STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC FOR (1) AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR GAS UTILITY SERVICE THROUGH A PHASE IN OF RATES; (2) APPROVAL OF NEW SCHEDULES OF RATES AND CHARGES, GENERAL RULES AND REGULATIONS, AND RIDERS; (3) APPROVAL OF REVISED DEPRECIATION RATES APPLICABLE TO ITS GAS PLANT IN SERVICE; (4) APPROVAL OF MECHANISM TO MODIFY RATES PROSPECTIVELY FOR CHANGES IN FEDERAL OR STATE INCOME TAX RATES, UTILITY RECEIPTS TAX RATES, AND PUBLIC UTILITY FEE RATES; (5) APPROVAL OF NECESSARY AND APPROPRIATE ACCOUNTING RELIEF; AND (6) AUTHORITY TO IMPLEMENT TEMPORARY RATES CONSISTENT WITH THE PROVISIONS OF IND. CODE § 8-1-2-42.7.	)	**CAUSE NO. 45621**

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR'S

PUBLIC'S EXHIBIT NO. 6 – TESTIMONY OF OUCC WITNESS DAVID J. GARRETT

January 20, 2022

Respectfully submitted,

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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]

[1] Attachment DJG-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, Northern Indiana Public Service Company LLC ("NIPSCO" or "Company"). Specifically, I respond to the direct testimony of Company witness John Spanos, who sponsors NIPSCO's depreciation study.

II. EXECUTIVE SUMMARY

Q. Summarize the key points of your testimony.

A. In this case, Mr. Spanos is recommending revised depreciation rates for NIPSCO's gas plant as of December 31, 2020; he is also recommending depreciation rates for the Company's forecasted gas plant in service as of December 31, 2022. Likewise, the depreciation rates proposed in my testimony and exhibits include adjustments to Mr. Spanos's recommended depreciation rates for NIPSCO's gas plant as of 2020 and 2022. The following figure summarize my proposed adjustments.[2]

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[2] *See also* Attachment DJG-2.

Figure 1:
Summary of Depreciation Adjustment Scenarios

Summary Depreciation Accrual Adjustment - 2020 Rates

Plant Function	Plant Balance 12/31/2020	Company Proposed Accrual	OUCC Proposed Accrual	**OUCC Accrual Adjustment**
Underground Storage	67,175,212	1,519,308	1,511,108	(8,200)
Other Storage Plant	48,700,773	598,388	589,160	(9,228)
Transmission	687,386,305	12,424,237	9,781,239	(2,642,998)
Distribution	2,265,570,084	60,994,075	45,047,924	(15,946,151)
General	52,017,700	2,443,053	2,313,100	(129,953)
Total Plant Studied	$ 3,120,850,074	$ 77,979,061	$ 59,242,530	**$ (18,736,531)**

Summary Depreciation Accrual Adjustment - 2022 Rates

Plant Function	Plant Balance 12/31/2022	Company Proposed Accrual	OUCC Proposed Accrual	**OUCC Accrual Adjustment**
Underground Storage	68,913,137	1,735,901	1,728,228	(7,673)
Other Storage Plant	49,972,686	765,142	763,616	(1,526)
Transmission	931,678,456	17,210,179	13,696,933	(3,513,246)
Distribution	2,658,049,790	73,429,730	54,135,859	(19,293,871)
General	51,056,563	2,349,862	2,263,184	(86,678)
Total Plant Studied	$ 3,759,670,631	$ 95,490,814	$ 72,587,819	**$ (22,902,995)**

My proposed adjustments for 2020 and 2022 are based on depreciation rates calculated using the average life group procedure, as opposed to the equal life group procedure proposed by Mr. Spanos. In addition, my proposed adjustments for 2020 and 2022 are based on different service life parameters for several of the Company's transmission and distribution accounts, as discussed in more detail in my testimony.[3]

[3] *See* Attachments DJG-3 through DJG-6.

Q. Describe why it is important not to overestimate depreciation rates.

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.

III. LEGAL STANDARDS

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 NIPSCO has met its burden of proof by making a convincing showing that its proposed depreciation rates are not excessive.

IV. GROUPING PROCEDURE – ALG vs ELG

Q. Discuss your approach to analyzing the Company's depreciable property in this case.

A. I obtained and reviewed the data used to conduct the Company's depreciation study. The depreciation rates proposed by Mr. Spanos were developed based on depreciable property recorded as of December 31, 2020, and projected balances as of December 31, 2022. I used the same historical and projected retirement data in my analysis.

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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.

Q. 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 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 analyze the Company's actuarial data; this system would be denoted as an "SL-AL-RL-BG" system. I provide a more detailed discussion of depreciation system parameters, theories, and equations in Appendix A.

Q. Which grouping procedure did Mr. Spanos rely upon in calculating his proposed depreciation rates?

A. Mr. Spanos relied on the equal life group ("ELG") procedure instead of the average life group ("ALG") procedure.

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

Q. Which grouping procedure is more commonly used in utility regulatory proceedings?

A. In my experience, the ALG procedure is the most commonly used procedure by analysts in depreciation proceedings.

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

A. Yes. In Duke Energy Indiana's ("DEI") 2019 rate case, Mr. Spanos conducted DEI's depreciation study and proposed depreciation rates under the ELG procedure. Representing the OUCC in that case, I argued 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."[8]

Q. Have any other Indiana utilities chosen to use the ALG procedure?

A. Yes. In its most recent rate case[9] Indiana Michigan Power Company ("I&M") used the ALG procedure to calculate its depreciation rates in its case-in-chief. Additionally, through

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

[9] Cause No. 45235.

settlement, both Southern Indiana Gas and Electric Company[10] and Indiana Gas Company, Inc.[11] agreed to switch from the ELG procedure to the ALG procedure.

Q. Does Mr. Spanos's use of the ELG procedure in this case also result in unreasonably high depreciation rates relative to the ALG procedure?

A. Yes. In this case, Mr. Spanos's use of the ELG procedure increases the annual depreciation accrual by about $15 million for 2020 plant balances, and about $18 million for 2022 plant balances.[12]

Q. Explain the primary difference between the ALG and ELG procedures.

A. In the ALG procedure, a constant accrual rate based on the average life of all property in the group is applied to the surviving property.[13] In the ELG procedure, property is divided into subgroups that each have a common life. Pertinently, the ELG procedure results in higher depreciation rates in the early years of a vintage's life. This fact is confirmed by authoritative depreciation literature. According to Wolf:

> When contrasted with the average life procedure, the equal life group procedure results in annual accruals that are <u>higher</u> during the early years and lower in the later years.[14]

The NARUC Public Utility Depreciation Practices also makes the same conclusion about the equal life procedure:

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[10] Cause No. 45447.

[11] Cause No. 45468.

[12] *See* Attachments DJG-3 and DJG-5.

[13] Frank K. Wolf & W. Chester Fitch, *Depreciation Systems* 74-75 (Iowa State University Press 1994).

[14] *Id*. at 93 (emphasis added).

> [T]he ELG procedure results in annual accruals that are higher during the early years of a vintage's life, thereby causing an increase in depreciation expense and revenue requirements during these years.[15]

In contrast, use of the average life results in the same depreciation rate applied to each age interval.

Q. Please provide an example of how the ELG procedure results in higher depreciation rates in earlier years relative to the ALG procedure.

A. For the following illustration, assume a group of property containing two units, one with an original cost of $4,000 and a 4-year life and the second with an original cost of $6,000 and an 8-year life.[16] Thus, the average life of this group is 6.4 years.[17] Under the ALG procedure, the depreciation rate is 15.625% per year (1/6.4 = 15.625%). The following table illustrates this example.

Figure 2:
ALG Procedure

Year	Balance	Retired	Rate	Annual Accrual	Accum. Deprec.
1974	10000		15.625%	1563	0
1975	10000		15.625%	1563	1563
1976	10000		15.625%	1563	3125
1977	10000	4000	15.625%	1563	4688
1978	6000		15.625%	938	2250
1979	6000		15.625%	938	3188
1980	6000		15.625%	938	4125
1981	6000	6000	15.625%	938	5063
1982	0				0

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[15] National Association of Regulatory Utility Commissioners, *Public Utility Depreciation Practices* 176 (NARUC 1996) (emphasis added).

[16] *See* Wolf *supra* n. 7, at 82.

[17] AL = [($4,000 x 4) + ($6,000 x 8)] / $10,000 = 6.4 years.

As shown in the annual accrual column, the full $10,000 is depreciated after eight years. Now, considering the same assumptions presented above, the following tables illustrates the same scenario except that the rate is calculated under the ELG procedure.

Figure 3:
ELG Procedure

Year	Balance	Retired	Rate	Annual Accrual	Accum. Deprec.
1974	10000		17.50%	1750	0
1975	10000		17.50%	1750	1750
1976	10000		17.50%	1750	3500
1977	10000	4000	17.50%	1750	5250
1978	6000		12.50%	750	3000
1979	6000		12.50%	750	3750
1980	6000		12.50%	750	4500
1981	6000	6000	12.50%	750	5250
1982	0				0

As with the ALG example presented above, the full $10,000 investment is still fully depreciated after eight years. However, there are higher rate and accrual amounts during the earlier years. The reason there is a 17.5% depreciation rate instead of a 15.625% depreciation rate in the early years is because the two units in this group are treated separately under the ELG procedure. The following table shows how the rates in this example are calculated.

Figure 4:
ELG Rate Development

				Annual Accrual	
Group	Group Amount	Group Life	Group Rate	1974-77	1978-81
A	4000	4	25.00%	1000	
B	6000	8	12.50%	750	750
Annual accruals				1750	750
Balance during interval				10000	6000
Annual accrual rate %				17.50%	12.50%

This example is simplified in order to explain the complexities of the ELG procedure. In this example, the higher rate of 17.5% stayed the same for four years because there are only two units in this simple example, and the rate drops to 12.5% after the first unit retires. In reality, when the ELG method is applied to large groups of property such as NIPSCO's, the depreciation rate would decline each year and result in reduced depreciation expense.

Q. Does use of the ELG procedure as presented in this case result in a "systematic and rational" allocation of cost recovery in conformance with the accounting standard discussed above?

A. No, not as it is presented by the Company in this case. The ELG procedure could result in a systematic and rational allocation of cost, but only if the rates developed under the ELG procedure are adjusted each year, which would require a *separate* depreciation study *each year*. If there is any marginal benefit obtained in this process from using the ELG procedure over the ALG procedure, it would be far outweighed by the marginal costs imposed from the excessive time and expense associated with litigating depreciation studies every year.

Q. By proposing depreciation rates calculated under the ELG procedure, has NIPSCO met its burden to make a convincing showing that its proposed depreciation rates are not excessive?

A. No. This burden could be met with regard to this issue *if* NIPSCO was also proposing to have its depreciation rates adjusted every year in order to reflect a mathematically proper application of the ELG procedure, but I did not see such a request in the Company's filing.[18] Instead, to the extent the Company's ELG-derived rates are adopted, I presume the Company is willing to accept the arbitrarily *higher* cash flows for its *investors* it will receive each subsequent year after this proceeding until its next depreciation study is filed. Under these circumstances, the Company has not made a convincing showing that its proposed rates are not excessive.

V. <u>SERVICE LIFE ANALYSIS</u>

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

A. The process used to study the 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 retirement rate method, original property data, including additions, retirements,

[18] Note: This statement does not necessarily apply to the depreciation parameters (life and net salvage) proposed by NIPSCO in this case. Part of making a convincing showing that the Company's proposed depreciation rates are not excessive includes reasonable and well-supported estimates for service life and net salvage for all accounts.

transfers, and other transactions, are organized by vintage and transaction year.[19] 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.[20] 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."[21] 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 NIPSCO'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 observed life table ("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

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[19] 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).

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

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

area under a 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."[22] 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.

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[22] 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.

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

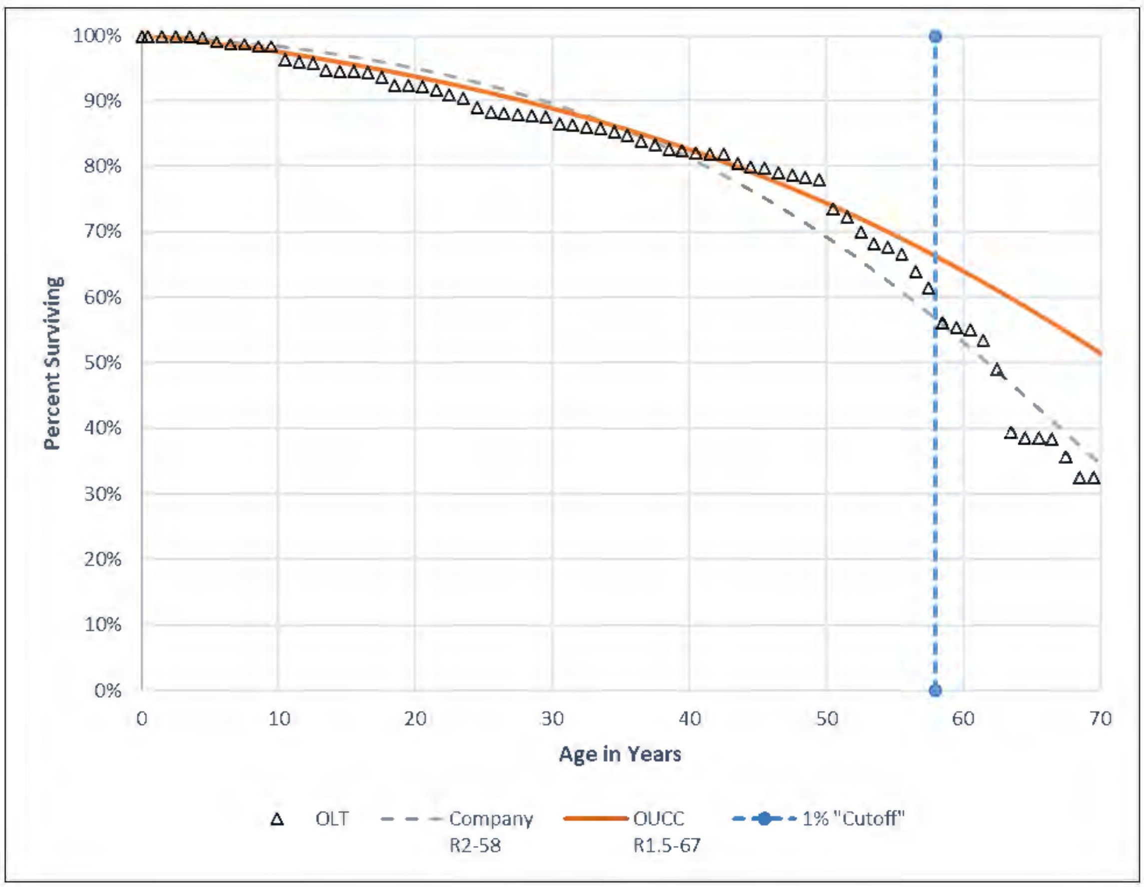
A. No. It appears that NIPSCO is relying primarily on its historical retirement data in order to make predictions about the remaining average life for the assets in each account. Therefore, I think the Commission should focus primarily on this historical data and objective Iowa curve fitting when assessing fair and reasonable depreciation rates for NIPSCO. The service lives I propose in this case are based on Iowa curves that provide better mathematical fits to NIPSCO'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 369 – Measuring and Regulating Station Equipment</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. Spanos and I selected to represent the average remaining life of the assets in this account. For this account, Mr. Spanos selected the R2-58 Iowa curve and I selected the R1.5-57 Iowa curve. Both of these curves are in the same modal family (the "R" family), which means the greatest rate of retirement occurs after the average life in both curves – or to the "right" of the curves. The numbers after the "R" are related to the relative heights of the modes of the curves. The R1.5 frequency curve has a lower mode than the R2 curve and thus has a flatter, smoother trajectory.

Figure 5:
Account 369 – Measuring and Regulating Station Equipment



The OLT curve for Account 369 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 data points to the right of the vertical dotted line should be eliminated for the statistical analysis, or "truncated," because they are associated with an insignificant amount of dollars exposed to retirement. For example, the amount of exposures associated with the beginning age (age interval zero) in this account is $125 million, which the dollar amount of exposures for age interval 66.5 (a data point on the right of the vertical line) is only $62,166, which is only 0.05% of the beginning exposure amount. The curve selected by Mr. Spanos appears to provide a relatively close fit to all of the data points on the OLT curve, however, if we properly truncate the data points occurring after age 58, the closer-fitting Iowa curve would be relatively flatter and have a longer average life, such as the R.1.5-67 curve I selected. 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 0.0961, while the total SSD between the R1.5-67 curve and the truncated OLT curve is only 0.0138.[23] Thus, the R1.5-67 curve is a better mathematical fit to the historical data and provides a more reasonable service life estimate and depreciation rate for this account.

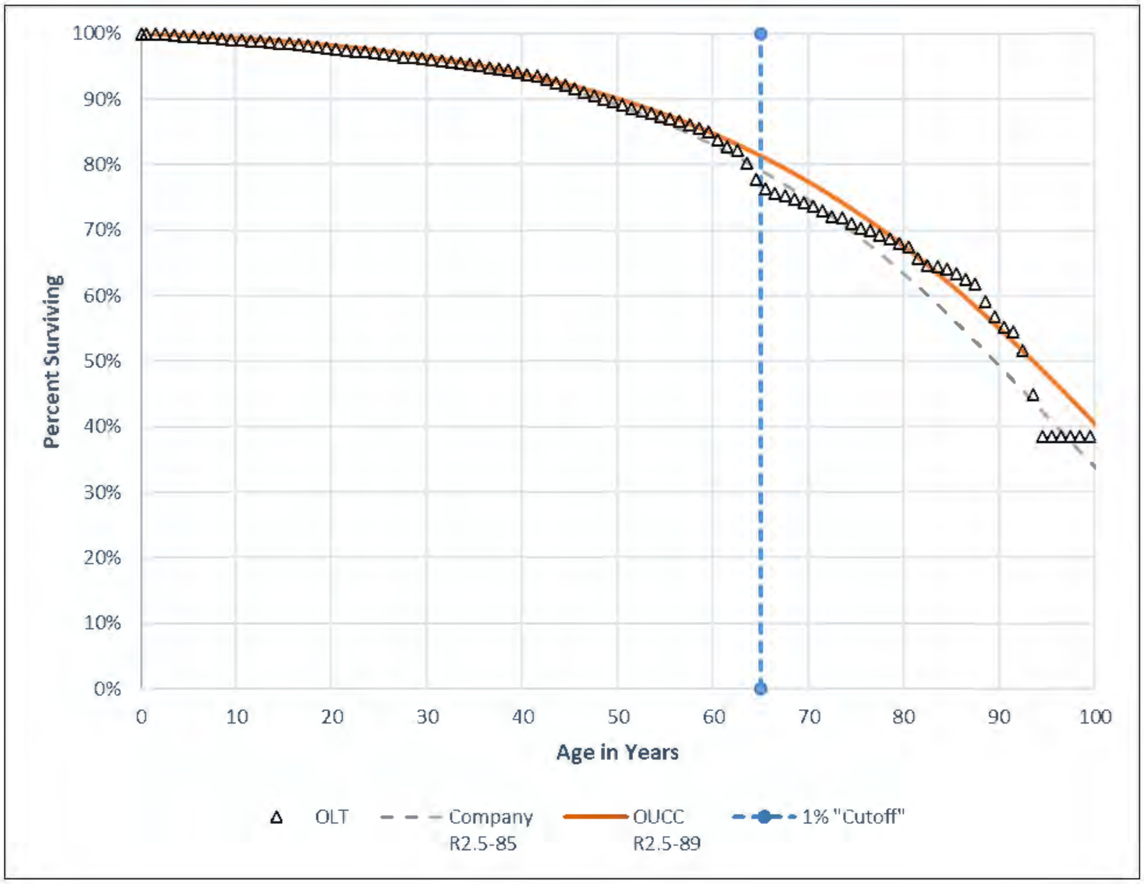
B. Account 376 – Mains – Steel and Plastic

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

A. The data provided by the Company for this account combines Account 376.10 (steel mains) and 376.20 (plastic mains). I conducted my analysis using the same data. Thus, the selected Iowa curve for these accounts will be the same (regardless of which curve is selected), but the depreciation rates will be different due to different vintage and plant balances for each account. The observed survivor curve derived from the Company's data for this account is fairly well-suited for conventional curve-fitting techniques in that it is relatively smooth and follows the pattern of a typical survivor curve for utility property. However, as with Account 369 discussed above, not all of the data points on the OLT curve for Account 376 should be given an equal amount of statistical significance. For this account, Mr. Spanos selected the R2.5-85 curve, and I selected the R2.5-89 curve. The curves are illustrated in the graph below along with the OLT curve.

[23] Attachment DJG-7.

Figure 6:
Account 376 – Mains – Steel and Plastic



As shown in the graph, both curves provide a relatively good fit to the observed data. However, the R2.5-89 curve I selected provides the better fit through the most relevant portion of the OLT curve; in fact, it also provides a closer fit throughout the entire OLT curve. Thus, even if a proper truncation were not considered for this account, the Iowa R2.5-89 curve I selected still provides a closer fit, which can be confirmed through mathematical curve fitting.

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 0.5009, while the total SSD between the R2.5-89 curve I selected and the truncated OLT curve is only 0.1878, making it the closer fitting curve.[24]

C. Account 380 – Services – Steel and Plastic

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

A. The data provided by the Company for this account combines Account 380.10 (steel services) and 380.20 (plastic services). I conducted my analysis using the same data. Thus, the selected Iowa curve for these accounts will be the same (regardless of which curve is selected), but the depreciation rates will be different due to different vintage and plant balances for each account. The observed survivor curve derived from the Company's data for this account is fairly well-suited for conventional curve-fitting techniques in that it is relatively smooth and follows the pattern of a typical survivor curve for utility property. However, as with the accounts discussed above, not all of the data points on the OLT curve for Account 376 should be given an equal amount of statistical significance. For this account, Mr. Spanos selected the R2-63 curve, and I selected the R1.5-69 curve. The curves are illustrated in the graph below along with the OLT curve.

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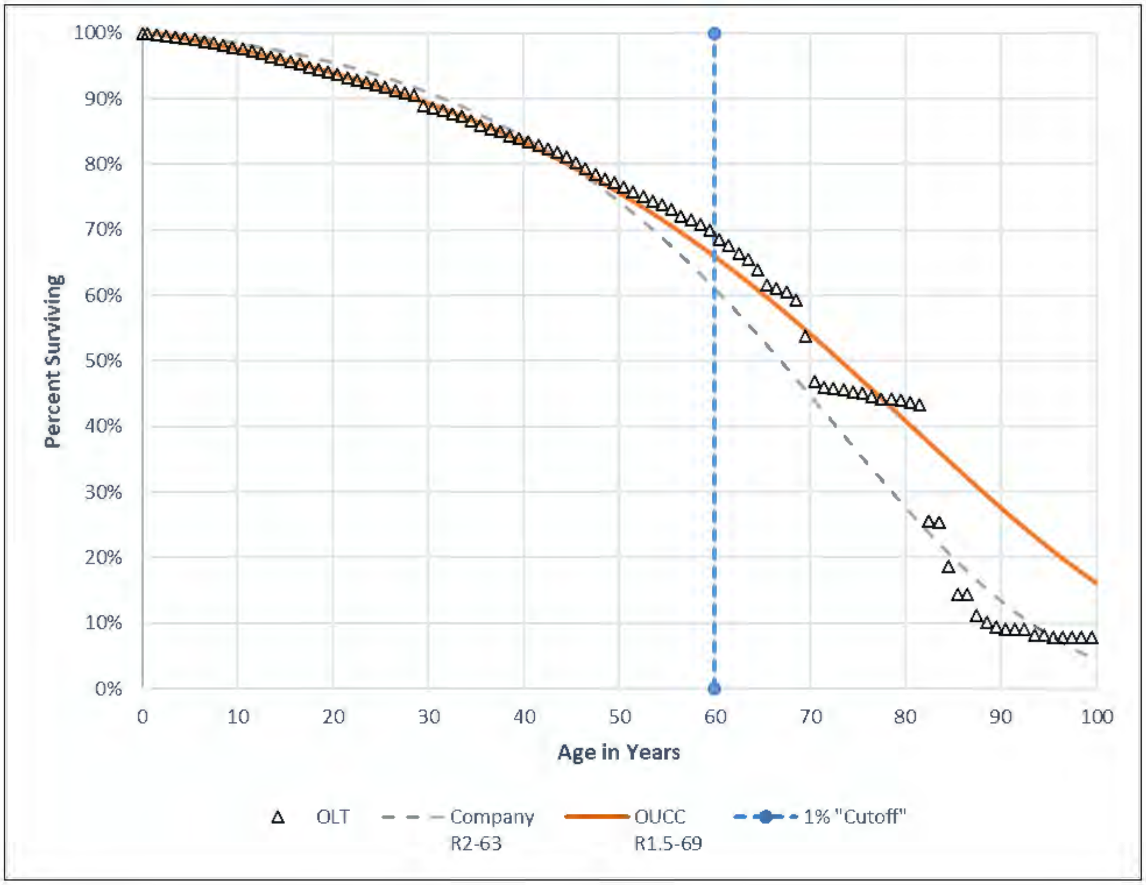
[24] Attachment DJG-8.

Figure 7:
Account 380 – Services – Steel and Plastic



As shown in the graph, both curves provide a relatively good fit to the observed data through the first 50 years. However, the Company's curve drops sharply after that point, and seems to ignore relevant data between ages 50-60, and eventually connects back with the OLT curve after a sharp drop in the OLT curve around age 82. The beginning dollars exposed to retirement in this account are $491 million. In contrast, the dollars exposed to retirement at age 82 (where the Company's R2-63 curve reconnects), is only $29,685.[25]

[25] Attachment DJG-9.

This tail-end portion of the OLT curve should clearly be truncated for the purpose of statistical and mathematical analyses.

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

A. Yes. In this account, the SSD between the Company's curve and the truncated OLT curve is 0.0667, while the SSD between the R1.5-69 curve I selected and the truncated OLT curve is only 0.0214, making it the closer fitting curve.[26]

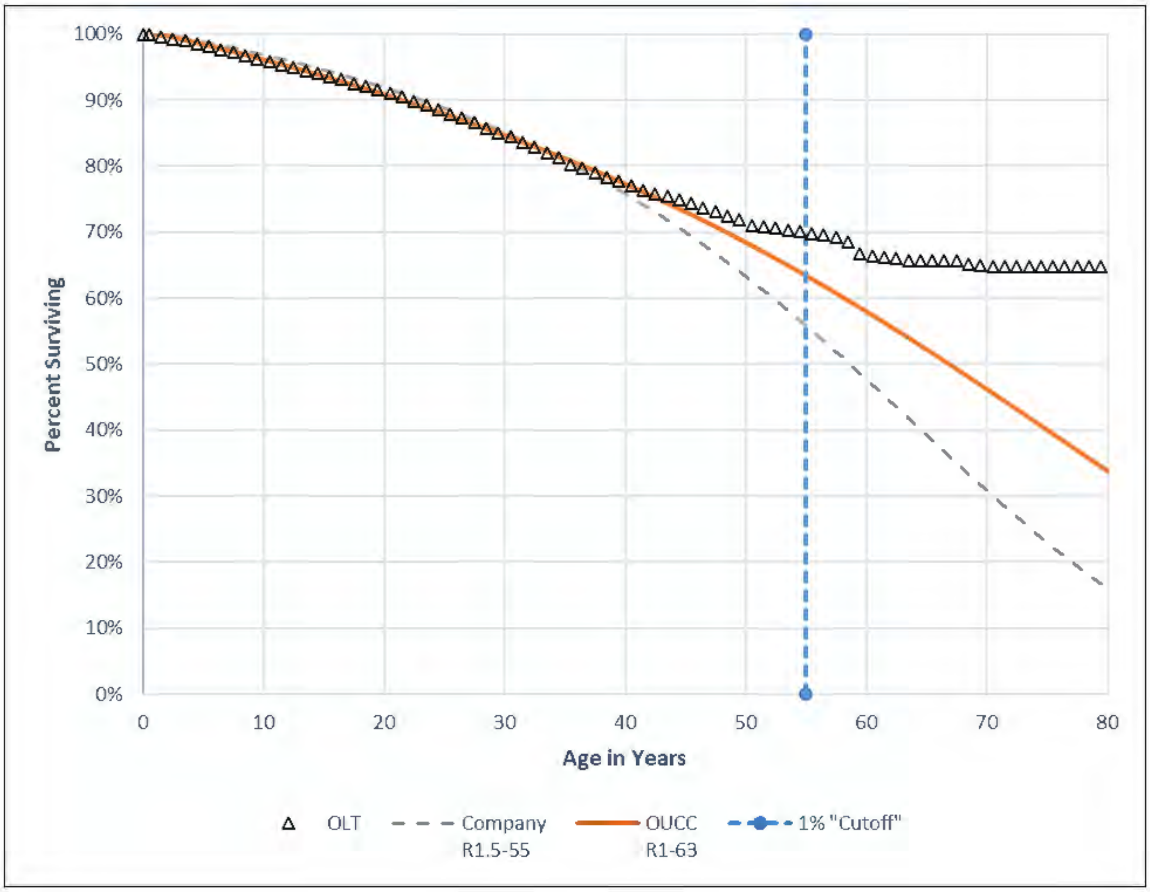
D. Account 383 – House Regulators

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

A. For this account, Mr. Spanos selected the R1.5-55 curve, and I selected the R1-63 curve. Both curves are displayed in the graph below along with the OLT curve.

[26] Attachment DJG-9.

Figure 8:
Account 383 – House Regulators



Both Iowa curves provide similarly close fits to the OLT curve through age-interval 40. After that point, however, the Company's curve appears to ignore relevant data between ages 40-55. The R1-63 curve I selected clearly provides a better fit to all of the relevant historical retirement data.

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

A. Yes. Whether we look at the truncated OLT curve or the entire OLT curve, the Iowa curve I selected to calculate the depreciation rate for this account provides the closer fit.

Specifically, the SSD between the Company's curve and the truncated OLT curve is 0.1404, and the SSD between the R1-63 curve I selected and the OLT curve is only 0.0313, which means it results in the closer fit.[27]

Q. Does this conclude your testimony?

A. Yes.

[27] Attachment DJG-10.

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.[28] 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.[29] The figure below illustrates the basic concept of a depreciation system and includes some of the available parameters.[30]

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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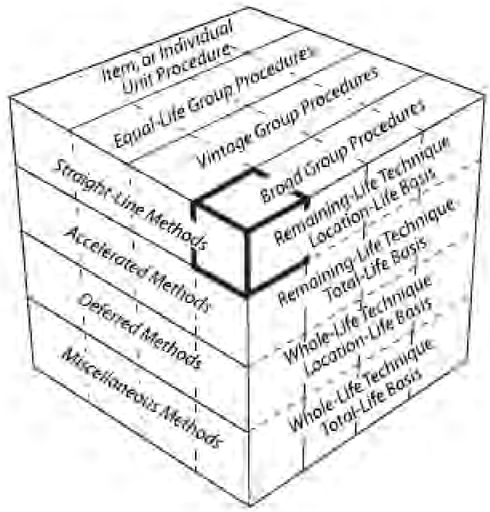
[28] Wolf *supra* n. 7, at 69-70.

[29] *Id.* at 70, 139-40.

[30] 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 due to the fact that depreciation analysis is a relatively small and fragmented field. This diagram simply illustrates some of the available parameters of a depreciation system.

Figure 9:
The Depreciation System Cube



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.[31] 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.[32] The basic formula for the straight-line method is as follows:[33]

[31] NARUC *supra* n. 10, at 56.

[32] *Id*.

[33] *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.[34] 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:[35]

Equation 2:
Straight-Line Rate

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

2. <u>Grouping Procedures</u>

The "procedure" refers to the way the allocation method is applied through subdividing the total property into groups.[36] 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

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[34] *Id*. at 57.

[35] *Id*. at 56.

[36] Wolf *supra* n. 7, at 74-75.

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 described statistically.[37] 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.[38]

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.[39] Thus, the average life procedure treats each unit as though its life is equal to the average life of the group. In contrast, the equal life procedure treats each unit in the group as though its life was known.[40] Under the equal life procedure the property is divided into subgroups that each has a common life.[41]

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

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[37] *Id*. at 74.

[38] NARUC *supra* n. 10, at 61-62.

[39] *See* Wolf *supr*a n. 7, at 74-75.

[40] *Id*. at 75.

[41] *Id*.

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.[42]

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 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.[43] 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.[44] 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

[42] NARUC *supra* n. 10, at 63-64.

[43] Wolf *supra* n. 7, at 83.

[44] NARUC *supra* n. 10, at 325.

in the annual accrual.[45] 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:[46]

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.[47]

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.[48] 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

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[45] NARUC *supra* n. 10, 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.").

[46] *Id*. at 64.

[47] Wolf *supra* n. 7, at 178.

[48] *See* Wolf *supra* n. 7, at 139 (I added the term "model" to distinguish this fourth depreciation system parameter from the other three parameters).

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. In 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.[49] This 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.[50] 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

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[49] Wolf *supra* n. 7, at 276.

[50] *Id*. at 23.

representing the life characteristics of each group of property.[51] They generalized the 65 curves into 13 survivor curve types and published their results in *Bulletin 103: Life Characteristics of 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.[52] This 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."[53] 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.[54] Rather than using the original formulas, analysts typically rely on the published tables containing the percentages surviving. This is because absent knowledge of the integration

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[51] *Id*. at 34.

[52] *Id*.

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

[54] 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).

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 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:[55]

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.[56]

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[55] *See* Wolf *supra* n. 7, at 37.

[56] *Id.*

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.

2. <u>Classification</u>

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).[57] 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.

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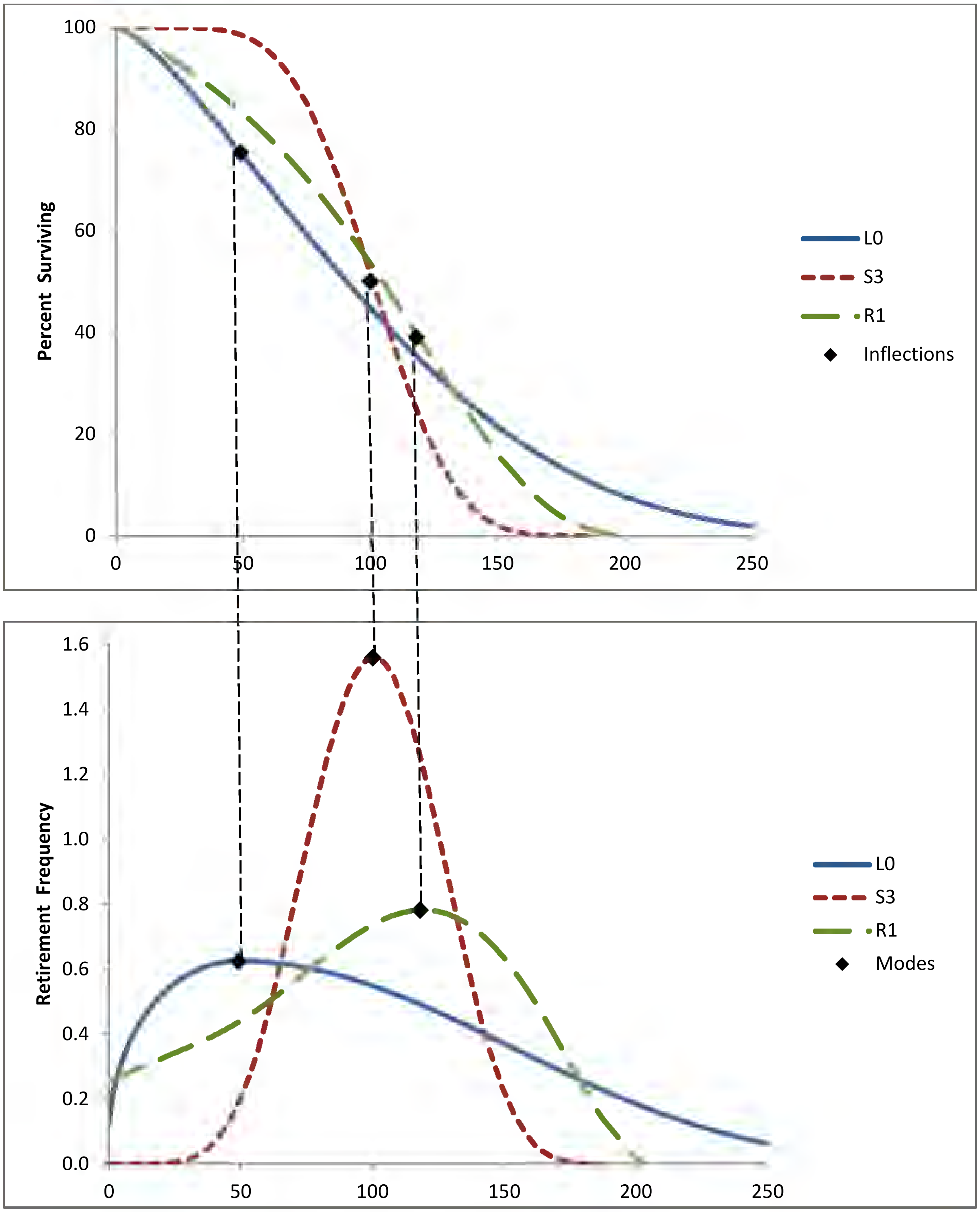
[57] In 1967, Harold A. Cowles added four origin-modal curves known as "O type" curves. There are also several "half" curves and a square curve, so the total amount of survivor curves commonly called "Iowa" curves is about 31 (see NARUC supra n. 10, at 68).

Figure 10:
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 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."[58]

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.

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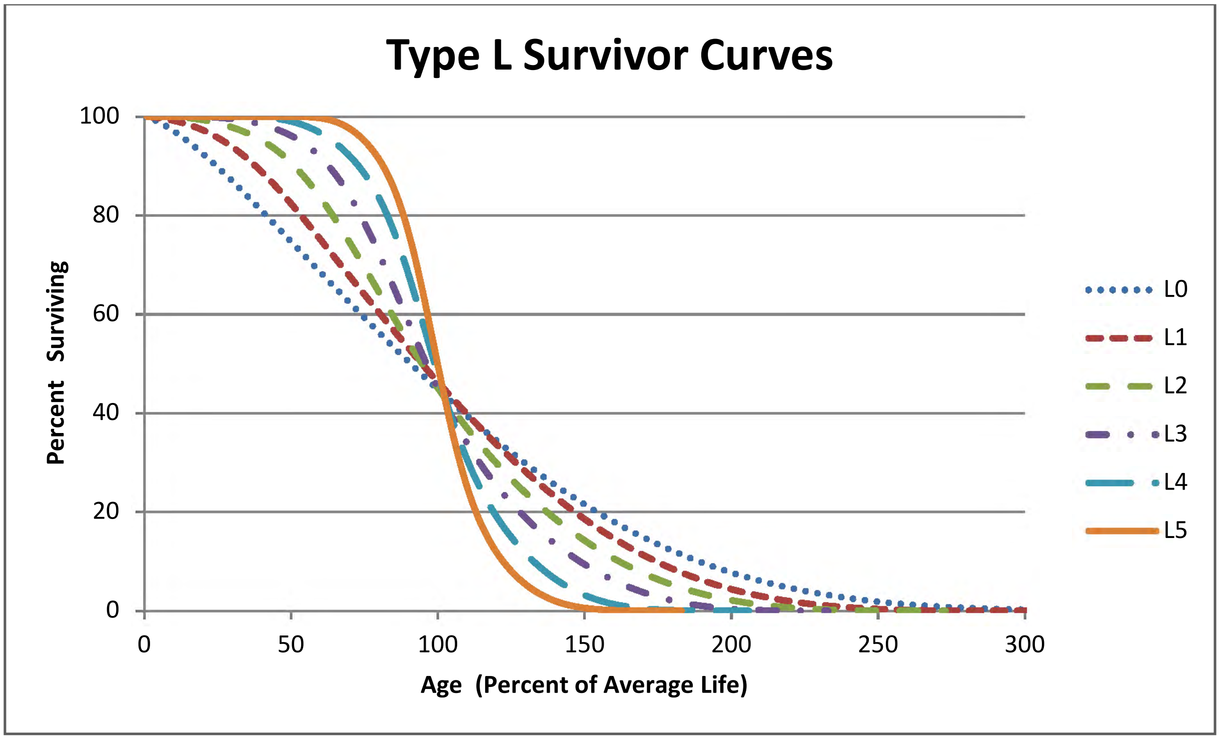
[58] Winfrey *supra* n. 75, at 60.

Figure 11:
Type L Survivor and Frequency Curves



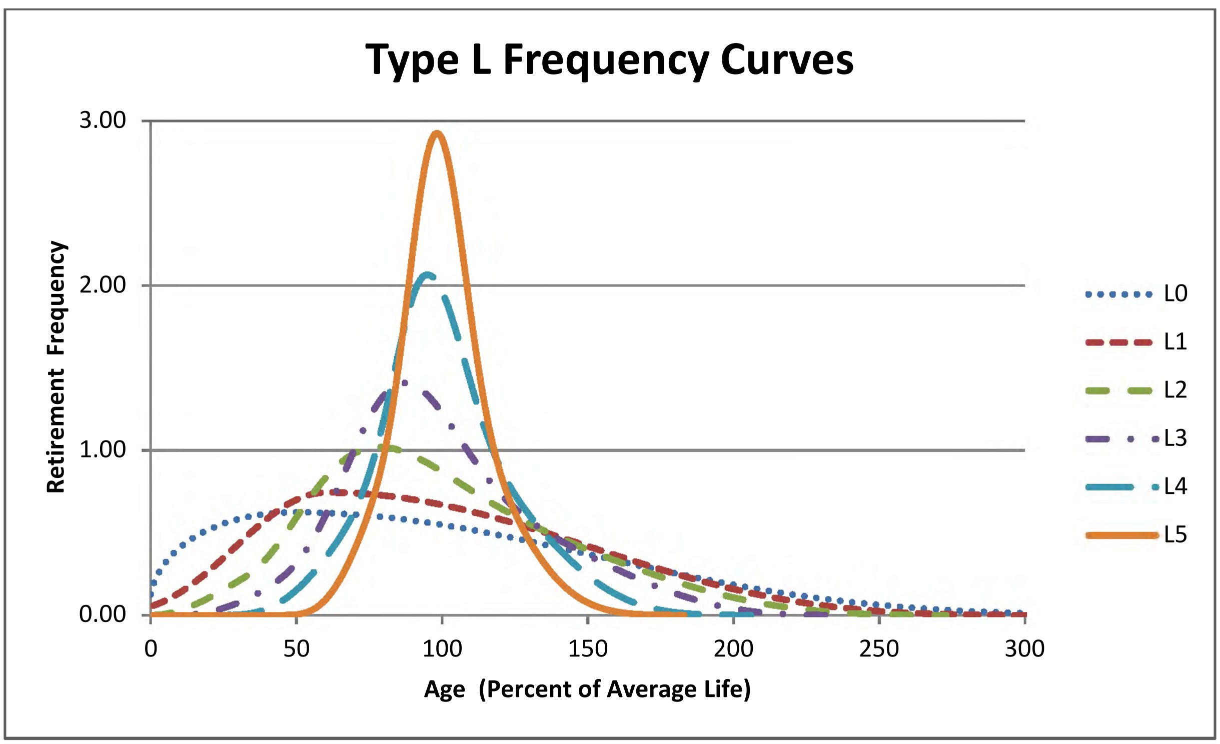
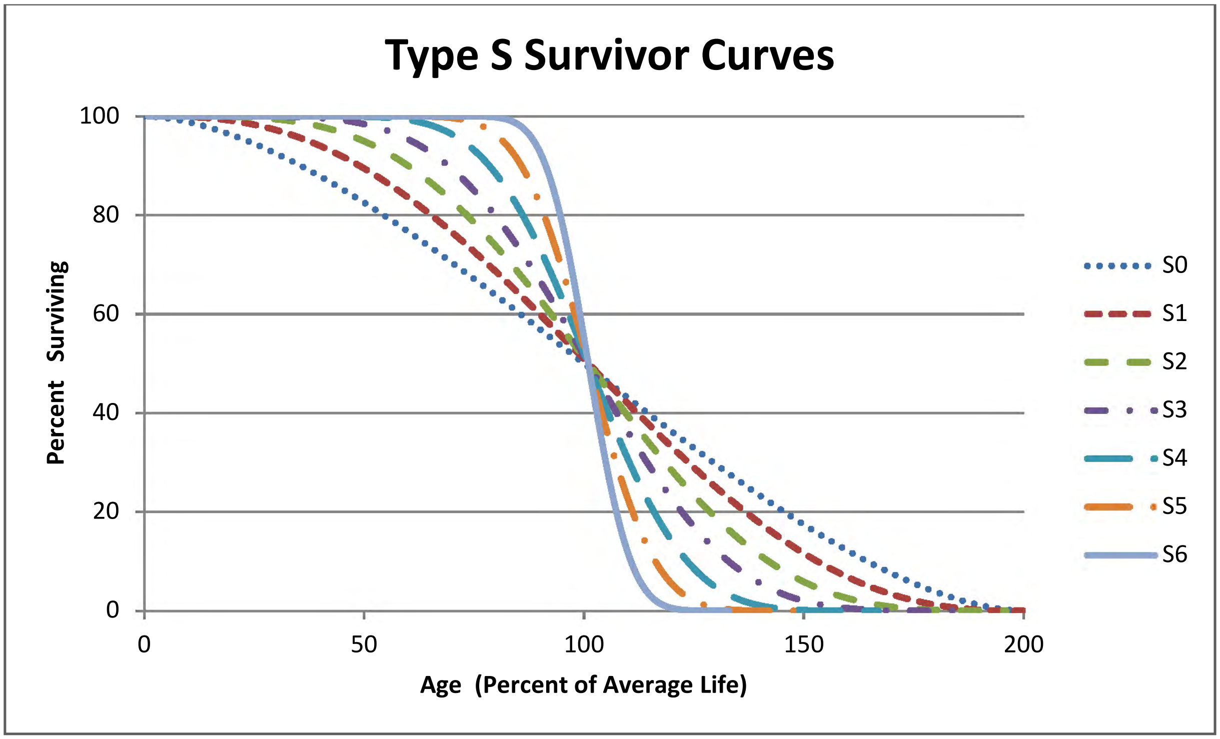


Figure 12:
Type S Survivor and Frequency Curves



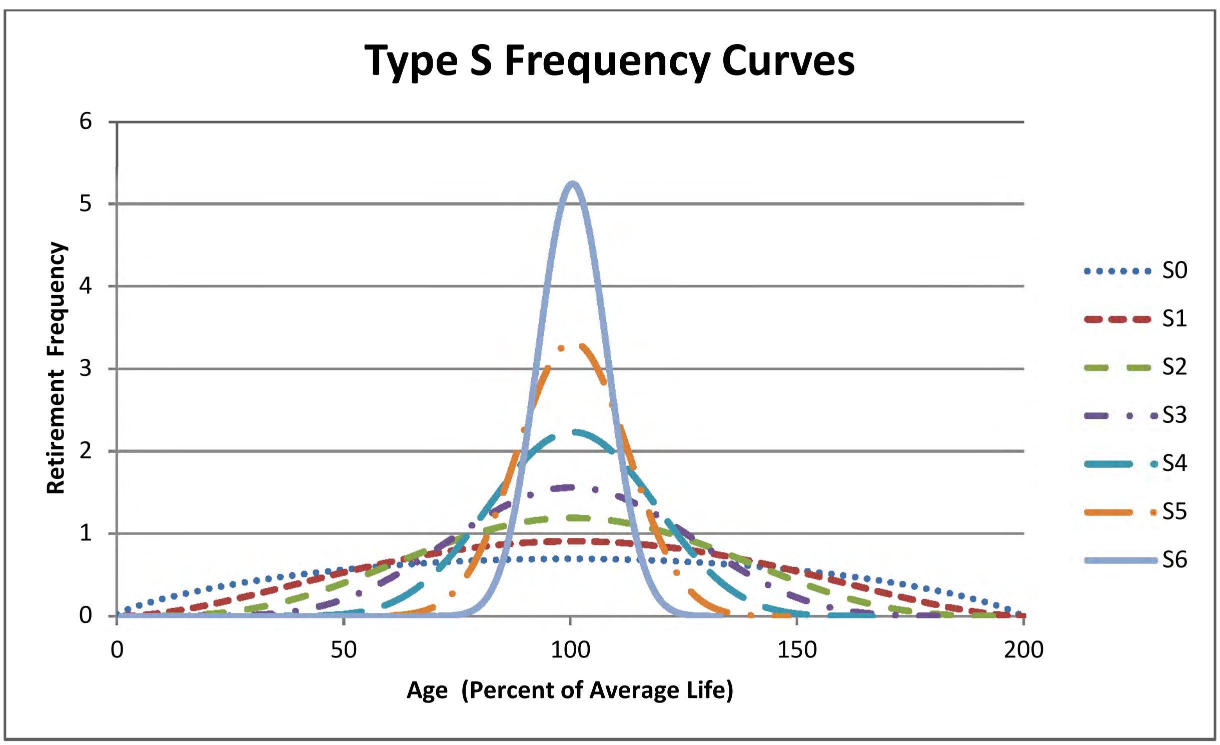
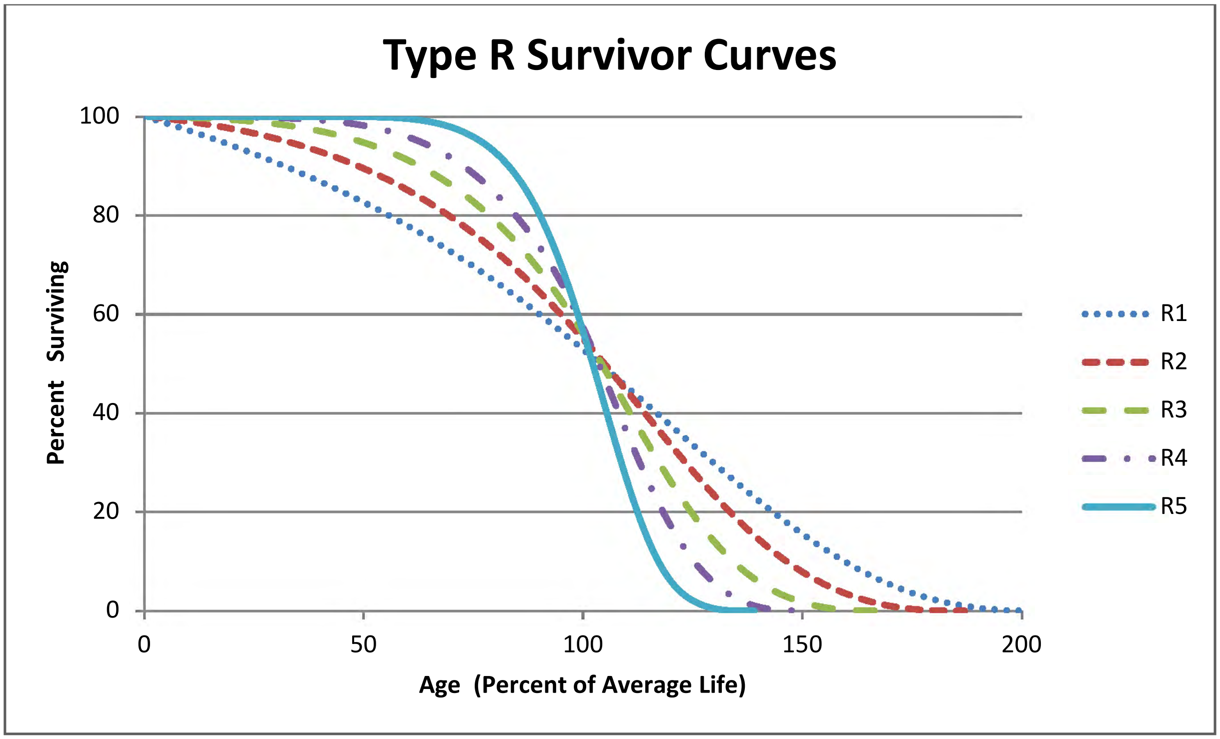
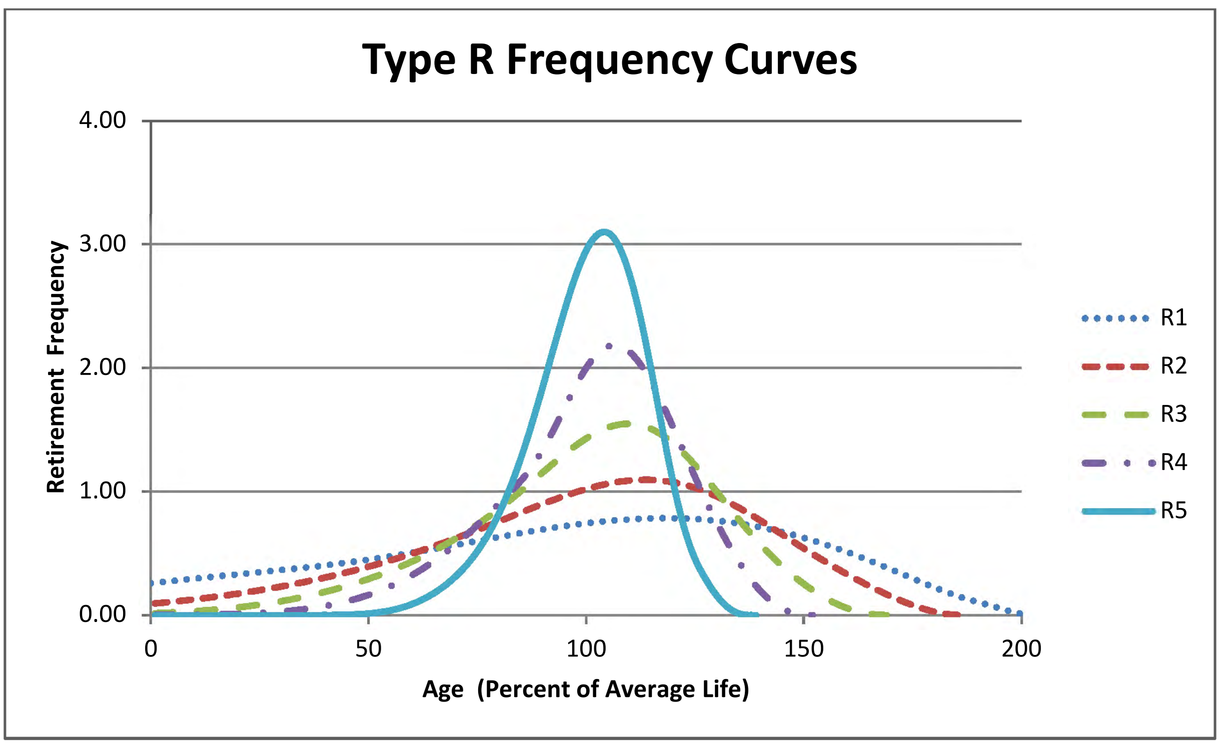


Figure 13:
Type R Survivor and Frequency Curves





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. <u>Types of Lives</u>

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.[59]

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:[60]

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 results in a "stub" survivor

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[59] 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.

[60] *See* NARUC *supra* n. 10, at 71.

curve. Iowa curves are used to extend stub curves to maximum life in order for the average life calculation to be made (see Appendix C).

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.[61] 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.[62] 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.

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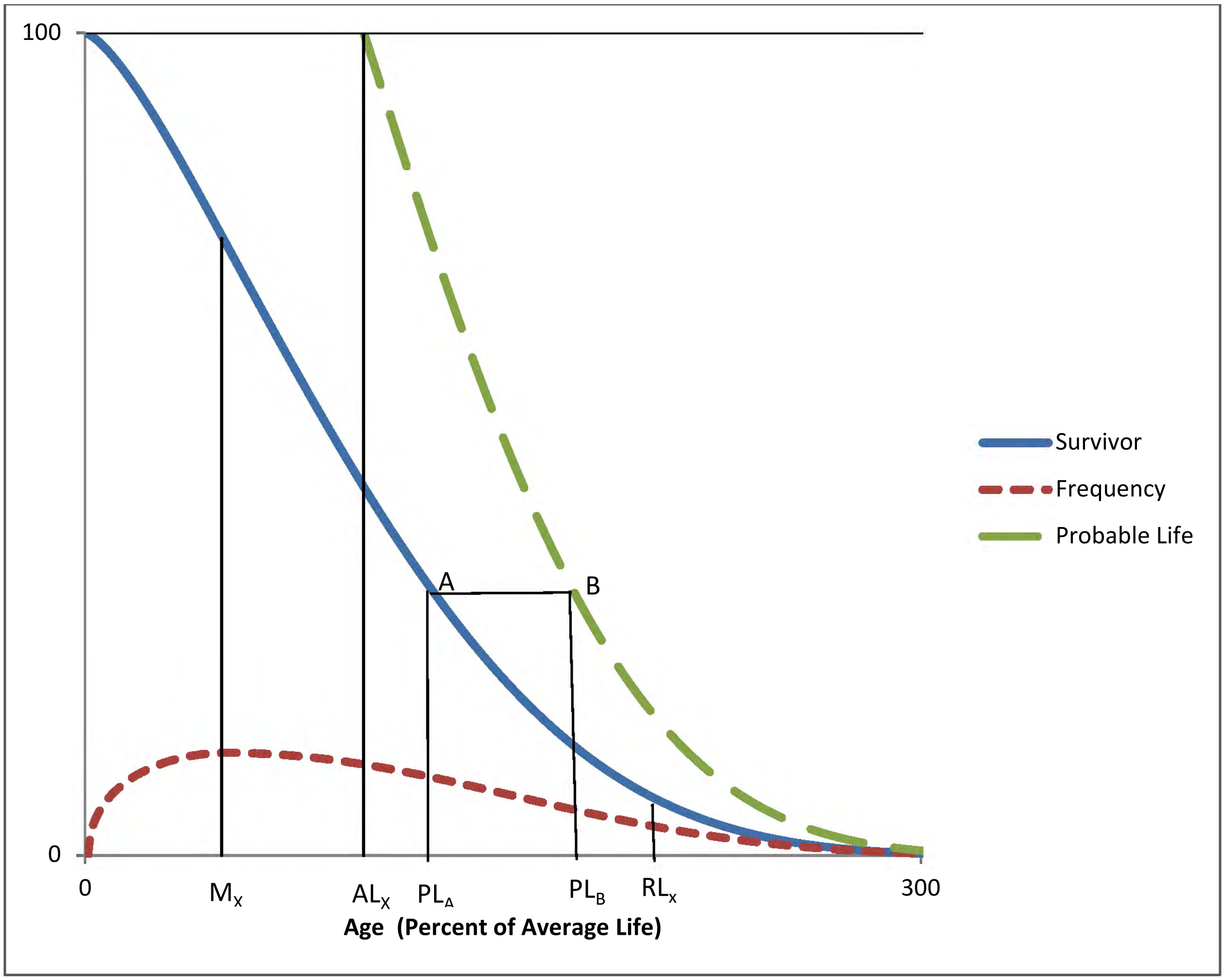
[61] *Id*. at 73.

[62] *Id*. at 74.

Figure 14:
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.[63] The probable life is also illustrated in this figure. The

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[63] Wolf *supra* n. 7, at 28.

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 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 is 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.[64]

Figure 15:
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

[64] NARUC *supra* n. 10, at 14-15.

Property Records ("CPR"). Generally, a CPR should contain 1) an inventory of property record 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.[65] 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.[66] 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

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[65] *Id*. at 112-13.

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

method may not be employed. The first matrix is the exposure matrix, which shows the exposures at the beginning of each year.[67] 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 16:
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	

[67] 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 17:
Retirement Matrix

Placement Years	Experience Years Retirments During the Year (Dollars in 000's) 2008	2009	2010	2011	2012	2013	2014	2015	Total During 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.[68] 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).

[68] Wolf *supra* n. 7, at 22.

The same calculation is applied to each number in the column. The amounts retired during the 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 18:
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% 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%, which was calculated by multiplying the percent surviving for age interval 0.5 (96.43%) by the survivor ratio for age interval 0.5 (0.967)[69].

The percentages surviving in Column F are the numbers that are used to form the original survivor curve. This particular curve starts at 100% surviving and ends at 38.91% surviving. An

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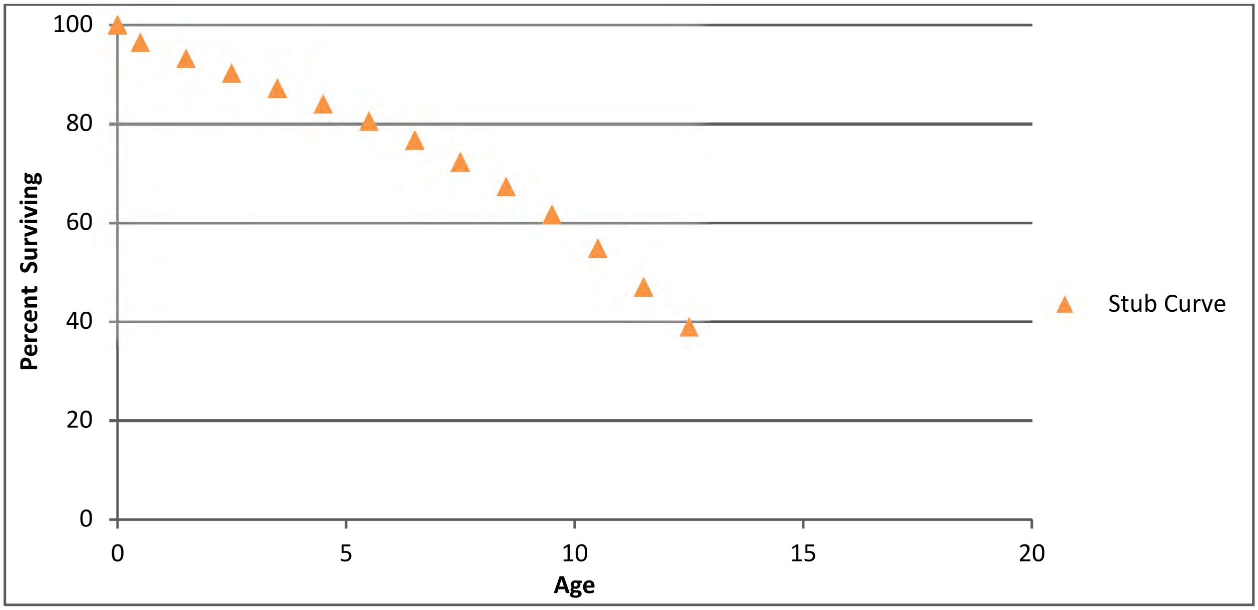
[69] Multiplying 96.43 by 0.967 does not equal 93.21 exactly due to rounding.

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 19:
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.

<u>Banding</u>

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.[70] There are three primary benefits of using bands in depreciation analysis:

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.[71]

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.

[70] NARUC *supra* n. 10, at 113.

[71] *Id*.

Figure 20:
Placement 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	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 covering the same placement years of 2005 – 2008. This 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.[72] 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

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[72] Wolf *supra* n. 7, at 182.

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.[73]

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.

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[73] NARUC *supra* n. 10, at 114.

Figure 21:
Experience Bands

Placement Years	2008	2009	2010	2011	2012	2013	2014	2015	Total at Start of Age Interval	Age Interval
	Experience Years Exposures at January 1 of Each Year (Dollars in 000's)									
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 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.[74] 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

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[74] *Id.*

ice storm's effect on life characteristics. Rather, the placement band would show an unusually 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. This is 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.

<u>Curve Fitting</u>

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."[75]

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, it is clear that the 10.5-R1 curve is a better fit than the other two curves.

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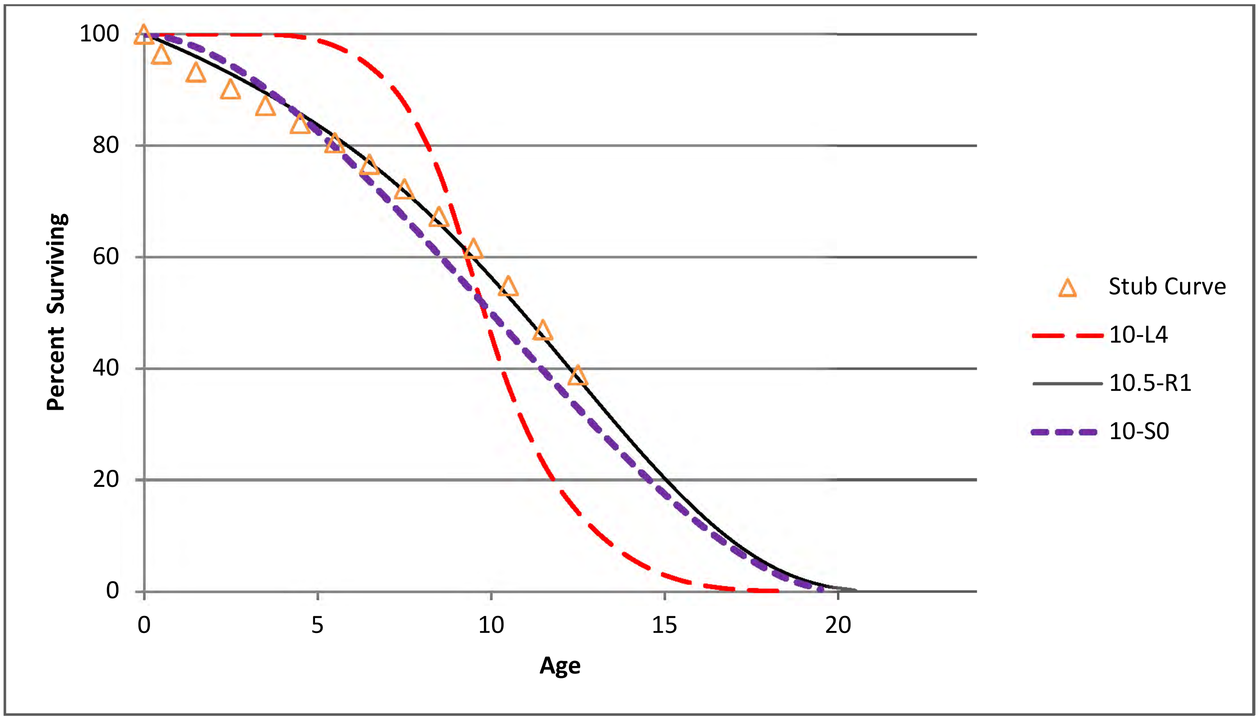
[75] Wolf *supra* n. 7, at 46 (22 curves includes Winfrey's 18 original curves plus Cowles's four "O" type curves).

Figure 22:
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.[76]

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."[77]

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.

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[76] Wolf *supra* n. 7, at 47.

[77] *Id*. at 48.

Figure 23:
Mathematical Fitting

Age Interval	Stub Curve	Iowa Curves 10-L4	Iowa Curves 10-S0	Iowa Curves 10.5-R1	Squared Differences 10-L4	Squared Differences 10-S0	Squared Differences 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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University of Oklahoma — Norman, OK
Master of Business Administration — 2014
Areas of Concentration: Finance, Energy

University of Oklahoma College of Law — Norman, OK
Juris Doctor — 2007
Member, American Indian Law Review

University of Oklahoma — Norman, OK
Bachelor of Business Administration — 2003
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PROFESSIONAL DESIGNATIONS

Society of Depreciation Professionals
Certified Depreciation Professional (CDP)

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

The Mediation Institute
Certified Civil / Commercial & Employment Mediator

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
Associate Attorney — 2007 – 2009
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TEACHING EXPERIENCE

University of Oklahoma — Norman, OK
Adjunct Instructor – "Conflict Resolution" — 2014 – 2020
Adjunct Instructor – "Ethics in Leadership"

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

PUBLICATIONS

American Indian Law Review — Norman, OK
"Vine of the Dead: Reviving Equal Protection Rites for Religious Drug Use" — 2006
(31 Am. Indian L. Rev. 143)

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
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
New Mexico Public Regulation Commission	Public Service Company of New Mexico, Avangrid, NM Green Holdings, PNM Resources	20-00222-UT	Ring fencing, capital structure	Albuquerque Bernalillo County Water Utility Authority
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
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

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
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 Public Service 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
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

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
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
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	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

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
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
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

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
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
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

Utility Regulatory Proceedings

Regulatory Agency	Utility Applicant	Docket Number	Issues Addressed	Parties Represented
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
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 Accrual Adjustment

Summary Depreciation Accrual Adjustment - 2020 Rates

Plant Function	Plant Balance 12/31/2020	Company Proposed Accrual	OUCC Proposed Accrual	**OUCC Accrual Adjustment**
Underground Storage	67,175,212	1,519,308	1,511,108	(8,200)
Other Storage Plant	48,700,773	598,388	589,160	(9,228)
Transmission	687,386,305	12,424,237	9,781,239	(2,642,998)
Distribution	2,265,570,084	60,994,075	45,047,924	(15,946,151)
General	52,017,700	2,443,053	2,313,100	(129,953)
Total Plant Studied	$ 3,120,850,074	$ 77,979,061	$ 59,242,530	**$ (18,736,531)**

Summary Depreciation Accrual Adjustment - 2022 Rates

Plant Function	Plant Balance 12/31/2022	Company Proposed Accrual	OUCC Proposed Accrual	**OUCC Accrual Adjustment**
Underground Storage	68,913,137	1,735,901	1,728,228	(7,673)
Other Storage Plant	49,972,686	765,142	763,616	(1,526)
Transmission	931,678,456	17,210,179	13,696,933	(3,513,246)
Distribution	2,658,049,790	73,429,730	54,135,859	(19,293,871)
General	51,056,563	2,349,862	2,263,184	(86,678)
Total Plant Studied	$ 3,759,670,631	$ 95,490,814	$ 72,587,819	**$ (22,902,995)**

Detailed Rate Comparison - 2020

Account No.	Description	[1] Plant 12/31/2020	[2] Company Proposal Rate	Company Proposal Annual Accrual	[3] OUCC Proposal Rate	OUCC Proposal Annual Accrual	[4] Difference Rate	Difference Annual Accrual
	UNDERGROUND STORAGE PLANT							
350.20	LEASEHOLDS	375,985	0.02%	85	0.02%	85	0.00%	0
350.40	RIGHTS OF WAY	186,818	5.39%	10,065	5.40%	10,097	0.01%	32
351.10	WELL STRUCTURES	18,796	1.55%	292	1.54%	290	-0.01%	-2
351.20	COMPRESSOR STATION STRUCTURES	401,768	3.03%	12,190	3.03%	12,166	0.00%	-24
351.30	MEASURING AND REGULATING STATION STRUCTURES	108,684	0.09%	102	0.09%	101	0.00%	-1
351.40	OTHER STRUCTURES	3,855,795	3.04%	117,262	3.03%	116,810	-0.01%	-452
352.00	WELLS	15,171,065	0.75%	113,913	0.75%	113,669	0.00%	-244
352.30	NONRECOVERABLE NATURAL GAS	5,399,799	1.04%	56,165	1.04%	56,165	0.00%	0
353.00	LINES	22,120,409	2.90%	641,777	2.88%	636,883	-0.02%	-4,894
354.00	COMPRESSOR STATION EQUIPMENT	3,678,972	2.97%	109,173	2.96%	108,967	-0.01%	-206
355.00	MEASURING AND REGULATING STATION EQUIPMENT	2,786,205	3.43%	95,680	3.40%	94,677	-0.03%	-1,003
356.00	PURIFICATION EQUIPMENT	12,059,541	2.98%	359,175	2.97%	357,768	-0.01%	-1,407
357.00	OTHER EQUIPMENT	1,011,375	0.34%	3,429	0.34%	3,430	0.00%	1
	Total Underground Storage Plant	**67,175,212**	**2.26%**	**1,519,308**	**2.25%**	**1,511,108**	**-0.01%**	**-8,200**
	OTHER STORAGE PLANT							
361.00	STRUCTURES AND IMPROVEMENTS	9,109,212	1.78%	162,124	1.78%	162,277	0.00%	153
362.10	GAS HOLDERS	17,950,917	0.10%	18,448	0.10%	18,438	0.00%	-10
363.00	PURIFICATION EQUIPMENT	1,676,868	2.04%	34,218	2.00%	33,572	-0.04%	-646
363.10	LIQUEFACTION EQUIPMENT	8,127,607	1.18%	96,305	1.18%	95,923	0.00%	-382
363.20	VAPORIZING EQUIPMENT	4,999,706	0.15%	7,269	0.14%	7,174	-0.01%	-95
363.30	COMPRESSOR EQUIPMENT	3,025,712	4.70%	142,267	4.54%	137,431	-0.16%	-4,836
363.40	MEASURING AND REGULATING EQUIPMENT	1,578,176	3.25%	51,311	3.18%	50,181	-0.07%	-1,130
363.50	OTHER EQUIPMENT	2,232,574	3.87%	86,446	3.77%	84,164	-0.10%	-2,282
	Total Other Storage Plant	**48,700,773**	**1.23%**	**598,388**	**1.21%**	**589,160**	**-0.02%**	**-9,228**
	TRANSMISSION PLANT							
365.20	LAND RIGHTS	11,097,931	1.96%	217,160	1.81%	200,650	-0.15%	-16,510
366.20	MEASURING AND REGULATING STATION STRUCTURES	5,672,910	2.02%	114,683	1.75%	99,022	-0.27%	-15,661
366.30	OTHER STRUCTURES	1,215,232	2.25%	27,357	2.09%	25,411	-0.16%	-1,946
367.00	MAINS	534,314,740	1.49%	7,967,590	1.29%	6,883,196	-0.20%	-1,084,394
369.00	MEASURING AND REGULATING STATION EQUIPMENT	134,785,426	3.03%	4,085,423	1.90%	2,563,174	-1.13%	-1,522,249
371.00	OTHER EQUIPMENT	300,065	4.01%	12,024	3.26%	9,786	-0.75%	-2,238

Detailed Rate Comparison - 2020

		[1]	[2]		[3]		[4]	
			Company Proposal		OUCC Proposal		Difference	
Account No.	Description	Plant 12/31/2020	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	Total Transmission Plant	**687,386,305**	**1.81%**	**12,424,237**	**1.42%**	**9,781,239**	**-0.38%**	**-2,642,998**
	DISTRIBUTION PLANT							
374.20	LAND RIGHTS	1,651,891	1.42%	23,504	1.32%	21,786	-0.10%	-1,718
375.00	STRUCTURES AND IMPROVEMENTS	4,083,958	1.39%	56,767	1.28%	52,153	-0.11%	-4,614
376.10	MAINS - STEEL	278,869,580	1.79%	5,003,002	1.44%	4,022,481	-0.35%	-980,521
376.20	MAINS - PLASTIC	729,226,339	1.73%	12,638,455	1.36%	9,940,057	-0.37%	-2,698,398
378.00	M&R STATION EQUIPMENT - GENERAL	49,971,512	2.88%	1,436,738	2.09%	1,045,996	-0.79%	-390,742
380.10	SERVICES - STEEL	62,859,988	5.79%	3,641,760	3.72%	2,341,506	-2.07%	-1,300,254
380.20	SERVICES - PLASTIC	641,031,878	3.86%	24,758,043	2.72%	17,436,856	-1.14%	-7,321,187
381.00	METERS	159,030,052	4.89%	7,783,915	4.04%	6,432,248	-0.85%	-1,351,667
382.00	METER INSTALLATIONS	169,076,142	1.57%	2,652,300	0.95%	1,603,611	-0.62%	-1,048,689
383.00	HOUSE REGULATORS	109,861,166	1.72%	1,887,009	1.13%	1,244,425	-0.59%	-642,584
384.00	HOUSE REGULATOR INSTALLATIONS	3,276,883	0.44%	14,567	0.38%	12,401	-0.06%	-2,166
385.00	INDUSTRIAL M&R STATION EQUIPMENT	56,596,134	1.94%	1,097,696	1.58%	894,105	-0.36%	-203,591
386.00	OTHER PROPERTY ON CUSTOMER PREMISES	34,561	0.92%	319	0.86%	299	-0.06%	-20
	Total Distribution Plant	**2,265,570,084**	**2.69%**	**60,994,075**	**1.99%**	**45,047,924**	**-0.70%**	**-15,946,151**
	GENERAL PLANT							
389.20	LAND RIGHTS	2,095,915	2.14%	44,919	1.99%	41,717	-0.15%	-3,202
390.00	STRUCTURES AND IMPROVEMENTS							
	GAS OPERATIONS CENTER	2,969,960	4.42%	131,203	4.08%	121,197	-0.34%	-10,006
	SOUTH BEND OPERATIONS HEADQUARTERS	5,857,658	4.84%	283,261	4.50%	263,649	-0.34%	-19,612
	CENTRAL GAS METER SHOP	2,066,628	8.72%	180,251	8.65%	178,752	-0.07%	-1,499
	PERU OPERATIONS HEADQUARTERS	1,400,816	11.22%	157,178	11.17%	156,463	-0.05%	-715
	FORT WAYNE OPERATIONS HEADQUARTERS	6,176,475	6.28%	387,862	5.84%	360,667	-0.44%	-27,195
	OTHER MISCELLANEOUS STRUCTURES	7,072,710	3.34%	236,094	2.39%	168,887	-0.95%	-67,207
	TOTAL STRUCTURES AND IMPROVEMENTS	25,544,247	5.39%	1,375,849	4.89%	1,249,616	-0.49%	-126,233
391.10	OFFICE FURNITURE AND EQUIPMENT	1,054,528	5.00%	52,722	5.01%	52,792	0.01%	70
391.20	COMPUTER EQUIPMENT	18,084	14.29%	2,584	14.22%	2,572	-0.07%	-12
392.40	TRANSPORTATION EQUIPMENT - TRUCKS > 13,000 #	229,771	0.00%	0	0.00%	0	0.00%	0
393.00	STORES EQUIPMENT	149,618	3.33%	4,986	3.34%	4,997	0.01%	11

Detailed Rate Comparison - 2020

		[1]	[2]		[3]		[4]	
			Company Proposal		OUCC Proposal		Difference	
Account No.	Description	Plant 12/31/2020	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	17,651,993	4.00%	706,011	4.00%	706,258	0.00%	247
395.00	LABORATORY EQUIPMENT	1,867,986	5.00%	93,402	4.98%	93,062	-0.02%	-340
396.00	POWER OPERATED EQUIPMENT	869,210	0.00%	0	0.00%	0	0.00%	0
397.00	COMMUNICATION EQUIPMENT	2,145,160	6.67%	143,014	6.65%	142,587	-0.02%	-427
398.00	MISCELLANEOUS EQUIPMENT	391,188	5.00%	19,566	4.98%	19,499	-0.02%	-67
	Total General Plant	**52,017,700**	**4.70%**	**2,443,053**	**4.45%**	**2,313,100**	**-0.25%**	**-129,953**
	TOTAL PLANT STUDIED	**$ 3,120,850,074**	**2.50%**	**$ 77,979,061**	**1.90%**	**$ 59,242,530**	**-0.60%**	**$ (18,736,531)**

[1], [2] From depreciation study
[3] From Attachment DJG-4
[4] = [3] - [2]

Depreciation Rate Development - 2020

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			Iowa Curve							Service Life		Net Salvage		Total	
Account No.	Description	Plant 12/31/2020	Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Accrual	Rate	Accrual	Rate	Accrual	Rate
	UNDERGROUND STORAGE PLANT														
350.20	LEASEHOLDS	375,985	R4	75	0%	375,985	375,011	974	11.50	85	0.02%	0	0.00%	85	**0.02%**
350.40	RIGHTS OF WAY	186,818	R4	75	0%	186,818	71,711	115,107	11.40	10,097	5.40%	0	0.00%	10,097	**5.40%**
351.10	WELL STRUCTURES	18,796	R4	70	-5%	19,735	16,461	3,274	11.30	207	1.10%	83	0.44%	290	**1.54%**
351.20	COMPRESSOR STATION STRUCTURES	401,768	R4	70	-5%	421,857	281,951	139,906	11.50	10,419	2.59%	1,747	0.43%	12,166	**3.03%**
351.30	MEASURING AND REGULATING STATION STRUCTURES	108,684	R4	70	-5%	114,118	112,967	1,151	11.40	-376	-0.35%	477	0.44%	101	**0.09%**
351.40	OTHER STRUCTURES	3,855,795	R4	70	-5%	4,048,585	2,728,631	1,319,954	11.30	99,749	2.59%	17,061	0.44%	116,810	**3.03%**
352.00	WELLS	15,171,065	R4	65	-15%	17,446,725	16,150,896	1,295,829	11.40	-85,950	-0.57%	199,619	1.32%	113,669	**0.75%**
352.30	NONRECOVERABLE NATURAL GAS	5,399,799	SQ	50	0%	5,399,799	4,753,901	645,897	11.50	56,165	1.04%	0	0.00%	56,165	**1.04%**
353.00	LINES	22,120,409	S1.5	50	-25%	27,650,511	20,517,416	7,133,095	11.20	143,124	0.65%	493,759	2.23%	636,883	**2.88%**
354.00	COMPRESSOR STATION EQUIPMENT	3,678,972	R3	50	-10%	4,046,870	2,815,542	1,231,327	11.30	76,410	2.08%	32,557	0.88%	108,967	**2.96%**
355.00	MEASURING AND REGULATING STATION EQUIPMENT	2,786,205	R2.5	60	-10%	3,064,825	2,023,375	1,041,450	11.00	69,348	2.49%	25,329	0.91%	94,677	**3.40%**
356.00	PURIFICATION EQUIPMENT	12,059,541	R4	65	-5%	12,662,518	8,548,188	4,114,330	11.50	305,335	2.53%	52,433	0.43%	357,768	**2.97%**
357.00	OTHER EQUIPMENT	1,011,375	S2.5	30	0%	1,011,375	979,821	31,554	9.20	3,430	0.34%	0	0.00%	3,430	**0.34%**
	Total Underground Storage Plant	**67,175,212**			**-14%**	**76,449,721**	**59,375,871**	**17,073,850**	**11.30**	**688,043**	**1.02%**	**823,065**	**1.23%**	**1,511,108**	**2.25%**
	OTHER STORAGE PLANT														
361.00	STRUCTURES AND IMPROVEMENTS	9,109,212	R4	65	-10%	10,020,133	8,332,454	1,687,679	10.40	74,688	0.82%	87,589	0.96%	162,277	**1.78%**
362.10	GAS HOLDERS	17,950,917	S3	55	-10%	19,746,008	19,552,405	193,603	10.50	-152,523	-0.85%	170,961	0.95%	18,438	**0.10%**
363.00	PURIFICATION EQUIPMENT	1,676,868	S2.5	55	-5%	1,760,712	1,441,780	318,932	9.50	24,746	1.48%	8,826	0.53%	33,572	**2.00%**
363.10	LIQUEFACTION EQUIPMENT	8,127,607	S2	50	-5%	8,533,988	7,536,391	997,597	10.40	56,848	0.70%	39,075	0.48%	95,923	**1.18%**
363.20	VAPORIZING EQUIPMENT	4,999,706	R2	50	-5%	5,249,691	5,176,518	73,174	10.20	-17,334	-0.35%	24,508	0.49%	7,174	**0.14%**
363.30	COMPRESSOR EQUIPMENT	3,025,712	R2	40	-5%	3,176,997	1,761,457	1,415,541	10.30	122,743	4.06%	14,688	0.49%	137,431	**4.54%**
363.40	MEASURING AND REGULATING EQUIPMENT	1,578,176	R1.5	55	-5%	1,657,085	1,150,255	506,830	10.10	42,368	2.68%	7,813	0.50%	50,181	**3.18%**
363.50	OTHER EQUIPMENT	2,232,574	R2	35	-5%	2,344,203	1,502,562	841,641	10.00	73,001	3.27%	11,163	0.50%	84,164	**3.77%**
	Total Other Storage Plant	**48,700,773**			**-8%**	**52,488,818**	**46,453,822**	**6,034,996**	**10.24**	**224,538**	**0.46%**	**364,622**	**0.75%**	**589,160**	**1.21%**
	TRANSMISSION PLANT														
365.20	LAND RIGHTS	11,097,931	R4	75	0%	11,097,931	2,590,384	8,507,548	42.40	200,650	1.81%	0	0.00%	200,650	**1.81%**
366.20	MEASURING AND REGULATING STATION STRUCTURES	5,672,910	R3	60	-5%	5,956,555	1,312,433	4,644,122	46.90	92,974	1.64%	6,048	0.11%	99,022	**1.75%**
366.30	OTHER STRUCTURES	1,215,232	R4	55	-5%	1,275,994	183,322	1,092,672	43.00	23,998	1.97%	1,413	0.12%	25,411	**2.09%**
367.00	MAINS	534,314,740	R3	95	-30%	694,609,162	124,680,529	569,928,634	82.80	4,947,273	0.93%	1,935,923	0.36%	6,883,196	**1.29%**
369.00	MEASURING AND REGULATING STATION EQUIPMENT	134,785,426	R1.5	67	-35%	181,960,325	26,785,770	155,174,556	60.54	1,783,939	1.32%	779,235	0.58%	2,563,174	**1.90%**
371.00	OTHER EQUIPMENT	300,065	R2.5	30	0%	300,065	32,902	267,163	27.30	9,786	3.26%	0	0.00%	9,786	**3.26%**
	Total Transmission Plant	**687,386,305**			**-30%**	**895,200,033**	**155,585,339**	**739,614,695**	**75.62**	**7,058,620**	**1.03%**	**2,722,619**	**0.40%**	**9,781,239**	**1.42%**
	DISTRIBUTION PLANT														
374.20	LAND RIGHTS	1,651,891	R4	75	0%	1,651,891	394,819	1,257,072	57.70	21,786	1.32%	0	0.00%	21,786	**1.32%**
375.00	STRUCTURES AND IMPROVEMENTS	4,083,958	R4	70	-10%	4,492,354	2,093,329	2,399,025	46.00	43,275	1.06%	8,878	0.22%	52,153	**1.28%**
376.10	MAINS - STEEL	278,869,580	R2.5	89	-40%	390,417,412	140,420,209	249,997,203	62.15	2,227,665	0.80%	1,794,816	0.64%	4,022,481	**1.44%**
376.20	MAINS - PLASTIC	729,226,339	R2.5	89	-40%	1,020,916,875	266,764,768	754,152,107	75.87	6,095,447	0.84%	3,844,610	0.53%	9,940,057	**1.36%**
378.00	M&R STATION EQUIPMENT - GENERAL	49,971,512	R1.5	55	-35%	67,461,542	21,542,320	45,919,222	43.90	647,590	1.30%	398,406	0.80%	1,045,996	**2.09%**
380.10	SERVICES - STEEL	62,859,988	R1.5	69	-120%	138,291,974	52,405,519	85,886,454	36.68	285,018	0.45%	2,056,488	3.27%	2,341,506	**3.72%**
380.20	SERVICES - PLASTIC	641,031,878	R1.5	69	-120%	1,410,270,133	451,417,424	958,852,708	54.99	3,448,162	0.54%	13,988,693	2.18%	17,436,856	**2.72%**
381.00	METERS	159,030,052	R2	36	-5%	166,981,555	24,185,646	142,795,908	22.20	6,074,072	3.82%	358,176	0.23%	6,432,248	**4.04%**
382.00	METER INSTALLATIONS	169,076,142	R1	55	-30%	219,798,984	136,731,911	83,067,073	51.80	624,406	0.37%	979,205	0.58%	1,603,611	**0.95%**
383.00	HOUSE REGULATORS	109,861,166	R1	63	-30%	142,819,515	77,972,547	64,846,969	52.11	611,948	0.56%	632,476	0.58%	1,244,425	**1.13%**
384.00	HOUSE REGULATOR INSTALLATIONS	3,276,883	R2.5	55	-10%	3,604,571	3,153,182	451,390	36.40	3,398	0.10%	9,002	0.27%	12,401	**0.38%**
385.00	INDUSTRIAL M&R STATION EQUIPMENT	56,596,134	R2	60	-10%	62,255,748	24,971,583	37,284,165	41.70	758,383	1.34%	135,722	0.24%	894,105	**1.58%**
386.00	OTHER PROPERTY ON CUSTOMER PREMISES	34,561	R3	15	0%	34,561	33,963	598	2.00	299	0.86%	0	0.00%	299	**0.86%**
	Total Distribution Plant	**2,265,570,084**			**-60%**	**3,628,997,114**	**1,202,087,221**	**2,426,909,893**	**53.87**	**20,841,450**	**0.92%**	**24,206,474**	**1.07%**	**45,047,924**	**1.99%**
	GENERAL PLANT														
389.20	LAND RIGHTS	2,095,915	R4	65	0%	2,095,915	101,862	1,994,054	47.80	41,717	1.99%	0	0.00%	41,717	**1.99%**
390.00	STRUCTURES AND IMPROVEMENTS														

Depreciation Rate Development - 2020

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			Iowa Curve							Service Life		Net Salvage		Total	
Account No.	Description	Plant 12/31/2020	Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Accrual	Rate	Accrual	Rate	Accrual	Rate
	GAS OPERATIONS CENTER	2,969,960	S0	- 50	-10%	3,266,956	988,444	2,278,512	18.80	105,400	3.55%	15,798	0.53%	121,197	**4.08%**
	SOUTH BEND OPERATIONS HEADQUARTERS	5,857,658	S0	- 50	-10%	6,443,424	1,882,289	4,561,135	17.30	229,790	3.92%	33,859	0.58%	263,649	**4.50%**
	CENTRAL GAS METER SHOP	2,066,628	S0	- 50	-10%	2,273,291	879,024	1,394,267	7.80	152,257	7.37%	26,495	1.28%	178,752	**8.65%**
	PERU OPERATIONS HEADQUARTERS	1,400,816	S0	- 50	-10%	1,540,898	430,010	1,110,888	7.10	136,733	9.76%	19,730	1.41%	156,463	**11.17%**
	FORT WAYNE OPERATIONS HEADQUARTERS	6,176,475	S0	- 50	-10%	6,794,123	1,852,989	4,941,134	13.70	315,583	5.11%	45,084	0.73%	360,667	**5.84%**
	OTHER MISCELLANEOUS STRUCTURES	7,072,710	S0	- 50	-10%	7,779,981	1,142,734	6,637,247	39.30	150,890	2.13%	17,997	0.25%	168,887	**2.39%**
	TOTAL STRUCTURES AND IMPROVEMENTS	25,544,247			-10%	28,098,672	7,175,490	20,923,182	16.74	1,090,653	4.27%	158,962	0.62%	1,249,616	4.89%
391.10	OFFICE FURNITURE AND EQUIPMENT	1,054,528	SQ	- 20	0%	1,054,528	489,650	564,878	10.70	52,792	5.01%	0	0.00%	52,792	**5.01%**
391.20	COMPUTER EQUIPMENT	18,084	SQ	- 7	0%	18,084	10,626	7,458	2.90	2,572	14.22%	0	0.00%	2,572	**14.22%**
392.40	TRANSPORTATION EQUIPMENT - TRUCKS > 13,000 #	229,771	L4	- 15	15%	195,306	195,305	0	0.00						
393.00	STORES EQUIPMENT	149,618	SQ	- 30	0%	149,618	73,160	76,458	15.30	4,997	3.34%	0	0.00%	4,997	**3.34%**
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	17,651,993	SQ	- 25	0%	17,651,993	7,835,000	9,816,993	13.90	706,258	4.00%	0	0.00%	706,258	**4.00%**
395.00	LABORATORY EQUIPMENT	1,867,986	SQ	- 20	0%	1,867,986	835,000	1,032,986	11.10	93,062	4.98%	0	0.00%	93,062	**4.98%**
396.00	POWER OPERATED EQUIPMENT	869,210	L2	- 13	15%	738,828	738,828	0	0.00						
397.00	COMMUNICATION EQUIPMENT	2,145,160	SQ	- 15	0%	2,145,160	819,100	1,326,060	9.30	142,587	6.65%	0	0.00%	142,587	**6.65%**
398.00	MISCELLANEOUS EQUIPMENT	391,188	SQ	- 20	0%	391,188	174,750	216,438	11.10	19,499	4.98%	0	0.00%	19,499	**4.98%**
	Total General Plant	**52,017,700**			**-5%**	**54,407,278**	**18,448,771**	**35,958,507**	**15.55**	**2,154,137**	**4.14%**	**158,962**	**0.31%**	**2,313,100**	**4.45%**
	TOTAL PLANT STUDIED	**$ 3,120,850,074**			**-51%**	**$ 4,707,542,963**	**$ 1,481,951,023**	**$ 3,225,591,940**	**54.45**	**$ 30,966,787**	**0.99%**	**$ 28,275,743**	**0.91%**	**$ 59,242,530**	**1.90%**

[1] From depreciation study
[2] Average life and Iowa curve shape developed through statistical analysis and professional judgment
[3] Mass net salvage rates developed through statistical analysis and professional judgment
[4] = [1]*(1-[3])
[5] From depreciation study
[6] = [4] - [5]
[7] Composite remaining life based on Iowa cuve in [2]; see remaining life exhibit for detailed calculations; unadjusted ALG remaining lives from response to IG-2-13
[8] = ([1] - [5]) / [7]
[9] = [8] / [1]
[10] = [12] - [8]
[11] = [13] - [9]
[12] = [6] / [7]
[13] = [12] / [1]

Detailed Rate Comparison - 2022

		[1]	[2]		[3]		[4]	
			Company Proposal		OUCC Proposal		Difference	
Account No.	Description	Plant 12/31/2022	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	UNDERGROUND STORAGE PLANT							
350.20	LEASEHOLDS	385,805	0.32%	1,229	0.32%	1,225	0.00%	-4
350.40	RIGHTS OF WAY	191,697	5.52%	10,588	5.49%	10,525	-0.03%	-63
351.10	WELL STRUCTURES	19,287	1.81%	350	1.81%	349	0.00%	-1
351.20	COMPRESSOR STATION STRUCTURES	412,261	3.27%	13,465	3.25%	13,392	-0.02%	-73
351.30	MEASURING AND REGULATING STATION STRUCTURES	111,522	0.40%	449	0.40%	446	0.00%	-3
351.40	OTHER STRUCTURES	3,956,497	3.24%	128,351	3.26%	128,841	0.02%	490
352.00	WELLS	15,567,286	1.07%	166,212	1.07%	166,581	0.00%	369
352.30	NONRECOVERABLE NATURAL GAS	5,540,825	1.30%	72,292	1.30%	72,291	0.00%	-1
353.00	LINES	22,698,125	3.17%	718,477	3.14%	712,869	-0.03%	-5,608
354.00	COMPRESSOR STATION EQUIPMENT	3,758,572	3.15%	118,506	3.13%	117,789	-0.02%	-717
355.00	MEASURING AND REGULATING STATION EQUIPMENT	2,858,972	3.60%	102,984	3.60%	102,909	0.00%	-75
356.00	PURIFICATION EQUIPMENT	12,374,499	3.20%	396,283	3.19%	394,304	-0.01%	-1,979
357.00	OTHER EQUIPMENT	1,037,789	0.65%	6,715	0.65%	6,706	0.00%	-9
	Total Underground Storage Plant	**68,913,137**	**2.52%**	**1,735,901**	**2.51%**	**1,728,228**	**-0.01%**	**-7,673**
	OTHER STORAGE PLANT							
361.00	STRUCTURES AND IMPROVEMENTS	9,347,116	2.09%	194,948	2.10%	195,879	0.01%	931
362.10	GAS HOLDERS	18,419,739	0.46%	85,353	0.46%	85,320	0.00%	-33
363.00	PURIFICATION EQUIPMENT	1,720,663	2.23%	38,448	2.24%	38,573	0.01%	125
363.10	LIQUEFACTION EQUIPMENT	8,339,875	1.50%	125,281	1.50%	124,715	0.00%	-566
363.20	VAPORIZING EQUIPMENT	5,130,283	0.49%	25,337	0.49%	25,297	0.00%	-40
363.30	COMPRESSOR EQUIPMENT	3,104,734	4.78%	148,448	4.76%	147,739	-0.02%	-709
363.40	MEASURING AND REGULATING EQUIPMENT	1,619,393	3.42%	55,418	3.40%	55,104	-0.02%	-314
363.50	OTHER EQUIPMENT	2,290,882	4.01%	91,909	3.97%	90,989	-0.04%	-920
	Total Other Storage Plant	**49,972,686**	**1.53%**	**765,142**	**1.53%**	**763,616**	**0.00%**	**-1,526**
	TRANSMISSION PLANT							
365.20	LAND RIGHTS	14,820,746	1.80%	266,290	1.68%	248,436	-0.12%	-17,854
366.20	MEASURING AND REGULATING STATION STRUCTURES	7,575,895	2.02%	153,239	1.77%	133,745	-0.25%	-19,494
366.30	OTHER STRUCTURES	1,622,884	2.11%	34,251	1.98%	32,113	-0.13%	-2,138
367.00	MAINS	727,258,845	1.55%	11,290,521	1.34%	9,764,453	-0.21%	-1,526,068
369.00	MEASURING AND REGULATING STATION EQUIPMENT	179,999,364	3.03%	5,449,724	1.95%	3,504,762	-1.08%	-1,944,962
371.00	OTHER EQUIPMENT	400,722	4.03%	16,154	3.35%	13,425	-0.68%	-2,729

Detailed Rate Comparison - 2022

		[1]	[2]		[3]		[4]	
			Company Proposal		OUCC Proposal		Difference	
Account No.	Description	Plant 12/31/2022	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
	Total Transmission Plant	**931,678,456**	**1.85%**	**17,210,179**	**1.47%**	**13,696,933**	**-0.38%**	**-3,513,246**
	DISTRIBUTION PLANT							
374.20	LAND RIGHTS	1,935,422	1.43%	27,620	1.33%	25,711	-0.10%	-1,909
375.00	STRUCTURES AND IMPROVEMENTS	4,781,999	1.45%	69,181	1.34%	64,038	-0.11%	-5,143
376.10	MAINS - STEEL	332,478,778	1.86%	6,188,815	1.48%	4,926,898	-0.38%	-1,261,917
376.20	MAINS - PLASTIC	853,164,755	1.81%	15,432,836	1.42%	12,111,668	-0.39%	-3,321,168
378.00	M&R STATION EQUIPMENT - GENERAL	58,512,779	2.97%	1,738,891	2.17%	1,269,249	-0.80%	-469,642
380.10	SERVICES - STEEL	73,604,188	5.49%	4,037,458	3.50%	2,575,867	-1.99%	-1,461,591
380.20	SERVICES - PLASTIC	750,598,791	3.99%	29,928,697	2.81%	21,127,573	-1.18%	-8,801,124
381.00	METERS	186,211,901	4.44%	8,266,657	3.69%	6,879,067	-0.75%	-1,387,590
382.00	METER INSTALLATIONS	197,975,096	1.91%	3,780,269	1.19%	2,362,717	-0.72%	-1,417,552
383.00	HOUSE REGULATORS	128,638,935	2.01%	2,579,489	1.31%	1,687,728	-0.70%	-891,761
384.00	HOUSE REGULATOR INSTALLATIONS	3,836,977	0.81%	31,098	0.65%	25,129	-0.16%	-5,969
385.00	INDUSTRIAL M&R STATION EQUIPMENT	66,269,699	2.03%	1,347,901	1.63%	1,079,485	-0.40%	-268,416
386.00	OTHER PROPERTY ON CUSTOMER PREMISES	40,468	2.02%	818	1.80%	727	-0.22%	-91
	Total Distribution Plant	**2,658,049,790**	**2.76%**	**73,429,730**	**2.04%**	**54,135,859**	**-0.73%**	**-19,293,871**
	GENERAL PLANT							
389.20	LAND RIGHTS	2,095,915	2.14%	44,903	1.99%	41,717	-0.15%	-3,186
390.00	STRUCTURES AND IMPROVEMENTS							
	GAS OPERATIONS CENTER	2,969,960	3.99%	118,504	3.83%	113,874	-0.16%	-4,630
	SOUTH BEND OPERATIONS HEADQUARTERS	5,857,658	4.43%	259,523	4.25%	249,017	-0.18%	-10,506
	CENTRAL GAS METER SHOP	2,066,628	8.69%	179,635	8.80%	181,790	0.11%	2,155
	PERU OPERATIONS HEADQUARTERS	1,400,816	11.86%	166,080	12.04%	168,665	0.18%	2,585
	FORT WAYNE OPERATIONS HEADQUARTERS	6,176,475	6.11%	377,562	5.85%	361,246	-0.26%	-16,316
	OTHER MISCELLANEOUS STRUCTURES	7,072,710	3.12%	220,508	2.28%	161,476	-0.84%	-59,032
	TOTAL STRUCTURES AND IMPROVEMENTS	25,544,247	5.17%	1,321,812	4.84%	1,236,069	-0.34%	-85,743
391.10	OFFICE FURNITURE AND EQUIPMENT	1,049,130	5.00%	52,462	5.03%	52,725	0.03%	263
391.20	COMPUTER EQUIPMENT	18,084	14.29%	2,584	14.68%	2,656	0.39%	72
392.40	TRANSPORTATION EQUIPMENT - TRUCKS > 13,000 #	229,771	0.00%	0	0.00%	0	0.00%	0
393.00	STORES EQUIPMENT	149,618	3.33%	4,987	3.34%	5,005	0.01%	18

Detailed Rate Comparison - 2022

		[1]	[2]		[3]		[4]	
			Company Proposal		OUCC Proposal		Difference	
Account No.	Description	Plant 12/31/2022	Rate	Annual Accrual	Rate	Annual Accrual	Rate	Annual Accrual
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	16,753,656	4.00%	670,196	4.01%	671,600	0.01%	1,404
395.00	LABORATORY EQUIPMENT	1,830,716	5.00%	91,561	5.01%	91,770	0.01%	209
396.00	POWER OPERATED EQUIPMENT	869,210	0.00%	0	0.00%	0	0.00%	0
397.00	COMMUNICATION EQUIPMENT	2,132,140	6.67%	142,148	6.68%	142,465	0.01%	317
398.00	MISCELLANEOUS EQUIPMENT	384,076	5.00%	19,209	4.99%	19,178	-0.01%	-31
	Total General Plant	**51,056,563**	**4.60%**	**2,349,862**	**4.43%**	**2,263,184**	**-0.17%**	**-86,678**
	TOTAL PLANT STUDIED	**$ 3,759,670,631**	**2.54%**	**$ 95,490,814**	**1.93%**	**$ 72,587,819**	**-0.61%**	**$ (22,902,995)**

[1], [2] From depreciation study
[3] From Attachment DJG-4
[4] = [3] - [2]

Depreciation Rate Development - 2022

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
			Iowa Curve							Service Life		Net Salvage		Total	
Account No.	Description	Plant 12/31/2022	Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Accrual	Rate	Accrual	Rate	Accrual	Rate
	UNDERGROUND STORAGE PLANT														
350.20	LEASEHOLDS	385,805	R4	75	0%	385,805	374,165	11,640	9.50	1,225	0.32%	0	0.00%	1,225	**0.32%**
350.40	RIGHTS OF WAY	191,697	R4	75	0%	191,697	91,710	99,987	9.50	10,525	5.49%	0	0.00%	10,525	**5.49%**
351.10	WELL STRUCTURES	19,287	R4	70	-5%	20,251	17,003	3,248	9.30	246	1.27%	104	0.54%	349	**1.81%**
351.20	COMPRESSOR STATION STRUCTURES	412,261	R4	70	-5%	432,874	305,653	127,221	9.50	11,222	2.72%	2,170	0.53%	13,392	**3.25%**
351.30	MEASURING AND REGULATING STATION STRUCTURES	111,522	R4	70	-5%	117,098	112,863	4,236	9.50	-141	-0.13%	587	0.53%	446	**0.40%**
351.40	OTHER STRUCTURES	3,956,497	R4	70	-5%	4,154,322	2,956,102	1,198,220	9.30	107,569	2.72%	21,271	0.54%	128,841	**3.26%**
352.00	WELLS	15,567,286	R4	65	-15%	17,902,379	16,336,519	1,565,860	9.40	-81,833	-0.53%	248,414	1.60%	166,581	**1.07%**
352.30	NONRECOVERABLE NATURAL GAS	5,540,825	SQ	50	0%	5,540,825	4,854,056	686,769	9.50	72,291	1.30%	0	0.00%	72,291	**1.30%**
353.00	LINES	22,698,125	S1.5	50	-25%	28,372,656	21,742,971	6,629,685	9.30	102,705	0.45%	610,165	2.69%	712,869	**3.14%**
354.00	COMPRESSOR STATION EQUIPMENT	3,758,572	R3	50	-10%	4,134,429	3,027,208	1,107,221	9.40	77,805	2.07%	39,985	1.06%	117,789	**3.13%**
355.00	MEASURING AND REGULATING STATION EQUIPMENT	2,858,972	R2.5	60	-10%	3,144,869	2,208,397	936,472	9.10	71,492	2.50%	31,417	1.10%	102,909	**3.60%**
356.00	PURIFICATION EQUIPMENT	12,374,499	R4	65	-5%	12,993,224	9,247,339	3,745,885	9.50	329,175	2.66%	65,129	0.53%	394,304	**3.19%**
357.00	OTHER EQUIPMENT	1,037,789	S2.5	30	0%	1,037,789	984,143	53,646	8.00	6,706	0.65%	0	0.00%	6,706	**0.65%**
	Total Underground Storage Plant	**68,913,137**			**-14%**	**78,428,218**	**62,258,127**	**16,170,091**	**9.36**	**708,986**	**1.03%**	**1,019,242**	**1.48%**	**1,728,228**	**2.51%**
	OTHER STORAGE PLANT														
361.00	STRUCTURES AND IMPROVEMENTS	9,347,116	R4	65	-10%	10,281,828	8,636,445	1,645,383	8.40	84,604	0.91%	111,275	1.19%	195,879	**2.10%**
362.10	GAS HOLDERS	18,419,739	S3	55	-10%	20,261,713	19,536,495	725,218	8.50	-131,383	-0.71%	216,703	1.18%	85,320	**0.46%**
363.00	PURIFICATION EQUIPMENT	1,720,663	S2.5	55	-5%	1,806,696	1,505,828	300,868	7.80	27,543	1.60%	11,030	0.64%	38,573	**2.24%**
363.10	LIQUEFACTION EQUIPMENT	8,339,875	S2	50	-5%	8,756,869	7,709,263	1,047,606	8.40	75,073	0.90%	49,642	0.60%	124,715	**1.50%**
363.20	VAPORIZING EQUIPMENT	5,130,283	R2	50	-5%	5,386,797	5,176,829	209,968	8.30	-5,608	-0.11%	30,905	0.60%	25,297	**0.49%**
363.30	COMPRESSOR EQUIPMENT	3,104,734	R2	40	-5%	3,259,971	2,033,740	1,226,230	8.30	129,035	4.16%	18,703	0.60%	147,739	**4.76%**
363.40	MEASURING AND REGULATING EQUIPMENT	1,619,393	R1.5	55	-5%	1,700,363	1,248,508	451,855	8.20	45,230	2.79%	9,874	0.61%	55,104	**3.40%**
363.50	OTHER EQUIPMENT	2,290,882	R2	35	-5%	2,405,426	1,668,416	737,010	8.10	76,848	3.35%	14,141	0.62%	90,989	**3.97%**
	Total Other Storage Plant	**49,972,686**			**-8%**	**53,859,663**	**47,515,524**	**6,344,138**	**8.31**	**301,341**	**0.60%**	**462,274**	**0.93%**	**763,616**	**1.53%**
	TRANSMISSION PLANT														
365.20	LAND RIGHTS	14,820,746	R4	75	0%	14,820,746	2,697,090	12,123,657	48.80	248,436	1.68%	0	0.00%	248,436	**1.68%**
366.20	MEASURING AND REGULATING STATION STRUCTURES	7,575,895	R3	60	-5%	7,954,689	1,347,685	6,607,005	49.40	126,077	1.66%	7,668	0.10%	133,745	**1.77%**
366.30	OTHER STRUCTURES	1,622,884	R4	55	-5%	1,704,028	201,160	1,502,868	46.80	30,379	1.87%	1,734	0.11%	32,113	**1.98%**
367.00	MAINS	727,258,845	R3	95	-30%	945,436,499	115,458,035	829,978,463	85.00	7,197,657	0.99%	2,566,796	0.35%	9,764,453	**1.34%**
369.00	MEASURING AND REGULATING STATION EQUIPMENT	179,999,364	R1.5	67	-35%	242,999,141	27,806,742	215,192,399	61.40	2,478,707	1.38%	1,026,055	0.57%	3,504,762	**1.95%**
371.00	OTHER EQUIPMENT	400,722	R2.5	30	0%	400,722	46,309	354,413	26.40	13,425	3.35%	0	0.00%	13,425	**3.35%**
	Total Transmission Plant	**931,678,456**			**-30%**	**1,213,315,825**	**147,557,021**	**1,065,758,804**	**77.81**	**10,094,680**	**1.08%**	**3,602,253**	**0.39%**	**13,696,933**	**1.47%**
	DISTRIBUTION PLANT														
374.20	LAND RIGHTS	1,935,422	R4	75	0%	1,935,422	413,344	1,522,078	59.20	25,711	1.33%	0	0.00%	25,711	**1.33%**
375.00	STRUCTURES AND IMPROVEMENTS	4,781,999	R4	70	-10%	5,260,199	2,128,730	3,131,470	48.90	54,259	1.13%	9,779	0.20%	64,038	**1.34%**
376.10	MAINS - STEEL	332,478,778	R2.5	89	-40%	465,470,290	141,970,165	323,500,125	65.66	2,901,441	0.87%	2,025,457	0.61%	4,926,898	**1.48%**
376.20	MAINS - PLASTIC	853,164,755	R2.5	89	-40%	1,194,430,657	266,192,416	928,238,241	76.64	7,658,825	0.90%	4,452,843	0.52%	12,111,668	**1.42%**
378.00	M&R STATION EQUIPMENT - GENERAL	58,512,779	R1.5	55	-35%	78,992,252	22,637,588	56,354,664	44.40	808,000	1.38%	461,249	0.79%	1,269,249	**2.17%**
380.10	SERVICES - STEEL	73,604,188	R1.5	69	-120%	161,929,214	56,911,129	105,018,085	40.77	409,445	0.56%	2,166,422	2.94%	2,575,867	**3.50%**
380.20	SERVICES - PLASTIC	750,598,791	R1.5	69	-120%	1,651,317,341	469,018,331	1,182,299,010	55.96	5,031,817	0.67%	16,095,757	2.14%	21,127,573	**2.81%**
381.00	METERS	186,211,901	R2	36	-5%	195,522,496	35,240,229	160,282,267	23.30	6,479,471	3.48%	399,596	0.21%	6,879,067	**3.69%**
382.00	METER INSTALLATIONS	197,975,096	R1	55	-30%	257,367,625	136,396,495	120,971,130	51.20	1,202,707	0.61%	1,160,010	0.59%	2,362,717	**1.19%**
383.00	HOUSE REGULATORS	128,638,935	R1	63	-30%	167,230,615	78,337,956	88,892,660	52.67	955,021	0.74%	732,707	0.57%	1,687,728	**1.31%**
384.00	HOUSE REGULATOR INSTALLATIONS	3,836,977	R2.5	55	-10%	4,220,674	3,117,501	1,103,174	43.90	16,389	0.43%	8,740	0.23%	25,129	**0.65%**
385.00	INDUSTRIAL M&R STATION EQUIPMENT	66,269,699	R2	60	-10%	72,896,669	25,831,110	47,065,560	43.60	927,491	1.40%	151,995	0.23%	1,079,485	**1.63%**
386.00	OTHER PROPERTY ON CUSTOMER PREMISES	40,468	R3	15	0%	40,468	34,000	6,468	8.90	727	1.80%	0	0.00%	727	**1.80%**
	Total Distribution Plant	**2,658,049,790**			**-60%**	**4,256,613,924**	**1,238,228,992**	**3,018,384,932**	**55.76**	**26,471,303**	**1.00%**	**27,664,556**	**1.04%**	**54,135,859**	**2.04%**
	GENERAL PLANT														
389.20	LAND RIGHTS	2,095,915	R4	65	0%	2,095,915	185,279	1,910,636	45.80	41,717	1.99%	0	0.00%	41,717	**1.99%**
390.00	STRUCTURES AND IMPROVEMENTS														

Depreciation Rate Development - 2022

		[1]	[2]		[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
Account No.	Description	Plant 12/31/2022	Iowa Curve Type	AL	Net Salvage	Depreciable Base	Book Reserve	Future Accruals	Remaining Life	Service Life Accrual	Rate	Net Salvage Accrual	Rate	Total Accrual	Rate
	GAS OPERATIONS CENTER	2,969,960	S0	50	-10%	3,266,956	1,285,544	1,981,412	17.40	96,805	3.26%	17,069	0.57%	113,874	**3.83%**
	SOUTH BEND OPERATIONS HEADQUARTERS	5,857,658	S0	50	-10%	6,443,424	2,484,059	3,959,365	15.90	212,176	3.62%	36,841	0.63%	249,017	**4.25%**
	CENTRAL GAS METER SHOP	2,066,628	S0	50	-10%	2,273,291	1,164,371	1,108,920	6.10	147,911	7.16%	33,879	1.64%	181,790	**8.80%**
	PERU OPERATIONS HEADQUARTERS	1,400,816	S0	50	-10%	1,540,898	646,971	893,927	5.30	142,235	10.15%	26,430	1.89%	168,665	**12.04%**
	FORT WAYNE OPERATIONS HEADQUARTERS	6,176,475	S0	50	-10%	6,794,123	2,495,298	4,298,825	11.90	309,343	5.01%	51,903	0.84%	361,246	**5.85%**
	OTHER MISCELLANEOUS STRUCTURES	7,072,710	S0	50	-10%	7,779,981	1,595,437	6,184,544	38.30	143,010	2.02%	18,467	0.26%	161,476	**2.28%**
	TOTAL STRUCTURES AND IMPROVEMENTS	25,544,247			-10%	28,098,672	9,671,680	18,426,992	14.91	1,051,480	4.12%	184,589	0.72%	1,236,069	4.84%
391.10	OFFICE FURNITURE AND EQUIPMENT	1,049,130	SQ	20	0%	1,049,130	585,150	463,980	8.80	52,725	5.03%	0	0.00%	52,725	**5.03%**
391.20	COMPUTER EQUIPMENT	18,084	SQ	7	0%	18,084	14,897	3,187	1.20	2,656	14.68%	0	0.00%	2,656	**14.68%**
392.40	TRANSPORTATION EQUIPMENT - TRUCKS > 13,000 #	229,771	L4	15	15%	195,306	195,305	0	0.00						
393.00	STORES EQUIPMENT	149,618	SQ	30	0%	149,618	82,055	67,563	13.50	5,005	3.34%	0	0.00%	5,005	**3.34%**
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	16,753,656	SQ	25	0%	16,753,656	8,291,500	8,462,156	12.60	671,600	4.01%	0	0.00%	671,600	**4.01%**
395.00	LABORATORY EQUIPMENT	1,830,716	SQ	20	0%	1,830,716	977,250	853,466	9.30	91,770	5.01%	0	0.00%	91,770	**5.01%**
396.00	POWER OPERATED EQUIPMENT	869,210	L2	13	15%	738,828	738,828	0	0.00						
397.00	COMMUNICATION EQUIPMENT	2,132,140	SQ	15	0%	2,132,140	1,077,900	1,054,240	7.40	142,465	6.68%	0	0.00%	142,465	**6.68%**
398.00	MISCELLANEOUS EQUIPMENT	384,076	SQ	20	0%	384,076	203,800	180,276	9.40	19,178	4.99%	0	0.00%	19,178	**4.99%**
	Total General Plant	**51,056,563**			**-5%**	**53,446,140**	**22,023,644**	**31,422,496**	**13.88**	**2,078,595**	**4.07%**	**184,589**	**0.36%**	**2,263,184**	**4.43%**
	TOTAL PLANT STUDIED	**$ 3,759,670,631**			**-50%**	**$ 5,655,663,770**	**$ 1,517,583,308**	**$ 4,138,080,462**	**57.01**	**$ 39,654,905**	**1.05%**	**$ 32,932,914**	**0.88%**	**$ 72,587,819**	**1.93%**

[1] From response to IG 7-001
[2] Average life and Iowa curve shape developed through statistical analysis and professional judgment
[3] Mass net salvage rates developed through statistical analysis and professional judgment
[4] = [1]*(1-[3])
[5] From response to IG 7-001
[6] = [4] - [5]
[7] Composite remaining life based on Iowa cuve in [2]; see remaining life exhibit for detailed calculations; unadjusted ALG remaining lives from response to IG 7-001
[8] = ([1] - [5]) / [7]
[9] = [8] / [1]
[10] = [12] - [8]
[11] = [13] - [9]
[12] = [6] / [7]
[13] = [12] / [1]

Account 369 Curve Fitting

[1]	[2]	[3]	[4]	[5]	[6]	[7]
Age (Years)	**Exposures (Dollars)**	**Observed Life Table (OLT)**	**Company R2-58**	**OUCC R1.5-67**	**Company SSD**	**OUCC SSD**
0.0	125,218,529	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	93,689,403	100.00%	99.92%	99.87%	0.0000	0.0000
1.5	89,929,281	100.00%	99.75%	99.60%	0.0000	0.0000
2.5	55,961,447	99.93%	99.57%	99.32%	0.0000	0.0000
3.5	46,555,711	99.91%	99.38%	99.04%	0.0000	0.0001
4.5	39,082,964	99.69%	99.17%	98.75%	0.0000	0.0001
5.5	33,139,343	98.97%	98.96%	98.45%	0.0000	0.0000
6.5	32,763,125	98.78%	98.73%	98.14%	0.0000	0.0000
7.5	31,960,155	98.70%	98.50%	97.82%	0.0000	0.0001
8.5	32,287,701	98.35%	98.24%	97.49%	0.0000	0.0001
9.5	31,579,628	98.33%	97.98%	97.16%	0.0000	0.0001
10.5	31,442,946	96.30%	97.70%	96.81%	0.0002	0.0000
11.5	30,534,445	95.91%	97.40%	96.46%	0.0002	0.0000
12.5	27,598,827	95.67%	97.09%	96.10%	0.0002	0.0000
13.5	26,565,004	94.56%	96.77%	95.72%	0.0005	0.0001
14.5	24,889,891	94.52%	96.42%	95.34%	0.0004	0.0001
15.5	24,556,158	94.42%	96.06%	94.95%	0.0003	0.0000
16.5	23,486,607	94.21%	95.69%	94.55%	0.0002	0.0000
17.5	21,821,688	93.59%	95.29%	94.13%	0.0003	0.0000
18.5	18,127,923	92.33%	94.87%	93.71%	0.0006	0.0002
19.5	15,721,816	92.23%	94.43%	93.28%	0.0005	0.0001
20.5	14,750,303	92.07%	93.98%	92.83%	0.0004	0.0001
21.5	12,478,712	91.62%	93.50%	92.38%	0.0004	0.0001
22.5	11,805,359	90.93%	93.00%	91.91%	0.0004	0.0001
23.5	11,568,018	90.27%	92.47%	91.43%	0.0005	0.0001
24.5	11,127,354	88.89%	91.92%	90.94%	0.0009	0.0004
25.5	11,230,337	88.25%	91.35%	90.43%	0.0010	0.0005
26.5	10,665,368	87.97%	90.75%	89.92%	0.0008	0.0004
27.5	10,536,609	87.93%	90.12%	89.39%	0.0005	0.0002
28.5	10,307,212	87.61%	89.46%	88.84%	0.0003	0.0002
29.5	10,200,183	87.45%	88.78%	88.28%	0.0002	0.0001
30.5	8,639,658	86.48%	88.07%	87.71%	0.0003	0.0002
31.5	8,729,484	86.29%	87.32%	87.12%	0.0001	0.0001
32.5	8,452,417	85.91%	86.55%	86.52%	0.0000	0.0000
33.5	7,783,717	85.75%	85.74%	85.90%	0.0000	0.0000
34.5	7,064,238	85.15%	84.90%	85.26%	0.0000	0.0000
35.5	6,859,541	84.67%	84.03%	84.61%	0.0000	0.0000
36.5	6,363,938	83.82%	83.12%	83.93%	0.0000	0.0000
37.5	5,975,604	83.21%	82.18%	83.25%	0.0001	0.0000
38.5	5,539,726	82.49%	81.19%	82.54%	0.0002	0.0000
39.5	5,428,510	82.42%	80.18%	81.81%	0.0005	0.0000
40.5	5,387,741	82.08%	79.12%	81.07%	0.0009	0.0001
41.5	5,142,359	81.88%	78.02%	80.30%	0.0015	0.0002
42.5	4,869,043	81.87%	76.88%	79.52%	0.0025	0.0006
43.5	4,605,167	80.36%	75.71%	78.71%	0.0022	0.0003
44.5	4,121,041	79.96%	74.49%	77.88%	0.0030	0.0004
45.5	4,042,518	79.66%	73.23%	77.04%	0.0041	0.0007
46.5	3,837,955	79.07%	71.92%	76.17%	0.0051	0.0008

Account 369 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R2-58	[5] OUCC R1.5-67	[6] Company SSD	[7] OUCC SSD
47.5	3,729,464	78.70%	70.58%	75.28%	0.0066	0.0012
48.5	3,530,533	78.21%	69.19%	74.36%	0.0081	0.0015
49.5	3,237,042	77.95%	67.76%	73.43%	0.0104	0.0020
50.5	3,007,246	73.55%	66.29%	72.47%	0.0053	0.0001
51.5	2,673,240	72.25%	64.78%	71.49%	0.0056	0.0001
52.5	2,507,404	70.00%	63.23%	70.48%	0.0046	0.0000
53.5	2,131,415	68.24%	61.64%	69.46%	0.0044	0.0001
54.5	2,020,576	67.58%	60.01%	68.41%	0.0057	0.0001
55.5	1,719,915	66.53%	58.34%	67.34%	0.0067	0.0001
56.5	1,503,561	63.91%	56.64%	66.24%	0.0053	0.0005
57.5	1,406,791	61.38%	54.90%	65.12%	0.0042	0.0014
58.5	1,226,569	56.11%	53.14%	63.98%	0.0009	0.0062
59.5	1,099,691	55.36%	51.34%	62.82%	0.0016	0.0056
60.5	1,015,305	55.05%	49.53%	61.64%	0.0031	0.0043
61.5	723,895	53.52%	47.69%	60.43%	0.0034	0.0048
62.5	625,846	49.02%	45.83%	59.21%	0.0010	0.0104
63.5	485,818	39.50%	43.96%	57.96%	0.0020	0.0341
64.5	400,162	38.55%	42.08%	56.70%	0.0012	0.0329
65.5	379,737	38.50%	40.19%	55.42%	0.0003	0.0286
66.5	62,166	38.43%	38.31%	54.12%	0.0000	0.0246
67.5	10,102	35.67%	36.43%	52.80%	0.0001	0.0293
68.5	5,421	32.50%	34.55%	51.47%	0.0004	0.0360
69.5	5,421	32.50%	32.70%	50.12%	0.0000	0.0311
70.5			30.86%	48.76%		
Sum of Squared Differences				[8]	0.1101	0.2617
Up to 1% of Beginning Exposures				[9]	0.0961	0.0138

[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 376 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R2.5-85	[5] OUCC R2.5-89	[6] Company SSD	[7] OUCC SSD
0.0	725,224,456	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	672,305,214	100.00%	99.97%	99.97%	0.0000	0.0000
1.5	619,728,782	99.96%	99.90%	99.91%	0.0000	0.0000
2.5	563,089,659	99.89%	99.83%	99.84%	0.0000	0.0000
3.5	517,016,674	99.79%	99.76%	99.77%	0.0000	0.0000
4.5	460,638,050	99.63%	99.68%	99.70%	0.0000	0.0000
5.5	445,145,882	99.55%	99.60%	99.62%	0.0000	0.0000
6.5	421,572,821	99.46%	99.51%	99.54%	0.0000	0.0000
7.5	405,437,135	99.37%	99.43%	99.46%	0.0000	0.0000
8.5	389,808,813	99.22%	99.33%	99.37%	0.0000	0.0000
9.5	386,556,587	99.12%	99.23%	99.28%	0.0000	0.0000
10.5	379,584,094	99.05%	99.13%	99.18%	0.0000	0.0000
11.5	373,983,071	98.90%	99.02%	99.08%	0.0000	0.0000
12.5	368,285,392	98.80%	98.91%	98.98%	0.0000	0.0000
13.5	361,159,205	98.66%	98.79%	98.87%	0.0000	0.0000
14.5	352,383,234	98.55%	98.67%	98.75%	0.0000	0.0000
15.5	343,218,400	98.44%	98.54%	98.63%	0.0000	0.0000
16.5	337,198,936	98.29%	98.41%	98.51%	0.0000	0.0000
17.5	329,268,819	98.13%	98.26%	98.38%	0.0000	0.0000
18.5	320,899,531	98.00%	98.12%	98.24%	0.0000	0.0000
19.5	312,715,336	97.87%	97.96%	98.10%	0.0000	0.0000
20.5	298,484,150	97.58%	97.80%	97.95%	0.0000	0.0000
21.5	291,743,550	97.48%	97.63%	97.79%	0.0000	0.0000
22.5	279,946,313	97.33%	97.45%	97.63%	0.0000	0.0000
23.5	272,964,957	97.24%	97.27%	97.46%	0.0000	0.0000
24.5	266,517,576	97.10%	97.07%	97.29%	0.0000	0.0000
25.5	261,762,240	96.91%	96.87%	97.10%	0.0000	0.0000
26.5	258,146,252	96.67%	96.66%	96.91%	0.0000	0.0000
27.5	255,404,038	96.48%	96.44%	96.71%	0.0000	0.0000
28.5	252,223,623	96.35%	96.21%	96.50%	0.0000	0.0000
29.5	246,420,079	96.14%	95.97%	96.29%	0.0000	0.0000
30.5	241,173,316	96.02%	95.72%	96.06%	0.0000	0.0000
31.5	239,448,274	95.85%	95.46%	95.83%	0.0000	0.0000
32.5	234,215,249	95.67%	95.19%	95.58%	0.0000	0.0000
33.5	220,122,820	95.53%	94.91%	95.33%	0.0000	0.0000
34.5	205,640,555	95.36%	94.61%	95.06%	0.0001	0.0000
35.5	195,288,236	95.11%	94.31%	94.79%	0.0001	0.0000
36.5	186,403,238	94.85%	93.99%	94.51%	0.0001	0.0000
37.5	174,545,031	94.58%	93.66%	94.21%	0.0001	0.0000
38.5	163,387,999	94.38%	93.31%	93.90%	0.0001	0.0000
39.5	151,546,739	94.09%	92.95%	93.58%	0.0001	0.0000
40.5	143,070,797	93.74%	92.58%	93.25%	0.0001	0.0000
41.5	134,759,445	93.47%	92.20%	92.91%	0.0002	0.0000
42.5	126,916,822	93.04%	91.80%	92.55%	0.0002	0.0000
43.5	120,926,592	92.55%	91.38%	92.18%	0.0001	0.0000
44.5	114,346,311	92.13%	90.95%	91.80%	0.0001	0.0000
45.5	106,902,795	91.65%	90.50%	91.40%	0.0001	0.0000
46.5	99,389,447	91.14%	90.03%	90.99%	0.0001	0.0000
47.5	93,777,968	90.55%	89.55%	90.56%	0.0001	0.0000
48.5	88,242,186	90.08%	89.05%	90.12%	0.0001	0.0000
49.5	82,145,865	89.62%	88.53%	89.66%	0.0001	0.0000
50.5	76,687,427	89.14%	88.00%	89.19%	0.0001	0.0000
51.5	70,141,749	88.64%	87.44%	88.70%	0.0001	0.0000
52.5	63,145,280	88.20%	86.87%	88.19%	0.0002	0.0000
53.5	55,100,248	87.82%	86.27%	87.67%	0.0002	0.0000
54.5	48,826,196	87.39%	85.66%	87.13%	0.0003	0.0000
55.5	42,519,537	87.04%	85.02%	86.57%	0.0004	0.0000
56.5	37,407,992	86.58%	84.36%	85.99%	0.0005	0.0000
57.5	32,254,603	86.05%	83.68%	85.39%	0.0006	0.0000
58.5	28,281,232	85.53%	82.98%	84.78%	0.0007	0.0001
59.5	20,746,933	85.00%	82.25%	84.14%	0.0008	0.0001
60.5	15,448,276	83.74%	81.50%	83.49%	0.0005	0.0000
61.5	14,092,292	82.68%	80.72%	82.81%	0.0004	0.0000
62.5	12,119,817	82.24%	79.92%	82.11%	0.0005	0.0000
63.5	10,274,238	80.19%	79.10%	81.39%	0.0001	0.0001
64.5	8,686,608	77.82%	78.24%	80.64%	0.0000	0.0008
65.5	6,979,074	76.37%	77.36%	79.88%	0.0001	0.0012
66.5	5,359,578	75.56%	76.46%	79.09%	0.0001	0.0012
67.5	4,837,273	75.34%	75.52%	78.27%	0.0000	0.0009
68.5	4,320,627	74.78%	74.55%	77.43%	0.0000	0.0007

Account 376 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R2.5-85	[5] OUCC R2.5-89	[6] Company SSD	[7] OUCC SSD
69.5	3,882,052	74.29%	73.56%	76.57%	0.0001	0.0005
70.5	3,460,183	73.74%	72.54%	75.68%	0.0001	0.0004
71.5	3,060,181	72.90%	71.49%	74.76%	0.0002	0.0003
72.5	2,711,009	72.08%	70.40%	73.82%	0.0003	0.0003
73.5	2,385,980	71.82%	69.29%	72.85%	0.0006	0.0001
74.5	2,323,083	70.93%	68.15%	71.86%	0.0008	0.0001
75.5	2,263,558	70.26%	66.97%	70.83%	0.0011	0.0000
76.5	2,224,481	69.90%	65.77%	69.78%	0.0017	0.0000
77.5	2,168,403	69.17%	64.54%	68.70%	0.0021	0.0000
78.5	2,047,789	68.68%	63.27%	67.60%	0.0029	0.0001
79.5	1,829,595	68.04%	61.98%	66.46%	0.0037	0.0002
80.5	1,748,136	67.47%	60.66%	65.30%	0.0046	0.0005
81.5	1,666,166	65.73%	59.31%	64.11%	0.0041	0.0003
82.5	1,592,147	64.68%	57.93%	62.90%	0.0046	0.0003
83.5	1,538,183	64.52%	56.53%	61.65%	0.0064	0.0008
84.5	857,776	64.06%	55.10%	60.39%	0.0080	0.0013
85.5	847,318	63.47%	53.65%	59.09%	0.0096	0.0019
86.5	825,008	62.58%	52.19%	57.78%	0.0108	0.0023
87.5	813,739	61.82%	50.70%	56.43%	0.0124	0.0029
88.5	775,447	59.04%	49.19%	55.07%	0.0097	0.0016
89.5	712,299	56.78%	47.67%	53.69%	0.0083	0.0010
90.5	638,410	55.14%	46.14%	52.29%	0.0081	0.0008
91.5	476,551	54.46%	44.60%	50.87%	0.0097	0.0013
92.5	103,751	51.65%	43.06%	49.43%	0.0074	0.0005
93.5	72,233	44.91%	41.51%	47.98%	0.0012	0.0009
94.5	59,851	38.57%	39.96%	46.52%	0.0002	0.0063
95.5	37,918	38.54%	38.41%	45.05%	0.0000	0.0042
96.5	26,372	38.54%	36.87%	43.58%	0.0003	0.0025
97.5	3,071	38.54%	35.34%	42.10%	0.0010	0.0013
98.5	1,891	38.54%	33.82%	40.62%	0.0022	0.0004
99.5	1,891	38.54%	32.31%	39.14%	0.0039	0.0000
100.5	925	38.01%	30.83%	37.66%	0.0052	0.0000
101.5	925	38.01%	29.37%	36.20%	0.0075	0.0003
102.5	534	37.19%	27.93%	34.74%	0.0086	0.0006
103.5	534	37.19%	26.52%	33.29%	0.0114	0.0015
104.5	534	37.19%	25.14%	31.86%	0.0145	0.0028
105.5	376	37.19%	23.80%	30.45%	0.0179	0.0045
106.5	362	37.19%	22.49%	29.06%	0.0216	0.0066
107.5	362	37.19%	21.21%	27.69%	0.0255	0.0090
108.5	362	37.19%	19.98%	26.35%	0.0296	0.0118
109.5	362	37.19%	18.78%	25.03%	0.0339	0.0148
110.5	362	37.19%	17.62%	23.75%	0.0383	0.0181
111.5	319	37.19%	16.51%	22.50%	0.0428	0.0216
112.5	300	37.19%	15.44%	21.28%	0.0473	0.0253
113.5	63	37.19%	14.42%	20.10%	0.0519	0.0292
114.5	41	24.10%	13.43%	18.95%	0.0114	0.0027
115.5			12.49%	17.84%		
Sum of Squared Differences				[8]	0.5009	0.1878
Up to 1% of Beginning Exposures				[9]	0.0074	0.0015

[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 380 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R2-63	[5] OUCC R1.5-69	[6] Company SSD	[7] OUCC SSD
0.0	491,101,104	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	468,280,249	99.93%	99.92%	99.87%	0.0000	0.0000
1.5	436,423,251	99.79%	99.77%	99.61%	0.0000	0.0000
2.5	405,604,263	99.59%	99.60%	99.34%	0.0000	0.0000
3.5	385,175,815	99.42%	99.43%	99.07%	0.0000	0.0000
4.5	363,213,179	99.23%	99.25%	98.79%	0.0000	0.0000
5.5	355,487,188	98.97%	99.05%	98.50%	0.0000	0.0000
6.5	354,879,499	98.73%	98.85%	98.20%	0.0000	0.0000
7.5	347,794,576	98.47%	98.64%	97.89%	0.0000	0.0000
8.5	341,301,723	98.19%	98.41%	97.57%	0.0000	0.0000
9.5	340,166,998	97.89%	98.18%	97.25%	0.0000	0.0000
10.5	342,550,181	97.61%	97.93%	96.92%	0.0000	0.0000
11.5	346,620,918	97.27%	97.67%	96.58%	0.0000	0.0000
12.5	340,646,764	96.86%	97.40%	96.23%	0.0000	0.0000
13.5	338,473,155	96.48%	97.12%	95.87%	0.0000	0.0000
14.5	334,825,069	96.10%	96.82%	95.50%	0.0001	0.0000
15.5	327,697,390	95.70%	96.50%	95.13%	0.0001	0.0000
16.5	326,639,871	95.24%	96.18%	94.74%	0.0001	0.0000
17.5	320,790,910	94.82%	95.83%	94.34%	0.0001	0.0000
18.5	316,006,135	94.45%	95.48%	93.94%	0.0001	0.0000
19.5	310,227,178	94.06%	95.10%	93.52%	0.0001	0.0000
20.5	302,294,197	93.71%	94.71%	93.10%	0.0001	0.0000
21.5	289,564,685	93.28%	94.30%	92.66%	0.0001	0.0000
22.5	278,940,323	92.91%	93.88%	92.21%	0.0001	0.0000
23.5	268,879,276	92.50%	93.43%	91.76%	0.0001	0.0001
24.5	257,968,750	92.13%	92.97%	91.29%	0.0001	0.0001
25.5	247,948,435	91.70%	92.48%	90.81%	0.0001	0.0001
26.5	237,912,934	91.26%	91.98%	90.31%	0.0001	0.0001
27.5	229,214,447	90.85%	91.45%	89.81%	0.0000	0.0001
28.5	219,019,704	90.45%	90.91%	89.29%	0.0000	0.0001
29.5	210,327,833	89.02%	90.34%	88.76%	0.0002	0.0000
30.5	202,050,213	88.62%	89.74%	88.22%	0.0001	0.0000
31.5	193,019,524	88.18%	89.13%	87.66%	0.0001	0.0000
32.5	181,777,722	87.71%	88.48%	87.09%	0.0001	0.0000
33.5	169,118,895	87.27%	87.82%	86.50%	0.0000	0.0001
34.5	157,753,187	86.61%	87.13%	85.90%	0.0000	0.0001
35.5	148,846,925	85.98%	86.41%	85.28%	0.0000	0.0000
36.5	140,457,490	85.45%	85.66%	84.64%	0.0000	0.0001
37.5	131,769,312	84.99%	84.88%	83.99%	0.0000	0.0001
38.5	121,950,791	84.40%	84.08%	83.33%	0.0000	0.0001
39.5	109,996,346	83.89%	83.25%	82.64%	0.0000	0.0002
40.5	103,140,200	83.47%	82.38%	81.94%	0.0001	0.0002
41.5	92,831,434	82.99%	81.49%	81.22%	0.0002	0.0003
42.5	83,721,194	82.39%	80.56%	80.48%	0.0003	0.0004
43.5	75,841,611	81.78%	79.60%	79.72%	0.0005	0.0004
44.5	68,294,698	81.05%	78.61%	78.95%	0.0006	0.0004
45.5	60,895,401	80.26%	77.58%	78.15%	0.0007	0.0004
46.5	53,484,618	79.35%	76.52%	77.33%	0.0008	0.0004
47.5	46,887,875	78.53%	75.43%	76.50%	0.0010	0.0004
48.5	41,227,144	77.69%	74.30%	75.64%	0.0011	0.0004
49.5	37,237,846	77.15%	73.13%	74.76%	0.0016	0.0006
50.5	33,599,283	76.59%	71.93%	73.86%	0.0022	0.0007
51.5	29,555,752	75.82%	70.70%	72.94%	0.0026	0.0008
52.5	25,753,629	75.18%	69.43%	72.00%	0.0033	0.0010
53.5	22,334,129	74.46%	68.12%	71.04%	0.0040	0.0012
54.5	19,066,532	73.80%	66.78%	70.06%	0.0049	0.0014
55.5	16,183,028	73.10%	65.40%	69.05%	0.0059	0.0016
56.5	13,787,686	72.15%	63.99%	68.02%	0.0067	0.0017
57.5	11,188,085	71.48%	62.54%	66.97%	0.0080	0.0020
58.5	8,724,834	70.76%	61.06%	65.90%	0.0094	0.0024
59.5	6,552,055	69.93%	59.55%	64.81%	0.0108	0.0026
60.5	4,776,210	68.58%	58.01%	63.70%	0.0112	0.0024
61.5	3,853,342	67.64%	56.43%	62.57%	0.0126	0.0026
62.5	3,200,501	66.47%	54.83%	61.41%	0.0135	0.0026
63.5	2,941,157	65.55%	53.21%	60.24%	0.0152	0.0028
64.5	2,469,374	63.95%	51.56%	59.05%	0.0154	0.0024
65.5	2,105,556	61.62%	49.89%	57.84%	0.0138	0.0014
66.5	1,409,689	61.14%	48.20%	56.61%	0.0167	0.0021
67.5	1,201,715	60.55%	46.50%	55.36%	0.0198	0.0027

Account 380 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R2-63	[5] OUCC R1.5-69	[6] Company SSD	[7] OUCC SSD
68.5	957,404	59.36%	44.78%	54.10%	0.0213	0.0028
69.5	696,525	53.88%	43.05%	52.82%	0.0117	0.0001
70.5	464,965	46.90%	41.32%	51.53%	0.0031	0.0021
71.5	350,133	45.99%	39.58%	50.22%	0.0041	0.0018
72.5	255,867	45.90%	37.84%	48.90%	0.0065	0.0009
73.5	217,106	45.63%	36.11%	47.57%	0.0091	0.0004
74.5	177,299	45.35%	34.39%	46.24%	0.0120	0.0001
75.5	158,125	45.06%	32.68%	44.89%	0.0153	0.0000
76.5	170,665	44.59%	30.99%	43.54%	0.0185	0.0001
77.5	154,890	44.27%	29.32%	42.19%	0.0224	0.0004
78.5	132,353	44.21%	27.67%	40.83%	0.0273	0.0011
79.5	98,786	43.97%	26.06%	39.47%	0.0321	0.0020
80.5	83,537	43.64%	24.47%	38.11%	0.0367	0.0031
81.5	62,650	43.35%	22.93%	36.76%	0.0417	0.0043
82.5	29,685	25.54%	21.42%	35.41%	0.0017	0.0097
83.5	24,932	25.48%	19.96%	34.07%	0.0030	0.0074
84.5	2,068	18.70%	18.54%	32.74%	0.0000	0.0197
85.5	1,215	14.47%	17.18%	31.41%	0.0007	0.0287
86.5	1,545	14.47%	15.86%	30.11%	0.0002	0.0244
87.5	1,193	11.17%	14.60%	28.81%	0.0012	0.0311
88.5	1,440	10.15%	13.39%	27.53%	0.0010	0.0302
89.5	555	9.49%	12.23%	26.28%	0.0008	0.0282
90.5	522	9.15%	11.14%	25.04%	0.0004	0.0252
91.5	522	9.15%	10.10%	23.82%	0.0001	0.0215
92.5	522	9.15%	9.12%	22.63%	0.0000	0.0182
93.5	463	8.12%	8.20%	21.47%	0.0000	0.0178
94.5	463	8.12%	7.33%	20.33%	0.0001	0.0149
95.5	442	7.80%	6.52%	19.22%	0.0002	0.0130
96.5	442	7.80%	5.76%	18.13%	0.0004	0.0107
97.5	439	7.80%	5.06%	17.08%	0.0007	0.0086
98.5	439	7.80%	4.41%	16.06%	0.0011	0.0068
99.5	439	7.80%	3.82%	15.07%	0.0016	0.0053
100.5	439	7.80%	3.27%	14.12%	0.0021	0.0040
101.5	357	6.34%	2.77%	13.19%	0.0013	0.0047
102.5	356	6.32%	2.32%	12.30%	0.0016	0.0036
103.5	356	6.32%	1.92%	11.44%	0.0019	0.0026
104.5	356	6.32%	1.56%	10.62%	0.0023	0.0019
105.5	356	6.32%	1.24%	9.83%	0.0026	0.0012
106.5	356	6.32%	0.97%	9.08%	0.0029	0.0008
107.5	356	6.32%	0.74%	8.36%	0.0031	0.0004
108.5	356	6.32%	0.54%	7.67%	0.0033	0.0002
109.5	356	6.32%	0.38%	7.02%	0.0035	0.0000
110.5	356	6.32%	0.25%	6.40%	0.0037	0.0000
111.5	356	6.32%	0.16%	5.81%	0.0038	0.0000
112.5	356	6.32%	0.09%	5.26%	0.0039	0.0001
113.5			0.04%	4.74%		
Sum of Squared Differences				[8]	0.4958	0.4007
Up to 1% of Beginning Exposures				[9]	0.0667	0.0214

[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 383 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R1.5-55	[5] OUCC R1-63	[6] Company SSD	[7] OUCC SSD
0.0	97,069,907	100.00%	100.00%	100.00%	0.0000	0.0000
0.5	93,439,979	99.89%	99.84%	99.80%	0.0000	0.0000
1.5	88,300,109	99.64%	99.51%	99.38%	0.0000	0.0000
2.5	84,412,686	99.30%	99.17%	98.95%	0.0000	0.0000
3.5	80,820,767	98.97%	98.82%	98.52%	0.0000	0.0000
4.5	76,330,630	98.50%	98.45%	98.08%	0.0000	0.0000
5.5	69,773,413	98.11%	98.07%	97.62%	0.0000	0.0000
6.5	65,739,032	97.71%	97.68%	97.16%	0.0000	0.0000
7.5	62,091,991	97.23%	97.28%	96.69%	0.0000	0.0000
8.5	58,439,202	96.73%	96.86%	96.21%	0.0000	0.0000
9.5	56,150,854	96.28%	96.43%	95.72%	0.0000	0.0000
10.5	54,732,522	95.84%	95.99%	95.22%	0.0000	0.0000
11.5	53,031,727	95.37%	95.53%	94.72%	0.0000	0.0000
12.5	50,977,597	94.90%	95.06%	94.20%	0.0000	0.0000
13.5	49,333,816	94.52%	94.57%	93.68%	0.0000	0.0001
14.5	47,162,358	94.11%	94.07%	93.14%	0.0000	0.0001
15.5	44,338,239	93.64%	93.55%	92.60%	0.0000	0.0001
16.5	41,355,078	93.15%	93.01%	92.05%	0.0000	0.0001
17.5	38,556,006	92.54%	92.46%	91.49%	0.0000	0.0001
18.5	36,234,689	92.05%	91.89%	90.92%	0.0000	0.0001
19.5	34,117,075	91.57%	91.30%	90.35%	0.0000	0.0001
20.5	31,410,725	91.08%	90.70%	89.76%	0.0000	0.0002
21.5	28,779,795	90.49%	90.08%	89.17%	0.0000	0.0002
22.5	26,531,357	89.91%	89.43%	88.56%	0.0000	0.0002
23.5	24,933,261	89.30%	88.77%	87.95%	0.0000	0.0002
24.5	23,139,410	88.63%	88.09%	87.33%	0.0000	0.0002
25.5	21,230,017	87.93%	87.38%	86.69%	0.0000	0.0002
26.5	19,369,080	87.36%	86.65%	86.05%	0.0001	0.0002
27.5	17,853,881	86.57%	85.90%	85.40%	0.0000	0.0001
28.5	16,325,575	85.77%	85.12%	84.73%	0.0000	0.0001
29.5	15,522,214	85.04%	84.31%	84.06%	0.0001	0.0001
30.5	14,337,764	84.48%	83.48%	83.37%	0.0001	0.0001
31.5	12,930,779	83.68%	82.63%	82.67%	0.0001	0.0001
32.5	11,690,096	82.91%	81.75%	81.95%	0.0001	0.0001
33.5	11,147,404	81.97%	80.83%	81.22%	0.0001	0.0001
34.5	9,052,100	81.23%	79.89%	80.48%	0.0002	0.0001
35.5	8,753,829	80.28%	78.92%	79.73%	0.0002	0.0000
36.5	8,359,777	79.70%	77.91%	78.96%	0.0003	0.0001
37.5	7,940,021	78.97%	76.88%	78.18%	0.0004	0.0001
38.5	7,524,757	78.26%	75.81%	77.38%	0.0006	0.0001
39.5	6,986,643	77.72%	74.71%	76.56%	0.0009	0.0001
40.5	6,605,886	76.96%	73.58%	75.73%	0.0011	0.0002
41.5	6,243,905	76.41%	72.42%	74.89%	0.0016	0.0002
42.5	5,860,392	75.86%	71.22%	74.03%	0.0022	0.0003
43.5	5,539,314	75.46%	69.98%	73.15%	0.0030	0.0005
44.5	5,212,352	74.91%	68.72%	72.26%	0.0038	0.0007
45.5	4,883,589	74.38%	67.42%	71.35%	0.0049	0.0009
46.5	4,560,622	73.71%	66.08%	70.42%	0.0058	0.0011
47.5	4,161,269	73.07%	64.71%	69.48%	0.0070	0.0013
48.5	3,747,273	72.50%	63.31%	68.52%	0.0084	0.0016
49.5	3,397,762	71.84%	61.88%	67.54%	0.0099	0.0018
50.5	2,882,013	71.09%	60.41%	66.55%	0.0114	0.0021
51.5	2,361,957	70.83%	58.92%	65.55%	0.0142	0.0028
52.5	1,897,618	70.59%	57.39%	64.52%	0.0174	0.0037
53.5	1,502,117	70.36%	55.84%	63.48%	0.0211	0.0047
54.5	1,130,732	70.10%	54.26%	62.43%	0.0251	0.0059

Account 383 Curve Fitting

[1] Age (Years)	[2] Exposures (Dollars)	[3] Observed Life Table (OLT)	[4] Company R1.5-55	[5] OUCC R1-63	[6] Company SSD	[7] OUCC SSD
55.5	792,063	69.81%	52.66%	61.36%	0.0294	0.0071
56.5	514,185	69.55%	51.03%	60.27%	0.0343	0.0086
57.5	282,442	69.20%	49.38%	59.18%	0.0393	0.0100
58.5	155,891	68.57%	47.72%	58.06%	0.0435	0.0110
59.5	68,331	66.71%	46.04%	56.94%	0.0427	0.0096
60.5	62,497	66.37%	44.35%	55.80%	0.0485	0.0112
61.5	58,933	66.31%	42.66%	54.65%	0.0560	0.0136
62.5	54,230	65.97%	40.95%	53.48%	0.0626	0.0156
63.5	54,506	65.74%	39.25%	52.31%	0.0702	0.0180
64.5	54,484	65.74%	37.55%	51.12%	0.0795	0.0214
65.5	53,294	65.73%	35.85%	49.93%	0.0893	0.0250
66.5	46,458	65.70%	34.17%	48.72%	0.0994	0.0288
67.5	43,592	65.70%	32.49%	47.51%	0.1103	0.0331
68.5	39,261	65.09%	30.84%	46.29%	0.1173	0.0353
69.5	35,340	64.95%	29.21%	45.06%	0.1277	0.0395
70.5	28,304	64.82%	27.60%	43.83%	0.1385	0.0440
71.5	27,536	64.82%	26.03%	42.60%	0.1505	0.0494
72.5	23,173	64.82%	24.48%	41.36%	0.1627	0.0551
73.5	21,381	64.82%	22.98%	40.11%	0.1751	0.0610
74.5	20,394	64.80%	21.51%	38.87%	0.1874	0.0672
75.5	19,076	64.80%	20.08%	37.63%	0.2000	0.0738
76.5	16,828	64.80%	18.70%	36.38%	0.2125	0.0808
77.5	16,310	64.80%	17.36%	35.14%	0.2250	0.0880
78.5	15,611	64.80%	16.08%	33.90%	0.2374	0.0955
79.5	15,560	64.80%	14.84%	32.67%	0.2496	0.1032
80.5	4,787	20.24%	13.66%	31.44%	0.0043	0.0125
81.5	4,590	20.19%	12.52%	30.22%	0.0059	0.0101
82.5	4,399	20.19%	11.44%	29.01%	0.0077	0.0078
83.5	4,134	20.16%	10.42%	27.80%	0.0095	0.0058
84.5	130	20.09%	9.44%	26.61%	0.0113	0.0042
85.5	128	19.70%	8.52%	25.43%	0.0125	0.0033
86.5	128	19.70%	7.66%	24.26%	0.0145	0.0021
87.5			6.84%	23.11%		
Sum of Squared Differences				[8]	3.1946	1.0831
Up to 1% of Beginning Exposures				[9]	0.1404	0.0313

[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.

NIPSCO
Gas Division
369.00 M&R Station Equipment
Observed Life Table
Retirement Expr. 1992 TO 2020
Placement Years 1898 TO 2020

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
0.0 - 0.5	$125,702,576.90	$0.00	0.00000	100.00
0.5 - 1.5	$93,863,075.73	$1,790.70	0.00002	100.00
1.5 - 2.5	$91,831,525.63	$64,297.10	0.00070	100.00
2.5 - 3.5	$56,144,729.99	$11,859.56	0.00021	99.93
3.5 - 4.5	$46,977,550.76	$100,460.25	0.00214	99.91
4.5 - 5.5	$40,165,137.27	$283,269.42	0.00705	99.69
5.5 - 6.5	$34,557,714.72	$62,614.42	0.00181	98.99
6.5 - 7.5	$32,950,836.44	$27,204.32	0.00083	98.81
7.5 - 8.5	$32,590,954.74	$114,269.89	0.00351	98.73
8.5 - 9.5	$32,861,448.68	$5,251.99	0.00016	98.38
9.5 - 10.5	$32,545,099.80	$650,269.89	0.01998	98.37
10.5 - 11.5	$31,675,951.99	$128,635.38	0.00406	96.40
11.5 - 12.5	$30,669,121.36	$75,867.59	0.00247	96.01
12.5 - 13.5	$27,894,691.12	$322,052.51	0.01155	95.77
13.5 - 14.5	$26,884,379.86	$11,064.61	0.00041	94.67
14.5 - 15.5	$25,220,998.19	$26,653.59	0.00106	94.63
15.5 - 16.5	$25,095,153.02	$54,145.00	0.00216	94.53
16.5 - 17.5	$23,551,537.15	$153,999.46	0.00654	94.32
17.5 - 18.5	$22,009,116.75	$293,189.19	0.01332	93.71
18.5 - 19.5	$18,234,186.49	$19,150.35	0.00105	92.46
19.5 - 20.5	$15,959,534.67	$27,660.57	0.00173	92.36
20.5 - 21.5	$15,089,679.59	$72,401.92	0.00480	92.20
21.5 - 22.5	$12,537,033.25	$94,426.05	0.00753	91.76
22.5 - 23.5	$12,144,531.43	$85,663.15	0.00705	91.07
23.5 - 24.5	$11,679,627.24	$175,932.63	0.01506	90.43
24.5 - 25.5	$11,612,132.78	$80,850.45	0.00696	89.06
25.5 - 26.5	$11,323,689.07	$35,504.16	0.00314	88.44
26.5 - 27.5	$11,004,568.29	$4,620.51	0.00042	88.17
27.5 - 28.5	$10,756,707.12	$38,313.34	0.00356	88.13
28.5 - 29.5	$10,368,790.13	$19,540.79	0.00188	87.82
29.5 - 30.5	$10,309,269.64	$112,173.84	0.01088	87.65
30.5 - 31.5	$8,906,756.04	$19,057.57	0.00214	86.70
31.5 - 32.5	$8,861,916.46	$38,578.72	0.00435	86.51
32.5 - 33.5	$8,852,260.04	$15,673.28	0.00177	86.13
33.5 - 34.5	$7,831,708.34	$55,044.59	0.00703	85.98
34.5 - 35.5	$7,085,557.06	$39,481.95	0.00557	85.38
35.5 - 36.5	$6,983,901.90	$68,832.58	0.00986	84.90

NIPSCO
Gas Division
369.00 M&R Station Equipment
Observed Life Table
Retirement Expr. 1992 TO 2020
Placement Years 1898 TO 2020

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$6,423,965.12	$46,691.33	0.00727	84.07
37.5 - 38.5	$6,454,113.73	$51,205.41	0.00793	83.45
38.5 - 39.5	$5,601,954.44	$4,964.74	0.00089	82.79
39.5 - 40.5	$5,440,146.73	$22,294.71	0.00410	82.72
40.5 - 41.5	$5,392,598.39	$12,920.54	0.00240	82.38
41.5 - 42.5	$5,153,696.29	$1,002.08	0.00019	82.18
42.5 - 43.5	$4,869,209.58	$89,551.32	0.01839	82.17
43.5 - 44.5	$4,606,065.22	$22,922.24	0.00498	80.66
44.5 - 45.5	$4,121,041.12	$15,564.36	0.00378	80.25
45.5 - 46.5	$4,042,517.61	$29,945.81	0.00741	79.95
46.5 - 47.5	$3,837,955.34	$18,022.56	0.00470	79.36
47.5 - 48.5	$3,729,463.53	$23,371.88	0.00627	78.99
48.5 - 49.5	$3,530,533.09	$11,554.80	0.00327	78.49
49.5 - 50.5	$3,237,042.07	$182,526.41	0.05639	78.23
50.5 - 51.5	$3,007,245.80	$53,503.69	0.01779	73.82
51.5 - 52.5	$2,673,239.99	$83,181.58	0.03112	72.51
52.5 - 53.5	$2,507,403.89	$62,958.52	0.02511	70.25
53.5 - 54.5	$2,131,415.15	$20,569.71	0.00965	68.49
54.5 - 55.5	$2,020,576.21	$31,477.74	0.01558	67.83
55.5 - 56.5	$1,719,915.07	$67,785.06	0.03941	66.77
56.5 - 57.5	$1,503,561.48	$59,508.22	0.03958	64.14
57.5 - 58.5	$1,406,790.74	$120,642.96	0.08576	61.60
58.5 - 59.5	$1,226,568.65	$16,547.52	0.01349	56.32
59.5 - 60.5	$1,099,691.16	$6,111.25	0.00556	55.56
60.5 - 61.5	$1,015,304.66	$28,169.59	0.02774	55.25
61.5 - 62.5	$723,895.46	$60,835.73	0.08404	53.72
62.5 - 63.5	$625,845.53	$121,627.88	0.19434	49.20
63.5 - 64.5	$485,818.29	$11,614.90	0.02391	39.64
64.5 - 65.5	$400,161.78	$549.90	0.00137	38.69
65.5 - 66.5	$379,737.33	$650.97	0.00171	38.64
66.5 - 67.5	$62,165.57	$4,471.84	0.07193	38.57
67.5 - 68.5	$10,102.02	$898.11	0.08890	35.80
68.5 - 69.5	$5,420.67	$0.00	0.00000	32.62
69.5 - 70.5	$5,420.67	$0.00	0.00000	32.62
70.5 - 71.5	$0.00	$0.00	0.00000	32.62
71.5 - 72.5	$0.00	$0.00	0.00000	32.62
72.5 - 73.5	$0.00	$0.00	0.00000	32.62

NIPSCO
Gas Division
369.00 M&R Station Equipment
Observed Life Table
Retirement Expr. 1992 TO 2020
Placement Years 1898 TO 2020

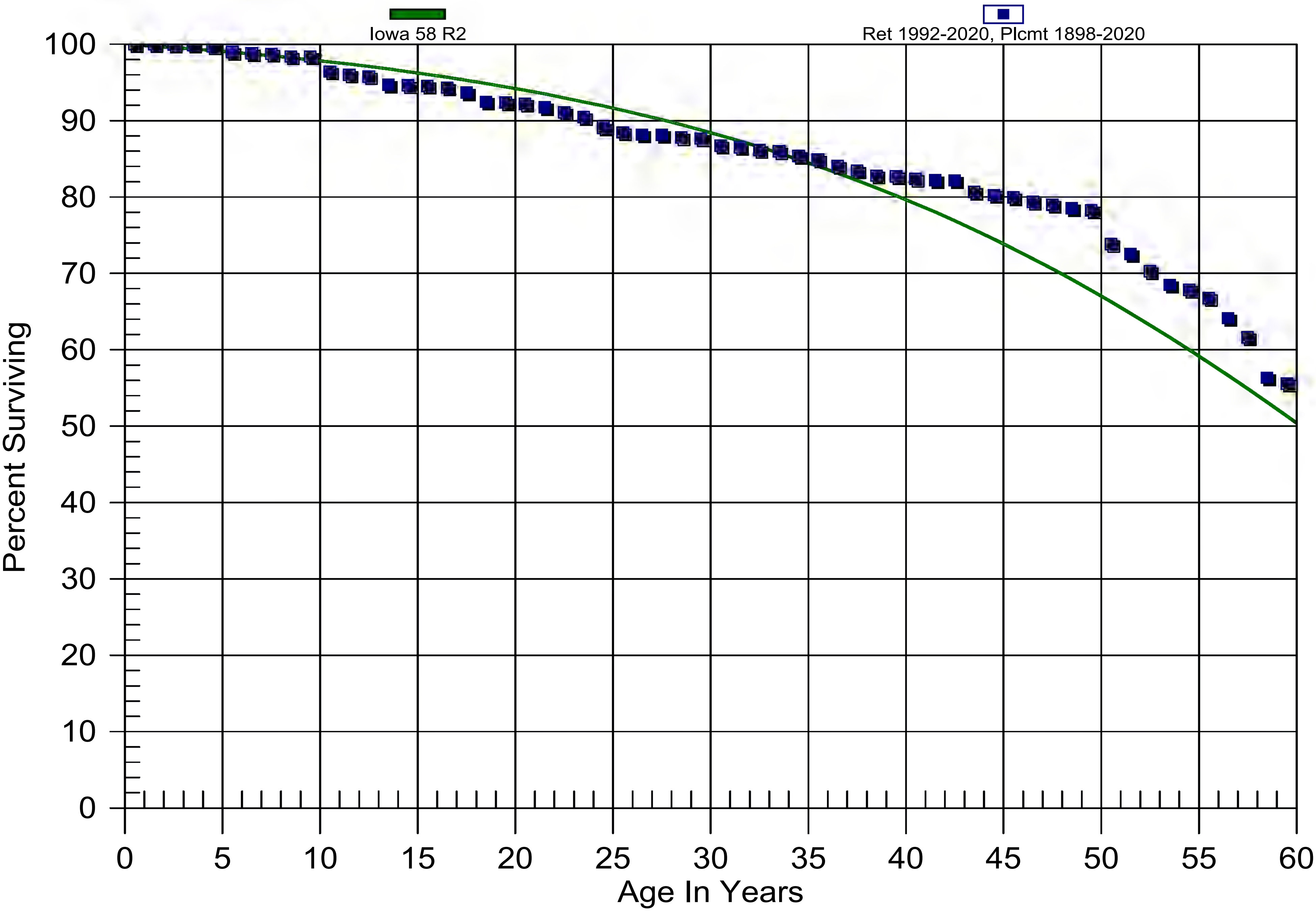
Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
73.5 - 74.5	$0.00	$0.00	0.00000	32.62
74.5 - 75.5	$0.00	$0.00	0.00000	32.62
75.5 - 76.5	$0.00	$0.00	0.00000	32.62
76.5 - 77.5	$0.00	$0.00	0.00000	32.62
77.5 - 78.5	$0.00	$0.00	0.00000	32.62
78.5 - 79.5	$0.00	$0.00	0.00000	32.62
79.5 - 80.5	$0.00	$0.00	0.00000	32.62
80.5 - 81.5	$0.00	$0.00	0.00000	32.62
81.5 - 82.5	$0.00	$0.00	0.00000	32.62
82.5 - 83.5	$0.00	$0.00	0.00000	32.62
83.5 - 84.5	$0.00	$0.00	0.00000	32.62
84.5 - 85.5	$0.00	$0.00	0.00000	32.62
85.5 - 86.5	$0.00	$0.00	0.00000	32.62
86.5 - 87.5	$0.00	$0.00	0.00000	32.62
87.5 - 88.5	$0.00	$0.00	0.00000	32.62
88.5 - 89.5	$0.00	$0.00	0.00000	32.62
89.5 - 90.5	$0.00	$0.00	0.00000	32.62
90.5 - 91.5	$0.00	$0.00	0.00000	32.62
91.5 - 92.5	$0.00	$0.00	0.00000	32.62
92.5 - 93.5	$0.00	$0.00	0.00000	32.62
93.5 - 94.5	$0.00	$0.00	0.00000	32.62
94.5 - 95.5	$0.00	$0.00	0.00000	32.62
95.5 - 96.5	$0.00	$0.00	0.00000	32.62
96.5 - 97.5	$0.00	$0.00	0.00000	32.62
97.5 - 98.5	$0.00	$0.00	0.00000	32.62
98.5 - 99.5	$0.00	$0.00	0.00000	32.62
99.5 - 100.5	$0.00	$0.00	0.00000	32.62
100.5 - 101.5	$0.00	$0.00	0.00000	32.62
101.5 - 102.5	$0.00	$0.00	0.00000	32.62
102.5 - 103.5	$0.00	$0.00	0.00000	32.62
103.5 - 104.5	$0.00	$0.00	0.00000	32.62
104.5 - 105.5	$0.00	$0.00	0.00000	32.62
105.5 - 106.5	$0.00	$0.00	0.00000	32.62
106.5 - 107.5	$0.00	$0.00	0.00000	32.62
107.5 - 108.5	$0.00	$0.00	0.00000	32.62
108.5 - 109.5	$0.00	$0.00	0.00000	32.62
109.5 - 110.5	$0.00	$0.00	0.00000	32.62

NIPSCO
Gas Division
369.00 M&R Station Equipment

Observed Life Table
Retirement Expr. 1992 TO 2020
Placement Years 1898 TO 2020

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
110.5 - 111.5	$0.00	$0.00	0.00000	32.62
111.5 - 112.5	$0.00	$0.00	0.00000	32.62
112.5 - 113.5	$0.00	$0.00	0.00000	32.62
113.5 - 114.5	$0.00	$0.00	0.00000	32.62
114.5 - 115.5	$0.00	$0.00	0.00000	32.62
115.5 - 116.5	$0.00	$0.00	0.00000	32.62
116.5 - 117.5	$0.00	$0.00	0.00000	32.62
117.5 - 118.5	$0.00	$0.00	0.00000	32.62
118.5 - 119.5	$0.00	$0.00	0.00000	32.62
119.5 - 120.5	$0.00	$0.00	0.00000	32.62
120.5 - 121.5	$0.00	$0.00	0.00000	32.62
121.5 - 122.5	$0.00	$0.00	0.00000	32.62

NIPSCO
Gas Division
369.00 M&R Station Equipment
Original And Smooth Survivor Curves



NIPSCO
Gas Division
383.00 House Regulators

Observed Life Table

Retirement Expr. 1992 TO 2020
Placement Years 1931 TO 2020

Age Interval	*$ Surviving At Beginning of Age Interval*	*$ Retired During The Age Interval*	*Retirement Ratio*	*% Surviving At Beginning of Age Interval*
0.0 - 0.5	$98,979,692.47	$104,512.97	0.00106	100.00
0.5 - 1.5	$94,623,601.13	$235,045.04	0.00248	99.89
1.5 - 2.5	$89,858,248.16	$303,098.93	0.00337	99.65
2.5 - 3.5	$86,064,810.12	$275,484.56	0.00320	99.31
3.5 - 4.5	$82,271,561.25	$384,599.84	0.00467	98.99
4.5 - 5.5	$76,983,761.30	$301,807.14	0.00392	98.53
5.5 - 6.5	$72,168,007.66	$287,831.43	0.00399	98.14
6.5 - 7.5	$66,041,880.61	$320,310.83	0.00485	97.75
7.5 - 8.5	$62,585,365.18	$320,603.32	0.00512	97.28
8.5 - 9.5	$58,916,471.91	$274,115.71	0.00465	96.78
9.5 - 10.5	$56,636,268.21	$256,343.08	0.00453	96.33
10.5 - 11.5	$55,346,131.57	$265,113.79	0.00479	95.89
11.5 - 12.5	$53,430,883.09	$264,730.76	0.00495	95.43
12.5 - 13.5	$51,374,848.73	$200,891.12	0.00391	94.96
13.5 - 14.5	$49,736,369.66	$213,546.61	0.00429	94.59
14.5 - 15.5	$47,502,956.67	$235,859.90	0.00497	94.18
15.5 - 16.5	$44,689,638.51	$231,858.07	0.00519	93.72
16.5 - 17.5	$41,704,448.39	$271,861.94	0.00652	93.23
17.5 - 18.5	$38,880,859.21	$204,202.57	0.00525	92.62
18.5 - 19.5	$36,650,209.09	$190,493.58	0.00520	92.14
19.5 - 20.5	$34,575,153.31	$181,133.73	0.00524	91.66
20.5 - 21.5	$31,792,418.75	$203,598.43	0.00640	91.18
21.5 - 22.5	$29,451,654.03	$185,835.62	0.00631	90.59
22.5 - 23.5	$27,268,626.15	$178,548.68	0.00655	90.02
23.5 - 24.5	$25,497,495.48	$187,067.83	0.00734	89.43
24.5 - 25.5	$23,581,587.86	$183,569.73	0.00778	88.78
25.5 - 26.5	$21,651,264.66	$137,464.55	0.00635	88.08
26.5 - 27.5	$19,752,837.32	$174,456.10	0.00883	87.52
27.5 - 28.5	$18,189,579.87	$165,367.43	0.00909	86.75
28.5 - 29.5	$16,610,429.58	$139,928.10	0.00842	85.96
29.5 - 30.5	$15,734,275.68	$101,680.19	0.00646	85.24
30.5 - 31.5	$14,478,923.74	$136,342.86	0.00942	84.69
31.5 - 32.5	$12,957,117.70	$118,977.93	0.00918	83.89
32.5 - 33.5	$11,697,526.77	$131,487.38	0.01124	83.12
33.5 - 34.5	$11,154,823.16	$100,441.42	0.00900	82.19
34.5 - 35.5	$9,055,369.49	$106,149.55	0.01172	81.45
35.5 - 36.5	$8,753,945.37	$63,470.47	0.00725	80.49

NIPSCO
Gas Division
383.00 House Regulators
Observed Life Table
Retirement Expr. 1992 TO 2020
Placement Years 1931 TO 2020

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
36.5 - 37.5	$8,377,878.37	$76,969.34	0.00919	79.91
37.5 - 38.5	$7,944,168.07	$70,702.76	0.00890	79.17
38.5 - 39.5	$7,522,301.20	$52,214.15	0.00694	78.47
39.5 - 40.5	$6,987,919.59	$68,219.37	0.00976	77.92
40.5 - 41.5	$6,609,726.59	$47,284.89	0.00715	77.16
41.5 - 42.5	$6,250,874.48	$45,161.97	0.00722	76.61
42.5 - 43.5	$5,861,159.06	$31,021.05	0.00529	76.06
43.5 - 44.5	$5,544,087.14	$39,814.20	0.00718	75.66
44.5 - 45.5	$5,214,179.70	$37,248.73	0.00714	75.11
45.5 - 46.5	$4,884,598.40	$43,764.24	0.00896	74.58
46.5 - 47.5	$4,563,342.84	$39,452.71	0.00865	73.91
47.5 - 48.5	$4,165,369.82	$32,473.66	0.00780	73.27
48.5 - 49.5	$3,747,791.30	$34,230.59	0.00913	72.70
49.5 - 50.5	$3,398,461.06	$35,715.97	0.01051	72.03
50.5 - 51.5	$2,882,064.37	$10,496.11	0.00364	71.28
51.5 - 52.5	$2,362,031.05	$7,841.86	0.00332	71.02
52.5 - 53.5	$1,897,800.95	$6,371.95	0.00336	70.78
53.5 - 54.5	$1,502,307.39	$5,485.96	0.00365	70.54
54.5 - 55.5	$1,132,231.96	$4,620.73	0.00408	70.29
55.5 - 56.5	$808,123.20	$2,991.58	0.00370	70.00
56.5 - 57.5	$514,202.96	$2,568.57	0.00500	69.74
57.5 - 58.5	$282,441.86	$2,581.44	0.00914	69.39
58.5 - 59.5	$156,018.72	$4,214.94	0.02702	68.76
59.5 - 60.5	$68,330.79	$357.19	0.00523	66.90
60.5 - 61.5	$62,499.24	$51.24	0.00082	66.55
61.5 - 62.5	$61,725.96	$301.55	0.00489	66.50
62.5 - 63.5	$57,022.46	$191.29	0.00335	66.17
63.5 - 64.5	$54,505.70	$0.00	0.00000	65.95
64.5 - 65.5	$54,483.76	$10.96	0.00020	65.95
65.5 - 66.5	$53,293.70	$17.13	0.00032	65.94
66.5 - 67.5	$46,457.58	$0.00	0.00000	65.91
67.5 - 68.5	$43,591.62	$409.78	0.00940	65.91
68.5 - 69.5	$39,261.16	$81.29	0.00207	65.29
69.5 - 70.5	$35,339.68	$72.11	0.00204	65.16
70.5 - 71.5	$28,303.76	$0.00	0.00000	65.03
71.5 - 72.5	$27,536.33	$0.00	0.00000	65.03
72.5 - 73.5	$23,173.05	$0.00	0.00000	65.03

NIPSCO

Gas Division

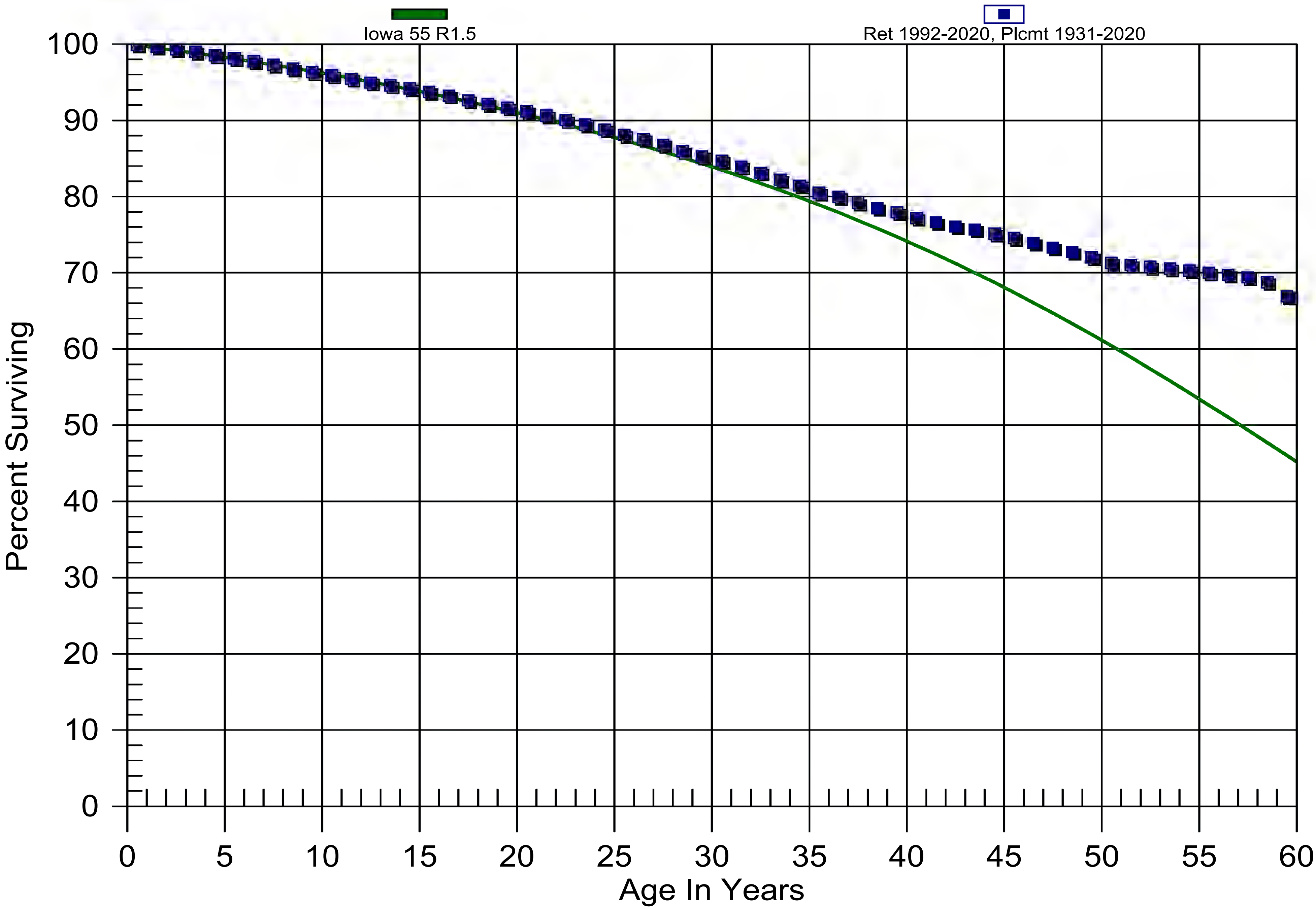
383.00 House Regulators

Observed Life Table

Retirement Expr. 1992 TO 2020
Placement Years 1931 TO 2020

Age Interval	$ Surviving At Beginning of Age Interval	$ Retired During The Age Interval	Retirement Ratio	% Surviving At Beginning of Age Interval
73.5 - 74.5	$21,380.50	$5.61	0.00026	65.03
74.5 - 75.5	$20,393.98	$0.00	0.00000	65.01
75.5 - 76.5	$19,076.49	$0.00	0.00000	65.01
76.5 - 77.5	$16,827.86	$0.00	0.00000	65.01
77.5 - 78.5	$16,309.93	$0.00	0.00000	65.01
78.5 - 79.5	$15,611.11	$0.00	0.00000	65.01
79.5 - 80.5	$15,559.66	$10,698.84	0.68760	65.01
80.5 - 81.5	$4,786.87	$13.79	0.00288	20.31
81.5 - 82.5	$4,589.70	$0.00	0.00000	20.25
82.5 - 83.5	$4,399.22	$6.13	0.00139	20.25
83.5 - 84.5	$4,133.93	$13.93	0.00337	20.22
84.5 - 85.5	$130.09	$2.54	0.01952	20.15
85.5 - 86.5	$127.55	$0.00	0.00000	19.76
86.5 - 87.5	$127.55	$0.00	0.00000	19.76
87.5 - 88.5	$0.00	$0.00	0.00000	19.76
88.5 - 89.5	$0.00	$0.00	0.00000	19.76

NIPSCO
Gas Division
383.00 House Regulators
Original And Smooth Survivor Curves



NIPSCO

Gas Division

369.00 M&R Station Equipment

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 67 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1950	5,420.67	67.00	80.90	19.94	1,613.52
1952	3,783.24	67.00	56.47	20.84	1,176.94
1953	47,591.71	67.00	710.32	21.30	15,132.98
1954	316,920.79	67.00	4,730.11	21.77	102,997.19
1955	19,874.55	67.00	296.63	22.25	6,600.49
1956	74,041.61	67.00	1,105.09	22.74	25,126.89
1957	18,399.36	67.00	274.61	23.23	6,379.23
1958	37,214.20	67.00	555.43	23.73	13,181.19
1959	263,239.61	67.00	3,928.91	24.24	95,234.26
1960	78,275.25	67.00	1,168.28	24.76	28,922.61
1961	110,329.97	67.00	1,646.70	25.28	41,628.55
1962	59,579.13	67.00	889.23	25.81	22,953.48
1963	37,262.52	67.00	556.15	26.35	14,655.31
1964	148,568.53	67.00	2,217.42	26.90	59,646.72
1965	269,183.40	67.00	4,017.62	27.45	110,294.96
1966	90,269.23	67.00	1,347.29	28.02	37,745.03
1967	313,030.22	67.00	4,672.05	28.58	133,545.43
1968	82,654.52	67.00	1,233.64	29.16	35,974.40
1969	280,502.12	67.00	4,186.56	29.74	124,525.25
1970	47,269.86	67.00	705.51	30.34	21,402.17
1971	281,936.22	67.00	4,207.96	30.93	130,162.83
1972	175,558.56	67.00	2,620.25	31.54	82,637.17
1973	90,469.25	67.00	1,350.27	32.15	43,409.29
1974	174,616.46	67.00	2,606.19	32.77	85,397.87
1975	62,959.15	67.00	939.68	33.39	31,377.08
1976	462,101.86	67.00	6,896.97	34.02	234,656.46
1977	174,491.15	67.00	2,604.32	34.66	90,265.54

NIPSCO
Gas Division
369.00 M&R Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 67 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1978	283,651.30	67.00	4,233.56	35.30	149,463.11
1979	237,318.37	67.00	3,542.03	35.95	127,348.89
1980	25,253.63	67.00	376.92	36.61	13,798.98
1981	168,480.14	67.00	2,514.60	37.27	93,723.04
1982	863,182.73	67.00	12,883.20	37.94	488,785.08
1983	401,669.60	67.00	5,995.01	38.61	231,482.57
1984	550,681.23	67.00	8,219.04	39.29	322,942.44
1985	186,534.21	67.00	2,784.07	39.98	111,295.35
1986	712,425.29	67.00	10,633.11	40.67	432,405.92
1987	1,052,869.49	67.00	15,714.31	41.36	649,950.52
1988	370,921.17	67.00	5,536.08	42.06	232,842.42
1989	158,214.27	67.00	2,361.38	42.77	100,985.29
1990	1,557,437.44	67.00	23,245.10	43.47	1,010,553.11
1991	138,047.98	67.00	2,060.40	44.19	91,047.91
1992	411,181.60	67.00	6,136.98	44.91	275,595.43
1993	463,338.96	67.00	6,915.44	45.63	315,565.20
1994	633,834.60	67.00	9,460.12	46.36	438,559.20
1995	300,945.49	67.00	4,491.68	47.09	211,521.44
1996	376,340.68	67.00	5,616.97	47.83	268,642.61
1997	490,850.39	67.00	7,326.05	48.57	355,812.73
1998	642,105.84	67.00	9,583.57	49.31	472,577.84
1999	2,538,565.20	67.00	37,888.66	50.06	1,896,708.55
2000	1,181,571.03	67.00	17,635.21	50.81	896,058.60
2001	2,493,219.90	67.00	37,211.87	51.57	1,918,901.83
2002	3,588,454.43	67.00	53,558.49	52.32	2,802,445.50
2003	1,586,938.22	67.00	23,685.41	53.09	1,257,417.60
2004	1,554,400.71	67.00	23,199.78	53.85	1,249,388.91

NIPSCO
Gas Division
369.00 M&R Station Equipment

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **67** *Survivor Curve:* **R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2005	617,952.03	67.00	9,223.07	54.62	503,800.34
2006	1,983,424.31	67.00	29,603.05	55.40	1,639,898.65
2007	1,007,634.26	67.00	15,039.17	56.17	844,806.60
2008	3,006,603.35	67.00	44,874.23	56.95	2,555,731.96
2009	949,477.69	67.00	14,171.17	57.74	818,211.12
2010	451,883.95	67.00	6,744.47	58.52	394,715.09
2011	1,339,962.53	67.00	19,999.24	59.32	1,186,270.25
2012	188,983.60	67.00	2,820.62	60.11	169,545.71
2013	963,477.51	67.00	14,380.12	60.91	875,860.89
2014	1,731,975.10	67.00	25,850.12	61.71	1,595,167.04
2015	6,742,168.16	67.00	100,628.38	62.51	6,290,648.67
2016	7,790,876.69	67.00	116,280.59	63.32	7,363,022.07
2017	9,577,159.32	67.00	142,941.26	64.13	9,167,305.74
2018	35,805,781.53	67.00	534,409.35	64.95	34,708,703.13
2019	3,932,003.79	67.00	58,686.04	65.77	3,859,595.00
2020	32,002,085.36	67.00	477,638.33	66.59	31,805,030.55
Total	134,785,426.22	67.00	2,011,702.83	60.54	121,790,775.69

Composite Average Remaining Life ... 60.54 Years

NIPSCO
Gas Division
376.10 Mains - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1905	40.91	89.00	0.46	12.18	5.60
1907	239.67	89.00	2.69	12.70	34.21
1908	18.88	89.00	0.21	12.96	2.75
1909	43.10	89.00	0.48	13.23	6.41
1914	6.39	89.00	0.07	14.67	1.05
1915	120.65	89.00	1.36	14.98	20.31
1918	370.70	89.00	4.17	15.94	66.41
1920	1,478.71	89.00	16.61	16.63	276.26
1922	1,179.84	89.00	13.26	17.35	229.94
1923	20,809.47	89.00	233.81	17.72	4,142.59
1924	14,038.13	89.00	157.73	18.10	2,854.81
1925	21,412.31	89.00	240.59	18.49	4,448.51
1926	2,177.82	89.00	24.47	18.89	462.25
1927	17,988.44	89.00	202.12	19.30	3,900.97
1928	348,167.28	89.00	3,911.99	19.72	77,144.45
1929	154,002.60	89.00	1,730.37	20.15	34,865.35
1930	53,411.41	89.00	600.13	20.59	12,355.38
1931	33,378.16	89.00	375.04	21.04	7,889.38
1932	1,697.44	89.00	19.07	21.50	410.02
1933	1,355.29	89.00	15.23	21.97	334.51
1934	10,366.49	89.00	116.48	22.44	2,614.33
1935	2,801.59	89.00	31.48	22.93	721.90
1936	669,484.68	89.00	7,522.31	23.43	176,251.90
1937	49,706.66	89.00	558.50	23.94	13,369.25
1938	47,332.67	89.00	531.83	24.45	13,005.44
1939	36,922.75	89.00	414.86	24.98	10,363.30
1940	66,137.52	89.00	743.12	25.52	18,964.18

NIPSCO
Gas Division
376.10 Mains - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1941	199,054.44	89.00	2,236.57	26.06	58,295.81
1942	105,395.16	89.00	1,184.22	26.62	31,522.58
1943	32,519.31	89.00	365.39	27.18	9,931.88
1944	27,315.87	89.00	306.92	27.75	8,518.12
1945	37,731.39	89.00	423.95	28.33	12,012.05
1946	33,784.52	89.00	379.60	28.92	10,978.99
1947	315,267.15	89.00	3,542.33	29.52	104,567.14
1948	315,485.60	89.00	3,544.78	30.13	106,800.71
1949	335,987.05	89.00	3,775.14	30.74	116,058.66
1950	395,485.70	89.00	4,443.66	31.36	139,373.73
1951	440,385.09	89.00	4,948.15	31.99	158,310.97
1952	506,166.08	89.00	5,687.26	32.63	185,580.15
1953	826,024.94	89.00	9,281.19	33.28	308,832.07
1954	1,324,834.92	89.00	14,885.80	33.93	505,023.27
1955	1,597,567.46	89.00	17,950.21	34.59	620,809.14
1956	1,809,911.08	89.00	20,336.09	35.25	716,944.34
1957	1,736,613.77	89.00	19,512.53	35.93	701,044.57
1958	1,939,443.28	89.00	21,791.51	36.61	797,737.88
1959	1,197,077.46	89.00	13,450.32	37.29	501,617.42
1960	4,920,549.53	89.00	55,287.11	37.99	2,100,185.20
1961	7,354,441.58	89.00	82,634.24	38.69	3,196,789.10
1962	3,784,154.87	89.00	42,518.63	39.39	1,674,866.57
1963	4,913,634.10	89.00	55,209.41	40.10	2,214,054.39
1964	6,647,275.62	89.00	74,688.55	40.82	3,049,088.69
1965	6,171,939.50	89.00	69,347.69	41.55	2,881,274.84
1966	6,151,496.91	89.00	69,117.99	42.28	2,922,189.08
1967	7,813,827.65	89.00	87,795.88	43.01	3,776,454.62

NIPSCO
Gas Division
376.10 Mains - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **89** *Survivor Curve:* **R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1968	6,740,332.03	89.00	75,734.12	43.76	3,313,781.52
1969	6,411,638.85	89.00	72,040.94	44.50	3,206,000.26
1970	5,165,581.08	89.00	58,040.28	45.26	2,626,613.97
1971	5,450,560.25	89.00	61,242.30	46.01	2,817,942.30
1972	3,892,951.74	89.00	43,741.06	46.78	2,046,189.80
1973	3,300,114.26	89.00	37,079.96	47.55	1,763,114.15
1974	4,357,738.64	89.00	48,963.39	48.32	2,366,085.42
1975	3,454,827.98	89.00	38,818.32	49.10	1,906,108.45
1976	2,490,672.14	89.00	27,985.10	49.89	1,396,125.74
1977	1,627,349.57	89.00	18,284.84	50.68	926,640.73
1978	2,892,052.98	89.00	32,495.00	51.47	1,672,614.34
1979	2,907,656.54	89.00	32,670.32	52.27	1,707,769.05
1980	2,050,544.98	89.00	23,039.85	53.08	1,222,896.89
1981	2,486,514.34	89.00	27,938.38	53.89	1,505,610.80
1982	3,820,704.05	89.00	42,929.29	54.71	2,348,455.99
1983	3,172,865.55	89.00	35,650.20	55.52	1,979,465.71
1984	2,340,520.74	89.00	26,298.01	56.35	1,481,859.47
1985	2,493,388.65	89.00	28,015.62	57.18	1,601,859.15
1986	5,053,791.28	89.00	56,784.21	58.01	3,294,076.03
1987	2,372,152.94	89.00	26,653.42	58.85	1,568,498.57
1988	1,874,396.31	89.00	21,060.65	59.69	1,257,104.98
1989	2,505,140.36	89.00	28,147.67	60.54	1,704,025.62
1990	690,801.59	89.00	7,761.82	61.39	476,495.26
1991	2,411,050.66	89.00	27,090.48	62.24	1,686,235.19
1992	2,275,255.29	89.00	25,564.69	63.10	1,613,223.35
1993	2,297,020.34	89.00	25,809.24	63.97	1,650,928.46
1994	741,371.14	89.00	8,330.02	64.83	540,064.21

NIPSCO
Gas Division
376.10 Mains - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1995	1,469,338.49	89.00	16,509.43	65.70	1,084,739.98
1996	2,389,428.09	89.00	26,847.53	66.58	1,787,476.16
1997	1,907,874.85	89.00	21,436.81	67.46	1,446,115.32
1998	6,405,927.45	89.00	71,976.77	68.34	4,919,016.68
1999	2,844,653.85	89.00	31,962.43	69.23	2,212,680.61
2000	8,657,248.77	89.00	97,272.53	70.12	6,820,441.95
2001	3,305,804.17	89.00	37,143.89	71.01	2,637,570.28
2002	5,161,815.06	89.00	57,997.97	71.91	4,170,373.31
2003	3,344,712.76	89.00	37,581.07	72.80	2,736,080.76
2004	2,040,578.30	89.00	22,927.86	73.71	1,689,948.11
2005	1,408,682.75	89.00	15,827.91	74.61	1,180,993.21
2006	2,020,569.32	89.00	22,703.04	75.52	1,714,612.84
2007	2,324,539.05	89.00	26,118.44	76.44	1,996,370.03
2008	2,148,952.52	89.00	24,145.55	77.35	1,867,657.08
2009	4,620,261.67	89.00	51,913.09	78.27	4,063,102.18
2010	4,920,284.07	89.00	55,284.13	79.19	4,377,815.87
2011	2,126,272.43	89.00	23,890.72	80.11	1,913,894.79
2012	4,715,727.33	89.00	52,985.74	81.04	4,293,740.36
2013	4,010,997.88	89.00	45,067.43	81.97	3,693,958.29
2014	3,146,354.32	89.00	35,352.32	82.90	2,930,557.31
2015	5,035,707.21	89.00	56,581.02	83.83	4,743,113.98
2016	12,498,969.90	89.00	140,437.97	84.76	11,904,076.61
2017	10,215,190.10	89.00	114,777.50	85.70	9,836,594.34
2018	18,168,764.16	89.00	204,143.57	86.64	17,687,212.94
2019	7,265,430.56	89.00	81,634.11	87.58	7,149,742.68
2020	8,950,440.73	89.00	100,566.82	88.53	8,902,834.48

NIPSCO
Gas Division
376.10 Mains - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

***Average Service Life:* 89** ***Survivor Curve:* R2.5**

Year *(1)*	*Original Cost* *(2)*	*Avg. Service Life* *(3)*	*Avg. Annual Accrual* *(4)*	*Avg. Remaining Life* *(5)*	*Future Annual Accruals* *(6)*
Total	278,869,579.66	89.00	3,133,368.39	62.15	194,734,108.93

Composite Average Remaining Life ... 62.15 Years

NIPSCO

Gas Division

376.20 Mains - Plastic

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1937	321.19	89.00	3.61	23.94	86.39
1939	59.00	89.00	0.66	24.98	16.56
1940	71.00	89.00	0.80	25.52	20.36
1943	616.68	89.00	6.93	27.18	188.34
1947	242.00	89.00	2.72	29.52	80.27
1948	47.00	89.00	0.53	30.13	15.91
1950	51.00	89.00	0.57	31.36	17.97
1952	654.32	89.00	7.35	32.63	239.90
1954	1,176.00	89.00	13.21	33.93	448.29
1955	9,685.00	89.00	108.82	34.59	3,763.56
1956	27,661.33	89.00	310.80	35.25	10,957.24
1957	7,332.75	89.00	82.39	35.93	2,960.12
1958	17,947.64	89.00	201.66	36.61	7,382.28
1959	10,124.55	89.00	113.76	37.29	4,242.54
1960	41,557.71	89.00	466.94	37.99	17,737.63
1961	6,157.50	89.00	69.19	38.69	2,676.51
1962	6,666.50	89.00	74.90	39.39	2,950.59
1963	6,874.00	89.00	77.24	40.10	3,097.38
1964	1,254.15	89.00	14.09	40.82	575.28
1965	2,293.32	89.00	25.77	41.55	1,070.60
1966	304.00	89.00	3.42	42.28	144.41
1967	415.00	89.00	4.66	43.01	200.57
1968	3,862.50	89.00	43.40	43.76	1,898.94
1971	263,633.65	89.00	2,962.18	46.01	136,298.73
1972	1,185,571.88	89.00	13,321.04	46.78	623,153.14
1973	1,615,355.20	89.00	18,150.07	47.55	863,017.27
1974	2,643,751.23	89.00	29,705.09	48.32	1,435,455.81

NIPSCO
Gas Division
376.20 Mains - Plastic

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1975	3,844,210.59	89.00	43,193.41	49.10	2,120,939.83
1976	4,031,960.57	89.00	45,302.96	49.89	2,260,082.27
1977	4,191,045.44	89.00	47,090.43	50.68	2,386,453.10
1978	4,898,601.74	89.00	55,040.51	51.47	2,833,098.69
1979	5,576,576.10	89.00	62,658.21	52.27	3,275,319.46
1980	6,789,567.44	89.00	76,287.33	53.08	4,049,138.62
1981	9,713,518.03	89.00	109,140.73	53.89	5,881,638.16
1982	9,247,311.28	89.00	103,902.45	54.71	5,684,005.70
1983	10,239,058.78	89.00	115,045.69	55.52	6,387,874.12
1984	8,027,660.27	89.00	90,198.50	56.35	5,082,571.66
1985	8,898,802.65	89.00	99,986.62	57.18	5,716,970.14
1986	11,050,336.25	89.00	124,161.17	58.01	7,202,641.69
1987	12,306,797.70	89.00	138,278.73	58.85	8,137,415.69
1988	8,532,509.32	89.00	95,870.96	59.69	5,722,514.42
1989	6,966,808.50	89.00	78,278.81	60.54	4,738,904.19
1990	8,386,192.47	89.00	94,226.95	61.39	5,784,556.71
1991	8,264,587.81	89.00	92,860.61	62.24	5,780,068.85
1992	8,310,880.50	89.00	93,380.75	63.10	5,892,660.29
1993	6,997,560.74	89.00	78,624.34	63.97	5,029,329.51
1994	8,949,157.08	89.00	100,552.40	64.83	6,519,163.24
1995	11,378,406.42	89.00	127,847.36	65.70	8,400,115.03
1996	10,996,446.19	89.00	123,555.67	66.58	8,226,188.33
1997	11,695,420.34	89.00	131,409.32	67.46	8,864,798.69
1998	10,390,194.19	89.00	116,743.84	68.34	7,978,476.01
1999	9,811,917.73	89.00	110,246.35	69.23	7,632,085.05
2000	10,100,790.88	89.00	113,492.12	70.12	7,957,708.01
2001	9,876,981.74	89.00	110,977.41	71.01	7,880,452.72

NIPSCO
Gas Division
376.20 Mains - Plastic

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

***Average Service Life:* 89 *Survivor Curve:* R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2002	10,320,740.92	89.00	115,963.47	71.91	8,338,412.35
2003	11,649,118.82	89.00	130,889.07	72.80	9,529,347.41
2004	10,229,600.82	89.00	114,939.42	73.71	8,471,860.46
2005	13,551,096.83	89.00	152,259.63	74.61	11,360,793.20
2006	14,426,094.96	89.00	162,091.08	75.52	12,241,682.29
2007	12,459,199.90	89.00	139,991.11	76.44	10,700,260.46
2008	12,075,644.55	89.00	135,681.50	77.35	10,494,956.40
2009	13,356,606.19	89.00	150,074.34	78.27	11,745,926.86
2010	14,644,846.98	89.00	164,548.96	79.19	13,030,232.13
2011	14,411,835.68	89.00	161,930.86	80.11	12,972,343.90
2012	21,837,714.07	89.00	245,367.76	81.04	19,883,565.70
2013	24,056,722.76	89.00	270,300.46	81.97	22,155,217.52
2014	36,756,213.99	89.00	412,991.48	82.90	34,235,238.87
2015	26,374,771.69	89.00	296,345.97	83.83	24,842,299.80
2016	53,644,143.32	89.00	602,743.63	84.76	51,090,929.62
2017	45,425,595.98	89.00	510,400.33	85.70	43,742,030.84
2018	47,621,436.37	89.00	535,072.72	86.64	46,359,261.32
2019	56,016,572.08	89.00	629,400.15	87.58	55,124,616.91
2020	55,041,396.25	89.00	618,443.11	88.53	54,748,638.11
Total	729,226,339.01	89.00	8,193,560.46	75.87	621,611,480.89

Composite Average Remaining Life ... 75.87 Years

NIPSCO

Gas Division

380.10 Services - Steel

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **69** *Survivor Curve:* **R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1923	2.52	69.00	0.04	11.54	0.42
1925	3.55	69.00	0.05	12.14	0.62
1929	0.09	69.00	0.00	13.40	0.02
1930	12.88	69.00	0.19	13.73	2.56
1931	461.31	69.00	6.69	14.06	93.99
1935	13.36	69.00	0.19	15.43	2.99
1936	5,208.41	69.00	75.48	15.79	1,191.54
1937	4,682.37	69.00	67.86	16.15	1,095.84
1938	7,599.71	69.00	110.14	16.52	1,819.31
1939	11,924.53	69.00	172.82	16.89	2,919.41
1940	14,510.97	69.00	210.30	17.28	3,633.03
1941	16,528.26	69.00	239.54	17.66	4,231.16
1942	22,348.33	69.00	323.89	18.06	5,849.24
1943	14,558.43	69.00	210.99	18.46	3,895.36
1944	18,188.01	69.00	263.59	18.87	4,974.52
1945	18,118.68	69.00	262.59	19.29	5,065.12
1946	38,460.02	69.00	557.39	19.71	10,988.05
1947	72,897.19	69.00	1,056.47	20.14	21,282.36
1948	93,792.78	69.00	1,359.30	20.58	27,980.84
1949	106,127.56	69.00	1,538.06	21.03	32,346.82
1950	141,238.60	69.00	2,046.91	21.49	43,979.98
1951	172,609.96	69.00	2,501.57	21.95	54,902.55
1952	221,325.23	69.00	3,207.58	22.42	71,906.17
1953	193,031.04	69.00	2,797.52	22.89	64,046.84
1954	433,688.79	69.00	6,285.28	23.38	146,947.54
1955	273,145.66	69.00	3,958.59	23.87	94,497.51
1956	400,579.09	69.00	5,805.43	24.37	141,490.53

NIPSCO
Gas Division
380.10 Services - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1957	460,926.02	69.00	6,680.02	24.88	166,193.79
1958	587,187.24	69.00	8,509.87	25.39	216,092.54
1959	857,402.63	69.00	12,426.00	25.92	322,046.69
1960	1,649,474.12	69.00	23,905.17	26.45	632,200.32
1961	2,070,582.48	69.00	30,008.13	26.98	809,765.46
1962	2,353,158.26	69.00	34,103.39	27.53	938,824.25
1963	2,470,264.66	69.00	35,800.56	28.08	1,005,347.87
1964	2,564,935.90	69.00	37,172.60	28.64	1,064,640.36
1965	2,718,464.41	69.00	39,397.62	29.21	1,150,715.52
1966	3,080,232.51	69.00	44,640.58	29.78	1,329,428.19
1967	3,196,193.04	69.00	46,321.15	30.36	1,406,300.91
1968	3,576,212.26	69.00	51,828.62	30.95	1,604,040.76
1969	3,751,572.88	69.00	54,370.05	31.54	1,714,937.89
1970	3,395,009.88	69.00	49,202.53	32.14	1,581,585.82
1971	3,601,773.72	69.00	52,199.07	32.75	1,709,571.91
1972	1,859,648.84	69.00	26,951.15	33.37	899,262.31
1973	1,480,593.29	69.00	21,457.65	33.99	729,263.68
1974	1,106,131.06	69.00	16,030.72	34.61	554,889.13
1975	770,303.34	69.00	11,163.70	35.25	393,483.98
1976	1,112,851.67	69.00	16,128.12	35.89	578,786.74
1977	689,737.86	69.00	9,996.10	36.53	365,175.78
1978	502,797.27	69.00	7,286.84	37.18	270,939.25
1979	376,785.04	69.00	5,460.60	37.84	206,632.76
1980	503,085.31	69.00	7,291.02	38.50	280,723.16
1981	967,190.12	69.00	14,017.10	39.17	549,083.38
1982	633,652.62	69.00	9,183.28	39.85	365,913.38
1983	300,682.42	69.00	4,357.67	40.53	176,599.07

NIPSCO
Gas Division
380.10 Services - Steel

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1984	398,400.67	69.00	5,773.86	41.21	237,941.55
1985	462,115.66	69.00	6,697.26	41.90	280,619.80
1986	312,164.40	69.00	4,524.07	42.60	192,703.77
1987	279,172.98	69.00	4,045.94	43.29	175,164.54
1988	325,179.69	69.00	4,712.70	44.00	207,358.42
1989	190,827.47	69.00	2,765.59	44.71	123,644.71
1990	134,227.20	69.00	1,945.30	45.42	88,362.15
1991	94,248.24	69.00	1,365.90	46.14	63,024.08
1992	130,971.79	69.00	1,898.12	46.86	88,954.74
1993	150,220.25	69.00	2,177.08	47.59	103,609.49
1994	145,454.13	69.00	2,108.01	48.32	101,864.75
1995	57,980.81	69.00	840.29	49.06	41,222.59
1996	235,777.42	69.00	3,417.03	49.80	170,152.32
1997	358,697.13	69.00	5,198.45	50.54	262,727.24
1998	195,462.97	69.00	2,832.77	51.29	145,279.04
1999	607,280.13	69.00	8,801.07	52.04	457,976.41
2000	290,203.90	69.00	4,205.81	52.79	222,022.86
2001	596,196.24	69.00	8,640.43	53.55	462,675.54
2002	169,147.77	69.00	2,451.39	54.31	133,130.11
2003	295,492.11	69.00	4,282.45	55.07	235,847.01
2004	28,941.12	69.00	419.43	55.84	23,421.20
2005	166,495.56	69.00	2,412.95	56.61	136,602.05
2006	68,824.89	69.00	997.45	57.39	57,240.09
2007	298,526.76	69.00	4,326.43	58.16	251,640.75
2008	322,413.21	69.00	4,672.61	58.95	275,432.02
2009	394,029.27	69.00	5,710.51	59.73	341,090.84
2010	357,962.47	69.00	5,187.81	60.52	313,963.78

NIPSCO

Gas Division

380.10 Services - Steel

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **69** *Survivor Curve:* **R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2011	813,175.31	69.00	11,785.03	61.31	722,548.57
2012	443,380.99	69.00	6,425.74	62.11	399,080.74
2013	917,924.88	69.00	13,303.12	62.90	836,827.77
2014	773,163.53	69.00	11,205.15	63.71	713,846.87
2015	1,270,938.75	69.00	18,419.21	64.51	1,188,259.39
2016	247,687.17	69.00	3,589.63	65.32	234,473.90
2017	343,314.74	69.00	4,975.52	66.13	329,044.82
2018	926,619.91	69.00	13,429.13	66.95	899,044.25
2019	371,161.45	69.00	5,379.10	67.77	364,523.73
2020	768,300.93	69.00	11,134.68	68.59	763,706.50
Total	62,859,988.08	69.00	911,004.80	36.68	33,412,617.60

Composite Average Remaining Life ... **36.68 Years**

NIPSCO
Gas Division
380.20 Services - Plastic

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1971	364,247.27	69.00	5,278.89	32.75	172,888.96
1972	3,326,639.34	69.00	48,211.66	33.37	1,608,648.53
1973	4,589,612.70	69.00	66,515.43	33.99	2,260,605.83
1974	5,441,097.94	69.00	78,855.67	34.61	2,729,519.31
1975	6,108,256.70	69.00	88,524.53	35.25	3,120,200.85
1976	5,916,921.66	69.00	85,751.59	35.89	3,077,351.52
1977	6,734,202.94	69.00	97,596.12	36.53	3,565,365.80
1978	8,108,920.69	69.00	117,519.36	37.18	4,369,603.91
1979	9,585,982.41	69.00	138,925.83	37.84	5,257,050.55
1980	6,187,622.95	69.00	89,674.76	38.50	3,452,712.74
1981	10,693,533.47	69.00	154,977.13	39.17	6,070,824.56
1982	8,848,717.20	69.00	128,240.94	39.85	5,109,840.77
1983	8,104,597.73	69.00	117,456.71	40.53	4,760,053.42
1984	7,699,087.87	69.00	111,579.82	41.21	4,598,217.45
1985	8,053,853.29	69.00	116,721.29	41.90	4,890,703.53
1986	10,646,649.58	69.00	154,297.66	42.60	6,572,336.59
1987	12,802,311.12	69.00	185,538.80	43.29	8,032,693.15
1988	12,023,437.45	69.00	174,250.90	44.00	7,667,025.50
1989	10,310,632.69	69.00	149,427.90	44.71	6,680,669.01
1990	10,005,172.13	69.00	145,000.98	45.42	6,586,433.41
1991	8,089,942.49	69.00	117,244.32	46.14	5,409,769.08
1992	12,081,595.62	69.00	175,093.76	46.86	8,205,700.10
1993	10,691,717.98	69.00	154,950.82	47.59	7,374,261.43
1994	12,203,598.61	69.00	176,861.90	48.32	8,546,450.79
1995	12,440,726.08	69.00	180,298.49	49.06	8,844,977.58
1996	13,691,885.52	69.00	198,431.05	49.80	9,880,955.09
1997	12,837,822.69	69.00	186,053.46	50.54	9,403,046.28

NIPSCO
Gas Division
380.20 Services - Plastic

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: **69** *Survivor Curve:* **R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1998	13,187,961.60	69.00	191,127.88	51.29	9,802,032.91
1999	15,329,991.66	69.00	222,171.47	52.04	11,561,014.87
2000	12,893,618.35	69.00	186,862.08	52.79	9,864,367.83
2001	13,492,170.06	69.00	195,536.65	53.55	10,470,540.88
2002	11,231,918.51	69.00	162,779.73	54.31	8,840,237.85
2003	11,934,940.68	69.00	172,968.35	55.07	9,525,872.18
2004	7,468,710.57	69.00	108,241.05	55.84	6,044,207.91
2005	13,969,654.96	69.00	202,456.65	56.61	11,461,467.50
2006	11,726,119.64	69.00	169,941.99	57.39	9,752,345.39
2007	11,887,966.14	69.00	172,287.56	58.16	10,020,866.28
2008	11,754,506.85	69.00	170,353.39	58.95	10,041,671.43
2009	7,544,404.57	69.00	109,338.05	59.73	6,530,802.41
2010	7,306,835.23	69.00	105,895.06	60.52	6,408,721.04
2011	8,970,581.23	69.00	130,007.07	61.31	7,970,828.17
2012	14,315,250.59	69.00	207,465.23	62.11	12,884,947.56
2013	15,460,126.48	69.00	224,057.46	62.90	14,094,250.48
2014	13,954,263.77	69.00	202,233.59	63.71	12,883,700.68
2015	20,185,268.03	69.00	292,537.06	64.51	18,872,140.14
2016	34,679,122.02	69.00	502,590.72	65.32	32,829,108.18
2017	30,979,353.44	69.00	448,971.45	66.13	29,691,692.69
2018	40,244,916.49	69.00	583,253.57	66.95	39,047,251.77
2019	40,089,361.36	69.00	580,999.17	67.77	39,372,417.84
2020	34,836,050.13	69.00	504,865.02	68.59	34,627,731.10
Total	641,031,878.48	69.00	9,290,220.01	54.99	510,846,122.85

Composite Average Remaining Life ... 54.99 Years

NIPSCO
Gas Division
383.00 House Regulators

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1933	127.55	63.00	2.02	12.72	25.76
1936	3,989.91	63.00	63.33	13.85	877.05
1937	259.16	63.00	4.11	14.23	58.55
1938	190.48	63.00	3.02	14.62	44.21
1939	183.38	63.00	2.91	15.01	43.70
1940	73.95	63.00	1.17	15.41	18.09
1941	51.45	63.00	0.82	15.81	12.91
1942	698.82	63.00	11.09	16.22	179.91
1943	517.93	63.00	8.22	16.63	136.72
1944	2,248.63	63.00	35.69	17.05	608.40
1945	1,317.49	63.00	20.91	17.47	365.25
1946	980.91	63.00	15.57	17.89	278.56
1947	1,792.55	63.00	28.45	18.32	521.27
1948	4,363.28	63.00	69.26	18.76	1,298.95
1949	767.43	63.00	12.18	19.20	233.82
1950	6,963.81	63.00	110.53	19.64	2,170.84
1951	3,840.19	63.00	60.95	20.09	1,224.52
1952	3,920.68	63.00	62.23	20.54	1,278.46
1953	2,865.96	63.00	45.49	21.00	955.46
1954	6,818.99	63.00	108.24	21.47	2,323.60
1955	1,179.10	63.00	18.72	21.94	410.59
1956	21.94	63.00	0.35	22.41	7.81
1957	2,325.47	63.00	36.91	22.89	845.07
1958	4,401.95	63.00	69.87	23.38	1,633.64
1959	3,514.85	63.00	55.79	23.87	1,331.81
1960	5,476.90	63.00	86.93	24.37	2,118.49
1961	83,472.99	63.00	1,324.94	24.87	32,953.57

NIPSCO
Gas Division
383.00 House Regulators

Original Cost Of Utility Plant In Service
And Development Of Composite Remaining Life as of December 31, 2020
Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1962	123,969.25	63.00	1,967.73	25.38	49,939.03
1963	229,192.53	63.00	3,637.91	25.89	94,195.43
1964	290,946.80	63.00	4,618.12	26.41	121,968.22
1965	334,307.73	63.00	5,306.37	26.94	142,931.50
1966	366,089.63	63.00	5,810.84	27.46	159,592.76
1967	389,312.09	63.00	6,179.44	28.00	173,030.61
1968	456,571.62	63.00	7,247.03	28.54	206,848.07
1969	509,611.16	63.00	8,088.91	29.09	235,292.57
1970	480,732.17	63.00	7,630.52	29.64	226,176.63
1971	315,798.47	63.00	5,012.58	30.20	151,367.90
1972	385,622.79	63.00	6,120.88	30.76	188,288.17
1973	361,217.88	63.00	5,733.51	31.33	179,634.17
1974	280,211.81	63.00	4,447.72	31.90	141,899.84
1975	293,341.93	63.00	4,656.13	32.48	151,249.60
1976	291,921.02	63.00	4,633.58	33.07	153,221.93
1977	290,823.93	63.00	4,616.17	33.66	155,373.59
1978	345,320.88	63.00	5,481.18	34.25	187,753.08
1979	318,537.20	63.00	5,056.05	34.85	176,223.34
1980	313,813.82	63.00	4,981.08	35.46	176,628.60
1981	486,088.14	63.00	7,715.54	36.07	278,295.43
1982	351,500.78	63.00	5,579.27	36.69	204,678.36
1983	360,888.26	63.00	5,728.28	37.30	213,690.03
1984	330,697.96	63.00	5,249.07	37.93	199,097.76
1985	195,391.37	63.00	3,101.39	38.56	119,588.82
1986	2,002,281.99	63.00	31,781.65	39.19	1,245,608.33
1987	418,635.81	63.00	6,644.89	39.83	264,674.04
1988	1,148,044.23	63.00	18,222.58	40.47	737,511.02

NIPSCO

Gas Division

383.00 House Regulators

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1989	1,411,801.79	63.00	22,409.13	41.12	921,446.29
1990	1,294,831.63	63.00	20,552.49	41.77	858,466.73
1991	948,287.58	63.00	15,051.90	42.42	638,540.05
1992	1,698,637.36	63.00	26,961.99	43.08	1,161,528.23
1993	1,724,500.35	63.00	27,372.50	43.74	1,197,274.57
1994	2,144,719.85	63.00	34,042.53	44.40	1,511,640.99
1995	2,168,000.64	63.00	34,412.05	45.07	1,551,006.81
1996	2,171,017.41	63.00	34,459.94	45.74	1,576,234.94
1997	2,156,816.70	63.00	34,234.54	46.41	1,588,965.45
1998	2,734,460.92	63.00	43,403.32	47.09	2,043,814.17
1999	2,809,025.51	63.00	44,586.86	47.77	2,129,794.18
2000	2,983,294.10	63.00	47,352.98	48.45	2,294,108.00
2001	2,342,640.09	63.00	37,184.06	49.13	1,826,866.66
2002	2,441,968.05	63.00	38,760.66	49.82	1,930,893.33
2003	2,876,579.99	63.00	45,659.13	50.50	2,305,915.86
2004	3,102,702.29	63.00	49,248.31	51.19	2,521,176.23
2005	2,928,857.99	63.00	46,488.93	51.88	2,412,072.49
2006	2,360,464.92	63.00	37,466.99	52.58	1,970,030.10
2007	1,834,140.70	63.00	29,112.79	53.28	1,551,080.68
2008	2,161,017.34	63.00	34,301.21	53.98	1,851,521.89
2009	2,049,290.69	63.00	32,527.81	54.68	1,778,685.60
2010	1,608,031.30	63.00	25,523.82	55.39	1,413,703.06
2011	2,491,502.63	63.00	39,546.91	56.10	2,218,478.69
2012	3,786,594.42	63.00	60,103.53	56.81	3,414,478.64
2013	3,629,035.35	63.00	57,602.64	57.53	3,313,599.74
2014	6,133,171.74	63.00	97,350.08	58.24	5,670,088.17
2015	6,908,541.15	63.00	109,657.30	58.97	6,466,037.66

NIPSCO

Gas Division

383.00 House Regulators

Original Cost Of Utility Plant In Service

And Development Of Composite Remaining Life as of December 31, 2020

Based Upon Broad Group/Remaining Life Procedure and Technique

Average Service Life: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2016	5,512,336.06	63.00	87,495.74	59.69	5,222,792.28
2017	4,969,277.55	63.00	78,875.92	60.42	4,765,699.41
2018	5,142,734.71	63.00	81,629.16	61.15	4,991,911.06
2019	6,088,446.99	63.00	96,640.18	61.89	5,981,070.50
2020	5,435,200.84	63.00	86,271.39	62.63	5,403,135.71
Total	109,861,165.64	63.00	1,743,794.90	52.11	90,868,774.03

Composite Average Remaining Life ... 52.11 Years

NIPSCO
Gas Division
369.00 M&R Station Equipment

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: 67 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1964	23,540.72	67.00	351.35	25.81	9,069.31
1965	83,597.84	67.00	1,247.72	26.35	32,878.94
1966	37,185.02	67.00	554.99	26.90	14,928.90
1967	152,968.97	67.00	2,283.10	27.45	62,677.37
1968	45,349.49	67.00	676.85	28.02	18,962.36
1969	167,148.29	67.00	2,494.73	28.58	71,309.06
1970	29,982.62	67.00	447.50	29.16	13,049.58
1971	187,702.75	67.00	2,801.51	29.74	83,328.19
1972	121,568.77	67.00	1,814.44	30.34	55,042.16
1973	64,684.16	67.00	965.43	30.93	29,863.04
1974	128,374.37	67.00	1,916.02	31.54	60,427.10
1975	47,421.56	67.00	707.78	32.15	22,753.99
1976	355,637.41	67.00	5,307.97	32.77	173,927.92
1977	136,934.94	67.00	2,043.78	33.39	68,244.55
1978	226,614.51	67.00	3,382.27	34.02	115,075.41
1979	192,752.02	67.00	2,876.87	34.66	99,712.02
1980	20,828.68	67.00	310.87	35.30	10,975.16
1981	140,982.52	67.00	2,104.20	35.95	75,653.51
1982	732,121.86	67.00	10,927.08	36.61	400,042.87
1983	345,010.81	67.00	5,149.36	37.27	191,924.48
1984	478,602.13	67.00	7,143.24	37.94	271,012.81
1985	163,914.83	67.00	2,446.47	38.61	94,464.27
1986	632,455.62	67.00	9,439.54	39.29	370,898.35
1987	943,666.73	67.00	14,084.44	39.98	563,037.28
1988	335,382.35	67.00	5,005.66	40.67	203,560.03
1989	144,230.06	67.00	2,152.67	41.36	89,035.16
1990	1,430,500.27	67.00	21,350.54	42.06	897,983.66

NIPSCO
Gas Division
369.00 M&R Station Equipment

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: 67 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1991	127,679.48	67.00	1,905.64	42.77	81,495.49
1992	382,750.77	67.00	5,712.64	43.47	248,350.25
1993	433,837.67	67.00	6,475.12	44.19	286,132.49
1994	596,711.23	67.00	8,906.05	44.91	399,947.10
1995	284,716.60	67.00	4,249.46	45.63	193,911.28
1996	357,676.09	67.00	5,338.40	46.36	247,481.19
1997	468,445.44	67.00	6,991.65	47.09	329,249.84
1998	615,145.70	67.00	9,181.19	47.83	439,108.37
1999	2,440,560.28	67.00	36,425.91	48.57	1,769,138.67
2000	1,139,588.62	67.00	17,008.62	49.31	838,715.82
2001	2,411,756.55	67.00	35,996.01	50.06	1,801,962.49
2002	3,480,508.90	67.00	51,947.38	50.81	2,639,485.79
2003	1,543,057.86	67.00	23,030.49	51.57	1,187,611.47
2004	1,514,840.48	67.00	22,609.34	52.32	1,183,032.41
2005	603,500.49	67.00	9,007.38	53.09	478,186.31
2006	1,940,779.38	67.00	28,966.57	53.85	1,559,950.55
2007	987,719.42	67.00	14,741.93	54.62	805,262.14
2008	2,952,030.80	67.00	44,059.72	55.40	2,440,744.17
2009	933,642.55	67.00	13,934.83	56.17	782,771.51
2010	444,974.77	67.00	6,641.35	56.95	378,246.18
2011	1,321,162.40	67.00	19,718.65	57.74	1,138,509.92
2012	186,557.48	67.00	2,784.41	58.52	162,955.67
2013	952,149.58	67.00	14,211.05	59.32	842,939.03
2014	1,713,356.44	67.00	25,572.23	60.11	1,537,129.32
2015	6,675,972.24	67.00	99,640.39	60.91	6,068,873.38
2016	7,721,056.03	67.00	115,238.50	61.71	7,111,172.71
2017	9,499,020.02	67.00	141,775.01	62.51	8,862,875.59

NIPSCO

Gas Division

369.00 M&R Station Equipment

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: 67 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2018	35,539,847.80	67.00	530,440.23	63.32	33,588,092.07
2019	3,905,509.06	67.00	58,290.60	64.13	3,738,373.19
2020	31,806,268.49	67.00	474,715.72	64.95	30,831,733.97
2021	37,088,124.62	67.00	553,548.61	65.77	36,405,137.98
2022	12,561,257.43	67.00	187,479.60	66.59	12,483,910.71
Total	179,999,363.97	67.00	2,686,531.03	61.40	164,962,324.53

Composite Average Remaining Life ... 61.40 Years

NIPSCO
Gas Division
376.10 Mains - Steel

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: **89** *Survivor Curve:* **R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1920	622.41	89.00	6.99	15.94	111.50
1922	906.46	89.00	10.18	16.63	169.35
1923	16,146.80	89.00	181.42	16.98	3,080.93
1924	10,996.84	89.00	123.56	17.35	2,143.17
1925	16,914.50	89.00	190.05	17.72	3,367.21
1926	1,735.82	89.00	19.50	18.10	353.00
1927	14,443.95	89.00	162.29	18.49	3,000.80
1928	281,869.78	89.00	3,167.08	18.89	59,827.92
1929	125,502.36	89.00	1,410.14	19.30	27,216.39
1930	43,857.34	89.00	492.78	19.72	9,717.60
1931	27,571.78	89.00	309.80	20.15	6,242.10
1932	1,412.05	89.00	15.87	20.59	326.64
1933	1,133.70	89.00	12.74	21.04	267.97
1934	8,728.52	89.00	98.07	21.50	2,108.37
1935	2,371.62	89.00	26.65	21.97	585.35
1936	570,190.37	89.00	6,406.64	22.44	143,796.61
1937	42,564.35	89.00	478.25	22.93	10,967.72
1938	40,762.11	89.00	458.00	23.43	10,731.24
1939	31,970.59	89.00	359.22	23.94	8,598.90
1940	57,575.88	89.00	646.92	24.45	15,819.93
1941	174,226.61	89.00	1,957.60	24.98	48,901.10
1942	92,726.90	89.00	1,041.88	25.52	26,588.39
1943	28,763.08	89.00	323.18	26.06	8,423.66
1944	24,281.59	89.00	272.83	26.62	7,262.37
1945	33,713.17	89.00	378.80	27.18	10,296.50
1946	30,333.03	89.00	340.82	27.75	9,458.98
1947	284,449.53	89.00	3,196.06	28.33	90,556.49

NIPSCO

Gas Division

376.10 Mains - Steel

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: **89** *Survivor Curve:* **R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1948	285,983.53	89.00	3,213.30	28.92	92,936.32
1949	305,974.21	89.00	3,437.92	29.52	101,484.87
1950	361,780.34	89.00	4,064.95	30.13	122,472.77
1951	404,591.58	89.00	4,545.98	30.74	139,756.44
1952	466,998.74	89.00	5,247.18	31.36	164,575.75
1953	765,173.40	89.00	8,597.46	31.99	275,066.86
1954	1,232,060.95	89.00	13,843.39	32.63	451,721.41
1955	1,491,252.29	89.00	16,755.66	33.28	557,545.55
1956	1,695,529.66	89.00	19,050.91	33.93	646,331.04
1957	1,632,499.58	89.00	18,342.71	34.59	634,383.64
1958	1,829,071.06	89.00	20,551.38	35.25	724,534.01
1959	1,132,558.67	89.00	12,725.39	35.93	457,196.71
1960	4,668,789.53	89.00	52,458.35	36.61	1,920,381.13
1961	6,998,616.72	89.00	78,636.20	37.29	2,932,665.74
1962	3,610,339.83	89.00	40,565.65	37.99	1,540,962.50
1963	4,700,301.77	89.00	52,812.42	38.69	2,043,101.89
1964	6,373,339.59	89.00	71,610.61	39.39	2,820,839.47
1965	5,931,527.43	89.00	66,646.43	40.10	2,672,711.09
1966	5,924,069.30	89.00	66,562.63	40.82	2,717,355.76
1967	7,540,699.52	89.00	84,727.02	41.55	3,520,259.37
1968	6,516,721.20	89.00	73,221.64	42.28	3,095,684.16
1969	6,210,399.10	89.00	69,779.82	43.01	3,001,511.09
1970	5,011,758.29	89.00	56,311.93	43.76	2,463,954.58
1971	5,296,792.72	89.00	59,514.57	44.50	2,648,545.75
1972	3,788,819.41	89.00	42,571.04	45.26	1,926,553.05
1973	3,216,363.18	89.00	36,138.94	46.01	1,662,861.33
1974	4,252,952.21	89.00	47,786.02	46.78	2,235,411.08

NIPSCO
Gas Division
376.10 Mains - Steel

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: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1975	3,375,931.69	89.00	37,931.84	47.55	1,803,620.25
1976	2,436,768.41	89.00	27,379.44	48.32	1,323,072.05
1977	1,593,893.92	89.00	17,908.93	49.10	879,388.11
1978	2,835,678.63	89.00	31,861.58	49.89	1,589,516.29
1979	2,853,819.87	89.00	32,065.42	50.68	1,625,013.94
1980	2,014,531.75	89.00	22,635.21	51.47	1,165,101.30
1981	2,445,043.15	89.00	27,472.42	52.27	1,436,059.92
1982	3,760,244.08	89.00	42,249.96	53.08	2,242,521.29
1983	3,125,202.62	89.00	35,114.66	53.89	1,892,343.32
1984	2,307,157.20	89.00	25,923.13	54.71	1,418,130.55
1985	2,459,665.34	89.00	27,636.71	55.52	1,534,519.23
1986	4,988,928.69	89.00	56,055.42	56.35	3,158,652.30
1987	2,343,285.41	89.00	26,329.07	57.18	1,505,426.43
1988	1,852,761.19	89.00	20,817.56	58.01	1,207,635.20
1989	2,477,722.78	89.00	27,839.60	58.85	1,638,302.73
1990	683,640.63	89.00	7,681.36	59.69	458,498.58
1991	2,387,345.19	89.00	26,824.12	60.54	1,623,899.97
1992	2,254,087.21	89.00	25,326.84	61.39	1,554,805.16
1993	2,276,756.74	89.00	25,581.56	62.24	1,592,313.01
1994	735,188.71	89.00	8,260.55	63.10	521,270.56
1995	1,457,724.10	89.00	16,378.93	63.97	1,047,704.35
1996	2,371,592.28	89.00	26,647.12	64.83	1,727,626.09
1997	1,894,380.65	89.00	21,285.19	65.70	1,398,527.60
1998	6,363,188.28	89.00	71,496.55	66.58	4,760,154.71
1999	2,826,676.55	89.00	31,760.43	67.46	2,142,541.09
2000	8,605,697.70	89.00	96,693.30	68.34	6,608,187.62
2001	3,287,170.10	89.00	36,934.52	69.23	2,556,886.68

NIPSCO
Gas Division
376.10 Mains - Steel

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: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2002	5,134,414.82	89.00	57,690.10	70.12	4,045,047.01
2003	3,327,930.81	89.00	37,392.51	71.01	2,655,224.25
2004	2,030,929.60	89.00	22,819.45	71.91	1,640,844.26
2005	1,402,400.01	89.00	15,757.32	72.80	1,147,207.54
2006	2,012,070.15	89.00	22,607.55	73.71	1,666,338.49
2007	2,315,336.76	89.00	26,015.04	74.61	1,941,102.07
2008	2,140,921.56	89.00	24,055.32	75.52	1,816,741.23
2009	4,604,046.30	89.00	51,730.90	76.44	3,954,065.67
2010	4,903,966.29	89.00	55,100.79	77.35	4,262,042.67
2011	2,119,664.90	89.00	23,816.48	78.27	1,864,053.53
2012	4,701,869.93	89.00	52,830.04	79.19	4,183,482.20
2013	3,999,968.12	89.00	44,943.50	80.11	3,600,440.86
2014	3,138,172.82	89.00	35,260.39	81.04	2,857,353.35
2015	5,023,461.63	89.00	56,443.43	81.97	4,626,394.30
2016	12,470,259.70	89.00	140,115.38	82.90	11,614,969.91
2017	10,193,224.02	89.00	114,530.69	83.83	9,600,959.96
2018	18,131,931.04	89.00	203,729.71	84.76	17,268,934.79
2019	7,251,623.64	89.00	81,478.98	85.70	6,982,863.69
2020	8,934,438.69	89.00	100,387.03	86.64	8,697,637.23
2021	31,150,329.76	89.00	350,003.97	87.58	30,654,321.23
2022	27,866,999.89	89.00	313,112.59	88.53	27,718,778.88
Total	332,478,778.26	89.00	3,735,719.39	65.66	245,291,244.98

Composite Average Remaining Life ... 65.66 Years

NIPSCO
Gas Division
376.20 Mains - Plastic

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: 89 *Survivor Curve:* R2.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1955	3,027.20	89.00	34.01	33.28	1,131.80
1956	16,667.71	89.00	187.28	33.93	6,353.68
1957	4,612.25	89.00	51.82	34.59	1,792.30
1958	11,622.18	89.00	130.59	35.25	4,603.79
1959	6,749.38	89.00	75.84	35.93	2,724.62
1960	28,321.93	89.00	318.22	36.61	11,649.46
1961	4,297.75	89.00	48.29	37.29	1,800.91
1962	4,743.46	89.00	53.30	37.99	2,024.60
1963	4,993.49	89.00	56.11	38.69	2,170.54
1964	927.09	89.00	10.42	39.39	410.33
1965	1,725.95	89.00	19.39	40.10	777.70
1966	232.37	89.00	2.61	40.82	106.59
1967	322.21	89.00	3.62	41.55	150.42
1968	3,041.27	89.00	34.17	42.28	1,444.72
1971	216,060.34	89.00	2,427.65	44.50	108,036.26
1972	983,581.72	89.00	11,051.49	45.26	500,135.31
1973	1,356,470.96	89.00	15,241.26	46.01	701,296.15
1974	2,245,832.04	89.00	25,234.09	46.78	1,180,440.69
1975	3,302,594.91	89.00	37,107.84	47.55	1,764,439.45
1976	3,501,388.70	89.00	39,341.48	48.32	1,901,120.15
1977	3,677,420.56	89.00	41,319.36	49.10	2,028,917.92
1978	4,341,039.87	89.00	48,775.77	49.89	2,433,334.12
1979	4,988,272.44	89.00	56,048.05	50.68	2,840,407.82
1980	6,127,002.37	89.00	68,842.77	51.47	3,543,542.28
1981	8,838,321.55	89.00	99,307.06	52.27	5,191,057.39
1982	8,479,141.74	89.00	95,271.33	53.08	5,056,761.07
1983	9,456,243.22	89.00	106,250.00	53.89	5,725,855.53

NIPSCO
Gas Division
376.20 Mains - Plastic

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: **89** *Survivor Curve:* **R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1984	7,463,207.51	89.00	83,856.33	54.71	4,587,378.18
1985	8,323,780.00	89.00	93,525.69	55.52	5,192,983.07
1986	10,394,014.93	89.00	116,786.77	56.35	6,580,787.41
1987	11,635,567.76	89.00	130,736.81	57.18	7,475,184.70
1988	8,104,766.23	89.00	91,064.86	58.01	5,282,710.48
1989	6,646,320.44	89.00	74,677.81	58.85	4,394,634.05
1990	8,031,346.15	89.00	90,239.91	59.69	5,386,398.36
1991	7,943,289.29	89.00	89,250.51	60.54	5,403,117.78
1992	8,013,408.47	89.00	90,038.36	61.39	5,527,420.92
1993	6,767,306.59	89.00	76,037.21	62.24	4,732,903.67
1994	8,677,953.45	89.00	97,505.17	63.10	6,152,925.87
1995	11,061,403.60	89.00	124,285.53	63.97	7,950,119.41
1996	10,713,977.74	89.00	120,381.86	64.83	7,804,776.39
1997	11,419,162.45	89.00	128,305.29	65.70	8,430,203.19
1998	10,163,894.61	89.00	114,201.15	66.58	7,603,375.65
1999	9,615,564.47	89.00	108,040.13	67.46	7,288,326.62
2000	9,914,645.59	89.00	111,400.60	68.34	7,613,309.29
2001	9,709,891.75	89.00	109,099.99	69.23	7,552,725.34
2002	10,159,982.89	89.00	114,157.20	70.12	8,004,341.26
2003	11,482,768.75	89.00	129,019.97	71.01	9,161,646.60
2004	10,095,307.29	89.00	113,430.50	71.91	8,156,278.28
2005	13,388,384.65	89.00	150,431.40	72.80	10,952,121.83
2006	14,267,180.29	89.00	160,305.52	73.71	11,815,667.36
2007	12,333,754.79	89.00	138,581.62	74.61	10,340,213.73
2008	11,964,286.60	89.00	134,430.29	75.52	10,152,643.23
2009	13,244,210.25	89.00	148,811.46	76.44	11,374,446.23
2010	14,532,242.85	89.00	163,283.75	77.35	12,629,988.77

NIPSCO
Gas Division
376.20 Mains - Plastic

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: **89** *Survivor Curve:* **R2.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2011	14,310,961.23	89.00	160,797.44	78.27	12,585,195.79
2012	21,698,236.80	89.00	243,800.59	79.19	19,305,975.86
2013	23,916,931.08	89.00	268,729.76	80.11	21,528,045.56
2014	36,561,657.79	89.00	410,805.45	81.04	33,289,936.97
2015	26,247,913.56	89.00	294,920.60	81.97	24,173,210.96
2016	53,409,782.84	89.00	600,110.37	82.90	49,746,599.96
2017	45,245,454.93	89.00	508,376.28	83.83	42,616,526.47
2018	47,449,910.88	89.00	533,145.46	84.76	45,191,514.06
2019	55,833,560.82	89.00	627,343.85	85.70	53,764,255.30
2020	54,878,251.12	89.00	616,610.02	86.64	53,423,738.94
2021	63,309,841.39	89.00	711,347.06	87.58	62,301,755.06
2022	76,629,978.65	89.00	861,011.64	88.53	76,222,393.60
Total	853,164,755.14	89.00	9,586,127.97	76.64	734,708,261.84

Composite Average Remaining Life ... 76.64 Years

NIPSCO
Gas Division
380.10 Services - Steel

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: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1931	145.08	69.00	2.10	13.40	28.18
1935	12.49	69.00	0.18	14.73	2.67
1936	4,882.46	69.00	70.76	15.08	1,066.88
1937	4,399.24	69.00	63.76	15.43	983.71
1938	7,156.08	69.00	103.71	15.79	1,637.11
1939	11,252.33	69.00	163.08	16.15	2,633.44
1940	13,720.94	69.00	198.85	16.52	3,284.67
1941	15,659.72	69.00	226.95	16.89	3,833.87
1942	21,215.55	69.00	307.47	17.28	5,311.62
1943	13,846.03	69.00	200.67	17.66	3,544.53
1944	17,329.20	69.00	251.15	18.06	4,535.58
1945	17,293.56	69.00	250.63	18.46	4,627.19
1946	36,771.03	69.00	532.91	18.87	10,057.07
1947	69,808.12	69.00	1,011.70	19.29	19,515.04
1948	89,961.66	69.00	1,303.78	19.71	25,702.10
1949	101,946.84	69.00	1,477.47	20.14	29,763.41
1950	135,873.64	69.00	1,969.16	20.58	40,534.67
1951	166,292.54	69.00	2,410.01	21.03	50,684.62
1952	213,510.94	69.00	3,094.33	21.49	66,484.70
1953	186,462.55	69.00	2,702.33	21.95	59,308.69
1954	419,472.59	69.00	6,079.25	22.42	136,282.09
1955	264,513.59	69.00	3,833.49	22.89	87,764.43
1956	388,365.22	69.00	5,628.42	23.38	131,590.47
1957	447,399.23	69.00	6,483.98	23.87	154,782.30
1958	570,585.55	69.00	8,269.27	24.37	201,539.36
1959	834,014.29	69.00	12,087.04	24.88	300,716.36
1960	1,606,087.68	69.00	23,276.39	25.39	591,061.17

NIPSCO

Gas Division

380.10 Services - Steel

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: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1961	2,018,222.59	69.00	29,249.30	25.92	758,059.13
1962	2,295,744.86	69.00	33,271.32	26.45	879,899.00
1963	2,412,112.34	69.00	34,957.78	26.98	943,331.29
1964	2,506,842.10	69.00	36,330.67	27.53	1,000,138.50
1965	2,659,147.12	69.00	38,537.96	28.08	1,082,219.22
1966	3,015,379.00	69.00	43,700.69	28.64	1,251,607.96
1967	3,131,339.40	69.00	45,381.26	29.21	1,325,483.91
1968	3,506,389.34	69.00	50,816.71	29.78	1,513,357.46
1969	3,680,927.89	69.00	53,346.22	30.36	1,619,580.60
1970	3,333,353.99	69.00	48,308.97	30.95	1,495,111.38
1971	3,538,776.85	69.00	51,286.09	31.54	1,617,663.49
1972	1,828,329.31	69.00	26,497.25	32.14	851,738.23
1973	1,456,528.54	69.00	21,108.89	32.75	691,337.23
1974	1,088,825.20	69.00	15,779.91	33.37	526,518.47
1975	758,680.67	69.00	10,995.26	33.99	373,686.86
1976	1,096,674.36	69.00	15,893.67	34.61	550,145.19
1977	680,079.47	69.00	9,856.12	35.25	347,396.10
1978	496,008.08	69.00	7,188.45	35.89	257,970.50
1979	371,881.20	69.00	5,389.53	36.53	196,889.30
1980	496,780.99	69.00	7,199.65	37.18	267,697.30
1981	955,512.65	69.00	13,847.86	37.84	524,012.89
1982	626,269.29	69.00	9,076.27	38.50	349,460.20
1983	297,309.60	69.00	4,308.79	39.17	168,785.60
1984	394,101.18	69.00	5,711.55	39.85	227,580.36
1985	457,303.23	69.00	6,627.51	40.53	268,586.78
1986	309,028.06	69.00	4,478.62	41.21	184,564.49
1987	276,480.44	69.00	4,006.92	41.90	167,892.79

NIPSCO

Gas Division

380.10 Services - Steel

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: **69** *Survivor Curve:* **R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1988	322,154.98	69.00	4,668.86	42.60	198,871.10
1989	189,115.11	69.00	2,740.77	43.29	118,658.55
1990	133,068.34	69.00	1,928.51	44.00	84,854.13
1991	93,465.85	69.00	1,354.56	44.71	60,560.24
1992	129,923.14	69.00	1,882.92	45.42	85,528.77
1993	149,061.54	69.00	2,160.29	46.14	99,677.90
1994	144,376.27	69.00	2,092.39	46.86	98,058.93
1995	57,567.06	69.00	834.30	47.59	39,704.99
1996	234,155.71	69.00	3,393.53	48.32	163,984.44
1997	356,326.41	69.00	5,164.10	49.06	253,337.23
1998	194,220.87	69.00	2,814.77	49.80	140,162.41
1999	603,563.45	69.00	8,747.20	50.54	442,079.25
2000	288,497.18	69.00	4,181.07	51.29	214,427.29
2001	592,821.99	69.00	8,591.53	52.04	447,072.90
2002	168,228.29	69.00	2,438.07	52.79	128,704.42
2003	293,948.05	69.00	4,260.07	53.55	228,117.13
2004	28,795.78	69.00	417.33	54.31	22,664.12
2005	165,691.57	69.00	2,401.30	55.07	132,246.72
2006	68,505.98	69.00	992.83	55.84	55,439.88
2007	297,199.51	69.00	4,307.19	56.61	243,838.70
2008	321,034.38	69.00	4,652.62	57.39	266,996.95
2009	392,411.87	69.00	5,687.07	58.16	330,780.46
2010	356,556.47	69.00	5,167.43	58.95	304,600.01
2011	810,105.87	69.00	11,740.54	59.73	701,266.92
2012	441,772.82	69.00	6,402.44	60.52	387,472.64
2013	914,743.46	69.00	13,257.01	61.31	812,797.16
2014	770,594.22	69.00	11,167.92	62.11	693,600.58

NIPSCO

Gas Division

380.10 Services - Steel

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: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2015	1,266,883.82	69.00	18,360.44	62.90	1,154,956.78
2016	246,930.14	69.00	3,578.66	63.71	227,985.80
2017	342,313.19	69.00	4,961.01	64.51	320,044.42
2018	924,026.75	69.00	13,391.55	65.32	874,733.05
2019	370,165.95	69.00	5,364.67	66.13	354,779.96
2020	766,334.79	69.00	11,106.19	66.95	743,529.12
2021	6,050,229.73	69.00	87,683.57	67.77	5,942,029.63
2022	5,773,391.82	69.00	83,671.47	68.59	5,738,867.03
Total	73,604,188.26	69.00	1,066,716.22	40.77	43,490,419.80

Composite Average Remaining Life ... 40.77 Years

NIPSCO

Gas Division

380.20 Services - Plastic

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:* 69** ***Survivor Curve:* R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1971	336,191.95	69.00	4,872.30	31.54	153,681.76
1972	3,097,786.56	69.00	44,894.99	32.14	1,443,122.55
1973	4,290,803.30	69.00	62,184.91	32.75	2,036,617.89
1974	5,105,942.62	69.00	73,998.40	33.37	2,469,058.49
1975	5,752,379.35	69.00	83,366.95	33.99	2,833,324.54
1976	5,590,931.24	69.00	81,027.14	34.61	2,804,682.98
1977	6,383,423.08	69.00	92,512.41	35.25	3,260,760.49
1978	7,709,640.23	69.00	111,732.75	35.89	4,009,732.50
1979	9,139,855.40	69.00	132,460.29	36.53	4,839,017.80
1980	5,915,566.02	69.00	85,731.95	37.18	3,187,684.45
1981	10,249,264.52	69.00	148,538.51	37.84	5,620,801.22
1982	8,501,344.03	69.00	123,206.60	38.50	4,743,776.26
1983	7,803,975.49	69.00	113,099.91	39.17	4,430,393.96
1984	7,429,257.76	69.00	107,669.28	39.85	4,290,150.01
1985	7,787,224.25	69.00	112,857.14	40.53	4,573,651.24
1986	10,313,649.04	69.00	149,471.61	41.21	6,159,742.79
1987	12,423,979.05	69.00	180,055.79	41.90	7,544,463.00
1988	11,687,726.95	69.00	169,385.58	42.60	7,215,009.28
1989	10,038,628.15	69.00	145,485.84	43.29	6,298,645.52
1990	9,755,818.07	69.00	141,387.19	44.00	6,221,025.08
1991	7,899,521.16	69.00	114,484.62	44.71	5,118,413.95
1992	11,812,911.36	69.00	171,199.83	45.42	7,776,473.32
1993	10,467,072.57	69.00	151,695.12	46.14	6,999,363.17
1994	11,961,356.92	69.00	173,351.19	46.86	8,124,035.16
1995	12,207,438.59	69.00	176,917.55	47.59	8,419,679.96
1996	13,449,361.84	69.00	194,916.25	48.32	9,418,886.42
1997	12,623,049.39	69.00	182,940.83	49.06	8,974,603.90

NIPSCO
Gas Division
380.20 Services - Plastic

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: 69 *Survivor Curve:* R1.5

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1998	12,979,604.39	69.00	188,108.24	49.80	9,366,926.70
1999	15,101,304.29	69.00	218,857.20	50.54	11,060,930.39
2000	12,712,041.19	69.00	184,230.56	51.29	9,448,302.16
2001	13,312,904.72	69.00	192,938.63	52.04	10,039,841.69
2002	11,091,128.09	69.00	160,739.31	52.79	8,485,357.97
2003	11,793,844.84	69.00	170,923.50	53.55	9,152,562.86
2004	7,385,451.31	69.00	107,034.41	54.31	5,812,822.29
2005	13,822,834.74	69.00	200,328.85	55.07	11,032,694.71
2006	11,609,976.98	69.00	168,258.78	55.84	9,395,613.07
2007	11,777,043.48	69.00	170,680.01	56.61	9,662,529.36
2008	11,651,232.49	69.00	168,856.68	57.39	9,690,063.46
2009	7,482,015.72	69.00	108,433.88	58.16	6,306,905.50
2010	7,249,993.61	69.00	105,071.27	58.95	6,193,543.86
2011	8,904,969.64	69.00	129,056.18	59.73	7,708,573.50
2012	14,216,923.80	69.00	206,040.22	60.52	12,469,461.25
2013	15,360,393.67	69.00	222,612.08	61.31	13,648,508.99
2014	13,869,771.21	69.00	201,009.08	62.11	12,483,978.09
2015	20,070,626.87	69.00	290,875.61	62.90	18,297,420.97
2016	34,494,498.45	69.00	499,915.04	63.71	31,848,100.37
2017	30,824,866.60	69.00	446,732.53	64.51	28,819,592.66
2018	40,057,068.28	69.00	580,531.16	65.32	37,920,159.20
2019	39,914,340.31	69.00	578,462.66	66.13	38,255,295.70
2020	34,693,917.58	69.00	502,805.15	66.95	33,661,447.28
2021	64,519,597.51	69.00	935,056.86	67.77	63,365,752.55
2022	55,968,342.63	69.00	811,126.93	68.59	55,633,652.83

NIPSCO

Gas Division

380.20 Services - Plastic

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: 69 **Survivor Curve: R1.5**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
Total	750,598,791.29	69.00	10,878,129.69	55.96	608,726,835.07

Composite Average Remaining Life ... 55.96 Years

NIPSCO
Gas Division
383.00 House Regulators

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: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1936	2,424.01	63.00	38.48	13.09	503.76
1937	187.26	63.00	2.97	13.47	40.04
1938	139.84	63.00	2.22	13.85	30.74
1939	136.73	63.00	2.17	14.23	30.89
1940	55.95	63.00	0.89	14.62	12.99
1941	39.49	63.00	0.63	15.01	9.41
1942	543.66	63.00	8.63	15.41	132.99
1943	408.07	63.00	6.48	15.81	102.42
1944	1,793.06	63.00	28.46	16.22	461.63
1945	1,062.37	63.00	16.86	16.63	280.43
1946	799.21	63.00	12.69	17.05	216.24
1947	1,474.67	63.00	23.41	17.47	408.83
1948	3,621.88	63.00	57.49	17.89	1,028.54
1949	642.28	63.00	10.19	18.32	186.78
1950	5,873.95	63.00	93.24	18.76	1,748.68
1951	3,263.26	63.00	51.80	19.20	994.24
1952	3,355.09	63.00	53.25	19.64	1,045.89
1953	2,468.84	63.00	39.19	20.09	787.24
1954	5,911.30	63.00	93.83	20.54	1,927.57
1955	1,028.30	63.00	16.32	21.00	342.82
1956	19.24	63.00	0.31	21.47	6.56
1957	2,051.16	63.00	32.56	21.94	714.26
1958	3,903.40	63.00	61.96	22.41	1,388.73
1959	3,132.81	63.00	49.73	22.89	1,138.45
1960	4,905.98	63.00	77.87	23.38	1,820.70
1961	75,132.13	63.00	1,192.55	23.87	28,468.20
1962	112,101.49	63.00	1,779.35	24.37	43,361.32

NIPSCO
Gas Division
383.00 House Regulators

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: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1963	208,181.96	63.00	3,304.41	24.87	82,186.32
1964	265,419.54	63.00	4,212.93	25.38	106,920.01
1965	306,248.47	63.00	4,860.99	25.89	125,864.52
1966	336,709.97	63.00	5,344.50	26.41	141,152.66
1967	359,457.25	63.00	5,705.56	26.94	153,684.05
1968	423,132.02	63.00	6,716.25	27.46	184,459.76
1969	473,974.65	63.00	7,523.26	28.00	210,659.07
1970	448,646.94	63.00	7,121.24	28.54	203,257.82
1971	295,688.55	63.00	4,693.38	29.09	136,522.36
1972	362,200.49	63.00	5,749.10	29.64	170,409.41
1973	340,300.36	63.00	5,401.49	30.20	163,112.10
1974	264,746.23	63.00	4,202.24	30.76	129,267.73
1975	277,910.32	63.00	4,411.19	31.33	138,205.20
1976	277,288.52	63.00	4,401.32	31.90	140,419.48
1977	276,935.86	63.00	4,395.72	32.48	142,790.49
1978	329,609.13	63.00	5,231.79	33.07	173,003.46
1979	304,731.76	63.00	4,836.92	33.66	162,803.89
1980	300,861.07	63.00	4,775.48	34.25	163,580.01
1981	466,973.49	63.00	7,412.14	34.85	258,342.29
1982	338,331.58	63.00	5,370.24	35.46	190,428.30
1983	348,005.19	63.00	5,523.79	36.07	199,240.11
1984	319,448.37	63.00	5,070.51	36.69	186,014.29
1985	189,059.01	63.00	3,000.88	37.30	111,946.08
1986	1,940,471.54	63.00	30,800.55	37.93	1,168,267.08
1987	406,314.81	63.00	6,449.32	38.56	248,684.00
1988	1,115,823.24	63.00	17,711.14	39.19	694,147.34
1989	1,374,007.05	63.00	21,809.22	39.83	868,688.23

NIPSCO

Gas Division

383.00 House Regulators

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: 63 *Survivor Curve:* R1

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
1990	1,261,759.45	63.00	20,027.55	40.47	810,562.42
1991	925,172.40	63.00	14,685.00	41.12	603,835.95
1992	1,659,130.69	63.00	26,334.91	41.77	1,099,995.14
1993	1,686,193.55	63.00	26,764.47	42.42	1,135,417.30
1994	2,099,212.35	63.00	33,320.20	43.08	1,435,441.41
1995	2,124,039.70	63.00	33,714.28	43.74	1,474,664.07
1996	2,128,917.68	63.00	33,791.70	44.40	1,500,503.31
1997	2,116,799.83	63.00	33,599.36	45.07	1,514,377.30
1998	2,685,925.02	63.00	42,632.92	45.74	1,950,075.97
1999	2,761,269.86	63.00	43,828.85	46.41	2,034,276.91
2000	2,934,687.61	63.00	46,581.46	47.09	2,193,469.32
2001	2,306,040.40	63.00	36,603.12	47.77	1,748,432.48
2002	2,405,363.29	63.00	38,179.64	48.45	1,849,687.96
2003	2,835,195.69	63.00	45,002.25	49.13	2,210,977.48
2004	3,059,859.94	63.00	48,568.28	49.82	2,419,467.84
2005	2,889,995.35	63.00	45,872.07	50.50	2,316,669.84
2006	2,330,351.56	63.00	36,989.00	51.19	1,893,583.86
2007	1,811,637.37	63.00	28,755.60	51.88	1,491,981.07
2008	2,135,515.45	63.00	33,896.43	52.58	1,782,288.60
2009	2,026,030.96	63.00	32,158.61	53.28	1,713,356.82
2010	1,590,487.88	63.00	25,245.36	53.98	1,362,702.22
2011	2,465,368.59	63.00	39,132.09	54.68	2,139,821.18
2012	3,748,416.07	63.00	59,497.54	55.39	3,295,425.46
2013	3,593,868.47	63.00	57,044.45	56.10	3,200,045.03
2014	6,076,047.23	63.00	96,443.36	56.81	5,478,942.60
2015	6,846,706.16	63.00	108,675.81	57.53	6,251,590.73
2016	5,464,956.60	63.00	86,743.69	58.24	5,052,326.45

NIPSCO

Gas Division

383.00 House Regulators

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: **63** *Survivor Curve:* **R1**

Year (1)	Original Cost (2)	Avg. Service Life (3)	Avg. Annual Accrual (4)	Avg. Remaining Life (5)	Future Annual Accruals (6)
2017	4,928,263.37	63.00	78,224.92	58.97	4,612,599.95
2018	5,101,975.67	63.00	80,982.20	59.69	4,833,986.69
2019	6,042,122.63	63.00	95,904.89	60.42	5,794,592.87
2020	5,395,514.00	63.00	85,641.45	61.15	5,237,276.96
2021	11,497,720.89	63.00	182,500.04	61.89	11,294,945.87
2022	9,117,436.47	63.00	144,718.46	62.63	9,063,647.88
Total	128,638,934.98	63.00	2,041,849.07	52.67	107,538,215.29

Composite Average Remaining Life ... 52.67 Years

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

David Garrett
OUCC Consultant
Indiana Office of Utility Consumer Counselor
Cause No. 45621
Northern Indiana Public Service Company LLC

1-19-2022

Date

CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing ***OUCC'S TESTIMONY OF DAVID J. GARRETT*** has been served upon the following counsel of record in the captioned proceeding by electronic service on January 20, 2022.

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