	Cost of capital and authorized rate of return	Montana Consumer Counsel
Maryland Public Service Commission	Washington Gas Light Company	9651	Cost of capital and authorized rate of return	Maryland Office of People's Counsel
Florida Public Service Commission	Utilities, Inc. of Florida	20200139-WS	Cost of capital and authorized rate of return	Florida Office of Public Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
New Mexico Public Regulatory Commission	El Paso Electric Company	20-00104-UT	Cost of capital, depreciation rates, net salvage	City of Las Cruces and Doña Ana County
Public Utilities Commission of Nevada	Nevada Power Company	20-06003	Cost of capital, awarded rate of return, capital structure, earnings sharing	MGM Resorts International, Caesars Enterprise Services, LLC, Wynn Las Vegas, LLC, Smart Energy Alliance, and Circus Circus Las Vegas, LLC
Wyoming Public Service Commission	Rocky Mountain Power	20000-578-ER-20	Cost of capital and authorized rate of return	Wyoming Industrial Energy Consumers
Florida Public Service Commission	Peoples Gas System	20200051-GU 20200166-GU	Cost of capital, depreciation rates, net salvage	Florida Office of Public Counsel
Wyoming Public Service Commission	Rocky Mountain Power	20000-539-EA-18	Depreciation rates, service lives, net salvage	Wyoming Industrial Energy Consumers
Public Service Commission of South Carolina	Dominion Energy South Carolina	2020-125-E	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Pennsylvania Public Utility Commission	The City of Bethlehem	2020-3020256	Cost of capital, awarded rate of return, capital structure	Pennsylvania Office of Consumer Advocate
Railroad Commission of Texas	Texas Gas Services Company	GUD 10928	Depreciation rates, service lives, net salvage	Gulf Coast Service Area Steering Committee
Public Utilities Commission of the State of California	Southern California Edison	A.19-08-013	Depreciation rates, service lives, net salvage	The Utility Reform Network
Massachusetts Department of Public Utilities	NSTAR Gas Company	D.P.U. 19-120	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Georgia Public Service Commission	Liberty Utilities (Peach State Natural Gas)	42959	Depreciation rates, service lives, net salvage	Public Interest Advocacy Staff
Florida Public Service Commission	Florida Public Utilities Company	20190155-EI 20190156-EI 20190174-EI	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Illinois Commerce Commission	Commonwealth Edison Company	20-0393	Depreciation rates, service lives, net salvage	The Office of the Illinois Attorney General
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 49831	Depreciation rates, service lives, net salvage	Alliance of Xcel Municipalities

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Service Commission of South Carolina	Blue Granite Water Company	2019-290-WS	Depreciation rates, service lives, net salvage	South Carolina Office of Regulatory Staff
Railroad Commission of Texas	CenterPoint Energy Resources	GUD 10920	Depreciation rates and grouping procedure	Alliance of CenterPoint Municipalities
Pennsylvania Public Utility Commission	Aqua Pennsylvania Wastewater / East Norriton Township	A-2019-3009052	Fair market value estimates for wastewater assets	Pennsylvania Office of Consumer Advocate
New Mexico Public Regulation Commission	Southwestern Public Service Company	19-00170-UT	Cost of capital and authorized rate of return	The New Mexico Large Customer Group; Occidental Permian
Indiana Utility Regulatory Commission	Duke Energy Indiana	45253	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Maryland Public Service Commission	Columbia Gas of Maryland	9609	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-190334	Cost of capital, awarded rate of return, capital structure	Washington Office of Attorney General
Indiana Utility Regulatory Commission	Indiana Michigan Power Company	45235	Cost of capital, depreciation rates, net salvage	Indiana Office of Utility Consumer Counselor
Public Utilities Commission of the State of California	Pacific Gas & Electric Company	18-12-009	Depreciation rates, service lives, net salvage	The Utility Reform Network
Oklahoma Corporation Commission	The Empire District Electric Company	PUD 201800133	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Arkansas Public Service Commission	Southwestern Electric Power Company	19-008-U	Cost of capital, depreciation rates, net salvage	Western Arkansas Large Energy Consumers
Public Utility Commission of Texas	CenterPoint Energy Houston Electric	PUC 49421	Depreciation rates, service lives, net salvage	Texas Coast Utilities Coalition
Massachusetts Department of Public Utilities	Massachusetts Electric Company and Nantucket Electric Company	D.P.U. 18-150	Depreciation rates, service lives, net salvage	Massachusetts Office of the Attorney General, Office of Ratepayer Advocacy
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201800140	Cost of capital, authorized ROE, depreciation rates	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2018.9.60	Depreciation rates, service lives, net salvage	Montana Consumer Counsel and Denbury Onshore
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company	45159	Depreciation rates, grouping procedure, demolition costs	Indiana Office of Utility Consumer Counselor
Public Service Commission of the State of Montana	NorthWestern Energy	D2018.2.12	Depreciation rates, service lives, net salvage	Montana Consumer Counsel
Oklahoma Corporation Commission	Public Service Company of Oklahoma	PUD 201800097	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Wal-Mart
Nevada Public Utilities Commission	Southwest Gas Corporation	18-05031	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	Texas-New Mexico Power Company	PUC 48401	Depreciation rates, service lives, net salvage	Alliance of Texas-New Mexico Power Municipalities
Oklahoma Corporation Commission	Oklahoma Gas & Electric Company	PUD 201700496	Depreciation rates, service lives, net salvage	Oklahoma Industrial Energy Consumers and Oklahoma Energy Results
Maryland Public Service Commission	Washington Gas Light Company	9481	Depreciation rates, service lives, net salvage	Maryland Office of People's Counsel
Indiana Utility Regulatory Commission	Citizens Energy Group	45039	Depreciation rates, service lives, net salvage	Indiana Office of Utility Consumer Counselor
Public Utility Commission of Texas	Entergy Texas, Inc.	PUC 48371	Depreciation rates, decommissioning costs	Texas Municipal Group
Washington Utilities & Transportation Commission	Avista Corporation	UE-180167	Depreciation rates, service lives, net salvage	Washington Office of Attorney General
New Mexico Public Regulation Commission	Southwestern Public Service Company	17-00255-UT	Cost of capital and authorized rate of return	HollyFrontier Navajo Refining; Occidental Permian
Public Utility Commission of Texas	Southwestern Public Service Company	PUC 47527	Depreciation rates, plant service lives	Alliance of Xcel Municipalities
Public Service Commission of the State of Montana	Montana-Dakota Utilities Company	D2017.9.79	Depreciation rates, service lives, net salvage	Montana Consumer Counsel

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Florida Public Service Commission	Florida City Gas	20170179-GU	Cost of capital, depreciation rates	Florida Office of Public Counsel
Washington Utilities & Transportation Commission	Avista Corporation	UE-170485	Cost of capital and authorized rate of return	Washington Office of Attorney General
Wyoming Public Service Commission	Powder River Energy Corporation	10014-182-CA-17	Credit analysis, cost of capital	Private customer
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201700151	Depreciation, terminal salvage, risk analysis	Oklahoma Industrial Energy Consumers
Public Utility Commission of Texas	Oncor Electric Delivery Company	PUC 46957	Depreciation rates, simulated analysis	Alliance of Oncor Cities
Nevada Public Utilities Commission	Nevada Power Company	17-06004	Depreciation rates, service lives, net salvage	Nevada Bureau of Consumer Protection
Public Utility Commission of Texas	El Paso Electric Company	PUC 46831	Depreciation rates, interim retirements	City of El Paso
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-24	Accelerated depreciation of North Valmy plant	Micron Technology, Inc.
Idaho Public Utilities Commission	Idaho Power Company	IPC-E-16-23	Depreciation rates, service lives, net salvage	Micron Technology, Inc.
Public Utility Commission of Texas	Southwestern Electric Power Company	PUC 46449	Depreciation rates, decommissioning costs	Cities Advocating Reasonable Deregulation
Massachusetts Department of Public Utilities	Eversource Energy	D.P.U. 17-05	Cost of capital, capital structure, and rate of return	Sunrun Inc.; Energy Freedom Coalition of America
Railroad Commission of Texas	Atmos Pipeline - Texas	GUD 10580	Depreciation rates, grouping procedure	City of Dallas
Public Utility Commission of Texas	Sharyland Utility Company	PUC 45414	Depreciation rates, simulated analysis	City of Mission
Oklahoma Corporation Commission	Empire District Electric Company	PUD 201600468	Cost of capital, depreciation rates	Oklahoma Industrial Energy Consumers

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
Railroad Commission of Texas	CenterPoint Energy Texas Gas	GUD 10567	Depreciation rates, simulated plant analysis	Texas Coast Utilities Coalition
Arkansas Public Service Commission	Oklahoma Gas & Electric Company	160-159-GU	Cost of capital, depreciation rates, terminal salvage	Arkansas River Valley Energy Consumers; Wal-Mart
Florida Public Service Commission	Peoples Gas	160-159-GU	Depreciation rates, service lives, net salvage	Florida Office of Public Counsel
Arizona Corporation Commission	Arizona Public Service Company	E-01345A-16-0036	Cost of capital, depreciation rates, terminal salvage	Energy Freedom Coalition of America
Nevada Public Utilities Commission	Sierra Pacific Power Company	16-06008	Depreciation rates, net salvage, theoretical reserve	Northern Nevada Utility Customers
Oklahoma Corporation Commission	Oklahoma Gas & Electric Co.	PUD 201500273	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Public Service Co. of Oklahoma	PUD 201500208	Cost of capital, depreciation rates, terminal salvage	Public Utility Division
Oklahoma Corporation Commission	Oklahoma Natural Gas Company	PUD 201500213	Cost of capital, depreciation rates, net salvage	Public Utility Division

Summary Rate and Accrual Comparison

Plant Function	Plant Balance 12/31/2022	Company Position Rate	Company Position Accrual	OUCC Position Rate	OUCC Position Accrual	OUCC Adjustment Rate	OUCC Adjustment Accrual
Water Plant							
Structures and Improvements	$ 220,101,856	1.94%	$ 4,274,824	1.94%	$ 4,274,824	0.00%	$ -
Transmission and Distribution	2,032,431,423	2.59%	52,622,303	2.25%	45,636,678	-0.34%	(6,985,625)
General Plant	122,812,728	9.34%	11,474,988	9.34%	11,474,988	0.00%	-
Total Water Plant	2,375,346,007	2.88%	68,372,115	2.58%	61,386,490	-0.29%	(6,985,625)
Wastewater Plant							
Structures and Improvements	3,720,516	4.97%	184,993	4.97%	184,993	0.00%	-
Collecting, Treatment, and General Plant	15,700,451	4.43%	695,720	4.43%	695,720	0.00%	-
Total Wastewater Plant	19,420,968	4.53%	880,713	4.53%	880,713	0.00%	-
Total Plant Studied	**$ 2,394,766,975**	**2.89%**	**$ 69,252,828**	**2.60%**	**$ 62,267,203**	**-0.29%**	**$ (6,985,625)**

Mass Property Parameter Comparison

Account No.	Description	Company Position			OUCC Position		
		Iowa Curve	Depr Rate	Annual Accrual	Iowa Curve	Depr Rate	Annual Accrual
306.00	Lake, River, and Other Intakes	S1 - 65	1.69%	869,608	S0.5 - 74	1.39%	712,782
320.20	Water Treatment Equipment - Filter Media	S0.5 - 10	14.19%	796,962	R0.5 - 14	7.02%	394,449
333.00	Services	R2.5 - 75	3.30%	7,400,644	R2 - 82	2.86%	6,408,922
334.10	Meters	S1.5 - 15	11.47%	4,654,690	R1 - 22	5.67%	2,300,258
334.11	Meters - Bronze Case	R1.5 - 15	4.55%	1,340,981	R1.5 - 19	3.54%	1,042,262
334.13	Meters - Other	L1 - 15	9.16%	886,127	L0.5 - 23	4.36%	421,534
334.13	Meter Reading Units	R3 - 15	7.44%	575,010	R3 - 20	4.74%	366,182
334.20	Meter Installations	R3 - 40	5.22%	4,435,944	R2 - 52	2.74%	2,327,952

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2022	[2] Company Proposal Rate	[2] Company Proposal Annual Accrual	[3] OUCC Proposal Rate	[3] OUCC Proposal Annual Accrual	[4] OUCC Adjustment Rate	[4] OUCC Adjustment Annual Accrual
	WATER PLANT							
	Structures and Improvements							
	Water Treatment							
304.100	Source of Supply	15,951,039	3.41%	544,606	3.41%	544,606	0.00%	0
304.200	Power and Pumping	27,333,828	1.20%	329,142	1.20%	329,142	0.00%	0
304.300	Water Treatment	133,021,414	1.52%	2,018,898	1.52%	2,018,898	0.00%	0
304.301	DPR Paint	197,248	0.00%	0	0.00%	0	0.00%	0
304.302	Painting	1,213,319	0.45%	5,516	0.45%	5,516	0.00%	0
304.310	Handl	4,799,864	2.52%	121,137	2.52%	121,137	0.00%	0
304.312	WH Repaint	5,086	6.02%	306	6.02%	306	0.00%	0
304.390	Mixing	28,662	1.84%	526	1.84%	526	0.00%	0
304.391	Purification	741,553	2.76%	20,461	2.76%	20,461	0.00%	0
304.392	Wash Tank	125,395	2.56%	3,215	2.56%	3,215	0.00%	0
	Total Water Treatment	183,417,410	1.66%	3,043,807	1.66%	3,043,807	0.00%	0
304.400	Transmission and Distribution	5,217,856	2.84%	148,420	2.84%	148,420	0.00%	0
304.500	General	12,598,945	4.14%	521,098	4.14%	521,098	0.00%	0
304.600	Office Buildings	3,851,977	4.06%	156,407	4.06%	156,407	0.00%	0
304.610	HVAC	4,159,226	3.74%	155,422	3.74%	155,422	0.00%	0
304.620	Leasehold	172,832	8.61%	14,889	8.61%	14,889	0.00%	0
304.700	Shop and Garage	9,079,745	1.95%	176,954	1.95%	176,954	0.00%	0
304.800	Miscellaneous	1,603,865	3.61%	57,827	3.61%	57,827	0.00%	0
	Total Structures and Improvements	220,101,856	1.94%	4,274,824	1.94%	4,274,824	0.00%	0
	Transmission and Distribution							
	Lake, River, and Other Intakes							
305.000	Collecting and Impounding Reservoirs	10,461,627	1.32%	138,079	1.32%	138,079	0.00%	0
306.000	Lake, River, and Other Intakes	51,403,660	1.69%	869,608	1.39%	712,782	-0.31%	-156,826
	Total Lake, River, and Other Intakes	61,865,287	1.63%	1,007,687	1.38%	850,861	-0.25%	-156,826
307.000	Wells and Springs	20,458,016	2.65%	541,248	2.65%	541,248	0.00%	0
308.000	Infiltration Galleries and Tunnels	71,671	1.16%	834	1.16%	834	0.00%	0

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2022	[2] Company Proposal Rate	[2] Company Proposal Annual Accrual	[3] OUCC Proposal Rate	[3] OUCC Proposal Annual Accrual	[4] OUCC Adjustment Rate	[4] OUCC Adjustment Annual Accrual
	WATER PLANT							
309.000	Supply Mains	16,667,423	1.31%	217,844	1.31%	217,844	0.00%	0
310.000	Power Generation Equipment	13,665,481	2.76%	376,728	2.76%	376,728	0.00%	0
	Pumping Equipment							
311.200	Pumping Equipment - Electric	40,685,730	1.27%	515,715	1.27%	515,715	0.00%	0
311.300	Pumping Equipment - Diesel	623,295	2.10%	13,063	2.10%	13,063	0.00%	0
311.400	Pumping Equipment - Hydraulic	134,083	2.64%	3,540	2.64%	3,540	0.00%	0
311.500	Pumping Equipment - Other	6,018,497	4.22%	254,196	4.22%	254,196	0.00%	0
311.520	Pumping Equipment - SOS & Pumping	7,858,453	3.27%	257,187	3.27%	257,187	0.00%	0
311.530	Pumping Equipment - Water Treatment	3,630,036	3.16%	114,701	3.16%	114,701	0.00%	0
311.540	Pumping Equipment - Transmission & Distribution	980,418	3.36%	32,894	3.36%	32,894	0.00%	0
	Total Pumping Equipment	59,930,511	1.99%	1,191,296	1.99%	1,191,296	0.00%	0
	Water Treatment Equipment							
320.100	Water Treatment Equipment - Non-Media	144,146,931	2.61%	3,756,107	2.61%	3,756,107	0.00%	0
320.190	Water Treatment Equipment - Basin, Clearwell	66,077,094	2.92%	1,932,109	2.92%	1,932,109	0.00%	0
320.200	Water Treatment Equipment - Filter Media	5,617,100	14.19%	796,962	7.02%	394,449	-7.17%	-402,513
	Total Water Treatment Equipment	215,841,125	3.00%	6,485,178	2.82%	6,082,665	-0.19%	-402,513
	Account 330							
330.000	Distribution Reservoirs and Standpipes	64,235,360	2.19%	1,403,924	2.19%	1,403,924	0.00%	0
330.010	Tank Repainting	19,268,450	3.48%	669,615	3.48%	669,615	0.00%	0
330.020	Tank Original Painting	975,287	1.68%	16,402	1.68%	16,402	0.00%	0
	Total Account 330	84,479,097	2.47%	2,089,941	2.47%	2,089,941	0.00%	0
331.001	Mains- Transmission and Distribution	990,725,981	1.67%	16,504,648	1.67%	16,504,648	0.00%	0
332.000	Mains - Fire	20,403	1.81%	370	1.81%	370	0.00%	0
333.000	Services	224,428,236	3.30%	7,400,644	2.86%	6,408,922	-0.44%	-991,722
333.100	Replaced Customer Lead Services	24,726,756	1.26%	312,115	1.26%	312,115	0.00%	0
	Meters							
334.100	Meters	40,586,366	11.47%	4,654,690	5.67%	2,300,258	-5.80%	-2,354,432
334.110	Meters - Bronze Case	29,463,791	4.55%	1,340,981	3.54%	1,042,262	-1.01%	-298,719
334.120	Meters - Plastic Case	9,519,322	9.25%	880,096	9.25%	880,096	0.00%	0
334.130	Meters - Other	9,676,317	9.16%	886,127	4.36%	421,534	-4.80%	-464,593

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2022	[2] Company Proposal Rate	[2] Company Proposal Annual Accrual	[3] OUCC Proposal Rate	[3] OUCC Proposal Annual Accrual	[4] OUCC Adjustment Rate	[4] OUCC Adjustment Annual Accrual
	WATER PLANT							
334.131	Meter Reading Units	7,730,481	7.44%	575,010	4.74%	366,182	-2.70%	-208,828
334.200	Meter Installations	84,981,232	5.22%	4,435,944	2.74%	2,327,952	-2.48%	-2,107,992
334.210	Meter Installations - Other	4,457,908	2.64%	117,507	2.64%	117,507	0.00%	0
334.300	Meter Vaults	38,861,864	3.49%	1,356,843	3.49%	1,356,843	0.00%	0
	Total Meters	225,277,281	6.32%	14,247,198	3.91%	8,812,634	-2.41%	-5,434,564
335.000	Fire Hydrants	93,746,843	2.59%	2,233,883	2.38%	2,233,883	-0.20%	0
336.000	Backflow Prevention Devices	14,415	2.84%	408	2.83%	408	-0.01%	0
	Miscellaneous Intangible Plant							
339.300	Misc Intangible Plant - Treatment	284,901	4.15%	11,821	4.15%	11,821	0.00%	0
339.500	Misc Intangible Plant - Transmission & Distribution	115,939	0.40%	460	0.40%	460	0.00%	0
339.600	Misc Intangible Plant - Comprehensive Planning Studies	112,057	0.00%	0	0.00%	0	0.00%	0
	Total Miscellaneous Intangible Plant	512,897	2.39%	12,281	2.39%	12,281	0.00%	0
	Total Transmission and Distribution	2,032,431,423	2.59%	52,622,303	2.25%	45,636,678	-0.34%	-6,985,625
	General Plant							
	Account 340							
340.100	Office Furniture	1,655,105	4.43%	73,279	4.43%	73,279	0.00%	0
340.210	Computer & Periphery - Mainframe	226,114	0.00%	0	0.00%	0	0.00%	0
340.220	Computer & Periphery - Personal	732,320	1.39%	10,190	1.39%	10,190	0.00%	0
340.230	Computer & Periphery - Other	3,358,077	13.45%	451,684	13.45%	451,684	0.00%	0
340.300	Computer Software	48,119,864	12.78%	6,147,427	12.78%	6,147,427	0.00%	0
340.310	Computer Software - Mainframe	286,589	0.00%	0	0.00%	0	0.00%	0
340.325	Computer Software - Customized	4,738,229	6.99%	331,428	6.99%	331,428	0.00%	0
340.330	Computer Software - Other	505,803	17.12%	86,601	17.12%	86,601	0.00%	0
	Total Account 340	59,622,101	11.91%	7,100,609	11.91%	7,100,609	0.00%	0
	Transportation Equipment							
341.100	Light Trucks	9,432,584	9.96%	939,265	9.96%	939,265	0.00%	0
341.200	Heavy Trucks	8,147,031	6.23%	507,281	6.23%	507,281	0.00%	0
341.300	Autos	1,229,376	0.00%	0	0.00%	0	0.00%	0

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2022	[2] Company Proposal Rate	[2] Company Proposal Annual Accrual	[3] OUCC Proposal Rate	[3] OUCC Proposal Annual Accrual	[4] OUCC Adjustment Rate	[4] OUCC Adjustment Annual Accrual
	WATER PLANT							
341.400	Other	2,494,427	6.25%	155,809	6.25%	155,809	0.00%	0
	Total Transportation Equipment	21,303,419	7.52%	1,602,355	7.52%	1,602,355	0.00%	0
342.000	Stores Equipment	136,851	3.29%	4,499	3.29%	4,499	0.00%	0
343.000	Tools, Shop, and Garage Equipment	8,809,214	3.96%	349,077	3.96%	349,077	0.00%	0
344.000	Laboratory Equipment	2,351,742	2.66%	62,583	2.66%	62,583	0.00%	0
345.000	Power Operated Equipment	2,650,880	5.08%	134,569	5.08%	134,569	0.00%	0
346.000	Communication Equipment - Not Classified	1,260,227	7.63%	96,193	7.63%	96,193	0.00%	0
346.100	Communication Equipment - Non-Telephone	3,436,100	4.31%	148,153	4.31%	148,153	0.00%	0
346.190	Remote Control & Instrument	16,834,929	8.93%	1,503,617	8.93%	1,503,617	0.00%	0
346.200	Communication Equipment - Telephone	239,657	10.64%	25,491	10.64%	25,491	0.00%	0
347.000	Miscellaneous Equipment	6,167,608	7.26%	447,842	7.26%	447,842	0.00%	0
					0.00%	0		
	Total General Plant	122,812,728	9.34%	11,474,988	9.34%	11,474,988	0.00%	0
	Total Water Plant Studied	**2,375,346,007**	**2.88%**	**68,372,115**	**2.58%**	**61,386,490**	**-0.29%**	**-6,985,625**
	WASTEWATER PLANT							
	Structures and Improvements							
354.200	Collection	933,686	3.31%	30,864	3.31%	30,864	0.00%	0
354.400	Treatment	2,627,847	5.70%	149,656	5.70%	149,656	0.00%	0
354.500	General	158,983	2.81%	4,473	2.81%	4,473	0.00%	0
	Total Structures and Improvements	3,720,516	4.97%	184,993	4.97%	184,993	0.00%	0
	Collecting, Treatment, and General Plant							
355.400	Power Generation Equipment - Treatment	89,467	19.62%	17,552	19.62%	17,552	0.00%	0
355.500	Power Generation Equipment - RWTP	146,803	2.58%	3,784	2.58%	3,784	0.00%	0

Detailed Rate Comparison

Account No.	Description	[1] Original Cost 12/31/2022	[2] Company Proposal Rate	[2] Company Proposal Annual Accrual	[3] OUCC Proposal Rate	[3] OUCC Proposal Annual Accrual	[4] OUCC Adjustment Rate	[4] OUCC Adjustment Annual Accrual
	WATER PLANT							
361.100	Mains	5,628,721	4.94%	277,986	4.94%	277,986	0.00%	0
363.000	Services	891,321	3.87%	34,470	3.87%	34,470	0.00%	0
364.000	Meters	63,400	0.00%	0	0.00%	0	0.00%	0
371.100	Electric Pumping Equipment	207,695	6.09%	12,655	6.09%	12,655	0.00%	0
371.200	Other Pumping Equipment	1,166	1.80%	21	1.80%	21	0.00%	0
371.300	Miscellaneous Pumping Equipment	17,021	2.73%	464	2.73%	464	0.00%	0
380.450	Treatment and Disposal Equip - Other Sewer Remaining	64,185	12.25%	7,863	12.25%	7,863	0.00%	0
380.500	Treatment and Disposal Equip - Treatment Pit	8,118,811	3.83%	310,616	3.83%	310,616	0.00%	0
380.600	Treatment and Disposal Equip - Other Disposal	30,834	5.29%	1,632	5.29%	1,632	0.00%	0
380.625	Treatment and Disposal Equip - General Treatment	140,781	4.58%	6,453	4.58%	6,453	0.00%	0
381.000	Plant Sewers	110,913	2.19%	2,433	2.19%	2,433	0.00%	0
394.000	Laboratory Equipment	36,882	8.02%	2,959	8.02%	2,959	0.00%	0
396.000	Communication Equipment	104,719	6.98%	7,305	6.98%	7,305	0.00%	0
397.000	Miscellaneous Equipment	47,731	19.96%	9,527	19.96%	9,527	0.00%	0
	Total Collecting, Treatment, and General Plant	15,700,451	4.43%	695,720	4.43%	695,720	0.00%	0
	Total Wastewater Plant Studied	**19,420,968**	**4.53%**	**880,713**	**4.53%**	**880,713**	**0.00%**	**0**
	TOTAL PLANT STUDIED	**2,394,766,975**	**2.89%**	**69,252,828**	**2.60%**	**62,267,203**	**-0.29%**	**-6,985,625**

[1], [2] From Company depreciation study

[3] From Exhibit DJG-5

[4] = [3] - [2]

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2022	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Total Rate
					WATER PLANT						
	Structures and Improvements										
	Water Treatment										
304.100	Source of Supply	15,951,039	R1	45	-25%	19,938,799	-260,507	20,199,305	38.52	544,606	**3.41%**
304.200	Power and Pumping	27,333,828	S0	75	-25%	34,167,285	14,308,759	19,858,526	58.42	329,142	**1.20%**
304.300	Water Treatment	133,021,414	S0	75	-25%	166,276,768	31,345,206	134,931,562	65.88	2,018,898	**1.52%**
304.301	DPR Paint	197,248	SQ	40	0%	197,248	197,248	0		0	
304.302	Painting	1,213,319	SQ	40	0%	1,213,319	1,022,691	190,628	2.79	5,516	**0.45%**
304.310	Handl	4,799,864	SQ	40	0%	4,799,864	1,587,387	3,212,477	1.54	121,137	**2.52%**
304.312	WH Repaint	5,086	SQ	25	0%	5,086	1,562	3,523	1.50	306	**6.02%**
304.390	Mixing	28,662	SQ	40	0%	28,662	12,376	16,286	4.55	526	**1.84%**
304.391	Purification	741,553	SQ	40	0%	741,553	69,529	672,025	7.91	20,461	**2.76%**
304.392	Wash Tank	125,395	SQ	40	0%	125,395	8,048	117,347	11.50	3,215	**2.56%**
	Total Water Treatment	183,417,410			-24%	227,493,980	48,292,300	179,201,680	58.87	3,043,807	**1.66%**
304.400	Transmission and Distribution	5,217,856	S0.5	40	-25%	6,522,320	1,908,869	4,613,451	30.61	148,420	**2.84%**
304.500	General	12,598,945	S1	35	-25%	15,748,682	1,094,140	14,654,541	23.68	521,098	**4.14%**
304.600	Office Buildings	3,851,977	S0	30	-15%	4,429,774	779,094	3,650,680	23.56	156,407	**4.06%**
304.610	HVAC	4,159,226	R2.5	30	-5%	4,367,187	-117,431	4,484,618	28.93	155,422	**3.74%**
304.620	Leasehold	172,832	SQ	25	0%	172,832	-10,399	183,231	15.16	14,889	**8.61%**
304.700	Shop and Garage	9,079,745	S1	60	-20%	10,895,694	3,406,410	7,489,284	41.99	176,954	**1.95%**
304.800	Miscellaneous	1,603,865	L1	40	-10%	1,764,251	-79,143	1,843,394	34.84	57,827	**3.61%**
	Total Structures and Improvements	220,101,856			-23%	271,394,720	55,273,839	216,120,881	50.56	4,274,824	**1.94%**
	Transmission and Distribution										
	Lake, River, and Other Intakes										
305.000	Collecting and Impounding Reservoirs	10,461,627	R3	95	-10%	11,507,790	3,942,940	7,564,850	56.32	138,079	**1.32%**
306.000	Lake, River, and Other Intakes	51,403,660	S0.5	74	-10%	56,544,026	16,792,196	39,751,830	55.77	712,782	**1.39%**
	Total Lake, River, and Other Intakes	61,865,287			-10%	68,051,816	20,735,136	47,316,680	55.61	850,861	**1.38%**
307.000	Wells and Springs	20,458,016	R0.5	40	-10%	22,503,818	5,349,375	17,154,442	31.36	541,248	**2.65%**
308.000	Infiltration Galleries and Tunnels	71,671	R2.5	65	-5%	75,255	27,459	47,795	43.88	834	**1.16%**
309.000	Supply Mains	16,667,423	R2	80	-20%	20,000,907	5,707,459	14,293,449	64.47	217,844	**1.31%**
310.000	Power Generation Equipment	13,665,481	R2	40	-10%	15,032,029	3,504,604	11,527,425	30.61	376,728	**2.76%**
	Pumping Equipment										
311.200	Pumping Equipment - Electric	40,685,730	R1	40	-5%	42,720,016	27,038,945	15,681,072	26.04	515,715	**1.27%**
311.300	Pumping Equipment - Diesel	623,295	S0	35	-5%	654,460	393,192	261,268	18.18	13,063	**2.10%**
311.400	Pumping Equipment - Hydraulic	134,083	R2.5	40	-5%	140,787	24,007	116,780	33.04	3,540	**2.64%**
311.500	Pumping Equipment - Other	6,018,497	R1.5	36	-15%	6,921,271	-465,815	7,387,086	31.99	254,196	**4.22%**
311.520	Pumping Equipment - SOS & Pumping	7,858,453	R1.5	36	-10%	8,644,298	1,733,782	6,910,516	26.94	257,187	**3.27%**
311.530	Pumping Equipment - Water Treatment	3,630,036	R1.5	36	-10%	3,993,039	40,305	3,952,734	34.57	114,701	**3.16%**
311.540	Pumping Equipment - Transmission & Distribution	980,418	R1.5	36	-10%	1,078,460	168,302	910,157	28.01	32,894	**3.36%**
	Total Pumping Equipment	59,930,511			-7%	64,152,331	28,932,718	35,219,613	29.56	1,191,296	**1.99%**
	Water Treatment Equipment										
320.100	Water Treatment Equipment - Non-Media	144,146,931	R1	45	-30%	187,391,011	48,899,007	138,492,003	35.76	3,756,107	**2.61%**

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2022	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Total Rate
320.190	Water Treatment Equipment - Basin, Clearwell	66,077,094	R2.5	45	-30%	85,900,222	13,085,022	72,815,200	37.75	1,932,109	**2.92%**
320.200	Water Treatment Equipment - Filter Media	5,617,100	R0.5	14	-10%	6,178,810	2,368,434	3,810,376	9.66	394,449	**7.02%**
	Total Water Treatment Equipment	215,841,125			-29%	279,470,043	64,352,463	215,117,580	35.37	6,082,665	**2.82%**
	Account 330										
330.000	Distribution Reservoirs and Standpipes	64,235,360	S0	60	-30%	83,505,968	18,279,469	65,226,499	46.54	1,403,924	**2.19%**
330.010	Tank Repainting	19,268,450	SQ	25	0%	19,268,450	5,698,284	13,570,166	8.71	669,615	**3.48%**
330.020	Tank Original Painting	975,287	SQ	25	0%	975,287	623,353	351,934	3.61	16,402	**1.68%**
	Total Account 330	84,479,097			-23%	103,749,705	24,601,105	79,148,599	37.87	2,089,941	**2.47%**
331.001	Mains- Transmission and Distribution	990,725,981	R2	105	-70%	1,684,234,167	184,161,060	1,500,073,107	91.36	16,504,648	**1.67%**
332.000	Mains - Fire	20,403	S1.5	90	0%	20,403	-11,306	31,709	86.65	370	**1.81%**
333.000	Services	224,428,236	R2	82	-125%	504,963,531	59,992,077	444,971,454	69.43	6,408,922	**2.86%**
333.100	Replaced Customer Lead Services	24,726,756	SQ	75	0%	24,726,756	1,888,616	22,838,140	72.90	312,115	**1.26%**
	Meters										
334.100	Meters	40,586,366	R1	22	-15%	46,674,320	5,476,700	41,197,621	17.91	2,300,258	**5.67%**
334.110	Meters - Bronze Case	29,463,791	R1.5	19	-15%	33,883,360	23,043,831	10,839,529	10.40	1,042,262	**3.54%**
334.120	Meters - Plastic Case	9,519,322	R3	15	-15%	10,947,220	4,780,334	6,166,887	4.41	880,096	**9.25%**
334.130	Meters - Other	9,676,317	L0.5	23	-15%	11,127,765	4,690,942	6,436,822	15.27	421,534	**4.36%**
334.131	Meter Reading Units	7,730,481	R3	20	-15%	8,890,053	5,305,127	3,584,927	9.79	366,182	**4.74%**
334.200	Meter Installations	84,981,232	R2	52	-25%	106,226,540	10,687,403	95,539,137	41.04	2,327,952	**2.74%**
334.210	Meter Installations - Other	4,457,908	R3	40	0%	4,457,908	719,891	3,738,017	8.11	117,507	**2.64%**
334.300	Meter Vaults	38,861,864	S0.5	40	-30%	50,520,424	2,157,587	48,362,837	5.86	1,356,843	**3.49%**
	Total Meters	225,277,281			-21%	272,727,590	56,861,814	215,865,776	24.50	8,812,634	**3.91%**
335.000	Fire Hydrants	93,746,843	R2	65	-50%	140,620,265	23,013,169	117,607,096	53.24	2,233,883	**2.38%**
336.000	Backflow Prevention Devices	14,415	R3	35	0%	14,415	745	13,670	33.53	408	**2.83%**
	Miscellaneous Intangible Plant										
339.300	Misc Intangible Plant - Treatment	284,901	SQ	25	0%	284,901	34,610	250,291	21.21	11,821	**4.15%**
339.500	Misc Intangible Plant - Transmission & Distribution	115,939	SQ	15	0%	115,939	109,730	6,208	4.38	460	**0.40%**
339.600	Misc Intangible Plant - Comprehensive Planning Studies	112,057	SQ	5	0%	112,057	123,908	-11,851			
	Total Miscellaneous Intangible Plant	512,897			0%	512,897	268,249	244,648	19.92	12,281	**2.39%**
	Total Transmission and Distribution	2,032,431,423			-57%	3,200,855,928	479,384,743	2,721,471,185	59.63	45,636,678	**2.25%**
	General Plant										
	Account 340										
340.100	Office Furniture	1,655,105	SQ	20	0%	1,655,105	667,713	987,392	12.79	73,279	**4.43%**
340.210	Computer & Periphery - Mainframe	226,114	SQ	5	0%	226,114	285,722	-59,607	0.53	0	**0.00%**
340.220	Computer & Periphery - Personal	732,320	SQ	5	0%	732,320	690,037	42,283	1.70	10,190	**1.39%**
340.230	Computer & Periphery - Other	3,358,077	SQ	5	0%	3,358,077	1,613,385	1,744,692	2.98	451,684	**13.45%**
340.300	Computer Software	48,119,864	SQ	10	0%	48,119,864	19,044,238	29,075,626	5.39	6,147,427	**12.78%**
340.310	Computer Software - Mainframe	286,589	SQ	6	0%	286,589	1,412,325	-1,125,736	4.50	0	**0.00%**
340.325	Computer Software - Customized	4,738,229	SQ	5	0%	4,738,229	4,198,661	539,567	1.19	331,428	**6.99%**
340.330	Computer Software - Other	505,803	SQ	5	0%	505,803	346,361	159,443	1.71	86,601	**17.12%**
	Total Account 340	59,622,101			0%	59,622,101	28,258,441	31,363,660	4.42	7,100,609	**11.91%**
	Transportation Equipment										

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2022	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Rate
341.100	Light Trucks	9,432,584	L2.5	9	15%	8,017,696	1,869,082	6,148,614	6.64	939,265	**9.96%**
341.200	Heavy Trucks	8,147,031	S2	13	20%	6,517,625	2,573,596	3,944,029	7.80	507,281	**6.23%**
341.300	Autos	1,229,376	S1	7	20%	983,501	1,670,544	-687,043	2.87	0	**0.00%**
341.400	Other	2,494,427	L2	13	10%	2,244,985	830,618	1,414,367	8.77	155,809	**6.25%**
	Total Transportation Equipment	21,303,419			17%	17,763,807	6,943,840	10,819,966	6.75	1,602,355	**7.52%**
342.000	Stores Equipment	136,851	SQ	25	0%	136,851	59,732	77,119	15.11	4,499	**3.29%**
343.000	Tools, Shop, and Garage Equipment	8,809,214	SQ	25	0%	8,809,214	2,458,814	6,350,400	13.14	349,077	**3.96%**
344.000	Laboratory Equipment	2,351,742	SQ	25	0%	2,351,742	1,093,592	1,258,151	18.78	62,583	**2.66%**
345.000	Power Operated Equipment	2,650,880	L2	20	5%	2,518,336	665,988	1,852,349	14.16	134,569	**5.08%**
346.000	Communication Equipment - Not Classified	1,260,227	SQ	15	0%	1,260,227	115,700	1,144,528	12.32	96,193	**7.63%**
346.100	Communication Equipment - Non-Telephone	3,436,100	SQ	15	0%	3,436,100	1,605,334	1,830,766	9.04	148,153	**4.31%**
346.190	Remote Control & Instrument	16,834,929	SQ	15	0%	16,834,929	5,309,609	11,525,320	8.95	1,503,617	**8.93%**
346.200	Communication Equipment - Telephone	239,657	SQ	15	0%	239,657	44,713	194,944	9.62	25,491	**10.64%**
347.000	Miscellaneous Equipment	6,167,608	SQ	20	0%	6,167,608	2,731,125	3,436,484	4.69	447,842	**7.26%**
	Total General Plant	122,812,728			3%	119,140,572	49,286,887	69,853,686	6.09	11,474,988	**9.34%**
	Total Water Plant Studied	**2,375,346,007**			**-51%**	**3,591,391,220**	**583,945,468**	**3,007,445,752**	**48.99**	**61,386,490**	**2.58%**
	WASTEWATER PLANT										
	Structures and Improvements										
354.200	Collection	933,686	R2	50	-30%	1,213,792	-28,941	1,242,733	41.70	30,864	**3.31%**
354.400	Treatment	2,627,847	R3	50	-30%	3,416,201	69,662	3,346,539	34.53	149,656	**5.70%**
354.500	General	158,983	R3	50	-30%	206,678	24,149	182,530	41.00	4,473	**2.81%**
	Total Structures and Improvements	3,720,516			-30%	4,836,671	64,870	4,771,801	25.79	184,993	**4.97%**
	Collecting, Treatment, and General Plant										
355.400	Power Generation Equipment - Treatment	89,467	S2.5	35	0%	89,467	-4,282	93,749	15.22	17,552	**19.62%**
355.500	Power Generation Equipment - RWTP	146,803	S2.5	35	0%	146,803	27,914	118,889	30.38	3,784	**2.58%**
361.100	Mains	5,628,721	R4	60	-75%	9,850,262	814,246	9,036,016	37.23	277,986	**4.94%**
363.000	Services	891,321	R3	55	-25%	1,114,151	-21,927	1,136,078	39.70	34,470	**3.87%**
364.000	Meters	63,400	R4	20	0%	63,400	95,659	-32,259	3.40	0	**0.00%**
371.100	Electric Pumping Equipment	207,695	S2.5	25	-10%	228,465	-16,776	245,240	20.97	12,655	**6.09%**
371.200	Other Pumping Equipment	1,166	R3	35	0%	1,166	704	462	21.33	21	**1.80%**
371.300	Miscellaneous Pumping Equipment	17,021	R3	35	0%	17,021	3,168	13,853	29.59	464	**2.73%**
380.450	Treatment and Disposal Equip - Other Sewer Remaining	64,185	L2	30	-20%	77,022	17,240	59,783	8.97	7,863	**12.25%**
380.500	Treatment and Disposal Equip - Treatment Pit	8,118,811	L2	30	-20%	9,742,573	906,203	8,836,371	28.43	310,616	**3.83%**
380.600	Treatment and Disposal Equip - Other Disposal	30,834	L2	30	-20%	37,000	-3,340	40,341	25.07	1,632	**5.29%**
380.625	Treatment and Disposal Equip - General Treatment	140,781	L2	30	-20%	168,937	-8,619	177,556	27.86	6,453	**4.58%**
381.000	Plant Sewers	110,913	R2.5	50	0%	110,913	-3,408	114,321	47.21	2,433	**2.19%**
394.000	Laboratory Equipment	36,882	SQ	15	0%	36,882	-2,842	39,724	13.60	2,959	**8.02%**
396.000	Communication Equipment	104,719	SQ	15	0%	104,719	12,974	91,745	12.57	7,305	**6.98%**
397.000	Miscellaneous Equipment	47,731	SQ	20	0%	47,731	-4,900	52,632	12.90	9,527	**19.96%**

Depreciation Rate Development

Account No.	Description	[1] Original Cost 12/31/2022	[2] Iowa Curve Type	[2] Iowa Curve AL	[3] Net Salvage	[4] Depreciable Base	[5] Book Reserve	[6] Future Accruals	[7] Remaining Life	[8] Total Accrual	[9] Total Rate
	Total Collecting, Treatment, and General Plant	15,700,451			-39%	21,836,514	1,812,013	20,024,501	28.78	695,720	**4.43%**
	Total Wastewater Plant Studied	**19,420,968**			**-37%**	**26,673,185**	**1,876,883**	**24,796,302**	**28.15**	**880,713**	**4.53%**
	TOTAL PLANT STUDIED	**2,394,766,975**			**-51%**	**3,618,064,405**	**585,822,351**	**3,032,242,054**	**48.70**	**62,267,203**	**2.60%**

[1], [5] From Company depreciation study
[2] Average life and Iowa curve shape developed through statistical analysis and professional judgment
[3] Net salvage estimates developed through statistical analysis and professional judgment
[4] = [1]*(1-[3])
[6] = [4] - [5]
[7] Composite remaining life based on Iowa cuve in [2]; see remaining life exhibit for detailed calculations
[8] = [6] / [7]; some unadjusted accounts hard coded to match Company figures
[9] = [8] / [1]; some unadjusted accounts hard coded to match Company figures

Reserve Variance Calculation

Account No.	Description	[1] Plant Balance 12/31/2022	[2] Book Reserve	[3] IAWC Calc. Reserve	[4] Garrett Calc. Reserve	[5] IAWC Calc. Variance	[6] Garrett Calc. Variance
	WATER PLANT						
	Structures and Improvements						
	Water Treatment						
304.100	Source of Supply	15,951,039	-260,507	2,869,082	2,869,082	-3,129,589	-3,129,589
304.200	Power and Pumping	27,333,828	14,308,759	7,553,261	7,553,261	6,755,497	6,755,497
304.300	Water Treatment	133,021,414	31,345,206	20,216,234	20,216,234	11,128,972	11,128,972
304.301	DPR Paint	197,248	197,248	174,507	174,507	22,742	22,742
304.302	Painting	1,213,319	1,022,691	479,154	479,154	543,537	543,537
304.310	Handl	4,799,864	1,587,387	1,617,502	1,617,502	-30,116	-30,116
304.312	WH Repaint	5,086	1,562	2,746	2,746	-1,184	-1,184
304.390	Mixing	28,662	12,376	7,488	7,488	4,888	4,888
304.391	Purification	741,553	69,529	131,438	131,438	-61,909	-61,909
304.392	Wash Tank	125,395	8,048	10,972	10,972	-2,924	-2,924
	Total Water Treatment	183,417,410	48,292,300	33,062,385	33,062,385	15,229,915	15,229,915
304.400	Transmission and Distribution	5,217,856	1,908,869	1,531,033	1,531,033	377,836	377,836
304.500	General	12,598,945	1,094,140	2,900,441	2,900,441	-1,806,301	-1,806,301
304.600	Office Buildings	3,851,977	779,094	951,589	951,589	-172,496	-172,496
304.610	HVAC	4,159,226	-117,431	155,906	155,906	-273,337	-273,337
304.620	Leasehold	172,832	-10,399	68,000	68,000	-78,400	-78,400
304.700	Shop and Garage	9,079,745	3,406,410	3,269,922	3,269,922	136,487	136,487
304.800	Miscellaneous	1,603,865	-79,143	227,653	227,653	-306,796	-306,796
	Total Structures and Improvements	220,101,856	55,273,839	42,166,930	42,166,930	13,106,909	13,106,909
	Transmission and Distribution						
	Lake, River, and Other Intakes						
305.000	Collecting and Impounding Reservoirs	10,461,627	3,942,940	4,684,927	4,684,927	-741,988	-741,988
306.000	Lake, River, and Other Intakes	51,403,660	16,792,196	16,779,252	13,927,077	12,944	2,865,118
	Total Lake, River, and Other Intakes	61,865,287	20,735,136	21,464,179	18,612,005	-729,044	2,123,131
307.000	Wells and Springs	20,458,016	5,349,375	4,862,770	4,862,770	486,605	486,605
308.000	Infiltration Galleries and Tunnels	71,671	27,459	24,457	24,457	3,003	3,003
309.000	Supply Mains	16,667,423	5,707,459	3,882,531	3,882,531	1,824,928	1,824,928
310.000	Power Generation Equipment	13,665,481	3,504,604	3,527,561	3,527,561	-22,956	-22,956
	Pumping Equipment						
311.200	Pumping Equipment - Electric	40,685,730	27,038,945	14,911,569	14,911,569	12,127,376	12,127,376
311.300	Pumping Equipment - Diesel	623,295	393,192	314,552	314,552	78,640	78,640
311.400	Pumping Equipment - Hydraulic	134,083	24,007	24,506	24,506	-499	-499
311.500	Pumping Equipment - Other	6,018,497	-465,815	770,114	770,114	-1,235,929	-1,235,929
311.520	Pumping Equipment - SOS & Pumping	7,858,453	1,733,782	2,176,472	2,176,472	-442,690	-442,690
311.530	Pumping Equipment - Water Treatment	3,630,036	40,305	158,084	158,084	-117,779	-117,779

Reserve Variance Calculation

Account No.	Description	[1] Plant Balance 12/31/2022	[2] Book Reserve	[3] IAWC Calc. Reserve	[4] Garrett Calc. Reserve	[5] IAWC Calc. Variance	[6] Garrett Calc. Variance
311.540	Pumping Equipment - Transmission & Distribution	980,418	168,302	239,505	239,505	-71,203	-71,203
	Total Pumping Equipment	59,930,511	28,932,718	18,594,802	18,594,802	10,337,916	10,337,916
	Water Treatment Equipment						
320.100	Water Treatment Equipment - Non-Media	144,146,931	48,899,007	38,463,379	38,463,379	10,435,629	10,435,629
320.190	Water Treatment Equipment - Basin, Clearwell	66,077,094	13,085,022	13,847,126	13,847,126	-762,105	-762,105
320.200	Water Treatment Equipment - Filter Media	5,617,100	2,368,434	3,011,637	1,917,752	-643,203	450,682
	Total Water Treatment Equipment	215,841,125	64,352,463	55,322,141	54,228,257	9,030,322	10,124,206
	Account 330						
330.000	Distribution Reservoirs and Standpipes	64,235,360	18,279,469	18,738,388	18,738,388	-458,920	-458,920
330.010	Tank Repainting	19,268,450	5,698,284	4,193,093	4,193,093	1,505,191	1,505,191
330.020	Tank Original Painting	975,287	623,353	291,560	291,560	331,793	331,793
	Total Account 330	84,479,097	24,601,105	23,223,041	23,223,041	1,378,064	1,378,064
331.001	Mains- Transmission and Distribution	990,725,981	184,161,060	218,793,448	218,793,448	-34,632,388	-34,632,388
332.000	Mains - Fire	20,403	-11,306	760	760	-12,066	-12,066
333.000	Services	224,428,236	59,992,077	88,463,046	77,407,028	-28,470,969	-17,414,951
333.100	Replaced Customer Lead Services	24,726,756	1,888,616	625,335	625,335	1,263,281	1,263,281
	Meters						
334.100	Meters	40,586,366	5,476,700	15,073,647	8,707,711	-9,596,947	-3,231,012
334.110	Meters - Bronze Case	29,463,791	23,043,831	18,418,343	15,345,397	4,625,488	7,698,434
334.120	Meters - Plastic Case	9,519,322	4,780,334	5,771,800	5,771,800	-991,466	-991,466
334.130	Meters - Other	9,676,317	4,690,942	5,443,655	3,739,458	-752,713	951,484
334.131	Meter Reading Units	7,730,481	5,305,127	5,408,404	4,537,266	-103,277	767,860
334.200	Meter Installations	84,981,232	10,687,403	30,940,578	22,383,062	-20,253,176	-11,695,659
334.210	Meter Installations - Other	4,457,908	719,891	882,445	882,445	-162,554	-162,554
334.300	Meter Vaults	38,861,864	2,157,587	5,270,524	5,270,524	-3,112,937	-3,112,937
	Total Meters	225,277,281	56,861,814	87,209,396	66,637,664	-30,347,582	-9,775,850
335.000	Fire Hydrants	93,746,843	23,013,169	25,432,720	25,432,720	-2,419,552	-2,419,552
336.000	Backflow Prevention Devices	14,415	745	607	607	138	138
	Miscellaneous Intangible Plant						
339.300	Misc Intangible Plant - Treatment	284,901	34,610	43,178	43,178	-8,568	-8,568
339.500	Misc Intangible Plant - Transmission & Distribution	115,939	109,730	82,111	82,111	27,619	27,619
339.600	Misc Intangible Plant - Comprehensive Planning Studies	112,057	123,908	112,057	112,057	11,851	11,851
	Total Miscellaneous Intangible Plant	512,897	268,249	237,347	237,347	30,902	30,902
	Total Transmission and Distribution	2,032,431,423	479,384,743	551,664,142	516,090,332	-72,279,399	-36,705,589
	General Plant						
	Account 340						
340.100	Office Furniture	1,655,105	667,713	596,682	596,682	71,031	71,031

Reserve Variance Calculation

Account No.	Description	[1] Plant Balance 12/31/2022	[2] Book Reserve	[3] IAWC Calc. Reserve	[4] Garrett Calc. Reserve	[5] IAWC Calc. Variance	[6] Garrett Calc. Variance
340.210	Computer & Periphery - Mainframe	226,114	285,722	202,202	202,202	83,519	83,519
340.220	Computer & Periphery - Personal	732,320	690,037	483,979	483,979	206,058	206,058
340.230	Computer & Periphery - Other	3,358,077	1,613,385	1,355,274	1,355,274	258,111	258,111
340.300	Computer Software	48,119,864	19,044,238	22,172,641	22,172,641	-3,128,403	-3,128,403
340.310	Computer Software - Mainframe	286,589	1,412,325	71,647	71,647	1,340,678	1,340,678
340.325	Computer Software - Customized	4,738,229	4,198,661	3,610,666	3,610,666	587,995	587,995
340.330	Computer Software - Other	505,803	346,361	332,772	332,772	13,589	13,589
	Total Account 340	59,622,101	28,258,441	28,825,863	28,825,863	-567,422	-567,422
	Transportation Equipment						
341.100	Light Trucks	9,432,584	1,869,082	2,104,849	2,104,849	-235,766	-235,766
341.200	Heavy Trucks	8,147,031	2,573,596	2,607,818	2,607,818	-34,223	-34,223
341.300	Autos	1,229,376	1,670,544	580,192	580,192	1,090,352	1,090,352
341.400	Other	2,494,427	830,618	730,176	730,176	100,442	100,442
	Total Transportation Equipment	21,303,419	6,943,840	6,023,035	6,023,035	920,805	920,805
342.000	Stores Equipment	136,851	59,732	54,150	54,150	5,582	5,582
343.000	Tools, Shop, and Garage Equipment	8,809,214	2,458,814	2,416,085	2,416,085	42,729	42,729
344.000	Laboratory Equipment	2,351,742	1,093,592	585,421	585,421	508,170	508,170
345.000	Power Operated Equipment	2,650,880	665,988	735,049	735,049	-69,061	-69,061
346.000	Communication Equipment - Not Classified	1,260,227	115,700	224,830	224,830	-109,131	-109,131
346.100	Communication Equipment - Non-Telephone	3,436,100	1,605,334	1,364,894	1,364,894	240,439	240,439
346.190	Remote Control & Instrument	16,834,929	5,309,609	6,787,803	6,787,803	-1,478,194	-1,478,194
346.200	Communication Equipment - Telephone	239,657	44,713	85,969	85,969	-41,255	-41,255
347.000	Miscellaneous Equipment	6,167,608	2,731,125	3,346,068	3,346,068	-614,943	-614,943
	Total General Plant	122,812,728	49,286,887	50,449,167	50,449,167	-1,162,280	-1,162,280
	Total Water Plant Studied	**2,375,346,007**	**583,945,468**	**644,280,239**	**608,706,429**	**-60,334,770**	**-24,760,961**
	WASTEWATER PLANT						
	Structures and Improvements						
354.200	Collection	933,686	-28,941	201,461	201,461	-230,402	-230,402
354.400	Treatment	2,627,847	69,662	1,057,049	1,057,049	-987,386	-987,386
354.500	General	158,983	24,149	37,197	37,197	-13,049	-13,049
	Total Structures and Improvements	3,720,516	64,870	1,295,707	1,295,707	-1,230,837	-1,230,837
	Collecting, Treatment, and General Plant						
355.400	Power Generation Equipment - Treatment	89,467	-4,282	50,562	50,562	-54,844	-54,844

Reserve Variance Calculation

Account No.	Description	[1] Plant Balance 12/31/2022	[2] Book Reserve	[3] IAWC Calc. Reserve	[4] Garrett Calc. Reserve	[5] IAWC Calc. Variance	[6] Garrett Calc. Variance
355.500	Power Generation Equipment - RWTP	146,803	27,914	19,359	19,359	8,555	8,555
361.100	Mains	5,628,721	814,246	3,737,457	3,737,457	-2,923,211	-2,923,211
363.000	Services	891,321	-21,927	309,889	309,889	-331,816	-331,816
364.000	Meters	63,400	95,659	52,617	52,617	43,043	43,043
371.100	Electric Pumping Equipment	207,695	-16,776	36,825	36,825	-53,601	-53,601
371.200	Other Pumping Equipment	1,166	704	456	456	248	248
371.300	Miscellaneous Pumping Equipment	17,021	3,168	2,632	2,632	536	536
380.450	Treatment and Disposal Equip - Other Sewer Remaining	64,185	17,240	53,988	53,988	-36,748	-36,748
380.500	Treatment and Disposal Equip - Treatment Pit	8,118,811	906,203	510,157	510,157	396,046	396,046
380.600	Treatment and Disposal Equip - Other Disposal	30,834	-3,340	6,078	6,078	-9,419	-9,419
380.625	Treatment and Disposal Equip - General Treatment	140,781	-8,619	12,027	12,027	-20,647	-20,647
381.000	Plant Sewers	110,913	-3,408	6,186	6,186	-9,594	-9,594
394.000	Laboratory Equipment	36,882	-2,842	3,441	3,441	-6,283	-6,283
396.000	Communication Equipment	104,719	12,974	16,931	16,931	-3,957	-3,957
397.000	Miscellaneous Equipment	47,731	-4,900	16,948	16,948	-21,848	-21,848
	Total Collecting, Treatment, and General Plant	15,700,451	1,812,013	4,835,554	4,835,554	-3,023,541	-3,023,541
	Total Wastewater Plant Studied	**19,420,968**	**1,876,883**	**6,131,260**	**6,131,260**	**-4,254,377**	**-4,254,377**
	TOTAL PLANT STUDIED	**2,394,766,975**	**585,822,351**	**650,411,499**	**614,837,690**	**-64,589,148**	**-29,015,338**
	RESERVE VARIATION PERCENTAGE					**-10%**	**-5%**

[1]. [2] From Company depreciation study

[3] Response to OUCC 05-001, Attach. 1

[4] Garrett calculated reserve based on service life adjustments; see Exhibit DJG-16 for calculated reserve development

[4] = [1]*(1-[3])

[5] = [2] - [3]

[6] = [2] - [4]

Account 306.000 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company S1-65**	**OUCC S0.5-74**	**Company SSD**	**OUCC SSD**
0.0	54,034,458	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	54,034,458	100.00%	100.00%	99.99%	0.0000	0.0000
1.5	54,034,458	100.00%	100.00%	99.97%	0.0000	0.0000
2.5	54,034,458	100.00%	99.99%	99.91%	0.0000	0.0000
3.5	52,532,544	100.00%	99.97%	99.83%	0.0000	0.0000
4.5	52,483,360	100.00%	99.94%	99.74%	0.0000	0.0000
5.5	52,433,710	100.00%	99.90%	99.62%	0.0000	0.0000
6.5	50,368,830	99.99%	99.84%	99.48%	0.0000	0.0000
7.5	50,368,830	99.99%	99.76%	99.33%	0.0000	0.0000
8.5	50,328,658	99.99%	99.67%	99.15%	0.0000	0.0001
9.5	50,308,792	99.99%	99.55%	98.95%	0.0000	0.0001
10.5	50,298,516	99.99%	99.41%	98.73%	0.0000	0.0002
11.5	50,292,481	99.98%	99.25%	98.50%	0.0001	0.0002
12.5	50,292,480	99.98%	99.06%	98.24%	0.0001	0.0003
13.5	50,292,480	99.98%	98.84%	97.96%	0.0001	0.0004
14.5	49,216,550	97.84%	98.60%	97.67%	0.0001	0.0000
15.5	49,205,775	97.82%	98.33%	97.35%	0.0000	0.0000
16.5	49,130,852	97.67%	98.03%	97.01%	0.0000	0.0000
17.5	48,988,876	97.39%	97.70%	96.65%	0.0000	0.0001
18.5	48,988,876	97.39%	97.34%	96.28%	0.0000	0.0001
19.5	48,984,044	97.39%	96.94%	95.88%	0.0000	0.0002
20.5	48,834,310	97.09%	96.52%	95.46%	0.0000	0.0003
21.5	5,442,797	97.09%	96.06%	95.02%	0.0001	0.0004
22.5	5,284,845	94.27%	95.58%	94.56%	0.0002	0.0000
23.5	5,266,182	93.94%	95.06%	94.08%	0.0001	0.0000
24.5	5,246,917	93.72%	94.50%	93.58%	0.0001	0.0000
25.5	5,228,049	93.38%	93.92%	93.06%	0.0000	0.0000
26.5	5,228,049	93.38%	93.30%	92.53%	0.0000	0.0001
27.5	5,202,228	92.92%	92.65%	91.97%	0.0000	0.0001
28.5	5,202,228	92.92%	91.97%	91.39%	0.0001	0.0002
29.5	5,193,937	92.77%	91.25%	90.80%	0.0002	0.0004
30.5	5,180,230	92.53%	90.51%	90.18%	0.0004	0.0006
31.5	1,850,931	92.52%	89.73%	89.55%	0.0008	0.0009
32.5	1,846,535	92.30%	88.92%	88.89%	0.0011	0.0012
33.5	1,842,832	92.11%	88.08%	88.22%	0.0016	0.0015
34.5	1,842,832	92.11%	87.21%	87.53%	0.0024	0.0021
35.5	1,842,366	92.09%	86.30%	86.83%	0.0033	0.0028
36.5	1,771,589	91.88%	85.37%	86.10%	0.0042	0.0033
37.5	1,768,736	91.77%	84.41%	85.36%	0.0054	0.0041
38.5	1,726,436	91.77%	83.42%	84.60%	0.0070	0.0051
39.5	1,726,224	91.76%	82.41%	83.83%	0.0087	0.0063
40.5	1,726,224	91.76%	81.37%	83.04%	0.0108	0.0076
41.5	1,583,069	84.15%	80.30%	82.23%	0.0015	0.0004
42.5	1,583,069	84.15%	79.20%	81.41%	0.0024	0.0008
43.5	1,394,960	74.15%	78.09%	80.57%	0.0015	0.0041
44.5	1,394,428	74.15%	76.94%	79.72%	0.0008	0.0031
45.5	1,394,428	74.15%	75.78%	78.85%	0.0003	0.0022
46.5	1,394,428	74.15%	74.59%	77.97%	0.0000	0.0015

Account 306.000 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company S1-65**	**OUCC S0.5-74**	**Company SSD**	**OUCC SSD**
47.5	1,394,273	74.14%	73.39%	77.08%	0.0001	0.0009
48.5	1,393,846	74.12%	72.16%	76.17%	0.0004	0.0004
49.5	1,381,537	73.47%	70.91%	75.25%	0.0007	0.0003
50.5	1,381,537	73.47%	69.65%	74.31%	0.0015	0.0001
51.5	1,242,559	73.47%	68.37%	73.37%	0.0026	0.0000
52.5	1,242,559	73.47%	67.07%	72.41%	0.0041	0.0001
53.5	1,242,559	73.47%	65.76%	71.45%	0.0059	0.0004
54.5	1,242,559	73.47%	64.44%	70.47%	0.0082	0.0009
55.5	1,239,898	73.47%	63.10%	69.48%	0.0108	0.0016
56.5	1,239,898	73.47%	61.75%	68.48%	0.0137	0.0025
57.5	1,155,546	68.47%	60.39%	67.48%	0.0065	0.0001
58.5	1,155,546	68.47%	59.03%	66.46%	0.0089	0.0004
59.5	630,188	68.47%	57.65%	65.44%	0.0117	0.0009
60.5	629,305	68.47%	56.27%	64.41%	0.0149	0.0017
61.5	621,415	68.47%	54.88%	63.37%	0.0185	0.0026
62.5	536,294	68.47%	53.49%	62.32%	0.0224	0.0038
63.5	510,064	68.47%	52.09%	61.27%	0.0268	0.0052
64.5			50.70%	60.22%		
Sum of Squared Differences				[8]	0.2113	0.0726
Up to 1% of Beginning Exposures				[9]	0.1621	0.0637

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 320.200 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company S0.5-10**	**OUCC R0.5-14**	**Company SSD**	**OUCC SSD**
0.0	8,135,371	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	7,605,975	100.00%	99.82%	98.64%	0.0000	0.0002
1.5	7,419,689	98.37%	98.60%	95.84%	0.0000	0.0006
2.5	7,092,624	96.66%	96.28%	92.96%	0.0000	0.0014
3.5	6,197,601	92.00%	92.85%	89.98%	0.0001	0.0004
4.5	5,655,199	89.20%	88.36%	86.92%	0.0001	0.0005
5.5	4,912,358	84.30%	82.88%	83.76%	0.0002	0.0000
6.5	3,919,650	74.41%	76.53%	80.51%	0.0005	0.0037
7.5	3,399,705	71.86%	69.48%	77.13%	0.0006	0.0028
8.5	2,294,049	69.72%	61.90%	73.61%	0.0061	0.0015
9.5	2,058,640	64.51%	54.01%	69.94%	0.0110	0.0029
10.5	1,626,011	59.21%	46.00%	66.11%	0.0175	0.0048
11.5	881,268	51.42%	38.10%	62.11%	0.0177	0.0114
12.5	484,145	48.08%	30.52%	57.95%	0.0308	0.0097
13.5			23.47%	53.65%		
Sum of Squared Differences				[8]	0.0846	0.0400
Up to 1% of Beginning Exposures				[9]	0.0846	0.0400

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 333.000 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R2.5-75**	**OUCC R2-82**	**Company SSD**	**OUCC SSD**
0.0	235,516,122	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	217,187,242	99.75%	99.96%	99.94%	0.0000	0.0000
1.5	201,844,031	99.40%	99.89%	99.82%	0.0000	0.0000
2.5	185,540,816	99.29%	99.81%	99.70%	0.0000	0.0000
3.5	171,304,098	99.06%	99.72%	99.57%	0.0000	0.0000
4.5	161,646,812	98.84%	99.63%	99.44%	0.0001	0.0000
5.5	149,808,426	98.79%	99.54%	99.30%	0.0001	0.0000
6.5	134,240,939	98.59%	99.44%	99.15%	0.0001	0.0000
7.5	123,772,140	98.36%	99.33%	99.00%	0.0001	0.0000
8.5	117,799,980	98.19%	99.22%	98.85%	0.0001	0.0000
9.5	111,969,072	97.84%	99.10%	98.68%	0.0002	0.0001
10.5	106,614,755	96.95%	98.98%	98.51%	0.0004	0.0002
11.5	100,984,071	96.55%	98.85%	98.34%	0.0005	0.0003
12.5	94,439,372	96.45%	98.71%	98.15%	0.0005	0.0003
13.5	86,312,295	96.30%	98.57%	97.96%	0.0005	0.0003
14.5	82,285,883	96.08%	98.42%	97.77%	0.0005	0.0003
15.5	81,155,329	95.93%	98.25%	97.56%	0.0005	0.0003
16.5	72,172,167	95.74%	98.09%	97.35%	0.0006	0.0003
17.5	71,545,557	95.53%	97.91%	97.13%	0.0006	0.0003
18.5	69,552,728	95.37%	97.72%	96.90%	0.0006	0.0002
19.5	67,518,242	95.24%	97.52%	96.67%	0.0005	0.0002
20.5	64,577,901	95.04%	97.32%	96.42%	0.0005	0.0002
21.5	59,082,358	94.94%	97.10%	96.17%	0.0005	0.0002
22.5	55,895,814	94.75%	96.87%	95.91%	0.0005	0.0001
23.5	52,631,136	94.65%	96.63%	95.64%	0.0004	0.0001
24.5	49,406,680	94.49%	96.38%	95.36%	0.0004	0.0001
25.5	45,411,086	94.39%	96.12%	95.07%	0.0003	0.0000
26.5	43,042,183	94.17%	95.84%	94.77%	0.0003	0.0000
27.5	40,866,107	94.10%	95.55%	94.46%	0.0002	0.0000
28.5	38,923,719	94.00%	95.25%	94.14%	0.0002	0.0000
29.5	35,340,445	93.90%	94.93%	93.80%	0.0001	0.0000
30.5	33,774,762	93.65%	94.59%	93.46%	0.0001	0.0000
31.5	32,317,003	93.49%	94.25%	93.11%	0.0001	0.0000
32.5	30,654,016	93.24%	93.88%	92.74%	0.0000	0.0000
33.5	29,321,428	92.98%	93.50%	92.36%	0.0000	0.0000
34.5	28,117,381	92.70%	93.10%	91.98%	0.0000	0.0001
35.5	26,957,851	92.24%	92.68%	91.57%	0.0000	0.0000
36.5	25,936,174	91.84%	92.25%	91.16%	0.0000	0.0000
37.5	25,020,444	91.48%	91.80%	90.73%	0.0000	0.0001
38.5	24,174,351	91.19%	91.32%	90.29%	0.0000	0.0001
39.5	23,333,732	90.97%	90.83%	89.83%	0.0000	0.0001
40.5	22,553,174	90.55%	90.32%	89.37%	0.0000	0.0001
41.5	21,782,997	90.27%	89.78%	88.88%	0.0000	0.0002
42.5	20,659,340	89.86%	89.22%	88.38%	0.0000	0.0002
43.5	19,761,568	89.43%	88.64%	87.87%	0.0001	0.0002
44.5	18,468,960	89.05%	88.03%	87.34%	0.0001	0.0003
45.5	17,472,367	88.70%	87.40%	86.80%	0.0002	0.0004
46.5	16,791,468	88.36%	86.75%	86.24%	0.0003	0.0004

Account 333.000 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R2.5-75**	**OUCC R2-82**	**Company SSD**	**OUCC SSD**
47.5	13,994,402	87.97%	86.07%	85.66%	0.0004	0.0005
48.5	13,406,353	87.69%	85.36%	85.07%	0.0005	0.0007
49.5	12,958,954	87.38%	84.63%	84.46%	0.0008	0.0009
50.5	11,826,177	86.90%	83.86%	83.83%	0.0009	0.0009
51.5	11,319,055	86.58%	83.07%	83.19%	0.0012	0.0011
52.5	10,709,854	86.09%	82.25%	82.53%	0.0015	0.0013
53.5	9,998,450	85.78%	81.40%	81.85%	0.0019	0.0015
54.5	8,865,153	85.15%	80.51%	81.15%	0.0022	0.0016
55.5	8,400,438	84.22%	79.60%	80.43%	0.0021	0.0014
56.5	7,951,129	83.45%	78.64%	79.69%	0.0023	0.0014
57.5	7,305,932	82.63%	77.66%	78.93%	0.0025	0.0014
58.5	6,745,090	79.30%	76.64%	78.16%	0.0007	0.0001
59.5	6,327,865	78.78%	75.58%	77.36%	0.0010	0.0002
60.5	5,969,027	78.01%	74.49%	76.54%	0.0012	0.0002
61.5	5,410,694	77.32%	73.36%	75.71%	0.0016	0.0003
62.5	4,801,948	76.25%	72.19%	74.85%	0.0016	0.0002
63.5	4,462,932	75.45%	70.98%	73.97%	0.0020	0.0002
64.5	4,133,260	74.46%	69.74%	73.07%	0.0022	0.0002
65.5	3,746,994	72.14%	68.46%	72.15%	0.0014	0.0000
66.5	3,341,884	70.13%	67.13%	71.21%	0.0009	0.0001
67.5	2,855,338	67.18%	65.77%	70.24%	0.0002	0.0009
68.5	2,379,723	64.85%	64.37%	69.26%	0.0000	0.0019
69.5	2,121,288	62.49%	62.93%	68.26%	0.0000	0.0033
70.5	1,931,811	60.10%	61.46%	67.23%	0.0002	0.0051
71.5	1,729,050	57.30%	59.94%	66.18%	0.0007	0.0079
72.5	1,284,493	54.22%	58.39%	65.12%	0.0017	0.0119
73.5	1,163,497	53.11%	56.81%	64.03%	0.0014	0.0119
74.5	1,030,002	51.29%	55.20%	62.92%	0.0015	0.0135
75.5	909,117	48.69%	53.56%	61.79%	0.0024	0.0172
76.5	829,654	45.54%	51.89%	60.65%	0.0040	0.0228
77.5	771,546	44.12%	50.20%	59.48%	0.0037	0.0236
78.5	742,193	42.88%	48.49%	58.30%	0.0031	0.0238
79.5	707,934	42.00%	46.76%	57.10%	0.0023	0.0228
80.5	673,563	40.86%	45.01%	55.88%	0.0017	0.0226
81.5	647,545	40.61%	43.26%	54.65%	0.0007	0.0197
82.5	455,459	40.05%	41.51%	53.40%	0.0002	0.0178
83.5	429,123	38.97%	39.75%	52.14%	0.0001	0.0173
84.5	410,410	37.73%	38.00%	50.86%	0.0000	0.0172
85.5	396,289	37.10%	36.25%	49.57%	0.0001	0.0156
86.5	387,980	36.74%	34.53%	48.27%	0.0005	0.0133
87.5	380,371	36.28%	32.82%	46.96%	0.0012	0.0114
88.5	374,280	35.88%	31.13%	45.65%	0.0023	0.0095
89.5	366,801	35.24%	29.47%	44.33%	0.0033	0.0083
90.5	361,621	34.92%	27.84%	43.00%	0.0050	0.0065
91.5			26.24%	41.66%		
Sum of Squared Differences				[8]	0.0754	0.3463

Account 333.000 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R2.5-75**	**OUCC R2-82**	**Company SSD**	**OUCC SSD**
Up to 1% of Beginning Exposures				[9]	0.0392	0.0233

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 334.100 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company S1.5-15**	**OUCC R1-22**	**Company SSD**	**OUCC SSD**
0.0	46,973,763	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	38,543,676	97.52%	100.00%	99.41%	0.0006	0.0004
1.5	33,741,829	96.53%	99.92%	98.17%	0.0011	0.0003
2.5	27,847,124	95.42%	99.65%	96.85%	0.0018	0.0002
3.5	22,783,573	94.10%	99.09%	95.46%	0.0025	0.0002
4.5	21,512,699	92.10%	98.12%	94.00%	0.0036	0.0004
5.5	20,407,614	89.88%	96.63%	92.46%	0.0046	0.0007
6.5	19,287,918	89.16%	94.53%	90.86%	0.0029	0.0003
7.5	18,006,506	87.21%	91.73%	89.18%	0.0020	0.0004
8.5	16,486,377	83.91%	88.20%	87.43%	0.0018	0.0012
9.5	14,181,852	82.42%	83.92%	85.59%	0.0002	0.0010
10.5	7,994,149	79.83%	78.91%	83.67%	0.0001	0.0015
11.5	4,576,111	75.37%	73.25%	81.64%	0.0004	0.0039
12.5	2,836,281	73.63%	67.03%	79.50%	0.0044	0.0034
13.5	1,094,662	71.89%	60.40%	77.25%	0.0132	0.0029
14.5	882,952	66.05%	53.49%	74.87%	0.0158	0.0078
15.5	863,453	65.08%	46.51%	72.36%	0.0345	0.0053
16.5	853,388	64.32%	39.60%	69.72%	0.0611	0.0029
17.5	636,706	60.48%	32.97%	66.94%	0.0757	0.0042
18.5	631,612	60.14%	26.75%	64.03%	0.1115	0.0015
19.5	629,364	60.11%	21.09%	60.99%	0.1523	0.0001
20.5	616,549	59.59%	16.08%	57.83%	0.1893	0.0003
21.5	615,060	59.58%	11.80%	54.57%	0.2283	0.0025
22.5	578,779	59.05%	8.27%	51.20%	0.2579	0.0062
23.5	575,959	58.89%	5.47%	47.76%	0.2853	0.0124
24.5	442,775	58.89%	3.37%	44.25%	0.3082	0.0214
25.5			1.88%	40.71%		
Sum of Squared Differences				[8]	1.7591	0.0812
Up to 1% of Beginning Exposures				[9]	1.4509	0.0598

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 334.110 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R1.5-15**	**OUCC R1.5-19**	**Company SSD**	**OUCC SSD**
0.0	46,594,751	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	46,465,418	99.72%	99.40%	99.53%	0.0000	0.0000
1.5	46,365,546	99.59%	98.07%	98.51%	0.0002	0.0001
2.5	46,143,990	99.54%	96.58%	97.39%	0.0009	0.0005
3.5	44,539,674	99.08%	94.90%	96.15%	0.0018	0.0009
4.5	42,466,613	97.62%	93.01%	94.80%	0.0021	0.0008
5.5	39,285,229	96.01%	90.90%	93.32%	0.0026	0.0007
6.5	36,587,236	93.40%	88.54%	91.71%	0.0024	0.0003
7.5	34,530,568	91.08%	85.90%	89.94%	0.0027	0.0001
8.5	33,510,332	89.50%	82.92%	88.01%	0.0043	0.0002
9.5	32,357,314	86.78%	79.57%	85.90%	0.0052	0.0001
10.5	27,949,630	82.58%	75.81%	83.57%	0.0046	0.0001
11.5	25,014,025	79.01%	71.62%	81.03%	0.0055	0.0004
12.5	21,478,458	72.04%	66.97%	78.23%	0.0026	0.0038
13.5	14,130,585	69.92%	61.88%	75.18%	0.0065	0.0028
14.5	10,403,457	64.61%	56.36%	71.85%	0.0068	0.0052
15.5	8,831,251	58.16%	50.48%	68.24%	0.0059	0.0102
16.5	6,311,794	51.09%	44.35%	64.35%	0.0045	0.0176
17.5	5,286,628	44.12%	38.11%	60.18%	0.0036	0.0258
18.5	4,476,052	41.43%	31.94%	55.76%	0.0090	0.0205
19.5	3,852,326	36.67%	26.03%	51.12%	0.0113	0.0209
20.5	3,197,475	33.28%	20.55%	46.31%	0.0162	0.0170
21.5	2,494,896	32.79%	15.66%	41.40%	0.0293	0.0074
22.5	1,761,807	30.84%	11.44%	36.47%	0.0376	0.0032
23.5	1,379,795	29.65%	7.94%	31.62%	0.0471	0.0004
24.5	1,162,046	28.31%	5.16%	26.94%	0.0536	0.0002
25.5	927,748	27.41%	3.07%	22.51%	0.0592	0.0024
26.5	722,646	26.39%	1.65%	18.42%	0.0612	0.0064
27.5	649,075	25.08%	0.79%	14.72%	0.0590	0.0107
28.5	596,982	24.23%	0.30%	11.44%	0.0572	0.0164
29.5	545,309	23.20%	0.05%	8.62%	0.0536	0.0213
30.5	445,659	21.84%	0.00%	6.24%	0.0477	0.0243
31.5			0.00%	4.31%		
Sum of Squared Differences				[8]	0.6043	0.2205
Up to 1% of Beginning Exposures				[9]	0.5566	0.1962

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

Account 334.110 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R1.5-15**	**OUCC R1.5-19**	**Company SSD**	**OUCC SSD**

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 334.130 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company L1-15**	**OUCC L0.5-23**	**Company SSD**	**OUCC SSD**
0.0	20,092,273	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	19,727,173	99.54%	99.78%	99.75%	0.0000	0.0000
1.5	19,415,109	98.65%	99.05%	98.94%	0.0000	0.0000
2.5	19,150,671	98.29%	97.83%	97.83%	0.0000	0.0000
3.5	18,288,852	97.59%	95.98%	96.48%	0.0003	0.0001
4.5	17,980,890	96.56%	93.43%	94.89%	0.0010	0.0003
5.5	17,322,832	94.50%	90.15%	93.08%	0.0019	0.0002
6.5	16,272,311	92.47%	86.20%	91.05%	0.0039	0.0002
7.5	15,708,064	89.87%	81.72%	88.82%	0.0066	0.0001
8.5	14,917,945	86.78%	76.88%	86.40%	0.0098	0.0000
9.5	13,154,675	80.82%	71.92%	83.81%	0.0079	0.0009
10.5	11,454,346	75.34%	66.97%	81.07%	0.0070	0.0033
11.5	10,766,695	71.63%	62.06%	78.23%	0.0092	0.0044
12.5	10,063,558	68.38%	57.23%	75.31%	0.0124	0.0048
13.5	9,666,684	65.75%	52.50%	72.35%	0.0176	0.0044
14.5	8,772,225	60.17%	47.90%	69.38%	0.0151	0.0085
15.5	8,492,430	58.25%	43.45%	66.42%	0.0219	0.0067
16.5	6,415,219	56.17%	39.17%	63.48%	0.0289	0.0053
17.5	5,847,987	54.52%	35.10%	60.57%	0.0377	0.0037
18.5	5,649,514	52.82%	31.23%	57.68%	0.0466	0.0024
19.5	5,432,871	50.98%	27.60%	54.83%	0.0547	0.0015
20.5	5,165,115	48.61%	24.20%	52.03%	0.0596	0.0012
21.5	4,774,815	45.57%	21.05%	49.27%	0.0601	0.0014
22.5	4,387,105	43.34%	18.16%	46.56%	0.0634	0.0010
23.5	2,339,111	41.16%	15.52%	43.92%	0.0657	0.0008
24.5	2,126,271	38.16%	13.13%	41.34%	0.0626	0.0010
25.5	1,915,282	35.23%	11.00%	38.82%	0.0587	0.0013
26.5	1,830,320	33.67%	9.10%	36.38%	0.0604	0.0007
27.5	1,666,707	30.66%	7.44%	34.02%	0.0539	0.0011
28.5	1,512,766	28.50%	6.00%	31.74%	0.0506	0.0010
29.5	1,295,175	25.84%	4.77%	29.53%	0.0444	0.0014
30.5	1,128,311	23.54%	3.73%	27.42%	0.0393	0.0015
31.5	945,553	21.35%	2.86%	25.39%	0.0342	0.0016
32.5	823,042	19.68%	2.15%	23.45%	0.0307	0.0014
33.5	763,280	18.61%	1.58%	21.60%	0.0290	0.0009
34.5	678,000	17.62%	1.13%	19.84%	0.0272	0.0005
35.5	601,156	16.72%	0.79%	18.18%	0.0254	0.0002
36.5	540,945	15.84%	0.53%	16.61%	0.0234	0.0001
37.5	476,495	14.53%	0.34%	15.12%	0.0201	0.0000
38.5	436,520	13.69%	0.21%	13.73%	0.0182	0.0000
39.5	375,646	12.43%	0.12%	12.43%	0.0151	0.0000
40.5	323,880	11.17%	0.07%	11.21%	0.0123	0.0000
41.5	295,297	10.33%	0.03%	10.08%	0.0106	0.0000
42.5	250,591	9.17%	0.01%	9.03%	0.0084	0.0000
43.5	207,499	7.90%	0.01%	8.06%	0.0062	0.0000
44.5	193,951	7.71%	0.00%	7.18%	0.0059	0.0000
45.5			0.00%	6.36%		

Account 334.130 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company L1-15**	**OUCC L0.5-23**	**Company SSD**	**OUCC SSD**
Sum of Squared Differences				[8]	1.1681	0.0638
Up to 1% of Beginning Exposures				[9]	1.1622	0.0638

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 334.131 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R3-15**	**OUCC R3-20**	**Company SSD**	**OUCC SSD**
0.0	8,020,467	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	7,710,649	99.90%	99.94%	99.96%	0.0000	0.0000
1.5	7,589,571	99.84%	99.77%	99.85%	0.0000	0.0000
2.5	7,530,523	99.84%	99.49%	99.68%	0.0000	0.0000
3.5	7,255,048	99.22%	99.06%	99.45%	0.0000	0.0000
4.5	6,725,043	98.91%	98.41%	99.12%	0.0000	0.0000
5.5	5,907,284	98.91%	97.49%	98.68%	0.0002	0.0000
6.5	5,329,998	98.68%	96.20%	98.10%	0.0006	0.0000
7.5	4,399,431	97.24%	94.47%	97.35%	0.0008	0.0000
8.5	4,378,010	97.09%	92.18%	96.38%	0.0024	0.0000
9.5	4,049,676	96.92%	89.23%	95.17%	0.0059	0.0003
10.5	3,586,023	96.72%	85.49%	93.68%	0.0126	0.0009
11.5	3,132,507	96.59%	80.79%	91.85%	0.0250	0.0022
12.5	2,988,894	95.00%	74.96%	89.64%	0.0402	0.0029
13.5	2,692,202	94.84%	67.84%	87.00%	0.0729	0.0062
14.5	2,549,801	94.27%	59.41%	83.85%	0.1216	0.0109
15.5	2,436,162	93.69%	49.84%	80.13%	0.1923	0.0184
16.5	2,423,299	93.69%	39.62%	75.75%	0.2924	0.0322
17.5	2,420,955	93.69%	29.52%	70.66%	0.4118	0.0530
18.5	2,420,955	93.69%	20.39%	64.83%	0.5372	0.0833
19.5	2,420,955	93.69%	12.92%	58.26%	0.6523	0.1255
20.5	2,420,955	93.69%	7.40%	51.08%	0.7446	0.1816
21.5	2,420,955	93.69%	3.69%	43.48%	0.8100	0.2521
22.5	2,420,955	93.69%	1.47%	35.77%	0.8505	0.3355
23.5			0.38%	28.31%		
Sum of Squared Differences				[8]	4.7732	1.1050
Up to 1% of Beginning Exposures				[9]	4.7732	1.1050

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

Account 334.200 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R3-40**	**OUCC R2-52**	**Company SSD**	**OUCC SSD**
0.0	92,729,384	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	82,621,899	99.32%	99.98%	99.91%	0.0000	0.0000
1.5	75,816,074	98.65%	99.93%	99.72%	0.0002	0.0001
2.5	69,860,409	98.63%	99.88%	99.51%	0.0002	0.0001
3.5	64,059,279	98.24%	99.81%	99.30%	0.0002	0.0001
4.5	61,015,503	97.91%	99.73%	99.06%	0.0003	0.0001
5.5	55,933,661	97.48%	99.63%	98.82%	0.0005	0.0002
6.5	52,264,279	97.16%	99.51%	98.56%	0.0006	0.0002
7.5	50,094,820	96.90%	99.38%	98.28%	0.0006	0.0002
8.5	48,590,318	96.59%	99.21%	97.98%	0.0007	0.0002
9.5	45,532,998	96.07%	99.03%	97.67%	0.0009	0.0003
10.5	42,547,349	95.48%	98.81%	97.34%	0.0011	0.0003
11.5	40,152,964	94.25%	98.55%	96.99%	0.0019	0.0008
12.5	38,948,873	93.28%	98.26%	96.62%	0.0025	0.0011
13.5	37,190,867	92.77%	97.93%	96.23%	0.0027	0.0012
14.5	35,796,999	92.24%	97.56%	95.81%	0.0028	0.0013
15.5	35,513,905	91.84%	97.13%	95.37%	0.0028	0.0012
16.5	27,517,290	91.51%	96.65%	94.91%	0.0026	0.0012
17.5	27,285,276	91.08%	96.11%	94.43%	0.0025	0.0011
18.5	26,136,868	90.98%	95.50%	93.91%	0.0020	0.0009
19.5	25,432,311	90.79%	94.83%	93.37%	0.0016	0.0007
20.5	23,770,698	89.96%	94.08%	92.81%	0.0017	0.0008
21.5	21,512,162	88.71%	93.25%	92.21%	0.0021	0.0012
22.5	19,881,306	87.98%	92.34%	91.58%	0.0019	0.0013
23.5	17,886,962	87.75%	91.34%	90.92%	0.0013	0.0010
24.5	16,787,962	87.63%	90.23%	90.23%	0.0007	0.0007
25.5	15,521,555	87.50%	89.03%	89.50%	0.0002	0.0004
26.5	14,224,738	87.23%	87.70%	88.74%	0.0000	0.0002
27.5	13,163,692	87.09%	86.26%	87.94%	0.0001	0.0001
28.5	12,269,148	86.97%	84.69%	87.11%	0.0005	0.0000
29.5	11,289,613	86.86%	82.98%	86.23%	0.0015	0.0000
30.5	10,253,571	85.88%	81.12%	85.31%	0.0023	0.0000
31.5	9,063,326	84.67%	79.10%	84.35%	0.0031	0.0000
32.5	8,426,876	84.20%	76.91%	83.35%	0.0053	0.0001
33.5	7,595,149	83.99%	74.55%	82.31%	0.0089	0.0003
34.5	7,023,689	83.76%	72.01%	81.21%	0.0138	0.0006
35.5	6,598,515	83.49%	69.28%	80.08%	0.0202	0.0012
36.5	6,091,293	82.94%	66.36%	78.89%	0.0275	0.0016
37.5	5,707,651	82.18%	63.25%	77.65%	0.0358	0.0020
38.5	5,349,324	81.90%	59.97%	76.37%	0.0481	0.0031
39.5	4,942,133	81.53%	56.52%	75.03%	0.0625	0.0042
40.5	4,662,280	80.94%	52.93%	73.64%	0.0785	0.0053
41.5	4,341,167	80.34%	49.21%	72.20%	0.0969	0.0066
42.5	3,986,767	79.72%	45.41%	70.71%	0.1177	0.0081
43.5	3,777,695	78.79%	41.55%	69.17%	0.1387	0.0093
44.5	3,520,924	77.55%	37.69%	67.57%	0.1589	0.0100
45.5	3,268,176	76.29%	33.87%	65.92%	0.1800	0.0108
46.5	3,035,097	75.57%	30.13%	64.22%	0.2065	0.0129

Account 334.200 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R3-40**	**OUCC R2-52**	**Company SSD**	**OUCC SSD**
47.5	2,890,240	74.60%	26.52%	62.47%	0.2311	0.0147
48.5	2,705,815	73.59%	23.09%	60.67%	0.2550	0.0167
49.5	2,511,393	72.63%	19.87%	58.82%	0.2783	0.0191
50.5	2,349,464	71.60%	16.90%	56.94%	0.2992	0.0215
51.5	2,200,664	70.82%	14.18%	55.00%	0.3208	0.0250
52.5	1,993,487	69.99%	11.74%	53.04%	0.3393	0.0287
53.5	1,876,984	69.25%	9.58%	51.03%	0.3560	0.0332
54.5	1,684,037	65.63%	7.69%	49.00%	0.3357	0.0277
55.5	1,570,008	64.25%	6.06%	46.94%	0.3386	0.0300
56.5	1,459,284	62.18%	4.67%	44.86%	0.3307	0.0300
57.5	1,334,111	60.34%	3.51%	42.77%	0.3229	0.0309
58.5	1,231,061	58.99%	2.56%	40.66%	0.3185	0.0336
59.5	1,150,766	57.84%	1.79%	38.56%	0.3142	0.0372
60.5	1,055,850	56.42%	1.19%	36.46%	0.3050	0.0398
61.5	996,261	55.48%	0.74%	34.37%	0.2996	0.0445
62.5	860,247	53.14%	0.42%	32.31%	0.2779	0.0434
63.5			0.21%	30.26%		
Sum of Squared Differences				[8]	6.1645	0.5691
Up to 1% of Beginning Exposures				[9]	5.8865	0.5257

[1] Age in years using half-year convention

[2] Dollars exposed to retirement at the beginning of each age interval

[3] Observed life table based on the Company's property records. These numbers form the original survivor curve.

[4] The Company's selected Iowa curve to be fitted to the OLT.

[5] My selected Iowa curve to be fitted to the OLT.

[6] = ([4] - [3])^2. This is the squared difference between each point on the Company's curve and the observed survivor curve.

[7] = ([5] - [3])^2. This is the squared difference between each point on my curve and the observed survivor curve.

[8] = Sum of squared differences. The smallest SSD represents the best mathematical fit.

American Water Works - Indiana

Account 306.000 - Lake, River, and Other Intakes

Placement Band - 1904 - 2022 Experience Band - 1979 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	54,034,458	0	0.00000	1.00000	100.00
0.5	54,034,458	0	0.00000	1.00000	100.00
1.5	54,034,458	0	0.00000	1.00000	100.00
2.5	54,034,458	1,919	0.00004	0.99996	100.00
3.5	52,532,544	0	0.00000	1.00000	100.00
4.5	52,483,360	0	0.00000	1.00000	100.00
5.5	52,433,710	4,833	0.00009	0.99991	100.00
6.5	50,368,830	0	0.00000	1.00000	99.99
7.5	50,368,830	0	0.00000	1.00000	99.99
8.5	50,328,658	0	0.00000	1.00000	99.99
9.5	50,308,792	0	0.00000	1.00000	99.99
10.5	50,298,516	6,036	0.00012	0.99988	99.99
11.5	50,292,481	1	0.00000	1.00000	99.98
12.5	50,292,480	0	0.00000	1.00000	99.98
13.5	50,292,480	1,075,930	0.02139	0.97861	99.98
14.5	49,216,550	10,775	0.00022	0.99978	97.84
15.5	49,205,775	74,923	0.00152	0.99848	97.82
16.5	49,130,852	141,975	0.00289	0.99711	97.67
17.5	48,988,876	0	0.00000	1.00000	97.39
18.5	48,988,876	0	0.00000	1.00000	97.39
19.5	48,984,044	149,734	0.00306	0.99694	97.39
20.5	48,834,310	1,764	0.00004	0.99996	97.09
21.5	5,442,797	157,953	0.02902	0.97098	97.09
22.5	5,284,845	18,662	0.00353	0.99647	94.27
23.5	5,266,182	12,292	0.00233	0.99767	93.94
24.5	5,246,917	18,868	0.00360	0.99640	93.72
25.5	5,228,049	0	0.00000	1.00000	93.38
26.5	5,228,049	25,820	0.00494	0.99506	93.38

American Water Works - Indiana

Account 306.000 - Lake, River, and Other Intakes

Placement Band - 1904 - 2022 Experience Band - 1979 - 2022

27.5	5,202,228	0	0.00000	1.00000	92.92
28.5	5,202,228	8,292	0.00159	0.99841	92.92
29.5	5,193,937	13,706	0.00264	0.99736	92.77
30.5	5,180,230	742	0.00014	0.99986	92.53
31.5	1,850,931	4,396	0.00238	0.99762	92.52
32.5	1,846,535	3,703	0.00201	0.99799	92.30
33.5	1,842,832	0	0.00000	1.00000	92.11
34.5	1,842,832	467	0.00025	0.99975	92.11
35.5	1,842,366	4,284	0.00233	0.99767	92.09
36.5	1,771,589	2,114	0.00119	0.99881	91.88
37.5	1,768,736	0	0.00000	1.00000	91.77
38.5	1,726,436	212	0.00012	0.99988	91.77
39.5	1,726,224	0	0.00000	1.00000	91.76
40.5	1,726,224	143,155	0.08293	0.91707	91.76
41.5	1,583,069	0	0.00000	1.00000	84.15
42.5	1,583,069	188,109	0.11883	0.88117	84.15
43.5	1,394,960	0	0.00000	1.00000	74.15
44.5	1,394,428	0	0.00000	1.00000	74.15
45.5	1,394,428	0	0.00000	1.00000	74.15
46.5	1,394,428	155	0.00011	0.99989	74.15
47.5	1,394,273	427	0.00031	0.99969	74.14
48.5	1,393,846	12,309	0.00883	0.99117	74.12
49.5	1,381,537	0	0.00000	1.00000	73.47
50.5	1,381,537	19	0.00001	0.99999	73.47
51.5	1,242,559	0	0.00000	1.00000	73.47
52.5	1,242,559	0	0.00000	1.00000	73.47
53.5	1,242,559	0	0.00000	1.00000	73.47
54.5	1,242,559	0	0.00000	1.00000	73.47
55.5	1,239,898	0	0.00000	1.00000	73.47
56.5	1,239,898	84,352	0.06803	0.93197	73.47
57.5	1,155,546	0	0.00000	1.00000	68.47

American Water Works - Indiana

Account 306.000 - Lake, River, and Other Intakes

Placement Band - 1904 - 2022 Experience Band - 1979 - 2022

58.5	1,155,546	0	0.00000	1.00000	68.47
59.5	630,188	0	0.00000	1.00000	68.47
60.5	629,305	0	0.00000	1.00000	68.47
61.5	621,415	0	0.00000	1.00000	68.47
62.5	536,294	0	0.00000	1.00000	68.47
63.5	510,064	1,744	0.00342	0.99658	68.47
	Totals:	2,169,671			

American Water Works - Indiana

Account 320.200 - WT Equipment - Filter Media

Placement Band - 2007 - 2022 Experience Band - 2010 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,135,371	0	0.00000	1.00000	100.00
0.5	7,605,975	123,951	0.01630	0.98370	100.00
1.5	7,419,689	129,167	0.01741	0.98259	98.37
2.5	7,092,624	341,852	0.04820	0.95180	96.66
3.5	6,197,601	188,815	0.03047	0.96953	92.00
4.5	5,655,199	310,904	0.05498	0.94502	89.20
5.5	4,912,358	576,473	0.11735	0.88265	84.30
6.5	3,919,650	134,182	0.03423	0.96577	74.41
7.5	3,399,705	101,066	0.02973	0.97027	71.86
8.5	2,294,049	171,326	0.07468	0.92532	69.72
9.5	2,058,640	169,272	0.08223	0.91777	64.51
10.5	1,626,011	213,989	0.13160	0.86840	59.21
11.5	881,268	57,275	0.06499	0.93501	51.42
12.5	484,145	0	0.00000	1.00000	48.08
	Totals:	2,518,272			

American Water Works - Indiana

Account 333.000 - Services

Placement Band - 1900 - 2022 Experience Band - 1930 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	235,516,122	598,261	0.00254	0.99746	100.00
0.5	217,187,242	766,059	0.00353	0.99647	99.75
1.5	201,844,031	215,643	0.00107	0.99893	99.40
2.5	185,540,816	428,090	0.00231	0.99769	99.29
3.5	171,304,098	383,427	0.00224	0.99776	99.06
4.5	161,646,812	80,884	0.00050	0.99950	98.84
5.5	149,808,426	303,590	0.00203	0.99797	98.79
6.5	134,240,939	319,720	0.00238	0.99762	98.59
7.5	123,772,140	209,136	0.00169	0.99831	98.36
8.5	117,799,980	421,223	0.00358	0.99642	98.19
9.5	111,969,072	1,015,851	0.00907	0.99093	97.84
10.5	106,614,755	441,651	0.00414	0.99586	96.95
11.5	100,984,071	102,645	0.00102	0.99898	96.55
12.5	94,439,372	143,832	0.00152	0.99848	96.45
13.5	86,312,295	195,533	0.00227	0.99773	96.30
14.5	82,285,883	132,491	0.00161	0.99839	96.08
15.5	81,155,329	162,259	0.00200	0.99800	95.93
16.5	72,172,167	156,327	0.00217	0.99783	95.74
17.5	71,545,557	119,143	0.00167	0.99833	95.53
18.5	69,552,728	94,080	0.00135	0.99865	95.37
19.5	67,518,242	142,680	0.00211	0.99789	95.24
20.5	64,577,901	67,407	0.00104	0.99896	95.04
21.5	59,082,358	118,596	0.00201	0.99799	94.94
22.5	55,895,814	58,554	0.00105	0.99895	94.75
23.5	52,631,136	90,309	0.00172	0.99828	94.65
24.5	49,406,680	51,949	0.00105	0.99895	94.49
25.5	45,411,086	104,653	0.00230	0.99770	94.39
26.5	43,042,183	29,976	0.00070	0.99930	94.17

American Water Works - Indiana

Account 333.000 - Services

Placement Band - 1900 - 2022 Experience Band - 1930 - 2022

27.5	40,866,107	42,094	0.00103	0.99897	94.10
28.5	38,923,719	40,681	0.00105	0.99895	94.00
29.5	35,340,445	92,505	0.00262	0.99738	93.90
30.5	33,774,762	59,523	0.00176	0.99824	93.65
31.5	32,317,003	86,940	0.00269	0.99731	93.49
32.5	30,654,016	85,386	0.00279	0.99721	93.24
33.5	29,321,428	89,074	0.00304	0.99696	92.98
34.5	28,117,381	137,979	0.00491	0.99509	92.70
35.5	26,957,851	115,714	0.00429	0.99571	92.24
36.5	25,936,174	103,063	0.00397	0.99603	91.84
37.5	25,020,444	80,323	0.00321	0.99679	91.48
38.5	24,174,351	58,359	0.00241	0.99759	91.19
39.5	23,333,732	107,862	0.00462	0.99538	90.97
40.5	22,553,174	68,589	0.00304	0.99696	90.55
41.5	21,782,997	98,674	0.00453	0.99547	90.27
42.5	20,659,340	97,834	0.00474	0.99526	89.86
43.5	19,761,568	83,957	0.00425	0.99575	89.43
44.5	18,468,960	73,327	0.00397	0.99603	89.05
45.5	17,472,367	67,696	0.00387	0.99613	88.70
46.5	16,791,468	73,447	0.00437	0.99563	88.36
47.5	13,994,402	43,957	0.00314	0.99686	87.97
48.5	13,406,353	47,345	0.00353	0.99647	87.69
49.5	12,958,954	71,177	0.00549	0.99451	87.38
50.5	11,826,177	43,563	0.00368	0.99632	86.90
51.5	11,319,055	64,221	0.00567	0.99433	86.58
52.5	10,709,854	38,624	0.00361	0.99639	86.09
53.5	9,998,450	73,821	0.00738	0.99262	85.78
54.5	8,865,153	97,054	0.01095	0.98905	85.15
55.5	8,400,438	77,304	0.00920	0.99080	84.22
56.5	7,951,129	78,138	0.00983	0.99017	83.45
57.5	7,305,932	294,637	0.04033	0.95967	82.63

American Water Works - Indiana

Account 333.000 - Services

Placement Band - 1900 - 2022 Experience Band - 1930 - 2022

58.5	6,745,090	43,848	0.00650	0.99350	79.30
59.5	6,327,865	61,766	0.00976	0.99024	78.78
60.5	5,969,027	53,132	0.00890	0.99110	78.01
61.5	5,410,694	74,555	0.01378	0.98622	77.32
62.5	4,801,948	50,073	0.01043	0.98957	76.25
63.5	4,462,932	58,375	0.01308	0.98692	75.45
64.5	4,133,260	128,847	0.03117	0.96883	74.46
65.5	3,746,994	104,554	0.02790	0.97210	72.14
66.5	3,341,884	140,357	0.04200	0.95800	70.13
67.5	2,855,338	99,080	0.03470	0.96530	67.18
68.5	2,379,723	86,561	0.03637	0.96363	64.85
69.5	2,121,288	81,036	0.03820	0.96180	62.49
70.5	1,931,811	89,981	0.04658	0.95342	60.10
71.5	1,729,050	93,020	0.05380	0.94620	57.30
72.5	1,284,493	26,293	0.02047	0.97953	54.22
73.5	1,163,497	39,927	0.03432	0.96568	53.11
74.5	1,030,002	52,166	0.05065	0.94935	51.29
75.5	909,117	58,792	0.06467	0.93533	48.69
76.5	829,654	25,827	0.03113	0.96887	45.54
77.5	771,546	21,734	0.02817	0.97183	44.12
78.5	742,193	15,239	0.02053	0.97947	42.88
79.5	707,934	19,226	0.02716	0.97284	42.00
80.5	673,563	4,060	0.00603	0.99397	40.86
81.5	647,545	8,922	0.01378	0.98622	40.61
82.5	455,459	12,332	0.02708	0.97292	40.05
83.5	429,123	13,603	0.03170	0.96830	38.97
84.5	410,410	6,805	0.01658	0.98342	37.73
85.5	396,289	3,852	0.00972	0.99028	37.10
86.5	387,980	4,904	0.01264	0.98736	36.74
87.5	380,371	4,223	0.01110	0.98890	36.28
88.5	374,280	6,681	0.01785	0.98215	35.88

American Water Works - Indiana

Account 333.000 - Services

Placement Band - 1900 - 2022 Experience Band - 1930 - 2022

89.5	366,801	3,288	0.00896	0.99104	35.24
90.5	361,621	1,436	0.00397	0.99603	34.92
	Totals:	11,041,332			

American Water Works - Indiana

Account 334.100 - Meters

Placement Band - 1900 - 2022 Experience Band - 2009 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	46,973,763	1,164,899	0.02480	0.97520	100.00
0.5	38,543,676	392,134	0.01017	0.98983	97.52
1.5	33,741,829	388,246	0.01151	0.98849	96.53
2.5	27,847,124	385,021	0.01383	0.98617	95.42
3.5	22,783,573	485,114	0.02129	0.97871	94.10
4.5	21,512,699	518,289	0.02409	0.97591	92.10
5.5	20,407,614	163,908	0.00803	0.99197	89.88
6.5	19,287,918	420,871	0.02182	0.97818	89.16
7.5	18,006,506	681,278	0.03784	0.96216	87.21
8.5	16,486,377	292,314	0.01773	0.98227	83.91
9.5	14,181,852	445,060	0.03138	0.96862	82.42
10.5	7,994,149	446,380	0.05584	0.94416	79.83
11.5	4,576,111	105,843	0.02313	0.97687	75.37
12.5	2,836,281	66,888	0.02358	0.97642	73.63
13.5	1,094,662	88,863	0.08118	0.91882	71.89
14.5	882,952	12,913	0.01462	0.98538	66.05
15.5	863,453	10,065	0.01166	0.98834	65.08
16.5	853,388	50,913	0.05966	0.94034	64.32
17.5	636,706	3,556	0.00558	0.99442	60.48
18.5	631,612	269	0.00043	0.99957	60.14
19.5	629,364	5,495	0.00873	0.99127	60.11
20.5	616,549	64	0.00010	0.99990	59.59
21.5	615,060	5,480	0.00891	0.99109	59.58
22.5	578,779	1,540	0.00266	0.99734	59.05
23.5	575,959	0	0.00000	1.00000	58.89
24.5	442,775	0	0.00000	1.00000	58.89
	Totals:	6,135,403			

American Water Works - Indiana

Account 334.110 - Meters - Bronze Case

Placement Band - 1900 - 2022 Experience Band - 1924 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	46,594,751	129,235	0.00277	0.99723	100.00
0.5	46,465,418	61,067	0.00131	0.99869	99.72
1.5	46,365,546	23,494	0.00051	0.99949	99.59
2.5	46,143,990	211,434	0.00458	0.99542	99.54
3.5	44,539,674	656,260	0.01473	0.98527	99.08
4.5	42,466,613	700,155	0.01649	0.98351	97.62
5.5	39,285,229	1,067,140	0.02716	0.97284	96.01
6.5	36,587,236	909,897	0.02487	0.97513	93.40
7.5	34,530,568	600,061	0.01738	0.98262	91.08
8.5	33,510,332	1,019,452	0.03042	0.96958	89.50
9.5	32,357,314	1,565,166	0.04837	0.95163	86.78
10.5	27,949,630	1,209,722	0.04328	0.95672	82.58
11.5	25,014,025	2,206,884	0.08823	0.91177	79.01
12.5	21,478,458	632,540	0.02945	0.97055	72.04
13.5	14,130,585	1,073,239	0.07595	0.92405	69.92
14.5	10,403,457	1,038,495	0.09982	0.90018	64.61
15.5	8,831,251	1,074,175	0.12163	0.87837	58.16
16.5	6,311,794	861,634	0.13651	0.86349	51.09
17.5	5,286,628	322,910	0.06108	0.93892	44.12
18.5	4,476,052	513,862	0.11480	0.88520	41.43
19.5	3,852,326	355,841	0.09237	0.90763	36.67
20.5	3,197,475	47,468	0.01485	0.98515	33.28
21.5	2,494,896	148,660	0.05959	0.94041	32.79
22.5	1,761,807	68,115	0.03866	0.96134	30.84
23.5	1,379,795	62,222	0.04510	0.95490	29.65
24.5	1,162,046	36,924	0.03177	0.96823	28.31
25.5	927,748	34,396	0.03707	0.96293	27.41
26.5	722,646	35,926	0.04971	0.95029	26.39

American Water Works - Indiana

Account 334.110 - Meters - Bronze Case

Placement Band - 1900 - 2022 Experience Band - 1924 - 2022

27.5	649,075	22,073	0.03401	0.96599	25.08
28.5	596,982	25,289	0.04236	0.95764	24.23
29.5	545,309	31,965	0.05862	0.94138	23.20
30.5	445,659	21,405	0.04803	0.95197	21.84
	Totals:	16,767,106			

American Water Works - Indiana

Account 334.130 - Meters - Other

Placement Band - 1915 - 2022 Experience Band - 1950 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	20,092,273	91,637	0.00456	0.99544	100.00
0.5	19,727,173	176,411	0.00894	0.99106	99.54
1.5	19,415,109	71,172	0.00367	0.99633	98.65
2.5	19,150,671	137,278	0.00717	0.99283	98.29
3.5	18,288,852	193,099	0.01056	0.98944	97.59
4.5	17,980,890	384,441	0.02138	0.97862	96.56
5.5	17,322,832	371,626	0.02145	0.97855	94.50
6.5	16,272,311	457,432	0.02811	0.97189	92.47
7.5	15,708,064	540,786	0.03443	0.96557	89.87
8.5	14,917,945	1,025,374	0.06873	0.93127	86.78
9.5	13,154,675	891,713	0.06779	0.93221	80.82
10.5	11,454,346	564,694	0.04930	0.95070	75.34
11.5	10,766,695	488,773	0.04540	0.95460	71.63
12.5	10,063,558	387,265	0.03848	0.96152	68.38
13.5	9,666,684	820,115	0.08484	0.91516	65.75
14.5	8,772,225	279,795	0.03190	0.96810	60.17
15.5	8,492,430	302,806	0.03566	0.96434	58.25
16.5	6,415,219	188,893	0.02944	0.97056	56.17
17.5	5,847,987	182,085	0.03114	0.96886	54.52
18.5	5,649,514	196,655	0.03481	0.96519	52.82
19.5	5,432,871	252,753	0.04652	0.95348	50.98
20.5	5,165,115	323,548	0.06264	0.93736	48.61
21.5	4,774,815	233,289	0.04886	0.95114	45.57
22.5	4,387,105	220,511	0.05026	0.94974	43.34
23.5	2,339,111	170,466	0.07288	0.92712	41.16
24.5	2,126,271	163,407	0.07685	0.92315	38.16
25.5	1,915,282	84,962	0.04436	0.95564	35.23
26.5	1,830,320	163,613	0.08939	0.91061	33.67

American Water Works - Indiana

Account 334.130 - Meters - Other

Placement Band - 1915 - 2022 Experience Band - 1950 - 2022

27.5	1,666,707	117,691	0.07061	0.92939	30.66
28.5	1,512,766	141,095	0.09327	0.90673	28.50
29.5	1,295,175	115,311	0.08903	0.91097	25.84
30.5	1,128,311	104,951	0.09302	0.90698	23.54
31.5	945,553	74,104	0.07837	0.92163	21.35
32.5	823,042	44,756	0.05438	0.94562	19.68
33.5	763,280	40,781	0.05343	0.94657	18.61
34.5	678,000	34,774	0.05129	0.94871	17.62
35.5	601,156	31,715	0.05276	0.94724	16.72
36.5	540,945	44,693	0.08262	0.91738	15.84
37.5	476,495	27,631	0.05799	0.94201	14.53
38.5	436,520	40,205	0.09210	0.90790	13.69
39.5	375,646	38,170	0.10161	0.89839	12.43
40.5	323,880	24,237	0.07483	0.92517	11.17
41.5	295,297	33,285	0.11272	0.88728	10.33
42.5	250,591	34,823	0.13896	0.86104	9.17
43.5	207,499	5,035	0.02427	0.97573	7.90
44.5	193,951	7,041	0.03630	0.96370	7.71
	Totals:	10,324,897			

American Water Works - Indiana

Account 334.131 - Meter Reading Units

Placement Band - 1999 - 2022 Experience Band - 2017 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,020,467	7,894	0.00098	0.99902	100.00
0.5	7,710,649	4,666	0.00061	0.99939	99.90
1.5	7,589,571	25	0.00000	1.00000	99.84
2.5	7,530,523	46,523	0.00618	0.99382	99.84
3.5	7,255,048	22,878	0.00315	0.99685	99.22
4.5	6,725,043	238	0.00004	0.99996	98.91
5.5	5,907,284	13,465	0.00228	0.99772	98.91
6.5	5,329,998	77,678	0.01457	0.98543	98.68
7.5	4,399,431	6,900	0.00157	0.99843	97.24
8.5	4,378,010	7,711	0.00176	0.99824	97.09
9.5	4,049,676	8,486	0.00210	0.99790	96.92
10.5	3,586,023	4,971	0.00139	0.99861	96.72
11.5	3,132,507	51,409	0.01641	0.98359	96.59
12.5	2,988,894	5,172	0.00173	0.99827	95.00
13.5	2,692,202	16,185	0.00601	0.99399	94.84
14.5	2,549,801	15,786	0.00619	0.99381	94.27
15.5	2,436,162	0	0.00000	1.00000	93.69
16.5	2,423,299	0	0.00000	1.00000	93.69
17.5	2,420,955	0	0.00000	1.00000	93.69
18.5	2,420,955	0	0.00000	1.00000	93.69
19.5	2,420,955	0	0.00000	1.00000	93.69
20.5	2,420,955	0	0.00000	1.00000	93.69
21.5	2,420,955	0	0.00000	1.00000	93.69
22.5	2,420,955	0	0.00000	1.00000	93.69
	Totals:	289,987			

American Water Works - Indiana

Account 334.200 - Meter Installations

Placement Band - 1902 - 2022 Experience Band - 1943 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	92,729,384	630,528	0.00680	0.99320	100.00
0.5	82,621,899	554,578	0.00671	0.99329	99.32
1.5	75,816,074	18,283	0.00024	0.99976	98.65
2.5	69,860,409	275,773	0.00395	0.99605	98.63
3.5	64,059,279	211,780	0.00331	0.99669	98.24
4.5	61,015,503	268,527	0.00440	0.99560	97.91
5.5	55,933,661	185,799	0.00332	0.99668	97.48
6.5	52,264,279	137,481	0.00263	0.99737	97.16
7.5	50,094,820	161,311	0.00322	0.99678	96.90
8.5	48,590,318	262,733	0.00541	0.99459	96.59
9.5	45,532,998	279,029	0.00613	0.99387	96.07
10.5	42,547,349	550,030	0.01293	0.98707	95.48
11.5	40,152,964	413,938	0.01031	0.98969	94.25
12.5	38,948,873	214,606	0.00551	0.99449	93.28
13.5	37,190,867	211,951	0.00570	0.99430	92.77
14.5	35,796,999	156,180	0.00436	0.99564	92.24
15.5	35,513,905	128,897	0.00363	0.99637	91.84
16.5	27,517,290	129,274	0.00470	0.99530	91.51
17.5	27,285,276	28,541	0.00105	0.99895	91.08
18.5	26,136,868	53,608	0.00205	0.99795	90.98
19.5	25,432,311	231,695	0.00911	0.99089	90.79
20.5	23,770,698	329,506	0.01386	0.98614	89.96
21.5	21,512,162	177,643	0.00826	0.99174	88.71
22.5	19,881,306	52,565	0.00264	0.99736	87.98
23.5	17,886,962	24,073	0.00135	0.99865	87.75
24.5	16,787,962	24,331	0.00145	0.99855	87.63
25.5	15,521,555	47,567	0.00306	0.99694	87.50
26.5	14,224,738	23,138	0.00163	0.99837	87.23

American Water Works - Indiana

Account 334.200 - Meter Installations

Placement Band - 1902 - 2022 Experience Band - 1943 - 2022

27.5	13,163,692	17,506	0.00133	0.99867	87.09
28.5	12,269,148	15,539	0.00127	0.99873	86.97
29.5	11,289,613	128,067	0.01134	0.98866	86.86
30.5	10,253,571	144,197	0.01406	0.98594	85.88
31.5	9,063,326	50,493	0.00557	0.99443	84.67
32.5	8,426,876	21,100	0.00250	0.99750	84.20
33.5	7,595,149	20,757	0.00273	0.99727	83.99
34.5	7,023,689	22,465	0.00320	0.99680	83.76
35.5	6,598,515	43,064	0.00653	0.99347	83.49
36.5	6,091,293	56,042	0.00920	0.99080	82.94
37.5	5,707,651	19,550	0.00343	0.99657	82.18
38.5	5,349,324	24,317	0.00455	0.99545	81.90
39.5	4,942,133	35,830	0.00725	0.99275	81.53
40.5	4,662,280	34,297	0.00736	0.99264	80.94
41.5	4,341,167	33,239	0.00766	0.99234	80.34
42.5	3,986,767	46,285	0.01161	0.98839	79.72
43.5	3,777,695	59,280	0.01569	0.98431	78.79
44.5	3,520,924	57,058	0.01621	0.98379	77.55
45.5	3,268,176	30,804	0.00943	0.99057	76.29
46.5	3,035,097	38,758	0.01277	0.98723	75.57
47.5	2,890,240	39,145	0.01354	0.98646	74.60
48.5	2,705,815	35,446	0.01310	0.98690	73.59
49.5	2,511,393	35,671	0.01420	0.98580	72.63
50.5	2,349,464	25,525	0.01086	0.98914	71.60
51.5	2,200,664	25,769	0.01171	0.98829	70.82
52.5	1,993,487	21,111	0.01059	0.98941	69.99
53.5	1,876,984	98,220	0.05233	0.94767	69.25
54.5	1,684,037	35,339	0.02098	0.97902	65.63
55.5	1,570,008	50,651	0.03226	0.96774	64.25
56.5	1,459,284	43,275	0.02965	0.97035	62.18
57.5	1,334,111	29,878	0.02240	0.97760	60.34

American Water Works - Indiana

Account 334.200 - Meter Installations

Placement Band - 1902 - 2022 Experience Band - 1943 - 2022

58.5	1,231,061	24,038	0.01953	0.98047	58.99
59.5	1,150,766	28,342	0.02463	0.97537	57.84
60.5	1,055,850	17,642	0.01671	0.98329	56.42
61.5	996,261	41,943	0.04210	0.95790	55.48
62.5	860,247	40,352	0.04691	0.95309	53.14
	Totals:	7,274,360			

Indiana-American Water Company
Water and Wastewater Divisions
306.00 Lake, River, and Other Intakes
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-10 %* ***Average Service Life:*** *74* ***Survivor Curve:*** *S0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1904	600.32	10.07	74.00	0.95025	570
1922	3,967.81	16.31	74.00	0.85752	3,402
1929	438.29	18.87	74.00	0.81953	359
1931	183.14	19.62	74.00	0.80839	148
1944	656.07	24.71	74.00	0.73262	481
1954	404.00	28.97	74.00	0.66932	270
1955	40,943.73	29.42	74.00	0.66270	27,133
1959	26,230.04	31.24	74.00	0.63566	16,673
1960	85,120.27	31.70	74.00	0.62875	53,519
1961	7,890.41	32.17	74.00	0.62178	4,906
1962	883.07	32.64	74.00	0.61474	543
1963	525,358.00	33.12	74.00	0.60763	319,226
1967	2,661.28	35.08	74.00	0.57855	1,540
1971	138,958.91	37.11	74.00	0.54831	76,193
1978	532.05	40.88	74.00	0.49225	262
1984	42,300.00	44.35	74.00	0.44069	18,641
1985	738.65	44.95	74.00	0.43176	319
1986	66,492.57	45.56	74.00	0.42269	28,106
1991	3,328,557.08	48.72	74.00	0.37584	1,250,999
1998	6,973.00	53.47	74.00	0.30515	2,128
2001	43,389,748.76	55.64	74.00	0.27291	11,841,390
2003	4,832.42	57.13	74.00	0.25070	1,211
2012	10,275.39	64.36	74.00	0.14325	1,472
2013	19,865.82	65.22	74.00	0.13051	2,593
2014	40,172.19	66.09	74.00	0.11757	4,723
2016	2,060,047.19	67.86	74.00	0.09121	187,896
2017	49,650.16	68.77	74.00	0.07772	3,859
2018	49,183.71	69.69	74.00	0.06407	3,151

Indiana-American Water Company
Water and Wastewater Divisions
306.00 Lake, River, and Other Intakes
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-10 %* ***Average Service Life:*** *74* ***Survivor Curve:*** *S0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2019	1,499,995.27	70.62	74.00	0.05024	75,364
Total	51,403,659.60				13,927,077.42

Indiana-American Water Company
Water and Wastewater Divisions
320.20 Water Treatment Equipment - Filter Media
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-10 %* ***Average Service Life:*** *14* ***Survivor Curve:*** *R0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2008	219,511.06	5.82	14.00	0.64315	141,179
2009	264,634.03	6.29	14.00	0.60554	160,246
2010	339,847.97	6.79	14.00	0.56663	192,567
2011	530,754.56	7.30	14.00	0.52641	279,394
2012	263,356.33	7.83	14.00	0.48492	127,706
2013	64,083.67	8.37	14.00	0.44222	28,339
2014	1,004,591.09	8.93	14.00	0.39843	400,255
2015	385,762.97	9.50	14.00	0.35366	136,427
2016	416,234.26	10.08	14.00	0.30806	128,225
2017	431,937.45	10.67	14.00	0.26183	113,096
2018	353,587.37	11.26	14.00	0.21513	76,066
2019	553,170.89	11.86	14.00	0.16804	92,957
2020	197,897.80	12.47	14.00	0.12059	23,864
2021	62,334.80	13.08	14.00	0.07271	4,532
2022	529,395.98	13.69	14.00	0.02436	12,898
Total	5,617,100.23				1,917,752.46

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-125 %* ***Average Service Life:*** *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1900	1,231.71	8.21	82.00	2.02461	2,494
1909	2.07	10.87	82.00	1.95178	4
1911	4.50	11.48	82.00	1.93505	9
1913	26,729.05	12.10	82.00	1.91797	51,266
1914	2,901.80	12.41	82.00	1.90950	5,541
1915	11,503.97	12.73	82.00	1.90076	21,866
1916	2,937.02	13.05	82.00	1.89191	5,557
1917	1,379.36	13.38	82.00	1.88294	2,597
1918	1,090.81	13.70	82.00	1.87396	2,044
1919	2,903.36	14.04	82.00	1.86477	5,414
1920	15,941.83	14.38	82.00	1.85544	29,579
1921	5,414.09	14.72	82.00	1.84596	9,994
1922	7,977.91	15.08	82.00	1.83634	14,650
1923	18,352.86	15.43	82.00	1.82665	33,524
1924	38,828.48	15.79	82.00	1.81674	70,541
1925	42,777.56	16.16	82.00	1.80666	77,285
1926	49,150.88	16.53	82.00	1.79642	88,296
1927	37,204.47	16.91	82.00	1.78604	66,449
1928	23,512.70	17.29	82.00	1.77547	41,746
1929	10,093.32	17.69	82.00	1.76472	17,812
1930	9,494.42	18.08	82.00	1.75379	16,651
1931	4,197.28	18.49	82.00	1.74268	7,315
1932	1,891.22	18.90	82.00	1.73137	3,274
1933	798.01	19.32	82.00	1.71989	1,372
1934	1,867.50	19.74	82.00	1.70822	3,190
1935	2,705.85	20.18	82.00	1.69636	4,590
1936	4,457.03	20.62	82.00	1.68427	7,507
1937	7,316.68	21.06	82.00	1.67202	12,234

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-125 %* ***Average Service Life:*** *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1938	5,109.36	21.52	82.00	1.65957	8,479
1939	14,004.00	21.98	82.00	1.64693	23,064
1940	183,164.70	22.45	82.00	1.63409	299,308
1941	21,958.13	22.92	82.00	1.62100	35,594
1942	15,144.98	23.41	82.00	1.60776	24,349
1943	19,019.90	23.90	82.00	1.59432	30,324
1944	7,619.57	24.39	82.00	1.58069	12,044
1945	32,281.25	24.90	82.00	1.56686	50,580
1946	20,670.14	25.41	82.00	1.55275	32,096
1947	68,719.43	25.93	82.00	1.53851	105,726
1948	93,568.39	26.46	82.00	1.52408	142,606
1949	94,702.37	26.99	82.00	1.50946	142,950
1950	351,537.13	27.53	82.00	1.49456	525,395
1951	112,780.11	28.08	82.00	1.47953	166,862
1952	108,441.13	28.63	82.00	1.46432	158,792
1953	171,873.43	29.20	82.00	1.44892	249,030
1954	376,535.49	29.76	82.00	1.43333	539,699
1955	346,189.25	30.34	82.00	1.41745	490,704
1956	300,555.57	30.92	82.00	1.40146	421,216
1957	257,418.97	31.51	82.00	1.38529	356,600
1958	271,297.20	32.11	82.00	1.36895	371,391
1959	288,942.81	32.72	82.00	1.35233	390,746
1960	534,191.88	33.33	82.00	1.33560	713,464
1961	505,199.93	33.94	82.00	1.31869	666,201
1962	297,071.64	34.56	82.00	1.30161	386,671
1963	373,377.77	35.19	82.00	1.28436	479,551
1964	266,204.86	35.83	82.00	1.26683	337,237
1965	567,058.46	36.47	82.00	1.24921	708,376

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-125 %* ***Average Service Life:*** *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1966	372,005.17	37.12	82.00	1.23143	458,098
1967	367,661.09	37.78	82.00	1.21348	446,150
1968	1,059,476.20	38.44	82.00	1.19528	1,266,375
1969	672,781.06	39.11	82.00	1.17698	791,851
1970	544,979.23	39.78	82.00	1.15852	631,371
1971	463,558.83	40.46	82.00	1.13991	528,414
1972	1,061,599.32	41.14	82.00	1.12114	1,190,199
1973	400,054.61	41.83	82.00	1.10212	440,906
1974	544,091.88	42.53	82.00	1.08301	589,257
1975	2,723,619.38	43.23	82.00	1.06376	2,897,271
1976	613,203.59	43.94	82.00	1.04436	640,404
1977	923,265.82	44.65	82.00	1.02473	946,102
1978	1,208,651.54	45.37	82.00	1.00501	1,214,711
1979	799,937.31	46.10	82.00	0.98515	788,059
1980	1,024,983.21	46.83	82.00	0.96515	989,262
1981	701,587.11	47.56	82.00	0.94501	663,005
1982	672,696.20	48.30	82.00	0.92464	622,003
1983	782,260.25	49.05	82.00	0.90420	707,319
1984	765,770.48	49.80	82.00	0.88362	676,652
1985	812,665.90	50.55	82.00	0.86291	701,261
1986	905,963.70	51.31	82.00	0.84207	762,889
1987	1,021,550.51	52.08	82.00	0.82101	838,703
1988	1,114,973.20	52.85	82.00	0.79989	891,851
1989	1,247,201.99	53.62	82.00	0.77864	971,115
1990	1,576,046.88	54.40	82.00	0.75726	1,193,477
1991	1,398,236.47	55.19	82.00	0.73569	1,028,664
1992	1,473,177.51	55.98	82.00	0.71404	1,051,907
1993	3,542,593.54	56.77	82.00	0.69227	2,452,439

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-125 %* ***Average Service Life:*** *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1994	1,900,293.44	57.57	82.00	0.67039	1,273,930
1995	2,146,100.66	58.37	82.00	0.64838	1,391,493
1996	2,264,249.88	59.18	82.00	0.62618	1,417,828
1997	3,943,645.55	59.99	82.00	0.60392	2,381,647
1998	3,134,147.21	60.81	82.00	0.58155	1,822,653
1999	3,206,122.84	61.63	82.00	0.55906	1,792,418
2000	3,067,948.79	62.45	82.00	0.53640	1,645,654
2001	5,428,135.42	63.28	82.00	0.51367	2,788,287
2002	2,797,661.77	64.11	82.00	0.49084	1,373,193
2003	1,940,405.73	64.95	82.00	0.46789	907,901
2004	1,873,686.24	65.79	82.00	0.44484	833,496
2005	470,282.85	66.63	82.00	0.42162	198,281
2006	8,820,902.49	67.48	82.00	0.39834	3,513,758
2007	998,063.19	68.33	82.00	0.37497	374,240
2008	3,830,879.35	69.19	82.00	0.35149	1,346,504
2009	7,983,244.76	70.05	82.00	0.32786	2,617,377
2010	6,442,054.51	70.92	82.00	0.30416	1,959,444
2011	5,189,032.63	71.78	82.00	0.28037	1,454,872
2012	4,338,465.67	72.65	82.00	0.25649	1,112,773
2013	5,409,685.10	73.53	82.00	0.23251	1,257,818
2014	5,763,023.83	74.41	82.00	0.20839	1,200,943
2015	10,149,078.93	75.29	82.00	0.18421	1,869,560
2016	15,263,896.44	76.17	82.00	0.15994	2,441,363
2017	11,757,502.39	77.06	82.00	0.13559	1,594,192
2018	9,273,858.39	77.95	82.00	0.11111	1,030,404
2019	13,808,629.25	78.85	82.00	0.08657	1,195,371
2020	16,087,571.60	79.74	82.00	0.06194	996,507
2021	14,577,151.88	80.64	82.00	0.03724	542,802

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-125 %* ***Average Service Life:*** *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2022	17,730,619.81	81.55	82.00	0.01245	220,749
Total	224,428,236.17				77,407,027.95

Indiana-American Water Company
Water and Wastewater Divisions
334.10 Meters

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *22* ***Survivor Curve:*** *R1*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1900	130.00	0.00	0.00	1.15000	150
1968	19,955.27	0.00	0.00	1.15000	22,949
1980	1,708.87	0.66	22.00	1.11556	1,906
1985	164,023.26	2.16	22.00	1.03701	170,094
1989	3,247.37	3.42	22.00	0.97131	3,154
1990	1,023.86	3.76	22.00	0.95350	976
1993	692.97	4.85	22.00	0.89657	621
1998	133,184.89	6.92	22.00	0.78843	105,007
1999	1,279.58	7.37	22.00	0.76462	978
2000	30,800.06	7.84	22.00	0.74003	22,793
2001	1,424.40	8.33	22.00	0.71465	1,018
2002	7,319.78	8.83	22.00	0.68844	5,039
2003	1,979.15	9.35	22.00	0.66144	1,309
2004	1,538.03	9.88	22.00	0.63357	974
2005	165,768.96	10.43	22.00	0.60490	100,274
2007	6,585.52	11.57	22.00	0.54504	3,589
2008	122,847.71	12.17	22.00	0.51394	63,136
2009	1,674,731.11	12.78	22.00	0.48206	807,317
2010	1,633,985.97	13.40	22.00	0.44948	734,445
2011	2,971,658.29	14.04	22.00	0.41622	1,236,852
2012	5,742,642.50	14.69	22.00	0.38237	2,195,789
2013	2,012,211.61	15.34	22.00	0.34795	700,142
2014	838,851.00	16.01	22.00	0.31307	262,620
2015	860,541.26	16.69	22.00	0.27775	239,018
2016	955,787.56	17.37	22.00	0.24209	231,383
2017	586,795.91	18.06	22.00	0.20604	120,903
2018	785,761.20	18.76	22.00	0.16962	133,277
2019	4,678,529.03	19.46	22.00	0.13278	621,216

Indiana-American Water Company
Water and Wastewater Divisions
334.10 Meters

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *22* ***Survivor Curve:*** *R1*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2020	5,506,459.85	20.17	22.00	0.09547	525,720
2021	4,409,712.52	20.90	22.00	0.05769	254,391
2022	7,265,188.08	21.63	22.00	0.01936	140,670
Total	40,586,365.57				8,707,711.14

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1915	13.44	0.00	0.00	1.15000	15
1939	7.20	0.00	0.00	1.15000	8
1949	13.44	0.00	0.00	1.15000	15
1950	111.32	0.00	0.00	1.15000	128
1954	74.56	0.00	0.00	1.15000	86
1955	109.39	0.00	0.00	1.15000	126
1959	87.27	0.00	0.00	1.15000	100
1960	463.92	0.00	0.00	1.15000	534
1962	289.57	0.00	0.00	1.15000	333
1963	193.05	0.00	0.00	1.15000	222
1966	112.71	0.00	0.00	1.15000	130
1967	419.32	0.00	0.00	1.15000	482
1968	41.42	0.00	0.00	1.15000	48
1969	80.66	0.00	0.00	1.15000	93
1970	309.08	0.00	0.00	1.15000	355
1975	466.37	0.00	0.00	1.15000	536
1976	407.53	0.00	0.00	1.15000	469
1977	10,944.97	0.00	0.00	1.15000	12,587
1978	1,280.54	0.00	0.00	1.15000	1,473
1979	1,052.82	0.00	0.00	1.15000	1,211
1980	6,918.42	0.00	0.00	1.15000	7,956
1981	595.23	0.00	0.00	1.15000	685
1982	1,269.20	0.00	0.00	1.15000	1,460
1983	707.70	0.00	0.00	1.15000	814
1985	3,149.81	0.50	19.00	1.11974	3,527
1986	1,049.85	0.66	19.00	1.10998	1,165
1987	2,596.14	0.96	19.00	1.09194	2,835
1988	3,166.75	1.26	19.00	1.07385	3,401

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1989	6,029.97	1.50	19.00	1.05942	6,388
1990	7,225.90	1.72	19.00	1.04603	7,559
1991	11,212.91	1.94	19.00	1.03229	11,575
1992	67,685.63	2.19	19.00	1.01760	68,877
1993	26,383.76	2.44	19.00	1.00208	26,439
1994	30,020.35	2.72	19.00	0.98553	29,586
1995	37,645.73	3.00	19.00	0.96827	36,451
1996	170,705.29	3.30	19.00	0.95038	162,236
1997	197,374.44	3.61	19.00	0.93165	183,885
1998	155,526.24	3.93	19.00	0.91199	141,838
1999	313,896.99	4.28	19.00	0.89121	279,749
2000	584,429.32	4.64	19.00	0.86916	507,965
2001	655,111.07	5.03	19.00	0.84565	553,998
2002	299,009.09	5.44	19.00	0.82059	245,365
2003	109,864.94	5.88	19.00	0.79390	87,222
2004	487,664.91	6.35	19.00	0.76552	373,318
2005	163,533.04	6.85	19.00	0.73548	120,275
2006	1,445,281.45	7.37	19.00	0.70378	1,017,163
2007	533,710.52	7.92	19.00	0.67046	357,834
2008	2,653,889.28	8.50	19.00	0.63553	1,686,632
2009	6,715,333.01	9.10	19.00	0.59913	4,023,359
2010	1,328,681.91	9.73	19.00	0.56130	745,788
2011	1,725,884.04	10.37	19.00	0.52212	901,115
2012	2,842,516.81	11.04	19.00	0.48163	1,369,028
2013	133,566.48	11.73	19.00	0.43999	58,768
2014	420,175.23	12.44	19.00	0.39728	166,927
2015	1,146,770.96	13.16	19.00	0.35355	405,439
2016	1,630,852.86	13.90	19.00	0.30893	503,825

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2017	2,481,228.92	14.65	19.00	0.26350	653,795
2018	1,416,800.88	15.41	19.00	0.21729	307,852
2019	1,392,882.41	16.19	19.00	0.17029	237,199
2020	198,061.92	16.98	19.00	0.12257	24,276
2021	38,804.54	17.78	19.00	0.07410	2,875
2022	98.44	18.59	19.00	0.02489	2
Total	29,463,790.92				15,345,397.03

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1915	14.58	0.00	0.00	1.15000	17
1920	296.07	0.00	0.00	1.15000	340
1925	117.79	0.00	0.00	1.15000	135
1930	11.47	0.00	0.00	1.15000	13
1940	36.20	2.20	23.00	1.04023	38
1945	40.17	2.84	23.00	1.00778	40
1950	895.80	3.50	23.00	0.97486	873
1953	1,830.61	3.91	23.00	0.95472	1,748
1954	1,450.94	4.04	23.00	0.94808	1,376
1955	2,056.00	4.16	23.00	0.94178	1,936
1956	2,374.02	4.29	23.00	0.93556	2,221
1957	8,837.72	4.41	23.00	0.92955	8,215
1958	1,178.59	4.52	23.00	0.92395	1,089
1959	2,980.84	4.63	23.00	0.91842	2,738
1960	3,215.37	4.74	23.00	0.91305	2,936
1961	1,484.19	4.84	23.00	0.90799	1,348
1962	189.89	4.94	23.00	0.90285	171
1963	747.46	5.05	23.00	0.89771	671
1964	335.35	5.15	23.00	0.89272	299
1965	2,143.25	5.25	23.00	0.88749	1,902
1966	4,381.72	5.36	23.00	0.88210	3,865
1967	7,596.71	5.47	23.00	0.87673	6,660
1968	793.45	5.58	23.00	0.87100	691
1969	4,254.09	5.70	23.00	0.86503	3,680
1970	7,963.14	5.82	23.00	0.85899	6,840
1971	2,442.53	5.95	23.00	0.85253	2,082
1972	7,783.56	6.08	23.00	0.84580	6,583
1973	7,399.87	6.22	23.00	0.83895	6,208

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1974	2,716.53	6.37	23.00	0.83169	2,259
1975	4,615.52	6.52	23.00	0.82412	3,804
1976	4,838.71	6.67	23.00	0.81643	3,950
1977	10,826.26	6.83	23.00	0.80832	8,751
1978	8,513.30	7.00	23.00	0.80001	6,811
1979	8,269.84	7.17	23.00	0.79136	6,544
1980	11,421.88	7.35	23.00	0.78242	8,937
1981	4,345.20	7.53	23.00	0.77327	3,360
1982	13,596.18	7.72	23.00	0.76378	10,384
1983	20,669.35	7.92	23.00	0.75400	15,585
1984	12,343.65	8.12	23.00	0.74401	9,184
1985	19,757.73	8.33	23.00	0.73369	14,496
1986	28,495.51	8.54	23.00	0.72307	20,604
1987	42,070.30	8.76	23.00	0.71224	29,964
1988	44,499.34	8.98	23.00	0.70107	31,197
1989	15,005.27	9.21	23.00	0.68960	10,348
1990	48,407.56	9.44	23.00	0.67789	32,815
1991	77,806.94	9.68	23.00	0.66585	51,808
1992	51,553.58	9.93	23.00	0.65349	33,690
1993	76,496.74	10.18	23.00	0.64088	49,026
1994	36,249.92	10.44	23.00	0.62792	22,762
1997	47,582.11	11.26	23.00	0.58714	27,937
1998	42,373.69	11.54	23.00	0.57287	24,275
1999	1,827,483.06	11.83	23.00	0.55828	1,020,253
2000	154,420.09	12.13	23.00	0.54331	83,899
2001	66,751.99	12.44	23.00	0.52800	35,245
2002	15,002.68	12.75	23.00	0.51230	7,686
2003	19,988.55	13.08	23.00	0.49621	9,919

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2004	16,388.11	13.41	23.00	0.47975	7,862
2005	378,338.40	13.74	23.00	0.46287	175,120
2006	1,774,404.91	14.09	23.00	0.44557	790,625
2008	74,343.82	14.81	23.00	0.40970	30,459
2009	9,609.87	15.18	23.00	0.39110	3,758
2010	214,364.31	15.56	23.00	0.37192	79,726
2011	122,957.10	15.96	23.00	0.35190	43,269
2012	808,615.84	16.38	23.00	0.33080	267,489
2013	737,895.98	16.83	23.00	0.30832	227,510
2014	249,332.69	17.31	23.00	0.28433	70,894
2015	106,815.94	17.83	23.00	0.25865	27,628
2016	678,895.38	18.38	23.00	0.23109	156,883
2017	273,617.18	18.97	23.00	0.20166	55,179
2018	114,862.19	19.60	23.00	0.17028	19,558
2019	724,541.34	20.27	23.00	0.13676	99,091
2020	193,265.45	20.98	23.00	0.10117	19,552
2021	135,652.81	21.74	23.00	0.06322	8,576
2022	273,462.94	22.56	23.00	0.02220	6,070
Total	9,676,317.12				3,739,458.39

Indiana-American Water Company
Water and Wastewater Divisions
334.14 Meter Reading Units
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-15 %* ***Average Service Life:*** *20* ***Survivor Curve:*** *R3*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1999	2,420,955.47	2.69	20.00	0.99555	2,410,180
2005	2,343.13	5.36	20.00	0.84164	1,972
2006	12,863.60	5.97	20.00	0.80685	10,379
2007	97,852.67	6.62	20.00	0.76958	75,305
2008	126,216.37	7.30	20.00	0.73030	92,176
2009	291,519.80	8.02	20.00	0.68897	200,848
2010	92,204.15	8.77	20.00	0.64597	59,561
2011	448,545.67	9.54	20.00	0.60123	269,677
2012	455,166.74	10.35	20.00	0.55503	252,632
2013	320,622.47	11.18	20.00	0.50729	162,650
2014	14,521.51	12.03	20.00	0.45826	6,655
2015	852,889.13	12.91	20.00	0.40785	347,855
2016	563,820.58	13.80	20.00	0.35632	200,900
2017	817,521.15	14.72	20.00	0.30366	248,248
2018	507,126.93	15.65	20.00	0.25003	126,795
2019	228,951.94	16.60	20.00	0.19553	44,767
2020	59,022.97	17.56	20.00	0.14035	8,284
2021	116,412.74	18.53	20.00	0.08455	9,842
2022	301,924.12	19.51	20.00	0.02829	8,541
Total	7,730,481.14				4,537,266.40

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-25 %* ***Average Service Life:*** *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1925	86.61	0.00	0.00	1.25000	108
1926	213.96	0.00	0.00	1.25000	267
1927	2,109.63	0.50	52.00	1.23798	2,612
1928	405.50	0.62	52.00	1.23509	501
1929	5,185.89	0.84	52.00	1.22974	6,377
1930	5,311.75	1.09	52.00	1.22387	6,501
1931	111.36	1.34	52.00	1.21776	136
1932	90.98	1.60	52.00	1.21150	110
1935	31.83	2.41	52.00	1.19201	38
1936	613.47	2.69	52.00	1.18533	727
1937	2,381.58	2.97	52.00	1.17858	2,807
1938	1,810.03	3.27	52.00	1.17151	2,120
1939	981.77	3.55	52.00	1.16478	1,144
1940	1,020.22	3.83	52.00	1.15797	1,181
1941	3,431.85	4.11	52.00	1.15110	3,950
1942	1,905.12	4.40	52.00	1.14420	2,180
1943	5,686.45	4.69	52.00	1.13727	6,467
1944	2,013.34	4.98	52.00	1.13031	2,276
1945	7,686.47	5.27	52.00	1.12334	8,634
1946	9,200.01	5.56	52.00	1.11634	10,270
1947	7,731.11	5.85	52.00	1.10932	8,576
1948	16,266.49	6.15	52.00	1.10226	17,930
1949	2,028.77	6.44	52.00	1.09515	2,222
1950	14,190.46	6.74	52.00	1.08798	15,439
1951	5,178.97	7.04	52.00	1.08074	5,597
1952	12,595.94	7.35	52.00	1.07332	13,519
1953	13,722.45	7.66	52.00	1.06590	14,627
1954	26,829.51	7.97	52.00	1.05836	28,395

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-25 %* ***Average Service Life:*** *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1955	36,945.91	8.29	52.00	1.05067	38,818
1956	37,739.12	8.62	52.00	1.04282	39,355
1957	36,640.49	8.95	52.00	1.03480	37,915
1958	40,477.58	9.29	52.00	1.02658	41,554
1959	45,477.43	9.64	52.00	1.01817	46,304
1960	94,071.75	10.00	52.00	1.00954	94,969
1961	41,946.38	10.37	52.00	1.00070	41,976
1962	66,573.74	10.75	52.00	0.99162	66,016
1963	56,257.19	11.14	52.00	0.98230	55,261
1964	73,171.51	11.53	52.00	0.97273	71,176
1965	81,898.70	11.94	52.00	0.96291	78,861
1966	60,072.62	12.36	52.00	0.95284	57,239
1967	78,690.55	12.79	52.00	0.94249	74,165
1968	94,727.57	13.23	52.00	0.93188	88,275
1969	95,391.27	13.69	52.00	0.92100	87,855
1970	181,407.47	14.15	52.00	0.90984	165,052
1971	123,275.52	14.63	52.00	0.89841	110,751
1972	126,258.22	15.11	52.00	0.88670	111,953
1973	158,975.45	15.61	52.00	0.87471	139,058
1974	145,279.96	16.12	52.00	0.86245	125,297
1975	106,099.32	16.64	52.00	0.84992	90,176
1976	202,275.01	17.18	52.00	0.83711	169,326
1977	195,689.91	17.72	52.00	0.82403	161,254
1978	197,490.31	18.27	52.00	0.81072	160,109
1979	162,786.97	18.84	52.00	0.79710	129,757
1980	321,160.67	19.42	52.00	0.78321	251,537
1981	286,815.77	20.01	52.00	0.76907	220,580
1982	244,023.06	20.61	52.00	0.75466	184,155

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-25 %* ***Average Service Life:*** *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1983	382,874.14	21.22	52.00	0.74001	283,329
1984	338,776.86	21.84	52.00	0.72510	245,647
1985	327,600.49	22.47	52.00	0.70995	232,579
1986	464,157.15	23.11	52.00	0.69456	322,383
1987	402,709.89	23.76	52.00	0.67892	273,410
1988	550,703.00	24.42	52.00	0.66306	365,149
1989	810,626.66	25.09	52.00	0.64697	524,448
1990	585,956.32	25.76	52.00	0.63069	369,557
1991	1,046,048.38	26.45	52.00	0.61414	642,421
1992	907,974.74	27.15	52.00	0.59737	542,400
1993	963,995.82	27.86	52.00	0.58039	559,497
1994	877,039.05	28.57	52.00	0.56320	493,952
1995	1,037,906.82	29.29	52.00	0.54581	566,500
1996	1,249,250.08	30.03	52.00	0.52821	659,871
1997	1,242,076.28	30.77	52.00	0.51042	633,980
1998	1,074,927.17	31.51	52.00	0.49243	529,327
1999	1,941,778.68	32.27	52.00	0.47425	920,892
2000	1,453,213.70	33.04	52.00	0.45589	662,498
2001	1,929,029.36	33.81	52.00	0.43733	843,631
2002	1,429,918.09	34.59	52.00	0.41860	598,568
2003	650,948.08	35.37	52.00	0.39969	260,180
2004	1,119,868.18	36.17	52.00	0.38064	426,267
2005	102,739.82	36.97	52.00	0.36138	37,128
2006	7,867,718.03	37.77	52.00	0.34195	2,690,388
2007	126,914.30	38.59	52.00	0.32236	40,912
2008	1,181,917.81	39.41	52.00	0.30261	357,658
2009	1,543,399.99	40.24	52.00	0.28270	436,315
2010	790,152.37	41.07	52.00	0.26263	207,519

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Calculated Depr Reserve as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Salvage Value: *-25 %* ***Average Service Life:*** *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Expectancy*	*Avg. Service Life*	*Reserve Ratio*	*Calculated Reserve*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2011	1,844,354.96	41.92	52.00	0.24241	447,097
2012	2,706,620.69	42.76	52.00	0.22205	600,997
2013	2,794,587.21	43.62	52.00	0.20153	563,206
2014	1,343,191.29	44.48	52.00	0.18088	242,956
2015	2,031,978.59	45.34	52.00	0.16009	325,290
2016	3,483,582.64	46.21	52.00	0.13918	484,843
2017	4,813,314.68	47.09	52.00	0.11811	568,503
2018	2,831,995.94	47.97	52.00	0.09691	274,454
2019	5,525,357.12	48.86	52.00	0.07559	417,644
2020	5,937,381.19	49.75	52.00	0.05414	321,442
2021	6,251,247.61	50.65	52.00	0.03257	203,605
2022	9,476,957.70	51.55	52.00	0.01089	103,159
Total	84,981,231.85				22,383,061.99

Indiana-American Water Company
Water and Wastewater Divisions
306.00 Lake, River, and Other Intakes
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *74* ***Survivor Curve:*** *S0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1904	600.32	74.00	8.11	10.07	81.73
1922	3,967.81	74.00	53.62	16.31	874.65
1929	438.29	74.00	5.92	18.87	111.75
1931	183.14	74.00	2.47	19.62	48.55
1944	656.07	74.00	8.87	24.71	219.12
1954	404.00	74.00	5.46	28.97	158.18
1955	40,943.73	74.00	553.29	29.42	16,277.18
1959	26,230.04	74.00	354.46	31.24	11,072.39
1960	85,120.27	74.00	1,150.27	31.70	36,466.63
1961	7,890.41	74.00	106.63	32.17	3,430.35
1962	883.07	74.00	11.93	32.64	389.56
1963	525,358.00	74.00	7,099.43	33.12	235,152.80
1967	2,661.28	74.00	35.96	35.08	1,261.57
1971	138,958.91	74.00	1,877.82	37.11	69,692.71
1978	532.05	74.00	7.19	40.88	293.96
1984	42,300.00	74.00	571.62	44.35	25,353.55
1985	738.65	74.00	9.98	44.95	448.72
1986	66,492.57	74.00	898.55	45.56	40,941.89
1991	3,328,557.08	74.00	44,980.51	48.72	2,191,285.24
1998	6,973.00	74.00	94.23	53.47	5,038.61
2001	43,389,748.76	74.00	586,348.06	55.64	32,624,849.05
2003	4,832.42	74.00	65.30	57.13	3,731.08
2012	10,275.39	74.00	138.86	64.36	8,937.26
2013	19,865.82	74.00	268.46	65.22	17,508.74
2014	40,172.19	74.00	542.87	66.09	35,878.68
2016	2,060,047.19	74.00	27,838.48	67.86	1,889,232.28
2017	49,650.16	74.00	670.95	68.77	46,142.36

Indiana-American Water Company
Water and Wastewater Divisions
306.00 Lake, River, and Other Intakes

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *74* ***Survivor Curve:*** *S0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2018	49,183.71	74.00	664.64	69.69	46,319.00
2019	1,499,995.27	74.00	20,270.21	70.62	1,431,482.54
Total	51,403,659.60	74.00	694,644.17	55.77	38,742,680.13

Composite Average Remaining Life ... 55.77 Years

Indiana-American Water Company
Water and Wastewater Divisions
320.20 Water Treatment Equipment - Filter Media
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *14* ***Survivor Curve:*** *R0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2008	219,511.06	14.00	15,675.83	5.82	91,166.82
2009	264,634.03	14.00	18,898.18	6.29	118,955.85
2010	339,847.97	14.00	24,269.39	6.79	164,787.36
2011	530,754.56	14.00	37,902.51	7.30	276,760.43
2012	263,356.33	14.00	18,806.93	7.83	147,259.65
2013	64,083.67	14.00	4,576.37	8.37	38,320.63
2014	1,004,591.09	14.00	71,740.36	8.93	640,722.99
2015	385,762.97	14.00	27,548.30	9.50	261,738.00
2016	416,234.26	14.00	29,724.33	10.08	299,665.81
2017	431,937.45	14.00	30,845.73	10.67	329,122.74
2018	353,587.37	14.00	25,250.56	11.26	284,436.43
2019	553,170.89	14.00	39,503.31	11.86	468,664.26
2020	197,897.80	14.00	14,132.38	12.47	176,203.21
2021	62,334.80	14.00	4,451.48	13.08	58,214.61
2022	529,395.98	14.00	37,805.49	13.69	517,670.10
Total	5,617,100.23	14.00	401,131.14	9.66	3,873,688.90

Composite Average Remaining Life ... 9.66 Years

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1900	1,231.71	82.00	15.02	8.21	123.38
1909	2.07	82.00	0.03	10.87	0.27
1911	4.50	82.00	0.05	11.48	0.63
1913	26,729.05	82.00	325.96	12.10	3,944.36
1914	2,901.80	82.00	35.39	12.41	439.13
1915	11,503.97	82.00	140.29	12.73	1,785.61
1916	2,937.02	82.00	35.82	13.05	467.43
1917	1,379.36	82.00	16.82	13.38	225.03
1918	1,090.81	82.00	13.30	13.70	182.30
1919	2,903.36	82.00	35.41	14.04	497.10
1920	15,941.83	82.00	194.41	14.38	2,795.59
1921	5,414.09	82.00	66.03	14.72	972.22
1922	7,977.91	82.00	97.29	15.08	1,466.73
1923	18,352.86	82.00	223.81	15.43	3,453.19
1924	38,828.48	82.00	473.52	15.79	7,476.86
1925	42,777.56	82.00	521.68	16.16	8,428.85
1926	49,150.88	82.00	599.40	16.53	9,908.31
1927	37,204.47	82.00	453.71	16.91	7,671.67
1928	23,512.70	82.00	286.74	17.29	4,958.90
1929	10,093.32	82.00	123.09	17.69	2,176.94
1930	9,494.42	82.00	115.79	18.08	2,093.89
1931	4,197.28	82.00	51.19	18.49	946.39
1932	1,891.22	82.00	23.06	18.90	435.93
1933	798.01	82.00	9.73	19.32	188.01
1934	1,867.50	82.00	22.77	19.74	449.68
1935	2,705.85	82.00	33.00	20.18	665.81
1936	4,457.03	82.00	54.35	20.62	1,120.65

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1937	7,316.68	82.00	89.23	21.06	1,879.52
1938	5,109.36	82.00	62.31	21.52	1,340.77
1939	14,004.00	82.00	170.78	21.98	3,753.52
1940	183,164.70	82.00	2,233.71	22.45	50,138.82
1941	21,958.13	82.00	267.78	22.92	6,138.52
1942	15,144.98	82.00	184.69	23.41	4,323.01
1943	19,019.90	82.00	231.95	23.90	5,542.68
1944	7,619.57	82.00	92.92	24.39	2,266.61
1945	32,281.25	82.00	393.67	24.90	9,801.13
1946	20,670.14	82.00	252.07	25.41	6,405.47
1947	68,719.43	82.00	838.04	25.93	21,730.29
1948	93,568.39	82.00	1,141.08	26.46	30,187.99
1949	94,702.37	82.00	1,154.90	26.99	31,169.16
1950	351,537.13	82.00	4,287.03	27.53	118,028.36
1951	112,780.11	82.00	1,375.36	28.08	38,619.19
1952	108,441.13	82.00	1,322.45	28.63	37,866.76
1953	171,873.43	82.00	2,096.01	29.20	61,193.37
1954	376,535.49	82.00	4,591.89	29.76	136,669.24
1955	346,189.25	82.00	4,221.81	30.34	128,098.48
1956	300,555.57	82.00	3,665.31	30.92	113,348.38
1957	257,418.97	82.00	3,139.25	31.51	98,929.91
1958	271,297.20	82.00	3,308.50	32.11	106,234.43
1959	288,942.81	82.00	3,523.69	32.72	115,278.08
1960	534,191.88	82.00	6,514.52	33.33	217,096.72
1961	505,199.93	82.00	6,160.96	33.94	209,110.51
1962	297,071.64	82.00	3,622.82	34.56	125,217.77
1963	373,377.77	82.00	4,553.38	35.19	160,243.81

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1964	266,204.86	82.00	3,246.40	35.83	116,321.91
1965	567,058.46	82.00	6,915.34	36.47	252,224.59
1966	372,005.17	82.00	4,536.64	37.12	168,406.26
1967	367,661.09	82.00	4,483.66	37.78	169,372.38
1968	1,059,476.20	82.00	12,920.42	38.44	496,642.95
1969	672,781.06	82.00	8,204.63	39.11	320,847.23
1970	544,979.23	82.00	6,646.08	39.78	264,370.07
1971	463,558.83	82.00	5,653.15	40.46	228,708.14
1972	1,061,599.32	82.00	12,946.31	41.14	532,621.96
1973	400,054.61	82.00	4,878.71	41.83	204,096.20
1974	544,091.88	82.00	6,635.26	42.53	282,199.70
1975	2,723,619.38	82.00	33,214.81	43.23	1,435,943.18
1976	613,203.59	82.00	7,478.08	43.94	328,579.79
1977	923,265.82	82.00	11,259.32	44.65	502,776.08
1978	1,208,651.54	82.00	14,739.63	45.37	668,780.01
1979	799,937.31	82.00	9,755.32	46.10	449,688.73
1980	1,024,983.21	82.00	12,499.77	46.83	585,311.36
1981	701,587.11	82.00	8,555.93	47.56	406,918.05
1982	672,696.20	82.00	8,203.60	48.30	396,250.21
1983	782,260.25	82.00	9,539.74	49.05	467,896.12
1984	765,770.48	82.00	9,338.65	49.80	465,036.09
1985	812,665.90	82.00	9,910.54	50.55	500,994.40
1986	905,963.70	82.00	11,048.32	51.31	566,901.99
1987	1,021,550.51	82.00	12,457.91	52.08	648,793.53
1988	1,114,973.20	82.00	13,597.21	52.85	718,595.00
1989	1,247,201.99	82.00	15,209.75	53.62	815,595.17
1990	1,576,046.88	82.00	19,220.05	54.40	1,045,612.84

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *82* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1991	1,398,236.47	82.00	17,051.64	55.19	941,052.63
1992	1,473,177.51	82.00	17,965.55	55.98	1,005,663.37
1993	3,542,593.54	82.00	43,202.29	56.77	2,452,620.78
1994	1,900,293.44	82.00	23,174.27	57.57	1,334,102.54
1995	2,146,100.66	82.00	26,171.92	58.37	1,527,659.49
1996	2,264,249.88	82.00	27,612.76	59.18	1,634,104.18
1997	3,943,645.55	82.00	48,093.16	59.99	2,885,135.90
1998	3,134,147.21	82.00	38,221.24	60.81	2,324,079.22
1999	3,206,122.84	82.00	39,098.99	61.63	2,409,492.44
2000	3,067,948.79	82.00	37,413.95	62.45	2,336,546.84
2001	5,428,135.42	82.00	66,196.66	63.28	4,188,896.70
2002	2,797,661.77	82.00	34,117.77	64.11	2,187,353.65
2003	1,940,405.73	82.00	23,663.44	64.95	1,536,894.29
2004	1,873,686.24	82.00	22,849.79	65.79	1,503,243.49
2005	470,282.85	82.00	5,735.15	66.63	382,157.74
2006	8,820,902.49	82.00	107,571.80	67.48	7,259,232.47
2007	998,063.19	82.00	12,171.48	68.33	831,734.38
2008	3,830,879.35	82.00	46,717.96	69.19	3,232,432.94
2009	7,983,244.76	82.00	97,356.48	70.05	6,819,965.88
2010	6,442,054.51	82.00	78,561.51	70.92	5,571,190.57
2011	5,189,032.63	82.00	63,280.78	71.78	4,542,422.94
2012	4,338,465.67	82.00	52,908.03	72.65	3,843,900.02
2013	5,409,685.10	82.00	65,971.66	73.53	4,850,654.95
2014	5,763,023.83	82.00	70,280.66	74.41	5,229,271.60
2015	10,149,078.93	82.00	123,769.05	75.29	9,318,163.39
2016	15,263,896.44	82.00	186,144.76	76.17	14,178,846.16
2017	11,757,502.39	82.00	143,383.93	77.06	11,048,972.75

Indiana-American Water Company
Water and Wastewater Divisions
333.00 Services

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: ***82*** ***Survivor Curve:*** ***R2***

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2018	9,273,858.39	82.00	113,095.64	77.95	8,815,901.09
2019	13,808,629.25	82.00	168,397.63	78.85	13,277,353.19
2020	16,087,571.60	82.00	196,189.57	79.74	15,644,679.65
2021	14,577,151.88	82.00	177,769.84	80.64	14,335,906.76
2022	17,730,619.81	82.00	216,226.71	81.55	17,632,509.34
Total	224,428,236.17	82.00	2,736,925.08	69.43	190,025,112.64

Composite Average Remaining Life ... 69.43 Years

Indiana-American Water Company
Water and Wastewater Divisions
334.10 Meters

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *22* ***Survivor Curve:*** *R1*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1900	130.00	0.00	0.00	0.00	0.00
1968	19,955.27	0.00	0.00	0.00	0.00
1980	1,708.87	22.00	77.67	0.66	51.17
1985	164,023.26	22.00	7,455.16	2.16	16,115.83
1989	3,247.37	22.00	147.60	3.42	504.59
1990	1,023.86	22.00	46.54	3.76	174.95
1993	692.97	22.00	31.50	4.85	152.71
1998	133,184.89	22.00	6,053.50	6.92	41,874.82
1999	1,279.58	22.00	58.16	7.37	428.80
2000	30,800.06	22.00	1,399.92	7.84	10,980.16
2001	1,424.40	22.00	64.74	8.33	539.23
2002	7,319.78	22.00	332.70	8.83	2,937.82
2003	1,979.15	22.00	89.96	9.35	840.82
2004	1,538.03	22.00	69.91	9.88	690.68
2005	165,768.96	22.00	7,534.51	10.43	78,574.25
2007	6,585.52	22.00	299.32	11.57	3,464.32
2008	122,847.71	22.00	5,583.66	12.17	67,946.78
2009	1,674,731.11	22.00	76,119.67	12.78	972,716.67
2010	1,633,985.97	22.00	74,267.73	13.40	995,337.78
2011	2,971,658.29	22.00	135,067.44	14.04	1,896,135.06
2012	5,742,642.50	22.00	261,013.87	14.69	3,833,260.83
2013	2,012,211.61	22.00	91,458.79	15.34	1,403,392.30
2014	838,851.00	22.00	38,127.35	16.01	610,485.57
2015	860,541.26	22.00	39,113.21	16.69	652,699.41
2016	955,787.56	22.00	43,442.34	17.37	754,584.85
2017	586,795.91	22.00	26,670.97	18.06	481,662.88
2018	785,761.20	22.00	35,714.32	18.76	669,867.86

Indiana-American Water Company
Water and Wastewater Divisions
334.10 Meters

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *22* ***Survivor Curve:*** *R1*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2019	4,678,529.03	22.00	212,647.92	19.46	4,138,340.85
2020	5,506,459.85	22.00	250,278.93	20.17	5,049,312.21
2021	4,409,712.52	22.00	200,429.70	20.90	4,188,502.93
2022	7,265,188.08	22.00	330,216.42	21.63	7,142,866.72
Total	40,586,365.57	20.58	1,843,813.52	17.91	33,014,442.84

Composite Average Remaining Life ... *17.91 Years*

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1915	13.44	0.00	0.00	0.00	0.00
1939	7.20	0.00	0.00	0.00	0.00
1949	13.44	0.00	0.00	0.00	0.00
1950	111.32	0.00	0.00	0.00	0.00
1954	74.56	0.00	0.00	0.00	0.00
1955	109.39	0.00	0.00	0.00	0.00
1959	87.27	0.00	0.00	0.00	0.00
1960	463.92	0.00	0.00	0.00	0.00
1962	289.57	0.00	0.00	0.00	0.00
1963	193.05	0.00	0.00	0.00	0.00
1966	112.71	0.00	0.00	0.00	0.00
1967	419.32	0.00	0.00	0.00	0.00
1968	41.42	0.00	0.00	0.00	0.00
1969	80.66	0.00	0.00	0.00	0.00
1970	309.08	0.00	0.00	0.00	0.00
1975	466.37	0.00	0.00	0.00	0.00
1976	407.53	0.00	0.00	0.00	0.00
1977	10,944.97	0.00	0.00	0.00	0.00
1978	1,280.54	0.00	0.00	0.00	0.00
1979	1,052.82	0.00	0.00	0.00	0.00
1980	6,918.42	0.00	0.00	0.00	0.00
1981	595.23	0.00	0.00	0.00	0.00
1982	1,269.20	0.00	0.00	0.00	0.00
1983	707.70	0.00	0.00	0.00	0.00
1985	3,149.81	19.00	165.77	0.50	82.89
1986	1,049.85	19.00	55.25	0.66	36.54
1987	2,596.14	19.00	136.63	0.96	131.08

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1988	3,166.75	19.00	166.66	1.26	209.69
1989	6,029.97	19.00	317.35	1.50	474.93
1990	7,225.90	19.00	380.29	1.72	653.28
1991	11,212.91	19.00	590.12	1.94	1,147.68
1992	67,685.63	19.00	3,562.22	2.19	7,792.84
1993	26,383.76	19.00	1,388.55	2.44	3,393.64
1994	30,020.35	19.00	1,579.94	2.72	4,293.46
1995	37,645.73	19.00	1,981.25	3.00	5,949.12
1996	170,705.29	19.00	8,984.04	3.30	29,630.78
1997	197,374.44	19.00	10,387.61	3.61	37,474.59
1998	155,526.24	19.00	8,185.18	3.93	32,188.50
1999	313,896.99	19.00	16,520.07	4.28	70,636.63
2000	584,429.32	19.00	30,757.90	4.64	142,720.26
2001	655,111.07	19.00	34,477.80	5.03	173,373.91
2002	299,009.09	19.00	15,736.53	5.44	85,648.64
2003	109,864.94	19.00	5,782.08	5.88	34,019.52
2004	487,664.91	19.00	25,665.29	6.35	163,040.83
2005	163,533.04	19.00	8,606.57	6.85	58,945.88
2006	1,445,281.45	19.00	76,063.63	7.37	560,791.81
2007	533,710.52	19.00	28,088.62	7.92	222,550.53
2008	2,653,889.28	19.00	139,671.38	8.50	1,187,252.56
2009	6,715,333.01	19.00	353,420.87	9.10	3,216,759.53
2010	1,328,681.91	19.00	69,927.12	9.73	680,170.52
2011	1,725,884.04	19.00	90,831.45	10.37	942,305.70
2012	2,842,516.81	19.00	149,598.65	11.04	1,652,057.57
2013	133,566.48	19.00	7,029.46	11.73	82,463.56
2014	420,175.23	19.00	22,113.38	12.44	275,021.40

Indiana-American Water Company
Water and Wastewater Divisions
334.11 Meters - Bronze Case

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *19* ***Survivor Curve:*** *R1.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2015	1,146,770.96	19.00	60,353.34	13.16	794,215.57
2016	1,630,852.86	19.00	85,830.06	13.90	1,192,743.76
2017	2,481,228.92	19.00	130,584.45	14.65	1,912,711.18
2018	1,416,800.88	19.00	74,564.73	15.41	1,149,103.70
2019	1,392,882.41	19.00	73,305.93	16.19	1,186,622.18
2020	198,061.92	19.00	10,423.79	16.98	176,952.54
2021	38,804.54	19.00	2,042.24	17.78	36,304.28
2022	98.44	19.00	5.18	18.59	96.31
Total	29,463,790.92	11.65	1,549,281.40	10.40	16,119,967.41

Composite Average Remaining Life ... 10.40 Years

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1915	14.58	0.00	0.00	0.00	0.00
1920	296.07	0.00	0.00	0.00	0.00
1925	117.79	0.00	0.00	0.00	0.00
1930	11.47	0.00	0.00	0.00	0.00
1940	36.20	23.00	1.57	2.20	3.46
1945	40.17	23.00	1.75	2.84	4.97
1950	895.80	23.00	38.95	3.50	136.43
1953	1,830.61	23.00	79.59	3.91	310.85
1954	1,450.94	23.00	63.08	4.04	254.76
1955	2,056.00	23.00	89.39	4.16	372.27
1956	2,374.02	23.00	103.21	4.29	442.68
1957	8,837.72	23.00	384.24	4.41	1,694.16
1958	1,178.59	23.00	51.24	4.52	231.67
1959	2,980.84	23.00	129.60	4.63	600.25
1960	3,215.37	23.00	139.79	4.74	662.52
1961	1,484.19	23.00	64.53	4.84	312.33
1962	189.89	23.00	8.26	4.94	40.81
1963	747.46	23.00	32.50	5.05	163.98
1964	335.35	23.00	14.58	5.15	75.02
1965	2,143.25	23.00	93.18	5.25	489.24
1966	4,381.72	23.00	190.50	5.36	1,020.75
1967	7,596.71	23.00	330.28	5.47	1,805.18
1968	793.45	23.00	34.50	5.58	192.50
1969	4,254.09	23.00	184.95	5.70	1,054.18
1970	7,963.14	23.00	346.21	5.82	2,015.12
1971	2,442.53	23.00	106.19	5.95	631.80
1972	7,783.56	23.00	338.40	6.08	2,058.93

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1973	7,399.87	23.00	321.72	6.22	2,001.48
1974	2,716.53	23.00	118.11	6.37	751.92
1975	4,615.52	23.00	200.67	6.52	1,307.90
1976	4,838.71	23.00	210.37	6.67	1,403.52
1977	10,826.26	23.00	470.69	6.83	3,216.61
1978	8,513.30	23.00	370.13	7.00	2,590.92
1979	8,269.84	23.00	359.55	7.17	2,579.03
1980	11,421.88	23.00	496.59	7.35	3,650.87
1981	4,345.20	23.00	188.92	7.53	1,423.46
1982	13,596.18	23.00	591.12	7.72	4,566.20
1983	20,669.35	23.00	898.64	7.92	7,117.43
1984	12,343.65	23.00	536.66	8.12	4,357.70
1985	19,757.73	23.00	859.00	8.33	7,152.48
1986	28,495.51	23.00	1,238.89	8.54	10,578.68
1987	42,070.30	23.00	1,829.08	8.76	16,014.54
1988	44,499.34	23.00	1,934.69	8.98	17,371.49
1989	15,005.27	23.00	652.38	9.21	6,007.35
1990	48,407.56	23.00	2,104.60	9.44	19,872.59
1991	77,806.94	23.00	3,382.79	9.68	32,756.90
1992	51,553.58	23.00	2,241.38	9.93	22,258.01
1993	76,496.74	23.00	3,325.83	10.18	33,865.83
1994	36,249.92	23.00	1,576.03	10.44	16,456.77
1997	47,582.11	23.00	2,068.72	11.26	23,288.71
1998	42,373.69	23.00	1,842.27	11.54	21,265.42
1999	1,827,483.06	23.00	79,453.01	11.83	940,306.90
2000	154,420.09	23.00	6,713.68	12.13	81,464.74
2001	66,751.99	23.00	2,902.16	12.44	36,104.22

Indiana-American Water Company
Water and Wastewater Divisions
334.13 Meters - Other

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *23* ***Survivor Curve:*** *L0.5*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2002	15,002.68	23.00	652.27	12.75	8,319.34
2003	19,988.55	23.00	869.04	13.08	11,363.72
2004	16,388.11	23.00	712.50	13.41	9,551.49
2005	378,338.40	23.00	16,448.92	13.74	226,060.12
2006	1,774,404.91	23.00	77,145.35	14.09	1,086,905.07
2008	74,343.82	23.00	3,232.23	14.81	47,857.91
2009	9,609.87	23.00	417.81	15.18	6,341.72
2010	214,364.31	23.00	9,319.86	15.56	145,037.53
2011	122,957.10	23.00	5,345.77	15.96	85,332.15
2012	808,615.84	23.00	35,155.98	16.38	576,016.55
2013	737,895.98	23.00	32,081.32	16.83	540,060.79
2014	249,332.69	23.00	10,840.17	17.31	187,686.09
2015	106,815.94	23.00	4,644.01	17.83	82,791.42
2016	678,895.38	23.00	29,516.16	18.38	542,475.44
2017	273,617.18	23.00	11,895.98	18.97	225,635.86
2018	114,862.19	23.00	4,993.83	19.60	97,854.82
2019	724,541.34	23.00	31,500.70	20.27	638,375.13
2020	193,265.45	23.00	8,402.55	20.98	176,263.68
2021	135,652.81	23.00	5,897.74	21.74	128,195.58
2022	273,462.94	23.00	11,889.28	22.56	268,184.26
Total	9,676,317.12	21.76	420,675.65	15.27	6,424,614.17

Composite Average Remaining Life ... 15.27 Years

Indiana-American Water Company
Water and Wastewater Divisions
334.14 Meter Reading Units
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *20* ***Survivor Curve:*** *R3*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1999	2,420,955.47	20.00	121,047.69	2.69	325,146.44
2005	2,343.13	20.00	117.16	5.36	628.28
2006	12,863.60	20.00	643.18	5.97	3,838.44
2007	97,852.67	20.00	4,892.63	6.62	32,369.96
2008	126,216.37	20.00	6,310.81	7.30	46,063.49
2009	291,519.80	20.00	14,575.98	8.02	116,869.60
2010	92,204.15	20.00	4,610.20	8.77	40,411.95
2011	448,545.67	20.00	22,427.27	9.54	214,043.83
2012	455,166.74	20.00	22,758.32	10.35	235,486.82
2013	320,622.47	20.00	16,031.11	11.18	179,187.77
2014	14,521.51	20.00	726.07	12.03	8,734.91
2015	852,889.13	20.00	42,644.43	12.91	550,406.70
2016	563,820.58	20.00	28,191.01	13.80	389,125.09
2017	817,521.15	20.00	40,876.03	14.72	601,653.73
2018	507,126.93	20.00	25,356.33	15.65	396,870.09
2019	228,951.94	20.00	11,447.59	16.60	190,023.93
2020	59,022.97	20.00	2,951.15	17.56	51,819.54
2021	116,412.74	20.00	5,820.63	18.53	107,854.15
2022	301,924.12	20.00	15,096.20	19.51	294,497.38
Total	7,730,481.14	20.00	386,523.79	9.79	3,785,032.10

Composite Average Remaining Life ... 9.79 Years

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1925	86.61	0.00	0.00	0.00	0.00
1926	213.96	0.00	0.00	0.00	0.00
1927	2,109.63	52.00	40.57	0.50	20.28
1928	405.50	52.00	7.80	0.62	4.84
1929	5,185.89	52.00	99.73	0.84	84.04
1930	5,311.75	52.00	102.15	1.09	111.02
1931	111.36	52.00	2.14	1.34	2.87
1932	90.98	52.00	1.75	1.60	2.80
1935	31.83	52.00	0.61	2.41	1.48
1936	613.47	52.00	11.80	2.69	31.74
1937	2,381.58	52.00	45.80	2.97	136.08
1938	1,810.03	52.00	34.81	3.27	113.65
1939	981.77	52.00	18.88	3.55	66.93
1940	1,020.22	52.00	19.62	3.83	75.11
1941	3,431.85	52.00	66.00	4.11	271.52
1942	1,905.12	52.00	36.64	4.40	161.25
1943	5,686.45	52.00	109.35	4.69	512.84
1944	2,013.34	52.00	38.72	4.98	192.78
1945	7,686.47	52.00	147.82	5.27	778.87
1946	9,200.01	52.00	176.92	5.56	983.73
1947	7,731.11	52.00	148.67	5.85	870.11
1948	16,266.49	52.00	312.82	6.15	1,922.61
1949	2,028.77	52.00	39.01	6.44	251.33
1950	14,190.46	52.00	272.89	6.74	1,839.31
1951	5,178.97	52.00	99.60	7.04	701.29
1952	12,595.94	52.00	242.23	7.35	1,780.40
1953	13,722.45	52.00	263.89	7.66	2,021.00

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1954	26,829.51	52.00	515.95	7.97	4,113.26
1955	36,945.91	52.00	710.50	8.29	5,891.49
1956	37,739.12	52.00	725.75	8.62	6,254.99
1957	36,640.49	52.00	704.62	8.95	6,308.14
1958	40,477.58	52.00	778.41	9.29	7,234.71
1959	45,477.43	52.00	874.56	9.64	8,434.47
1960	94,071.75	52.00	1,809.07	10.00	18,096.16
1961	41,946.38	52.00	806.66	10.37	8,365.95
1962	66,573.74	52.00	1,280.26	10.75	13,761.30
1963	56,257.19	52.00	1,081.86	11.14	12,048.22
1964	73,171.51	52.00	1,407.14	11.53	16,230.65
1965	81,898.70	52.00	1,574.97	11.94	18,809.58
1966	60,072.62	52.00	1,155.24	12.36	14,281.10
1967	78,690.55	52.00	1,513.27	12.79	19,358.26
1968	94,727.57	52.00	1,821.68	13.23	24,107.67
1969	95,391.27	52.00	1,834.44	13.69	25,107.18
1970	181,407.47	52.00	3,488.59	14.15	49,366.16
1971	123,275.52	52.00	2,370.67	14.63	34,674.34
1972	126,258.22	52.00	2,428.03	15.11	36,695.99
1973	158,975.45	52.00	3,057.21	15.61	47,729.23
1974	145,279.96	52.00	2,793.83	16.12	45,042.37
1975	106,099.32	52.00	2,040.36	16.64	33,958.80
1976	202,275.01	52.00	3,889.89	17.18	66,813.93
1977	195,689.91	52.00	3,763.25	17.72	66,686.33
1978	197,490.31	52.00	3,797.88	18.27	69,402.80
1979	162,786.97	52.00	3,130.51	18.84	58,981.29
1980	321,160.67	52.00	6,176.14	19.42	119,931.29

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1981	286,815.77	52.00	5,515.67	20.01	110,351.74
1982	244,023.06	52.00	4,692.73	20.61	96,699.09
1983	382,874.14	52.00	7,362.94	21.22	156,210.91
1984	338,776.86	52.00	6,514.91	21.84	142,259.23
1985	327,600.49	52.00	6,299.99	22.47	141,536.94
1986	464,157.15	52.00	8,926.06	23.11	206,250.91
1987	402,709.89	52.00	7,744.39	23.76	183,982.22
1988	550,703.00	52.00	10,590.40	24.42	258,583.67
1989	810,626.66	52.00	15,588.91	25.09	391,068.30
1990	585,956.32	52.00	11,268.35	25.76	290,310.57
1991	1,046,048.38	52.00	20,116.24	26.45	532,111.81
1992	907,974.74	52.00	17,460.99	27.15	474,054.67
1993	963,995.82	52.00	18,538.31	27.86	516,398.37
1994	877,039.05	52.00	16,866.07	28.57	481,877.36
1995	1,037,906.82	52.00	19,959.67	29.29	584,707.09
1996	1,249,250.08	52.00	24,023.95	30.03	721,353.48
1997	1,242,076.28	52.00	23,885.99	30.77	734,892.41
1998	1,074,927.17	52.00	20,671.60	31.51	651,465.27
1999	1,941,778.68	52.00	37,341.76	32.27	1,205,065.34
2000	1,453,213.70	52.00	27,946.31	33.04	923,215.00
2001	1,929,029.36	52.00	37,096.58	33.81	1,254,124.61
2002	1,429,918.09	52.00	27,498.32	34.59	951,063.50
2003	650,948.08	52.00	12,518.18	35.37	442,803.72
2004	1,119,868.18	52.00	21,535.84	36.17	778,854.46
2005	102,739.82	52.00	1,975.76	36.97	73,037.29
2006	7,867,718.03	52.00	151,301.69	37.77	5,715,407.86
2007	126,914.30	52.00	2,440.65	38.59	94,184.52

Indiana-American Water Company
Water and Wastewater Divisions
334.20 Meter Installations
Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2022
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: *52* ***Survivor Curve:*** *R2*

Year	*Original Cost*	*Avg. Service Life*	*Avg. Annual Accrual*	*Avg. Remaining Life*	*Future Annual Accruals*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
2008	1,181,917.81	52.00	22,729.10	39.41	895,791.36
2009	1,543,399.99	52.00	29,680.66	40.24	1,194,347.95
2010	790,152.37	52.00	15,195.18	41.07	624,137.33
2011	1,844,354.96	52.00	35,468.23	41.92	1,486,677.46
2012	2,706,620.69	52.00	52,050.20	42.76	2,225,823.01
2013	2,794,587.21	52.00	53,741.86	43.62	2,344,022.09
2014	1,343,191.29	52.00	25,830.50	44.48	1,148,826.22
2015	2,031,978.59	52.00	39,076.36	45.34	1,771,746.39
2016	3,483,582.64	52.00	66,991.72	46.21	3,095,708.14
2017	4,813,314.68	52.00	92,563.39	47.09	4,358,512.57
2018	2,831,995.94	52.00	54,461.25	47.97	2,612,432.68
2019	5,525,357.12	52.00	106,256.46	48.86	5,191,241.53
2020	5,937,381.19	52.00	114,179.97	49.75	5,680,227.80
2021	6,251,247.61	52.00	120,215.84	50.65	6,088,363.43
2022	9,476,957.70	52.00	182,248.49	51.55	9,394,430.41
Total	84,981,231.85	50.92	1,634,242.44	41.04	67,074,782.26

Composite Average Remaining Life ... 41.04 Years