



**CALCULATED ANNUAL DEPRECIATION RATES
APPLICABLE TO PLANT IN SERVICE**

As of December 31, 2020

Prepared for



ELECTRIC DIVISION

June 2021

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June 23, 2021

Montana-Dakota Utilities Co.
400 North Fourth Street
Bismarck, ND 58501

Attention: Mr. Garret Senger
Executive Vice President, Regulatory Affairs, Customer Service & Administration

Dear Garret,

In accordance to your request, we have conducted a depreciation study of the electric system of Montana-Dakota Utilities Co. ("MDU" or the "Company") and developed depreciation accrual rates for plant in service as of December 31, 2020. Our study presents a description of the methods used in the estimation of depreciation and net salvage, the statistical analyses of service life, and the summary and detailed tabulations of annual and accrued depreciation.

We gratefully acknowledge the assistance of MDU personnel in the completion of the review.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "LEK", with a long horizontal line extending from the end.

Larry E Kennedy
Senior Vice President

A handwritten signature in black ink, appearing to read "CB", with a long horizontal line extending from the end.

Colin Burns
Senior Consultant

LEK/TA
Project 03912



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SECTION 1

1 STUDY HIGHLIGHTS

Pursuant to a request of Montana-Dakota Utilities Co. (“MDU” or the “Company”), Concentric Energy Advisors (“Concentric”) conducted a depreciation study related to the electric generation, transmission, distribution and general plant accounts, as of December 31, 2020. The purpose of this study was to determine the annual depreciation accrual rates and amounts applicable to the original cost of electric plant, as of December 31, 2020.

The depreciation rates are based on the Straight-Line Method using the Average Life Group (“ALG”) Procedure and were applied on a Remaining Life basis. The calculations were based on attained ages and estimated average service life and forecasted net salvage characteristic for each depreciable group of assets. Variances between the calculated accrued depreciation and the book accumulated depreciation, as at December 31, 2020, are amortized over the composite remaining life of account.

MDU’s accounting policy has not changed since the last depreciation study was prepared. However, in the completion of this assignment, Concentric has reviewed the detailed depreciation calculations used in prior studies and has refined the remaining

life calculations to enhance the accuracy of the calculations.

Concentric recommends the calculated annual depreciation accrual rates set forth herein apply specifically to electric plant in service, as of December 31, 2020. The annual depreciation accrual rates are summarized by Tables related to:

- the total required annual accrual amounts;
- the annual accrual requirements related to the recovery of the original cost of the investment; and
- the annual accrual amount related to the recovery of the expected net salvage requirements at the time of retirement.

Supporting data and calculations are also provided in this report.

Finally, this study results in an annual depreciation expense accrual related to the recovery of original cost (i.e. excluding net salvage requirement) of \$56.8 million, when applied to depreciable plant balances, as of December 31, 2020. The study results are summarized at an aggregate functional group level as follows:

SUMMARY OF ORIGINAL COST, ACCRUAL PERCENTAGES AND AMOUNTS

Plant Group	Original Cost	Annual Accrual	
Steam Plant	372,470,891	2.45%	9,115,697
Other Production Plant	537,757,981	3.98%	21,377,839
Transmission Plant	522,283,617	1.70%	8,889,889
Distribution Plant	461,078,839	3.25%	15,005,624
General Plant	33,261,966	7.34%	2,443,013
Total Plant in Service	1,926,853,295	2.95%	56,832,062



SECTION 2

2 INTRODUCTION

2.1 Scope

This study sets forth the results of the depreciation study for the electric generation, transmission, distribution and general plant assets of MDU, to determine the annual depreciation accrual rates and amounts for book purposes applicable to the original cost of investment as of December 31, 2020. The rates and amounts are based on the Straight-Line Method, incorporating the ALG Procedure applied on a Remaining Life Basis. This study also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates related to the MDU electric assets in service, as of December 31, 2020.

The service life estimates resulting from the study were based on:

- informed professional judgment which incorporated analyses of historical plant retirement data recorded through December 31, 2020;
- a review of MDU company practice and outlook, as they relate to plant operation and retirement; and
- consideration of current practice in the electric system industry, including knowledge of service life estimates used for other electric system companies.

The depreciation accrual rates presented herein are based on generally-accepted methods and procedures for calculating depreciation. The estimated survivor curves used in this study are based on studies incorporating actual data through 2020 for most accounts.

2.2 Plan of Study

This study is presented in the following order:

Section 1	Study Highlights, presents a summary of the depreciation study and results.
Section 2	Introduction, contains statements with respect to the plan and the basis of the study.
Section 3	Development of Depreciation Parameters, presents descriptions of the methods used and factors considered in the service life study.
Section 4	Calculation of Annual and Accrued Depreciation presents the methods and procedures used in the calculation of depreciation.
Section 5	Results of Study, presents summaries by depreciable group of annual and accrued depreciation in Tables 1, 2, 3, 4, 5, and 6.
Section 6	Presents Retirement Rate Analysis
Section 7	Presents Net Salvage Calculations
Section 8	Presents Detailed Depreciation Calculations
Section 9	Estimation of Survivor Curves, is an overview of Iowa curves and the Retirement Rate Analysis.



2.3 Depreciation

For most accounts, the annual and accrued depreciation were calculated by the Straight-Line Method using the ALG Procedure. For certain general plant accounts, the annual and accrued depreciation are based on amortization accounting. Both types of calculations were based on original cost, attained ages and an estimate of service lives.

Consistent with the current MDU practice, amortization accounting continues to be recommended for certain general plant accounts because of the disproportionate plant accounting effort required in these accounts. Many regulated utilities in North America have received approval to adopt amortization accounting for these accounts.

2.3.1 Service Life Estimates

The service life estimates used in the depreciation and amortization calculations were based on informed professional judgment which incorporated a review of management's plans, policies and outlook, a general knowledge of the electric utility industry and comparisons of the service life estimates from our studies of other electric utilities. The use of survivor curves to reflect the expected dispersion of retirement provides a consistent method of estimating depreciation for electric system plant. Iowa type survivor curves were used to depict the estimated survivor curves for the plant accounts not subject to amortization accounting.

The procedure for estimating service lives consisted of compiling historical data for the plant accounts or depreciable groups, analyzing this history using widely accepted techniques, forecasting the survivor characteristics for each depreciable group based on interpretations of the historical data analyses, and operational staff interviews. The combination of the historical experience and the estimated future yielded survivor curves from which the average service lives were derived.

A general understanding of the function of the plant and information, with respect to the reasons for past retirements and the expected future causes of retirement, were obtained through discussions with management personnel. In addition to the on-going retirement of plant due to physical and economic forces, significant future retirements may be caused by obsolescence resulting from the introduction of increased digital technology into some asset accounts.

The resultant depreciation rates are summarized in the Total, Life, and Net Salvage tables of this study. Concentric recommends that depreciation rates should be reviewed periodically to reflect the changes that result from plant and reserve account activity. A depreciation reserve deficiency or surplus will develop if future capital expenditures vary significantly from those anticipated in this study.



SECTION 3

3 DEVELOPMENT OF DEPRECIATION PARAMETERS

3.1 Depreciation

Depreciation, in public utility regulation, is the loss in service value not restored by current maintenance incurred with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among causes to be given consideration are, wear and tear, deterioration, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and the requirements of public authorities. When considering the action of the elements, the average service life calculations have considered large catastrophic events that have occurred and impacted the life estimates of utilities across North America. The average service life of utilities has been influenced by events including forest fires, earthquakes, tornadoes, ice storms, wind storms, large scale flooding, fires, actions of third parties and other natural forces of nature.

Depreciation, as used in accounting, is a method of distributing fixed capital costs, less net salvage, over a period of time by allocating annual amounts to expense. Each annual amount of such depreciation expense is part of that year's total cost of providing electric system utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service, that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the straight-line method of depreciation.

The calculation of annual and accrued depreciation, based on the Straight-Line Method, requires the estimation of survivor curves and is described in the following sections of this report. The development of the proposed depreciation rates also requires the selection of group depreciation procedures, as discussed below.

3.2 Study Depreciation Methods and Procedures

3.2.1 Depreciation Procedures

When more than a single item of property is under consideration, a group procedure for depreciation is appropriate because normally all of the items within a group do not have identical service lives but have lives that are dispersed over a range of time. There are two primary group procedures, namely, the Average Life Group (ALG) and Equal Life Group (ELG) procedures.

In the ALG Procedure, the rate of annual depreciation is based on the average service life of the group. This rate is applied to the surviving balances of the group's cost. A characteristic of this procedure is that the cost of plant retired prior to average life is not fully recouped at the time of retirement, whereas the cost of plant retired subsequent to the average life is more than fully recouped. Over the entire life cycle, the portion of cost not recouped prior to average life is balanced by the cost recouped subsequent to average life.



In the Equal Life Group Procedure, also known as the Unit Summation Procedure, the property group is subdivided according to service life. That is, each equal life group includes that portion of the property which experiences the life of that specific group. The relative size of each equal life group is determined from the property's life dispersion curve. The calculated depreciation for the property group is the summation of the calculated depreciation based on the service life of each equal life unit.

For most accounts, the annual and accrued depreciation were calculated by the Straight-Line Method using the ALG Procedure. For certain general plant accounts, the annual and accrued depreciation are based on amortization accounting. Both types of calculations were based on original cost, attained ages and an estimate of service lives.

While the Equal Life Group Procedure provides an enhanced matching of depreciation expense to the consumption of service value, the Straight-Line Method, Average Life Group Procedure is a commonly used depreciation calculation that has been widely accepted in jurisdictions throughout North America including MDU in prior studies. Concentric recommends its continued use.

Amortization accounting is used for certain general plant accounts because of the disproportionate plant accounting effort required in these accounts. Many regulated utilities in North America have received approval to adopt amortization accounting for these accounts. This study calculates the annual and accrued depreciation using the Straight-Line Method and ALG Procedure for most accounts. For certain general plant accounts, the annual and accrued depreciation are based on amortization accounting. Both types of calculations were based on original cost, attained ages and estimates of service lives. Variances between the calculated accrued depreciation and the book accumulated depreciation are amortized over the composite remaining life of each account within the remaining life calculations.

Continued monitoring and maintenance of the accumulated depreciation reserve at the account level is recommended. Concentric has determined an amortization amount to correct the present variance with the calculated accrued depreciation (theoretical reserve) over the composite remaining life of each account.

3.3 Changes Since Last MDU Full Depreciation Study

The depreciation rates calculated in this study were calculated on the same manner as used in the prior full depreciation study – i.e. using the straight-line method, the ALG Procedure applied on a remaining life basis which was weighted by investment in each vintage approach. The vintaged remaining life approach weighs the calculations of remaining life on an allocation of the actual book accumulated depreciation account by the Calculated Accumulated Depreciation (CAD) factor determined for each vintage of plant in service. This method is described as a CAD weighted calculation in the textbook *Depreciation Systems* by Frank K. Wolf and W. Chester Fitch, published by the Iowa State University in 1994 under the title “Adjustments” within the Broad Group Model.

When depreciation rates are calculated utilizing a remaining life technique, the depreciation rate is established by dividing the undepreciated value of each group of assets (after consideration to the net salvage requirements) by the composite remaining life of the group of assets. This calculation is made for each vintage surviving investment as of the date of the study (December 31, 2020), and then



composited into a calculation for the account or group as a whole. This calculation requires two estimates:

1. The actual booked accumulated depreciation for each vintage within each account.

MDU does not track the booked accumulated depreciation reserve by vintage within each account. Rather the depreciation expense is calculated at an account level and booked to accumulated depreciation at the same account level. Concentric notes that this is the practice employed by virtually all regulated utilities. As such, the accumulated depreciation by account is allocated within the account to each vintage, on the basis of the calculated accumulated depreciation by vintage. The calculated accumulated depreciation is a function of the estimated survivor curve, the average service life estimate, the net salvage estimates and the achieved age of each vintage.

2. The estimated remaining life of each vintage with each account. The estimated remaining life of each vintage is a direct function of the achieved age of each vintage, the estimated survivor curve and the average service life estimate.

Once the above two estimates are determined (the allocated booked reserve by vintage and the average remaining life of each vintage), an annual accrual requirement for each vintage is determined by dividing the net book value for each vintage (considering the estimated future salvage requirements) by the average remaining life of the vintage. The annual requirement for each vintage is summed at the account level and divided into the sum of the accounts original cost surviving as of December 31, 2020.

This process results in each vintage's calculated net book value to be depreciated over an appropriate remaining life. This vintage weighting on CAD approach to the remaining life calculations is widely considered to be the most accurate. Concentric agrees and views this methodology as the correct and most appropriate calculation.

3.4 Estimation of Survivor Curves

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

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. The Iowa curves were sorted into three groups according to whether the mode was to the left, approximately coincident with, or to the right of the average-life ordinate. The curves in each of these three groups were then sub-classified in accordance with the height of the mode, taking into consideration the distance of the mode to the left or right of the average life. The Iowa curves are described as L-type (i.e. left-moded), R-type (i.e. right-moded), and S-type (i.e. symmetrical). Further development resulted in the introduction of O-type curves (i.e. origin-moded) where the greatest frequency of retirement occurs at the origin, or immediately after age zero. Individual type curves are further



depicted with numerical subscripts which represent the relative heights of the modes of the frequency curves within each family.

The program used by Concentric for statistical smooth curve fitting utilizes an internal “goodness-of-fit” criterion which is the Residual Measure. This Residual Measure is based on a least squared solution of the differences between the stub curve (or original data points) and smooth survivor curve, which also requires a balancing of the differences above and below the stub curve.

The criterion of “goodness-of-fit” is the mean square of the differences between the points on the stub and fitted smooth survivor curves. The residual measure or standard error of estimate, shown in the output format, is the square root of this mean square. As such, the lower the residual measure the better the statistical fit between the analyzed Iowa curve and the observed data points. Concentric follows the widely-used practice of fitting Iowa curves up to 1% of the maximum exposures. This standard practice is utilized to minimize the influence of typically small retirements applied to similarly small exposures which may unduly affect the Iowa curve fitting process. Concentric does however recognize the observed data points beyond the 1% of maximum exposures, if it is determined that the additional data is a valid consideration for life recommendation.

A discussion of the general concept of survivor curves and retirement rate method is presented in Section 9 of this report.

3.5 The Life Span Method

The depreciation rates for each of the location specific generation accounts were developed from the continued use of a Life Span Method. This is a continuation of the method that was incorporated into the depreciation calculations related to generation accounts in the last depreciation study. With the use of a Life Span Method, an interim retirement curve is identified for each property group based on the analysis as described within Section 3.6 of this report. The probable retirement dates for each of the generation plants was provided by MDU to Concentric based on an internal MDU analysis of the factors impacting the terminal life of each plant. The life span date is incorporated into the interim survivor curve to develop an average service life and average remaining life, via the Life Span Method, for each of the generation accounts. The life span dates provided to Concentric are as follows:

- Coyote Generating Station: December 31, 2041
- Big Stone Generating Station: December 31, 2046
- Wygen III Generating Station: December 31, 2060
- Glendive Turbine – Common: December 31, 2046
- Miles City Turbine: December 31, 2033
- Portable Generators: December 31, 2047
- Heskett Turbine: December 31, 2057
- Diamond Willow Wind Farm: December 31, 2035



- Cedar Hills Wind Farm: December 31, 2035
- Lewis & Clark RICE: December 31, 2045
- Ormat Generation Facility: December 31, 2034;
- Thunder Spirit Wind Farm I: December 31, 2040; and
- Thunder Spirit Wind Farm II: December 31, 2043.

3.6 Survivor Curve Judgments

The service life estimates used in the depreciation and amortization calculations were based on informed professional judgment which incorporated a review of management's plans, policies and outlook, a general knowledge of the electric utility industry and comparisons of the service life estimates from our studies of other electric utilities. The use of survivor curves to reflect the expected dispersion of retirement provides a consistent method of estimating depreciation for transmission assets. Iowa type survivor curves were used to depict the estimated survivor curves for plant accounts not subject to amortization accounting.

The procedure for estimating service lives consisted of compiling and analyzing historical data for the plant accounts using widely accepted techniques and forecasting the survivor characteristics for each depreciable group. The estimates were based on interpretations of the historical data analyses and the probable future and were verified through discussions with management and operational staff. The combination of the historical experience and the estimated future yielded estimated survivor curves from which the average service lives were derived.

The following discussion dealing with the Company's accounts by function, which comprise the investment analyzed, presents an overview of the factors considered by Concentric in the determination of the average service life estimates. Investment related to unretired "Common" assets is still required for the operation of remaining facilities.

3.6.1 Account 311.00 – Structures and Improvements

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$81,113,617	4.21%	65-R2.5	68-R3	0%	0%

The company's plant investment is related to the facilities located at three different generation stations:

- Big Stone - placed into service in 1975
- Coyote - placed into service in 1981; and
- Wygen III - placed into service in 2010.
- Heskett and Lewis & Clark plant investment to be transferred to Gas Turbine operations.



The currently approved interim Iowa 65-R2.5 curve was analyzed for reasonableness using actual plant additions (placement band) over the 1952-2020 period, and retirement experience (experience band) covering 1996 through 2020. The result of the analysis for this account is provided in Section 6 of this report. The percent surviving throughout the observation period is similar to the percentage surviving at the same age intervals in the last depreciation study, which considered actual experience through December 31, 2017. The recommended retirement rate analysis provides a statistical residual measure of 0.1582 which indicates a very good fit. Therefore, the depreciation rates calculated within this study have incorporated the slightly adjusted use of the interim Iowa 68-R3 curve, compared to the previous 65-R2.5 curve.

3.6.2 Account 312.00 – Boiler Plant Equipment

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$198,020,004	10.28%	50-R1	50-R1	0%	0%

The company's plant investment is related to the facilities located at three different generation stations:

- Big Stone - placed into service in 1975
- Coyote - placed into service in 1981; and
- Wygen III - placed into service in 2010.
- Heskett and Lewis & Clark plant investment to be transferred to Gas Turbine operations.

The currently approved interim Iowa 50-R1 curve was analyzed for reasonableness using actual plant additions (placement band) over the period of 1952 through 2020, and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. While the percent surviving throughout the observation period is similar to the percentage surviving at the same age intervals in the last depreciation study, which considered actual experience through December 31, 2017, the retirement rate analysis provides a statistical residual measure of 0.6683 which indicates a good fit to a 50-R1 Iowa curve. Therefore, the depreciation rates calculated within this study have incorporated the continued use of the Iowa 50-R1 interim curve, as it represents a strong fit to the historic retirement experience.

3.6.3 Account 314.00 – Turbogenerator Units

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$63,076,280	3.27%	45-R0.5	50-R0.5	0%	0%

The company's plant investment is related to the facilities located at three different generation stations:



- Big Stone - placed into service in 1975
- Coyote - placed into service in 1981; and
- Wygen III - placed into service in 2010.
- Heskett and Lewis & Clark plant investment to be transferred to Gas Turbine operations.

The currently approved interim Iowa 45-R0.5 curve was analyzed for reasonableness using actual plant additions (placement band) over the period of 1952 through 2020, and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period has increased slightly since the previous study.

Given the account has experienced a slight increasing trend in the historical percent surviving since the previous study, Concentric is recommending the use of the Iowa 50-R0.5 curve. As such, the depreciation rate calculations presented in this report has incorporated the use of the interim curve 50-R0.5 as selected. The recommended retirement rate analysis provides a statistical residual measure of 1.0392.

3.6.4 Account 344.10 – Generators

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$103,677,534	5.38%	55-R3	55-R3	0%	0%

MDU has multiple Other Production units which include:

- Glendive I
- Glendive II
- Miles City
- Heskett III
- Ormat Generation
- Lewis & Clark RICE; and
- Portable Generators at various locations.

Not all of the locations have investments in each of the Other Production property accounts.

The currently approved interim Iowa 55-R3 curve was analyzed for reasonableness using actual plant additions (placement band) over the period of 1954 through 2020, and retirement experience (experience band) covering 1997 through 2020. The retirement characteristics throughout the observation period remain virtually unchanged from the previous study.

Concentric is therefore recommending the continued use of the interim Iowa 55-R3 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report.



3.6.5 Account 344.20 – Generators – Wind Farm

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$294,287,808	15.27%	55-R3	55-R3	0%	0%

MDU has three wind farm sites:

- Diamond Willow – comprised of 20 turbine units - 1.5MW capacity
- Cedar Hills - comprised of 13 turbine units - 1.5MW capacity
- Thunder Spirit I – comprised of 43 turbine units – 2.5 MW capacity; and
- Thunder Spirit II – comprised of 16 turbine units – 3 MW capacity

The currently approved interim Iowa 55-R3 curve was analyzed for reasonableness using actual plant additions (placement band) over the period of 1954 through 2020, and retirement experience (experience band) covering 1997 through 2020. The retirement characteristics throughout the observation period remain virtually unchanged from the previous study.

Concentric is therefore recommending the continued use of the interim Iowa 55-R3 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report.

3.6.6 Account 353.00 – Station Equipment

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$222,333,780	11.54%	65-R2.5	65-R2.5	-10%	-10%

The plant included in this account relate to the numerous transmission substation equipment (transformers, voltage regulators, circuit breakers, etc.) used to transform power to different voltages. The stations currently in the system are operating at voltages between 69Kv through 138Kv and 345Kv facilities.

The currently approved Iowa 65-R2.5 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1942-2020 period, and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period shows a continuing trend when compared to the percent surviving at the same age intervals presented in the last study, leading to the continued use of an Iowa 65-R2.5 curve. As a result, Concentric recommends using the Iowa 65-R2.5 as an interim curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. Concentric notes



that the retirement rate analysis provides a statistical residual measure of 0.3644 which indicates a very good fit.

The updated net salvage study, included in Section 7 of this report, indicates a continuing trend of net salvage percentages. Concentric recommends the continued use of the currently approved -10%.

3.6.7 Account 355.00 – Poles and Fixtures

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$172,142,522	8.93%	60-R3	63-R2.5	-30%	-35%

This plant group contains MDU's investment applicable to transmission poles and fixtures, and related property. A typical transmission system pole line may be constructed using single poles and H-frame construction techniques. Depending on the voltage, poles and fixtures are either wood or steel. Over the last number of years, in part caused by a pole inspection program, the Company has significantly increased its investment in this account. While this program resulted in a larger than normal amount of investment and retirement activity, Concentric views that the average service life indications has lengthened over the period since the last depreciation study.

The currently approved Iowa 60-R3 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1925-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period shows an increase as compared to the percent surviving at the same age intervals presented in the last study. As a result, Concentric recommends using the Iowa 63-R2.5 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. Concentric notes that the retirement rate analysis provides a statistical residual measure of 1.3872 which indicates a good fit.

The updated net salvage study, included in Section 7 of this report, indicates a trend of increasingly negative net salvage percentages. Concentric recommends using -35% net salvage instead of the currently approved -30%.

3.6.8 Account 356.00 – Overhead Conductors and Devices

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$101,836,280	5.29%	70-R4	70-R3	-20%	-20%

This account group consists of MDU's plant applicable to overhead conductors and related property. The load requirements are monitored on an ongoing basis with necessary upgrades completed as required. Recent history shows a growth trend and increased plant.



The currently approved Iowa 70-R4 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1900-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period shows a continuing trend when compared to the percent surviving at the same age intervals presented in the last study. As a result, Concentric recommends the use of the Iowa 70-R3 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. Concentric notes that the retirement rate analysis provides a statistical residual measure of 0.2122, which is an excellent fit.

The updated net salvage study, included in Section 7 of this report, indicates a continuing trend of negative net salvage percentages. As a result, Concentric recommends continued use of the -20% net salvage, as currently approved in the previous study.

3.6.9 Account 362.00 – Station Equipment

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$89,780,858	4.66%	53-R2.5	53-R2	-10%	-15%

The plant investment in this account involves MDU's distribution substation equipment. Items such as transformers, voltage regulators, and circuit breakers are used to transform power from transmission to primary distribution voltages. MDU has experienced increased growth in their system and has increased their plant investment as a result. MDU is also working to keep current with technology advancements seen across the industry.

The currently approved Iowa 53-R2.5 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1924-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period shows a continuing trend compared to the percent surviving at the same age intervals presented in the last study. As a result, Concentric recommends using a slightly adjusted Iowa 53-R2 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. Concentric notes that the retirement rate analysis provides a statistical residual measure of 0.5148 which indicates an excellent fit.

The updated net salvage study, included in Section 7 of this report, indicates a trend to more negative net salvage percentages. As a result, Concentric recommends using -15% net salvage as compared to the currently approved -10%.



3.6.10 Account 364.00 – Poles, Towers and Fixtures

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$46,982,855	2.44%	60-R1.5	60-R1.5	-120%	-120%

This account includes the investment in the MDU's distribution poles, towers and attached fixtures. This includes poles, cross arms, insulators and other attachments.

The currently approved Iowa 60-R1.5 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1920-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period indicates a continuing trend of the currently approved Iowa 60-R1.5. In the period since the last study, the retirement activity has maintained the trajectory of the average service life. Concentric is therefore recommending the continued use of the Iowa 60-R1.5 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. The recommended retirement rate analysis provides a statistical residual measure of 0.9992 which indicates a very good fit.

The updated net salvage study, included in Section 7 of this report, indicates a consistent trend of negative net salvage percentages. As a result, Concentric recommends the continued use of -120% net salvage.

3.6.11 Account 365.00 – Overhead Conductor and Devices

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$36,578,399	1.90%	62-R1.5	65-R2	-100%	-110%

This property group contains the Company's investment applicable to overhead conductors and related property. Change outs of conductors and appurtenant equipment are driven by both physical attributes and load growth that are constantly occurring within MDU's service area.

The currently approved Iowa 62-R1.5 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1925-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period indicates a longer life than the currently approved Iowa 62-R1.5. In the period since the last study, the retirement activity has resulted in a lengthening of the average service life. Therefore, Concentric is recommending an extension to the Iowa 65-R2 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. The recommended retirement rate analysis provides a statistical residual measure of 0.4552 which indicates an excellent fit.



The updated net salvage study, included in Section 7 of this report, indicates a trend to more negative net salvage percentages. As a result, Concentric recommends using -110% net salvage as compared to the currently approved -100%.

3.6.12 Account 367.00 – Underground Conductor and Devices

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$133,794,646	6.94%	40-R2	42-R2.5	-40%	-50%

This account includes the investment related to direct buried secondary distribution cables. Industry information has shown the propensity for increased failure levels in this class of property as it continues to age - particularly the 1983 and prior vintage. MDU estimates that approximately 25% of the plant falls into this category. Continued quality control and inspection of cable deliveries is expected to minimize the possibility of outages of newly installed plant due to cable failures.

The currently approved Iowa 40-R2 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1945-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period indicates a longer life than the currently approved Iowa 40-R2. In the period since the last study, the retirement activity has resulted in a lengthening of the average service life. Therefore, Concentric is recommending an extension to the Iowa 42-R2.5 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. The recommended retirement rate analysis provides a statistical residual measure of 0.1623 which indicates an excellent fit.

The updated net salvage study, included in Section 7 of this report, indicates a trend to more negative net salvage percentages. As a result, Concentric recommends using -50% net salvage as compared to the currently approved -40%.

3.6.13 Account 370.00 – Meters

Investment \$	Investment %	Previously Approved Curve	Concentric Recommends Curve	Previously Approved Salvage	Concentric Recommends Salvage
\$19,046,182	1.00%	20-L3	20-L3	-5%	-5%

This account includes the investments in meters. In recent years, MDU has replaced most of its electric meters in conjunction with an AMR conversion project. This current new technologically driven property is routinely influenced by greater levels of upgrades and obsolescence than the prior mechanical meters. The life of this plant group must be monitored continually in conjunction with changing technology and MDU's requirements to address such rapid changes.



The currently approved Iowa 20-L3 curve was analyzed for reasonableness incorporating actual plant additions (placement band) over the 1939-2020 period and retirement experience (experience band) covering 1995 through 2020. The result of the analysis for this account is provided in Section 6 of this report. As noted in the retirement rate analysis, the percent surviving throughout the observation period remains virtually unchanged from the previous study as indicated by the smoothed Iowa curve currently approved. Concentric is therefore recommending the continued use of the Iowa 20-L3 curve and has incorporated the use of the curve into the depreciation rate calculations presented in this report. The recommended retirement rate analysis provides a statistical residual measure of 0.6407 which indicates a very good fit.

The updated net salvage study, included in Section 7 of this report, indicates a continuing trend of negative net salvage percentages. As a result, Concentric recommends continued use of the currently approved -5%.



SECTION 4

4 CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

4.1 Amortization Accounting

Amortization is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized. Normally, the distribution of the amount is in equal amounts to each year of the amortization period.

The calculation of annual and accrued amortization requires the selection of an amortization period. The amortization periods used in this report were based on judgment which incorporated:

- a consideration of the period during which the assets will render most of their service;
- the amortization period and service lives used by other utilities; and
- the service life estimates previously used for the asset under depreciation accounting.

Amortization accounting is proposed for numerous accounts. The accounts and their amortization periods are as follows:

Account	Title	Amortization Period in Years
391.10	Office Furniture and Equipment	15
391.30	Computer Equipment - PC	5
391.40	Computer Equipment - Prime	5
391.50	Computer Equipment - Other	10
393.00	Stores Equipment	30
394.10	Tools, Shop & Garage Equipment	20
395.00	Laboratory Equipment	20
397.10	Radio Communication Equipment - Fixed	15
397.20	Radio Communication Equipment - Mobile	15
397.30	General Telephone Communication Equipment	10
397.50	Supervisory & Telemetry Equipment	10
397.60	SCADA System	10
397.80	Network Equipment	5
398.00	Miscellaneous Equipment	25

For the purposes of calculating annual amortization amounts as of December 31, 2020, the book depreciation reserve for each plant account or subaccount is assigned or allocated to vintages. The book reserve assigned to vintages with an age greater than the amortization period is equal to the vintage's original cost. The remaining book reserve is allocated among vintages with an age less than



the amortization period in proportion to the calculated accrued amortization. The calculated accrued amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the future amortizations (original cost less allocated book reserve) by the remaining period of amortization for the vintage.

4.2 Monitoring of Book Accumulated Depreciation

The calculated accrued depreciation or amortization represents that portion of the depreciable cost which will not be allocated to expense through future depreciation accruals, if current forecasts of service life characteristics and net salvage materialize, and are used as a basis for depreciation accounting. Thus, the calculated accrued depreciation provides a measure of the book accumulated depreciation. The use of this measure is recommended in the amortization of book accumulated depreciation variances to insure complete recovery of capital over the life of the property.

The recommended amortization of the variance between the book accumulated depreciation and the calculated accrued depreciation is based on an amortization period equal to the composite remaining life for each property group where the variance exceeds 5% of the calculated accrued depreciation.

The composite remaining life for use in the calculation of accumulated depreciation variances is derived by developing the composite sum of the individual vintage remaining lives.



SECTION 5

5 RESULT OF STUDY

5.1 Qualification of Results

The calculated annual and accrued depreciation are the principal results of the study. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate annual depreciation accrual rates. An assumption that accrual rates can remain unchanged over a long period of time implies a disregard for the inherent variability in service lives and salvage, and for the change of the composition of property in service. The annual accrual rates and the accrued depreciation were calculated in accordance with the Straight-Line Method using the Average Life Group Procedure, based on estimates which reflect considerations of current historical evidence and expected future conditions.

5.2 Description of Detailed Tabulations

The service life estimates were based on judgment that incorporated statistical analysis of retirement data, discussions with management and consideration of estimates made for other electric transmission assets. The results of the statistical analysis of service life are presented in Section 6 of this report.

For each depreciable group analyzed by the Retirement Rate Method, there is a chart depicting the original and estimated survivor curves followed by a tabular presentation of the original life table(s) plotted on the chart. The survivor curves estimated for the depreciable groups are shown as dark smooth curves on the charts. Each smooth survivor curve is denoted by a numeral followed by the curve type designation. The numeral used is the average life derived from the entire curve from 100% to 0% surviving. The titles of the chart indicate the group, the symbol used to plot the points of the original life table, and the experience and placement bands of the life tables which were plotted. The experience band indicates the range of years for which retirements were used to develop the stub survivor curve. The placements indicate, for the related experience band, the range of years of installations which appear in the experience.

The tables of the calculated annual depreciation applicable to depreciable assets, as of December 31, 2020, are presented in account sequence in Section 8 of this report. The tables indicate the estimated average survivor curves used in the calculations. The tables set forth, for each installation year, the original cost, the calculated accrued depreciation and the calculated annual accrual.

Montana-Dakota Utilities Co. - Electric Division

TABLE 1. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - TOTAL

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
STEAM PLANT									
311.00	Structures and Improvements	68-R3	0	81,113,617.27	37,840,342	43,273,275	1,599,729	*	1.97
312.00	Boiler Plant Equipment	50-R1	0	198,020,003.63	78,534,155	119,485,849	5,252,395	*	2.65
314.00	Turbogenerator Units	50-R0.5	0	38,076,279.95	24,326,382	38,749,898	1,490,694	*	2.36
315.00	Accessory Electric Equipment	50-R2.5	0	20,863,863.43	9,795,524	11,068,339	479,222	*	2.30
316.00	Miscellaneous Power Plant Equipment	30-R0.5	0	9,397,126.74	3,479,990	5,917,137	293,657	*	3.12
TOTAL STEAM PRODUCTION PLANT				372,470,891.02	153,976,393	218,494,498	9,115,697		
OTHER PRODUCTION PLANT									
341.10	Structures and Improvements	70-R1	0	16,578,181.79	2,071,956	14,506,226	536,307	*	3.24
341.20	Structures and Improvements - Wind Farm	70-R1	0	42,546,921.10	5,675,437	36,871,484	1,981,332	*	4.66
341.51	Portable Generators	70-R1	0	169,459.16	42,894	126,565	5,132	*	3.03
341.71	Ormat Generation Facility	70-R1	0	701,334.45	400,365	300,969	23,084	*	3.29
342.00	Fuel Holders, Producers and Accessories	40-R4	0	5,640,437.75	1,239,809	4,400,629	181,339	*	3.21
344.10	Generators	55-R3	0	103,677,534.12	32,876,006	70,801,528	2,811,895	*	2.71
344.20	Generators - Wind Farm	55-R3	0	294,287,808.25	79,682,252	214,605,556	11,533,607	*	3.92
345.10	Accessory Electric Equipment	25-L2	0	17,864,490.28	2,191,254	15,673,236	970,133	*	5.43
345.20	Accessory Electric Equipment - Wind Farm	25-L2	0	51,401,813.40	5,433,845	45,967,968	3,124,300	*	6.08
346.10	Miscellaneous Power Plant Equipment	28-S1	0	4,229,486.14	623,813	3,605,673	176,522	*	4.17
346.20	Miscellaneous Power Plant Equipment - Wind Farm	28-S1	0	660,514.98	127,731	532,784	34,188	*	5.18
TOTAL OTHER PRODUCTION PLANT				537,757,981.42	130,365,362	407,392,619	21,377,839		
TRANSMISSION PLANT									
350.20	Land Rights	70-R4	0	15,602,605.19	2,382,259	13,220,346	201,419	1.29	62.8
352.00	Structures and Improvements	50-R2	0	329,102.63	10,103	318,999	6,598	2.00	48.4
353.00	Station Equipment	65-R2.5	(10)	222,333,780.46	58,172,868	186,394,290	3,269,741	1.47	54.2
354.00	Towers and Fixtures	60-R4	(20)	4,992,886.11	3,541,545	2,449,919	95,046	1.90	25.6
355.00	Poles and Fixtures	63-R2.5	(35)	172,142,521.86	31,612,348	200,780,056	3,546,427	2.06	55.7
356.00	Overhead Conductors and Devices	70-R3	(20)	101,836,280.32	21,606,428	100,597,108	1,670,180	1.64	59.1
357.00	Underground Conduit	50-R3	0	1,944,583.16	472,994	1,471,589	38,761	1.99	38.0
358.00	Underground Conductors and Devices	50-R3	0	3,101,857.38	759,136	2,342,721	61,718	1.99	38.0
TOTAL TRANSMISSION PLANT				522,283,617.11	118,557,683	507,575,028	8,889,889		
DISTRIBUTION PLANT									
360.20	Rights of Way	62-R3	0	961,139.62	663,409	297,731	7,959	0.83	32.5
362.00	Station Equipment	53-R2	(15)	89,780,857.62	23,531,314	79,716,673	1,841,200	2.05	42.3
364.00	Poles, Towers & Fixtures	60-R1.5	(120)	46,982,854.51	23,781,444	79,580,836	1,765,540	3.76	45.4
365.00	Overhead Conductor & Devices	65-R2	(110)	36,578,399.40	20,024,517	56,790,122	1,125,010	3.08	49.8
366.00	Underground Conduit	50-R3	0	235,918.03	126,875	109,043	3,609	1.53	26.5
367.00	Underground Conductor & Devices	42-R2.5	(50)	133,794,645.52	31,950,405	168,741,563	5,448,624	4.07	32.3
368.00	Line Transformers	55-R3	(20)	80,852,581.46	27,365,932	69,657,165	1,748,863	2.16	39.7
369.10	Services	50-R3	(50)	39,903,057.66	24,652,206	35,202,380	914,058	2.29	34.6
370.00	Meters	20-L3	(5)	19,046,181.82	5,381,770	14,616,721	1,411,209	7.41	10.8
371.00	Installation on Customers Premises	20-R0.5	(15)	3,568,525.72	(460,509)	4,564,313	339,557	9.52	16.6
373.00	Street Lighting System	43-R1	(45)	9,374,677.82	1,064,116	12,529,167	399,995	4.27	34.6
TOTAL DISTRIBUTION PLANT				461,078,839.18	158,081,479	521,805,714	15,005,624		
GENERAL PLANT									
390.00	Structures and Improvements	30-L0.5	10	1,731,943.78	915,629	643,120	26,631	1.54	20.6
391.10	Office Furniture and Equipment	15-SQ	0	141,255.83	74,384	66,872	11,728	8.30	5.8
391.30	Computer Equipment - PC	5-SQ	0	16,537.01	16,537	-	-	0.00	0.5
391.40	Computer Equipment - Prime	5-SQ	0	5,436.55	2,332	3,104	3,104	57.10	0.5
391.50	Computer Equipment - Other	10-SQ	0	70,687.28	31,380	39,307	8,555	12.10	5.0
392.10	Transportation Equipment - Trailers	25-R4	20	935,489.69	814,779	(66,387)	0	0.00	13.3
392.20	Transportation Equipment	11-L3	20	7,305,324.08	1,680,161	4,164,098	703,274	9.63	6.5
393.00	Stores Equipment	30-SQ	0	14,773.68	11,720	3,054	244	1.65	12.5
394.00	Tools, Shop & Garage Equipment	20-SQ	0	5,900,502.43	2,007,653	3,892,849	284,418	4.82	13.3
395.00	Laboratory Equipment	20-SQ	0	600,042.49	327,411	272,632	21,274	3.55	10.6

Montana-Dakota Utilities Co. - Electric Division

TABLE 1. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - TOTAL

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
396.10	Work Equipment - Trailers	25-L3	0	864,269.49	363,232	501,037	25,373	2.94	18.1
396.20	Power Operated Equipment	9-L0	25	12,660,470.66	3,270,789	6,224,564	1,040,970	8.22	6.0
397.10	Radio Communication Equipment - Fixed	15-SQ	0	683,616.07	175,430	508,186	47,725	6.98	10.8
397.20	Radio Communication Equipment - Mobile	15-SQ	0	149,153.90	34,257	114,897	10,240	6.87	11.3
397.30	General Telephone Communication Equipment	10-SQ	0	9,878.47	9,146	733	733	7.42	0.5
397.50	Supervisory & Telemetering Equipment	10-SQ	0	55,692.93	35,080	20,613	7,948	14.27	2.7
397.60	SCADA System	10-SQ	0	1,680,102.35	335,583	1,344,520	164,471	9.79	8.1
397.80	Network Equipment	5-SQ	0	368,644.42	174,888	193,756	84,312	22.87	2.3
398.00	Miscellaneous Equipment	25-SQ	0	68,144.79	31,665	36,480	2,014	2.96	14.2
TOTAL GENERAL PLANT				33,261,965.90	10,312,058	17,963,433	2,443,013		
TOTAL DEPRECIABLE PLANT				1,926,853,294.63	571,292,976	1,673,231,292	56,832,062	2.95	
NON-DEPRECIABLE PLANT									
303.00	Miscellaneous Intangible Plant			13,321,691.43					
310.00	Land & Land Rights			1,015,061.73					
312.00	Acquisition Adjustment			10,387,642.47					
340.00	Land & Land Rights			38,532.61					
350.10	Transmission Land			1,790,068.76					
356.00	Acquisition Adjustment			80,697.00					
360.10	Distribution Land			3,323,414.68					
389.00	Land & Land Rights			38,849.70					
CLOSING PLANTS									
	Heskett I & II			111,011,494.71					
	Lewis & Clark I			73,522,157.87					
TOTAL NON-DEPRECIABLE PLANT				214,529,610.96					
TOTAL ELECTRIC PLANT				2,141,382,905.59					

* Annual Accrual and Remaining Life calculated on Location Schedules per EPH dates.

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

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
STEAM PLANT									
311.00	Structures and Improvements	68-R3	-	81,113,617.27	37,840,342	43,273,275	1,599,729	*	1.97
312.00	Boiler Plant Equipment	50-R1	-	198,020,003.63	78,534,155	119,485,849	5,252,395	*	2.65
314.00	Turbogenerator Units	50-R0.5	-	38,076,279.95	24,326,382	38,749,898	1,490,694	*	2.36
315.00	Accessory Electric Equipment	50-R2.5	-	20,863,863.43	9,795,524	11,068,339	479,222	*	2.30
316.00	Miscellaneous Power Plant Equipment	30-R0.5	-	9,397,126.74	3,479,990	5,917,137	293,657	*	3.12
TOTAL STEAM PRODUCTION PLANT				372,470,891.02	153,976,393	218,494,498	9,115,697		
OTHER PRODUCTION PLANT									
341.10	Structures and Improvements	70-R1	-	16,578,181.79	2,071,956	14,506,226	536,307	*	3.24
341.20	Structures and Improvements - Wind Farm	70-R1	-	42,546,921.10	5,675,437	36,871,484	1,981,332	*	4.66
341.51	Portable Generators	70-R1	-	169,459.16	42,894	126,565	5,132	*	3.03
341.71	Ormat Generation Facility	70-R1	-	701,334.45	400,365	300,969	23,084	*	3.29
342.00	Fuel Holders, Producers and Accessories	40-R4	-	5,640,437.75	1,239,809	4,400,629	181,339	*	3.21
344.10	Generators	55-R3	-	103,677,534.12	32,876,006	70,801,528	2,811,895	*	2.71
344.20	Generators - Wind Farm	55-R3	-	294,287,808.25	79,682,252	214,605,556	11,533,607	*	3.92
345.10	Accessory Electric Equipment	25-L2	-	17,864,490.28	2,191,254	15,673,236	970,133	*	5.43
345.20	Accessory Electric Equipment - Wind Farm	25-L2	-	51,401,813.40	5,433,845	45,967,968	3,124,300	*	6.08
346.10	Miscellaneous Power Plant Equipment	28-S1	-	4,229,486.14	623,813	3,605,673	176,522	*	4.17
346.20	Miscellaneous Power Plant Equipment - Wind Farm	28-S1	-	660,514.98	127,731	532,784	34,188	*	5.18
TOTAL OTHER PRODUCTION PLANT				537,757,981.42	130,365,362	407,392,619	21,377,839		
TRANSMISSION PLANT									
350.2	Land Rights	70-R4	-	15,602,605.19	2,382,259	13,220,346	201,419	1.29	62.8
352	Structures and Improvements	50-R2	-	329,102.63	7,581	321,522	6,709	2.04	48.4
353	Station Equipment	65-R2.5	-	222,333,780.46	50,411,109	171,922,671	3,040,859	1.37	54.2
354	Towers and Fixtures	60-R4	-	4,992,886.11	3,441,941	1,550,945	56,599	1.13	25.6
355	Poles and Fixtures	63-R2.5	-	172,142,521.86	26,534,708	145,607,814	2,536,591	1.47	55.7
356	Overhead Conductors and Devices	70-R3	-	101,836,280.32	25,181,965	76,654,315	1,199,571	1.18	59.1
357	Underground Conduit	50-R3	-	1,944,583.16	472,994	1,471,589	38,761	1.99	38.0
358	Underground Conductors and Devices	50-R3	-	3,101,857.38	540,422	2,561,435	67,480	2.18	
TOTAL TRANSMISSION PLANT				522,283,617.11	108,972,980	413,310,637	7,147,989		
DISTRIBUTION PLANT									
360.2	Rights of Way	62-R3	-	961,139.62	663,409	297,731	7,959	0.83	32.5
362	Station Equipment	53-R2	-	89,780,857.62	20,430,755	69,350,102	1,602,245	1.78	42.3
364	Poles, Towers & Fixtures	60-R1.5	-	46,982,854.51	17,951,243	29,031,612	590,666	1.26	45.4
365	Overhead Conductor & Devices	65-R2	-	36,578,399.40	14,607,763	21,970,637	400,031	1.09	49.8
366	Underground Conduit	50-R3	-	235,918.03	124,248	111,670	3,750	1.59	26.5
367	Underground Conductor & Devices	42-R2.5	-	133,794,645.52	35,213,673	98,580,973	2,987,473	2.23	32.3
368	Line Transformers	55-R3	-	80,852,581.46	27,137,877	53,714,705	1,275,921	1.58	39.7
369.1	Services	50-R3	-	39,903,057.66	17,184,424	22,718,634	577,929	1.45	34.6
370	Meters	20-L3	-	19,046,181.82	5,508,654	13,537,528	1,302,567	6.84	10.8
371	Installation on Customers Premises	20-R0.5	-	3,568,525.72	(190,194)	3,758,720	270,835	7.59	16.6
373	Street Lighting System	43-R1	-	9,374,677.82	446,157	8,928,521	291,011	3.10	34.6
TOTAL DISTRIBUTION PLANT				461,078,839.18	139,078,007	322,000,832	9,310,387		
GENERAL Plant									
390	Structures and Improvements	30-L0.5	10	1,731,943.78	819,830	738,919	31,676	1.83	20.6
391.1	Office Furniture and Equipment	15-SQ	-	141,255.83	74,384	66,872	11,728	8.30	5.8
391.3	Computer Equipment - PC	5-SQ	-	16,537.01	16,537	-	-	0.00	0.5
391.4	Computer Equipment - Prime	5-SQ	-	5,436.55	2,332	3,104	3,104	57.10	0.5
391.5	Computer Equipment - Other	10-SQ	-	70,687.28	31,380	39,307	8,555	12.10	5.0
392.1	Transportation Equipment - Trailers	25-R4	20	935,489.69	814,779	(66,387)	0	0.00	13.3
392.2	Transportation Equipment	11-L3	20	7,305,324.08	1,680,161	4,164,098	703,274	9.63	6.5
393	Stores Equipment	30-SQ	-	14,773.68	11,720	3,054	244	1.65	12.5
394	Tools, Shop & Garage Equipment	20-SQ	-	5,900,502.43	2,007,653	3,892,849	284,418	4.82	13.3
395	Laboratory Equipment	20-SQ	-	600,042.49	327,411	272,632	21,274	3.55	10.6

Montana-Dakota Utilities Co. - Electric Division

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

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
396.1	Work Equipment - Trailers	25-L3	-	864,269.49	363,232	501,037	25,373	2.94	18.1
396.2	Power Operated Equipment	9-L0	25	12,660,470.66	3,270,789	6,224,564	1,040,970	8.22	6.0
397.1	Radio Communication Equipment - Fixed	15-SQ	-	683,616.07	175,430	508,186	47,725	6.98	10.8
397.2	Radio Communication Equipment - Mobile	15-SQ	-	149,153.90	34,257	114,897	10,240	6.87	11.3
397.3	General Telephone Communication Equipment	10-SQ	-	9,878.47	9,146	733	733	7.42	0.5
397.5	Supervisory & Telemetering Equipment	10-SQ	-	55,692.93	35,080	20,613	7,948	14.27	2.7
397.6	SCADA System	10-SQ	-	1,680,102.35	335,583	1,344,520	164,471	9.79	8.1
397.8	Network Equipment	5-SQ	-	368,644.42	174,888	193,756	84,312	22.87	2.3
398	Miscellaneous Equipment	25-SQ	-	68,144.79	31,665	36,480	2,014	2.96	14.2
TOTAL GENERAL PLANT				33,261,965.90	10,216,259	18,059,232	2,448,058		
TOTAL DEPRECIABLE PLANT				1,926,853,294.63	542,609,001	1,379,257,819	49,399,970	2.56	

* Annual Accrual and Remaining Life calculated on Location Schedules per EPH dates.

Montana-Dakota Utilities Co. - Electric Division

TABLE 3. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - SALVAGE

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate
STEAM PLANT								
311.00	Structures and Improvements	68-R3	0	81,113,617.27	-	-	-	0.00
312.00	Boiler Plant Equipment	50-R1	0	198,020,003.63	-	-	-	0.00
314.00	Turbogenerator Units	50-R0.5	0	63,076,279.95	-	-	-	0.00
315.00	Accessory Electric Equipment	50-R2.5	0	20,863,863.43	-	-	-	0.00
316.00	Miscellaneous Power Plant Equipment	30-R0.5	0	9,397,126.74	-	-	-	0.00
TOTAL STEAM PRODUCTION PLANT				372,470,891.02	-	-	-	
OTHER PRODUCTION PLANT								
341.10	Structures and Improvements	70-R1	0	16,578,181.79	-	-	-	0.00
341.20	Structures and Improvements - Wind Farm	70-R1	0	42,546,921.10	-	-	-	0.00
341.51	Portable Generators	70-R1	0	169,459.16	-	-	-	0.00
341.71	Ormat Generation Facility	70-R1	0	701,334.45	-	-	-	0.00
342.00	Fuel Holders, Producers and Accessories	40-R4	0	5,640,437.75	-	-	-	0.00
344.10	Generators	55-R3	0	103,677,534.12	-	-	-	0.00
344.20	Generators - Wind Farm	55-R3	0	294,287,808.25	-	-	-	0.00
345.10	Accessory Electric Equipment	25-L2	0	17,864,490.28	-	-	-	0.00
345.20	Accessory Electric Equipment - Wind Farm	25-L2	0	51,401,813.40	-	-	-	0.00
346.10	Miscellaneous Power Plant Equipment	28-S1	0	4,229,486.14	-	-	-	0.00
346.20	Miscellaneous Power Plant Equipment - Wind Farm	28-S1	0	660,514.98	-	-	-	0.00
TOTAL OTHER PRODUCTION PLANT				537,757,981.42	-	-	-	
TRANSMISSION PLANT								
350.2	Land Rights	70-R4	0	15,602,605.19	-	-	-	0.00
352	Structures and Improvements	50-R2	0	329,102.63	2,523	(2,523)	(112)	-0.03
353	Station Equipment	65-R2.5	(10)	222,333,780.46	7,761,759	14,471,619	228,882	0.10
354	Towers and Fixtures	60-R4	(20)	4,992,886.11	99,404	898,974	38,447	0.77
355	Poles and Fixtures	65-R2.5	(35)	172,142,521.86	5,077,640	55,172,242	1,009,836	0.59
356	Overhead Conductors and Devices	70-R3	(20)	101,836,280.32	(3,575,537)	23,942,793	470,609	0.46
357	Underground Conduit	50-R3	0	1,944,583.16	-	-	-	0.00
358	Underground Conductors and Devices	50-R3	0	3,101,857.38	218,714	(218,714)	(5,762)	-0.19
TOTAL TRANSMISSION PLANT				522,283,617.11	9,584,702	94,264,391	1,741,900	
DISTRIBUTION PLANT								
360.2	Rights of Way	62-R3	0	961,139.62	-	-	-	0.00
362	Station Equipment	53-R2	(15)	89,780,857.62	3,100,558	10,366,570	238,955	0.27
364	Poles, Towers & Fixtures	60-R1.5	(120)	46,982,854.51	5,830,202	50,549,224	1,174,874	2.50
365	Overhead Conductor & Devices	45-R2	(110)	36,578,399.40	5,416,755	34,819,485	724,979	1.98
366	Underground Conduit	50-R3	0	235,918.03	2,627	(2,627)	(141)	-0.06
367	Underground Conductor & Devices	42-R2.5	(50)	133,794,645.52	(3,263,268)	70,160,591	2,461,151	1.84
368	Line Transformers	55-R3	(20)	80,852,581.46	228,056	15,942,461	472,941	0.58
369.1	Services	50-R3	(50)	39,903,057.66	7,467,782	12,483,747	336,129	0.84
370	Meters	20-L3	(5)	19,046,181.82	(126,884)	1,079,193	108,643	0.57
371	Installation on Customers Premises	20-R0.5	(15)	3,568,525.72	(270,314)	805,593	68,722	1.93
373	Street Lighting System	43-R1	(45)	9,374,677.82	617,959	3,600,646	108,984	1.16
TOTAL DISTRIBUTION PLANT				461,078,839.18	19,003,473	199,804,882	5,695,238	
GENERAL Plant								
390	Structures and Improvements	30-L0.5	10	1,731,943.78	95,799	(268,994)	(5,045)	-0.29
391.1	Office Furniture and Equipment	15-SQ	0	141,255.83	-	-	-	0.00
391.3	Computer Equipment - PC	5-SQ	0	1,6537.01	-	-	-	0.00
391.4	Computer Equipment - Prime	5-SQ	0	5,436.55	-	-	-	0.00
391.5	Computer Equipment - Other	10-SQ	0	70,687.28	-	-	-	0.00
392.1	Transportation Equipment - Trailers	25-R4	20	935,489.69	-	(187,098)	-	0.00
392.2	Transportation Equipment	11-L3	20	7,305,324.08	-	(1,461,065)	-	0.00
393	Stores Equipment	30-SQ	0	14,773.68	-	-	-	0.00
394	Tools, Shop & Garage Equipment	20-SQ	0	5,900,502.43	-	-	-	0.00
395	Laboratory Equipment	20-SQ	0	600,042.49	-	-	-	0.00
396.1	Work Equipment - Trailers	25-L3	0	864,269.49	-	-	-	0.00

Montana-Dakota Utilities Co. - Electric Division

TABLE 3. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - SALVAGE

Account	Depreciable Plant	Survivor Curve	Net Salvage	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate
396.2	Power Operated Equipment	9-L0	25	12,660,470.66	-	(3,165,118)	-	0.00
397.1	Radio Communication Equipment - Fixed	15-SQ	0	683,616.07	-	-	-	0.00
397.2	Radio Communication Equipment - Mobile	15-SQ	0	149,153.90	-	-	-	0.00
397.3	General Telephone Communication Equipment	10-SQ	0	9,878.47	-	-	-	0.00
397.5	Supervisory & Telemetering Equipment	10-SQ	0	55,692.93	-	-	-	0.00
397.6	SCADA System	10-SQ	0	1,680,102.35	-	-	-	0.00
397.8	Network Equipment	5-SQ	0	368,644.42	-	-	-	0.00
398	Miscellaneous Equipment	25-SQ	0	68,144.79	-	-	-	0.00
TOTAL GENERAL PLANT				33,261,965.90	95,799	(5,082,274)	(5,045)	
TOTAL DEPRECIABLE PLANT				1,926,853,294.63	28,683,974	288,986,999	7,432,092	0.39

Montana-Dakota Utilities Co. - Electric Division - Generation Plant
TABLE 4. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED
ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - TOTAL

Account	Location	Depreciable Plant	Survivor Curve	Net Salvage	Truncation Date	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
STEAM PLANT											
311.00		Structures and Improvements									
		Heskett Common Station	68-R3	-		9,556,243.25	5,773,921	3,782,323	61,014	0.64	54.5
		Lewis & Clark Common Station	68-R3	-		4,899,289.52	392,969	4,506,320	69,411	1.42	63.8
8300		Coyote Generating Station	68-R3	-	2041	29,775,617.47	22,251,079	7,524,539	388,451	1.30	18.8
8610		Big Stone Generating Station	68-R3	-	2046	33,163,446.92	8,713,452	24,449,995	1,000,759	3.02	24.1
8720		Wygen III Generating Station	68-R3	-	2060	3,719,020.11	708,921	3,010,099	80,095	2.15	37.6
		Total Structures and Improvements				81,113,617.27	37,840,342	43,273,275	1,599,729		
312.00		Boiler Plant Equipment									
		Heskett Common Station	50-R1	-		939,193.88	578,061	361,133	8,657	0.92	40.4
		Lewis & Clark Common Station	50-R1	-		298,181.67	103,148	195,034	4,209	1.41	44.4
8300		Coyote Generating Station	50-R1	-	2041	81,965,766.43	56,012,330	25,953,437	1,464,728	1.79	16.9
8610		Big Stone Generating Station	50-R1	-	2046	85,685,287.65	16,448,927	69,236,361	3,038,043	3.55	22.7
8720		Wygen III Generating Station	50-R1	-	2060	29,131,574.00	5,391,690	23,739,884	736,758	2.53	32.2
		Total Boiler Plant Equipment				198,020,003.63	78,534,155	119,485,848	5,252,395		
314.00		Turbogenerator Units									
		Heskett Common Station	50-R0.5	-		1,062,175.62	982,446	79,730	1,716	0.16	18.6
		Lewis & Clark Common Station	50-R0.5	-		237,574.36	90,104	147,471	3,293	1.39	41.9
8300		Coyote Generating Station	50-R0.5	-	2041	18,314,529.41	10,016,941	8,297,589	463,376	2.53	17.5
8610		Big Stone Generating Station	50-R0.5	-	2046	13,525,236.19	8,941,985	4,583,252	209,242	1.55	20.8
8720		Wygen III Generating Station	50-R0.5	-	2060	29,936,764.37	4,294,907	25,641,857	813,066	2.72	31.5
		Total Turbogenerator Units				63,076,279.95	24,326,382	38,749,898	1,490,694		
315.00		Accessory Electric Equipment									
8300		Coyote Generating Station	50-R2.5	-	2041	8,916,346.70	6,759,094	2,157,252	127,318	1.43	15.7
8610		Big Stone Generating Station	50-R2.5	-	2046	8,947,155.15	3,435,766	5,511,389	251,879	2.82	20.7
8720		Wygen III Generating Station	50-R2.5	-	2060	3,000,361.58	(399,337)	3,399,698	100,025	3.33	34.0
		Total Accessory Electric Equipment				20,863,863.43	9,795,524	11,068,340	479,222		
316.00		Miscellaneous Power Plant Equipment									
		Heskett Common Station	30-R0.5	-		2,508,360.55	683,452	1,824,909	68,382	2.73	25.8
		Lewis & Clark Common Station	30-R0.5	-		1,300,001.27	498,180	801,821	28,661	2.20	25.7
8300		Coyote Generating Station	30-R0.5	-	2041	3,776,499.87	1,511,638	2,264,862	145,199	3.84	14.9
8610		Big Stone Generating Station	30-R0.5	-	2046	1,649,259.12	774,901	874,358	45,604	2.77	16.4
8720		Wygen III Generating Station	30-R0.5	-	2060	163,005.93	11,820	151,186	5,812	3.57	26.0
		Total Miscellaneous Power Plant Equipment				9,397,126.74	3,479,990	5,917,136	293,657		
		TOTAL STEAM PRODUCTION PLANT				372,470,891.02	153,976,394	218,494,497	9,115,697		
OTHER PRODUCTION PLANT											
341.10		Structures and Improvements									
		Heskett Turbine	70-R1	-	2057	7,104,332.12	126,719	6,977,613	211,098	2.97	33.1
		Glendive Turbine Common	70-R1	-	2046	2,413,718.75	872,750	1,540,969	64,559	2.67	23.8
		Miles City Turbine	70-R1	-	2033	223,817.35	195,239	28,578	2,356	1.05	12.1
		Lewis & Clark RICE	70-R1	-	2045	6,836,313.57	877,247	5,959,066	258,294	3.78	23.1
		Total Structures and Improvements				16,578,181.79	2,071,956	14,506,226	536,307		
341.20		Structures and Improvements - Wind Farm									
		Diamond Willow Wind Farm	70-R1	-	2035	3,621,426.04	1,908,197	1,713,229	122,645	3.39	14.0
		Thunder Spirit Wind Farm II	70-R1	-	2043	8,482,596.26	28,527	8,454,069	395,472	4.66	21.4
		Cedar Hills Wind Farm	70-R1	-	2035	2,970,920.55	1,347,079	1,623,841	116,135	3.91	14.0
		Thunder Spirit Wind Farm I	70-R1	-	2040	27,471,978.25	2,391,634	25,080,344	1,347,080	4.90	18.6
		Total Structures and Improvements				42,546,921.10	5,675,437	36,871,484	1,981,332		
341.50		Structures and Improvements - Generators									
341.51		Portable Generators	70-R1	-	2047	169,459.16	42,894	126,565	5,132	3.03	24.7
341.71		Ormat Generation Facility	70-R1	-	2034	701,334.45	400,365	300,969	23,084	3.29	13.0
		Total Structures and Improvements - Generators				870,793.61	443,260	427,534	28,216		
342.00		Fuel Holders, Producers and Accessories									
		Glendive Turbine - Common	40-R4	-	2046	1,257,109.34	710,772	546,338	25,357	2.02	21.1

TABLE 4. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - TOTAL

Concentric Energy Advisors

Montana-Dakota Utilities Co. - Electric Division - Generation Plant
TABLE 5. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED
ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - LIFE

Account	Location	Depreciable Plant	Survivor Curve	Net Salvage	Truncation Date	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
STEAM PLANT											
311.00		Structures and Improvements									
		Heskett Common Station	68-R3	-		9,556,243.25	5,773,921	3,782,323	61,014	0.64	54.5
		Lewis & Clark Common Station	68-R3	-		4,899,289.52	392,969	4,506,320	69,411	1.42	63.8
	8300	Coyote Generating Station	68-R3	-	2041	29,775,617.47	22,251,079	7,524,539	388,451	1.30	18.8
	8610	Big Stone Generating Station	68-R3	-	2046	33,163,446.92	8,713,452	24,449,995	1,000,759	3.02	24.1
	8720	Wygen III Generating Station	68-R3	-	2060	3,719,020.11	708,921	3,010,099	80,095	2.15	37.6
		Total Structures and Improvements				81,113,617.27	37,840,342	43,273,275	1,599,729		
312.00		Boiler Plant Equipment									
		Heskett Common Station	50-R1	-		939,193.88	578,061	361,133	8,657	0.92	40.4
		Lewis & Clark Common Station	50-R1	-		298,181.67	103,148	195,034	4,209	1.41	44.4
	8300	Coyote Generating Station	50-R1	-	2041	81,965,766.43	56,012,330	25,953,437	1,464,728	1.79	16.9
	8610	Big Stone Generating Station	50-R1	-	2046	85,685,287.65	16,448,927	69,236,361	3,038,043	3.55	22.7
	8720	Wygen III Generating Station	50-R1	-	2060	29,131,574.00	5,391,690	23,739,884	736,758	2.53	32.2
		Total Boiler Plant Equipment				198,020,003.63	78,534,155	119,485,848	5,252,395		
314.00		Turbogenerator Units									
		Heskett Common Station	50-R0.5	-		1,062,175.62	982,446	79,730	1,716	0.16	18.6
		Lewis & Clark Common Station	50-R0.5	-		237,574.36	90,104	147,471	3,293	1.39	41.9
	8300	Coyote Generating Station	50-R0.5	-	2041	18,314,529.41	10,016,941	8,297,589	463,376	2.53	17.5
	8610	Big Stone Generating Station	50-R0.5	-	2046	13,525,236.19	8,941,985	4,583,252	209,242	1.55	20.8
	8720	Wygen III Generating Station	50-R0.5	-	2060	29,936,764.37	4,294,907	25,641,857	813,066	2.72	31.5
		Total Turbogenerator Units				63,076,279.95	24,326,382	38,749,898	1,490,694		
315.00		Accessory Electric Equipment									
	8300	Coyote Generating Station	50-R2.5	-	2041	8,916,346.70	6,759,094	2,157,252	127,318	1.43	15.7
	8610	Big Stone Generating Station	50-R2.5	-	2046	8,947,155.15	3,435,766	5,511,389	251,879	2.82	20.7
	8720	Wygen III Generating Station	50-R2.5	-	2060	3,000,361.58	(399,337)	3,399,698	100,025	3.33	34.0
		Total Accessory Electric Equipment				20,863,863.43	9,795,524	11,068,340	479,222		
316.00		Miscellaneous Power Plant Equipment									
		Heskett Common Station	30-R0.5	-		2,508,360.55	683,452	1,824,909	68,382	2.73	25.8
		Lewis & Clark Common Station	30-R0.5	-		1,300,001.27	498,180	801,821	28,661	2.20	25.7
	8300	Coyote Generating Station	30-R0.5	-	2041	3,776,499.87	1,511,638	2,264,862	145,199	3.84	14.9
	8610	Big Stone Generating Station	30-R0.5	-	2046	1,649,259.12	774,901	874,358	45,604	2.77	16.4
	8720	Wygen III Generating Station	30-R0.5	-	2060	163,005.93	11,820	151,186	5,812	3.57	26.0
		Total Miscellaneous Power Plant Equipment				9,397,126.74	3,479,990	5,917,136	293,657		
		TOTAL STEAM PRODUCTION PLANT				372,470,891.02	153,976,394	218,494,497	9,115,697		
OTHER PRODUCTION PLANT											
341.10		Structures and Improvements									
		Heskett Turbine	70-R1	-	2057	7,104,332.12	126,719	6,977,613	211,098	2.97	33.1
		Glendive Turbine Common	70-R1	-	2046	2,413,718.75	872,750	1,540,969	64,559	2.67	23.8
		Miles City Turbine	70-R1	-	2033	223,817.35	195,239	28,578	2,356	1.05	12.1
		Lewis & Clark RICE	70-R1	-	2045	6,836,313.57	877,247	5,959,066	258,294	3.78	23.1
		Total Structures and Improvements				16,578,181.79	2,071,956	14,506,226	536,307		
341.20		Structures and Improvements - Wind Farm									
		Diamond Willow Wind Farm	70-R1	-	2035	3,621,426.04	1,908,197	1,713,229	122,645	3.39	14.0
		Thunder Spirit Wind Farm II	70-R1	-	2043	8,482,596.26	28,527	8,454,069	395,472	4.66	21.4
		Cedar Hills Wind Farm	70-R1	-	2035	2,970,920.55	1,347,079	1,623,841	116,135	3.91	14.0
		Thunder Spirit Wind Farm I	70-R1	-	2040	27,471,978.25	2,391,634	25,080,344	1,347,080	4.90	18.6
		Total Structures and Improvements				42,546,921.10	5,675,437	36,871,484	1,981,332		
341.50		Structures and Improvements - Generators									
		Portable Generators	70-R1	-	2047	169,459.16	42,894	126,565	5,132	3.03	24.7
	341.71	Ormat Generation Facility	70-R1	-	2034	701,334.45	400,365	300,969	23,084	3.29	13.0
		Total Structures and Improvements - Generators				870,793.61	443,260	427,534	28,216		
342.00		Fuel Holders, Producers and Accessories									
		Glendive Turbine - Common	40-R4	-	2046	1,257,109.34	710,772	546,338	25,357	2.02	21.1

Montana-Dakota Utilities Co. - Electric Division - Generation Plant

TABLE 5. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - LIFE

Account	Location	Depreciable Plant	Survivor Curve	Net Salvage	Truncation Date	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
		Lewis & Clark RICE	40-R4	-	2045	2,984,778.90	383,769	2,601,010	109,106	3.66	23.8
		Miles City Turbine	40-R4	-	2033	161,610.88	92,130	69,481	8,664	5.36	8.0
		Portable Generators	40-R4	-	2047	135,973.35	33,942	102,032	4,087	3.01	25.0
		Heskett Turbine	40-R4	-	2057	1,100,965.28	19,197	1,081,769	34,125	3.10	31.7
Total Fuel Holders, Producers, And Accessories						5,640,437.75	1,239,809	4,400,629	181,339		
344.10											
	8510	Glendive Turbine 1	55-R3	-	2033	6,830,097.08	6,598,436	231,662	18,712	0.27	11.2
	8512	Glendive Turbine 2	55-R3	-	2046	16,508,744.93	5,648,406	10,860,339	454,730	2.75	23.9
		Miles City Turbine	55-R3	-	2033	3,687,157.84	2,663,648	1,023,510	82,541	2.24	11.1
		Lewis & Clark RICE	55-R3	-	2045	25,874,335.21	3,320,238	22,554,097	941,492	3.64	24.0
		Portable Generators	55-R3	-	2047	1,206,071.50	264,192	941,879	36,818	3.05	25.6
		Ormat Generating Facility	55-R3	-	2034	12,174,693.92	6,677,480	5,497,214	412,896	3.39	13.3
		Heskett Turbine	55-R3	-	2057	37,396,433.62	7,703,607	29,692,827	864,706	2.31	34.3
Total Generators						103,677,534.12	32,876,006	70,801,528	2,811,895		
344.20											
		Diamond Willow Wind Farm	55-R3	-	2035	48,364,966.45	23,011,969	25,352,998	1,777,225	3.67	14.3
		Thunder Spirit Wind Farm II	55-R3	-	2043	69,802,607.62	7,337,837	62,464,771	2,814,556	4.03	22.2
		Cedar Hills Wind Farm	55-R3	-	2035	35,044,708.58	15,715,304	19,329,404	1,351,947	3.86	14.3
		Thunder Spirit Wind Farm I	55-R3	-	2040	141,075,525.60	33,617,141	107,458,384	5,589,878	3.96	19.2
Total Generators - Wind Farm						294,287,808.25	79,682,252	214,605,557	11,533,607		
345.10											
		Accessory Electric Equipment									
	8510	Glendive Turbine - Common	25-L2	-	2046	1,713,112.75	-	1,713,113	123,969	7.24	14.8
	8520	Glendive Turbine 2	25-L2	-	2046	472,685.81	131,729	340,957	17,033	3.60	20.0
		Miles City Turbine	25-L2	-	2033	1,006,677.50	25,453	981,224	83,248	8.27	11.8
		Lewis & Clark RICE	25-L2	-	2045	5,701,040.81	731,567	4,969,474	288,843	5.07	17.2
		Portable Generators	25-L2	-	2047	532,801.74	187,391	345,410	22,400	4.20	15.4
		Ormat Generating Facility	25-L2	-	2034	2,207,374.62	1,250,666	956,709	93,488	4.24	10.2
		Heskett Turbine	25-L2	-	2057	6,230,797.05	(135,552)	6,366,349	341,153	5.48	18.7
Total Accessory Electric Equipment						17,864,490.28	2,191,254	15,673,236	970,133		
345.20											
		Accessory Electric Equipment - Wind Farm									
		Diamond Willow Wind Farm	25-L2	-	2035	7,841,019.30	3,605,143	4,235,877	393,657	5.02	10.7
		Thunder Spirit Wind Farm II	25-L2	-	2043	6,659,678.51	22,397	6,637,282	364,390	5.47	18.2
		Cedar Hills Wind Farm	25-L2	-	2035	6,024,098.89	2,719,916	3,304,183	297,532	4.94	11.1
		Thunder Spirit Wind Farm I	25-L2	-	2040	30,877,016.70	(913,610)	31,790,627	2,068,721	6.70	15.4
Total Accessory Electric Equipment - Wind Farm						51,401,813.40	5,433,845	45,967,969	3,124,300		
346.10											
		Miscellaneous Power Plant Equipment									
		Glendive Turbine - Common	28-S1	-	2046	234,220.26	114,727	119,493	6,546	2.79	17.0
		Miles City Turbine	28-S1	-	2033	57,866.62	30,081	27,786	2,376	4.11	10.7
		Lewis & Clark RICE	28-S1	-	2045	2,368,901.74	303,958	2,064,944	107,838	4.55	19.1
		Heskett Turbine	28-S1	-	2057	1,568,497.52	175,046	1,393,451	59,761	3.81	23.4
Total Miscellaneous Power Plant Equipment						4,229,486.14	623,813	3,605,673	176,522		
346.20											
		Miscellaneous Power Plant Equipment - Wind Farm									
		Diamond Willow Wind Farm	28-S1	-	2035	74,569.00	35,276	39,293	3,198	4.29	12.1
		Thunder Spirit Wind Farm II	28-S1	-	2043	819.71	3	817	42	5.14	19.4
		Cedar Hills Wind Farm	28-S1	-	2035	146,776.28	34,877	111,900	8,527	5.81	13.1
		Thunder Spirit Wind Farm I	28-S1	-	2040	438,349.99	57,576	380,774	22,421	5.11	17.0
Total Miscellaneous Power Plant Equipment - Wind Farm						660,514.98	127,731	532,784	34,188		
TOTAL OTHER PRODUCTION PLANT						537,757,981.42	130,365,362	407,392,620	21,377,840		
TOTAL DEPRECIABLE PLANT						910,228,872.44	284,341,755	625,887,117	30,493,537	3.35	

Montana-Dakota Utilities Co. - Electric Division - Generation Plant

TABLE 6. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - SALVAGE

Account	Location	Depreciable Plant	Survivor Curve	Net Salvage	Truncation Date	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
STEAM PLANT											
311.00		Structures and Improvements									
		Heskett Common Station	68-R3	-		9,556,243.25	-	-	-	0.00	54.5
		Lewis & Clark Common Station	68-R3	-		4,899,289.52	-	-	-	0.00	63.8
	8300	Coyote Generating Station	68-R3	-	2041	29,775,617.47	-	-	-	0.00	18.8
	8610	Big Stone Generating Station	68-R3	-	2046	33,163,446.92	-	-	-	0.00	24.1
	8720	Wygen III Generating Station	68-R3	-	2060	3,719,020.11	-	-	-	0.00	37.6
		Total Structures and Improvements				81,113,617.27	-	-	-		
312.00		Boiler Plant Equipment									
		Heskett Common Station	50-R1	-		939,193.88	-	-	-	0.00	40.4
		Lewis & Clark Common Station	50-R1	-		298,181.67	-	-	-	0.00	44.4
	8300	Coyote Generating Station	50-R1	-	2041	81,965,766.43	-	-	-	0.00	16.9
	8610	Big Stone Generating Station	50-R1	-	2046	85,685,287.65	-	-	-	0.00	22.7
	8720	Wygen III Generating Station	50-R1	-	2060	29,131,574.00	-	-	-	0.00	32.2
		Total Boiler Plant Equipment				198,020,003.63	-	-	-		
314.00		Turbogenerator Units									
		Heskett Common Station	50-R0.5	-		1,062,175.62	-	-	-	0.00	18.6
		Lewis & Clark Common Station	50-R0.5	-		237,574.36	-	-	-	0.00	41.9
	8300	Coyote Generating Station	50-R0.5	-	2041	18,314,529.41	-	-	-	0.00	17.5
	8610	Big Stone Generating Station	50-R0.5	-	2046	13,525,236.19	-	-	-	0.00	20.8
	8720	Wygen III Generating Station	50-R0.5	-	2060	29,936,764.37	-	-	-	0.00	31.5
		Total Turbogenerator Units				63,076,279.95	-	-	-		
315.00		Accessory Electric Equipment									
	8300	Coyote Generating Station	50-R2.5	-	2041	8,916,346.70	-	-	-	0.00	15.7
	8610	Big Stone Generating Station	50-R2.5	-	2046	8,947,155.15	-	-	-	0.00	20.7
	8720	Wygen III Generating Station	50-R2.5	-	2060	3,000,361.58	-	-	-	0.00	34.0
		Total Accessory Electric Equipment				20,863,863.43	-	-	-		
316.00		Miscellaneous Power Plant Equipment									
		Heskett Common Station	30-R0.5	-		2,508,360.55	-	-	-	0.00	25.8
		Lewis & Clark Common Station	30-R0.5	-		1,300,001.27	-	-	-	0.00	25.7
	8300	Coyote Generating Station	30-R0.5	-	2041	3,776,499.87	-	-	-	0.00	14.9
	8610	Big Stone Generating Station	30-R0.5	-	2046	1,649,259.12	-	-	-	0.00	16.4
	8720	Wygen III Generating Station	30-R0.5	-	2060	1,63,005.93	-	-	-	0.00	26.0
		Total Miscellaneous Power Plant Equipment				9,397,126.74	-	-	-		
		TOTAL STEAM PRODUCTION PLANT				372,470,891.02	-	-	-		
OTHER PRODUCTION PLANT											
341.10		Structures and Improvements									
		Heskett Turbine	70-R1	-	2057	7,104,332.12	-	-	-	0.00	33.1
		Glendale Turbine Common	70-R1	-	2046	2,413,718.75	-	-	-	0.00	23.8
		Miles City Turbine	70-R1	-	2033	223,817.35	-	-	-	0.00	12.1
		Lewis & Clark RICE	70-R1	-	2045	6,836,313.57	-	-	-	0.00	23.1
		Total Structures and Improvements				16,578,181.79	-	-	-		
341.20		Structures and Improvements - Wind Farm									
		Diamond Willow Wind Farm	70-R1	-	2035	3,621,426.04	-	-	-	0.00	14.0
		Thunder Spirit Wind Farm II	70-R1	-	2043	8,482,596.26	-	-	-	0.00	21.4
		Cedar Hills Wind Farm	70-R1	-	2035	2,970,920.55	-	-	-	0.00	14.0
		Thunder Spirit Wind Farm I	70-R1	-	2040	27,471,978.25	-	-	-	0.00	18.6
		Total Structures and Improvements				42,546,921.10	-	-	-		
341.50		Structures and Improvements - Generators									
		Portable Generators	70-R1	-	2047	169,459.16	-	-	-	0.00	24.7
341.71		Ormat Generation Facility	70-R1	-	2034	701,334.45	-	-	-	0.00	13.0
		Total Structures and Improvements - Generators				870,793.61	-	-	-		
342.00		Fuel Holders, Producers and Accessories									
		Glendale Turbine - Common	40-R4	-	2046	1,257,109.34	-	-	-	0.00	21.1
		Lewis & Clark RICE	40-R4	-	2045	2,984,778.90	-	-	-	0.00	23.8
		Miles City Turbine	40-R4	-	2033	161,610.88	-	-	-	0.00	8.0
		Portable Generators	40-R4	-	2047	135,973.35	-	-	-	0.00	25.0

Montana-Dakota Utilities Co. - Electric Division - Generation Plant

TABLE 6. ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2020 - SALVAGE

Account	Location	Depreciable Plant	Survivor Curve	Net Salvage	Truncation Date	Original Cost at Dec 31, 2020	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life
Total Fuel Holders, Producers, And Accessories											
344.10		Heskett Turbine	40-R4	-	2057	1,100,965.28	-	-	-	0.00	31.7
Generators											
	8510	Glendive Turbine 1	55-R3	-	2033	6,830,097.08	-	-	-	0.00	11.2
	8512	Glendive Turbine 2	55-R3	-	2046	16,508,744.93	-	-	-	0.00	23.9
		Miles City Turbine	55-R3	-	2033	3,687,157.84	-	-	-	0.00	11.1
		Lewis & Clark RICE	55-R3	-	2045	25,874,335.21	-	-	-	0.00	24.0
		Portable Generators	55-R3	-	2047	1,206,071.50	-	-	-	0.00	25.6
		Ormat Generating Facility	55-R3	-	2034	12,174,693.92	-	-	-	0.00	13.3
		Heskett Turbine	55-R3	-	2057	37,396,433.64	-	-	-	0.00	34.3
Total Generators											
344.20		Generators - Wind Farm				103,677,534.12	-	-	-		
		Diamond Willow Wind Farm	55-R3	-	2035	48,364,966.45	-	-	-	0.00	14.3
		Thunder Spirit Wind Farm II	55-R3	-	2043	69,802,607.62	-	-	-	0.00	22.2
		Cedar Hills Wind Farm	55-R3	-	2035	35,044,708.58	-	-	-	0.00	14.3
		Thunder Spirit Wind Farm I	55-R3	-	2040	141,075,525.60	-	-	-	0.00	19.2
Total Generators - Wind Farm											
345.10		Accessory Electric Equipment				294,287,808.25	-	-	-		
	8510	Glendive Turbine - Common	25-L2	-	2046	1,713,112.75	-	-	-	0.00	14.8
	8520	Glendive Turbine 2	25-L2	-	2046	472,685.81	-	-	-	0.00	20.0
		Miles City Turbine	25-L2	-	2033	1,006,677.50	-	-	-	0.00	11.8
		Lewis & Clark RICE	25-L2	-	2045	5,701,040.81	-	-	-	0.00	17.2
		Portable Generators	25-L2	-	2047	532,801.74	-	-	-	0.00	15.4
		Ormat Generation Facility	25-L2	-	2034	2,207,374.62	-	-	-	0.00	10.2
		Heskett Turbine	25-L2	-	2057	6,230,797.05	-	-	-	0.00	18.7
Total Accessory Electric Equipment											
345.20		Accessory Electric Equipment - Wind Farm				17,864,490.28	-	-	-		
		Diamond Willow Wind Farm	25-L2	-	2035	7,841,019.30	-	-	-	0.00	10.7
		Thunder Spirit Wind Farm II	25-L2	-	2043	6,659,678.51	-	-	-	0.00	18.2
		Cedar Hills Wind Farm	25-L2	-	2035	6,024,098.89	-	-	-	0.00	11.1
		Thunder Spirit Wind Farm I	25-L2	-	2040	30,877,016.70	-	-	-	0.00	15.4
Total Accessory Electric Equipment - Wind Farm											
346.10		Miscellaneous Power Plant Equipment				51,401,813.40	-	-	-		
		Glendive Turbine - Common	28-S1	-	2046	234,220.26	-	-	-	0.00	17.0
		Miles City Turbine	28-S1	-	2033	57,866.62	-	-	-	0.00	10.7
		Lewis & Clark RICE	28-S1	-	2045	2,368,901.74	-	-	-	0.00	19.1
		Heskett Turbine	28-S1	-	2057	1,568,497.52	-	-	-	0.00	23.4
Total Miscellaneous Power Plant Equipment											
346.20		Miscellaneous Power Plant Equipment - Wind Farm				4,229,486.14	-	-	-		
		Diamond Willow Wind Farm	28-S1	-	2035	74,569.00	-	-	-	0.00	12.1
		Thunder Spirit Wind Farm II	28-S1	-	2043	819.71	-	-	-	0.00	19.4
		Cedar Hills Wind Farm	28-S1	-	2035	146,776.28	-	-	-	0.00	13.1
		Thunder Spirit Wind Farm I	28-S1	-	2040	438,349.99	-	-	-	0.00	17.0
Total Miscellaneous Power Plant Equipment - Wind Farm											
TOTAL OTHER PRODUCTION PLANT						537,757,981.42	-	-	-		
TOTAL DEPRECIABLE PLANT						910,228,872.44	-	-	-	0.00	



SECTION 6

6 RETIREMENT RATE ANALYSIS

MDU Electric

Account 311.00 - Steam Plant - Structures and Improvements

Placement Band - 1952 - 2020 Experience Band - 1996 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	118,855,573	0	0.00000	1.00000	100.00
0.5	118,704,689	0	0.00000	1.00000	100.00
1.5	112,039,205	15,136	0.00014	0.99986	100.00
2.5	107,728,300	110,530	0.00103	0.99897	99.99
3.5	106,566,262	13,439	0.00013	0.99987	99.89
4.5	98,789,767	74,615	0.00076	0.99924	99.88
5.5	70,303,674	83,613	0.00119	0.99881	99.80
6.5	68,220,465	63,562	0.00093	0.99907	99.68
7.5	58,096,078	8,754	0.00015	0.99985	99.59
8.5	56,412,838	4,383	0.00008	0.99992	99.58
9.5	55,658,808	50,166	0.00090	0.99910	99.57
10.5	51,834,085	43,535	0.00084	0.99916	99.48
11.5	50,554,457	32,016	0.00063	0.99937	99.40
12.5	49,450,745	80,050	0.00162	0.99838	99.34
13.5	47,542,815	33,178	0.00070	0.99930	99.18
14.5	46,649,314	91,023	0.00195	0.99805	99.11
15.5	45,877,109	234,410	0.00511	0.99489	98.92
16.5	44,745,440	153,187	0.00342	0.99658	98.41
17.5	43,854,427	782,774	0.01785	0.98215	98.07
18.5	42,523,510	76,206	0.00179	0.99821	96.32
19.5	41,516,495	13,867	0.00033	0.99967	96.15
20.5	41,120,038	63,609	0.00155	0.99845	96.12
21.5	40,212,302	85,893	0.00214	0.99786	95.97
22.5	39,829,785	348,190	0.00874	0.99126	95.76
23.5	38,964,673	139,853	0.00359	0.99641	94.92
24.5	38,473,944	104,829	0.00272	0.99728	94.58
25.5	38,262,763	85,201	0.00223	0.99777	94.32
26.5	37,825,791	39,982	0.00106	0.99894	94.11

MDU Electric

Account 311.00 - Steam Plant - Structures and Improvements

Placement Band - 1952 - 2020		Experience Band - 1996 - 2020	
27.5	37,307,496	76,145	0.00204
28.5	37,189,600	19,901	0.00054
29.5	37,124,652	101,269	0.00273
30.5	36,937,634	30,477	0.00083
31.5	36,618,347	46,393	0.00127
32.5	36,561,893	9,366	0.00026
33.5	36,455,111	25,215	0.00069
34.5	36,252,345	21,660	0.00060
35.5	35,317,055	162,040	0.00459
36.5	34,368,072	43,797	0.00127
37.5	34,215,782	34,945	0.00102
38.5	33,767,671	54,273	0.00161
39.5	10,707,540	48,122	0.00449
40.5	10,638,473	67,267	0.00632
41.5	10,500,665	32,357	0.00308
42.5	10,451,841	122,975	0.01177
43.5	10,314,470	41,647	0.00404
44.5	10,239,238	25,333	0.00247
45.5	2,763,759	25,500	0.00923
46.5	2,719,203	90,600	0.03332
47.5	2,623,333	28,000	0.01067
48.5	2,595,333	125,985	0.04854
49.5	2,469,348	55,476	0.02247
50.5	2,412,297	290	0.00012
51.5	2,410,880	36,566	0.01517
52.5	2,371,285	7,192	0.00303
53.5	2,358,407	1,831	0.00078
54.5	2,354,386	4,412	0.00187
55.5	2,345,128	130,550	0.05567
56.5	2,196,896	20,000	0.00910
57.5	1,946,061	1,592	0.00082

MDU Electric

Account 311.00 - Steam Plant - Structures and Improvements

Placement Band - 1952 - 2020					Experience Band - 1996 - 2020				
58.5		1,944,470		4,315	0.00222		0.99778		72.18
59.5		1,938,480		1,500	0.00077		0.99923		72.02
60.5		1,929,621		500	0.00026		0.99974		71.96
61.5		1,767,491		4,900	0.00277		0.99723		71.94
62.5		339,462		48,401	0.14258		0.85742		71.74
63.5		290,448		8,190	0.02820		0.97180		61.51
64.5		281,543		0	0.00000		1.00000		59.78
65.5		263,500		0	0.00000		1.00000		59.78
66.5		0		0	0.00000		0.00000		59.78
Totals:				4,390,983					

MDU Electric

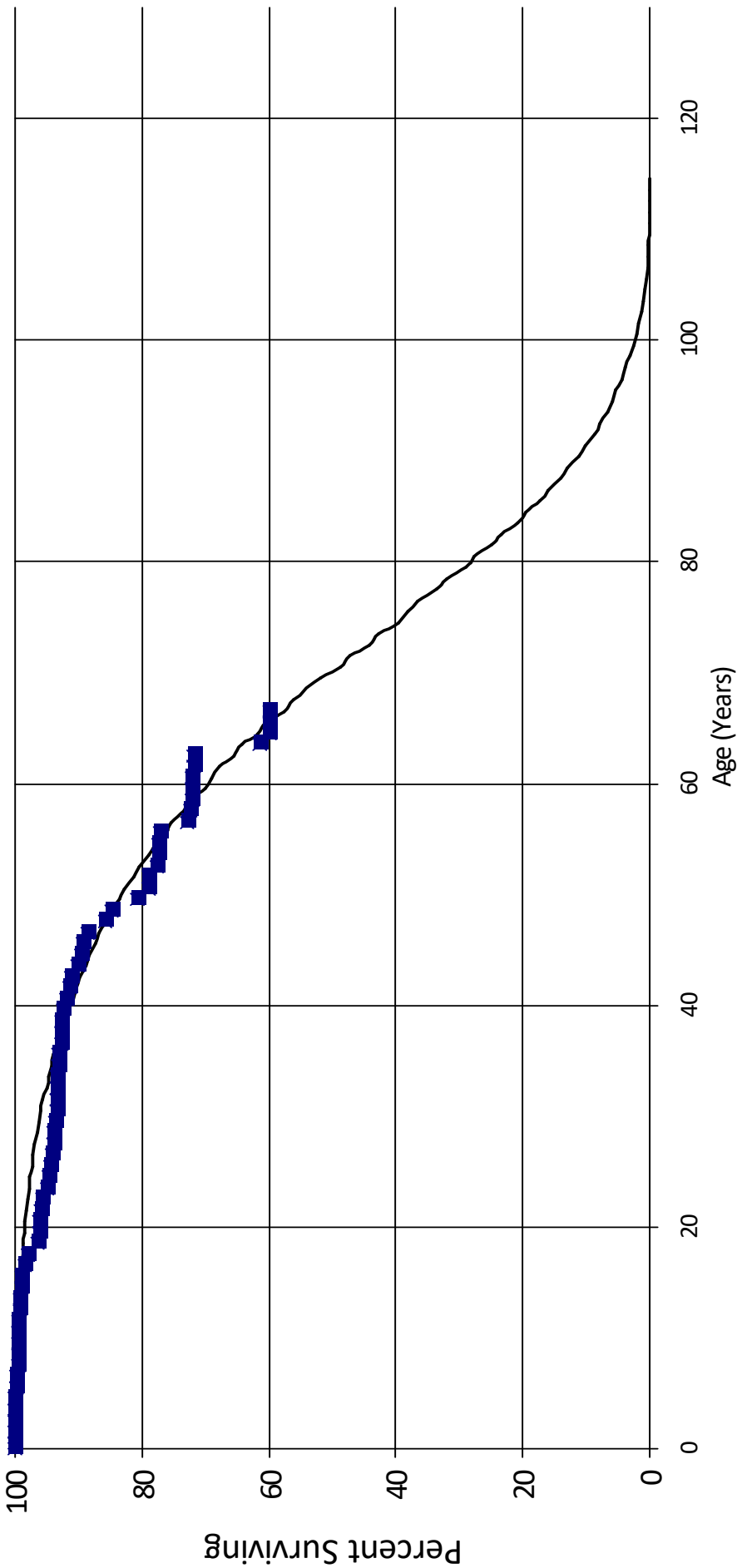
Account 311.00 - Steam Plant - Structures and Improvements

Placement Band - 1952 - 2020 Experience Band - 1996 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 68-R3 (RM 0.1582)



MDU Electric

Account 312.00 - Steam Plant - Boiler Plant Equipment

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	358,444,825	1,711	0.00000	1.00000	100.00
0.5	356,934,038	114,456	0.00032	0.99968	100.00
1.5	350,498,454	542,375	0.00155	0.99845	99.97
2.5	345,486,231	484,595	0.00140	0.99860	99.82
3.5	343,379,424	1,277,470	0.00372	0.99628	99.68
4.5	324,251,124	4,471,031	0.01379	0.98621	99.31
5.5	238,836,401	2,355,868	0.00986	0.99014	97.94
6.5	234,036,770	2,228,472	0.00952	0.99048	96.97
7.5	224,598,241	1,049,711	0.00467	0.99533	96.05
8.5	217,230,733	1,487,071	0.00685	0.99315	95.60
9.5	211,274,506	1,161,572	0.00550	0.99450	94.95
10.5	177,878,479	3,534,946	0.01987	0.98013	94.43
11.5	168,442,061	1,097,495	0.00652	0.99348	92.55
12.5	165,149,695	2,159,118	0.01307	0.98693	91.95
13.5	161,755,752	1,020,844	0.00631	0.99369	90.75
14.5	151,492,444	859,784	0.00568	0.99432	90.18
15.5	148,369,040	3,470,473	0.02339	0.97661	89.67
16.5	143,769,954	1,116,794	0.00777	0.99223	87.57
17.5	140,729,755	192,532	0.00137	0.99863	86.89
18.5	138,629,528	483,911	0.00349	0.99651	86.77
19.5	137,523,848	717,691	0.00522	0.99478	86.47
20.5	136,370,232	2,687,436	0.01971	0.98029	86.02
21.5	132,258,223	994,383	0.00752	0.99248	84.32
22.5	129,677,424	1,049,580	0.00809	0.99191	83.69
23.5	127,016,757	989,284	0.00779	0.99221	83.01
24.5	124,067,579	356,948	0.00288	0.99712	82.36
25.5	103,629,335	487,609	0.00471	0.99529	82.12
26.5	102,310,844	626,938	0.00613	0.99387	81.73

MDU Electric

Account 312.00 - Steam Plant - Boiler Plant Equipment

Placement Band - 1952 - 2020					Experience Band - 1995 - 2020				
27.5	101,306,721		1,057,246	0.01044	0.98956			81.23	
28.5	99,743,612		91,475	0.00092	0.99908			80.38	
29.5	93,550,004		109,840	0.00117	0.99883			80.31	
30.5	92,024,854		449,315	0.00488	0.99512			80.22	
31.5	91,358,625		152,878	0.00167	0.99833			79.83	
32.5	90,866,362		309,341	0.00340	0.99660			79.70	
33.5	82,015,436		186,819	0.00228	0.99772			79.43	
34.5	81,618,895		32,891	0.00040	0.99960			79.25	
35.5	80,889,070		1,743,097	0.02155	0.97845			79.22	
36.5	78,832,280		159,048	0.00202	0.99798			77.51	
37.5	77,922,574		291,527	0.00374	0.99626			77.35	
38.5	76,670,697		53,000	0.00069	0.99931			77.06	
39.5	21,963,089		527,583	0.02402	0.97598			77.01	
40.5	18,208,978		823,033	0.04520	0.95480			75.16	
41.5	13,609,499		1,188,247	0.08731	0.91269			71.76	
42.5	9,845,887		155,048	0.01575	0.98425			65.49	
43.5	9,609,850		3,763,593	0.39164	0.60836			64.46	
44.5	5,381,676		223,314	0.04150	0.95850			39.21	
45.5	5,158,361		19,794	0.00384	0.99616			37.58	
46.5	5,138,567		35,768	0.00696	0.99304			37.44	
47.5	5,102,799		121,498	0.02381	0.97619			37.18	
48.5	4,981,182		25,142	0.00505	0.99495			36.29	
49.5	4,954,915		126,550	0.02554	0.97446			36.11	
50.5	4,823,871		68,400	0.01418	0.98582			35.19	
51.5	4,737,932		15,204	0.00321	0.99679			34.69	
52.5	4,714,091		28,900	0.00613	0.99387			34.58	
53.5	4,682,984		82,042	0.01752	0.98248			34.37	
54.5	4,588,500		20,013	0.00436	0.99564			33.77	
55.5	4,564,385		3,599	0.00079	0.99921			33.62	
56.5	4,558,235		52,165	0.01144	0.98856			33.59	
57.5	3,927,214		8,400	0.00214	0.99786			33.21	

MDU Electric

Account 312.00 - Steam Plant - Boiler Plant Equipment

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

58.5	3,917,731	7,104	0.00181	0.99819	33.14
59.5	3,909,698	9,722	0.00249	0.99751	33.08
60.5	3,885,774	0	0.00000	1.00000	33.00
61.5	3,844,993	0	0.00000	1.00000	33.00
62.5	359,040	34,266	0.09544	0.90456	33.00
63.5	324,715	34,303	0.10564	0.89436	29.85
64.5	290,074	0	0.00000	1.00000	26.70
65.5	290,074	0	0.00000	1.00000	26.70
66.5	0	0	0.00000	0.00000	26.70
Totals:		49,030,263			

MDU Electric

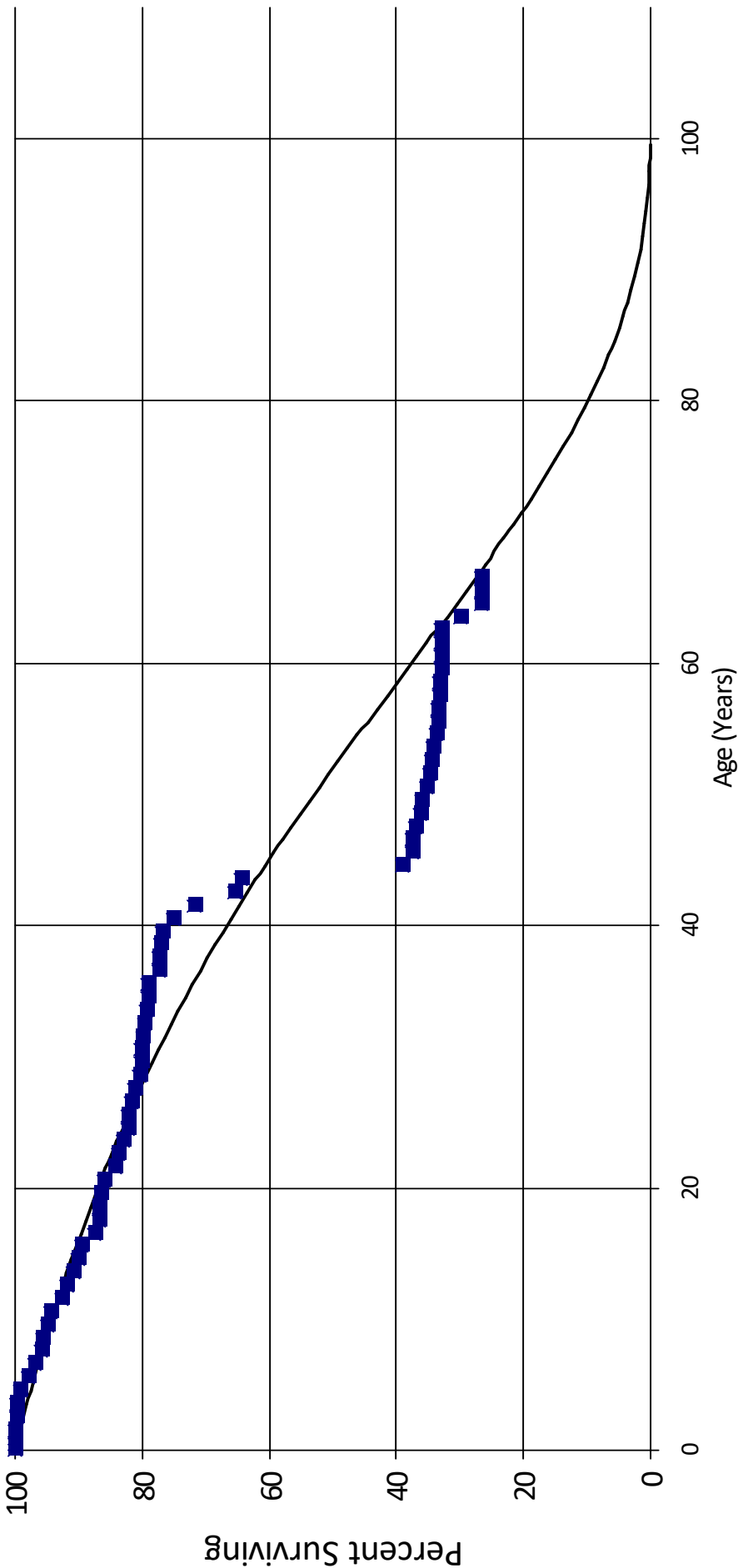
Account 312.00 - Steam Plant - Boiler Plant Equipment

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 50-R1 (RM 0.6683)



MDU Electric

Account 314.00 - Steam Plant - Turbogenerator Units

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	103,707,973	0	0.00000	1.00000	100.00
0.5	102,907,872	0	0.00000	1.00000	100.00
1.5	100,936,725	503,357	0.00499	0.99501	100.00
2.5	99,009,206	2,996,418	0.03026	0.96974	99.50
3.5	94,859,890	185,780	0.00196	0.99804	96.49
4.5	93,909,433	371,291	0.00395	0.99605	96.30
5.5	92,051,588	701,445	0.00762	0.99238	95.92
6.5	90,892,063	681,424	0.00750	0.99250	95.19
7.5	85,660,139	41,265	0.00048	0.99952	94.48
8.5	83,374,916	609,586	0.00731	0.99269	94.43
9.5	82,161,273	854,409	0.01040	0.98960	93.74
10.5	52,138,356	590,468	0.01133	0.98867	92.77
11.5	48,598,228	627,676	0.01292	0.98708	91.72
12.5	47,561,795	382,949	0.00805	0.99195	90.53
13.5	44,351,988	100,365	0.00226	0.99774	89.80
14.5	40,432,246	1,420,142	0.03512	0.96488	89.60
15.5	36,302,606	230,268	0.00634	0.99366	86.45
16.5	35,822,108	42,106	0.00118	0.99882	85.90
17.5	34,113,764	204,091	0.00598	0.99402	85.80
18.5	33,028,439	252,265	0.00764	0.99236	85.29
19.5	32,410,817	58,730	0.00181	0.99819	84.64
20.5	30,557,307	902,676	0.02954	0.97046	84.49
21.5	28,885,900	328,201	0.01136	0.98864	81.99
22.5	28,411,693	114,205	0.00402	0.99598	81.06
23.5	27,991,448	149,864	0.00535	0.99465	80.73
24.5	26,074,989	72,314	0.00277	0.99723	80.30
25.5	25,814,066	42,026	0.00163	0.99837	80.08
26.5	25,772,040	61,876	0.00240	0.99760	79.95

MDU Electric

Account 314.00 - Steam Plant - Turbogenerator Units

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

27.5	24,896,712	764,055	0.03069	0.96931	79.76
28.5	24,076,332	45,218	0.00188	0.99812	77.31
29.5	23,965,674	3,344	0.00014	0.99986	77.16
30.5	23,869,789	714,760	0.02994	0.97006	77.15
31.5	23,014,612	76,599	0.00333	0.99667	74.84
32.5	22,834,576	17,428	0.00076	0.99924	74.59
33.5	22,671,185	63,764	0.00281	0.99719	74.53
34.5	22,566,743	10,258	0.00045	0.99955	74.32
35.5	22,461,539	213,715	0.00951	0.99049	74.29
36.5	22,243,859	281,920	0.01267	0.98733	73.58
37.5	21,879,716	130,169	0.00595	0.99405	72.65
38.5	20,145,521	23,033	0.00114	0.99886	72.22
39.5	12,269,179	112,966	0.00921	0.99079	72.14
40.5	12,156,212	36,443	0.00300	0.99700	71.48
41.5	12,115,315	354,113	0.02923	0.97077	71.27
42.5	11,719,848	19,788	0.00169	0.99831	69.19
43.5	11,698,209	147,248	0.01259	0.98741	69.07
44.5	11,501,025	84,750	0.00737	0.99263	68.20
45.5	6,924,223	4,100	0.00059	0.99941	67.70
46.5	6,920,123	36,955	0.00534	0.99466	67.66
47.5	6,883,168	8,950	0.00130	0.99870	67.30
48.5	6,874,218	105,740	0.01538	0.98462	67.21
49.5	6,765,200	162,800	0.02406	0.97594	66.18
50.5	6,602,168	0	0.00000	1.00000	64.59
51.5	6,592,313	0	0.00000	1.00000	64.59
52.5	6,590,183	17,600	0.00267	0.99733	64.59
53.5	6,567,574	83,284	0.01268	0.98732	64.42
54.5	6,481,622	5	0.00000	1.00000	63.60
55.5	6,480,711	0	0.00000	1.00000	63.60
56.5	6,470,983	0	0.00000	1.00000	63.60
57.5	4,039,725	15,000	0.00371	0.99629	63.60

MDU Electric

Account 314.00 - Steam Plant - Turbogenerator Units

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

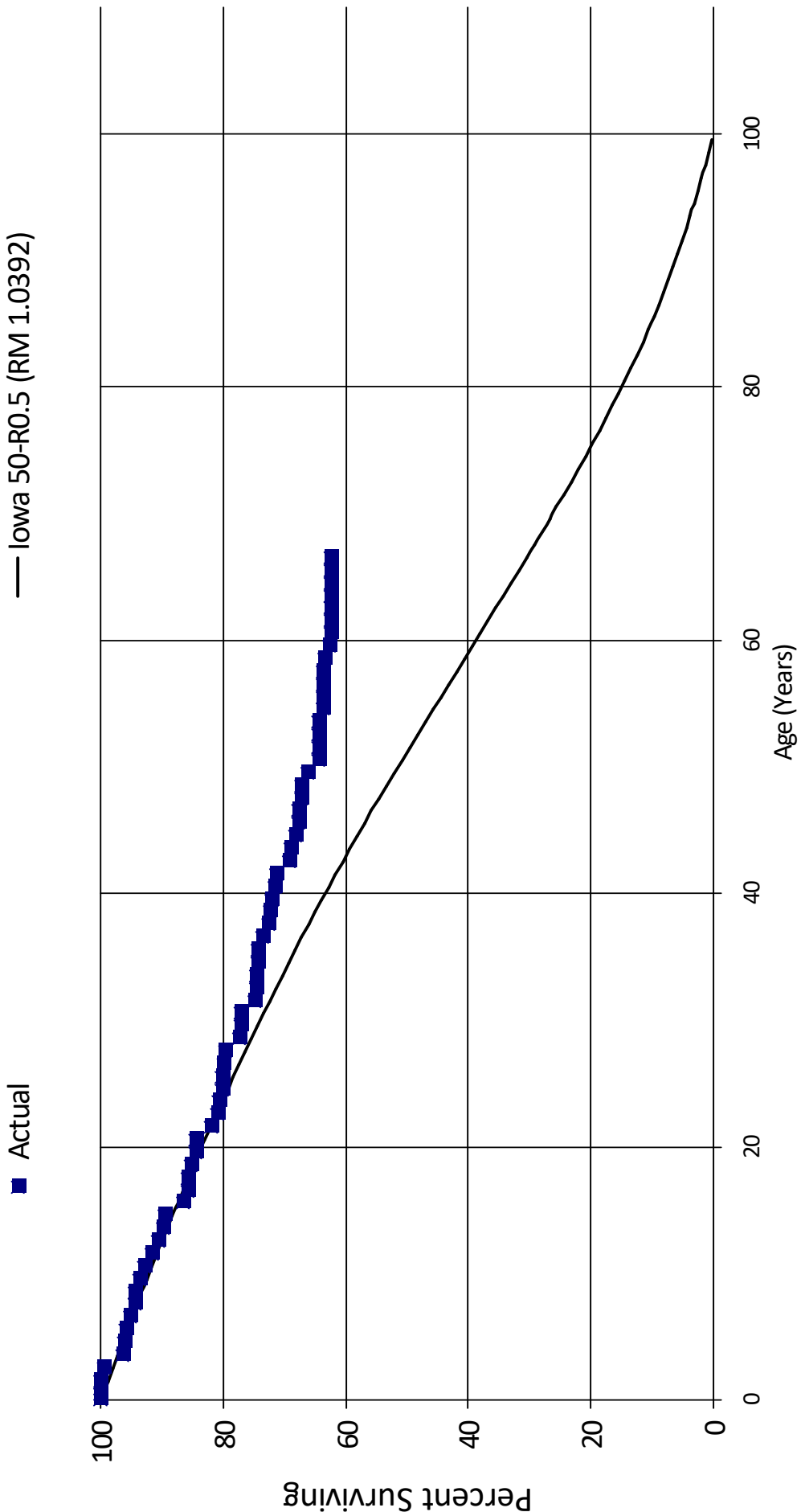
58.5	4,024,725	45,034	0.01119	0.98881	63.36
59.5	3,979,692	8,490	0.00213	0.99787	62.65
60.5	3,967,168	3,204	0.00081	0.99919	62.52
61.5	3,963,964	650	0.00016	0.99984	62.47
62.5	1,565,523	0	0.00000	1.00000	62.46
63.5	1,565,252	3,375	0.00216	0.99784	62.46
64.5	1,561,877	0	0.00000	1.00000	62.33
65.5	1,561,877	0	0.00000	1.00000	62.33
66.5	0	0	0.00000	0.00000	62.33
Totals:		16,119,955			

MDU Electric

Account 314.00 - Steam Plant - Turbogenerator Units

Placement Band - 1952 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 315.00 - Steam Plant - Accessory Electric Equipment

Placement Band - 1952 - 2019 Experience Band - 1997 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	26,997,633	0	0.00000	1.00000	100.00
0.5	26,997,633	0	0.00000	1.00000	100.00
1.5	26,521,002	0	0.00000	1.00000	100.00
2.5	26,430,778	67,764	0.00256	0.99744	100.00
3.5	26,258,903	39,780	0.00151	0.99849	99.74
4.5	25,667,782	284,412	0.01108	0.98892	99.59
5.5	20,396,542	1,589	0.00008	0.99992	98.49
6.5	20,319,806	695,203	0.03421	0.96579	98.48
7.5	18,947,478	19,634	0.00104	0.99896	95.11
8.5	18,838,260	90,113	0.00478	0.99522	95.01
9.5	18,090,803	7,525	0.00042	0.99958	94.56
10.5	15,334,787	0	0.00000	1.00000	94.52
11.5	14,907,729	150,555	0.01010	0.98990	94.52
12.5	13,556,353	6,011	0.00044	0.99956	93.57
13.5	13,522,400	21,157	0.00156	0.99844	93.53
14.5	13,463,949	23,032	0.00171	0.99829	93.38
15.5	12,877,439	18,500	0.00144	0.99856	93.22
16.5	12,855,729	29,696	0.00231	0.99769	93.09
17.5	12,791,274	16,458	0.00129	0.99871	92.87
18.5	12,759,580	7,412	0.00058	0.99942	92.75
19.5	12,750,716	0	0.00000	1.00000	92.70
20.5	12,692,559	9,291	0.00073	0.99927	92.70
21.5	12,683,268	17,701	0.00140	0.99860	92.63
22.5	12,635,161	3,160	0.00025	0.99975	92.50
23.5	12,598,263	10,251	0.00081	0.99919	92.48
24.5	12,567,223	14,374	0.00114	0.99886	92.41
25.5	12,513,466	21,356	0.00171	0.99829	92.30
26.5	12,432,910	0	0.00000	1.00000	92.14

MDU Electric

Account 315.00 - Steam Plant - Accessory Electric Equipment

Placement Band - 1952 - 2019 Experience Band - 1997 - 2020

27.5	12,357,655	280,051	0.02266	0.97734	92.14
28.5	12,059,094	9,282	0.00077	0.99923	90.05
29.5	11,933,096	11,049	0.00093	0.99907	89.98
30.5	11,922,047	100,967	0.00847	0.99153	89.90
31.5	11,814,661	0	0.00000	1.00000	89.14
32.5	11,793,182	1,000	0.00008	0.99992	89.14
33.5	11,791,370	852	0.00007	0.99993	89.13
34.5	11,786,103	6,000	0.00051	0.99949	89.12
35.5	11,780,103	0	0.00000	1.00000	89.07
36.5	11,776,381	90,981	0.00773	0.99227	89.07
37.5	11,678,677	12,604	0.00108	0.99892	88.38
38.5	11,619,290	26,875	0.00231	0.99769	88.28
39.5	4,773,574	2,000	0.00042	0.99958	88.08
40.5	4,714,507	3,752	0.00080	0.99920	88.04
41.5	4,706,784	400	0.00008	0.99992	87.97
42.5	4,701,825	5,323	0.00113	0.99887	87.96
43.5	4,692,732	125,218	0.02668	0.97332	87.86
44.5	4,555,923	60	0.00001	0.99999	85.52
45.5	1,778,854	4,000	0.00225	0.99775	85.52
46.5	1,774,854	0	0.00000	1.00000	85.33
47.5	1,774,854	5,244	0.00295	0.99705	85.33
48.5	1,769,610	800	0.00045	0.99955	85.08
49.5	1,768,810	500	0.00028	0.99972	85.04
50.5	1,768,310	0	0.00000	1.00000	85.02
51.5	1,768,310	0	0.00000	1.00000	85.02
52.5	1,766,517	0	0.00000	1.00000	85.02
53.5	1,765,743	0	0.00000	1.00000	85.02
54.5	1,765,743	0	0.00000	1.00000	85.02
55.5	1,765,743	3,000	0.00170	0.99830	85.02
56.5	1,759,212	0	0.00000	1.00000	84.88
57.5	1,123,132	0	0.00000	1.00000	84.88

MDU Electric

Account 315.00 - Steam Plant - Accessory Electric Equipment

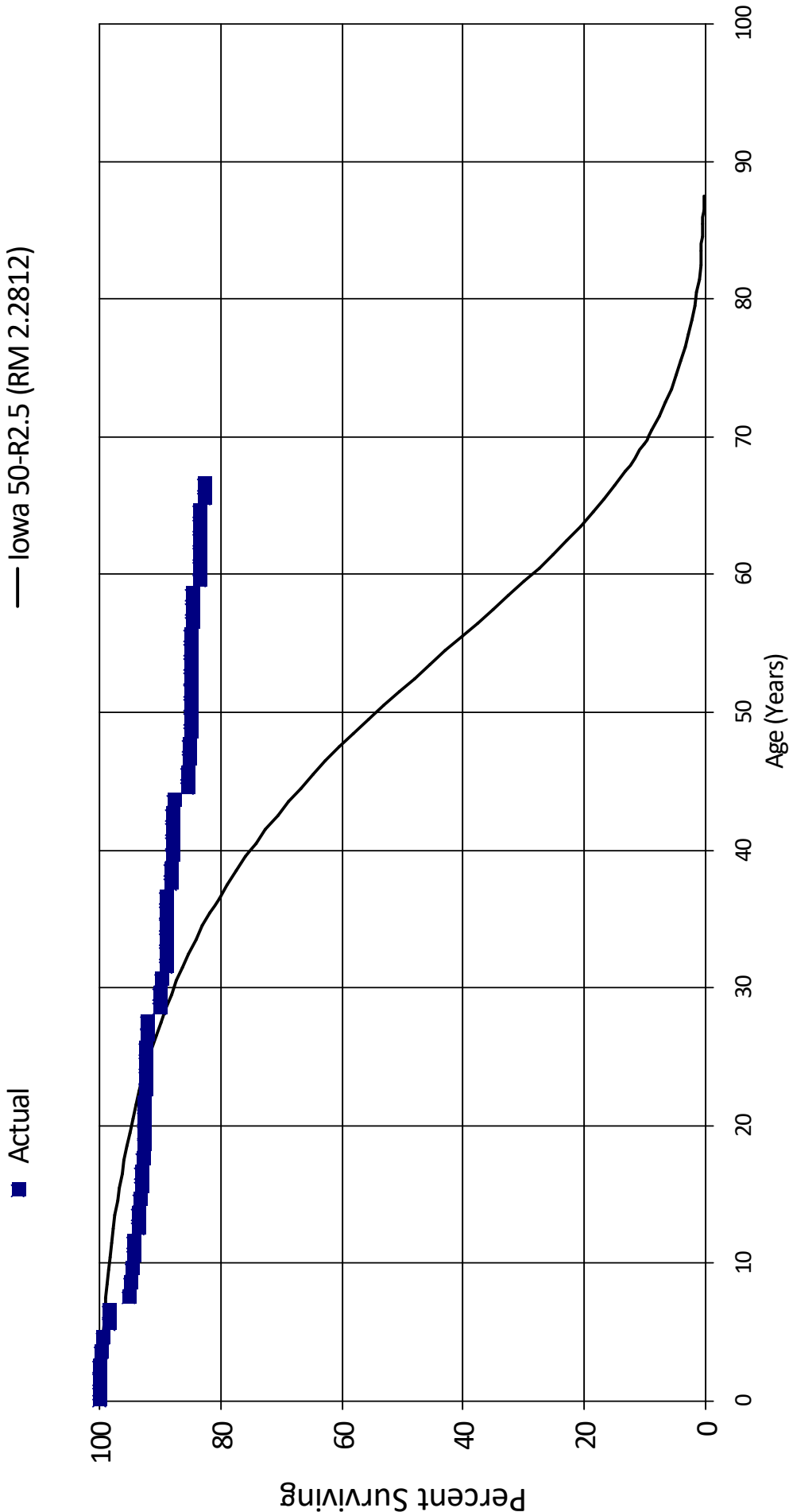
Placement Band - 1952 - 2019 Experience Band - 1997 - 2020						
58.5	1,123,132	18,500	0.01647	0.98353		84.88
59.5	1,104,632	0	0.00000	1.00000		83.48
60.5	1,104,632	0	0.00000	1.00000		83.48
61.5	1,035,457	0	0.00000	1.00000		83.48
62.5	382,442	0	0.00000	1.00000		83.48
63.5	382,442	0	0.00000	1.00000		83.48
64.5	382,442	3,211	0.00840	0.99160		83.48
65.5	379,231	0	0.00000	1.00000		82.78
66.5	0	0	0.00000	0.00000		82.78
Totals:		2,266,643				

MDU Electric

Account 315.00 - Steam Plant - Accessory Electric Equipment

Placement Band - 1952 - 2019 Experience Band - 1997 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 316.00 - Steam Plant - Miscellaneous Power Plant Equipment

Placement Band - 1953 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	29,164,778	96,319	0.00330	0.99670	100.00
0.5	28,766,153	423,741	0.01473	0.98527	99.67
1.5	26,792,259	169,558	0.00633	0.99367	98.20
2.5	25,463,271	795,111	0.03123	0.96877	97.58
3.5	24,034,341	843,982	0.03512	0.96488	94.53
4.5	21,787,568	770,190	0.03535	0.96465	91.21
5.5	19,795,942	339,958	0.01717	0.98283	87.99
6.5	19,134,740	385,280	0.02014	0.97986	86.48
7.5	17,827,332	1,060,154	0.05947	0.94053	84.74
8.5	16,560,698	-367,945	-0.02222	1.02222	79.70
9.5	16,660,042	218,042	0.01309	0.98691	81.47
10.5	15,449,771	221,807	0.01436	0.98564	80.40
11.5	15,054,291	257,912	0.01713	0.98287	79.25
12.5	14,341,893	146,601	0.01022	0.98978	77.89
13.5	13,946,940	270,769	0.01941	0.98059	77.09
14.5	13,435,630	101,496	0.00755	0.99245	75.59
15.5	13,228,645	1,038,632	0.07851	0.92149	75.02
16.5	12,034,321	81,587	0.00678	0.99322	69.13
17.5	10,430,101	141,804	0.01360	0.98640	68.66
18.5	10,243,091	177,441	0.01732	0.98268	67.73
19.5	9,900,052	115,683	0.01169	0.98831	66.56
20.5	9,731,538	73,148	0.00752	0.99248	65.78
21.5	6,914,676	58,979	0.00853	0.99147	65.29
22.5	6,718,408	81,997	0.01220	0.98780	64.73
23.5	5,862,553	393,220	0.06707	0.93293	63.94
24.5	5,370,962	136,999	0.02551	0.97449	59.65
25.5	2,085,855	29,935	0.01435	0.98565	58.13
26.5	1,627,910	12,439	0.00764	0.99236	57.30

MDU Electric

Account 316.00 - Steam Plant - Miscellaneous Power Plant Equipment

Placement Band - 1953 - 2020 Experience Band - 1995 - 2020

27.5	1,577,367	9,876	0.00626	0.99374	56.86
28.5	1,491,192	10,196	0.00684	0.99316	56.50
29.5	1,417,500	32,146	0.02268	0.97732	56.11
30.5	1,331,530	11,209	0.00842	0.99158	54.84
31.5	1,235,344	41,972	0.03398	0.96602	54.38
32.5	1,154,014	2,795	0.00242	0.99758	52.53
33.5	1,099,401	20,628	0.01876	0.98124	52.40
34.5	906,634	9,062	0.01000	0.99000	51.42
35.5	830,629	6,854	0.00825	0.99175	50.91
36.5	766,652	42,905	0.05596	0.94404	50.49
37.5	602,984	16,407	0.02721	0.97279	47.66
38.5	546,661	2,681	0.00490	0.99510	46.36
39.5	126,623	11,330	0.08948	0.91052	46.13
40.5	109,873	23,951	0.21799	0.78201	42.00
41.5	78,429	4,662	0.05944	0.94056	32.84
42.5	72,318	0	0.00000	1.00000	30.89
43.5	71,405	15,785	0.22106	0.77894	30.89
44.5	52,903	600	0.01134	0.98866	24.06
45.5	49,255	11,195	0.22729	0.77271	23.79
46.5	38,060	0	0.00000	1.00000	18.38
47.5	38,060	0	0.00000	1.00000	18.38
48.5	38,060	1,000	0.02627	0.97373	18.38
49.5	37,060	4,132	0.11149	0.88851	17.90
50.5	32,928	2,475	0.07516	0.92484	15.90
51.5	30,453	0	0.00000	1.00000	14.70
52.5	30,453	0	0.00000	1.00000	14.70
53.5	30,453	0	0.00000	1.00000	14.70
54.5	30,453	1,500	0.04926	0.95074	14.70
55.5	28,953	0	0.00000	1.00000	13.98
56.5	28,953	0	0.00000	1.00000	13.98
57.5	22,652	0	0.00000	1.00000	13.98

MDU Electric

Account 316.00 - Steam Plant - Miscellaneous Power Plant Equipment

Placement Band - 1953 - 2020 Experience Band - 1995 - 2020

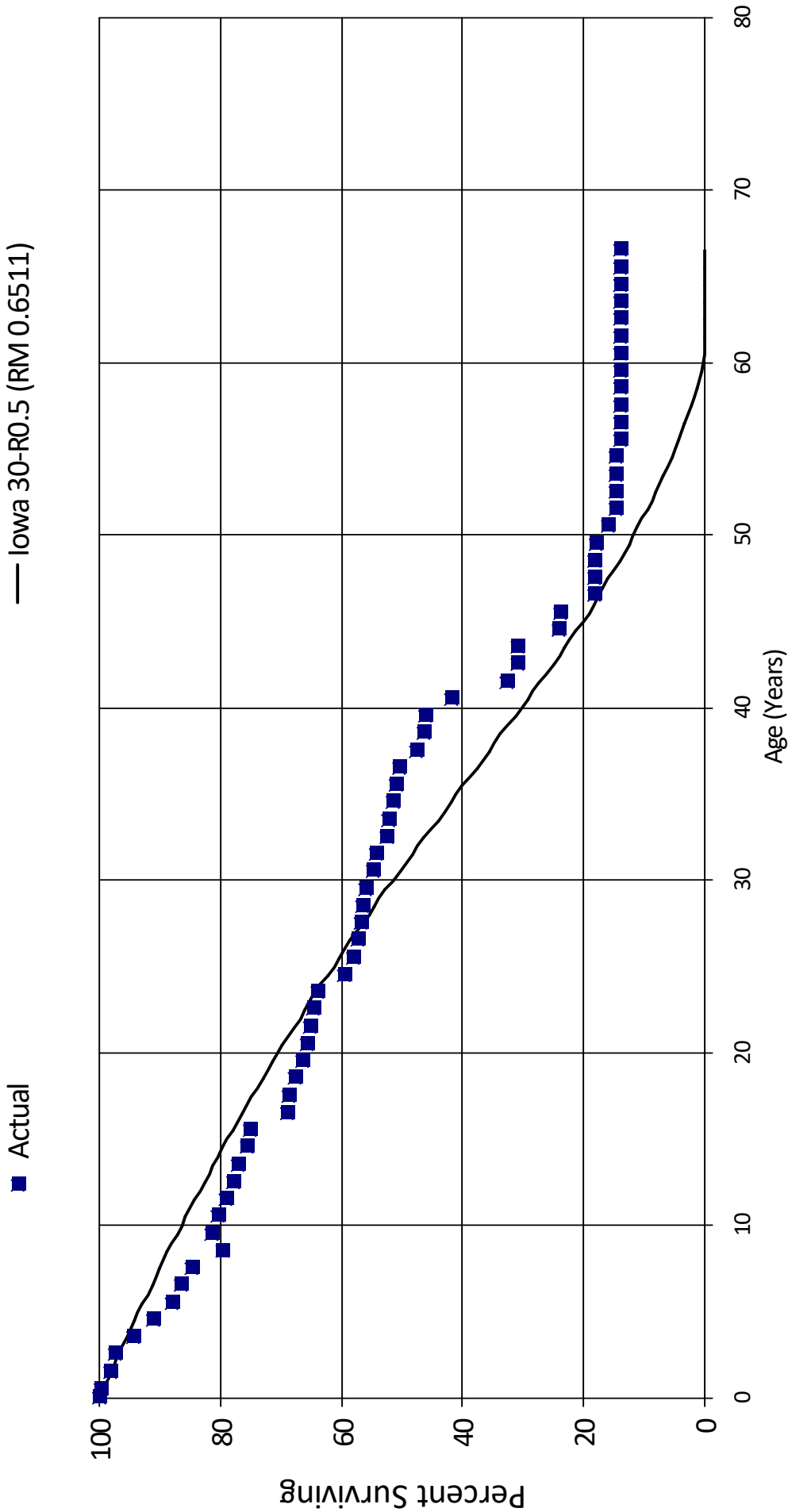
58.5	22,652	0	0.00000	1.00000	13.98
59.5	22,606	0	0.00000	1.00000	13.98
60.5	22,606	200	0.00885	0.99115	13.98
61.5	16,438	0	0.00000	1.00000	13.86
62.5	16,438	0	0.00000	1.00000	13.86
63.5	16,203	0	0.00000	1.00000	13.86
64.5	14,704	0	0.00000	1.00000	13.86
65.5	6,097	0	0.00000	1.00000	13.86
66.5	0	0	0.00000	0.00000	13.86
Totals:		8,358,400			

MDU Electric

Account 316.00 - Steam Plant - Miscellaneous Power Plant Equipment

Placement Band - 1953 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 341.00 - Other Production Plant - Structures and Improvements

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	60,350,057	0	0.00000	1.00000	100.00
0.5	59,431,098	0	0.00000	1.00000	100.00
1.5	59,369,424	0	0.00000	1.00000	100.00
2.5	50,704,710	0	0.00000	1.00000	100.00
3.5	50,447,278	0	0.00000	1.00000	100.00
4.5	50,382,855	0	0.00000	1.00000	100.00
5.5	16,156,463	0	0.00000	1.00000	100.00
6.5	9,101,310	0	0.00000	1.00000	100.00
7.5	9,024,683	0	0.00000	1.00000	100.00
8.5	8,888,709	0	0.00000	1.00000	100.00
9.5	8,888,709	0	0.00000	1.00000	100.00
10.5	4,587,648	2,306	0.00050	0.99950	100.00
11.5	3,893,929	0	0.00000	1.00000	99.95
12.5	3,545,208	20,091	0.00567	0.99433	99.95
13.5	1,662,958	0	0.00000	1.00000	99.38
14.5	1,630,732	0	0.00000	1.00000	99.38
15.5	1,567,605	0	0.00000	1.00000	99.38
16.5	1,567,605	0	0.00000	1.00000	99.38
17.5	369,075	500	0.00135	0.99865	99.38
18.5	368,575	975	0.00265	0.99735	99.25
19.5	367,600	0	0.00000	1.00000	98.99
20.5	357,679	0	0.00000	1.00000	98.99
21.5	357,679	0	0.00000	1.00000	98.99
22.5	357,679	0	0.00000	1.00000	98.99
23.5	357,679	0	0.00000	1.00000	98.99
24.5	352,414	0	0.00000	1.00000	98.99
25.5	352,414	0	0.00000	1.00000	98.99
26.5	350,990	0	0.00000	1.00000	98.99

MDU Electric

Account 341.00 - Other Production Plant - Structures and Improvements

Placement Band - 1954 - 2020						Experience Band - 1997 - 2020					
27.5		349,370		0	0.00000	1.00000				98.99	
28.5		349,370	522	0.00149		0.99851				98.99	
29.5		348,848		0	0.00000	1.00000				98.84	
30.5		348,848		0	0.00000	1.00000				98.84	
31.5		339,323		0	0.00000	1.00000				98.84	
32.5		339,323		0	0.00000	1.00000				98.84	
33.5		339,323		0	0.00000	1.00000				98.84	
34.5		339,323		0	0.00000	1.00000				98.84	
35.5		339,323		0	0.00000	1.00000				98.84	
36.5		339,323	1,959	0.00577		0.99423				98.84	
37.5		332,645		0	0.00000	1.00000				98.27	
38.5		332,645		0	0.00000	1.00000				98.27	
39.5		332,645		0	0.00000	1.00000				98.27	
40.5		332,645		0	0.00000	1.00000				98.27	
41.5		332,444		0	0.00000	1.00000				98.27	
42.5		327,807		0	0.00000	1.00000				98.27	
43.5		327,807		0	0.00000	1.00000				98.27	
44.5		327,807		0	0.00000	1.00000				98.27	
45.5		327,807		0	0.00000	1.00000				98.27	
46.5		327,807		0	0.00000	1.00000				98.27	
47.5		327,807		0	0.00000	1.00000				98.27	
48.5		327,807		0	0.00000	1.00000				98.27	
49.5		327,807		0	0.00000	1.00000				98.27	
50.5		327,807		0	0.00000	1.00000				98.27	
51.5		327,807		0	0.00000	1.00000				98.27	
52.5		327,807		0	0.00000	1.00000				98.27	
53.5		327,807		0	0.00000	1.00000				98.27	
54.5		327,807		0	0.00000	1.00000				98.27	
55.5		327,807		0	0.00000	1.00000				98.27	
56.5		327,807		0	0.00000	1.00000				98.27	
57.5		327,807	327,807	1.00000						98.27	

MDU Electric

Account 341.00 - Other Production Plant - Structures and Improvements

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

Totals:

354,160

MDU Electric

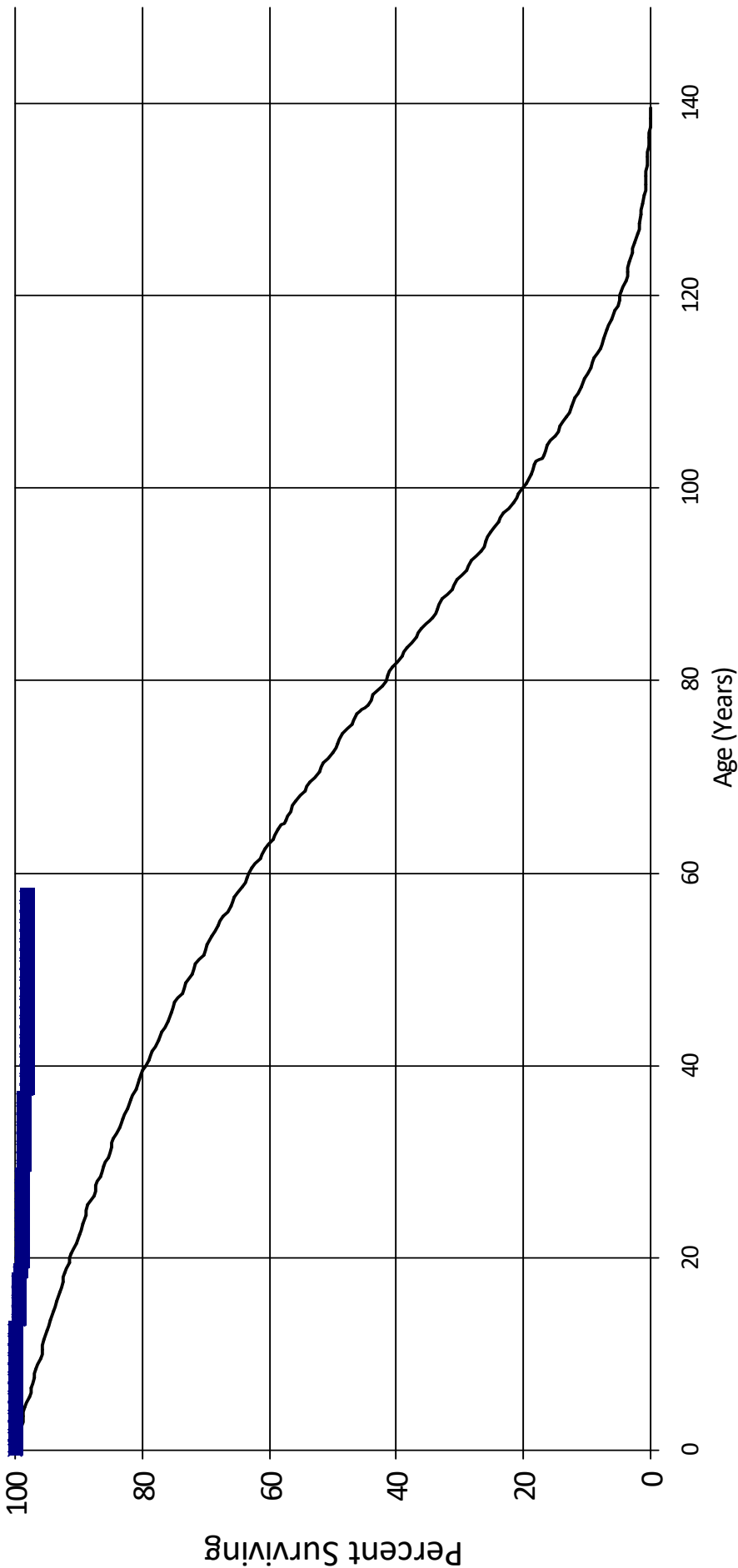
Account 341.00 - Other Production Plant - Structures and Improvements

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 70-R1 (RM 1.2823)



MDU Electric

Account 342.00 - Other Production Plant - Fuel Holders, Producers and Accessories

Placement Band - 1954 - 2016 Experience Band - 2012 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	5,836,792	0	0.00000	1.00000	100.00
0.5	5,836,792	0	0.00000	1.00000	100.00
1.5	5,836,792	0	0.00000	1.00000	100.00
2.5	5,836,792	0	0.00000	1.00000	100.00
3.5	5,836,792	0	0.00000	1.00000	100.00
4.5	5,728,750	0	0.00000	1.00000	100.00
5.5	2,743,971	0	0.00000	1.00000	100.00
6.5	1,643,006	0	0.00000	1.00000	100.00
7.5	1,528,260	0	0.00000	1.00000	100.00
8.5	1,392,287	0	0.00000	1.00000	100.00
9.5	1,392,287	0	0.00000	1.00000	100.00
10.5	1,392,287	464	0.00033	0.99967	100.00
11.5	1,391,822	0	0.00000	1.00000	99.97
12.5	1,391,822	20,091	0.01444	0.98556	99.97
13.5	1,155,689	0	0.00000	1.00000	98.53
14.5	1,148,490	0	0.00000	1.00000	98.53
15.5	1,148,490	0	0.00000	1.00000	98.53
16.5	1,148,490	0	0.00000	1.00000	98.53
17.5	276,194	0	0.00000	1.00000	98.53
18.5	276,194	0	0.00000	1.00000	98.53
19.5	276,194	0	0.00000	1.00000	98.53
20.5	276,194	0	0.00000	1.00000	98.53
21.5	276,194	63,182	0.22876	0.77124	98.53
22.5	213,012	0	0.00000	1.00000	75.99
23.5	213,012	0	0.00000	1.00000	75.99
24.5	213,012	0	0.00000	1.00000	75.99
25.5	213,012	0	0.00000	1.00000	75.99
26.5	210,366	0	0.00000	1.00000	75.99

MDU Electric

Account 342.00 - Other Production Plant - Fuel Holders, Producers and Accessories

Placement Band - 1954 - 2016 Experience Band - 2012 - 2020

27.5	188,051	0	0.00000	1.00000	75.99
28.5	188,051	0	0.00000	1.00000	75.99
29.5	171,577	0	0.00000	1.00000	75.99
30.5	171,577	0	0.00000	1.00000	75.99
31.5	171,577	0	0.00000	1.00000	75.99
32.5	160,319	0	0.00000	1.00000	75.99
33.5	159,147	0	0.00000	1.00000	75.99
34.5	159,147	0	0.00000	1.00000	75.99
35.5	159,147	0	0.00000	1.00000	75.99
36.5	159,147	0	0.00000	1.00000	75.99
37.5	159,147	29,946	0.18817	0.81183	75.99
38.5	129,201	0	0.00000	1.00000	61.69
39.5	129,201	0	0.00000	1.00000	61.69
40.5	129,201	0	0.00000	1.00000	61.69
41.5	129,201	0	0.00000	1.00000	61.69
42.5	128,943	5,009	0.03885	0.96115	61.69
43.5	123,934	0	0.00000	1.00000	59.29
44.5	123,934	0	0.00000	1.00000	59.29
45.5	77,662	0	0.00000	1.00000	59.29
46.5	77,662	0	0.00000	1.00000	59.29
47.5	77,662	0	0.00000	1.00000	59.29
48.5	77,662	0	0.00000	1.00000	59.29
49.5	77,662	0	0.00000	1.00000	59.29
50.5	77,662	0	0.00000	1.00000	59.29
51.5	77,662	0	0.00000	1.00000	59.29
52.5	77,662	0	0.00000	1.00000	59.29
53.5	77,662	0	0.00000	1.00000	59.29
54.5	77,662	0	0.00000	1.00000	59.29
55.5	77,662	0	0.00000	1.00000	59.29
56.5	77,662	0	0.00000	1.00000	59.29
57.5	77,662	77,662	1.00000		59.29

MDU Electric

Account 342.00 - Other Production Plant - Fuel Holders, Producers and Accessories

Placement Band - 1954 - 2016 Experience Band - 2012 - 2020

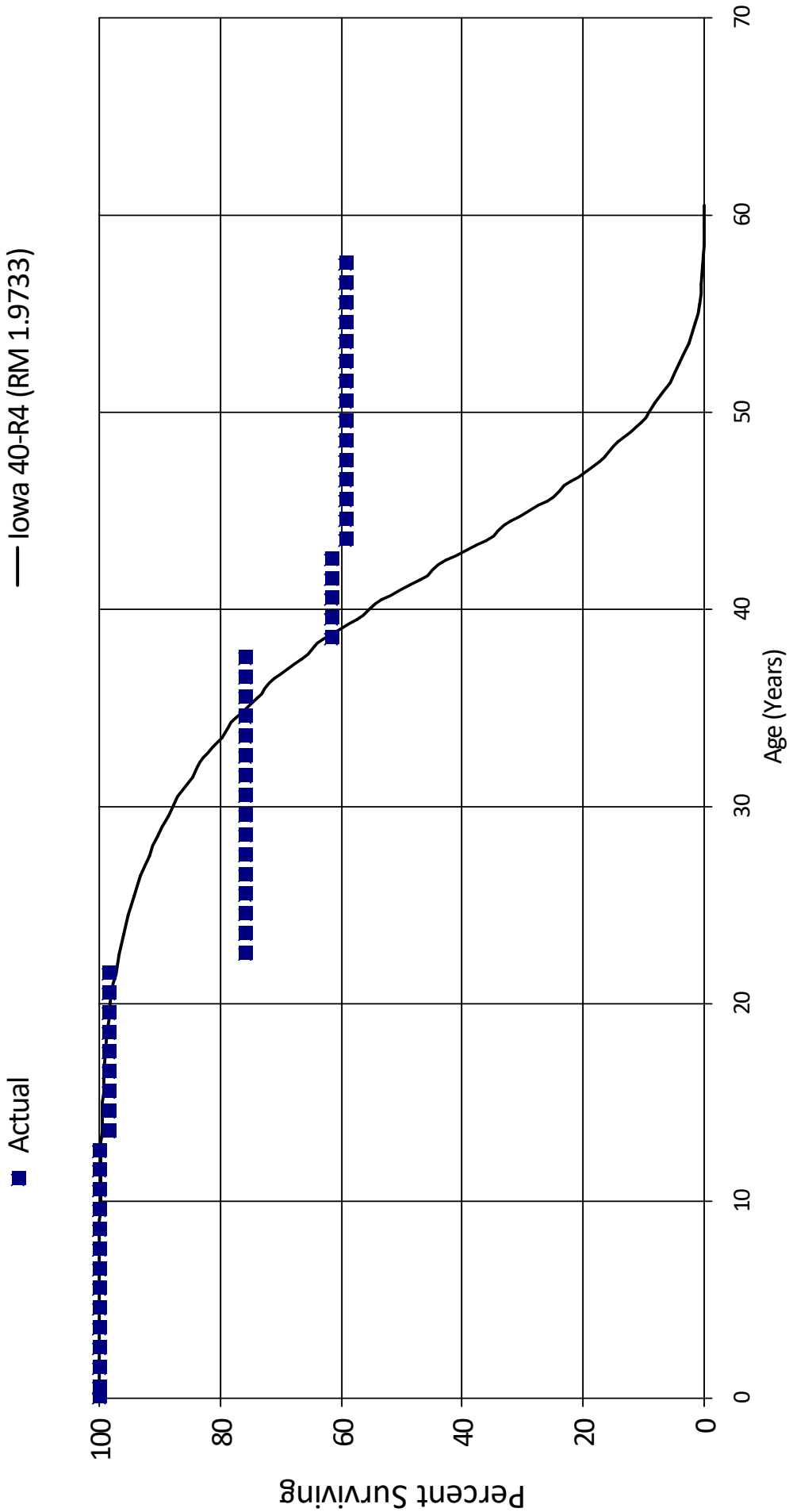
Totals: 196,354

MDU Electric

Account 342.00 - Other Production Plant - Fuel Holders, Producers and Accessories

Placement Band - 1954 - 2016 Experience Band - 2012 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 344.00 - Other Production Plant - Generators

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	407,865,848	0	0.00000	1.00000	100.00
0.5	407,290,027	39,372	0.00010	0.99990	100.00
1.5	406,798,042	5,636	0.00001	0.99999	99.99
2.5	336,102,646	0	0.00000	1.00000	99.99
3.5	333,785,903	2,223,139	0.00666	0.99334	99.99
4.5	331,175,563	1,481,625	0.00447	0.99553	99.32
5.5	162,888,311	466,995	0.00287	0.99713	98.88
6.5	125,039,494	151,849	0.00121	0.99879	98.60
7.5	124,816,291	592,166	0.00474	0.99526	98.48
8.5	121,999,039	728,017	0.00597	0.99403	98.01
9.5	120,798,620	1,661,893	0.01376	0.98624	97.42
10.5	66,183,619	-315,446	-0.00477	1.00477	96.08
11.5	52,653,429	101,456	0.00193	0.99807	96.54
12.5	52,551,973	150,214	0.00286	0.99714	96.35
13.5	24,778,443	485,555	0.01960	0.98040	96.07
14.5	24,198,035	93,795	0.00388	0.99612	94.19
15.5	24,098,192	181,218	0.00752	0.99248	93.82
16.5	23,363,787	75,000	0.00321	0.99679	93.11
17.5	9,119,796	0	0.00000	1.00000	92.81
18.5	9,119,796	0	0.00000	1.00000	92.81
19.5	9,119,796	0	0.00000	1.00000	92.81
20.5	8,764,965	59,068	0.00674	0.99326	92.81
21.5	8,704,314	5,524	0.00063	0.99937	92.18
22.5	8,698,790	0	0.00000	1.00000	92.12
23.5	8,698,790	0	0.00000	1.00000	92.12
24.5	8,693,902	0	0.00000	1.00000	92.12
25.5	8,684,789	800	0.00009	0.99991	92.12
26.5	8,555,407	1,000	0.00012	0.99988	92.11

MDU Electric

Account 344.00 - Other Production Plant - Generators

Placement Band - 1954 - 2020						Experience Band - 1997 - 2020					
27.5	8,554,407	157,068	0.01836	0.98164	92.10						
28.5	8,397,339	0	0.00000	1.00000	90.41						
29.5	8,397,339	0	0.00000	1.00000	90.41						
30.5	8,397,339	0	0.00000	1.00000	90.41						
31.5	8,397,339	0	0.00000	1.00000	90.41						
32.5	8,397,339	70,982	0.00845	0.99155	90.41						
33.5	8,326,246	0	0.00000	1.00000	89.65						
34.5	8,317,101	0	0.00000	1.00000	89.65						
35.5	8,317,101	0	0.00000	1.00000	89.65						
36.5	8,312,804	0	0.00000	1.00000	89.65						
37.5	7,993,376	0	0.00000	1.00000	89.65						
38.5	7,991,182	15,250	0.00191	0.99809	89.65						
39.5	7,697,002	0	0.00000	1.00000	89.48						
40.5	7,689,682	0	0.00000	1.00000	89.48						
41.5	3,244,758	0	0.00000	1.00000	89.48						
42.5	3,244,758	0	0.00000	1.00000	89.48						
43.5	3,244,758	0	0.00000	1.00000	89.48						
44.5	3,244,758	0	0.00000	1.00000	89.48						
45.5	3,244,758	104,532	0.03222	0.96778	89.48						
46.5	3,140,225	0	0.00000	1.00000	86.60						
47.5	3,125,084	0	0.00000	1.00000	86.60						
48.5	1,363,796	0	0.00000	1.00000	86.60						
49.5	1,363,796	0	0.00000	1.00000	86.60						
50.5	1,363,796	0	0.00000	1.00000	86.60						
51.5	1,363,796	0	0.00000	1.00000	86.60						
52.5	1,363,796	0	0.00000	1.00000	86.60						
53.5	1,363,796	0	0.00000	1.00000	86.60						
54.5	1,363,796	0	0.00000	1.00000	86.60						
55.5	1,363,796	0	0.00000	1.00000	86.60						
56.5	1,363,796	0	0.00000	1.00000	86.60						
57.5	1,363,796	1,363,796	1.00000		86.60						

MDU Electric

Account 344.00 - Other Production Plant - Generators

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

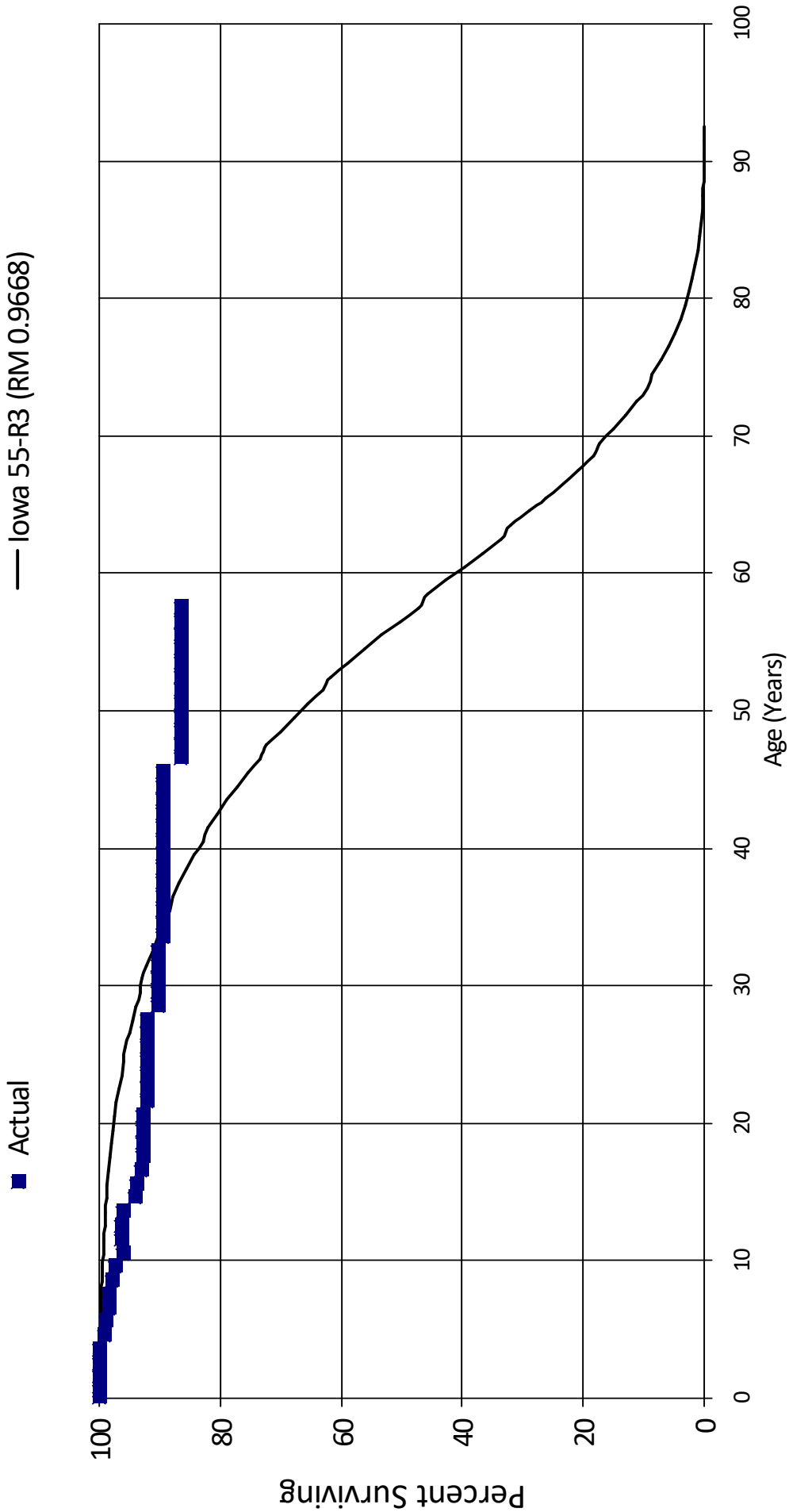
Totals: 9,900,504

MDU Electric

Account 344.00 - Other Production Plant - Generators

Placement Band - 1954 - 2020 Experience Band - 1997 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 345.00 - Other Production Plant - Accessory Electric Equipment

Placement Band - 1950 - 2020 Experience Band - 1998 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	75,701,769	0	0.00000	1.00000	100.00
0.5	74,871,735	9,105	0.00012	0.99988	100.00
1.5	73,849,736	12,282	0.00017	0.99983	99.99
2.5	65,936,144	10,245	0.00016	0.99984	99.97
3.5	65,797,902	3,717,706	0.05650	0.94350	99.95
4.5	61,617,688	0	0.00000	1.00000	94.30
5.5	25,039,631	260,346	0.01040	0.98960	94.30
6.5	18,884,589	166,956	0.00884	0.99116	93.32
7.5	18,717,634	12,407	0.00066	0.99934	92.50
8.5	18,226,002	84,347	0.00463	0.99537	92.44
9.5	18,141,655	396,849	0.02188	0.97812	92.01
10.5	8,726,559	119,600	0.01371	0.98629	90.00
11.5	6,409,039	267,312	0.04171	0.95829	88.77
12.5	6,102,456	378,838	0.06208	0.93792	85.07
13.5	1,585,888	0	0.00000	1.00000	79.79
14.5	1,585,888	0	0.00000	1.00000	79.79
15.5	1,532,310	0	0.00000	1.00000	79.79
16.5	1,532,310	362,735	0.23672	0.76328	79.79
17.5	684,411	8,000	0.01169	0.98831	60.90
18.5	676,411	488,566	0.72229	0.27771	60.19
19.5	187,845	0	0.00000	1.00000	16.72
20.5	187,845	0	0.00000	1.00000	16.72
21.5	165,053	0	0.00000	1.00000	16.72
22.5	165,053	0	0.00000	1.00000	16.72
23.5	161,920	0	0.00000	1.00000	16.72
24.5	161,920	0	0.00000	1.00000	16.72
25.5	161,920	0	0.00000	1.00000	16.72
26.5	159,158	0	0.00000	1.00000	16.72

MDU Electric

Account 345.00 - Other Production Plant - Accessory Electric Equipment

Placement Band - 1950 - 2020 Experience Band - 1998 - 2020

27.5	156,036	0	0.00000	1.00000	16.72
28.5	140,429	1,200	0.00855	0.99145	16.72
29.5	139,229	0	0.00000	1.00000	16.58
30.5	139,229	0	0.00000	1.00000	16.58
31.5	139,229	0	0.00000	1.00000	16.58
32.5	139,229	0	0.00000	1.00000	16.58
33.5	139,229	0	0.00000	1.00000	16.58
34.5	139,229	0	0.00000	1.00000	16.58
35.5	139,229	0	0.00000	1.00000	16.58
36.5	139,229	0	0.00000	1.00000	16.58
37.5	139,229	0	0.00000	1.00000	16.58
38.5	139,229	0	0.00000	1.00000	16.58
39.5	139,229	1,015	0.00729	0.99271	16.58
40.5	137,958	0	0.00000	1.00000	16.46
41.5	137,958	0	0.00000	1.00000	16.46
42.5	137,958	0	0.00000	1.00000	16.46
43.5	137,958	0	0.00000	1.00000	16.46
44.5	137,958	10,982	0.07960	0.92040	16.46
45.5	126,976	354	0.00279	0.99721	15.15
46.5	126,621	0	0.00000	1.00000	15.11
47.5	126,621	2,500	0.01974	0.98026	15.11
48.5	124,121	0	0.00000	1.00000	14.81
49.5	124,121	0	0.00000	1.00000	14.81
50.5	124,121	0	0.00000	1.00000	14.81
51.5	124,121	0	0.00000	1.00000	14.81
52.5	124,121	0	0.00000	1.00000	14.81
53.5	124,121	0	0.00000	1.00000	14.81
54.5	124,121	0	0.00000	1.00000	14.81
55.5	124,121	0	0.00000	1.00000	14.81
56.5	124,121	0	0.00000	1.00000	14.81
57.5	124,121	124,121	1.00000		14.81

MDU Electric

Account 345.00 - Other Production Plant - Accessory Electric Equipment

Placement Band - 1950 - 2020 Experience Band - 1998 - 2020

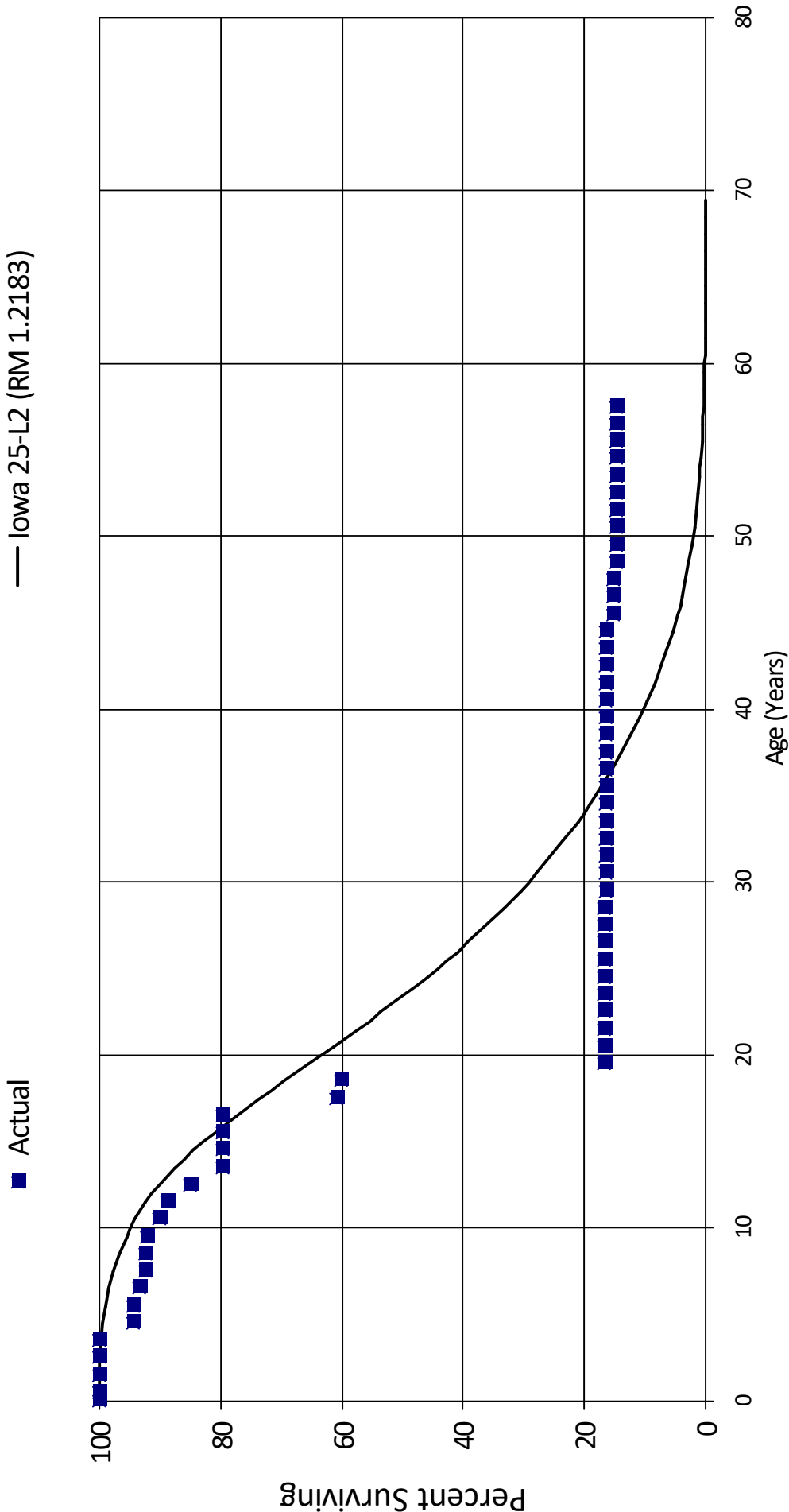
Totals: 6,435,466

MDU Electric

Account 345.00 - Other Production Plant - Accessory Electric Equipment

Placement Band - 1950 - 2020 Experience Band - 1998 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 346.00 - Other Production Plant - Miscellaneous Power Plant Equipment

Placement Band - 1954 - 2020 Experience Band - 1998 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	5,081,089	0	0.00000	1.00000	100.00
0.5	4,549,413	67,314	0.01480	0.98520	100.00
1.5	4,282,339	2,384	0.00056	0.99944	98.52
2.5	4,075,660	0	0.00000	1.00000	98.46
3.5	3,959,379	0	0.00000	1.00000	98.46
4.5	3,935,550	0	0.00000	1.00000	98.46
5.5	1,374,131	27,136	0.01975	0.98025	98.46
6.5	430,463	7,918	0.01839	0.98161	96.52
7.5	416,662	0	0.00000	1.00000	94.74
8.5	393,767	0	0.00000	1.00000	94.74
9.5	327,674	0	0.00000	1.00000	94.74
10.5	279,740	0	0.00000	1.00000	94.74
11.5	279,299	0	0.00000	1.00000	94.74
12.5	192,573	0	0.00000	1.00000	94.74
13.5	145,022	3,263	0.02250	0.97750	94.74
14.5	137,628	11,776	0.08556	0.91444	92.61
15.5	119,652	39,634	0.33124	0.66876	84.69
16.5	62,263	27,799	0.44648	0.55352	56.64
17.5	26,570	0	0.00000	1.00000	31.35
18.5	26,570	0	0.00000	1.00000	31.35
19.5	26,570	0	0.00000	1.00000	31.35
20.5	26,570	0	0.00000	1.00000	31.35
21.5	26,570	0	0.00000	1.00000	31.35
22.5	25,676	0	0.00000	1.00000	31.35
23.5	25,450	0	0.00000	1.00000	31.35
24.5	24,766	0	0.00000	1.00000	31.35
25.5	24,766	0	0.00000	1.00000	31.35
26.5	23,638	0	0.00000	1.00000	31.35

MDU Electric

Account 346.00 - Other Production Plant - Miscellaneous Power Plant Equipment

Placement Band - 1954 - 2020 Experience Band - 1998 - 2020

27.5	23,134	0	0.00000	1.00000	31.35
28.5	22,197	0	0.00000	1.00000	31.35
29.5	20,929	0	0.00000	1.00000	31.35
30.5	14,400	0	0.00000	1.00000	31.35
31.5	14,400	0	0.00000	1.00000	31.35
32.5	14,400	0	0.00000	1.00000	31.35
33.5	13,749	0	0.00000	1.00000	31.35
34.5	13,749	0	0.00000	1.00000	31.35
35.5	11,879	0	0.00000	1.00000	31.35
36.5	11,181	0	0.00000	1.00000	31.35
37.5	10,751	0	0.00000	1.00000	31.35
38.5	10,751	0	0.00000	1.00000	31.35
39.5	10,437	0	0.00000	1.00000	31.35
40.5	9,845	0	0.00000	1.00000	31.35
41.5	5,954	0	0.00000	1.00000	31.35
42.5	5,954	0	0.00000	1.00000	31.35
43.5	5,954	0	0.00000	1.00000	31.35
44.5	5,954	0	0.00000	1.00000	31.35
45.5	5,954	0	0.00000	1.00000	31.35
46.5	5,954	0	0.00000	1.00000	31.35
47.5	3,864	0	0.00000	1.00000	31.35
48.5	3,864	0	0.00000	1.00000	31.35
49.5	3,864	0	0.00000	1.00000	31.35
50.5	3,864	0	0.00000	1.00000	31.35
51.5	3,864	0	0.00000	1.00000	31.35
52.5	3,864	0	0.00000	1.00000	31.35
53.5	3,864	0	0.00000	1.00000	31.35
54.5	3,864	0	0.00000	1.00000	31.35
55.5	3,864	0	0.00000	1.00000	31.35
56.5	3,864	0	0.00000	1.00000	31.35
57.5	3,864	3,864	0.99997	0.00003	31.35

MDU Electric

Account 346.00 - Other Production Plant - Miscellaneous Power Plant Equipment

Placement Band - 1954 - 2020 Experience Band - 1998 - 2020

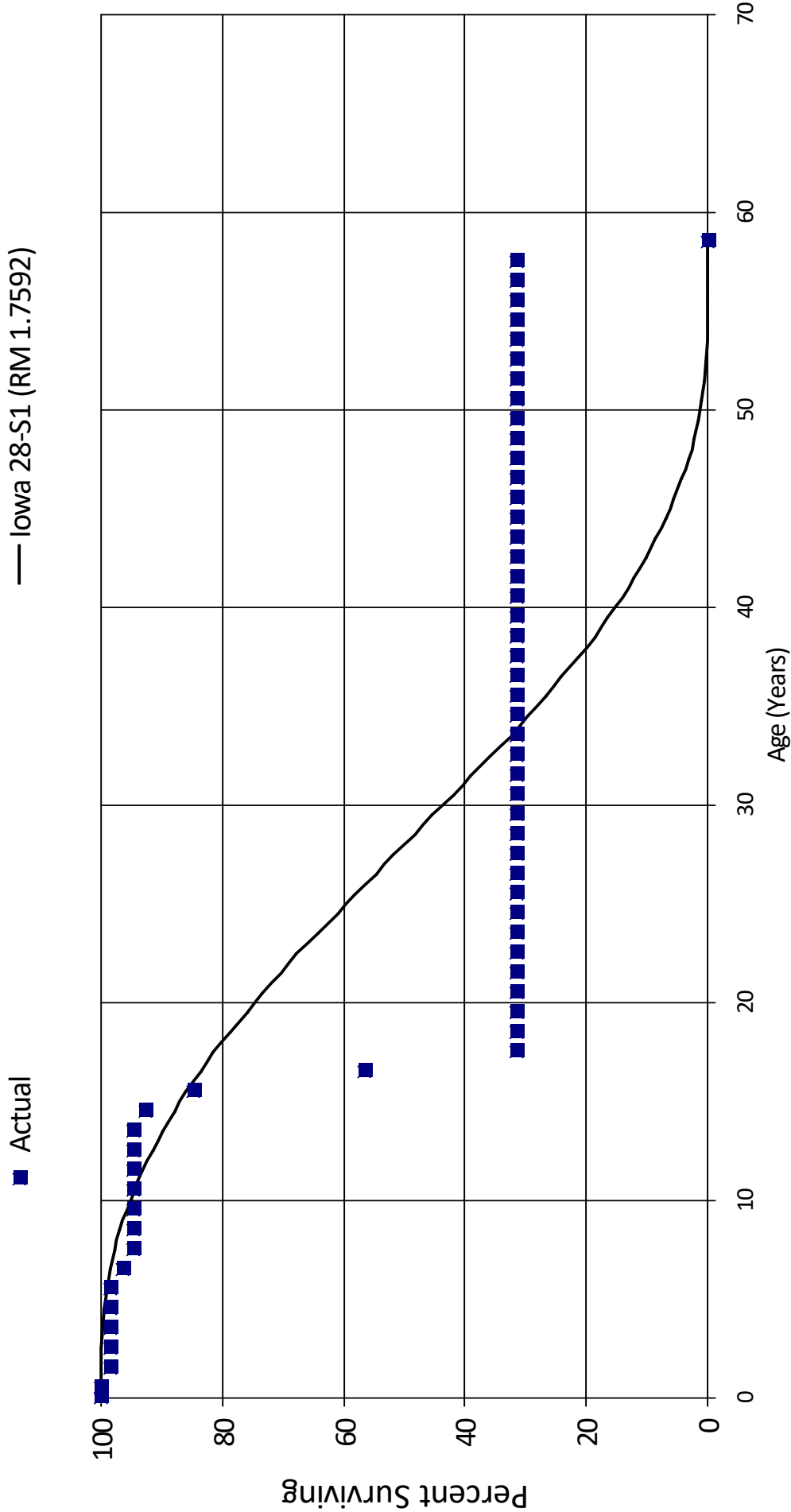
58.5	0	0	0.00000	0.00000	0.00
Totals:		191,088			

MDU Electric

Account 346.00 - Other Production Plant - Miscellaneous Power Plant Equipment

Placement Band - 1954 - 2020 Experience Band - 1998 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 350.20 - Transmission Plant - Land Rights

Placement Band - 1958 - 2020 Experience Band - 2002 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	15,638,482	0	0.00000	1.00000	100.00
0.5	15,452,459	0	0.00000	1.00000	100.00
1.5	3,230,212	0	0.00000	1.00000	100.00
2.5	3,202,964	0	0.00000	1.00000	100.00
3.5	3,202,806	0	0.00000	1.00000	100.00
4.5	2,968,735	0	0.00000	1.00000	100.00
5.5	2,938,952	0	0.00000	1.00000	100.00
6.5	2,906,900	0	0.00000	1.00000	100.00
7.5	2,906,900	0	0.00000	1.00000	100.00
8.5	2,860,693	0	0.00000	1.00000	100.00
9.5	2,532,458	0	0.00000	1.00000	100.00
10.5	2,530,824	0	0.00000	1.00000	100.00
11.5	2,528,555	0	0.00000	1.00000	100.00
12.5	2,519,264	0	0.00000	1.00000	100.00
13.5	2,471,069	0	0.00000	1.00000	100.00
14.5	2,459,225	234	0.00010	0.99990	100.00
15.5	2,457,048	0	0.00000	1.00000	99.99
16.5	2,414,161	0	0.00000	1.00000	99.99
17.5	2,413,236	0	0.00000	1.00000	99.99
18.5	2,398,475	0	0.00000	1.00000	99.99
19.5	2,394,964	0	0.00000	1.00000	99.99
20.5	2,380,295	0	0.00000	1.00000	99.99
21.5	2,351,639	0	0.00000	1.00000	99.99
22.5	2,345,341	26,635	0.01136	0.98864	99.99
23.5	2,238,804	0	0.00000	1.00000	98.85
24.5	2,224,117	0	0.00000	1.00000	98.85
25.5	2,212,193	0	0.00000	1.00000	98.85
26.5	2,187,612	0	0.00000	1.00000	98.85

MDU Electric

Account 350.20 - Transmission Plant - Land Rights

Placement Band - 1958 - 2020 Experience Band - 2002 - 2020

27.5	2,125,830	0	0.00000	1.00000	98.85
28.5	2,088,669	0	0.00000	1.00000	98.85
29.5	2,075,772	0	0.00000	1.00000	98.85
30.5	2,069,925	0	0.00000	1.00000	98.85
31.5	2,050,321	0	0.00000	1.00000	98.85
32.5	2,035,885	0	0.00000	1.00000	98.85
33.5	2,022,821	0	0.00000	1.00000	98.85
34.5	1,985,548	0	0.00000	1.00000	98.85
35.5	1,951,022	0	0.00000	1.00000	98.85
36.5	1,512,407	0	0.00000	1.00000	98.85
37.5	1,470,327	0	0.00000	1.00000	98.85
38.5	1,411,628	9,007	0.00638	0.99362	98.85
39.5	1,282,286	0	0.00000	1.00000	98.22
40.5	969,119	0	0.00000	1.00000	98.22
41.5	937,749	0	0.00000	1.00000	98.22
42.5	165,494	0	0.00000	1.00000	98.22
43.5	9,701	0	0.00000	1.00000	98.22
44.5	9,701	0	0.00000	1.00000	98.22
45.5	9,701	0	0.00000	1.00000	98.22
46.5	9,701	0	0.00000	1.00000	98.22
47.5	9,701	0	0.00000	1.00000	98.22
48.5	9,701	0	0.00000	1.00000	98.22
49.5	9,701	0	0.00000	1.00000	98.22
50.5	9,701	0	0.00000	1.00000	98.22
51.5	9,701	0	0.00000	1.00000	98.22
52.5	9,701	0	0.00000	1.00000	98.22
53.5	9,701	0	0.00000	1.00000	98.22
54.5	9,701	0	0.00000	1.00000	98.22
55.5	9,701	0	0.00000	1.00000	98.22
56.5	69	0	0.00000	1.00000	98.22
57.5	69	0	0.00000	1.00000	98.22

MDU Electric

Account 350.20 - Transmission Plant - Land Rights

Placement Band - 1958 - 2020 Experience Band - 2002 - 2020

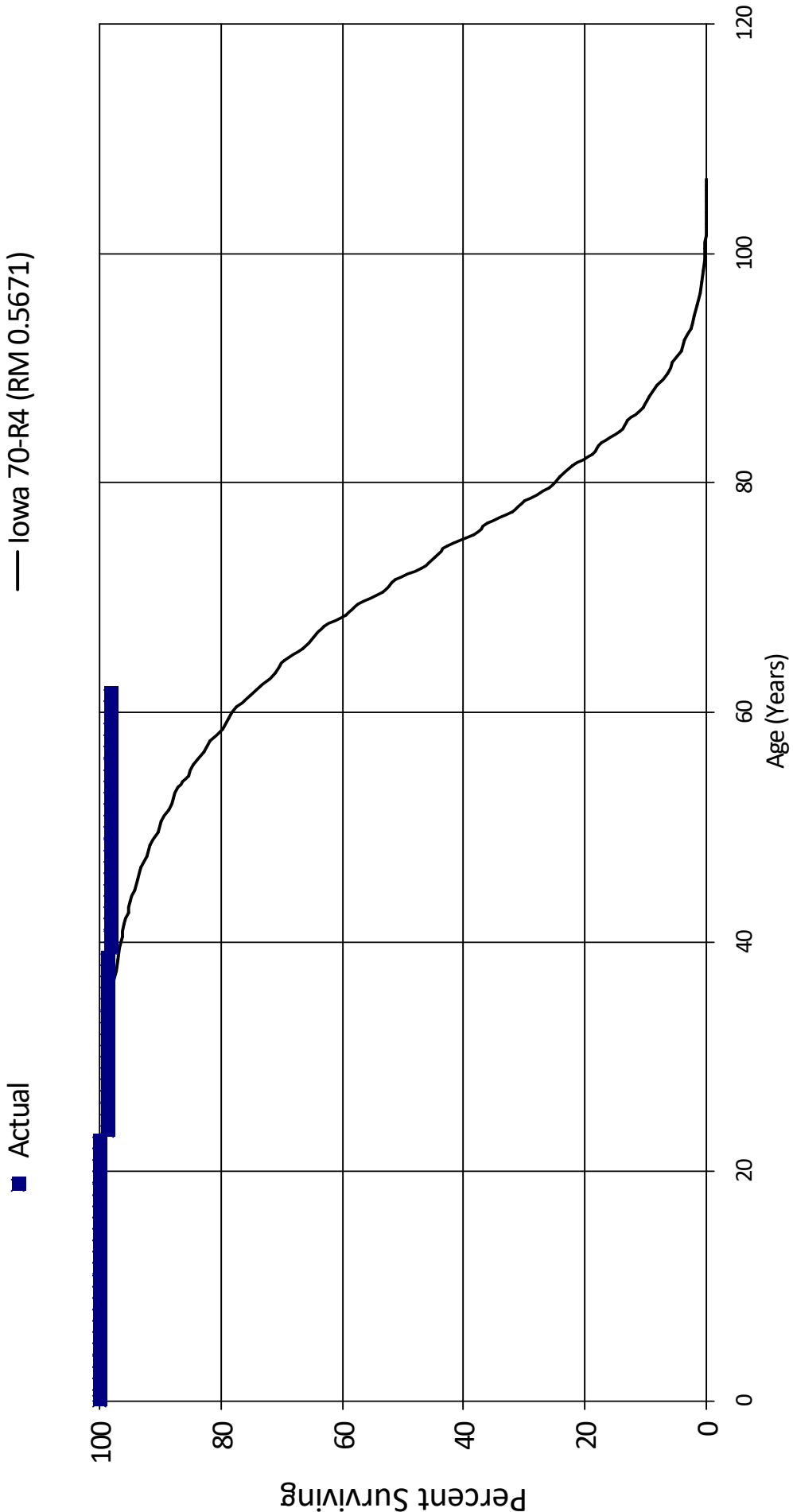
58.5	69	0	0.00000	1.00000	98.22
59.5	69	0	0.00000	1.00000	98.22
60.5	69	0	0.00000	1.00000	98.22
61.5	69	0	0.00000	1.00000	98.22
Totals:		35,876			

MDU Electric

Account 350.20 - Transmission Plant - Land Rights

Placement Band - 1958 - 2020 Experience Band - 2002 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 352.00 - Transmission Plant - Structures and Improvements

Placement Band - 1948 - 2019 Experience Band - 2020 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmnt Ratio	Survivor Ratio	% Surviving
0	329,103	0	0.00000	1.00000	100.00
0.5	329,103	0	0.00000	1.00000	100.00
1.5	1,789	0	0.00000	1.00000	100.00
2.5	1,789	0	0.00000	1.00000	100.00
3.5	1,789	0	0.00000	1.00000	100.00
4.5	1,789	0	0.00000	1.00000	100.00
5.5	1,789	0	0.00000	1.00000	100.00
6.5	1,789	0	0.00000	1.00000	100.00
7.5	1,789	0	0.00000	1.00000	100.00
8.5	1,789	0	0.00000	1.00000	100.00
9.5	1,789	0	0.00000	1.00000	100.00
10.5	1,789	0	0.00000	1.00000	100.00
11.5	1,789	0	0.00000	1.00000	100.00
12.5	1,789	0	0.00000	1.00000	100.00
13.5	1,789	0	0.00000	1.00000	100.00
14.5	1,789	0	0.00000	1.00000	100.00
15.5	1,789	0	0.00000	1.00000	100.00
16.5	1,789	0	0.00000	1.00000	100.00
17.5	1,789	0	0.00000	1.00000	100.00
18.5	1,789	0	0.00000	1.00000	100.00
19.5	1,789	0	0.00000	1.00000	100.00
20.5	1,789	0	0.00000	1.00000	100.00
21.5	1,789	0	0.00000	1.00000	100.00
22.5	1,789	0	0.00000	1.00000	100.00
23.5	1,789	0	0.00000	1.00000	100.00
24.5	1,789	0	0.00000	1.00000	100.00
25.5	1,789	0	0.00000	1.00000	100.00
26.5	1,789	0	0.00000	1.00000	100.00

MDU Electric

Account 352.00 - Transmission Plant - Structures and Improvements

Placement Band - 1948 - 2019 Experience Band - 2020 - 2020

27.5	1,789	0	0.00000	1.00000	100.00
28.5	1,789	0	0.00000	1.00000	100.00
29.5	1,789	0	0.00000	1.00000	100.00
30.5	1,789	0	0.00000	1.00000	100.00
31.5	1,789	0	0.00000	1.00000	100.00
32.5	1,789	0	0.00000	1.00000	100.00
33.5	1,789	0	0.00000	1.00000	100.00
34.5	1,789	0	0.00000	1.00000	100.00
35.5	1,789	0	0.00000	1.00000	100.00
36.5	1,789	0	0.00000	1.00000	100.00
37.5	1,789	0	0.00000	1.00000	100.00
38.5	1,789	0	0.00000	1.00000	100.00
39.5	1,789	0	0.00000	1.00000	100.00
40.5	1,789	0	0.00000	1.00000	100.00
41.5	1,789	0	0.00000	1.00000	100.00
42.5	1,789	0	0.00000	1.00000	100.00
43.5	1,789	0	0.00000	1.00000	100.00
44.5	1,789	0	0.00000	1.00000	100.00
45.5	1,789	0	0.00000	1.00000	100.00
46.5	1,789	0	0.00000	1.00000	100.00
47.5	1,789	0	0.00000	1.00000	100.00
48.5	1,789	0	0.00000	1.00000	100.00
49.5	1,789	0	0.00000	1.00000	100.00
50.5	1,789	0	0.00000	1.00000	100.00
51.5	1,789	0	0.00000	1.00000	100.00
52.5	1,789	0	0.00000	1.00000	100.00
53.5	1,789	0	0.00000	1.00000	100.00
54.5	1,789	0	0.00000	1.00000	100.00
55.5	1,789	0	0.00000	1.00000	100.00
56.5	1,789	0	0.00000	1.00000	100.00
57.5	1,789	0	0.00000	1.00000	100.00

MDU Electric

Account 352.00 - Transmission Plant - Structures and Improvements

Placement Band - 1948 - 2019 Experience Band - 2020 - 2020

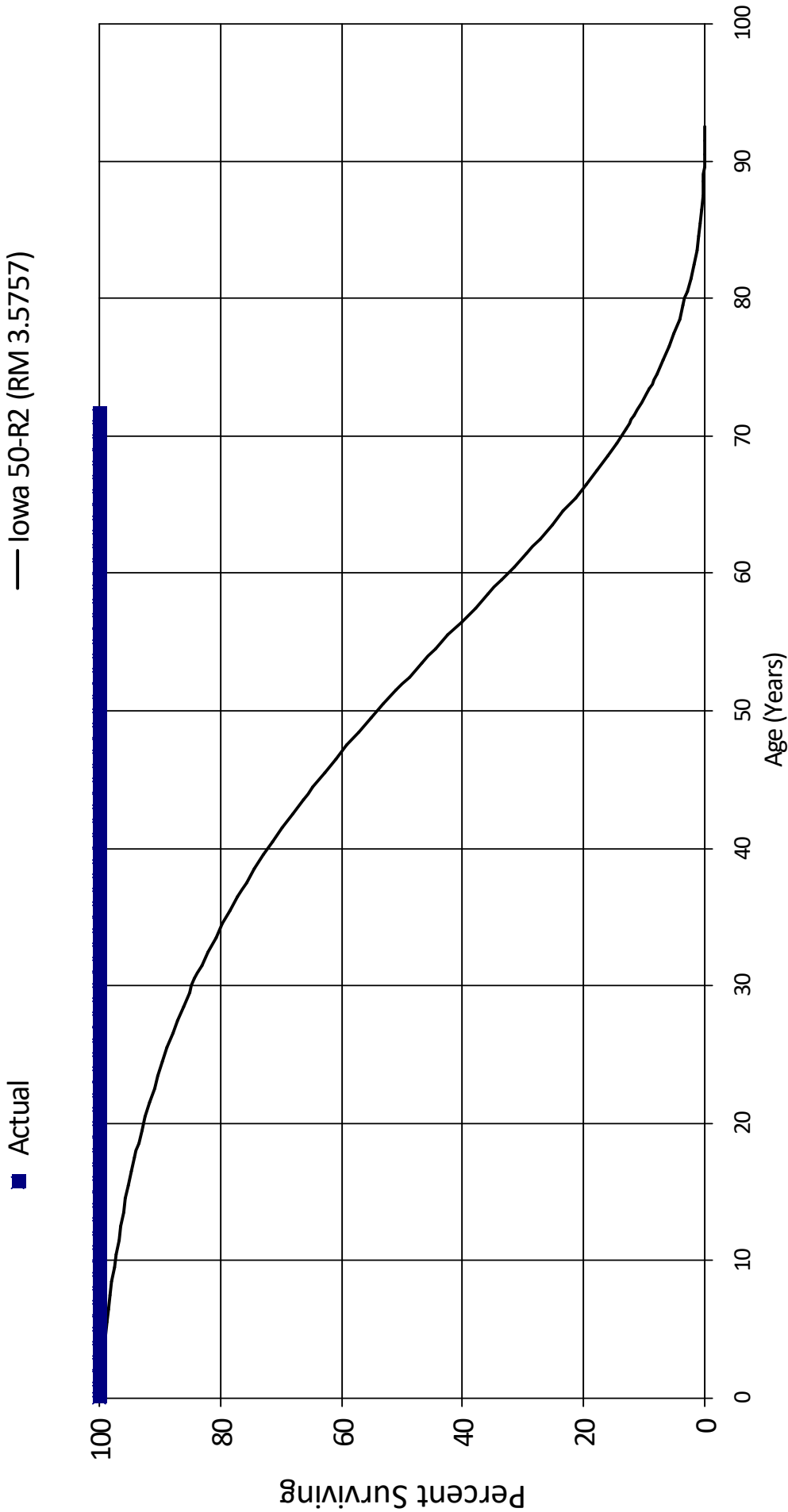
58.5	1,789	0	0.00000	1.00000	100.00
59.5	1,789	0	0.00000	1.00000	100.00
60.5	1,789	0	0.00000	1.00000	100.00
61.5	1,789	0	0.00000	1.00000	100.00
62.5	1,789	0	0.00000	1.00000	100.00
63.5	1,789	0	0.00000	1.00000	100.00
64.5	1,789	0	0.00000	1.00000	100.00
65.5	1,789	0	0.00000	1.00000	100.00
66.5	1,789	0	0.00000	1.00000	100.00
67.5	1,789	0	0.00000	1.00000	100.00
68.5	1,789	0	0.00000	1.00000	100.00
69.5	1,789	0	0.00000	1.00000	100.00
70.5	1,789	0	0.00000	1.00000	100.00
71.5	1,789	0	0.00000	1.00000	100.00
Totals:		0			

MDU Electric

Account 352.00 - Transmission Plant - Structures and Improvements

Placement Band - 1948 - 2019 Experience Band - 2020 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 353.00 - Transmission Plant - Station Equipment

Placement Band - 1942 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	232,521,961	0	0.00000	1.00000	100.00
0.5	196,816,127	9,122	0.00005	0.99995	100.00
1.5	161,225,768	398,858	0.00247	0.99753	100.00
2.5	154,083,751	21,070	0.00014	0.99986	99.75
3.5	148,008,196	519,861	0.00351	0.99649	99.74
4.5	138,688,154	0	0.00000	1.00000	99.39
5.5	124,849,444	14,479	0.00012	0.99988	99.39
6.5	105,485,685	144,439	0.00137	0.99863	99.38
7.5	96,760,251	91,862	0.00095	0.99905	99.24
8.5	89,345,556	217,653	0.00244	0.99756	99.15
9.5	81,851,572	19,498	0.00024	0.99976	98.91
10.5	74,905,276	167,407	0.00223	0.99777	98.89
11.5	70,947,364	108,625	0.00153	0.99847	98.67
12.5	69,290,957	846,654	0.01222	0.98778	98.52
13.5	61,088,126	157,937	0.00259	0.99741	97.32
14.5	59,833,514	163,210	0.00273	0.99727	97.07
15.5	58,903,242	169,785	0.00288	0.99712	96.80
16.5	56,388,918	504,682	0.00895	0.99105	96.52
17.5	54,642,890	210,854	0.00386	0.99614	95.66
18.5	54,177,509	75,566	0.00139	0.99861	95.29
19.5	53,700,749	684,624	0.01275	0.98725	95.16
20.5	51,734,749	44,141	0.00085	0.99915	93.95
21.5	51,559,122	383,003	0.00743	0.99257	93.87
22.5	51,011,635	1,210,912	0.02374	0.97626	93.17
23.5	48,928,892	355,299	0.00726	0.99274	90.96
24.5	47,935,567	312,814	0.00653	0.99347	90.30
25.5	47,622,753	154,469	0.00324	0.99676	89.71
26.5	47,329,984	160,184	0.00338	0.99662	89.42

MDU Electric

Account 353.00 - Transmission Plant - Station Equipment

Placement Band - 1942 - 2020		Experience Band - 1995 - 2020		
27.5	47,141,900	69,039	0.00146	0.99854
28.5	46,522,795	130,400	0.00280	0.99720
29.5	45,871,259	105,248	0.00229	0.99771
30.5	44,902,877	19,883	0.00044	0.99956
31.5	44,346,633	189,756	0.00428	0.99572
32.5	43,909,104	15,487	0.00035	0.99965
33.5	42,983,818	278,202	0.00647	0.99353
34.5	41,912,200	133,655	0.00319	0.99681
35.5	40,931,532	211,453	0.00517	0.99483
36.5	33,373,115	8,808	0.00026	0.99974
37.5	30,759,032	332,756	0.01082	0.98918
38.5	24,461,833	33,170	0.00136	0.99864
39.5	16,441,291	53,260	0.00324	0.99676
40.5	15,599,066	134,063	0.00859	0.99141
41.5	11,377,847	88,982	0.00782	0.99218
42.5	9,823,023	25,285	0.00257	0.99743
43.5	9,005,666	64,852	0.00720	0.99280
44.5	8,413,664	80,552	0.00957	0.99043
45.5	7,372,375	25,724	0.00349	0.99651
46.5	6,535,849	101,277	0.01550	0.98450
47.5	6,150,361	43,660	0.00710	0.99290
48.5	5,633,971	155,614	0.02762	0.97238
49.5	5,081,203	46,121	0.00908	0.99092
50.5	4,476,569	17,117	0.00382	0.99618
51.5	4,450,801	180	0.00004	0.99996
52.5	4,344,126	272,992	0.06284	0.93716
53.5	2,937,422	178,972	0.06093	0.93907
54.5	2,715,200	45,727	0.01684	0.98316
55.5	2,597,151	1,392	0.00054	0.99946
56.5	2,091,306	62,811	0.03003	0.96997
57.5	1,520,876	12,563	0.00826	0.99174

MDU Electric

Account 353.00 - Transmission Plant - Station Equipment

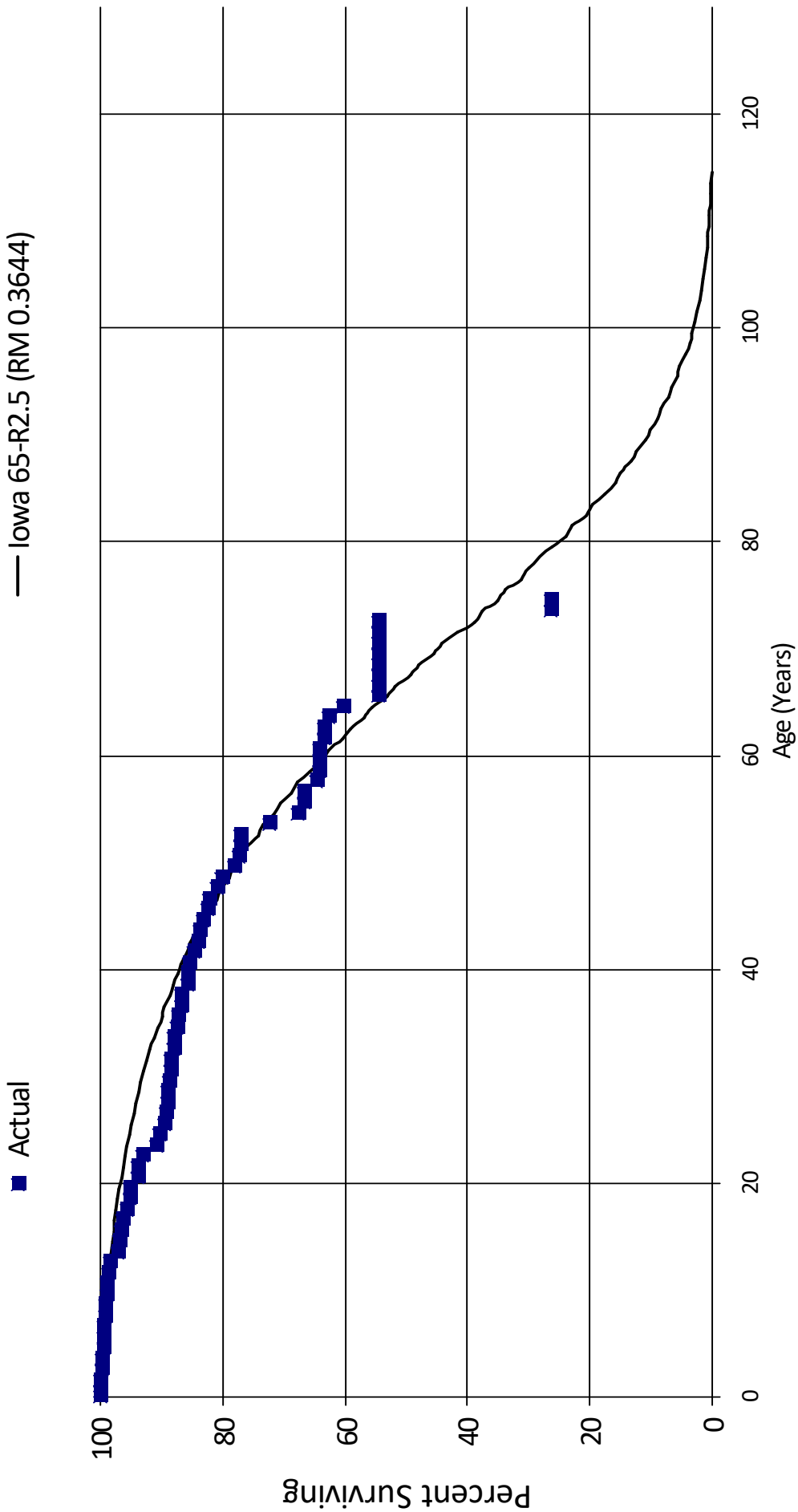
Placement Band - 1942 - 2020 Experience Band - 1995 - 2020						
58.5	1,298,551	0	0.00000	1.00000		64.11
59.5	1,275,527	0	0.00000	1.00000		64.11
60.5	1,029,744	11,208	0.01088	0.98912		64.11
61.5	983,338	0	0.00000	1.00000		63.41
62.5	732,756	6,933	0.00946	0.99054		63.41
63.5	489,193	18,867	0.03857	0.96143		62.81
64.5	367,208	36,062	0.09821	0.90179		60.39
65.5	318,417	0	0.00000	1.00000		54.46
66.5	243,673	0	0.00000	1.00000		54.46
67.5	169,076	0	0.00000	1.00000		54.46
68.5	166,340	0	0.00000	1.00000		54.46
69.5	147,909	0	0.00000	1.00000		54.46
70.5	116,214	0	0.00000	1.00000		54.46
71.5	89,256	0	0.00000	1.00000		54.46
72.5	56,326	29,099	0.51662	0.48338		54.46
73.5	1,040	0	0.00000	1.00000		26.32
74.5	0	0	0.00000	0.00000		26.32
Totals:		10,188,178				

MDU Electric

Account 353.00 - Transmission Plant - Station Equipment

Placement Band - 1942 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 354.00 - Transmission Plant - Towers and Fixtures

Placement Band - 1960 - 2008 Experience Band - 2008 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	4,993,402	0	0.00000	1.00000	100.00
0.5	4,993,402	0	0.00000	1.00000	100.00
1.5	4,993,402	0	0.00000	1.00000	100.00
2.5	4,993,402	0	0.00000	1.00000	100.00
3.5	4,993,402	0	0.00000	1.00000	100.00
4.5	4,993,402	0	0.00000	1.00000	100.00
5.5	4,993,402	0	0.00000	1.00000	100.00
6.5	4,993,402	0	0.00000	1.00000	100.00
7.5	4,993,402	0	0.00000	1.00000	100.00
8.5	4,993,402	0	0.00000	1.00000	100.00
9.5	4,993,402	0	0.00000	1.00000	100.00
10.5	4,993,402	0	0.00000	1.00000	100.00
11.5	4,993,402	0	0.00000	1.00000	100.00
12.5	4,448,232	0	0.00000	1.00000	100.00
13.5	4,448,232	0	0.00000	1.00000	100.00
14.5	4,448,232	0	0.00000	1.00000	100.00
15.5	4,448,232	0	0.00000	1.00000	100.00
16.5	4,448,232	0	0.00000	1.00000	100.00
17.5	4,448,232	0	0.00000	1.00000	100.00
18.5	4,448,232	0	0.00000	1.00000	100.00
19.5	4,448,232	0	0.00000	1.00000	100.00
20.5	4,448,232	0	0.00000	1.00000	100.00
21.5	4,448,232	0	0.00000	1.00000	100.00
22.5	4,448,232	0	0.00000	1.00000	100.00
23.5	4,448,232	0	0.00000	1.00000	100.00
24.5	4,448,232	0	0.00000	1.00000	100.00
25.5	4,448,232	0	0.00000	1.00000	100.00
26.5	4,448,232	0	0.00000	1.00000	100.00

MDU Electric

Account 354.00 - Transmission Plant - Towers and Fixtures

Placement Band - 1960 - 2008 Experience Band - 2008 - 2020

27.5	4,448,232	0	0.00000	1.00000	100.00
28.5	4,448,232	0	0.00000	1.00000	100.00
29.5	4,448,232	0	0.00000	1.00000	100.00
30.5	4,448,232	516	0.00012	0.99988	100.00
31.5	4,447,716	0	0.00000	1.00000	99.99
32.5	4,447,716	0	0.00000	1.00000	99.99
33.5	4,443,822	0	0.00000	1.00000	99.99
34.5	4,366,539	0	0.00000	1.00000	99.99
35.5	4,366,539	0	0.00000	1.00000	99.99
36.5	4,366,539	0	0.00000	1.00000	99.99
37.5	587,518	0	0.00000	1.00000	99.99
38.5	557,994	0	0.00000	1.00000	99.99
39.5	499,595	0	0.00000	1.00000	99.99
40.5	473,280	0	0.00000	1.00000	99.99
41.5	463,978	0	0.00000	1.00000	99.99
42.5	463,978	0	0.00000	1.00000	99.99
43.5	463,978	0	0.00000	1.00000	99.99
44.5	463,666	0	0.00000	1.00000	99.99
45.5	463,666	0	0.00000	1.00000	99.99
46.5	463,666	0	0.00000	1.00000	99.99
47.5	463,666	0	0.00000	1.00000	99.99
48.5	463,666	0	0.00000	1.00000	99.99
49.5	463,666	0	0.00000	1.00000	99.99
50.5	463,666	0	0.00000	1.00000	99.99
51.5	463,666	0	0.00000	1.00000	99.99
52.5	463,666	0	0.00000	1.00000	99.99
53.5	53,560	0	0.00000	1.00000	99.99
54.5	53,560	0	0.00000	1.00000	99.99
55.5	53,560	0	0.00000	1.00000	99.99
56.5	53,560	0	0.00000	1.00000	99.99
57.5	53,560	0	0.00000	1.00000	99.99

MDU Electric

Account 354.00 - Transmission Plant - Towers and Fixtures

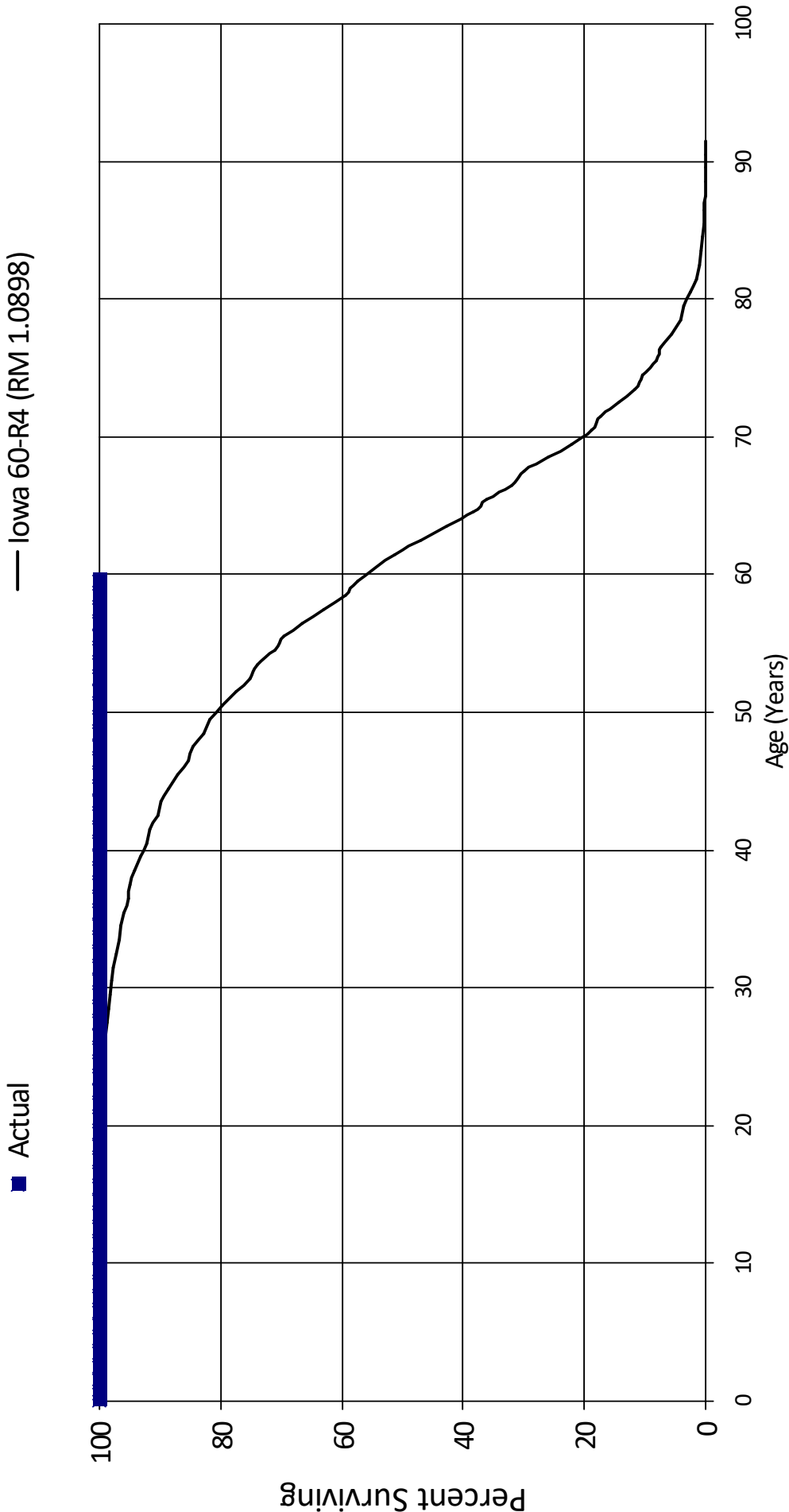
Placement Band - 1960 - 2008 Experience Band - 2008 - 2020					
58.5	53,560	0	0.00000	1.00000	99.99
59.5	53,560	0	0.00000	1.00000	99.99
Totals:		516			

MDU Electric

Account 354.00 - Transmission Plant - Towers and Fixtures

Placement Band - 1960 - 2008 Experience Band - 2008 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 355.00 - Transmission Plant - Poles and Fixtures

Placement Band - 1925 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	176,047,539	3,816	0.00002	0.99998	100.00
0.5	157,262,377	9,698	0.00006	0.99994	100.00
1.5	81,486,471	142,147	0.00174	0.99826	99.99
2.5	79,060,620	191,122	0.00242	0.99758	99.82
3.5	73,720,570	199,910	0.00271	0.99729	99.58
4.5	70,798,324	46,184	0.00065	0.99935	99.31
5.5	57,275,202	108,138	0.00189	0.99811	99.25
6.5	48,013,076	20,421	0.00043	0.99957	99.06
7.5	44,420,350	80,230	0.00181	0.99819	99.02
8.5	38,320,000	74,217	0.00194	0.99806	98.84
9.5	34,326,081	133,710	0.00390	0.99610	98.65
10.5	32,925,494	70,856	0.00215	0.99785	98.27
11.5	32,484,683	93,363	0.00287	0.99713	98.06
12.5	31,409,613	21,104	0.00067	0.99933	97.78
13.5	30,083,488	21,322	0.00071	0.99929	97.71
14.5	29,621,540	60,117	0.00203	0.99797	97.64
15.5	29,175,068	54,901	0.00188	0.99812	97.44
16.5	27,726,066	55,759	0.00201	0.99799	97.26
17.5	27,169,467	40,771	0.00150	0.99850	97.06
18.5	26,746,812	52,645	0.00197	0.99803	96.91
19.5	26,413,422	272,750	0.01033	0.98967	96.72
20.5	25,635,965	16,259	0.00063	0.99937	95.72
21.5	25,455,172	143,450	0.00564	0.99436	95.66
22.5	25,171,613	5,762	0.00023	0.99977	95.12
23.5	24,064,914	96,034	0.00399	0.99601	95.10
24.5	23,352,569	17,167	0.00074	0.99926	94.72
25.5	23,335,401	8,546	0.00037	0.99963	94.65
26.5	21,811,279	33,285	0.00153	0.99847	94.61

MDU Electric

Account 355.00 - Transmission Plant - Poles and Fixtures

Placement Band - 1925 - 2020						Experience Band - 1995 - 2020					
27.5	21,063,431	7,944	0.00038	0.99962	94.47	27.5	21,063,431	7,944	0.00038	0.99962	94.47
28.5	20,140,640	32,087	0.00159	0.99841	94.43	28.5	20,140,640	32,087	0.00159	0.99841	94.43
29.5	19,604,742	7,831	0.00040	0.99960	94.28	29.5	19,604,742	7,831	0.00040	0.99960	94.28
30.5	19,222,225	27,745	0.00144	0.99856	94.24	30.5	19,222,225	27,745	0.00144	0.99856	94.24
31.5	18,982,573	55,703	0.00293	0.99707	94.10	31.5	18,982,573	55,703	0.00293	0.99707	94.10
32.5	18,699,144	58,196	0.00311	0.99689	93.82	32.5	18,699,144	58,196	0.00311	0.99689	93.82
33.5	18,047,254	15,267	0.00085	0.99915	93.53	33.5	18,047,254	15,267	0.00085	0.99915	93.53
34.5	17,547,599	90,525	0.00516	0.99484	93.45	34.5	17,547,599	90,525	0.00516	0.99484	93.45
35.5	16,721,578	34,062	0.00204	0.99796	92.97	35.5	16,721,578	34,062	0.00204	0.99796	92.97
36.5	15,315,445	21,121	0.00138	0.99862	92.78	36.5	15,315,445	21,121	0.00138	0.99862	92.78
37.5	14,692,264	44,926	0.00306	0.99694	92.65	37.5	14,692,264	44,926	0.00306	0.99694	92.65
38.5	12,134,687	11,865	0.00098	0.99902	92.37	38.5	12,134,687	11,865	0.00098	0.99902	92.37
39.5	7,789,275	30,716	0.00394	0.99606	92.28	39.5	7,789,275	30,716	0.00394	0.99606	92.28
40.5	7,429,144	61,623	0.00829	0.99171	91.92	40.5	7,429,144	61,623	0.00829	0.99171	91.92
41.5	7,051,503	23,738	0.00337	0.99663	91.16	41.5	7,051,503	23,738	0.00337	0.99663	91.16
42.5	6,759,922	15,810	0.00234	0.99766	90.85	42.5	6,759,922	15,810	0.00234	0.99766	90.85
43.5	6,735,160	27,799	0.00413	0.99587	90.64	43.5	6,735,160	27,799	0.00413	0.99587	90.64
44.5	6,598,215	112,768	0.01709	0.98291	90.27	44.5	6,598,215	112,768	0.01709	0.98291	90.27
45.5	5,849,770	56,866	0.00972	0.99028	88.73	45.5	5,849,770	56,866	0.00972	0.99028	88.73
46.5	4,373,469	78,176	0.01788	0.98212	87.87	46.5	4,373,469	78,176	0.01788	0.98212	87.87
47.5	4,162,277	61,352	0.01474	0.98526	86.30	47.5	4,162,277	61,352	0.01474	0.98526	86.30
48.5	3,938,517	111,839	0.02840	0.97160	85.03	48.5	3,938,517	111,839	0.02840	0.97160	85.03
49.5	3,713,057	183,519	0.04943	0.95057	82.62	49.5	3,713,057	183,519	0.04943	0.95057	82.62
50.5	3,411,005	222,729	0.06530	0.93470	78.54	50.5	3,411,005	222,729	0.06530	0.93470	78.54
51.5	2,954,810	24,521	0.00830	0.99170	73.41	51.5	2,954,810	24,521	0.00830	0.99170	73.41
52.5	2,773,656	22,670	0.00817	0.99183	72.80	52.5	2,773,656	22,670	0.00817	0.99183	72.80
53.5	2,198,378	95,549	0.04346	0.95654	72.21	53.5	2,198,378	95,549	0.04346	0.95654	72.21
54.5	1,969,672	45,776	0.02324	0.97676	69.07	54.5	1,969,672	45,776	0.02324	0.97676	69.07
55.5	1,876,270	15,635	0.00833	0.99167	67.46	55.5	1,876,270	15,635	0.00833	0.99167	67.46
56.5	1,398,373	23,839	0.01705	0.98295	66.90	56.5	1,398,373	23,839	0.01705	0.98295	66.90
57.5	1,207,902	30,322	0.02510	0.97490	65.76	57.5	1,207,902	30,322	0.02510	0.97490	65.76

MDU Electric

Account 355.00 - Transmission Plant - Poles and Fixtures

Placement Band - 1925 - 2020						Experience Band - 1995 - 2020					
58.5	1,089,660	6,310	0.00579	0.99421	64.11						
59.5	915,768	18,774	0.02050	0.97950	63.74						
60.5	760,736	19,228	0.02528	0.97472	62.43						
61.5	711,906	54,339	0.07633	0.92367	60.85						
62.5	572,478	15,155	0.02647	0.97353	56.21						
63.5	514,670	40,602	0.07889	0.92111	54.72						
64.5	353,143	3,942	0.01116	0.98884	50.40						
65.5	304,997	1,580	0.00518	0.99482	49.84						
66.5	285,711	8,069	0.02824	0.97176	49.58						
67.5	226,381	2,420	0.01069	0.98931	48.18						
68.5	211,077	1,106	0.00524	0.99476	47.66						
69.5	189,585	742	0.00391	0.99609	47.41						
70.5	107,132	5,071	0.04733	0.95267	47.22						
71.5	94,593	0	0.00000	1.00000	44.99						
72.5	66,922	0	0.00000	1.00000	44.99						
73.5	43,536	1,476	0.03390	0.96610	44.99						
74.5	23,297	0	0.00000	1.00000	43.46						
75.5	23,297	0	0.00000	1.00000	43.46						
76.5	23,297	0	0.00000	1.00000	43.46						
77.5	23,297	0	0.00000	1.00000	43.46						
78.5	23,297	0	0.00000	1.00000	43.46						
79.5	16,981	0	0.00000	1.00000	43.46						
80.5	10,819	0	0.00000	1.00000	43.46						
81.5	4,808	0	0.00000	1.00000	43.46						
82.5	4,808	0	0.00000	1.00000	43.46						
83.5	4,808	0	0.00000	1.00000	43.46						
84.5	4,808	0	0.00000	1.00000	43.46						
85.5	4,808	0	0.00000	1.00000	43.46						
86.5	4,808	0	0.00000	1.00000	43.46						
87.5	4,808	0	0.00000	1.00000	43.46						
88.5	4,808	0	0.00000	1.00000	43.46						

MDU Electric

Account 355.00 - Transmission Plant - Poles and Fixtures

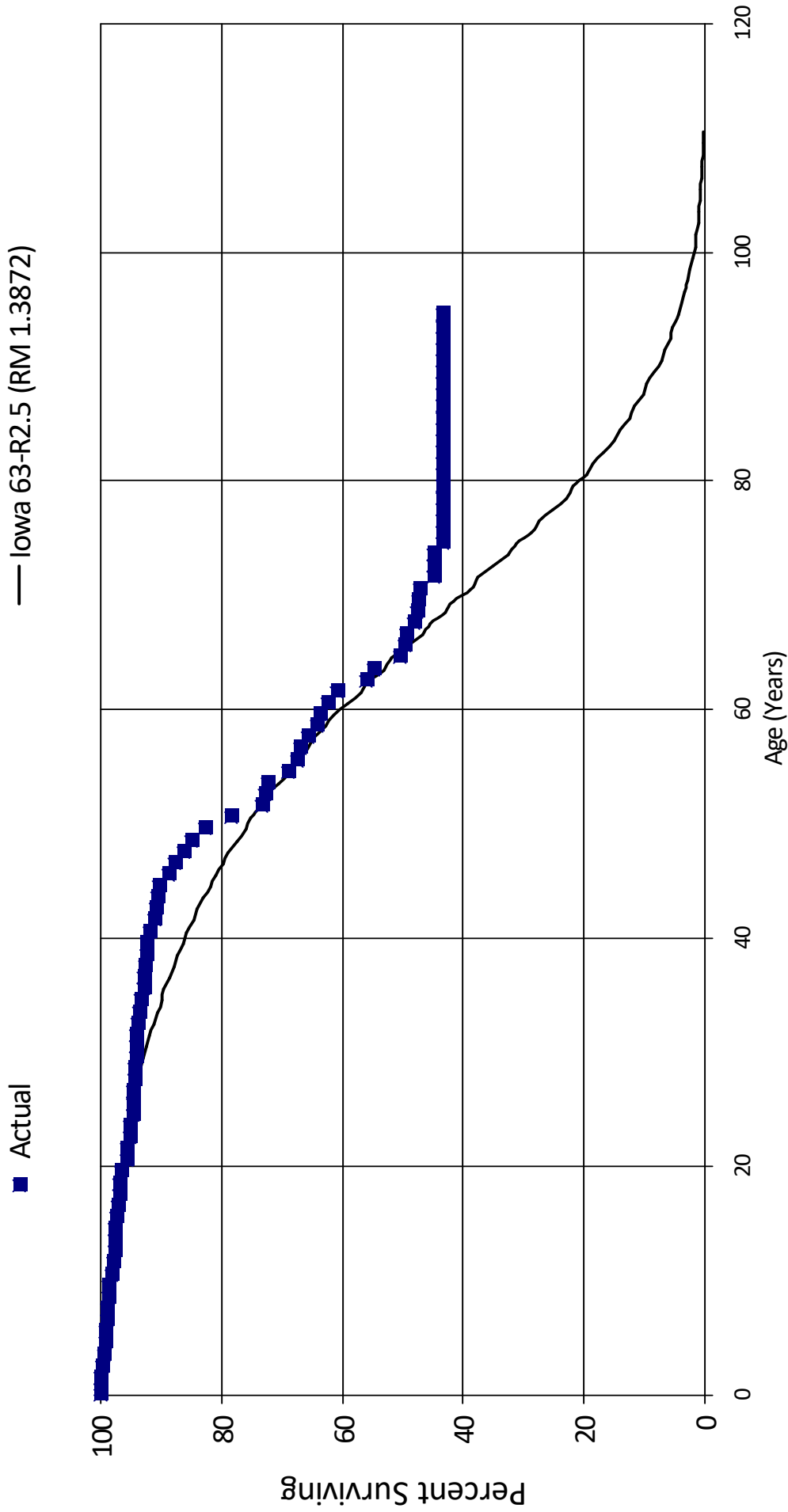
Placement Band - 1925 - 2020						Experience Band - 1995 - 2020					
89.5		4,808		0	0.00000		1.00000			43.46	
90.5		4,808		0	0.00000		1.00000			43.46	
91.5		4,808		0	0.00000		1.00000			43.46	
92.5		4,808		0	0.00000		1.00000			43.46	
93.5		4,808		0	0.00000		1.00000			43.46	
94.5		4,808		0	0.00000		1.00000			43.46	
Totals:				3,905,017							

MDU Electric

Account 355.00 - Transmission Plant - Poles and Fixtures

Placement Band - 1925 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 356.00 - Transmission Plant - Overhead Conductors and Devices

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	104,670,815	0	0.00000	1.00000	100.00
0.5	88,697,348	6,207	0.00007	0.99993	100.00
1.5	64,948,329	3,606	0.00006	0.99994	99.99
2.5	63,117,158	89,423	0.00142	0.99858	99.98
3.5	58,356,061	0	0.00000	1.00000	99.84
4.5	53,865,652	0	0.00000	1.00000	99.84
5.5	44,869,456	44,703	0.00100	0.99900	99.84
6.5	37,063,819	58,118	0.00157	0.99843	99.74
7.5	34,223,217	6,404	0.00019	0.99981	99.58
8.5	30,817,519	28,277	0.00092	0.99908	99.56
9.5	29,121,967	39,963	0.00137	0.99863	99.47
10.5	27,795,121	19,830	0.00071	0.99929	99.33
11.5	27,559,775	44,131	0.00160	0.99840	99.26
12.5	26,726,621	1,033	0.00004	0.99996	99.10
13.5	26,022,346	72,651	0.00279	0.99721	99.10
14.5	25,728,823	72,653	0.00282	0.99718	98.82
15.5	25,615,519	60,774	0.00237	0.99763	98.54
16.5	24,882,273	107,986	0.00434	0.99566	98.31
17.5	24,702,906	7,701	0.00031	0.99969	97.88
18.5	24,590,565	26,750	0.00109	0.99891	97.85
19.5	24,492,109	0	0.00000	1.00000	97.74
20.5	24,169,272	6,528	0.00027	0.99973	97.74
21.5	24,159,410	10,088	0.00042	0.99958	97.71
22.5	24,054,777	2,805	0.00012	0.99988	97.67
23.5	23,370,448	82,007	0.00351	0.99649	97.66
24.5	23,098,722	208	0.00001	0.99999	97.32
25.5	23,089,772	1,806	0.00008	0.99992	97.32
26.5	21,981,696	11,317	0.00051	0.99949	97.31

MDU Electric

Account 356.00 - Transmission Plant - Overhead Conductors and Devices

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020					
27.5	21,439,114	350	0.00002	0.99998	97.26
28.5	20,811,607	670	0.00003	0.99997	97.26
29.5	20,538,194	0	0.00000	1.00000	97.26
30.5	20,375,381	16,505	0.00081	0.99919	97.26
31.5	20,280,030	13,859	0.00068	0.99932	97.18
32.5	20,228,410	29,752	0.00147	0.99853	97.11
33.5	19,716,131	21,344	0.00108	0.99892	96.97
34.5	19,235,841	15,354	0.00080	0.99920	96.87
35.5	18,483,293	6,042	0.00033	0.99967	96.79
36.5	16,993,614	7,783	0.00046	0.99954	96.76
37.5	13,750,340	7,141	0.00052	0.99948	96.72
38.5	11,661,352	54,290	0.00466	0.99534	96.67
39.5	8,409,132	393,200	0.04676	0.95324	96.22
40.5	7,901,629	5,552	0.00070	0.99930	91.72
41.5	7,635,947	0	0.00000	1.00000	91.66
42.5	7,327,630	11,764	0.00161	0.99839	91.66
43.5	7,073,815	8,644	0.00122	0.99878	91.51
44.5	7,026,525	132,725	0.01889	0.98111	91.40
45.5	6,477,794	16,629	0.00257	0.99743	89.67
46.5	5,957,787	107,306	0.01801	0.98199	89.44
47.5	5,708,460	52,601	0.00921	0.99079	87.83
48.5	5,467,251	68,843	0.01259	0.98741	87.02
49.5	5,252,751	114,392	0.02178	0.97822	85.92
50.5	4,994,824	520,272	0.10416	0.89584	84.05
51.5	4,144,291	8,034	0.00194	0.99806	75.30
52.5	3,914,025	16,695	0.00427	0.99573	75.15
53.5	3,192,406	100,658	0.03153	0.96847	74.83
54.5	2,894,673	34,836	0.01203	0.98797	72.47
55.5	2,729,458	9,756	0.00357	0.99643	71.60
56.5	2,158,002	422	0.00020	0.99980	71.34
57.5	1,915,834	16,999	0.00887	0.99113	71.33

MDU Electric

Account 356.00 - Transmission Plant - Overhead Conductors and Devices

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020

58.5	1,781,534	84	0.00005	0.99995	70.70
59.5	1,443,413	6,383	0.00442	0.99558	70.70
60.5	1,212,299	28,137	0.02321	0.97679	70.39
61.5	1,143,569	45,643	0.03991	0.96009	68.76
62.5	974,426	30,175	0.03097	0.96903	66.02
63.5	889,018	5,041	0.00567	0.99433	63.98
64.5	685,700	880	0.00128	0.99872	63.62
65.5	618,263	0	0.00000	1.00000	63.54
Totals:		2,713,730			

MDU Electric

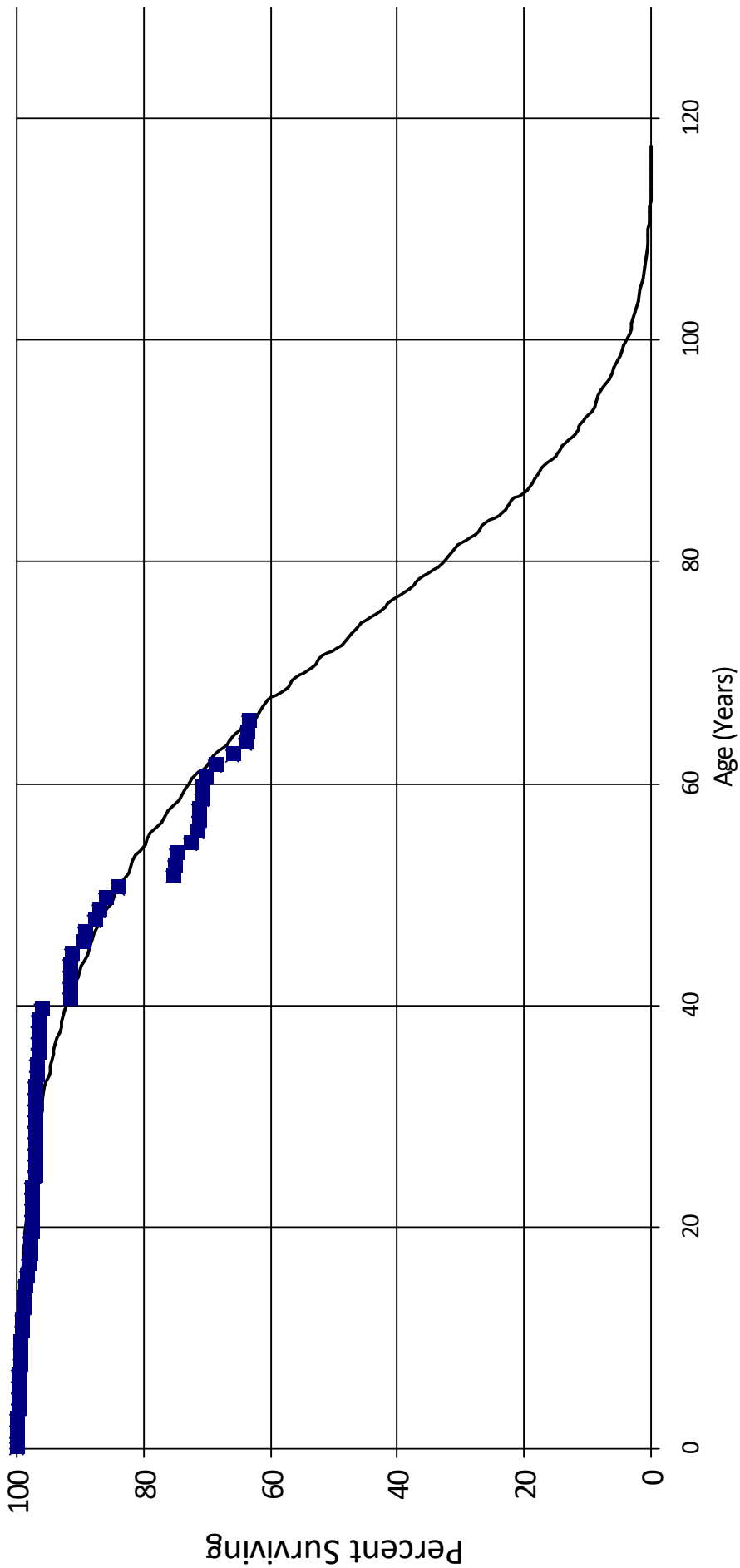
Account 356.00 - Transmission Plant - Overhead Conductors and Devices

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 70-R3 (RM 0.2122)



MDU Electric

Account 357.00 - Transmission Plant - Underground Conduit

Placement Band - 2008 - 2014 Experience Band - 2020 - 2020

RETIREMENT RATE ANALYSIS

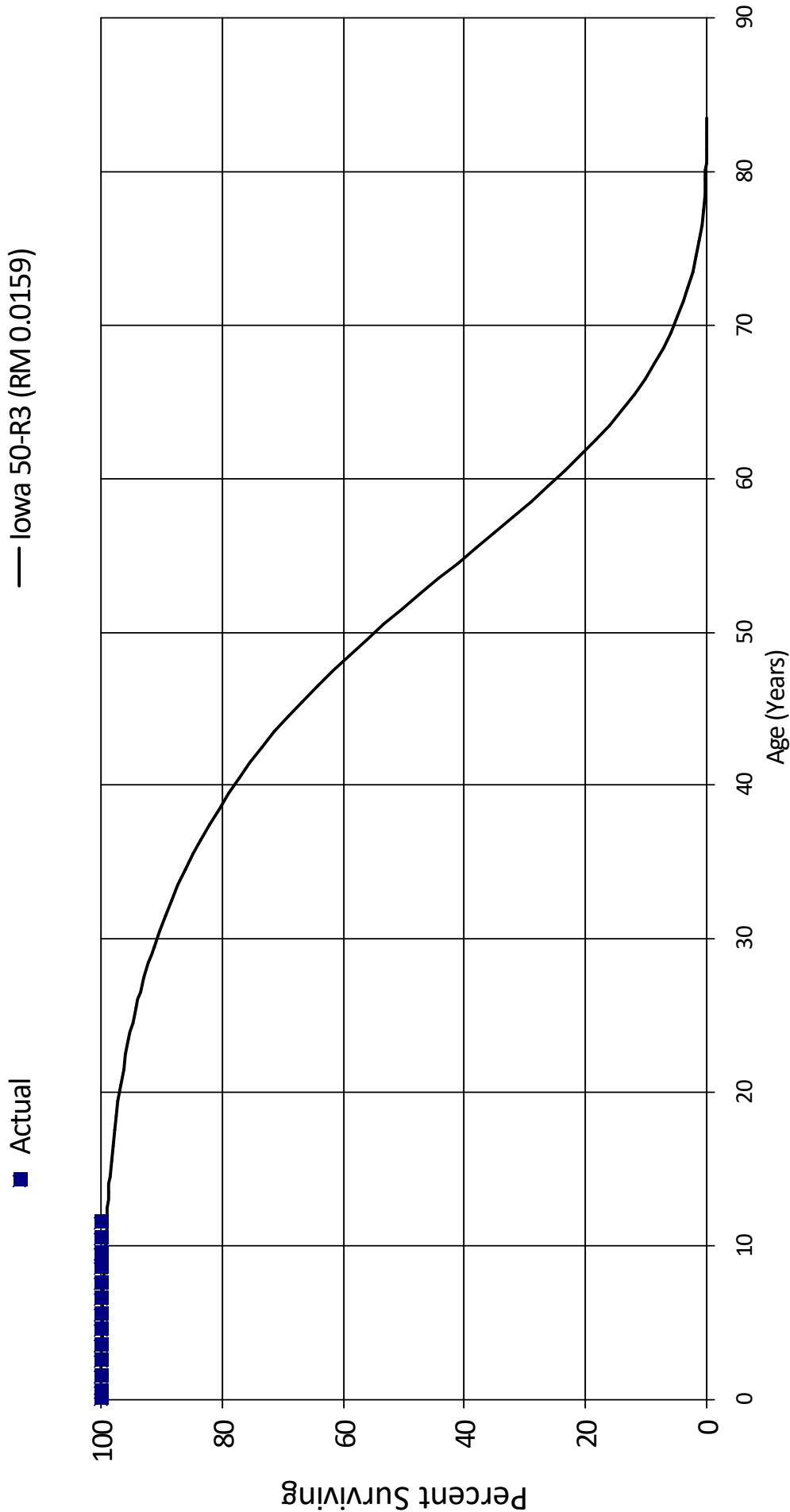
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,944,583	0	0.00000	1.00000	100.00
0.5	1,944,583	0	0.00000	1.00000	100.00
1.5	1,944,583	0	0.00000	1.00000	100.00
2.5	1,944,583	0	0.00000	1.00000	100.00
3.5	1,944,583	0	0.00000	1.00000	100.00
4.5	1,944,583	0	0.00000	1.00000	100.00
5.5	1,944,583	0	0.00000	1.00000	100.00
6.5	1,942,210	0	0.00000	1.00000	100.00
7.5	1,942,210	0	0.00000	1.00000	100.00
8.5	1,942,210	0	0.00000	1.00000	100.00
9.5	1,942,210	0	0.00000	1.00000	100.00
10.5	1,942,210	0	0.00000	1.00000	100.00
11.5	1,942,210	0	0.00000	1.00000	100.00
Totals:		0			

MDU Electric

Account 357.00 - Transmission Plant - Underground Conduit

Placement Band - 2008 - 2014 Experience Band - 2020 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 358.00 - Transmission Plant - Underground Conductors and Devices

Placement Band - 2008 - 2020 Experience Band - 2020 - 2020

RETIREMENT RATE ANALYSIS

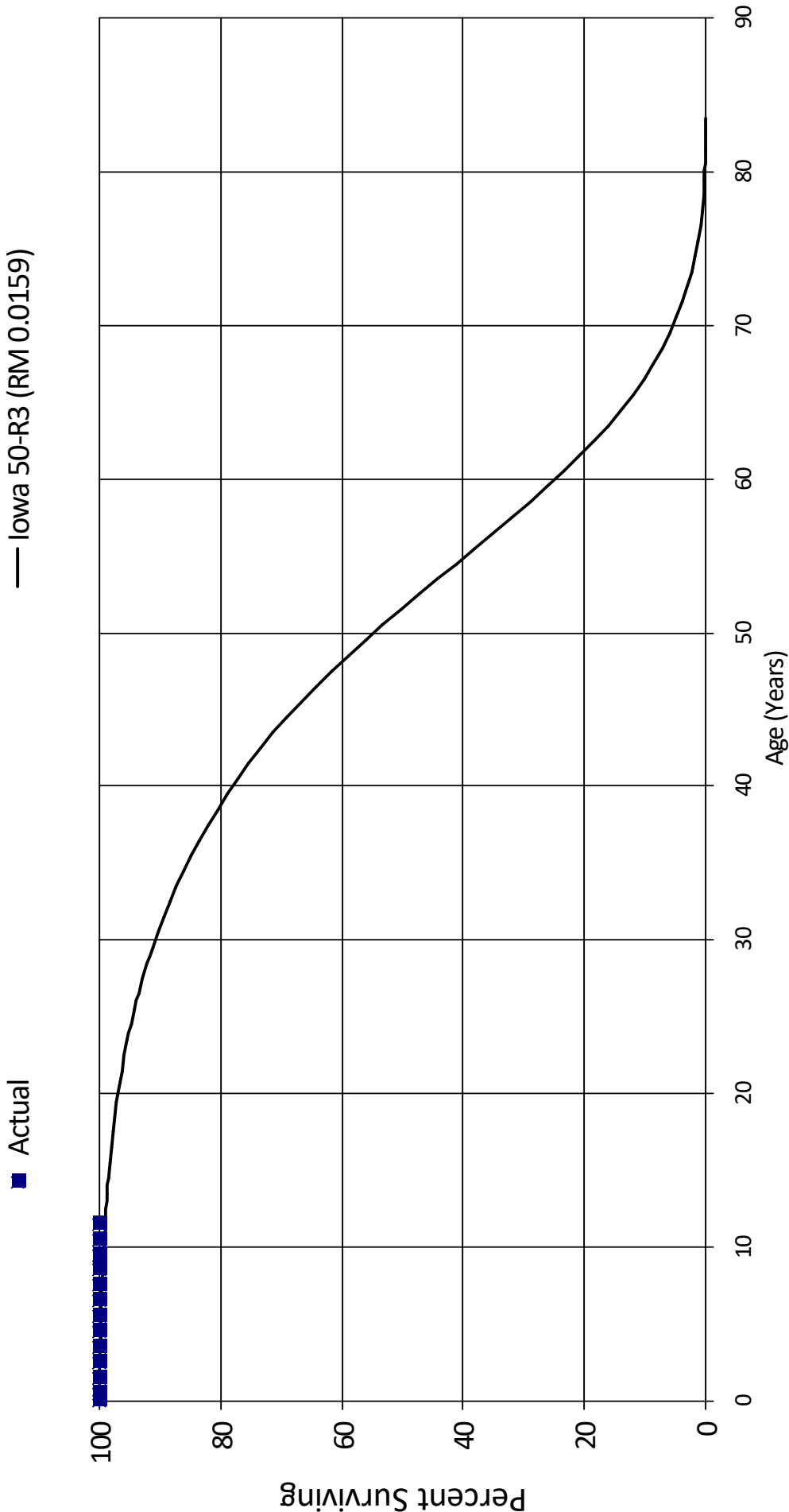
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,101,857	0	0.00000	1.00000	100.00
0.5	3,101,857	0	0.00000	1.00000	100.00
1.5	3,101,857	0	0.00000	1.00000	100.00
2.5	3,101,857	0	0.00000	1.00000	100.00
3.5	3,101,857	0	0.00000	1.00000	100.00
4.5	3,101,857	0	0.00000	1.00000	100.00
5.5	3,101,857	0	0.00000	1.00000	100.00
6.5	3,101,857	0	0.00000	1.00000	100.00
7.5	3,101,857	0	0.00000	1.00000	100.00
8.5	3,101,857	0	0.00000	1.00000	100.00
9.5	3,101,857	0	0.00000	1.00000	100.00
10.5	3,101,857	0	0.00000	1.00000	100.00
11.5	3,101,857	0	0.00000	1.00000	100.00
Totals:		0			

MDU Electric

Account 358.00 - Transmission Plant - Underground Conductors and Devices

Placement Band - 2008 - 2020 Experience Band - 2020 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 360.20 - Distribution Plant - Rights of Ways

Placement Band - 1950 - 2018 Experience Band - 2003 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	996,575	0	0.00000	1.00000	100.00
0.5	996,575	768	0.00077	0.99923	100.00
1.5	995,807	2,223	0.00223	0.99777	99.92
2.5	989,461	2,571	0.00260	0.99740	99.70
3.5	986,890	514	0.00052	0.99948	99.44
4.5	977,788	1,439	0.00147	0.99853	99.39
5.5	921,063	451	0.00049	0.99951	99.24
6.5	883,492	1,438	0.00163	0.99837	99.19
7.5	875,679	4,506	0.00515	0.99485	99.03
8.5	870,265	1,271	0.00146	0.99854	98.52
9.5	859,078	1,104	0.00129	0.99871	98.38
10.5	857,974	1,115	0.00130	0.99870	98.25
11.5	852,957	1,574	0.00185	0.99815	98.12
12.5	847,503	0	0.00000	1.00000	97.94
13.5	838,082	414	0.00049	0.99951	97.94
14.5	832,936	685	0.00082	0.99918	97.89
15.5	831,270	2,314	0.00278	0.99722	97.81
16.5	823,884	414	0.00050	0.99950	97.54
17.5	820,697	609	0.00074	0.99926	97.49
18.5	818,565	939	0.00115	0.99885	97.42
19.5	815,480	644	0.00079	0.99921	97.31
20.5	784,844	914	0.00116	0.99884	97.23
21.5	769,342	2,767	0.00360	0.99640	97.12
22.5	763,170	410	0.00054	0.99946	96.77
23.5	738,114	618	0.00084	0.99916	96.72
24.5	736,828	807	0.00110	0.99890	96.64
25.5	729,304	664	0.00091	0.99909	96.53
26.5	709,766	638	0.00090	0.99910	96.44

MDU Electric

Account 360.20 - Distribution Plant - Rights of Ways

Placement Band - 1950 - 2018 Experience Band - 2003 - 2020

27.5	706,074	192	0.00027	0.99973	96.35
28.5	683,242	319	0.00047	0.99953	96.32
29.5	674,181	1,016	0.00151	0.99849	96.27
30.5	659,679	155	0.00023	0.99977	96.12
31.5	655,209	0	0.00000	1.00000	96.10
32.5	647,620	270	0.00042	0.99958	96.10
33.5	644,672	237	0.00037	0.99963	96.06
34.5	623,201	0	0.00000	1.00000	96.02
35.5	567,074	155	0.00027	0.99973	96.02
36.5	527,824	68	0.00013	0.99987	95.99
37.5	501,728	247	0.00049	0.99951	95.98
38.5	463,348	0	0.00000	1.00000	95.93
39.5	402,668	0	0.00000	1.00000	95.93
40.5	359,047	0	0.00000	1.00000	95.93
41.5	352,404	0	0.00000	1.00000	95.93
42.5	182,807	473	0.00259	0.99741	95.93
43.5	493	0	0.00000	1.00000	95.68
44.5	493	0	0.00000	1.00000	95.68
45.5	493	0	0.00000	1.00000	95.68
46.5	493	0	0.00000	1.00000	95.68
47.5	493	0	0.00000	1.00000	95.68
48.5	493	0	0.00000	1.00000	95.68
49.5	493	0	0.00000	1.00000	95.68
50.5	493	0	0.00000	1.00000	95.68
51.5	493	0	0.00000	1.00000	95.68
52.5	493	493	0.99955	0.00045	95.68
53.5	0	0	0.00000	0.00000	0.04
Totals:		35,436			

MDU Electric

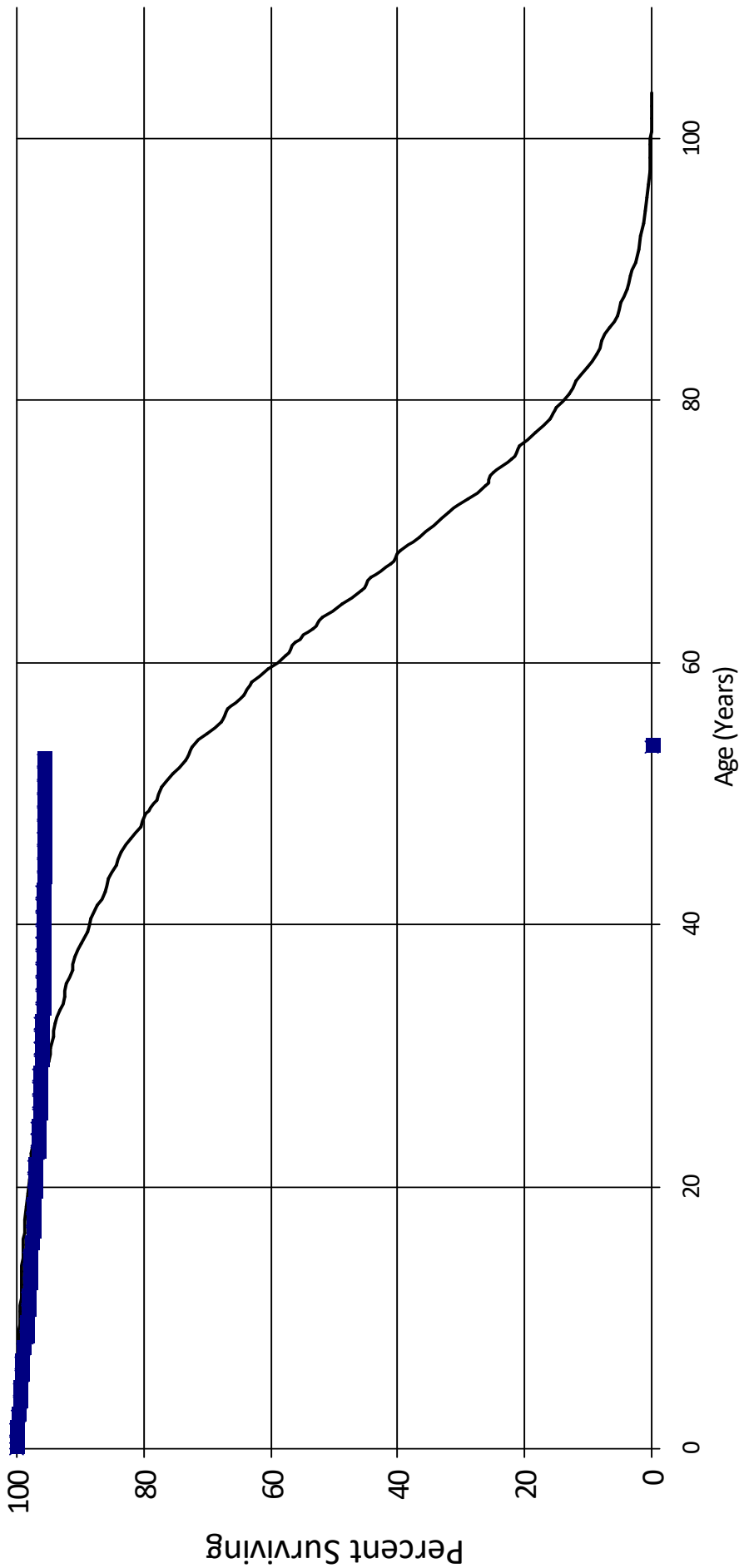
Account 360.20 - Distribution Plant - Rights of Ways

Placement Band - 1950 - 2018 Experience Band - 2003 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 62-R3 (RM 0.9098)



MDU Electric

Account 362.00 - Distribution Plant - Station Equipment

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	99,234,248	0	0.00000	1.00000	100.00
0.5	90,462,159	189,403	0.00209	0.99791	100.00
1.5	86,775,556	249,966	0.00288	0.99712	99.79
2.5	81,021,517	888,253	0.01096	0.98904	99.50
3.5	74,248,329	412,350	0.00555	0.99445	98.41
4.5	66,146,333	27,649	0.00042	0.99958	97.86
5.5	60,222,218	854,217	0.01418	0.98582	97.82
6.5	51,779,512	87,377	0.00169	0.99831	96.43
7.5	49,488,026	450,937	0.00911	0.99089	96.27
8.5	42,250,126	51,997	0.00123	0.99877	95.39
9.5	39,482,761	391,560	0.00992	0.99008	95.27
10.5	37,617,367	-207,759	-0.00552	1.00552	94.32
11.5	35,670,772	170,680	0.00478	0.99522	94.84
12.5	33,580,406	79,651	0.00237	0.99763	94.39
13.5	30,424,680	188,776	0.00620	0.99380	94.17
14.5	26,937,314	30,642	0.00114	0.99886	93.59
15.5	26,072,249	90,581	0.00347	0.99653	93.48
16.5	25,618,812	77,696	0.00303	0.99697	93.16
17.5	23,981,167	56,893	0.00237	0.99763	92.88
18.5	23,466,078	51,544	0.00220	0.99780	92.66
19.5	22,976,857	198,713	0.00865	0.99135	92.46
20.5	22,558,674	487,445	0.02161	0.97839	91.66
21.5	21,886,398	85,538	0.00391	0.99609	89.68
22.5	21,688,481	1,071,778	0.04942	0.95058	89.33
23.5	20,420,810	192,713	0.00944	0.99056	84.92
24.5	20,105,347	60,012	0.00298	0.99702	84.12
25.5	20,045,335	75,451	0.00376	0.99624	83.87
26.5	19,729,599	112,424	0.00570	0.99430	83.55

MDU Electric

Account 362.00 - Distribution Plant - Station Equipment

Placement Band - 1900 - 2020		Experience Band - 1995 - 2020	
27.5	18,520,864	13,752	0.00074
28.5	16,954,496	170,228	0.01004
29.5	16,506,472	25,336	0.00153
30.5	16,031,937	74,545	0.00465
31.5	15,416,106	430,043	0.02790
32.5	14,725,454	249,141	0.01692
33.5	14,309,575	65,281	0.00456
34.5	14,071,812	43,830	0.00311
35.5	13,746,393	39,986	0.00291
36.5	13,515,171	153,992	0.01139
37.5	11,826,553	51,408	0.00435
38.5	10,493,849	84,303	0.00803
39.5	10,173,599	158,572	0.01559
40.5	8,727,481	58,414	0.00669
41.5	7,523,658	42,456	0.00564
42.5	6,898,676	80,644	0.01169
43.5	6,017,848	56,094	0.00932
44.5	5,342,256	24,131	0.00452
45.5	4,469,875	21,344	0.00478
46.5	4,118,239	46,277	0.01124
47.5	3,742,940	23,900	0.00639
48.5	3,550,734	111,217	0.03132
49.5	3,357,335	61,506	0.01832
50.5	3,167,058	63,438	0.02003
51.5	2,910,563	31,618	0.01086
52.5	2,530,032	31,598	0.01249
53.5	2,366,944	47,534	0.02008
54.5	2,191,679	108,004	0.04928
55.5	1,851,147	48,222	0.02605
56.5	1,674,257	79,280	0.04735
57.5	1,484,589	31,965	0.02153

MDU Electric

Account 362.00 - Distribution Plant - Station Equipment

Placement Band - 1900 - 2020						Experience Band - 1995 - 2020					
58.5	1,351,237	78,732	0.05827	0.94173	53.78						
59.5	1,173,217	38,228	0.03258	0.96742	50.65						
60.5	934,637	9,593	0.01026	0.98974	49.00						
61.5	801,312	18,811	0.02348	0.97652	48.50						
62.5	686,834	67,816	0.09874	0.90126	47.36						
63.5	552,050	32,842	0.05949	0.94051	42.68						
64.5	471,053	44,320	0.09409	0.90591	40.14						
65.5	426,734	76,719	0.17978	0.82022	36.36						
66.5	300,861	54,392	0.18079	0.81921	29.82						
67.5	198,717	19,368	0.09747	0.90253	24.43						
68.5	152,770	30,608	0.20035	0.79965	22.05						
69.5	122,163	1,000	0.00819	0.99181	17.63						
70.5	91,644	15,644	0.17070	0.82930	17.49						
71.5	57,622	100	0.00174	0.99826	14.50						
72.5	32,880	0	0.00000	1.00000	14.47						
73.5	24,786	465	0.01876	0.98124	14.47						
74.5	10,210	0	0.00000	1.00000	14.20						
75.5	10,210	9,000	0.88149	0.11851	14.20						
76.5	1,210	0	0.00000	1.00000	1.68						
77.5	1,210	0	0.00000	1.00000	1.68						
78.5	1,210	0	0.00000	1.00000	1.68						
79.5	1,210	0	0.00000	1.00000	1.68						
80.5	1,210	0	0.00000	1.00000	1.68						
81.5	1,210	0	0.00000	1.00000	1.68						
82.5	1,210	0	0.00000	1.00000	1.68						
83.5	1,210	0	0.00000	1.00000	1.68						
84.5	1,210	0	0.00000	1.00000	1.68						
85.5	1,210	0	0.00000	1.00000	1.68						
86.5	1,210	0	0.00000	1.00000	1.68						
87.5	1,210	0	0.00000	1.00000	1.68						
88.5	1,210	0	0.00000	1.00000	1.68						

MDU Electric

Account 362.00 - Distribution Plant - Station Equipment

Placement Band - 1900 - 2020						Experience Band - 1995 - 2020					
89.5	1,210	0	0.00000	1.00000	1.68	89.5	1,210	0	0.00000	1.00000	1.68
90.5	1,210	0	0.00000	1.00000	1.68	90.5	1,210	0	0.00000	1.00000	1.68
91.5	1,210	0	0.00000	1.00000	1.68	91.5	1,210	0	0.00000	1.00000	1.68
92.5	1,210	0	0.00000	1.00000	1.68	92.5	1,210	0	0.00000	1.00000	1.68
93.5	1,210	0	0.00000	1.00000	1.68	93.5	1,210	0	0.00000	1.00000	1.68
94.5	1,210	0	0.00000	1.00000	1.68	94.5	1,210	0	0.00000	1.00000	1.68
95.5	1,210	0	0.00000	1.00000	1.68	95.5	1,210	0	0.00000	1.00000	1.68
96.5	1,210	0	0.00000	1.00000	1.68	96.5	1,210	0	0.00000	1.00000	1.68
97.5	1,210	0	0.00000	1.00000	1.68	97.5	1,210	0	0.00000	1.00000	1.68
98.5	1,210	0	0.00000	1.00000	1.68	98.5	1,210	0	0.00000	1.00000	1.68
99.5	1,210	0	0.00000	1.00000	1.68	99.5	1,210	0	0.00000	1.00000	1.68
100.5	1,210	0	0.00000	1.00000	1.68	100.5	1,210	0	0.00000	1.00000	1.68
101.5	1,210	0	0.00000	1.00000	1.68	101.5	1,210	0	0.00000	1.00000	1.68
102.5	1,210	0	0.00000	1.00000	1.68	102.5	1,210	0	0.00000	1.00000	1.68
103.5	1,210	0	0.00000	1.00000	1.68	103.5	1,210	0	0.00000	1.00000	1.68
104.5	1,210	0	0.00000	1.00000	1.68	104.5	1,210	0	0.00000	1.00000	1.68
105.5	1,210	0	0.00000	1.00000	1.68	105.5	1,210	0	0.00000	1.00000	1.68
106.5	1,210	0	0.00000	1.00000	1.68	106.5	1,210	0	0.00000	1.00000	1.68
107.5	1,210	0	0.00000	1.00000	1.68	107.5	1,210	0	0.00000	1.00000	1.68
108.5	1,210	0	0.00000	1.00000	1.68	108.5	1,210	0	0.00000	1.00000	1.68
109.5	1,210	0	0.00000	1.00000	1.68	109.5	1,210	0	0.00000	1.00000	1.68
110.5	1,210	0	0.00000	1.00000	1.68	110.5	1,210	0	0.00000	1.00000	1.68
111.5	1,210	0	0.00000	1.00000	1.68	111.5	1,210	0	0.00000	1.00000	1.68
112.5	1,210	0	0.00000	1.00000	1.68	112.5	1,210	0	0.00000	1.00000	1.68
113.5	1,210	0	0.00000	1.00000	1.68	113.5	1,210	0	0.00000	1.00000	1.68
114.5	1,210	0	0.00000	1.00000	1.68	114.5	1,210	0	0.00000	1.00000	1.68
115.5	1,210	1,210	1.00000		1.68	115.5	1,210	1,210	1.00000		1.68
Totals:		9,453,394									

MDU Electric

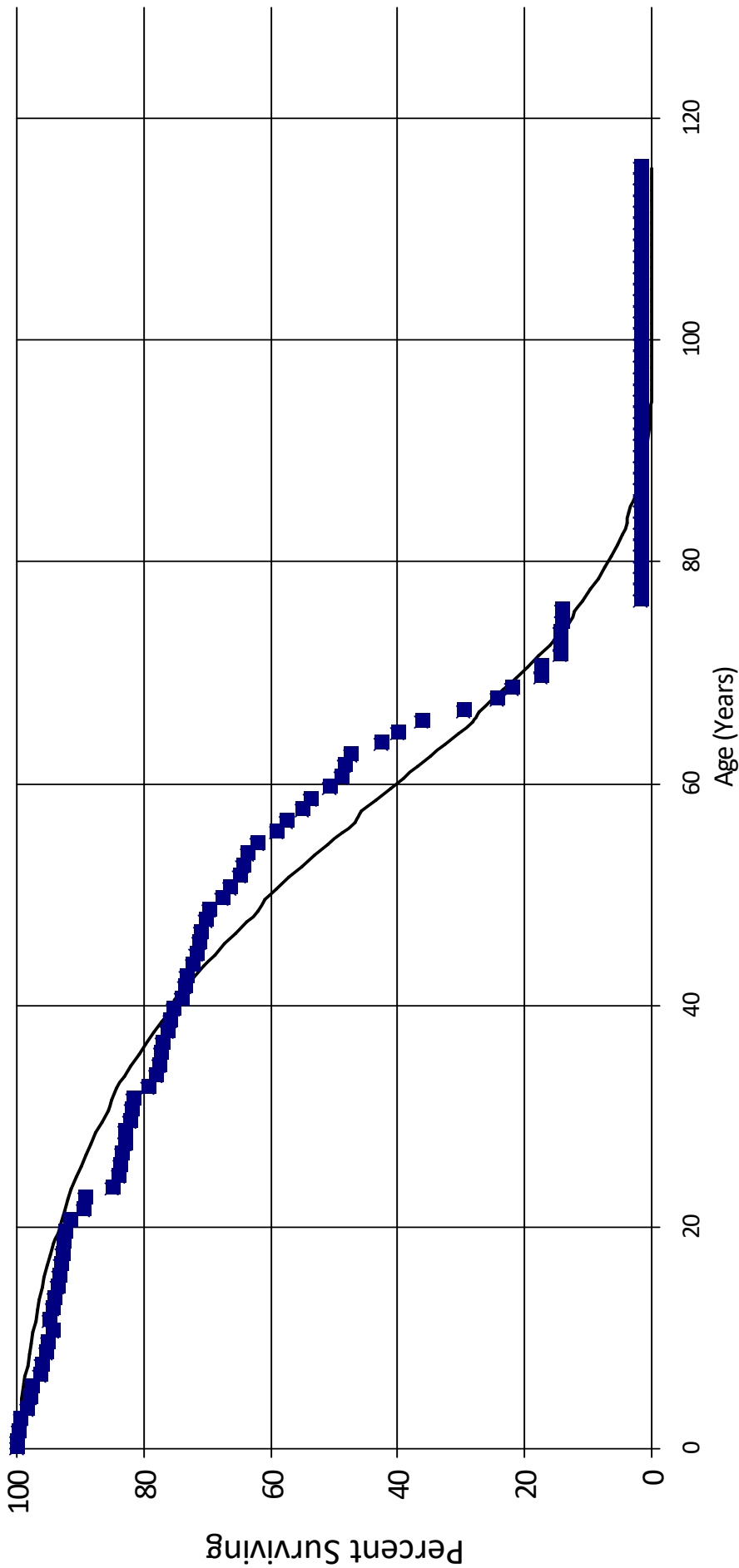
Account 362.00 - Distribution Plant - Station Equipment

Placement Band - 1900 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 53-R2 (RM 0.5148)



MDU Electric

Account 364.00 - Distribution Plant - Poles, Towers & Fixtures

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	52,066,944	24,409	0.00047	0.99953	100.00
0.5	50,459,805	163,127	0.00323	0.99677	99.95
1.5	49,229,915	167,484	0.00340	0.99660	99.63
2.5	47,691,875	149,467	0.00313	0.99687	99.29
3.5	45,805,293	121,117	0.00264	0.99736	98.98
4.5	43,200,894	125,138	0.00290	0.99710	98.72
5.5	40,310,709	88,877	0.00220	0.99780	98.43
6.5	36,387,796	103,352	0.00284	0.99716	98.21
7.5	32,886,211	70,190	0.00213	0.99787	97.93
8.5	31,347,774	75,900	0.00242	0.99758	97.72
9.5	30,367,423	113,518	0.00374	0.99626	97.48
10.5	29,588,050	111,499	0.00377	0.99623	97.12
11.5	28,645,528	94,910	0.00331	0.99669	96.75
12.5	27,769,614	117,773	0.00424	0.99576	96.43
13.5	26,991,274	105,288	0.00390	0.99610	96.02
14.5	26,221,561	236,636	0.00902	0.99098	95.65
15.5	25,356,774	98,918	0.00390	0.99610	94.79
16.5	24,621,037	80,757	0.00328	0.99672	94.42
17.5	24,072,154	61,820	0.00257	0.99743	94.11
18.5	23,254,931	103,627	0.00446	0.99554	93.87
19.5	22,645,463	103,267	0.00456	0.99544	93.45
20.5	22,043,467	137,416	0.00623	0.99377	93.02
21.5	21,189,251	62,750	0.00296	0.99704	92.44
22.5	20,578,415	70,276	0.00342	0.99658	92.17
23.5	19,764,413	90,004	0.00455	0.99545	91.85
24.5	18,752,845	101,576	0.00542	0.99458	91.43
25.5	17,903,726	81,942	0.00458	0.99542	90.93
26.5	16,612,126	82,390	0.00496	0.99504	90.51

MDU Electric

Account 364.00 - Distribution Plant - Poles, Towers & Fixtures

Placement Band - 1920 - 2020						Experience Band - 1995 - 2020					
27.5	15,605,216	76,359	0.00489	0.99511	90.06	27.5	15,605,216	76,359	0.00489	0.99511	90.06
28.5	14,599,590	94,159	0.00645	0.99355	89.62	28.5	14,599,590	94,159	0.00645	0.99355	89.62
29.5	13,744,548	115,634	0.00841	0.99159	89.04	29.5	13,744,548	115,634	0.00841	0.99159	89.04
30.5	13,018,247	97,958	0.00752	0.99248	88.29	30.5	13,018,247	97,958	0.00752	0.99248	88.29
31.5	12,451,943	63,103	0.00507	0.99493	87.63	31.5	12,451,943	63,103	0.00507	0.99493	87.63
32.5	11,954,473	66,664	0.00558	0.99442	87.19	32.5	11,954,473	66,664	0.00558	0.99442	87.19
33.5	11,433,117	69,782	0.00610	0.99390	86.70	33.5	11,433,117	69,782	0.00610	0.99390	86.70
34.5	10,622,639	116,538	0.01097	0.98903	86.17	34.5	10,622,639	116,538	0.01097	0.98903	86.17
35.5	9,630,936	85,066	0.00883	0.99117	85.22	35.5	9,630,936	85,066	0.00883	0.99117	85.22
36.5	9,044,410	132,841	0.01469	0.98531	84.47	36.5	9,044,410	132,841	0.01469	0.98531	84.47
37.5	8,264,319	68,312	0.00827	0.99173	83.23	37.5	8,264,319	68,312	0.00827	0.99173	83.23
38.5	7,673,644	59,841	0.00780	0.99220	82.54	38.5	7,673,644	59,841	0.00780	0.99220	82.54
39.5	7,058,123	59,121	0.00838	0.99162	81.90	39.5	7,058,123	59,121	0.00838	0.99162	81.90
40.5	6,407,819	61,168	0.00955	0.99045	81.21	40.5	6,407,819	61,168	0.00955	0.99045	81.21
41.5	5,878,631	56,477	0.00961	0.99039	80.43	41.5	5,878,631	56,477	0.00961	0.99039	80.43
42.5	5,459,016	65,093	0.01192	0.98808	79.66	42.5	5,459,016	65,093	0.01192	0.98808	79.66
43.5	5,019,672	64,100	0.01277	0.98723	78.71	43.5	5,019,672	64,100	0.01277	0.98723	78.71
44.5	4,553,387	85,575	0.01879	0.98121	77.70	44.5	4,553,387	85,575	0.01879	0.98121	77.70
45.5	4,175,151	84,141	0.02015	0.97985	76.24	45.5	4,175,151	84,141	0.02015	0.97985	76.24
46.5	3,927,220	48,230	0.01228	0.98772	74.70	46.5	3,927,220	48,230	0.01228	0.98772	74.70
47.5	3,623,546	72,838	0.02010	0.97990	73.78	47.5	3,623,546	72,838	0.02010	0.97990	73.78
48.5	3,198,196	56,980	0.01782	0.98218	72.30	48.5	3,198,196	56,980	0.01782	0.98218	72.30
49.5	2,961,877	38,813	0.01310	0.98690	71.01	49.5	2,961,877	38,813	0.01310	0.98690	71.01
50.5	2,703,594	56,970	0.02107	0.97893	70.08	50.5	2,703,594	56,970	0.02107	0.97893	70.08
51.5	2,346,788	140,916	0.06005	0.93995	68.60	51.5	2,346,788	140,916	0.06005	0.93995	68.60
52.5	1,994,373	31,863	0.01598	0.98402	64.48	52.5	1,994,373	31,863	0.01598	0.98402	64.48
53.5	1,782,475	22,651	0.01271	0.98729	63.45	53.5	1,782,475	22,651	0.01271	0.98729	63.45
54.5	1,563,235	23,194	0.01484	0.98516	62.64	54.5	1,563,235	23,194	0.01484	0.98516	62.64
55.5	1,373,232	19,570	0.01425	0.98575	61.71	55.5	1,373,232	19,570	0.01425	0.98575	61.71
56.5	1,182,463	12,413	0.01050	0.98950	60.83	56.5	1,182,463	12,413	0.01050	0.98950	60.83
57.5	1,027,863	11,350	0.01104	0.98896	60.19	57.5	1,027,863	11,350	0.01104	0.98896	60.19

MDU Electric

Account 364.00 - Distribution Plant - Poles, Towers & Fixtures

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

58.5	881,533	7,490	0.00850	0.99150	59.53
59.5	758,365	8,260	0.01089	0.98911	59.02
60.5	648,814	6,660	0.01026	0.98974	58.38
61.5	535,409	6,960	0.01300	0.98700	57.78
62.5	447,686	4,744	0.01060	0.98940	57.03
63.5	365,749	7,331	0.02004	0.97996	56.43
64.5	292,355	12,018	0.04111	0.95889	55.30
65.5	228,665	5,303	0.02319	0.97681	53.03
66.5	177,092	1,282	0.00724	0.99276	51.80
67.5	132,672	7,420	0.05593	0.94407	51.42
68.5	93,619	6,666	0.07120	0.92880	48.54
69.5	65,838	4,468	0.06786	0.93214	45.08
70.5	56,241	2,020	0.03592	0.96408	42.02
71.5	38,813	348	0.00897	0.99103	40.51
72.5	26,152	348	0.01331	0.98669	40.15
73.5	15,546	0	0.00000	1.00000	39.62
74.5	7,335	290	0.03954	0.96046	39.62
75.5	7,045	58	0.00823	0.99177	38.05
76.5	6,987	0	0.00000	1.00000	37.74
77.5	6,987	0	0.00000	1.00000	37.74
78.5	6,987	0	0.00000	1.00000	37.74
79.5	6,116	58	0.00948	0.99052	37.74
80.5	5,095	812	0.15938	0.84062	37.38
81.5	3,343	0	0.00000	1.00000	31.42
82.5	2,427	0	0.00000	1.00000	31.42
83.5	1,533	0	0.00000	1.00000	31.42
84.5	638	0	0.00000	1.00000	31.42
85.5	406	0	0.00000	1.00000	31.42
86.5	406	0	0.00000	1.00000	31.42
87.5	406	0	0.00000	1.00000	31.42
88.5	406	0	0.00000	1.00000	31.42

MDU Electric

Account 364.00 - Distribution Plant - Poles, Towers & Fixtures

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

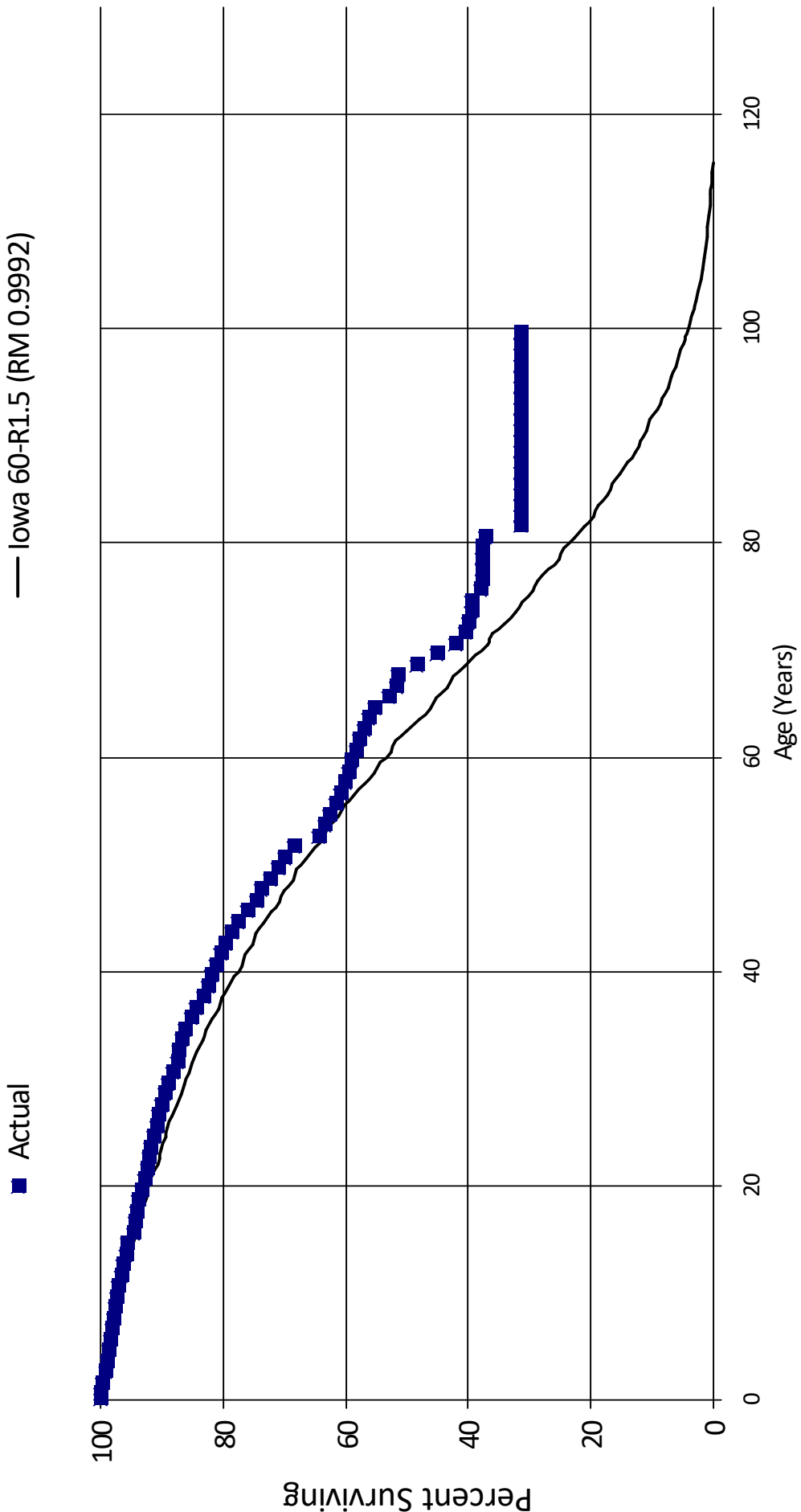
89.5	406	0	0.00000	1.00000	31.42
90.5	406	0	0.00000	1.00000	31.42
91.5	406	0	0.00000	1.00000	31.42
92.5	406	0	0.00000	1.00000	31.42
93.5	406	0	0.00000	1.00000	31.42
94.5	406	0	0.00000	1.00000	31.42
95.5	406	0	0.00000	1.00000	31.42
96.5	406	0	0.00000	1.00000	31.42
97.5	406	0	0.00000	1.00000	31.42
98.5	406	0	0.00000	1.00000	31.42
99.5	406	406	1.00000		31.42
Totals:		5,084,090			

MDU Electric

Account 364.00 - Distribution Plant - Poles, Towers & Fixtures

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 365.00 - Distribution Plant - Overhead Conductor & Devices

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	39,534,686	16,612	0.00042	0.99958	100.00
0.5	37,557,591	117,733	0.00313	0.99687	99.96
1.5	36,736,965	148,688	0.00405	0.99595	99.65
2.5	35,564,209	76,510	0.00215	0.99785	99.25
3.5	34,738,545	94,935	0.00273	0.99727	99.04
4.5	33,065,126	54,325	0.00164	0.99836	98.77
5.5	30,311,086	40,536	0.00134	0.99866	98.61
6.5	26,455,806	61,200	0.00231	0.99769	98.48
7.5	22,433,456	48,125	0.00215	0.99785	98.25
8.5	20,958,115	40,708	0.00194	0.99806	98.04
9.5	20,496,162	44,463	0.00217	0.99783	97.85
10.5	20,104,364	60,165	0.00299	0.99701	97.64
11.5	19,722,979	96,935	0.00491	0.99509	97.35
12.5	19,175,609	43,064	0.00225	0.99775	96.87
13.5	18,674,474	75,025	0.00402	0.99598	96.65
14.5	18,218,659	239,780	0.01316	0.98684	96.26
15.5	17,599,548	27,123	0.00154	0.99846	94.99
16.5	17,190,257	43,820	0.00255	0.99745	94.84
17.5	16,889,957	42,064	0.00249	0.99751	94.60
18.5	16,593,498	28,461	0.00172	0.99828	94.36
19.5	16,183,306	59,606	0.00368	0.99632	94.20
20.5	15,892,523	44,177	0.00278	0.99722	93.85
21.5	15,343,777	48,209	0.00314	0.99686	93.59
22.5	14,951,143	30,137	0.00202	0.99798	93.30
23.5	14,450,117	39,140	0.00271	0.99729	93.11
24.5	14,035,843	50,292	0.00358	0.99642	92.86
25.5	12,103,271	43,957	0.00363	0.99637	92.53
26.5	11,463,468	50,632	0.00442	0.99558	92.19

MDU Electric

Account 365.00 - Distribution Plant - Overhead Conductor & Devices

Placement Band - 1920 - 2020		Experience Band - 1995 - 2020	
27.5	10,919,202	36,462	0.00334
28.5	10,312,724	33,521	0.00325
29.5	9,680,685	114,780	0.01186
30.5	9,259,292	79,253	0.00856
31.5	8,848,294	35,722	0.00404
32.5	8,528,002	37,416	0.00439
33.5	8,190,788	42,672	0.00521
34.5	7,579,622	43,521	0.00574
35.5	6,719,257	47,823	0.00712
36.5	6,367,194	51,836	0.00814
37.5	5,796,430	33,962	0.00586
38.5	5,331,082	29,399	0.00551
39.5	4,980,199	35,224	0.00707
40.5	4,529,087	30,154	0.00666
41.5	4,203,200	28,695	0.00683
42.5	3,894,724	36,336	0.00933
43.5	3,589,111	46,916	0.01307
44.5	3,236,124	87,903	0.02716
45.5	2,916,726	48,228	0.01653
46.5	2,784,495	28,377	0.01019
47.5	2,562,999	61,129	0.02385
48.5	2,271,178	29,141	0.01283
49.5	2,094,801	18,944	0.00904
50.5	1,849,110	28,077	0.01518
51.5	1,582,320	19,881	0.01256
52.5	1,390,952	10,472	0.00753
53.5	1,240,541	11,805	0.00952
54.5	1,073,116	13,743	0.01281
55.5	910,836	9,441	0.01037
56.5	761,215	14,724	0.01934
57.5	634,147	4,397	0.00693

MDU Electric

Account 365.00 - Distribution Plant - Overhead Conductor & Devices

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020					
58.5	516,095	3,091	0.00599	0.99401	67.21
59.5	421,477	3,845	0.00912	0.99088	66.81
60.5	342,387	1,426	0.00416	0.99584	66.20
61.5	274,057	2,726	0.00995	0.99005	65.92
62.5	222,138	2,530	0.01139	0.98861	65.26
63.5	173,638	2,378	0.01370	0.98630	64.52
64.5	136,286	10,285	0.07547	0.92453	63.64
65.5	100,744	3,678	0.03651	0.96349	58.84
66.5	70,404	213	0.00303	0.99697	56.69
67.5	48,901	6,841	0.13990	0.86010	56.52
68.5	27,517	489	0.01777	0.98223	48.61
69.5	17,580	791	0.04500	0.95500	47.75
70.5	13,675	302	0.02208	0.97792	45.60
71.5	8,558	50	0.00584	0.99416	44.59
72.5	4,972	207	0.04164	0.95836	44.33
73.5	2,276	0	0.00000	1.00000	42.48
74.5	1,064	0	0.00000	1.00000	42.48
75.5	1,064	0	0.00000	1.00000	42.48
76.5	1,064	0	0.00000	1.00000	42.48
77.5	1,064	0	0.00000	1.00000	42.48
78.5	1,064	0	0.00000	1.00000	42.48
79.5	1,063	0	0.00000	1.00000	42.48
80.5	1,062	764	0.71912	0.28088	42.48
81.5	297	0	0.00000	1.00000	11.93
82.5	296	0	0.00000	1.00000	11.93
83.5	296	0	0.00000	1.00000	11.93
84.5	295	0	0.00000	1.00000	11.93
85.5	294	0	0.00000	1.00000	11.93
86.5	294	0	0.00000	1.00000	11.93
87.5	294	0	0.00000	1.00000	11.93
88.5	294	0	0.00000	1.00000	11.93

MDU Electric

Account 365.00 - Distribution Plant - Overhead Conductor & Devices

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

89.5	294	0	0.00000	1.00000	11.93
90.5	294	0	0.00000	1.00000	11.93
91.5	294	0	0.00000	1.00000	11.93
92.5	294	0	0.00000	1.00000	11.93
93.5	294	0	0.00000	1.00000	11.93
94.5	294	0	0.00000	1.00000	11.93
95.5	294	0	0.00000	1.00000	11.93
96.5	294	0	0.00000	1.00000	11.93
97.5	294	119	0.40453	0.59547	11.93
98.5	175	0	0.00000	1.00000	7.10
99.5	175	175	0.99926	0.00074	7.10
Totals:		2,956,286			

MDU Electric

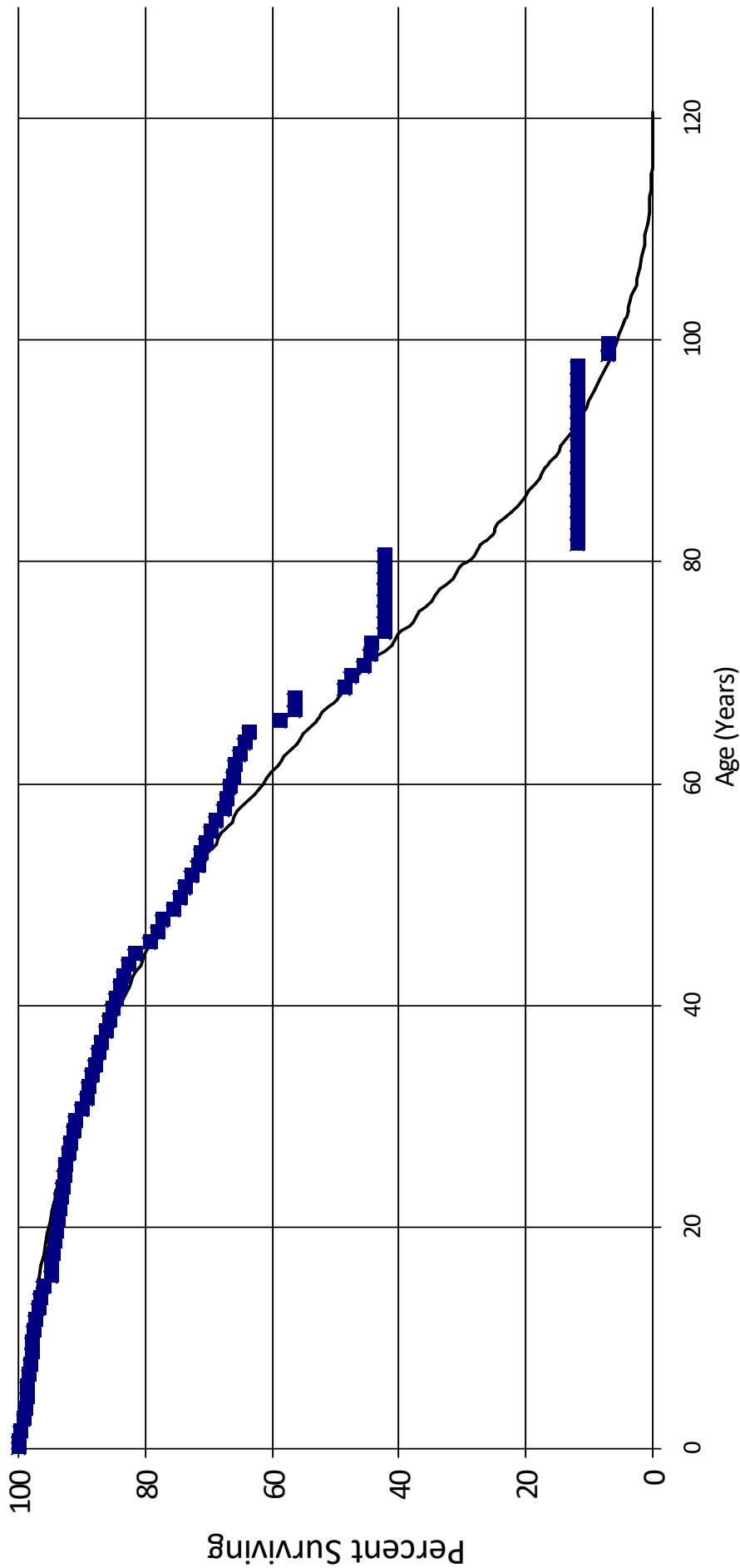
Account 365.00 - Distribution Plant - Overhead Conductor & Devices

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 65-R2 (RM 0.4552)



MDU Electric

Account 366.00 - Distribution Plant - Underground Conduit

Placement Band - 1949 - 2019 Experience Band - 2020 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	235,918	0	0.00000	1.00000	100.00
0.5	235,918	0	0.00000	1.00000	100.00
1.5	235,918	0	0.00000	1.00000	100.00
2.5	235,918	0	0.00000	1.00000	100.00
3.5	223,988	0	0.00000	1.00000	100.00
4.5	223,988	0	0.00000	1.00000	100.00
5.5	223,988	0	0.00000	1.00000	100.00
6.5	218,154	0	0.00000	1.00000	100.00
7.5	218,154	0	0.00000	1.00000	100.00
8.5	218,154	0	0.00000	1.00000	100.00
9.5	218,154	0	0.00000	1.00000	100.00
10.5	218,154	0	0.00000	1.00000	100.00
11.5	218,154	0	0.00000	1.00000	100.00
12.5	218,154	0	0.00000	1.00000	100.00
13.5	218,154	0	0.00000	1.00000	100.00
14.5	218,154	0	0.00000	1.00000	100.00
15.5	218,154	0	0.00000	1.00000	100.00
16.5	191,389	0	0.00000	1.00000	100.00
17.5	191,389	0	0.00000	1.00000	100.00
18.5	191,389	0	0.00000	1.00000	100.00
19.5	118,309	0	0.00000	1.00000	100.00
20.5	116,594	0	0.00000	1.00000	100.00
21.5	94,734	0	0.00000	1.00000	100.00
22.5	94,734	0	0.00000	1.00000	100.00
23.5	88,927	0	0.00000	1.00000	100.00
24.5	73,254	0	0.00000	1.00000	100.00
25.5	73,254	0	0.00000	1.00000	100.00
26.5	73,254	0	0.00000	1.00000	100.00

MDU Electric

Account 366.00 - Distribution Plant - Underground Conduit

Placement Band - 1949 - 2019 Experience Band - 2020 - 2020

27.5	73,254	0	0.00000	1.00000	100.00
28.5	73,254	0	0.00000	1.00000	100.00
29.5	73,254	0	0.00000	1.00000	100.00
30.5	73,254	0	0.00000	1.00000	100.00
31.5	72,402	0	0.00000	1.00000	100.00
32.5	72,402	0	0.00000	1.00000	100.00
33.5	62,959	0	0.00000	1.00000	100.00
34.5	61,809	0	0.00000	1.00000	100.00
35.5	61,809	0	0.00000	1.00000	100.00
36.5	61,809	0	0.00000	1.00000	100.00
37.5	34,668	0	0.00000	1.00000	100.00
38.5	34,668	0	0.00000	1.00000	100.00
39.5	34,668	0	0.00000	1.00000	100.00
40.5	34,668	0	0.00000	1.00000	100.00
41.5	34,668	0	0.00000	1.00000	100.00
42.5	34,668	0	0.00000	1.00000	100.00
43.5	34,668	0	0.00000	1.00000	100.00
44.5	34,668	0	0.00000	1.00000	100.00
45.5	34,668	0	0.00000	1.00000	100.00
46.5	34,668	0	0.00000	1.00000	100.00
47.5	34,668	0	0.00000	1.00000	100.00
48.5	34,668	0	0.00000	1.00000	100.00
49.5	34,668	0	0.00000	1.00000	100.00
50.5	34,668	0	0.00000	1.00000	100.00
51.5	34,668	0	0.00000	1.00000	100.00
52.5	34,485	0	0.00000	1.00000	100.00
53.5	30,826	0	0.00000	1.00000	100.00
54.5	27,944	0	0.00000	1.00000	100.00
55.5	22,179	0	0.00000	1.00000	100.00
56.5	18,775	0	0.00000	1.00000	100.00
57.5	18,698	0	0.00000	1.00000	100.00

MDU Electric

Account 366.00 - Distribution Plant - Underground Conduit

Placement Band - 1949 - 2019 Experience Band - 2020 - 2020

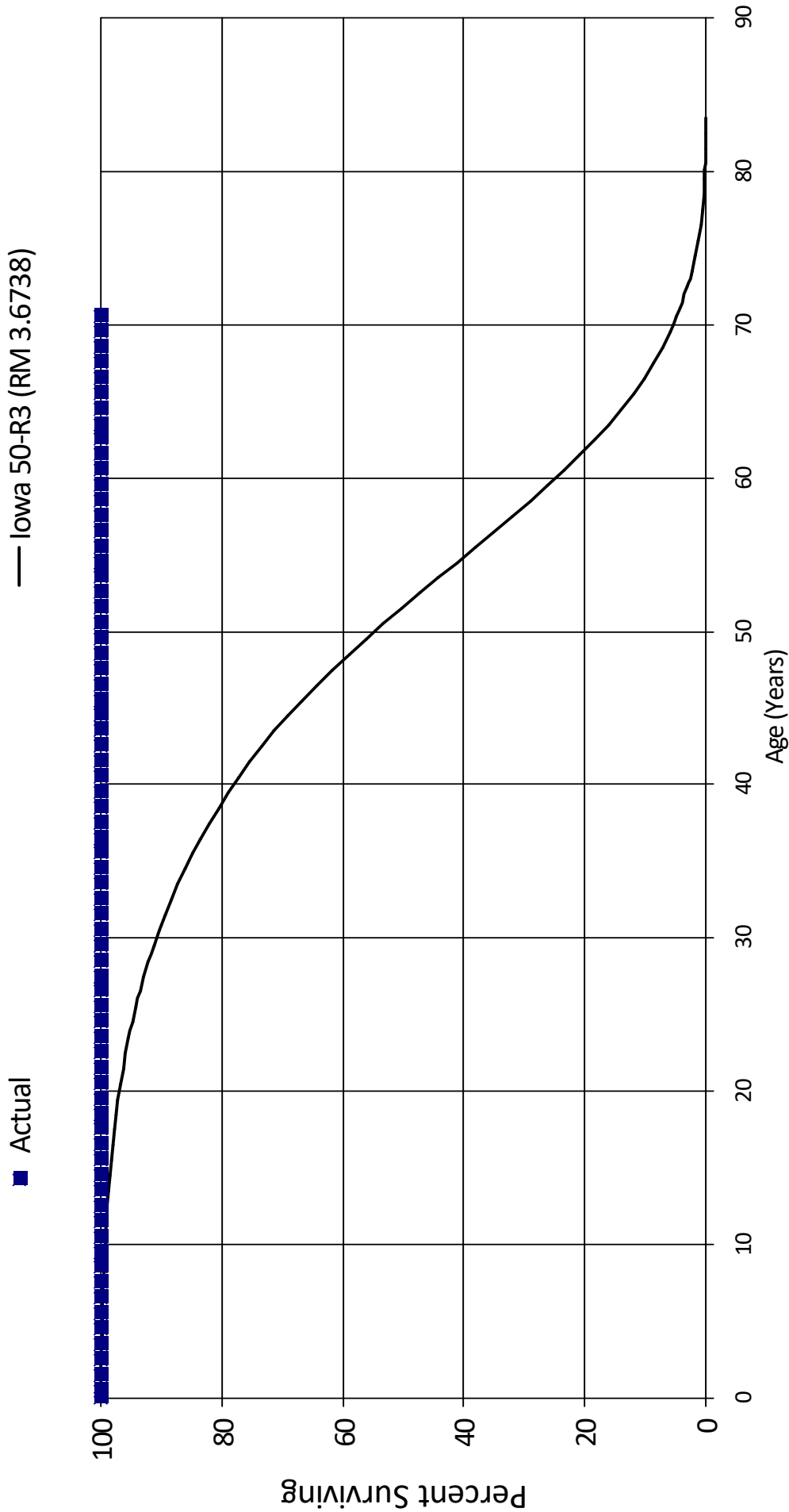
58.5	17,686	0	0.00000	1.00000	100.00
59.5	16,266	0	0.00000	1.00000	100.00
60.5	16,266	0	0.00000	1.00000	100.00
61.5	16,266	0	0.00000	1.00000	100.00
62.5	16,266	0	0.00000	1.00000	100.00
63.5	16,266	0	0.00000	1.00000	100.00
64.5	15,029	0	0.00000	1.00000	100.00
65.5	15,029	0	0.00000	1.00000	100.00
66.5	14,926	0	0.00000	1.00000	100.00
67.5	14,926	0	0.00000	1.00000	100.00
68.5	8,904	0	0.00000	1.00000	100.00
69.5	8,057	0	0.00000	1.00000	100.00
70.5	130	0	0.00000	1.00000	100.00
Totals:		0			

MDU Electric

Account 366.00 - Distribution Plant - Underground Conduit

Placement Band - 1949 - 2019 Experience Band - 2020 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 367.00 - Distribution Plant - Underground Conductor & Devices

Placement Band - 1945 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	144,035,250	9,370	0.00007	0.99993	100.00
0.5	137,294,146	260,635	0.00190	0.99810	99.99
1.5	130,991,167	438,637	0.00335	0.99665	99.80
2.5	123,789,058	406,387	0.00328	0.99672	99.47
3.5	116,659,609	263,954	0.00226	0.99774	99.14
4.5	108,563,739	445,617	0.00410	0.99590	98.92
5.5	93,890,596	280,148	0.00298	0.99702	98.51
6.5	81,605,804	110,696	0.00136	0.99864	98.22
7.5	69,806,030	181,881	0.00261	0.99739	98.09
8.5	61,422,065	205,066	0.00334	0.99666	97.83
9.5	57,358,743	81,999	0.00143	0.99857	97.50
10.5	53,510,394	140,819	0.00263	0.99737	97.36
11.5	49,543,356	111,214	0.00224	0.99776	97.10
12.5	44,928,363	151,436	0.00337	0.99663	96.88
13.5	41,103,103	220,532	0.00537	0.99463	96.55
14.5	37,712,209	350,107	0.00928	0.99072	96.03
15.5	35,565,196	156,374	0.00440	0.99560	95.14
16.5	33,488,466	265,535	0.00793	0.99207	94.72
17.5	31,191,884	171,021	0.00548	0.99452	93.97
18.5	28,916,309	176,177	0.00609	0.99391	93.46
19.5	26,838,489	252,025	0.00939	0.99061	92.89
20.5	25,268,692	259,576	0.01027	0.98973	92.02
21.5	23,262,512	321,637	0.01383	0.98617	91.07
22.5	21,655,023	387,093	0.01788	0.98212	89.81
23.5	19,812,765	147,019	0.00742	0.99258	88.20
24.5	18,888,117	222,167	0.01176	0.98824	87.55
25.5	17,903,135	349,983	0.01955	0.98045	86.52
26.5	16,096,771	262,800	0.01633	0.98367	84.83

MDU Electric

Account 367.00 - Distribution Plant - Underground Conductor & Devices

Placement Band - 1945 - 2020			Experience Band - 1995 - 2020		
27.5	14,628,243	183,122	0.01252	0.98748	83.44
28.5	13,091,149	200,060	0.01528	0.98472	82.40
29.5	12,344,462	242,185	0.01962	0.98038	81.14
30.5	11,483,760	243,482	0.02120	0.97880	79.55
31.5	10,997,906	168,878	0.01536	0.98464	77.86
32.5	10,458,146	223,621	0.02138	0.97862	76.66
33.5	9,814,922	203,784	0.02076	0.97924	75.02
34.5	8,891,971	231,201	0.02600	0.97400	73.46
35.5	7,989,808	295,257	0.03695	0.96305	71.55
36.5	7,037,886	293,759	0.04174	0.95826	68.91
37.5	6,034,265	300,844	0.04986	0.95014	66.03
38.5	5,034,206	239,147	0.04750	0.95250	62.74
39.5	3,956,175	186,884	0.04724	0.95276	59.76
40.5	3,155,712	108,824	0.03448	0.96552	56.94
41.5	2,237,892	167,235	0.07473	0.92527	54.98
42.5	1,606,295	90,760	0.05650	0.94350	50.87
43.5	1,129,340	33,945	0.03006	0.96994	48.00
44.5	777,346	42,406	0.05455	0.94545	46.56
45.5	515,450	21,880	0.04245	0.95755	44.02
46.5	288,547	27,068	0.09381	0.90619	42.15
47.5	176,872	34,032	0.19241	0.80759	38.20
48.5	130,323	3,719	0.02854	0.97146	30.85
49.5	110,643	5,063	0.04576	0.95424	29.97
50.5	85,593	4,345	0.05076	0.94924	28.60
51.5	73,457	1,004	0.01367	0.98633	27.15
52.5	68,564	5,958	0.08690	0.91310	26.78
53.5	56,346	1,098	0.01949	0.98051	24.45
54.5	52,637	27,913	0.53029	0.46971	23.97
55.5	23,706	0	0.00000	1.00000	11.26
56.5	23,357	7,791	0.33356	0.66644	11.26
57.5	15,560	4,001	0.25714	0.74286	7.50

MDU Electric

Account 367.00 - Distribution Plant - Underground Conductor & Devices

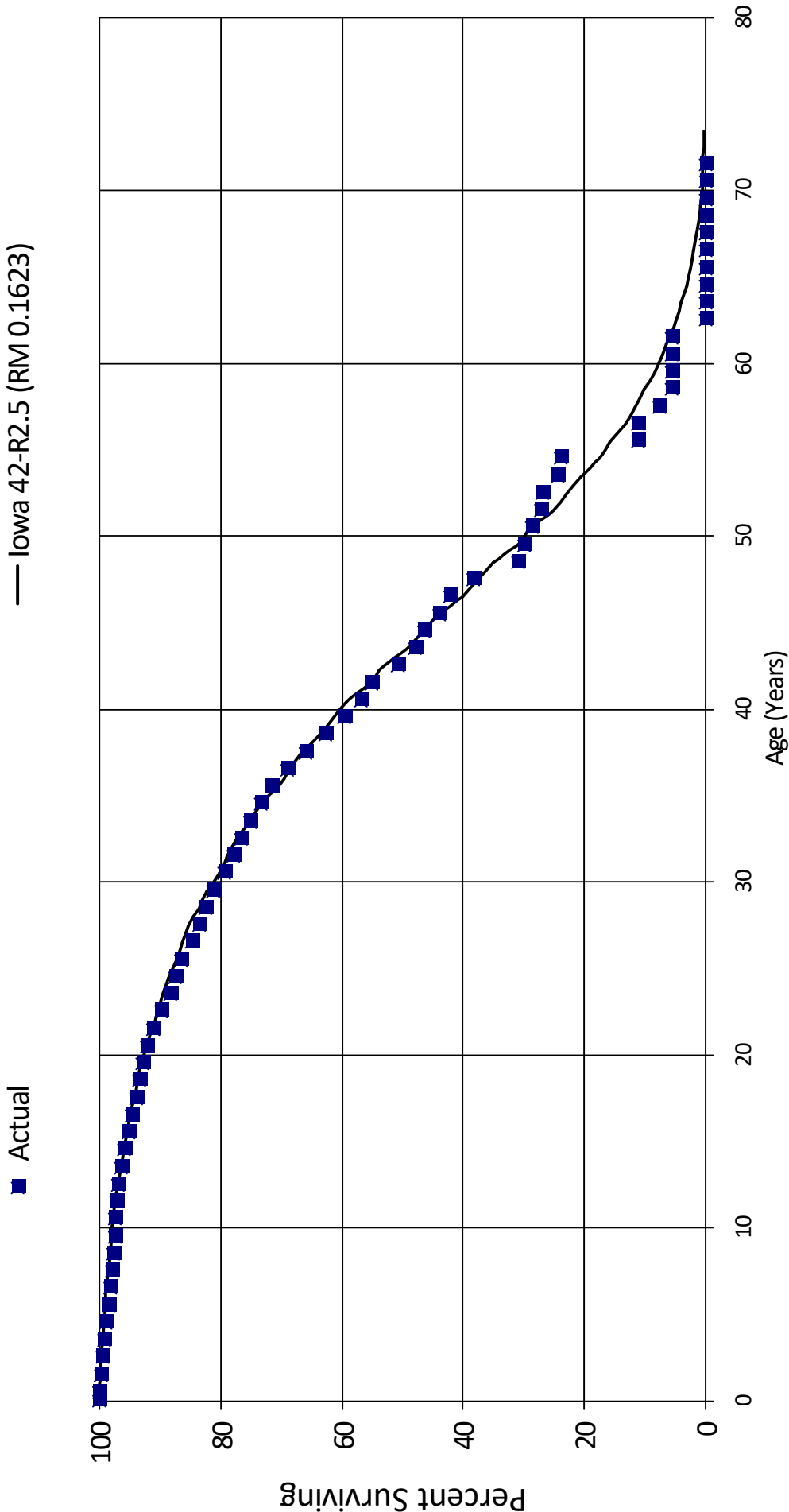
Placement Band - 1945 - 2020						Experience Band - 1995 - 2020					
58.5	11,526	0	0.00000	1.00000	5.57	58.5	11,526	0	0.00000	1.00000	5.57
59.5	11,441	112	0.00979	0.99021	5.57	59.5	11,441	112	0.00979	0.99021	5.57
60.5	11,329	0	0.00000	1.00000	5.52	60.5	11,329	0	0.00000	1.00000	5.52
61.5	11,329	11,129	0.98236	0.01764	5.52	61.5	11,329	11,129	0.98236	0.01764	5.52
62.5	200	0	0.00000	1.00000	0.10	62.5	200	0	0.00000	1.00000	0.10
63.5	200	0	0.00000	1.00000	0.10	63.5	200	0	0.00000	1.00000	0.10
64.5	196	0	0.00000	1.00000	0.10	64.5	196	0	0.00000	1.00000	0.10
65.5	196	0	0.00000	1.00000	0.10	65.5	196	0	0.00000	1.00000	0.10
66.5	196	0	0.00000	1.00000	0.10	66.5	196	0	0.00000	1.00000	0.10
67.5	196	190	0.97087	0.02913	0.10	67.5	196	190	0.97087	0.02913	0.10
68.5	3	0	0.00000	1.00000	0.00	68.5	3	0	0.00000	1.00000	0.00
69.5	1	1	1.11111	-0.11111	0.00	69.5	1	1	1.11111	-0.11111	0.00
70.5	0	0	0.00000	1.00000	0.00	70.5	0	0	0.00000	1.00000	0.00
71.5	0	0	0.00000	0.00000	0.00	71.5	0	0	0.00000	0.00000	0.00
Totals:		10,240,603									

MDU Electric

Account 367.00 - Distribution Plant - Underground Conductor & Devices

Placement Band - 1945 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 368.00 - Distribution Plant - Line Transformers

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	86,887,675	67,109	0.00077	0.99923	100.00
0.5	84,127,960	140,560	0.00167	0.99833	99.92
1.5	81,061,407	129,424	0.00160	0.99840	99.75
2.5	77,671,540	124,769	0.00161	0.99839	99.59
3.5	74,135,989	89,727	0.00121	0.99879	99.43
4.5	71,592,075	80,585	0.00113	0.99887	99.31
5.5	67,500,435	109,740	0.00163	0.99837	99.20
6.5	62,539,894	94,581	0.00151	0.99849	99.04
7.5	57,004,221	35,482	0.00062	0.99938	98.89
8.5	51,235,714	45,037	0.00088	0.99912	98.83
9.5	48,314,394	57,394	0.00119	0.99881	98.74
10.5	46,402,630	53,434	0.00115	0.99885	98.62
11.5	44,301,598	73,867	0.00167	0.99833	98.51
12.5	40,216,298	64,565	0.00161	0.99839	98.35
13.5	36,431,291	100,922	0.00277	0.99723	98.19
14.5	34,495,079	76,926	0.00223	0.99777	97.92
15.5	33,474,121	98,401	0.00294	0.99706	97.70
16.5	32,061,421	225,706	0.00704	0.99296	97.41
17.5	30,755,773	46,691	0.00152	0.99848	96.72
18.5	29,605,754	57,844	0.00195	0.99805	96.57
19.5	28,727,669	77,116	0.00268	0.99732	96.38
20.5	27,803,822	53,821	0.00194	0.99806	96.12
21.5	26,767,780	52,620	0.00197	0.99803	95.93
22.5	25,674,223	56,103	0.00219	0.99781	95.74
23.5	24,522,892	61,868	0.00252	0.99748	95.53
24.5	23,523,023	83,457	0.00355	0.99645	95.29
25.5	22,651,164	53,598	0.00237	0.99763	94.95
26.5	22,269,323	80,951	0.00364	0.99636	94.72

MDU Electric

Account 368.00 - Distribution Plant - Line Transformers

Placement Band - 1920 - 2020		Experience Band - 1995 - 2020			
27.5	21,963,117	110,600	0.00504	0.99496	94.38
28.5	21,516,931	114,478	0.00532	0.99468	93.90
29.5	20,971,338	140,408	0.00670	0.99330	93.40
30.5	20,299,423	116,111	0.00572	0.99428	92.77
31.5	19,452,915	148,710	0.00764	0.99236	92.24
32.5	18,826,944	135,586	0.00720	0.99280	91.54
33.5	18,430,168	120,060	0.00651	0.99349	90.88
34.5	17,663,521	184,105	0.01042	0.98958	90.29
35.5	16,638,300	185,466	0.01115	0.98885	89.35
36.5	15,225,089	188,476	0.01238	0.98762	88.35
37.5	14,116,757	147,697	0.01046	0.98954	87.26
38.5	12,835,140	166,828	0.01300	0.98700	86.35
39.5	11,346,321	145,429	0.01282	0.98718	85.23
40.5	10,140,113	100,537	0.00991	0.99009	84.14
41.5	8,833,462	152,724	0.01729	0.98271	83.31
42.5	7,501,260	150,132	0.02001	0.97999	81.87
43.5	6,416,296	97,245	0.01516	0.98484	80.23
44.5	5,767,683	61,922	0.01074	0.98926	79.01
45.5	5,324,331	83,166	0.01562	0.98438	78.16
46.5	4,526,612	62,837	0.01388	0.98612	76.94
47.5	4,049,678	65,118	0.01608	0.98392	75.87
48.5	3,724,347	68,859	0.01849	0.98151	74.65
49.5	3,428,887	91,669	0.02673	0.97327	73.27
50.5	3,138,665	92,299	0.02941	0.97059	71.31
51.5	2,966,792	69,993	0.02359	0.97641	69.21
52.5	2,560,813	73,311	0.02863	0.97137	67.58
53.5	2,157,300	86,427	0.04006	0.95994	65.65
54.5	1,912,106	79,712	0.04169	0.95831	63.02
55.5	1,618,320	86,068	0.05318	0.94682	60.39
56.5	1,378,747	78,408	0.05687	0.94313	57.18
57.5	1,143,194	98,075	0.08579	0.91421	53.93

MDU Electric

Account 368.00 - Distribution Plant - Line Transformers

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

58.5	928,584	87,873	0.09463	0.90537	49.30
59.5	701,610	71,257	0.10156	0.89844	44.63
60.5	630,352	18,129	0.02876	0.97124	40.10
61.5	504,610	12,152	0.02408	0.97592	38.95
62.5	412,474	8,966	0.02174	0.97826	38.01
63.5	331,234	8,980	0.02711	0.97289	37.18
64.5	251,515	7,963	0.03166	0.96834	36.17
65.5	200,610	6,248	0.03114	0.96886	35.02
66.5	155,363	4,967	0.03197	0.96803	33.93
67.5	113,673	4,520	0.03976	0.96024	32.85
68.5	77,413	1,985	0.02564	0.97436	31.54
69.5	51,900	1,352	0.02605	0.97395	30.73
70.5	40,833	2,216	0.05427	0.94573	29.93
71.5	27,322	365	0.01336	0.98664	28.31
72.5	17,722	970	0.05473	0.94527	27.93
73.5	9,514	742	0.07799	0.92201	26.40
74.5	3,224	472	0.14638	0.85362	24.34
75.5	2,753	0	0.00000	1.00000	20.78
76.5	2,753	0	0.00000	1.00000	20.78
77.5	2,753	296	0.10753	0.89247	20.78
78.5	2,456	0	0.00000	1.00000	18.55
79.5	2,126	197	0.09265	0.90735	18.55
80.5	1,607	0	0.00000	1.00000	16.83
81.5	1,293	0	0.00000	1.00000	16.83
82.5	987	0	0.00000	1.00000	16.83
83.5	837	0	0.00000	1.00000	16.83
84.5	688	0	0.00000	1.00000	16.83
85.5	688	0	0.00000	1.00000	16.83
86.5	688	0	0.00000	1.00000	16.83
87.5	688	0	0.00000	1.00000	16.83
88.5	688	0	0.00000	1.00000	16.83

MDU Electric

Account 368.00 - Distribution Plant - Line Transformers

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

89.5	688	0	0.00000	1.00000	16.83
90.5	688	197	0.28634	0.71366	16.83
91.5	491	0	0.00000	1.00000	12.01
92.5	491	0	0.00000	1.00000	12.01
93.5	491	0	0.00000	1.00000	12.01
94.5	491	0	0.00000	1.00000	12.01
95.5	491	491	1.00000		12.01
Totals:		6,035,092			

MDU Electric

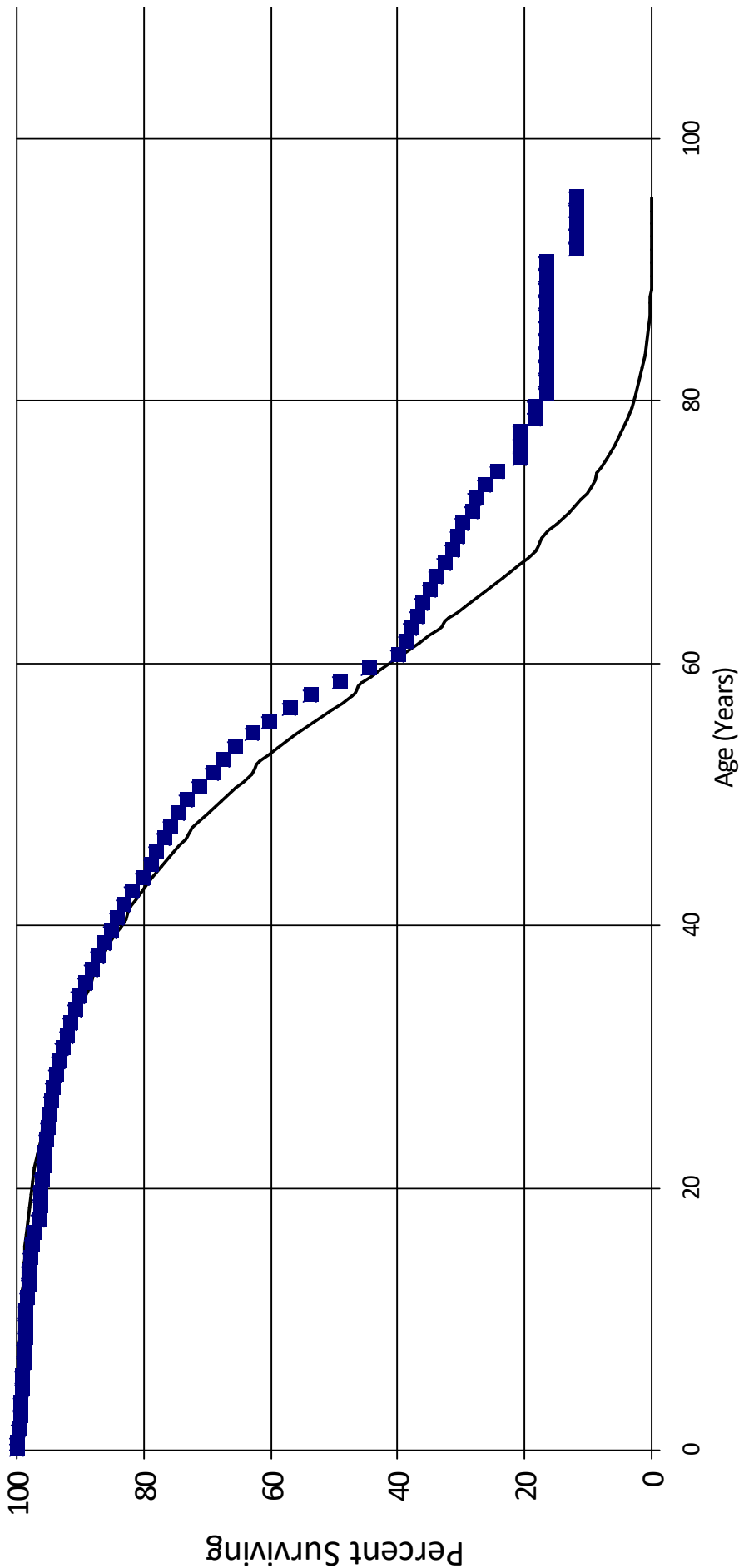
Account 368.00 - Distribution Plant - Line Transformers

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves

■ Actual

— Iowa 55-R3 (RM 0.8498)



MDU Electric

Account 369.10 - Distribution Plant - Services

Placement Band - 1930 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	41,868,961	1,819	0.00004	0.99996	100.00
0.5	40,681,497	45,853	0.00113	0.99887	100.00
1.5	39,590,648	84,762	0.00214	0.99786	99.89
2.5	38,460,104	80,329	0.00209	0.99791	99.68
3.5	37,307,516	59,521	0.00160	0.99840	99.47
4.5	35,888,059	57,810	0.00161	0.99839	99.31
5.5	33,570,061	59,098	0.00176	0.99824	99.15
6.5	30,781,051	50,142	0.00163	0.99837	98.98
7.5	27,638,882	43,219	0.00156	0.99844	98.82
8.5	24,724,833	27,741	0.00112	0.99888	98.67
9.5	23,110,133	35,898	0.00155	0.99845	98.56
10.5	21,750,962	37,206	0.00171	0.99829	98.41
11.5	20,599,006	36,586	0.00178	0.99822	98.24
12.5	19,416,493	33,194	0.00171	0.99829	98.07
13.5	18,543,976	34,699	0.00187	0.99813	97.90
14.5	17,673,507	29,375	0.00166	0.99834	97.72
15.5	16,902,861	32,978	0.00195	0.99805	97.56
16.5	16,195,674	29,701	0.00183	0.99817	97.37
17.5	15,543,953	54,504	0.00351	0.99649	97.19
18.5	14,952,266	26,442	0.00177	0.99823	96.85
19.5	14,368,311	45,051	0.00314	0.99686	96.68
20.5	13,897,563	53,031	0.00382	0.99618	96.38
21.5	13,361,610	54,371	0.00407	0.99593	96.01
22.5	12,799,133	40,590	0.00317	0.99683	95.62
23.5	12,207,357	29,866	0.00245	0.99755	95.32
24.5	11,624,834	34,324	0.00295	0.99705	95.09
25.5	11,364,338	36,452	0.00321	0.99679	94.81
26.5	10,650,689	30,814	0.00289	0.99711	94.51

MDU Electric

Account 369.10 - Distribution Plant - Services

Placement Band - 1930 - 2020 Experience Band - 1995 - 2020

27.5	10,184,596	32,798	0.00322	0.99678	94.24
28.5	9,706,241	40,571	0.00418	0.99582	93.94
29.5	9,354,983	36,740	0.00393	0.99607	93.55
30.5	8,997,714	38,692	0.00430	0.99570	93.18
31.5	8,612,929	37,407	0.00434	0.99566	92.78
32.5	8,227,530	39,759	0.00483	0.99517	92.38
33.5	7,832,769	41,349	0.00528	0.99472	91.93
34.5	7,405,964	49,929	0.00674	0.99326	91.44
35.5	6,896,340	45,347	0.00658	0.99342	90.82
36.5	6,291,828	39,822	0.00633	0.99367	90.22
37.5	5,584,496	35,886	0.00643	0.99357	89.65
38.5	4,811,612	37,699	0.00784	0.99216	89.07
39.5	3,956,368	36,979	0.00935	0.99065	88.37
40.5	3,239,913	35,668	0.01101	0.98899	87.54
41.5	2,567,008	26,456	0.01031	0.98969	86.58
42.5	1,980,166	29,056	0.01467	0.98533	85.69
43.5	1,414,044	21,519	0.01522	0.98478	84.43
44.5	981,149	21,064	0.02147	0.97853	83.14
45.5	697,310	16,395	0.02351	0.97649	81.35
46.5	462,031	26,691	0.05777	0.94223	79.44
47.5	332,170	11,760	0.03540	0.96460	74.85
48.5	246,099	9,846	0.04001	0.95999	72.20
49.5	188,612	9,259	0.04909	0.95091	69.31
50.5	144,885	9,928	0.06852	0.93148	65.91
51.5	107,516	8,605	0.08003	0.91997	61.39
52.5	76,786	5,627	0.07328	0.92672	56.48
53.5	59,464	4,737	0.07966	0.92034	52.34
54.5	45,452	4,549	0.10008	0.89992	48.17
55.5	34,174	3,153	0.09226	0.90774	43.35
56.5	26,710	2,433	0.09109	0.90891	39.35
57.5	21,240	1,353	0.06370	0.93630	35.77

MDU Electric

Account 369.10 - Distribution Plant - Services

Placement Band - 1930 - 2020 Experience Band - 1995 - 2020

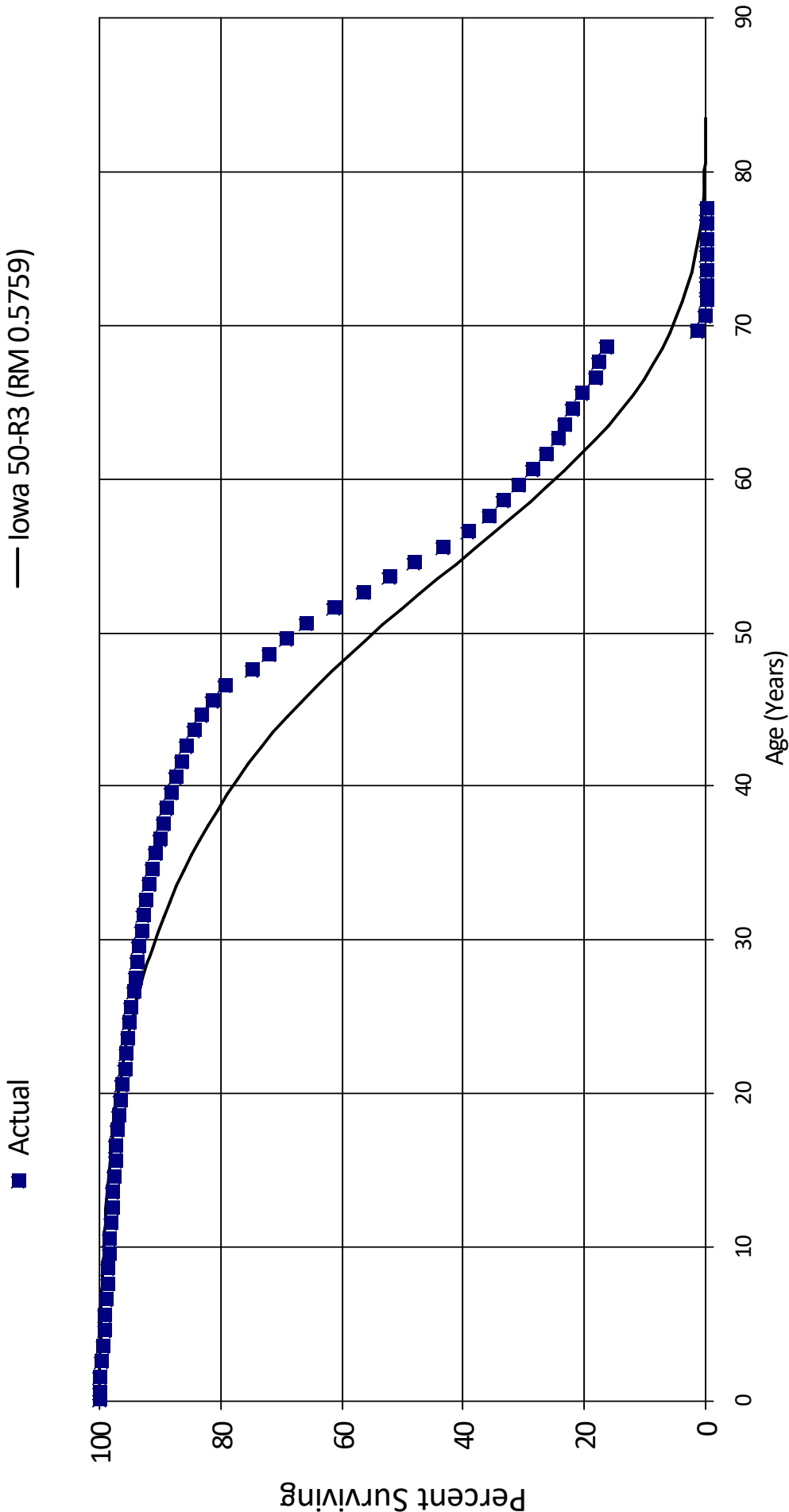
58.5	20,010	1,501	0.07501	0.92499	33.49
59.5	18,176	1,392	0.07658	0.92342	30.98
60.5	16,784	1,361	0.08109	0.91891	28.61
61.5	15,199	1,142	0.07513	0.92487	26.29
62.5	14,055	592	0.04212	0.95788	24.31
63.5	13,457	750	0.05574	0.94426	23.29
64.5	12,706	889	0.06997	0.93003	21.99
65.5	11,817	1,254	0.10612	0.89388	20.45
66.5	10,563	356	0.03370	0.96630	18.28
67.5	10,208	652	0.06387	0.93613	17.66
68.5	9,556	8,707	0.91112	0.08888	16.53
69.5	849	750	0.88313	0.11687	1.47
70.5	99	59	0.59747	0.40253	0.17
71.5	40	0	0.00000	1.00000	0.07
72.5	40	0	0.00000	1.00000	0.07
73.5	40	0	0.00000	1.00000	0.07
74.5	40	0	0.00000	1.00000	0.07
75.5	40	0	0.00000	1.00000	0.07
76.5	40	40	1.01266	-0.01266	0.07
77.5	0	0	0.00000	0.00000	0.00
Totals:		1,965,898			

MDU Electric

Account 369.10 - Distribution Plant - Services

Placement Band - 1930 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 370.00 - Distribution Plant - Meters

Placement Band - 1939 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	30,108,905	5,391	0.00018	0.99982	100.00
0.5	29,830,753	20,195	0.00068	0.99932	99.98
1.5	29,476,334	26,320	0.00089	0.99911	99.91
2.5	29,157,268	34,905	0.00120	0.99880	99.82
3.5	28,805,948	125,244	0.00435	0.99565	99.70
4.5	28,271,216	71,005	0.00251	0.99749	99.27
5.5	27,035,631	95,037	0.00352	0.99648	99.02
6.5	26,091,904	142,731	0.00547	0.99453	98.67
7.5	24,254,815	122,732	0.00506	0.99494	98.13
8.5	20,695,772	219,362	0.01060	0.98940	97.63
9.5	19,844,330	620,190	0.03125	0.96875	96.60
10.5	18,023,626	1,522,672	0.08448	0.91552	93.58
11.5	16,055,506	245,681	0.01530	0.98470	85.67
12.5	13,625,580	1,493,760	0.10963	0.89037	84.36
13.5	7,314,439	1,017,023	0.13904	0.86096	75.11
14.5	6,158,368	504,291	0.08189	0.91811	64.67
15.5	5,521,561	360,844	0.06535	0.93465	59.37
16.5	5,052,294	364,909	0.07223	0.92777	55.49
17.5	4,620,469	401,752	0.08695	0.91305	51.48
18.5	4,182,515	347,971	0.08320	0.91680	47.00
19.5	3,755,465	359,259	0.09566	0.90434	43.09
20.5	3,366,550	172,499	0.05124	0.94876	38.97
21.5	3,147,933	173,811	0.05521	0.94479	36.97
22.5	2,911,187	134,317	0.04614	0.95386	34.93
23.5	2,707,050	72,786	0.02689	0.97311	33.32
24.5	2,464,492	91,775	0.03724	0.96276	32.42
25.5	2,316,260	89,744	0.03875	0.96125	31.21
26.5	2,226,517	103,218	0.04636	0.95364	30.00

MDU Electric

Account 370.00 - Distribution Plant - Meters

Placement Band - 1939 - 2020 Experience Band - 1995 - 2020

27.5	2,123,298	89,964	0.04237	0.95763	28.61
28.5	2,033,334	104,445	0.05137	0.94863	27.40
29.5	1,928,889	114,220	0.05922	0.94078	25.99
30.5	1,814,669	149,597	0.08244	0.91756	24.45
31.5	1,665,072	123,516	0.07418	0.92582	22.43
32.5	1,541,556	154,668	0.10033	0.89967	20.77
33.5	1,386,888	170,446	0.12290	0.87710	18.69
34.5	1,216,442	135,446	0.11135	0.88865	16.39
35.5	1,080,996	125,738	0.11632	0.88368	14.56
36.5	955,258	107,086	0.11210	0.88790	12.87
37.5	848,173	105,426	0.12430	0.87570	11.43
38.5	742,747	88,540	0.11921	0.88079	10.01
39.5	654,207	58,967	0.09014	0.90986	8.82
40.5	595,240	54,126	0.09093	0.90907	8.02
41.5	541,114	41,988	0.07760	0.92240	7.29
42.5	499,126	43,376	0.08690	0.91310	6.72
43.5	455,750	47,285	0.10375	0.89625	6.14
44.5	408,465	45,017	0.11021	0.88979	5.50
45.5	363,449	48,846	0.13440	0.86560	4.89
46.5	314,602	65,540	0.20833	0.79167	4.23
47.5	249,062	31,343	0.12584	0.87416	3.35
48.5	217,719	28,467	0.13075	0.86925	2.93
49.5	189,252	24,794	0.13101	0.86899	2.55
50.5	164,458	30,909	0.18794	0.81206	2.22
51.5	133,549	21,743	0.16281	0.83719	1.80
52.5	111,806	21,206	0.18967	0.81033	1.51
53.5	90,600	16,699	0.18432	0.81568	1.22
54.5	73,901	12,856	0.17396	0.82604	1.00
55.5	61,045	11,323	0.18549	0.81451	0.83
56.5	49,722	10,955	0.22033	0.77967	0.68
57.5	38,766	17,095	0.44097	0.55903	0.53

MDU Electric

Account 370.00 - Distribution Plant - Meters

Placement Band - 1939 - 2020 Experience Band - 1995 - 2020

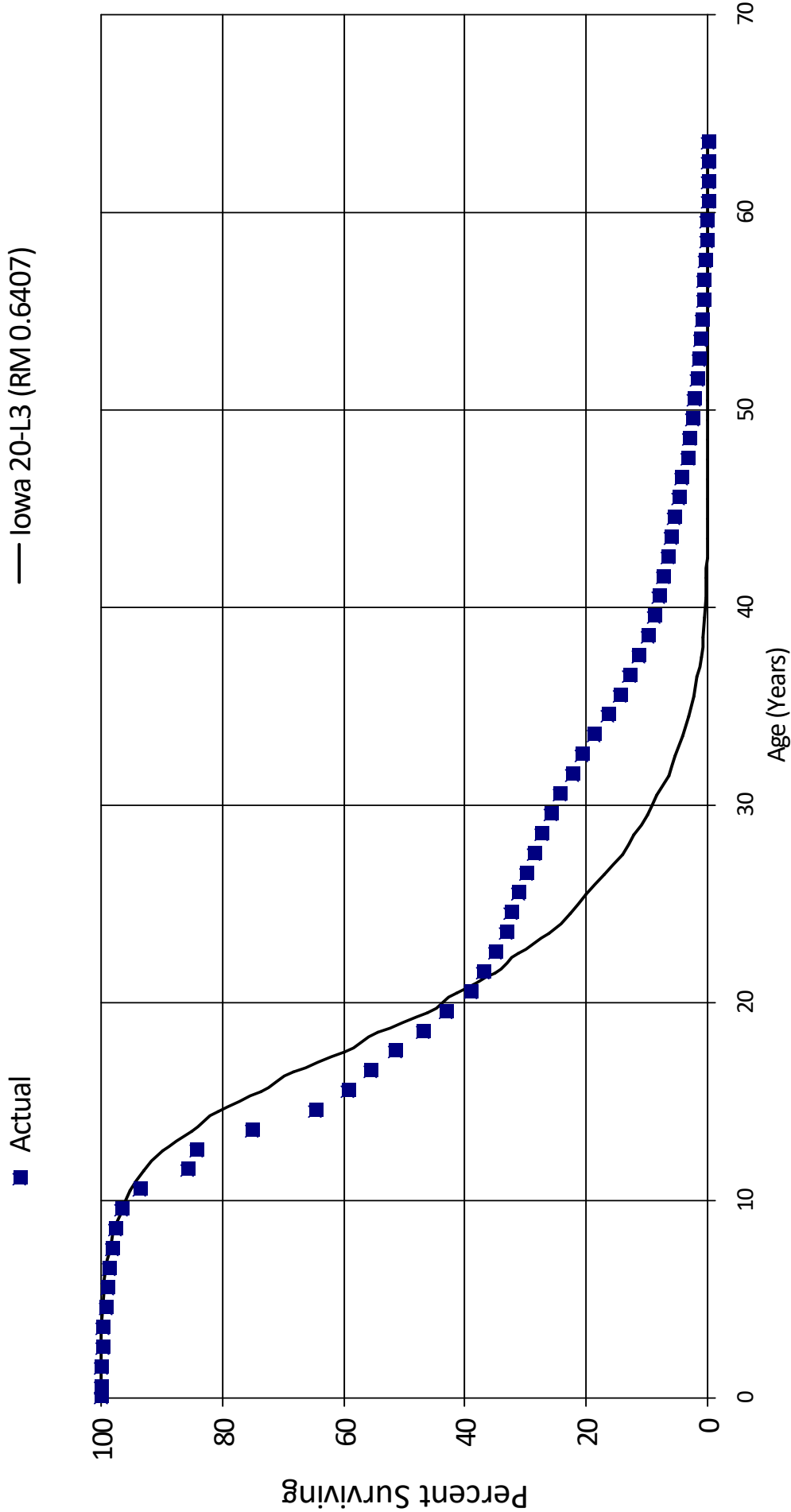
58.5	21,671	7,358	0.33953	0.66047	0.30
59.5	14,313	11,472	0.80153	0.19847	0.20
60.5	2,841	1,856	0.65340	0.34660	0.04
61.5	984	562	0.57098	0.42902	0.01
62.5	422	422	1.00052	-0.00052	0.00
63.5	0	0	0.00000	0.00000	0.00
Totals:		11,062,721			

MDU Electric

Account 370.00 - Distribution Plant - Meters

Placement Band - 1939 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 371.00 - Distribution Plant - Installation on Customers Premises

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	6,919,926	4,370	0.00063	0.99937	100.00
0.5	6,149,578	183,228	0.02980	0.97020	99.94
1.5	4,489,846	157,969	0.03518	0.96482	96.96
2.5	4,218,216	161,820	0.03836	0.96164	93.55
3.5	4,006,424	147,970	0.03693	0.96307	89.96
4.5	3,817,596	140,937	0.03692	0.96308	86.64
5.5	3,634,888	162,972	0.04484	0.95516	83.44
6.5	3,422,520	160,719	0.04696	0.95304	79.70
7.5	3,128,603	150,066	0.04797	0.95203	75.96
8.5	2,934,542	139,439	0.04752	0.95248	72.32
9.5	2,728,976	110,401	0.04046	0.95954	68.88
10.5	2,583,751	125,155	0.04844	0.95156	66.09
11.5	2,403,870	102,546	0.04266	0.95734	62.89
12.5	2,230,502	106,315	0.04766	0.95234	60.21
13.5	2,080,935	100,413	0.04825	0.95175	57.34
14.5	1,929,917	101,877	0.05279	0.94721	54.57
15.5	1,788,723	80,022	0.04474	0.95526	51.69
16.5	1,667,741	106,285	0.06373	0.93627	49.38
17.5	1,521,297	94,109	0.06186	0.93814	46.23
18.5	1,400,283	58,040	0.04145	0.95855	43.37
19.5	1,303,603	74,678	0.05729	0.94271	41.57
20.5	1,212,271	61,543	0.05077	0.94923	39.19
21.5	1,113,110	67,105	0.06029	0.93971	37.20
22.5	1,012,597	57,088	0.05638	0.94362	34.96
23.5	920,142	39,326	0.04274	0.95726	32.99
24.5	806,600	40,437	0.05013	0.94987	31.58
25.5	761,050	40,602	0.05335	0.94665	30.00
26.5	685,521	31,772	0.04635	0.95365	28.40

MDU Electric

Account 371.00 - Distribution Plant - Installation on Customers Premises

Placement Band - 1947 - 2020					Experience Band - 1995 - 2020				
27.5	631,345	39,100	0.06193	0.93807	27.08				
28.5	563,684	33,401	0.05925	0.94075	25.40				
29.5	494,240	32,461	0.06568	0.93432	23.90				
30.5	459,196	35,371	0.07703	0.92297	22.33				
31.5	421,343	32,619	0.07742	0.92258	20.61				
32.5	379,233	33,096	0.08727	0.91273	19.01				
33.5	342,536	28,676	0.08372	0.91628	17.35				
34.5	311,698	44,060	0.14135	0.85865	15.90				
35.5	267,421	24,547	0.09179	0.90821	13.65				
36.5	242,533	25,829	0.10650	0.89350	12.40				
37.5	215,035	25,546	0.11880	0.88120	11.08				
38.5	189,488	22,182	0.11706	0.88294	9.76				
39.5	167,306	23,348	0.13955	0.86045	8.62				
40.5	143,959	17,898	0.12433	0.87567	7.42				
41.5	126,061	16,629	0.13191	0.86809	6.50				
42.5	109,431	15,872	0.14504	0.85496	5.64				
43.5	93,559	17,658	0.18874	0.81126	4.82				
44.5	75,900	15,667	0.20642	0.79358	3.91				
45.5	60,233	14,277	0.23703	0.76297	3.10				
46.5	45,956	5,672	0.12342	0.87658	2.37				
47.5	40,284	6,213	0.15423	0.84577	2.08				
48.5	34,072	6,664	0.19559	0.80441	1.76				
49.5	27,407	5,064	0.18477	0.81523	1.42				
50.5	22,343	4,133	0.18498	0.81502	1.16				
51.5	18,210	4,229	0.23223	0.76777	0.95				
52.5	13,981	4,602	0.32915	0.67085	0.73				
53.5	9,379	4,007	0.42724	0.57276	0.49				
54.5	5,371	2,417	0.44997	0.55003	0.28				
55.5	2,954	723	0.24474	0.75526	0.15				
56.5	2,232	494	0.22136	0.77864	0.11				
57.5	1,738	477	0.27453	0.72547	0.09				

MDU Electric

Account 371.00 - Distribution Plant - Installation on Customers Premises

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

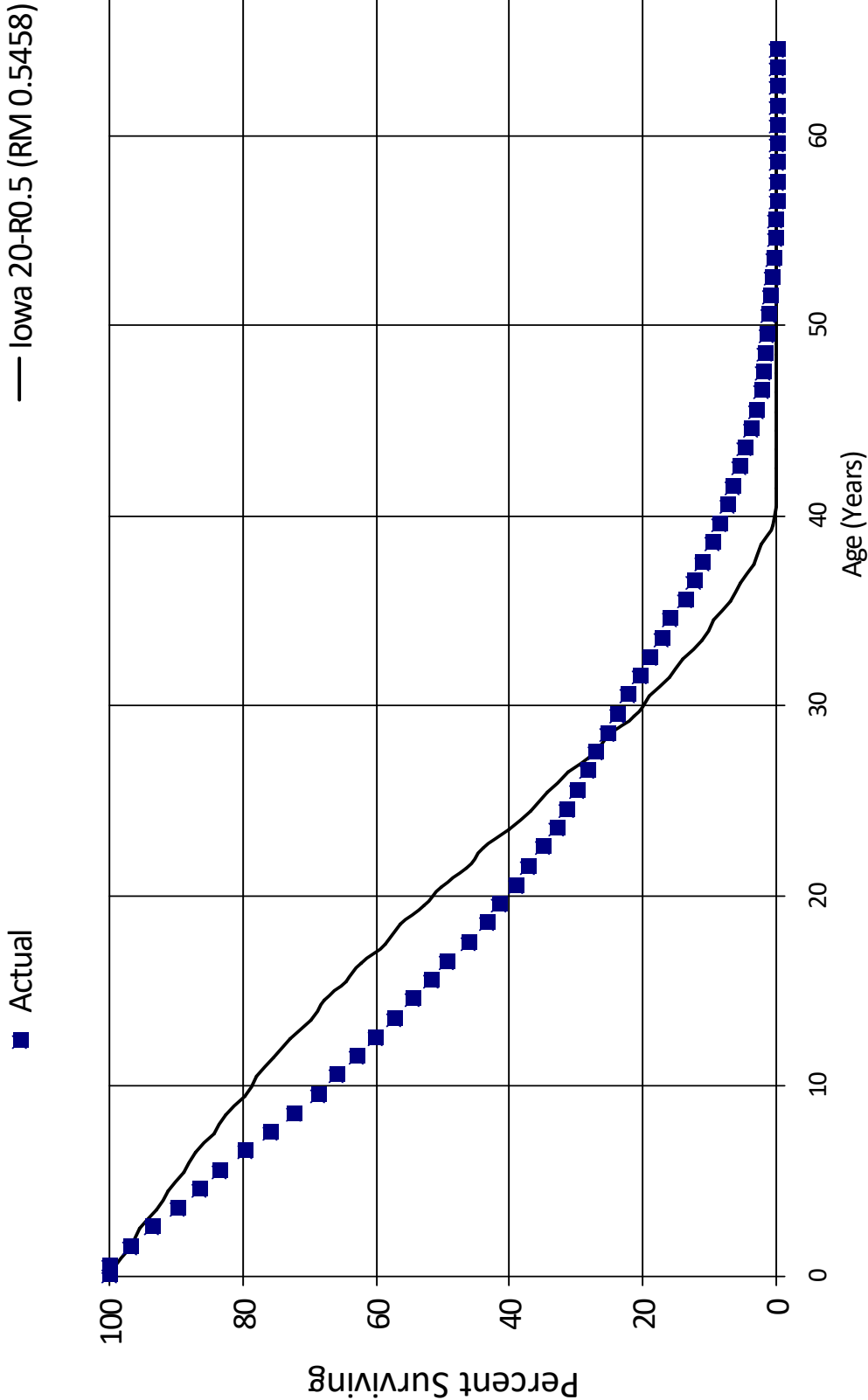
58.5	1,260	482	0.38250	0.61750	0.07
59.5	778	0	0.00000	1.00000	0.04
60.5	778	58	0.07451	0.92549	0.04
61.5	720	0	0.00000	1.00000	0.04
62.5	720	58	0.08051	0.91949	0.04
63.5	662	58	0.08756	0.91244	0.04
64.5	604	0	0.00000	1.00000	0.04
Totals:		3,350,792			

MDU Electric

Account 371.00 - Distribution Plant - Installation on Customers Premises

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 373.00 - Distribution Plant - Street Lighting System

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	14,704,488	3,218	0.0022	0.99978	100.00
0.5	14,004,771	63,052	0.00450	0.99550	99.98
1.5	11,448,736	94,584	0.00826	0.99174	99.53
2.5	9,508,520	161,889	0.01703	0.98297	98.71
3.5	9,040,514	256,056	0.02832	0.97168	97.03
4.5	8,628,328	177,830	0.02061	0.97939	94.28
5.5	8,222,828	187,023	0.02274	0.97726	92.34
6.5	7,742,863	134,816	0.01741	0.98259	90.24
7.5	7,411,003	153,224	0.02068	0.97932	88.67
8.5	7,212,604	133,240	0.01847	0.98153	86.84
9.5	7,019,498	174,289	0.02483	0.97517	85.24
10.5	6,779,549	130,804	0.01929	0.98071	83.12
11.5	6,585,859	87,171	0.01324	0.98676	81.52
12.5	6,373,996	85,931	0.01348	0.98652	80.44
13.5	6,225,001	161,656	0.02597	0.97403	79.36
14.5	6,013,017	95,594	0.01590	0.98410	77.30
15.5	5,868,322	89,944	0.01533	0.98467	76.07
16.5	5,735,432	120,195	0.02096	0.97904	74.90
17.5	5,569,483	109,904	0.01973	0.98027	73.33
18.5	5,416,818	117,907	0.02177	0.97823	71.88
19.5	5,259,703	87,441	0.01662	0.98338	70.32
20.5	5,120,621	116,923	0.02283	0.97717	69.15
21.5	4,953,940	71,647	0.01446	0.98554	67.57
22.5	4,827,802	76,979	0.01594	0.98406	66.59
23.5	4,717,941	70,168	0.01487	0.98513	65.53
24.5	4,586,377	57,626	0.01256	0.98744	64.56
25.5	4,528,751	51,269	0.01132	0.98868	63.75
26.5	4,477,482	52,598	0.01175	0.98825	63.03

MDU Electric

Account 373.00 - Distribution Plant - Street Lighting System

Placement Band - 1920 - 2020			Experience Band - 1995 - 2020		
27.5	4,395,368	76,696	0.01745	0.98255	62.29
28.5	4,267,984	59,200	0.01387	0.98613	61.20
29.5	4,170,873	54,736	0.01312	0.98688	60.35
30.5	4,062,421	76,624	0.01886	0.98114	59.56
31.5	3,930,936	82,678	0.02103	0.97897	58.44
32.5	3,800,073	85,140	0.02240	0.97760	57.21
33.5	3,661,210	75,409	0.02060	0.97940	55.93
34.5	3,516,157	81,983	0.02332	0.97668	54.78
35.5	3,291,546	96,739	0.02939	0.97061	53.50
36.5	3,170,038	80,126	0.02528	0.97472	51.93
37.5	2,929,183	92,166	0.03146	0.96854	50.62
38.5	2,688,364	97,273	0.03618	0.96382	49.03
39.5	2,469,646	73,546	0.02978	0.97022	47.26
40.5	2,196,844	62,915	0.02864	0.97136	45.85
41.5	1,843,071	68,165	0.03698	0.96302	44.54
42.5	1,683,863	65,361	0.03882	0.96118	42.89
43.5	1,537,210	76,225	0.04959	0.95041	41.23
44.5	1,358,945	57,007	0.04195	0.95805	39.19
45.5	1,238,896	45,597	0.03680	0.96320	37.55
46.5	1,122,576	69,445	0.06186	0.93814	36.17
47.5	989,720	54,796	0.05537	0.94463	33.93
48.5	874,328	145,499	0.16641	0.83359	32.05
49.5	703,929	59,629	0.08471	0.91529	26.72
50.5	611,779	37,570	0.06141	0.93859	24.46
51.5	523,658	68,262	0.13036	0.86964	22.96
52.5	409,730	96,781	0.23621	0.76379	19.97
53.5	283,776	92,167	0.32479	0.67521	15.25
54.5	191,608	60,441	0.31544	0.68456	10.30
55.5	131,167	34,304	0.26153	0.73847	7.05
56.5	96,839	32,491	0.33552	0.66448	5.21
57.5	64,348	23,078	0.35864	0.64136	3.46

MDU Electric

Account 373.00 - Distribution Plant - Street Lighting System

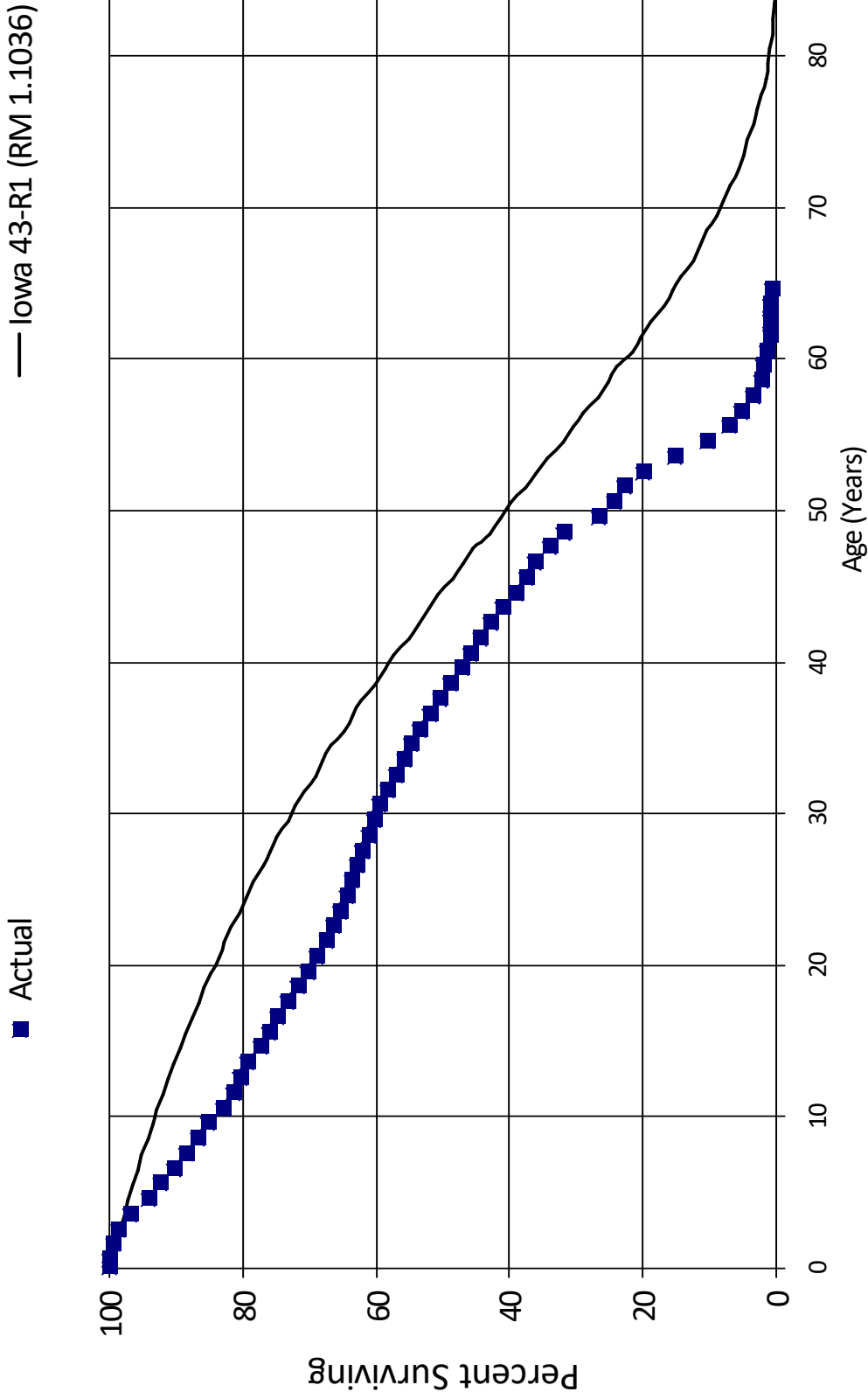
Placement Band - 1920 - 2020							Experience Band - 1995 - 2020						
58.5	39,612	5,539	0.13983	0.86017	2.22								
59.5	34,072	6,849	0.20101	0.79899	1.91								
60.5	27,224	9,340	0.34309	0.65691	1.53								
61.5	12,469	338	0.02711	0.97289	1.01								
62.5	9,862	616	0.06246	0.93754	0.98								
63.5	9,246	1,393	0.15066	0.84934	0.92								
64.5	5,885	169	0.02872	0.97128	0.78								
Totals:		5,329,271											

MDU Electric

Account 373.00 - Distribution Plant - Street Lighting System

Placement Band - 1920 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 390.00 - General Plant - Structures and Improvements

Placement Band - 1933 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	2,200,710	0	0.00000	1.00000	100.00
0.5	2,179,227	0	0.00000	1.00000	100.00
1.5	1,991,796	0	0.00000	1.00000	100.00
2.5	1,976,850	0	0.00000	1.00000	100.00
3.5	1,962,252	164,476	0.08382	0.91618	100.00
4.5	1,773,515	4,510	0.00254	0.99746	91.62
5.5	1,646,843	0	0.00000	1.00000	91.39
6.5	1,428,162	0	0.00000	1.00000	91.39
7.5	1,377,011	0	0.00000	1.00000	91.39
8.5	1,369,809	0	0.00000	1.00000	91.39
9.5	1,369,809	1,439	0.00105	0.99895	91.39
10.5	1,368,370	604	0.00044	0.99956	91.29
11.5	1,363,507	0	0.00000	1.00000	91.25
12.5	1,363,507	0	0.00000	1.00000	91.25
13.5	1,359,651	0	0.00000	1.00000	91.25
14.5	1,229,563	0	0.00000	1.00000	91.25
15.5	1,052,583	0	0.00000	1.00000	91.25
16.5	1,032,007	177,633	0.17212	0.82788	91.25
17.5	796,173	0	0.00000	1.00000	75.54
18.5	796,173	0	0.00000	1.00000	75.54
19.5	758,119	0	0.00000	1.00000	75.54
20.5	740,229	0	0.00000	1.00000	75.54
21.5	740,229	28,281	0.03821	0.96179	75.54
22.5	711,948	446	0.00063	0.99937	72.65
23.5	708,183	0	0.00000	1.00000	72.60
24.5	708,183	0	0.00000	1.00000	72.60
25.5	397,319	0	0.00000	1.00000	72.60
26.5	396,370	0	0.00000	1.00000	72.60

MDU Electric

Account 390.00 - General Plant - Structures and Improvements

Placement Band - 1933 - 2020 Experience Band - 1995 - 2020

27.5	388,955	0	0.00000	1.00000	72.60
28.5	384,546	908	0.00236	0.99764	72.60
29.5	377,320	0	0.00000	1.00000	72.43
30.5	328,515	1,193	0.00363	0.99637	72.43
31.5	280,985	0	0.00000	1.00000	72.17
32.5	277,331	0	0.00000	1.00000	72.17
33.5	275,733	4,054	0.01470	0.98530	72.17
34.5	271,679	0	0.00000	1.00000	71.11
35.5	270,720	8,487	0.03135	0.96865	71.11
36.5	262,233	11,164	0.04257	0.95743	68.88
37.5	247,596	21,447	0.08662	0.91338	65.95
38.5	222,074	5,255	0.02366	0.97634	60.24
39.5	192,227	1,800	0.00936	0.99064	58.81
40.5	182,874	0	0.00000	1.00000	58.26
41.5	172,006	0	0.00000	1.00000	58.26
42.5	171,935	0	0.00000	1.00000	58.26
43.5	171,935	2,300	0.01338	0.98662	58.26
44.5	167,360	0	0.00000	1.00000	57.48
45.5	166,447	0	0.00000	1.00000	57.48
46.5	149,590	0	0.00000	1.00000	57.48
47.5	145,171	0	0.00000	1.00000	57.48
48.5	138,082	0	0.00000	1.00000	57.48
49.5	136,388	34,768	0.25492	0.74508	57.48
50.5	101,577	0	0.00000	1.00000	42.83
51.5	101,075	0	0.00000	1.00000	42.83
52.5	100,457	0	0.00000	1.00000	42.83
53.5	99,602	0	0.00000	1.00000	42.83
54.5	99,140	0	0.00000	1.00000	42.83
55.5	97,869	0	0.00000	1.00000	42.83
56.5	96,193	0	0.00000	1.00000	42.83
57.5	95,789	0	0.00000	1.00000	42.83

MDU Electric

Account 390.00 - General Plant - Structures and Improvements

Placement Band - 1933 - 2020 Experience Band - 1995 - 2020

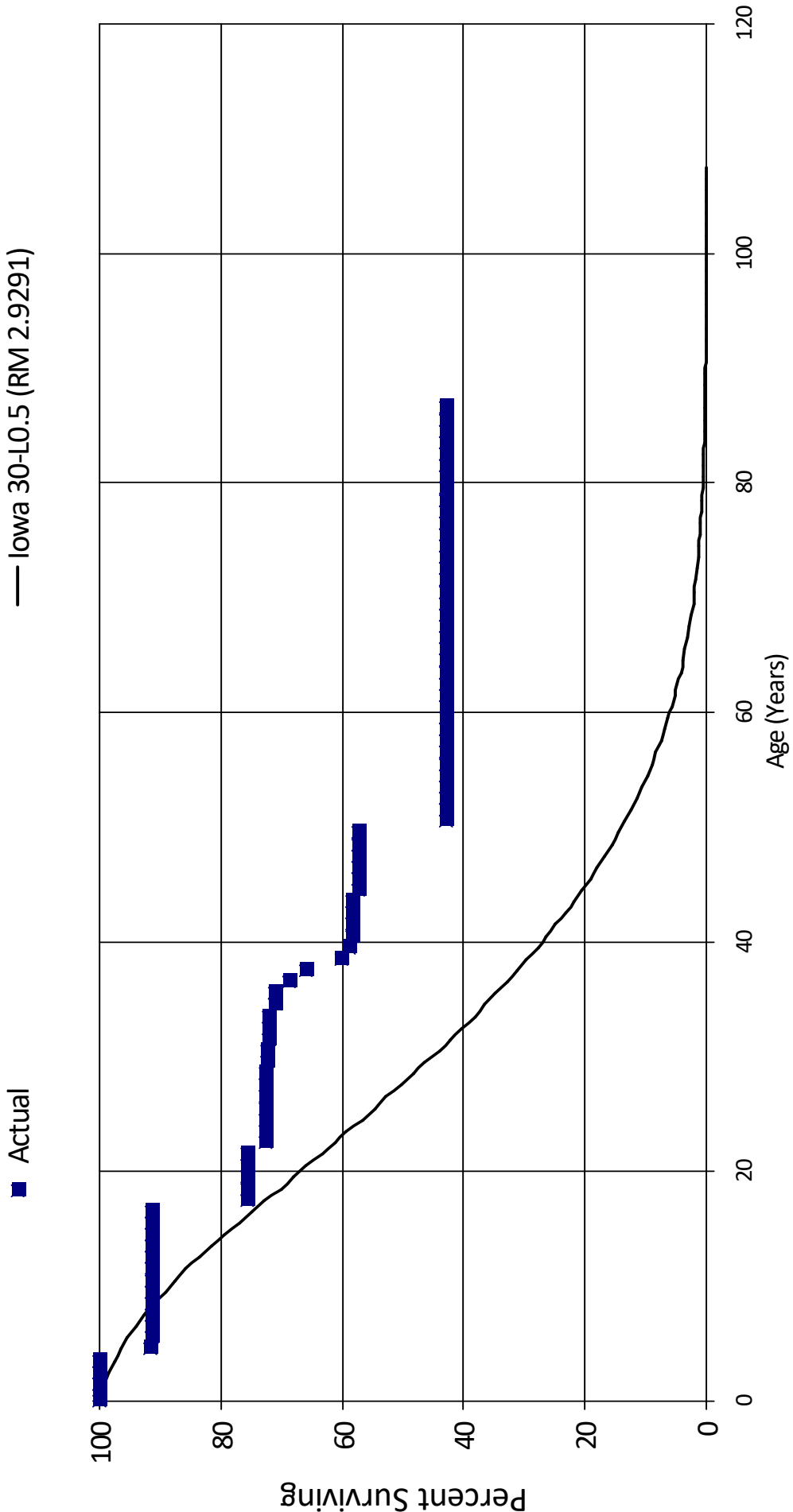
58.5	95,355	0	0.00000	1.00000	42.83
59.5	94,724	0	0.00000	1.00000	42.83
60.5	94,098	0	0.00000	1.00000	42.83
61.5	93,370	0	0.00000	1.00000	42.83
62.5	92,424	0	0.00000	1.00000	42.83
63.5	91,963	0	0.00000	1.00000	42.83
64.5	90,513	0	0.00000	1.00000	42.83
65.5	87,706	0	0.00000	1.00000	42.83
66.5	80,430	0	0.00000	1.00000	42.83
67.5	79,287	0	0.00000	1.00000	42.83
68.5	77,418	0	0.00000	1.00000	42.83
69.5	64,790	0	0.00000	1.00000	42.83
70.5	61,212	0	0.00000	1.00000	42.83
71.5	60,715	0	0.00000	1.00000	42.83
72.5	55,147	0	0.00000	1.00000	42.83
73.5	49,579	0	0.00000	1.00000	42.83
74.5	44,012	0	0.00000	1.00000	42.83
75.5	44,012	0	0.00000	1.00000	42.83
76.5	44,012	0	0.00000	1.00000	42.83
77.5	44,012	0	0.00000	1.00000	42.83
78.5	44,012	0	0.00000	1.00000	42.83
79.5	38,444	0	0.00000	1.00000	42.83
80.5	33,012	0	0.00000	1.00000	42.83
81.5	27,713	0	0.00000	1.00000	42.83
82.5	22,543	0	0.00000	1.00000	42.83
83.5	17,499	0	0.00000	1.00000	42.83
84.5	12,455	0	0.00000	1.00000	42.83
85.5	7,654	0	0.00000	1.00000	42.83
86.5	2,970	0	0.00000	1.00000	42.83
Totals:		468,765			

MDU Electric

Account 390.00 - General Plant - Structures and Improvements

Placement Band - 1933 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 392.10 - General Plant - Transportation Equipment - Trailers

Placement Band - 1949 - 2019 Experience Band - 2004 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,072,987	0	0.00000	1.00000	100.00
0.5	1,072,987	0	0.00000	1.00000	100.00
1.5	1,072,987	0	0.00000	1.00000	100.00
2.5	1,007,984	0	0.00000	1.00000	100.00
3.5	1,007,984	0	0.00000	1.00000	100.00
4.5	1,007,984	0	0.00000	1.00000	100.00
5.5	1,007,984	0	0.00000	1.00000	100.00
6.5	1,007,984	0	0.00000	1.00000	100.00
7.5	1,007,984	0	0.00000	1.00000	100.00
8.5	951,860	4,577	0.00481	0.99519	100.00
9.5	738,079	3,926	0.00532	0.99468	99.52
10.5	532,729	0	0.00000	1.00000	98.99
11.5	507,580	5,823	0.01147	0.98853	98.99
12.5	428,664	1,522	0.00355	0.99645	97.85
13.5	331,728	7,485	0.02256	0.97744	97.50
14.5	303,183	611	0.00202	0.99798	95.30
15.5	296,038	9,513	0.03213	0.96787	95.11
16.5	266,131	0	0.00000	1.00000	92.05
17.5	239,938	7,196	0.02999	0.97001	92.05
18.5	211,422	0	0.00000	1.00000	89.29
19.5	197,233	0	0.00000	1.00000	89.29
20.5	185,332	3,411	0.01840	0.98160	89.29
21.5	149,252	1,765	0.01183	0.98817	87.65
22.5	127,853	1,552	0.01214	0.98786	86.61
23.5	126,302	1,765	0.01397	0.98603	85.56
24.5	124,536	9,645	0.07745	0.92255	84.36
25.5	109,060	12,439	0.11406	0.88594	77.83
26.5	96,621	1,112	0.01151	0.98849	68.95

MDU Electric

Account 392.10 - General Plant - Transportation Equipment - Trailers

Placement Band - 1949 - 2019 Experience Band - 2004 - 2020

27.5	66,577	354	0.00532	0.99468	68.16
28.5	66,224	1,260	0.01903	0.98097	67.80
29.5	64,964	239	0.00368	0.99632	66.51
30.5	64,725	611	0.00944	0.99056	66.27
31.5	64,114	239	0.00373	0.99627	65.64
32.5	63,875	0	0.00000	1.00000	65.40
33.5	63,875	611	0.00957	0.99043	65.40
34.5	63,264	6,850	0.10828	0.89172	64.77
35.5	56,414	0	0.00000	1.00000	57.76
36.5	56,414	9,410	0.16680	0.83320	57.76
37.5	45,584	0	0.00000	1.00000	48.13
38.5	45,584	14,635	0.32106	0.67894	48.13
39.5	30,949	6,130	0.19807	0.80193	32.68
40.5	24,819	0	0.00000	1.00000	26.21
41.5	24,819	0	0.00000	1.00000	26.21
42.5	24,819	1,825	0.07353	0.92647	26.21
43.5	22,994	0	0.00000	1.00000	24.28
44.5	22,994	2,494	0.10846	0.89154	24.28
45.5	20,500	0	0.00000	1.00000	21.65
46.5	20,500	4,387	0.21400	0.78600	21.65
47.5	16,114	2,177	0.13510	0.86490	17.02
48.5	13,937	721	0.05173	0.94827	14.72
49.5	13,216	5,720	0.43280	0.56720	13.96
50.5	7,496	4,445	0.59296	0.40704	7.92
51.5	3,051	0	0.00000	1.00000	3.22
52.5	3,051	0	0.00000	1.00000	3.22
53.5	3,051	0	0.00000	1.00000	3.22
54.5	3,051	2,090	0.68498	0.31502	3.22
55.5	961	0	0.00000	1.00000	1.01
56.5	961	0	0.00000	1.00000	1.01
57.5	961	0	0.00000	1.00000	1.01

MDU Electric

Account 392.10 - General Plant - Transportation Equipment - Trailers

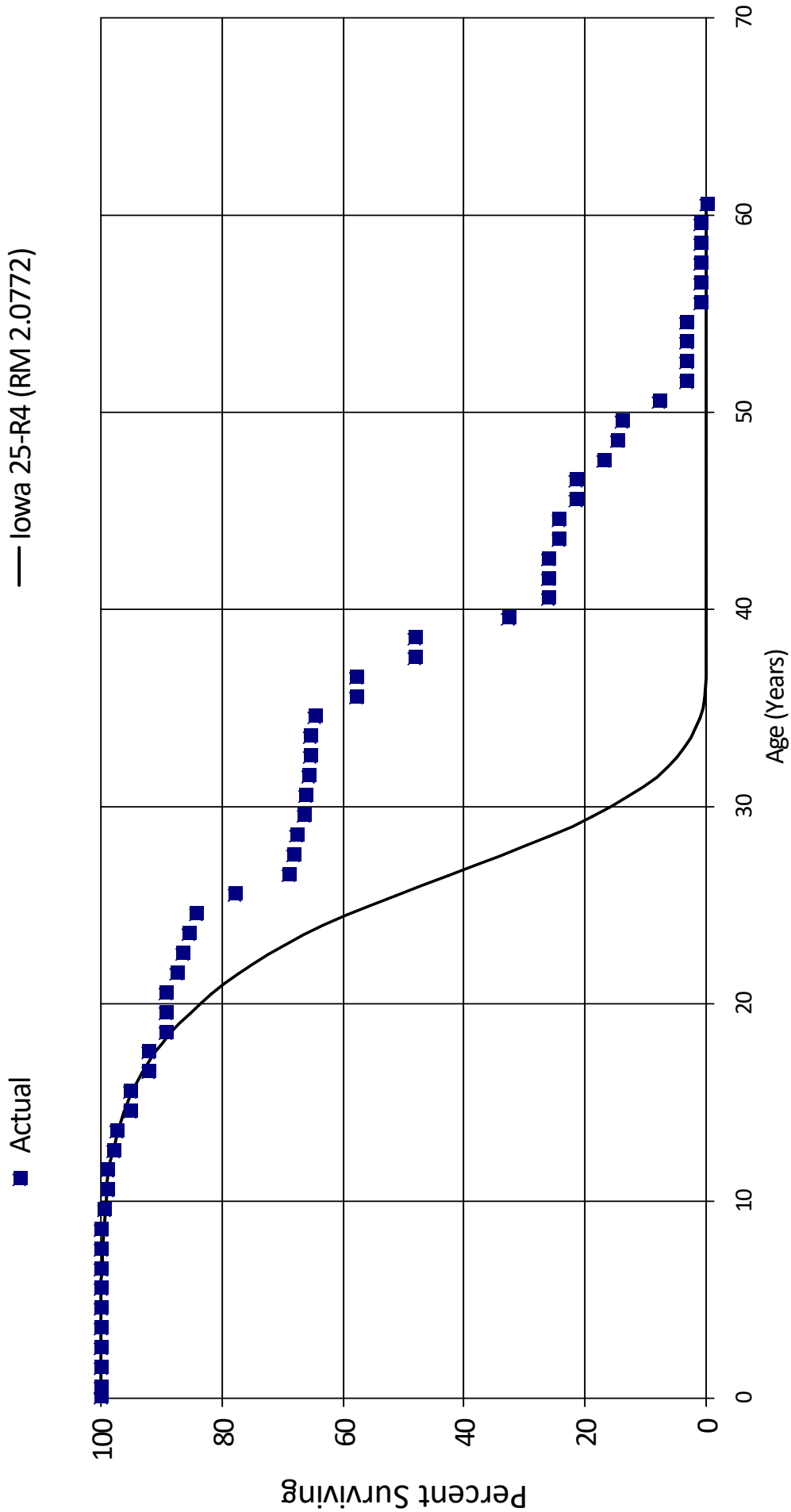
Placement Band - 1949 - 2019 Experience Band - 2004 - 2020						
58.5	961	0	0.00000	1.00000	1.01	
59.5	961	961	0.99957	0.00043	1.01	
60.5	0	0	0.00000	0.00000	0.00	
Totals:		137,501				

MDU Electric

Account 392.10 - General Plant - Transportation Equipment - Trailers

Placement Band - 1949 - 2019 Experience Band - 2004 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 392.20 - General Plant - Transportation Equipment

Placement Band - 1965 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	17,376,812	3,705	0.00021	0.99979	100.00
0.5	16,673,264	0	0.00000	1.00000	99.98
1.5	15,964,666	10,143	0.00064	0.99936	99.98
2.5	15,093,162	44,183	0.00293	0.99707	99.92
3.5	14,360,498	123,808	0.00862	0.99138	99.63
4.5	13,403,954	524,245	0.03911	0.96089	98.77
5.5	11,788,321	581,112	0.04930	0.95070	94.91
6.5	10,411,892	1,066,114	0.10239	0.89761	90.23
7.5	8,949,392	1,356,677	0.15159	0.84841	80.99
8.5	7,467,047	1,790,921	0.23984	0.76016	68.71
9.5	5,362,838	1,288,593	0.24028	0.75972	52.23
10.5	4,041,457	953,399	0.23590	0.76410	39.68
11.5	2,948,172	518,826	0.17598	0.82402	30.32
12.5	2,411,033	566,586	0.23500	0.76500	24.98
13.5	1,772,425	287,991	0.16248	0.83752	19.11
14.5	1,407,774	195,594	0.13894	0.86106	16.01
15.5	1,112,784	60,806	0.05464	0.94536	13.79
16.5	945,269	202,277	0.21399	0.78601	13.04
17.5	656,509	109,985	0.16753	0.83247	10.25
18.5	526,186	118,392	0.22500	0.77500	8.53
19.5	367,679	41,485	0.11283	0.88717	6.61
20.5	267,345	108,721	0.40667	0.59333	5.86
21.5	135,801	8,197	0.06036	0.93964	3.48
22.5	109,728	20,018	0.18243	0.81757	3.27
23.5	89,710	63,943	0.71277	0.28723	2.67
24.5	25,767	5,006	0.19428	0.80572	0.77
25.5	20,762	929	0.04475	0.95525	0.62
26.5	19,833	0	0.00000	1.00000	0.59

MDU Electric

Account 392.20 - General Plant - Transportation Equipment

Placement Band - 1965 - 2020 Experience Band - 1995 - 2020

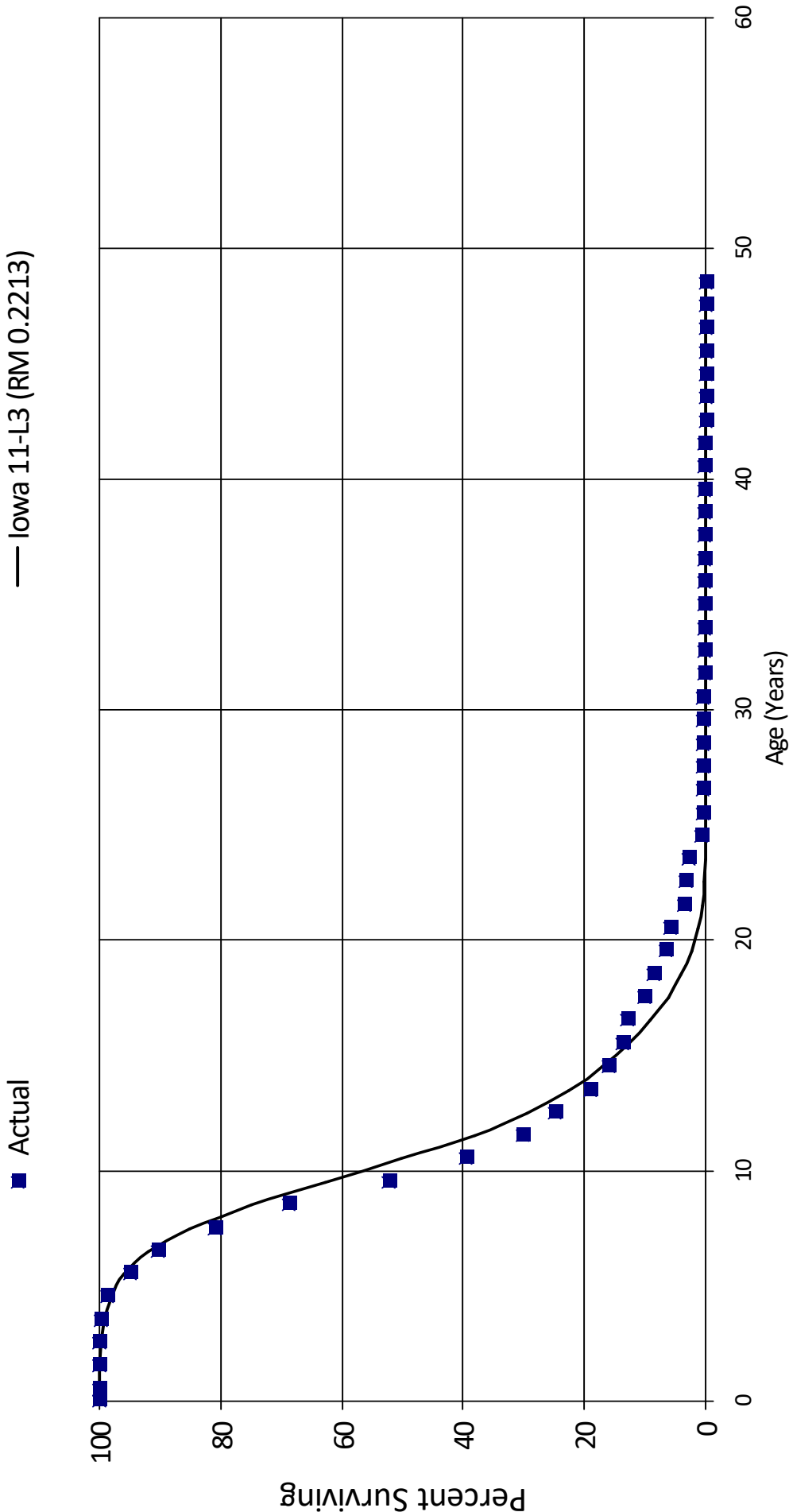
27.5	19,833	0	0.00000	1.00000	0.59
28.5	19,833	6,591	0.33233	0.66767	0.59
29.5	13,242	0	0.00000	1.00000	0.39
30.5	13,242	1,112	0.08398	0.91602	0.39
31.5	12,129	0	0.00000	1.00000	0.36
32.5	12,129	806	0.06645	0.93355	0.36
33.5	11,323	0	0.00000	1.00000	0.34
34.5	11,323	0	0.00000	1.00000	0.34
35.5	11,323	0	0.00000	1.00000	0.34
36.5	11,323	0	0.00000	1.00000	0.34
37.5	11,323	0	0.00000	1.00000	0.34
38.5	11,323	0	0.00000	1.00000	0.34
39.5	11,323	0	0.00000	1.00000	0.34
40.5	11,323	6,381	0.56352	0.43648	0.34
41.5	4,943	2,498	0.50541	0.49459	0.15
42.5	2,445	0	0.00000	1.00000	0.07
43.5	2,445	0	0.00000	1.00000	0.07
44.5	2,445	0	0.00000	1.00000	0.07
45.5	2,445	0	0.00000	1.00000	0.07
46.5	2,445	0	0.00000	1.00000	0.07
47.5	2,445	2,445	0.99998	0.00002	0.07
48.5	0	0	0.00000	0.00000	0.00
Totals:		10,071,489			

MDU Electric

Account 392.20 - General Plant - Transportation Equipment

Placement Band - 1965 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 396.10 - General Plant - Work Equipment - Trailers

Placement Band - 1971 - 2020 Experience Band - 2006 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	971,530	0	0.00000	1.00000	100.00
0.5	885,529	0	0.00000	1.00000	100.00
1.5	878,872	0	0.00000	1.00000	100.00
2.5	812,911	2,475	0.00304	0.99696	100.00
3.5	718,007	0	0.00000	1.00000	99.70
4.5	671,285	0	0.00000	1.00000	99.70
5.5	554,953	0	0.00000	1.00000	99.70
6.5	449,126	2,053	0.00457	0.99543	99.70
7.5	350,567	1,709	0.00487	0.99513	99.24
8.5	287,589	0	0.00000	1.00000	98.76
9.5	271,128	4,439	0.01637	0.98363	98.76
10.5	266,689	2,467	0.00925	0.99075	97.14
11.5	264,222	1,874	0.00709	0.99291	96.24
12.5	222,856	8,700	0.03904	0.96096	95.56
13.5	180,032	0	0.00000	1.00000	91.83
14.5	159,980	0	0.00000	1.00000	91.83
15.5	159,980	12,940	0.08089	0.91911	91.83
16.5	137,675	0	0.00000	1.00000	84.40
17.5	137,675	0	0.00000	1.00000	84.40
18.5	132,558	0	0.00000	1.00000	84.40
19.5	132,558	0	0.00000	1.00000	84.40
20.5	132,558	0	0.00000	1.00000	84.40
21.5	127,384	8,305	0.06520	0.93480	84.40
22.5	119,079	8,620	0.07239	0.92761	78.90
23.5	97,490	3,014	0.03092	0.96908	73.19
24.5	94,476	16,046	0.16984	0.83016	70.93
25.5	78,431	0	0.00000	1.00000	58.88
26.5	76,256	5,163	0.06771	0.93229	58.88

MDU Electric

Account 396.10 - General Plant - Work Equipment - Trailers

Placement Band - 1971 - 2020 Experience Band - 2006 - 2020

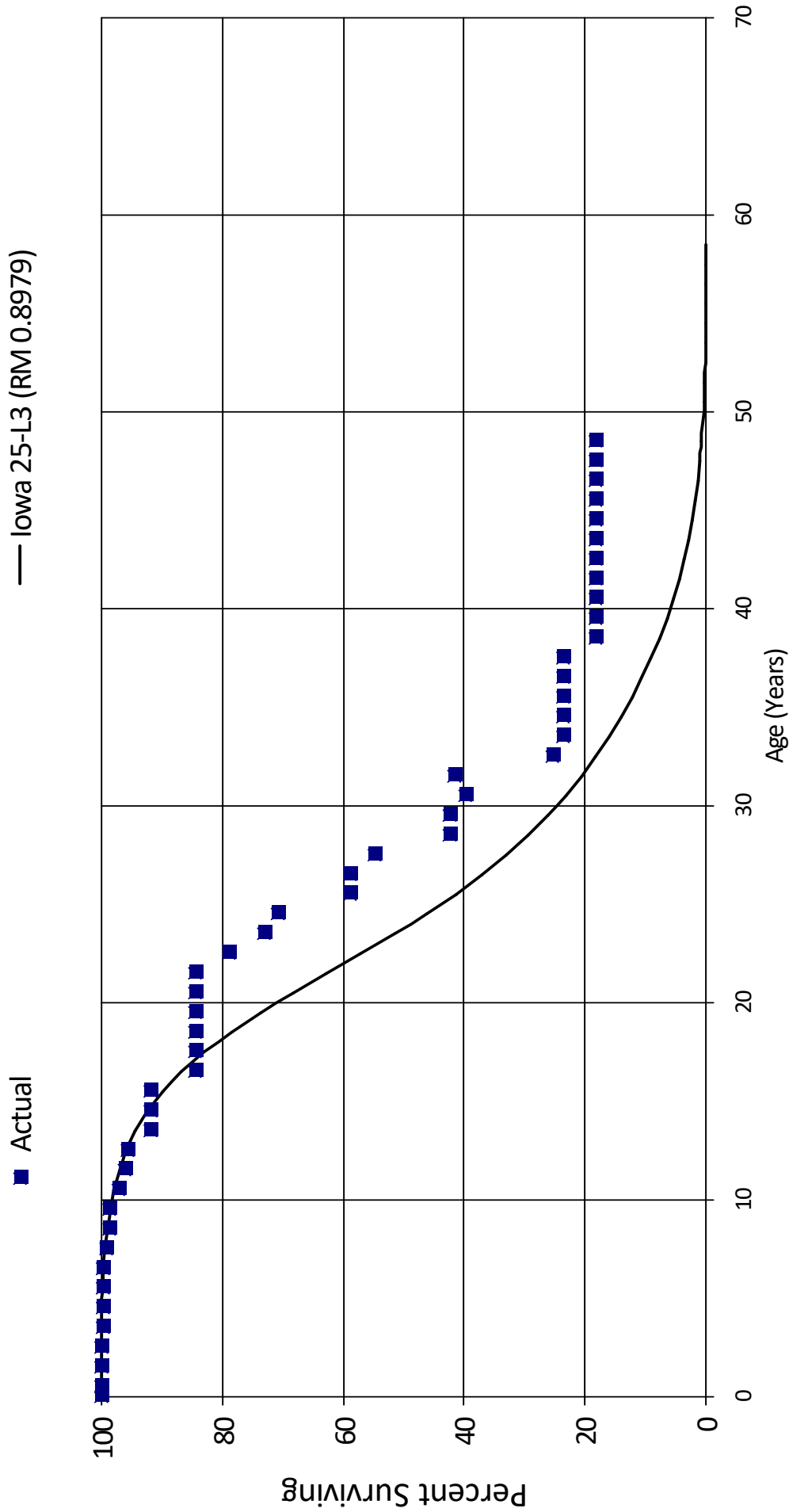
27.5	60,567	13,733	0.22674	0.77326	54.89
28.5	38,454	0	0.00000	1.00000	42.44
29.5	38,454	2,406	0.06257	0.93743	42.44
30.5	36,048	-1,559	-0.04325	1.04325	39.78
31.5	30,416	11,766	0.38683	0.61317	41.50
32.5	10,868	796	0.07324	0.92676	25.45
33.5	10,072	0	0.00000	1.00000	23.59
34.5	10,072	0	0.00000	1.00000	23.59
35.5	10,072	0	0.00000	1.00000	23.59
36.5	10,072	0	0.00000	1.00000	23.59
37.5	10,072	2,315	0.22984	0.77016	23.59
38.5	7,757	0	0.00000	1.00000	18.17
39.5	7,757	0	0.00000	1.00000	18.17
40.5	7,757	0	0.00000	1.00000	18.17
41.5	4,616	0	0.00000	1.00000	18.17
42.5	2,209	0	0.00000	1.00000	18.17
43.5	2,209	0	0.00000	1.00000	18.17
44.5	2,209	0	0.00000	1.00000	18.17
45.5	2,209	0	0.00000	1.00000	18.17
46.5	2,209	0	0.00000	1.00000	18.17
47.5	2,209	0	0.00000	1.00000	18.17
48.5	2,209	0	0.00000	1.00000	18.17
Totals:		107,262			

MDU Electric

Account 396.10 - General Plant - Work Equipment - Trailers

Placement Band - 1971 - 2020 Experience Band - 2006 - 2020

Actual and Smooth Survivor Curves



MDU Electric

Account 396.20 - General Plant - Power Operated Equipment

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	28,024,219	85,920	0.00307	0.99693	100.00
0.5	27,371,483	4,053,936	0.14811	0.85189	99.69
1.5	22,134,027	651,081	0.02942	0.97058	84.92
2.5	20,954,633	43,199	0.00206	0.99794	82.42
3.5	20,086,607	0	0.00000	1.00000	82.25
4.5	18,713,936	127,292	0.00680	0.99320	82.25
5.5	17,470,361	376,343	0.02154	0.97846	81.69
6.5	14,783,690	-232,103	-0.01570	1.01570	79.93
7.5	14,372,885	66,266	0.00461	0.99539	81.18
8.5	13,673,311	212,265	0.01552	0.98448	80.81
9.5	12,628,106	535,476	0.04240	0.95760	79.56
10.5	11,873,263	1,414,021	0.11909	0.88091	76.19
11.5	10,459,242	1,307,206	0.12498	0.87502	67.12
12.5	8,663,981	1,290,927	0.14900	0.85100	58.73
13.5	6,455,937	1,421,291	0.22015	0.77985	49.98
14.5	4,483,624	571,560	0.12748	0.87252	38.98
15.5	3,833,985	683,906	0.17838	0.82162	34.01
16.5	3,150,079	199,023	0.06318	0.93682	27.94
17.5	2,951,056	638,225	0.21627	0.78373	26.17
18.5	2,289,299	768,902	0.33587	0.66413	20.51
19.5	1,375,861	320,648	0.23305	0.76695	13.62
20.5	1,055,213	76,278	0.07229	0.92771	10.45
21.5	792,487	200,433	0.25292	0.74708	9.69
22.5	592,054	179,989	0.30401	0.69599	7.24
23.5	412,065	156,970	0.38094	0.61906	5.04
24.5	255,095	35,237	0.13813	0.86187	3.12
25.5	219,858	114,679	0.52161	0.47839	2.69
26.5	103,200	791	0.00766	0.99234	1.29

MDU Electric

Account 396.20 - General Plant - Power Operated Equipment

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

27.5	63,987	0	0.00000	1.00000	1.28
28.5	63,987	874	0.01366	0.98634	1.28
29.5	63,112	0	0.00000	1.00000	1.26
30.5	63,112	1,116	0.01768	0.98232	1.26
31.5	61,996	11,928	0.19240	0.80760	1.24
32.5	50,068	359	0.00717	0.99283	1.00
33.5	49,709	1,087	0.02187	0.97813	0.99
34.5	48,622	5,999	0.12338	0.87662	0.97
35.5	42,623	9,593	0.22507	0.77493	0.85
36.5	33,030	0	0.00000	1.00000	0.66
37.5	33,030	11,559	0.34995	0.65005	0.66
38.5	21,471	0	0.00000	1.00000	0.43
39.5	21,471	0	0.00000	1.00000	0.43
40.5	21,471	0	0.00000	1.00000	0.43
41.5	21,471	4,116	0.19170	0.80830	0.43
42.5	17,355	0	0.00000	1.00000	0.35
43.5	17,355	0	0.00000	1.00000	0.35
44.5	17,355	3,844	0.22149	0.77851	0.35
45.5	13,511	0	0.00000	1.00000	0.27
46.5	13,511	5,361	0.39678	0.60322	0.27
47.5	8,151	0	0.00000	1.00000	0.16
48.5	8,151	0	0.00000	1.00000	0.16
49.5	8,151	0	0.00000	1.00000	0.16
50.5	8,151	0	0.00000	1.00000	0.16
51.5	8,151	0	0.00000	1.00000	0.16
52.5	8,151	0	0.00000	1.00000	0.16
53.5	8,151	0	0.00000	1.00000	0.16
54.5	8,151	0	0.00000	1.00000	0.16
55.5	8,151	0	0.00000	1.00000	0.16
56.5	8,151	0	0.00000	1.00000	0.16
57.5	8,151	0	0.00000	1.00000	0.16

MDU Electric

Account 396.20 - General Plant - Power Operated Equipment

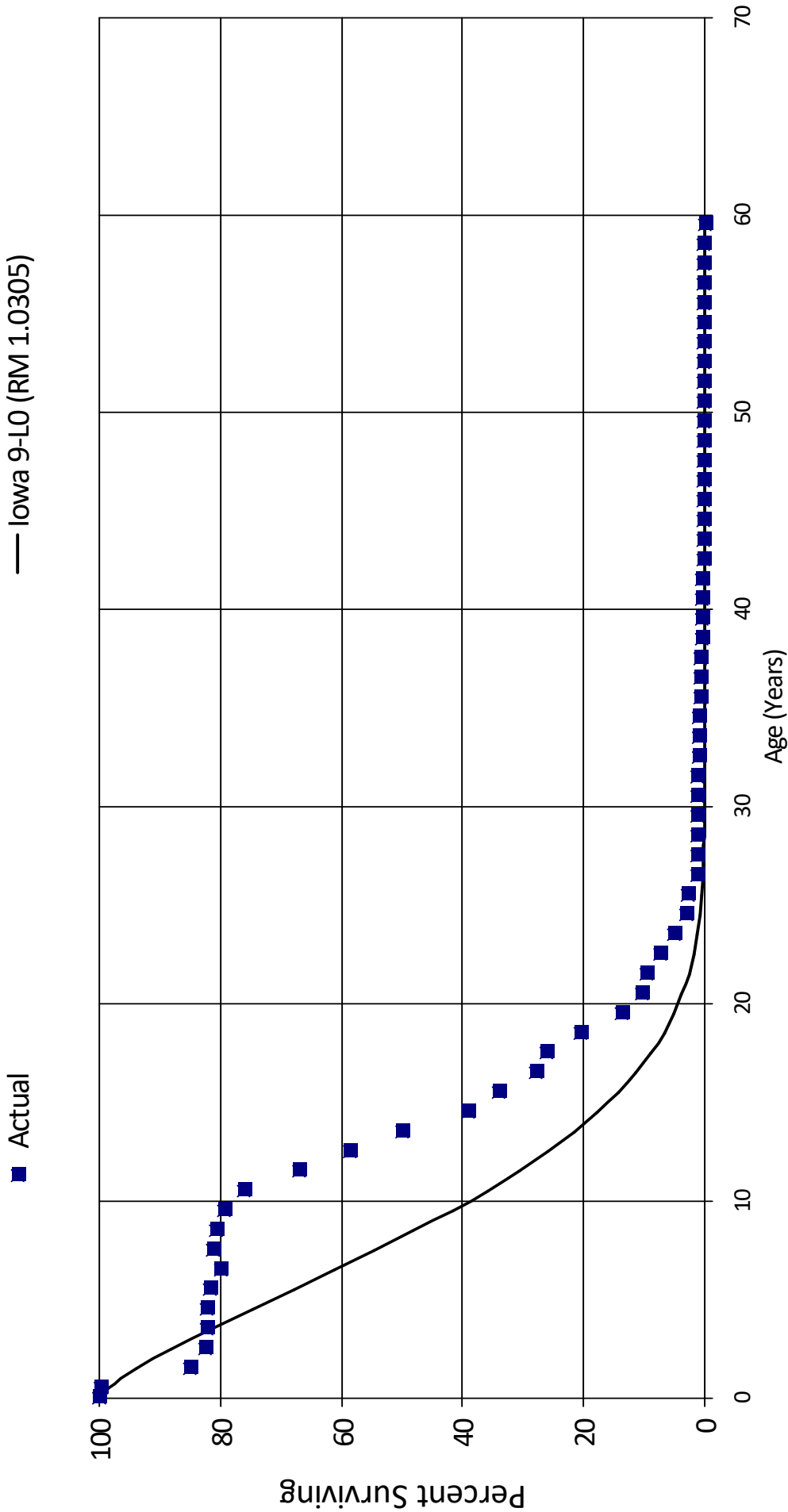
Placement Band - 1947 - 2020 Experience Band - 1995 - 2020						
58.5	8,151	8,151	1.00004	-0.00004	0.16	
59.5	0	0	0.00000	0.00000	0.00	
Totals:		15,363,748				

MDU Electric

Account 396.20 - General Plant - Power Operated Equipment

Placement Band - 1947 - 2020 Experience Band - 1995 - 2020

Actual and Smooth Survivor Curves





SECTION 7

7 NET SALVAGE CALCULATIONS

MDU Electric

ACCOUNT 350.20 - LAND RIGHTS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1986	1,119	0	0.0	1,147	102.5	1,147	102.5	382	102.5	229	102.5	1,147	102.5
1987	0	0	0.0	0	0.0	0	0.0	382	102.5	229	102.5	574	102.5
1988	0	0	0.0	0	0.0	0	0.0	382	102.5	229	102.5	382	102.5
1989	0	0	0.0	0	0.0	0	0.0	0	0.0	229	102.5	287	102.5
1990	0	0	0.0	0	0.0	0	0.0	0	0.0	229	102.5	229	102.5
1991	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	191	102.5
1992	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	164	102.5
1993	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	143	102.5
1994	781	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	127	60.4
1995	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	115	60.4
1996	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	104	60.4
1997	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	96	60.4
1998	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	88	60.4
1999	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	82	60.4
2000	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	76	60.4
2001	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	72	60.4
2002	26,869	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	67	4.0
2003	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	64	4.0
2004	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60	4.0
2005	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	57	4.0
2006	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55	4.0
2007	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52	4.0
2008	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50	4.0
2009	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	48	4.0
2010	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	46	4.0
2011	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44	4.0
2012	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42	4.0
2013	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	41	4.0
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	40	4.0
2015	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38	4.0
2016	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	37	4.0
2017	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	36	4.0
2018	9,007	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	35	3.0
2019	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	34	3.0
2020	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	33	3.0
TOTAL	37,776	0	0.0	1,147	3.0	1,147	3.0						

Currently Approved
Recommended

0
0 Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 353.00 - STATION EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	95,575	2,867	3.0	7,835	8.2	4,968	5.2					4,968	5.2
1969	5,631	1,289	22.9	4,626	82.2	3,337	59.3					4,153	8.2
1970	12,245	473	3.9	6,336	51.7	5,863	47.9	4,723	12.5			4,723	12.5
1971	47,444	3,189	6.7	14,130	29.8	10,941	23.1	6,714	30.8			6,277	15.6
1972	21,515	398	1.8	2,313	10.8	1,915	8.9	6,240	23.1	5,405	14.8	5,405	14.8
1973	69,037	2,354	3.4	2,106	3.1	(248)	(0.4)	4,202	9.1	4,362	14.0	4,463	10.6
1974	43,081	9,280	21.5	10,999	25.5	1,720	4.0	1,129	2.5	4,038	10.4	4,071	9.7
1975	80,219	3,960	4.9	6,980	8.7	3,020	3.8	1,497	2.3	3,469	6.6	3,939	8.4
1976	255,048	9,041	3.5	145,245	56.9	136,203	53.4	46,981	37.3	28,522	30.4	18,635	26.6
1977	9,314	772	8.3	2,060	22.1	1,287	13.8	46,837	40.8	28,396	31.1	16,901	26.4
1978	172,068	0	0.0	166,981	97.0	166,981	97.0	101,491	69.8	61,842	55.2	30,544	41.4
1979	44,028	7,760	17.6	16,217	36.8	8,457	19.2	58,909	78.4	63,190	56.4	28,704	40.3
1980	14,729	1,712	11.6	1,587	10.8	(125)	(0.9)	58,438	76.0	62,561	63.2	26,486	39.6
1981	537,168	2,598	0.5	539,763	100.5	537,165	100.0	181,832	91.5	142,753	91.8	62,963	62.6
1982	27,242	1,500	5.5	91	0.3	(1,410)	(5.2)	178,543	92.5	142,214	89.4	58,672	61.4
1983	99,074	9,488	9.6	7,288	7.4	(2,201)	(2.2)	177,852	80.4	108,377	75.0	54,867	57.2
1984	75,589	11,579	15.3	5,923	7.8	(5,656)	(7.5)	(3,089)	(4.6)	105,555	70.0	51,307	54.2
1985	164,185	21,770	13.3	30,238	18.4	8,468	5.2	204	0.2	107,273	59.4	48,927	49.7
1986	44,368	14,012	31.6	25,381	57.2	11,369	25.6	4,727	5.0	2,114	2.6	46,950	49.1
1987	354,706	33,977	9.6	47,018	13.3	13,041	3.7	10,960	5.8	5,004	3.4	45,255	41.7
1988	54,694	13,066	23.9	2,136	3.9	(10,931)	(20.0)	4,493	3.0	3,258	2.3	42,579	40.2
1989	297,489	12,393	4.2	104,580	35.2	92,188	31.0	31,433	13.3	22,827	12.5	44,834	39.1
1990	157,008	47,420	30.2	1,809	1.2	(45,611)	(29.0)	11,882	7.0	12,011	6.6	40,902	35.1
1991	109,767	7,808	7.1	53	0.0	(7,756)	(7.1)	12,940	6.9	8,186	4.2	38,874	33.4
1992	479,482	50,094	10.4	950	0.2	(49,145)	(10.2)	(34,170)	(13.7)	(4,251)	(1.9)	35,354	27.0
1993	77,902	3,534	4.5	24,840	31.9	21,307	27.4	(11,865)	(5.3)	2,197	1.0	34,813	27.0
1994	74,344	19,849	26.7	6,449	8.7	(13,400)	(18.0)	(13,746)	(6.5)	(18,921)	(10.5)	33,028	26.1
1995	197,782	14,193	7.2	0	0.0	(14,193)	(7.2)	(2,096)	(1.8)	(12,637)	(6.7)	31,341	24.2
1996	331,648	77,396	23.3	37,741	11.4	(39,655)	(12.0)	(22,416)	(11.1)	(19,017)	(8.2)	28,893	21.2
1997	264,013	26,775	10.1	0	0.0	(26,775)	(10.1)	(26,874)	(10.2)	(14,543)	(7.7)	27,038	19.2
1998	120,514	10,299	8.5	0	0.0	(10,299)	(8.5)	(25,576)	(10.7)	(20,864)	(10.6)	25,833	18.5
1999	21,388	5,368	25.1	0	0.0	(5,368)	(25.1)	(14,147)	(10.5)	(19,258)	(10.3)	24,858	18.3
2000	227,298	21,076	9.3	0	0.0	(21,076)	(9.3)	(12,248)	(10.0)	(20,635)	(10.7)	23,466	16.9
2001	133,697	14,969	11.2	35,041	26.2	20,073	15.0	(2,124)	(1.7)	(8,689)	(5.7)	23,366	16.8
2002	100,166	4,460	4.5	9,747	9.7	5,287	5.3	1,428	0.9	(2,277)	(1.9)	22,850	16.6
2003	221,082	8,691	3.9	24,198	10.9	15,507	7.0	13,622	9.0	2,885	2.0	22,646	16.2
2004	891,209	88,527	9.9	94,338	10.6	5,811	0.7	8,869	2.2	5,121	1.6	22,191	13.8
2005	106,746	34,835	32.6	689,215	645.7	654,380	613.0	225,233	55.4	140,212	48.3	38,827	24.4

MDU Electric

ACCOUNT 353.00 - STATION EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	583,198	99,337	17.0	37,813	6.5	(61,524)	(10.5)	199,556	37.9	123,892	32.6	36,254	21.4
2007	155,608	23,584	15.2	0	0.0	(23,584)	(15.2)	189,757	67.3	118,118	30.2	34,758	20.5
2008	409,866	29,495	7.2	5,272	1.3	(24,223)	(5.9)	(36,444)	(9.5)	110,172	25.7	33,320	19.0
2009	50,103	22,265	44.4	0	0.0	(22,265)	(44.4)	(23,357)	(11.4)	104,557	40.0	31,996	18.6
2010	130,679	17,755	13.6	0	0.0	(17,755)	(13.6)	(21,414)	(10.9)	(29,870)	(11.2)	30,839	18.0
2011	130,954	84,745	64.7	13,835	10.6	(70,910)	(54.1)	(36,977)	(35.6)	(31,747)	(18.1)	28,527	16.7
2012	147,162	(33,589)	(22.8)	1,394	0.9	34,984	23.8	(17,894)	(13.1)	(20,034)	(11.5)	28,670	16.9
2013	62,938	3,994	6.3	790	1.3	(3,204)	(5.1)	(13,044)	(11.5)	(15,830)	(15.2)	27,977	16.7
2014	224,433	29,441	13.1	0	0.0	(29,441)	(13.1)	780	0.5	(17,265)	(12.4)	26,756	15.9
2015	1,103,937	81,410	7.4	1,443,116	130.7	1,361,706	123.3	443,020	95.5	258,627	77.5	54,567	29.0
2016	230,765	70,211	30.4	3,201	1.4	(67,010)	(29.0)	421,752	81.2	259,407	73.3	52,086	27.5
2017	599,551	141,928	23.7	250	0.0	(141,678)	(23.6)	384,339	59.6	224,075	50.4	48,211	24.4
2018	3,541,333	0	0.0	1,444,504	40.8	1,444,504	40.8	411,939	28.3	513,616	45.1	75,589	28.7
2019	144,012	11,154	7.7	0	0.0	(11,154)	(7.7)	430,557	30.1	517,274	46.0	73,921	28.4
2020	136,569	0	0.0	257,093	188.3	257,093	188.3	563,481	44.2	296,351	31.9	77,377	30.0
TOTAL	13,689,603	1,180,502	8.6	5,281,483	38.6	4,100,981	30.0						

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(10) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 354.00 - TOWERS AND FIXTURES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2008	516	362	70.2	0	0.0	(362)	(70.2)	(121)	(70.2)	(72)	(70.2)	(362)	(70.2)
2009	0	0	0.0	0	0.0	0	0.0	(121)	(70.2)	(72)	(70.2)	(181)	(70.2)
2010	0	0	0.0	0	0.0	0	0.0	(121)	(70.2)	(72)	(70.2)	(121)	(70.2)
2011	0	0	0.0	0	0.0	0	0.0	0	0.0	(72)	(70.2)	(91)	(70.2)
2012	0	0	0.0	0	0.0	0	0.0	0	0.0	(72)	(70.2)	(72)	(70.2)
2013	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(60)	(70.2)
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(52)	(70.2)
2015	0	0	0.0	0	0	0	0.0	0	0.0	0	0.0	(45)	(70.2)
2016	0	0	0.0	0.00	0.0	0	0.0	0	0.0	0	0.0	(40)	(70.2)
2017	0	0	0.0	0	0	0	0.0	0	0.0	0	0.0	(36)	(70.2)
2018	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(33)	(70.2)
2019	0	0	0.0	0	0	0	0.0	0	0.0	0	0.0	(30)	(70.2)
2020	0	0	0.0	0.00	0.0	0	0.0	0	0.0	0	0.0	(28)	(70.2)
TOTAL	516	362	70.2	0	0.0	(362)	(70.2)						

Currently Approved
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(20)

(20) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 355.00 - POLES AND FIXTURES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	104,280	24,098	23.1	68,997	66.2	44,899	43.1					44,899	43.1
1969	110,534	33,505	30.3	82,691	74.8	49,186	44.5					47,042	43.8
1970	130,164	24,676	19.0	41,724	32.1	17,048	13.1	37,044	32.2			37,044	32.2
1971	69,680	16,759	24.1	20,493	29.4	3,735	5.4	23,323	22.5			28,717	27.7
1972	83,490	14,312	17.1	39,216	47.0	24,904	29.8	15,229	16.1	27,954	28.1	27,954	28.1
1973	128,680	27,760	21.6	27,268	21.2	(492)	(0.4)	9,382	10.0	18,876	18.1	23,213	22.2
1974	86,327	21,047	24.4	41,907	48.5	20,860	24.2	15,091	15.2	13,211	13.3	22,877	22.5
1975	174,394	37,750	21.6	58,463	33.5	20,713	11.9	13,694	10.5	13,944	12.8	22,607	20.4
1976	21,343	15,326	71.8	22,659	106.2	7,334	34.4	16,302	17.3	14,664	14.8	20,910	20.7
1977	51,246	15,172	29.6	25,547	49.9	10,376	20.2	12,808	15.6	11,758	12.7	19,856	20.7
1978	33,120	10,972	33.1	32,618	98.5	21,646	65.4	13,119	37.2	16,186	22.1	20,019	22.2
1979	39,117	36,359	93.0	35,206	90.0	(1,153)	(2.9)	10,290	25.0	11,783	18.5	18,255	21.2
1980	25,542	28,624	112.1	25,083	98.2	(3,541)	(13.9)	5,651	17.3	6,932	20.3	16,578	20.4
1981	60,731	29,647	48.8	57,692	95.0	28,045	46.2	7,783	18.6	11,074	26.4	17,397	21.8
1982	55,113	32,291	58.6	55,969	101.6	23,678	43.0	16,060	34.1	13,735	32.1	17,816	22.8
1983	91,344	71,657	78.4	59,862	65.5	(11,796)	(12.9)	13,309	19.3	7,046	13.0	15,965	20.2
1984	122,464	27,940	22.8	102,354	83.6	74,414	60.8	28,765	32.1	22,160	31.2	19,403	23.8
1985	71,426	12,534	17.5	54,551	76.4	42,017	58.8	34,879	36.7	31,272	39.0	20,660	25.5
1986	129,874	16,422	12.6	125,508	96.6	109,086	84.0	75,172	69.7	47,480	50.5	25,314	30.3
1987	213,813	45,748	21.4	35,061	16.4	(10,687)	(5.0)	46,806	33.8	40,607	32.3	23,514	26.1
1988	71,519	50,997	71.3	17,920	25.1	(33,077)	(46.2)	21,774	15.7	36,351	29.8	20,819	23.3
1989	90,555	53,734	59.3	34,652	38.3	(19,083)	(21.1)	(20,949)	(16.7)	17,652	15.3	19,005	21.3
1990	98,434	37,082	37.7	32,739	33.3	(4,344)	(4.4)	(18,834)	(21.7)	8,379	6.9	17,990	20.1
1991	129,357	58,212	45.0	28,129	21.7	(30,084)	(23.3)	(17,837)	(16.8)	(19,455)	(16.1)	15,987	17.5
1992	153,193	48,136	31.4	14,172	9.3	(33,963)	(22.2)	(22,797)	(18.0)	(24,110)	(22.2)	13,989	14.9
1993	71,614	37,939	53.0	14,011	19.6	(23,928)	(33.4)	(29,325)	(24.8)	(22,280)	(20.5)	12,531	13.5
1994	181,965	123,158	67.7	39,801	21.9	(83,357)	(45.8)	(47,083)	(34.7)	(35,135)	(27.7)	8,979	9.3
1995	115,814	43,665	37.7	37,647	32.5	(6,018)	(5.2)	(37,767)	(30.7)	(35,470)	(27.2)	8,444	8.7
1996	320,030	141,828	44.3	88,016	27.5	(53,813)	(16.8)	(47,729)	(23.2)	(40,216)	(23.9)	6,297	6.0
1997	144,531	105,286	72.8	32,376	22.4	(72,909)	(50.4)	(44,247)	(22.9)	(48,005)	(28.8)	3,657	3.4
1998	93,577	35,896	38.4	26,759	28.6	(9,137)	(9.8)	(45,286)	(24.3)	(45,047)	(26.3)	3,244	3.1
1999	16,092	2,623	16.3	907	5.6	(1,717)	(10.7)	(27,921)	(33.0)	(28,719)	(20.8)	3,089	3.0
2000	14,457	35,305	244.2	9,419	65.2	(25,886)	(179.1)	(12,247)	(29.6)	(32,692)	(27.8)	2,211	2.2
2001	63,687	35,757	56.1	13,028	20.5	(22,728)	(35.7)	(16,777)	(53.4)	(26,475)	(39.8)	1,477	1.5
2002	19,842	38,992	196.5	4,511	22.7	(34,481)	(173.8)	(27,698)	(84.8)	(18,790)	(45.2)	450	0.5
2003	52,028	171,002	328.7	8,982	17.3	(162,021)	(311.4)	(73,077)	(161.7)	(49,366)	(148.6)	(4,063)	(4.3)
2004	145,216	116,345	80.1	14,882	10.2	(101,463)	(69.9)	(99,322)	(137.3)	(69,316)	(117.4)	(6,696)	(6.9)
2005	31,389	17,241	54.9	6,820	21.7	(10,421)	(33.2)	(91,302)	(119.8)	(66,223)	(106.1)	(6,794)	(7.1)

MDU Electric

ACCOUNT 355.00 - POLES AND FIXTURES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	44,903	62,388	138.9	6,786	15.1	(55,602)	(123.8)	(55,829)	(75.6)	(72,798)	(124.1)	(8,045)	(8.6)
2007	33,583	18,860	56.2	6,697	19.9	(12,164)	(36.2)	(26,062)	(71.2)	(68,334)	(111.2)	(8,148)	(8.8)
2008	85,336	66,530	78.0	51,827	60.7	(14,703)	(17.2)	(27,490)	(50.3)	(38,871)	(57.1)	(8,308)	(9.0)
2009	14,181	12,226	86.2	4,154	29.3	(8,072)	(56.9)	(11,646)	(26.3)	(20,192)	(48.2)	(8,302)	(9.2)
2010	56,954	66,940	117.5	1,746	3.1	(65,194)	(114.5)	(29,323)	(56.2)	(31,147)	(66.3)	(9,625)	(10.7)
2011	258,160	284,312	110.1	1,793	0.7	(282,519)	(109.4)	(118,595)	(108.0)	(76,530)	(85.4)	(15,828)	(16.9)
2012	120,677	122,153	101.2	30,041	24.9	(92,112)	(76.3)	(146,609)	(100.9)	(92,520)	(86.4)	(17,523)	(18.6)
2013	64,956	64,420	99.2	5,847	9.0	(58,573)	(90.2)	(144,401)	(97.6)	(101,294)	(98.4)	(18,415)	(19.7)
2014	782,859	291,412	37.2	0	0.0	(291,412)	(37.2)	(147,366)	(45.6)	(157,962)	(61.5)	(24,224)	(22.4)
2015	133,464	856,936	642.1	6,311	4.7	(850,625)	(637.3)	(400,203)	(122.4)	(315,048)	(115.8)	(41,440)	(38.2)
2016	246,410	(190,850)	(77.5)	64,008	26.0	254,859	103.4	(295,726)	(76.3)	(207,573)	(77.0)	(35,393)	(31.8)
2017	138,935	82,291	59.2	1,539	1.1	(80,751)	(58.1)	(225,506)	(130.4)	(205,300)	(75.1)	(36,300)	(32.4)
2018	627,544	699,286	111.4	191,169	30.5	(508,117)	(81.0)	(111,337)	(33.0)	(295,209)	(76.5)	(45,552)	(37.3)
2019	43,623	107,390	246.2	677	1.6	(106,713)	(244.6)	(231,860)	(85.9)	(258,270)	(108.5)	(46,728)	(38.8)
2020	237,177	897,160	378.3	5,703	2.4	(891,458)	(375.9)	(502,096)	(165.8)	(266,436)	(103.0)	(62,666)	(51.1)
TOTAL	6,504,746	5,137,251	79.0	1,815,938	27.9	(3,321,313)	(51.1)						

Currently Approved
Recommended

(30)
(35)

Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 356.00 - OVERHEAD CONDUCTORS AND DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	107,847	14,801	13.7	48,427	44.9	33,626	31.2					33,626	31.2
1969	136,961	37,522	27.4	93,655	68.4	56,134	41.0					44,880	36.7
1970	153,987	28,683	18.6	58,854	38.2	30,171	19.6	39,977	30.1			39,977	30.1
1971	81,071	16,514	20.4	24,092	29.7	7,578	9.3	31,294	25.2			31,877	26.6
1972	82,053	14,524	17.7	45,337	55.3	30,813	37.6	22,854	21.6	31,664	28.2	31,664	28.2
1973	144,622	30,377	21.0	36,928	25.5	6,551	4.5	14,981	14.6	26,250	21.9	27,479	23.3
1974	79,730	24,232	30.4	144,836	181.7	120,604	151.3	52,656	51.6	39,143	36.1	40,782	36.3
1975	179,578	33,522	18.7	139,479	77.7	105,957	59.0	77,704	57.7	54,301	47.9	48,929	40.5
1976	16,285	52,473	322.2	46,722	286.9	(5,751)	(35.3)	73,603	80.1	51,635	51.4	42,854	39.3
1977	63,675	(4,850)	(7.6)	34,998	55.0	39,848	62.6	46,685	54.0	53,442	55.2	42,553	40.7
1978	27,924	13,900	49.8	16,325	58.5	2,426	8.7	12,174	33.9	52,617	71.6	38,905	39.9
1979	30,720	24,339	79.2	24,048	78.3	(291)	(0.9)	13,994	34.3	28,438	44.7	35,639	38.7
1980	15,405	12,575	81.6	11,841	76.9	(733)	(4.8)	467	1.9	7,100	23.1	32,841	38.1
1981	44,413	34,975	78.8	50,617	114.0	15,642	35.2	4,873	16.1	11,378	31.2	31,613	38.0
1982	43,837	21,662	49.4	45,102	102.9	23,440	53.5	12,783	37.0	8,097	24.9	31,068	38.6
1983	85,508	53,434	62.5	56,422	66.0	2,988	3.5	14,023	24.2	8,209	18.7	29,313	36.3
1984	142,942	131,998	92.3	135,967	95.1	3,969	2.8	10,132	11.2	9,061	13.6	27,822	32.9
1985	65,975	93,016	141.0	61,577	93.3	(31,439)	(47.7)	(8,161)	(8.3)	2,920	3.8	24,530	29.4
1986	178,120	24,187	13.6	184,970	103.8	160,783	90.3	44,438	34.4	31,948	30.9	31,701	35.8
1987	215,671	81,404	37.7	74,863	34.7	(6,541)	(3.0)	40,934	26.7	25,952	18.9	29,789	31.4
1988	30,485	21,070	69.1	61,050	200.3	39,980	131.1	64,741	45.8	33,350	26.3	30,274	33.0
1989	17,009	17,131	100.7	30,775	180.9	13,644	80.2	15,694	17.9	35,285	34.8	29,518	33.4
1990	29,422	17,624	59.9	29,268	99.5	11,644	39.6	21,756	84.9	43,902	46.6	28,741	33.5
1991	57,058	18,530	32.5	23,176	40.6	4,646	8.1	9,978	28.9	12,674	18.1	27,737	32.8
1992	115,624	25,358	21.9	154,093	133.3	128,735	111.3	48,341	71.8	39,730	79.6	31,777	37.0
1993	49,608	18,018	36.3	61,827	124.6	43,808	88.3	59,063	79.7	40,495	75.3	32,240	38.2
1994	152,132	94,573	62.2	101,275	66.6	6,702	4.4	59,748	56.5	39,107	48.4	31,294	36.0
1995	151,894	28,931	19.0	149,063	98.1	120,132	79.1	56,881	48.3	60,804	57.8	34,467	38.6
1996	201,556	67,690	33.6	77,773	38.6	10,084	5.0	45,639	27.1	61,892	46.1	33,626	36.1
1997	94,384	81,605	86.5	96,510	102.3	14,905	15.8	48,374	32.4	39,126	30.1	33,002	35.4
1998	70,025	29,311	41.9	45,468	64.9	16,156	23.1	13,715	11.2	33,596	25.1	32,458	35.1
1999	189	(172)	(90.9)	(412)	(218.0)	(240)	(127.1)	10,274	18.7	32,207	31.1	31,437	35.1
2000	4,641	3,723	80.2	4,992	107.6	1,269	27.3	5,728	23.0	8,435	11.4	30,522	35.1
2001	29,458	12,553	42.6	9,644	32.7	(2,910)	(9.9)	(627)	(5.5)	5,836	14.7	29,539	34.6
2002	16,463	27,615	167.7	24,898	151.2	(2,717)	(16.5)	(1,453)	(8.6)	2,312	9.6	28,618	34.3
2003	69,960	95,240	136.1	4,039	5.8	(91,200)	(130.4)	(32,276)	(83.6)	(19,160)	(79.4)	25,289	30.5
2004	117,071	67,272	57.5	11,828	10.1	(55,444)	(47.4)	(49,787)	(73.4)	(30,200)	(63.6)	23,107	27.6
2005	26,129	3,677	14.1	4,348	16.6	671	2.6	(48,658)	(68.5)	(30,320)	(58.5)	22,517	27.3

MDU Electric

ACCOUNT 356.00 - OVERHEAD CONDUCTORS AND DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	1,715	3,779	220.3	0	0.0	(3,779)	(220.3)	(19,517)	(40.4)	(30,494)	(65.9)	21,843	27.2
2007	0	0	0.0	0	0.0	0	0.0	(1,036)	(11.2)	(29,950)	(69.7)	21,297	27.2
2008	90,071	52,199	58.0	34,204	38.0	(17,995)	(20.0)	(7,258)	(23.7)	(15,309)	(32.6)	20,338	25.9
2009	66,384	175	0.3	8,217	12.4	8,042	12.1	(3,318)	(6.4)	(2,612)	(7.1)	20,045	25.6
2010	3,476	8,187	235.5	501	14.4	(7,686)	(221.1)	(5,879)	(11.0)	(4,283)	(13.2)	19,401	25.3
2011	149,248	127,913	85.7	98,243	65.8	(29,670)	(19.9)	(9,771)	(13.4)	(9,462)	(15.3)	18,285	23.4
2012	60,837	101,802	167.3	22,943	37.7	(78,859)	(129.6)	(38,738)	(54.4)	(25,234)	(34.1)	16,127	20.7
2013	19,830	(75,550)	(381.0)	2,066	10.4	77,615	391.4	(10,305)	(13.4)	(6,111)	(10.2)	17,463	22.8
2014	197,781	53,848	27.2	0	0.0	(53,848)	(27.2)	(18,364)	(19.8)	(18,490)	(21.4)	15,946	20.2
2015	54,434	503,475	924.9	8,970	16.5	(494,504)	(908.5)	(156,912)	(173.0)	(115,853)	(120.1)	5,312	6.8
2016	81,854	(314,200)	(383.9)	(21,208)	(25.9)	292,992	357.9	(85,120)	(76.4)	(51,321)	(61.9)	11,183	14.2
2017	92,035	34,240	37.2	1,539	1.7	(32,701)	(35.5)	(78,071)	(102.6)	(42,089)	(47.2)	10,305	13.1
2018	727,343	336,218	46.2	279,881	38.5	(56,337)	(7.7)	67,985	22.6	(68,880)	(29.9)	8,998	9.8
2019	43,842	33,973	77.5	353	0.8	(33,620)	(76.7)	(40,886)	(14.2)	(64,834)	(32.4)	8,179	9.0
2020	383,216	799,661	208.7	1,675	0.4	(797,986)	(208.2)	(295,981)	(76.9)	(125,530)	(47.3)	(7,032)	(7.3)
TOTAL	5,101,498	3,034,756	59.5	2,662,060	52.2	(372,696)	(7.3)						

Currently Approved
Recommended

(20)
(20) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 360.20 - RIGHTS OF WAYS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1987	66	182	275.0	0	0.0	(182)	(275.0)	(61)	(275)	(36)	(275)	(182)	(275.0)
1988	0	0	0.0	0	0.0	0	0.0	(61)	(275)	(36)	(275)	(91)	(275.0)
1989	0	0	0.0	0	0.0	0	0.0	(61)	(275.0)	(36)	(275)	(61)	(275.0)
1990	0	0	0.0	0	0.0	0	0.0	0	0.0	(36)	(275)	(45)	(275.0)
1991	0	0	0.0	0	0.0	0	0.0	0	0.0	(36)	(275.0)	(36)	(275.0)
1992	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(30)	(275.0)
1993	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(26)	(275.0)
1994	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(23)	(275.0)
1995	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(20)	(275.0)
1996	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(18)	(275.0)
1997	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(17)	(275.0)
1998	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(15)	(275.0)
1999	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(14)	(275.0)
2000	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(13)	(275.0)
2001	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(12)	(275.0)
2002	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(11)	(275.0)
2003	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(11)	(275.0)
2004	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(10)	(275.0)
2005	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(10)	(275.0)
2006	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(9)	(275.0)
2007	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(9)	(275.0)
2008	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(275.0)
2009	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(275.0)
2010	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(275.0)
2011	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(275.0)
2012	484	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(33.0)
2013	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(33.0)
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2015	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2016	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2017	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2018	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2019	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(33.0)
2020	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(33.0)
TOTAL	550	182	33.0	0	0.0	(182)	(33.0)						

Currently Approved
Recommended

0
0 Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 362.00 - STATION EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	44,189	2,608	5.9	13,463	30.5	10,855	24.6					10,855	24.6
1969	40,770	2,228	5.5	7,632	18.7	5,404	13.3					8,130	19.1
1970	50,937	4,366	8.6	14,756	29.0	10,390	20.4	8,883	19.6			8,883	19.6
1971	28,060	2,606	9.3	13,476	48.0	10,870	38.7	8,888	22.3			9,380	22.9
1972	32,341	3,563	11.0	11,810	36.5	8,247	25.5	9,836	26.5	9,153	23.3	9,153	23.3
1973	50,602	6,460	12.8	13,707	27.1	7,248	14.3	8,788	23.8	8,432	20.8	8,836	21.5
1974	43,284	6,308	14.6	27,346	63.2	21,038	48.6	12,178	28.9	11,558	28.2	10,579	25.5
1975	83,710	(3,943)	(4.7)	17,202	20.5	21,146	25.3	16,477	27.8	13,710	28.8	11,900	25.5
1976	74,058	3,979	5.4	16,545	22.3	12,566	17.0	18,250	27.2	14,049	24.7	11,974	24.1
1977	94,017	3,142	3.3	16,956	18.0	13,813	14.7	15,842	18.9	15,162	21.9	12,158	22.4
1978	70,074	9,519	13.6	15,910	22.7	6,391	9.1	10,924	13.8	14,991	20.5	11,633	20.9
1979	18,191	4,046	22.2	8,754	48.1	4,708	25.9	8,304	13.7	11,725	17.2	11,056	21.1
1980	41,400	3,215	7.8	19,858	48.0	16,643	40.2	9,248	21.4	10,824	18.2	11,486	22.2
1981	44,595	8,502	19.1	36,208	81.2	27,706	62.1	16,352	47.1	13,852	25.8	12,645	24.7
1982	97,825	9,858	10.1	38,099	38.9	28,241	28.9	24,197	39.5	16,738	30.8	13,684	25.2
1983	69,131	12,626	18.3	58,251	84.3	45,625	66.0	33,857	48.0	24,585	45.3	15,681	28.4
1984	38,636	8,491	22.0	13,068	33.8	4,576	11.8	26,147	38.2	24,558	42.1	15,027	27.7
1985	53,343	9,016	16.9	23,941	44.9	14,925	28.0	21,709	40.4	24,215	39.9	15,022	27.7
1986	34,671	9,480	27.3	6,131	17.7	(3,350)	(9.7)	5,384	12.8	18,003	30.7	14,055	26.4
1987	88,610	7,262	8.2	42,928	48.4	35,667	40.3	15,747	26.7	19,489	34.3	15,135	27.6
1988	108,055	13,339	12.3	34,557	32.0	21,218	19.6	17,845	23.1	14,607	22.6	15,425	26.8
1989	184,167	13,484	7.3	17,477	9.5	3,993	2.2	20,293	16.0	14,491	15.5	14,905	23.6
1990	51,455	16,798	32.6	14,868	28.9	(1,930)	(3.8)	7,761	6.8	11,120	11.9	14,173	22.6
1991	34,474	15,986	46.4	27,837	80.7	11,851	34.4	4,638	5.2	14,160	15.2	14,077	22.9
1992	87,957	21,812	24.8	14,080	16.0	(7,732)	(8.8)	730	1.3	5,480	5.9	13,204	21.1
1993	112,358	17,053	15.2	31,960	28.4	14,907	13.3	6,342	8.1	4,218	4.5	13,270	20.6
1994	195,007	50,539	25.9	61,014	31.3	10,474	5.4	5,883	4.5	5,514	5.7	13,166	19.0
1995	22,945	6,338	27.6	29,944	130.5	23,606	102.9	16,329	14.8	10,621	11.7	13,539	20.0
1996	40,931	9,085	22.2	16,480	40.3	7,396	18.1	13,825	16.0	9,730	10.6	13,327	20.0
1997	123,562	10,766	8.7	24,675	20.0	13,909	11.3	14,970	24.0	14,058	14.2	13,347	19.4
1998	142,405	7,484	5.3	46,909	32.9	39,425	27.7	20,243	19.8	18,962	18.1	14,188	20.0
1999	24,859	2,211	8.9	(7,699)	(31.0)	(9,910)	(39.9)	14,475	14.9	14,885	21.0	13,435	19.3
2000	16,260	2,368	14.6	0	0.0	(2,368)	(14.6)	9,049	14.8	9,690	13.9	12,956	19.1
2001	44,709	16,525	37.0	3,573	8.0	(12,953)	(29.0)	(8,410)	(29.4)	5,621	8.0	12,194	18.1
2002	80,408	6,220	7.7	3,573	4.4	(2,647)	(3.3)	(5,989)	(12.7)	2,309	3.7	11,770	17.4
2003	64,185	13,016	20.3	1,988	3.1	(11,029)	(17.2)	(8,876)	(14.1)	(7,781)	(16.9)	11,137	16.5
2004	29,035	1,718	5.9	0	0.0	(1,718)	(5.9)	(5,131)	(8.9)	(6,143)	(13.1)	10,789	16.2
2005	129,822	11,962	9.2	17,682	13.6	5,720	4.4	(2,343)	(3.2)	(4,526)	(6.5)	10,656	15.6

MDU Electric

ACCOUNT 362.00 - STATION EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	675,160	3,603	0.5	531,454	78.7	527,851	78.2	177,284	63.8	103,635	53.0	23,917	28.6
2007	9,791	153	1.6	204,292	2,086.5	204,139	2,085.0	245,903	90.5	144,992	79.8	28,423	34.7
2008	65,171	2,509	3.8	328	0.5	(2,181)	(3.3)	243,270	97.3	146,762	80.7	27,676	34.0
2009	28,596	1,547	5.4	0	0.0	(1,547)	(5.4)	66,803	193.5	146,796	80.8	26,981	33.6
2010	154,830	12,525	8.1	75,000	48.4	62,474	40.4	19,582	23.6	158,147	84.7	27,806	33.9
2011	102,805	30,759	29.9	4,050	3.9	(26,709)	(26.0)	11,406	12.0	47,235	65.4	26,567	32.2
2012	206,948	4,469	2.2	0	0.0	(4,469)	(2.2)	10,432	6.7	5,514	4.9	25,877	30.4
2013	40,027	11,251	28.1	0	0.0	(11,251)	(28.1)	(14,143)	(12.1)	3,700	3.5	25,070	29.8
2014	1,122,906	167,753	14.9	0	0.0	(167,753)	(14.9)	(61,158)	(13.4)	(29,541)	(9.1)	20,968	19.7
2015	283,415	78,900	27.8	130	0.0	(78,771)	(27.8)	(85,925)	(17.8)	(57,790)	(16.5)	18,890	17.2
2016	137,237	61,447	44.8	3,302	2.4	(58,145)	(42.4)	(101,556)	(19.7)	(64,078)	(17.9)	17,318	15.7
2017	481,418	174,493	36.2	3,669	0.8	(170,824)	(35.5)	(102,580)	(34.1)	(97,349)	(23.6)	13,555	11.5
2018	4,311,802	0	0.0	2,635,252	61.1	2,635,252	61.1	802,094	48.8	431,952	34.1	64,961	32.4
2019	597,704	128,246	21.5	16,168	2.7	(112,078)	(18.8)	784,117	43.6	443,087	38.1	61,556	29.6
2020	516,459	0	0.0	495,746	96.0	495,746	96.0	1,006,307	55.6	557,990	46.2	69,748	32.6
TOTAL	11,325,306	1,027,695	9.1	4,724,351	41.7	3,696,656	32.6						

Currently Approved
Recommended

(10)

(15) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	165,677	36,133	21.8	50,067	30.2	13,933	8.4					13,933	8.4
1969	195,583	47,705	24.4	56,468	28.9	8,763	4.5					11,348	6.3
1970	179,725	49,458	27.5	70,034	39.0	20,576	11.4	14,424	8.0			14,424	8.0
1971	120,366	35,310	29.3	30,817	25.6	(4,493)	(3.7)	8,282	5.0			9,695	5.9
1972	148,052	41,472	28.0	40,174	27.1	(1,299)	(0.9)	4,928	3.3	7,496	4.6	7,496	4.6
1973	154,282	49,727	32.2	37,166	24.1	(12,561)	(8.1)	(6,117)	(4.3)	2,197	1.4	4,153	2.6
1974	143,975	53,383	37.1	65,518	45.5	12,136	8.4	(575)	(0.4)	2,872	1.9	5,294	3.3
1975	126,043	44,917	35.6	49,558	39.3	4,641	3.7	1,405	1.0	(315)	(0.2)	5,212	3.4
1976	127,714	46,553	36.5	57,994	45.4	11,440	9.0	9,406	7.1	2,872	2.1	5,904	3.9
1977	149,476	46,564	31.2	70,414	47.1	23,851	16.0	13,311	9.9	7,901	5.6	7,699	5.1
1978	142,560	56,044	39.3	70,050	49.1	14,006	9.8	16,432	11.7	13,215	9.6	8,272	5.5
1979	256,469	106,474	41.5	77,887	30.4	(28,587)	(11.1)	3,090	1.7	5,070	3.2	5,201	3.3
1980	106,531	113,480	106.5	84,379	79.2	(29,101)	(27.3)	(14,560)	(8.6)	(1,678)	(1.1)	2,562	1.7
1981	120,475	82,255	68.3	59,747	49.6	(22,508)	(18.7)	(26,732)	(16.6)	(8,468)	(5.5)	771	0.5
1982	156,040	107,596	69.0	61,560	39.5	(46,035)	(29.5)	(32,548)	(25.5)	(22,445)	(14.3)	(2,349)	(1.5)
1983	160,910	106,065	65.9	99,145	61.6	(6,920)	(4.3)	(25,155)	(17.3)	(26,630)	(16.6)	(2,635)	(1.7)
1984	64,563	107,618	166.7	46,496	72.0	(61,123)	(94.7)	(38,026)	(29.9)	(33,137)	(27.2)	(6,075)	(4.1)
1985	196,926	26,489	13.5	69,789	35.4	43,300	22.0	(8,247)	(5.9)	(18,657)	(13.3)	(3,332)	(2.2)
1986	157,530	28,672	18.2	53,828	34.2	25,157	16.0	2,445	1.8	(9,124)	(6.2)	(1,833)	(1.2)
1987	124,622	76,621	61.5	34,402	27.6	(42,218)	(33.9)	8,746	5.5	(8,361)	(5.9)	(3,852)	(2.6)
1988	89,842	92,848	103.3	35,751	39.8	(57,097)	(63.6)	(24,720)	(19.9)	(18,396)	(14.5)	(6,387)	(4.3)
1989	96,612	91,931	95.2	31,513	32.6	(60,419)	(62.5)	(53,245)	(51.3)	(18,255)	(13.7)	(8,843)	(6.1)
1990	128,679	108,813	84.6	37,783	29.4	(71,030)	(55.2)	(62,849)	(59.8)	(41,122)	(34.4)	(11,547)	(8.0)
1991	120,278	109,568	91.1	38,297	31.8	(71,272)	(59.3)	(67,574)	(58.7)	(60,407)	(53.9)	(14,036)	(9.8)
1992	151,688	122,484	80.7	53,834	35.5	(68,650)	(45.3)	(70,317)	(52.7)	(65,693)	(55.9)	(16,220)	(11.3)
1993	129,231	186,888	144.6	33,731	26.1	(153,157)	(118.5)	(97,693)	(73.1)	(84,905)	(67.8)	(21,487)	(15.0)
1994	142,630	172,325	120.8	35,953	25.2	(136,372)	(95.6)	(119,393)	(84.6)	(100,096)	(74.4)	(25,742)	(18.0)
1995	88,232	109,986	124.7	17,104	19.4	(92,882)	(105.3)	(127,470)	(106.2)	(104,466)	(82.6)	(28,140)	(20.0)
1996	283,704	225,603	79.5	60,599	21.4	(165,004)	(58.2)	(131,419)	(76.6)	(123,213)	(77.4)	(32,859)	(22.5)
1997	128,626	123,211	95.8	28,943	22.5	(94,269)	(73.3)	(117,385)	(70.4)	(128,337)	(83.1)	(34,906)	(24.0)
1998	234,080	111,540	47.7	27,111	11.6	(84,429)	(36.1)	(114,567)	(53.2)	(114,591)	(65.3)	(36,504)	(24.6)
1999	118,173	107,432	90.9	19,511	16.5	(87,921)	(74.4)	(88,873)	(55.4)	(104,901)	(61.5)	(38,111)	(25.9)
2000	106,368	112,330	105.6	25,459	23.9	(86,871)	(81.7)	(86,407)	(56.5)	(103,699)	(59.5)	(39,588)	(27.1)
2001	106,258	97,719	92.0	10,714	10.1	(87,005)	(81.9)	(87,265)	(79.1)	(88,099)	(63.5)	(40,983)	(28.3)
2002	115,027	130,433	113.4	11,482	10.0	(118,951)	(103.4)	(97,609)	(89.4)	(93,035)	(84.4)	(43,210)	(30.0)
2003	106,620	125,880	118.1	15,442	14.5	(110,438)	(103.6)	(105,465)	(96.5)	(98,237)	(88.9)	(45,078)	(31.6)
2004	143,867	144,218	100.2	23,997	16.7	(120,221)	(83.6)	(116,537)	(95.6)	(104,697)	(90.5)	(47,109)	(33.0)
2005	138,054	146,214	105.9	15,620	11.3	(130,594)	(94.6)	(120,418)	(93.0)	(113,442)	(93.0)	(49,306)	(34.5)

MDU Electric

ACCOUNT 364.00 - POLES, TOWERS AND FIXTURES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	166,866	145,385	87.1	10,525	6.3	(134,860)	(80.8)	(128,558)	(85.9)	(123,013)	(91.7)	(51,499)	(35.9)
2007	94,216	89,364	94.9	12,437	13.2	(76,927)	(81.6)	(114,127)	(85.8)	(114,608)	(88.2)	(52,135)	(36.7)
2008	272,478	175,467	64.4	9,217	3.4	(166,250)	(61.0)	(126,012)	(70.9)	(125,770)	(77.1)	(54,918)	(37.8)
2009	145,898	151,218	103.6	8,899	6.1	(142,318)	(97.5)	(128,498)	(75.2)	(130,190)	(79.6)	(56,999)	(39.2)
2010	97,406	68,010	69.8	6,209	6.4	(61,802)	(63.4)	(123,457)	(71.8)	(116,431)	(74.9)	(57,111)	(39.6)
2011	188,675	191,083	101.3	7,518	4.0	(183,566)	(97.3)	(129,229)	(89.7)	(126,173)	(79.0)	(59,985)	(41.3)
2012	217,696	173,557	79.7	33,820	15.5	(139,737)	(64.2)	(128,368)	(76.4)	(138,735)	(75.2)	(61,757)	(42.1)
2013	189,379	545,729	288.2	23,230	12.3	(522,499)	(275.9)	(281,934)	(142.0)	(209,984)	(125.1)	(71,773)	(48.6)
2014	492,867	762,640	154.7	0	0.0	(762,640)	(154.7)	(474,959)	(158.3)	(334,049)	(140.8)	(86,473)	(55.7)
2015	363,480	602,049	165.6	9,107	2.5	(592,942)	(163.1)	(626,027)	(179.6)	(440,277)	(151.6)	(97,024)	(60.8)
2016	300,543	453,195	150.8	1,055	0.4	(452,139)	(150.4)	(602,574)	(156.3)	(493,992)	(157.9)	(104,271)	(64.2)
2017	259,914	528,288	203.3	2,264	0.9	(526,024)	(202)	(523,702)	(170.0)	(571,249)	(177.8)	(112,706)	(68.6)
2018	239,654	333,295	139.1	105	0.0	(333,189)	(139.0)	(437,118)	(163.9)	(533,387)	(161.0)	(117,030)	(70.6)
2019	202,208	798,856	395.1	2,623	1.3	(796,233)	(393.8)	(551,815)	(235.9)	(540,106)	(197.7)	(130,091)	(78.1)
2020	283,389	801,600	282.9	34,118	12.0	(767,482)	(270.8)	(632,301)	(261.6)	(575,014)	(223.6)	(142,118)	(84.3)
TOTAL	8,940,158	9,401,692	105.2	1,869,464	20.9	(7,532,228)	(84.3)						

Currently Approved
Recommended

(120)
(120) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 365.00 - OVERHEAD CONDUCTORS AND DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	139,510	32,752	23.5	34,643	24.8	1,891	1.4					1,891	1.4
1969	174,594	44,574	25.5	49,900	28.6	5,327	3.1					3,609	2.3
1970	159,450	45,225	28.4	51,250	32.1	6,025	3.8	4,414	2.8			4,414	2.8
1971	105,266	38,049	36.1	34,749	33.0	(3,300)	(3.1)	2,684	1.8			2,486	1.7
1972	127,382	39,088	30.7	41,497	32.6	2,409	1.9	1,711	1.3	2,470	1.7	2,470	1.7
1973	132,211	43,863	33.2	77,941	59.0	34,078	25.8	11,062	9.1	8,908	6.4	7,738	5.5
1974	130,905	44,096	33.7	60,785	46.4	16,689	12.7	17,725	13.6	11,180	8.5	9,017	6.5
1975	120,478	46,866	38.9	49,196	40.8	2,330	1.9	17,699	13.8	10,441	8.5	8,181	6.0
1976	115,756	41,554	35.9	73,330	63.3	31,776	27.5	16,932	13.8	17,456	13.9	10,803	8.1
1977	113,442	77,609	68.4	59,677	52.6	(17,932)	(15.8)	5,391	4.6	13,388	10.9	7,929	6.0
1978	111,463	52,869	47.4	51,389	46.1	(1,479)	(1.3)	4,121	3.6	6,277	5.3	7,074	5.4
1979	189,662	84,949	44.8	125,041	65.9	40,092	21.1	6,893	5.0	10,957	8.4	9,825	7.3
1980	94,588	87,416	92.4	53,723	56.8	(33,692)	(35.6)	1,640	1.2	3,753	3.0	6,478	4.9
1981	70,884	61,171	86.3	39,535	55.8	(21,637)	(30.5)	(5,079)	(4.3)	(6,930)	(6.0)	4,470	3.5
1982	157,414	89,388	56.8	62,396	39.6	(26,992)	(17.1)	(27,440)	(25.5)	(8,742)	(7.0)	2,372	1.8
1983	112,925	90,593	80.2	54,977	48.7	(35,615)	(31.5)	(28,081)	(24.7)	(15,569)	(12.4)	(2)	(0.0)
1984	104,738	36,275	34.6	26,464	25.3	(9,811)	(9.4)	(24,139)	(19.3)	(25,549)	(23.6)	(579)	(0.5)
1985	201,437	186,095	92.4	47,378	23.5	(138,717)	(68.9)	(61,381)	(43.9)	(46,554)	(36.0)	(8,253)	(6.3)
1986	97,461	141,867	145.6	56,188	57.7	(85,679)	(87.9)	(78,069)	(58.0)	(59,363)	(44.0)	(12,328)	(9.5)
1987	70,066	83,180	118.7	79,574	113.6	(3,606)	(5.1)	(76,001)	(61.8)	(54,686)	(46.6)	(11,892)	(9.4)
1988	49,766	53,603	107.7	(6,276)	(12.6)	(59,879)	(120.3)	(49,721)	(68.6)	(59,538)	(56.9)	(14,177)	(11.5)
1989	47,435	48,320	101.9	38,532	81.2	(9,788)	(20.6)	(24,424)	(43.8)	(59,534)	(63.9)	(13,978)	(11.7)
1990	74,385	59,285	79.7	43,481	58.5	(15,804)	(21.2)	(28,490)	(49.8)	(34,951)	(51.5)	(14,057)	(12.0)
1991	59,960	48,325	80.6	20,528	34.2	(27,797)	(46.4)	(17,796)	(29.4)	(23,375)	(38.7)	(14,630)	(12.7)
1992	118,978	83,938	70.5	44,979	37.8	(38,959)	(32.7)	(27,520)	(32.6)	(30,445)	(43.4)	(15,603)	(13.5)
1993	66,657	97,368	146.1	44,338	66.5	(53,030)	(79.6)	(39,929)	(48.8)	(29,076)	(39.6)	(17,042)	(15.0)
1994	89,594	68,461	76.4	22,869	25.5	(45,591)	(50.9)	(45,860)	(50.0)	(36,236)	(44.2)	(18,100)	(16.1)
1995	47,998	42,102	87.7	21,089	43.9	(21,013)	(43.8)	(39,878)	(58.6)	(37,278)	(48.6)	(18,204)	(16.5)
1996	101,888	105,807	103.8	32,693	32.1	(73,113)	(71.8)	(46,572)	(58.3)	(46,341)	(54.5)	(20,097)	(18.3)
1997	52,936	79,530	150.2	11,720	22.1	(67,810)	(128.1)	(53,979)	(79.8)	(52,111)	(72.6)	(21,688)	(20.1)
1998	71,667	65,077	90.8	13,346	18.6	(51,731)	(72.2)	(64,218)	(85.1)	(51,852)	(71.2)	(22,657)	(21.2)
1999	56,360	49,047	87.0	13,077	23.2	(35,970)	(63.8)	(51,837)	(85.9)	(49,927)	(75.5)	(23,073)	(21.9)
2000	49,626	52,891	106.6	15,245	30.7	(37,646)	(75.9)	(41,782)	(70.6)	(53,254)	(80.1)	(23,514)	(22.7)
2001	84,005	49,614	59.1	9,248	11.0	(40,365)	(48.1)	(37,994)	(60.0)	(46,704)	(74.2)	(24,010)	(23.3)
2002	60,977	69,024	113.2	1,024	1.7	(68,000)	(111.5)	(48,670)	(75.0)	(46,742)	(72.4)	(25,267)	(24.8)
2003	82,311	60,290	73.2	5,516	6.7	(54,774)	(66.5)	(54,380)	(71.8)	(47,351)	(71.0)	(26,087)	(25.8)
2004	77,310	84,850	109.8	8,561	11.1	(76,289)	(98.7)	(66,354)	(90.2)	(55,415)	(78.2)	(27,443)	(27.3)
2005	51,884	87,756	169.1	7,005	13.5	(80,751)	(155.6)	(70,605)	(100.1)	(64,036)	(89.8)	(28,846)	(29.0)

MDU Electric

ACCOUNT 365.00 - OVERHEAD CONDUCTORS AND DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	73,911	77,932	105.4	14,449	19.5	(63,483)	(85.9)	(73,508)	(108.6)	(68,659)	(99.1)	(29,734)	(30.1)
2007	65,551	51,878	79.1	6,008	9.2	(45,870)	(70.0)	(63,368)	(99.4)	(64,233)	(91.5)	(30,138)	(30.8)
2008	270,643	86,158	31.8	22,059	8.2	(64,099)	(23.7)	(57,818)	(42.3)	(66,099)	(61.3)	(30,966)	(30.3)
2009	79,776	50,323	63.1	4,252	5.3	(46,071)	(57.8)	(52,013)	(37.5)	(60,055)	(55.4)	(31,326)	(30.9)
2010	49,502	32,056	64.8	6,199	12.5	(25,857)	(52.2)	(45,342)	(34.0)	(49,076)	(45.5)	(31,198)	(31.1)
2011	91,667	50,646	55.3	2,598	2.8	(48,049)	(52.4)	(39,992)	(54.3)	(45,989)	(41.3)	(31,581)	(31.5)
2012	151,459	188,740	124.6	9,118	6.0	(179,622)	(118.6)	(84,509)	(86.6)	(72,740)	(56.6)	(34,871)	(34.4)
2013	81,822	321,439	392.9	19,987	24.4	(301,452)	(368.4)	(176,374)	(162.8)	(120,210)	(132.3)	(40,666)	(40.3)
2014	337,555	496,872	147.2	0	0.0	(496,872)	(147.2)	(325,982)	(171.3)	(210,370)	(147.7)	(50,373)	(47.6)
2015	283,279	497,696	175.7	7,842	2.8	(489,854)	(172.9)	(429,393)	(183.3)	(303,170)	(160.3)	(59,529)	(54.3)
2016	182,074	361,289	198.4	731	0.4	(360,558)	(198.0)	(449,095)	(167.8)	(365,672)	(176.5)	(65,672)	(59.1)
2017	156,558	262,321	167.6	2,361	1.5	(259,961)	(166.0)	(370,124)	(178.5)	(381,739)	(183.3)	(69,558)	(62.1)
2018	168,928	215,643	127.7	150	0.1	(215,493)	(127.6)	(278,671)	(164.7)	(364,548)	(161.5)	(72,420)	(64.1)
2019	71,279	307,961	432.1	3,013	4.2	(304,948)	(427.8)	(260,134)	(196.7)	(326,163)	(189.2)	(76,891)	(68.5)
2020	155,320	346,105	222.8	21,369	13.8	(324,735)	(209.1)	(281,725)	(213.7)	(293,139)	(199.6)	(81,568)	(72.1)
TOTAL	5,992,694	5,919,825	98.8	1,596,746	26.6	(4,323,079)	(72.1)						

Currently Approved
Recommended

(100)
(110) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 366.00 - DISTRIBUTION - UNDERGROUND CONDUIT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	260	0	0.0	106	40.6	106	40.6					106	40.6
1969	0	0	0.0	0	0.0	0	0.0					53	40.6
1970	0	0	0.0	0	0.0	0	0.0	35	40.6			35	40.6
1971	0	0	0.0	0	0.0	0	0.0	0	0.0			26	40.6
1972	1,069	14	1.3	43	4.1	29	2.7	10	2.7	27	10.2	27	10.2
1973	0	0	0.0	0	0.0	0	0.0	10	2.7	6	2.7	22	10.2
1974	0	0	0.0	0	0.0	0	0.0	10	2.7	6	2.7	19	10.2
1975	0	0	0.0	0	0.0	0	0.0	0	0.0	6	2.7	17	10.2
1976	0	0	0.0	0	0.0	0	0.0	0	0.0	6	2.7	15	10.2
1977	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	13	10.2
1978	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	12	10.2
1979	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	10.2
1980	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	10.2
1981	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	10	10.2
1982	1,310	315	24.1	0	0.0	(315)	(24.1)	(105)	(24.1)	(63)	(24.1)	(12)	(6.8)
1983	0	0	0.0	0	0.0	0	0.0	(105)	(24.1)	(63)	(24.1)	(11)	(6.8)
1984	0	0	0.0	0	0.0	0	0.0	(105)	(24.1)	(63)	(24.1)	(11)	(6.8)
1985	0	0	0.0	0	0.0	0	0.0	0	0.0	(63)	(24.1)	(10)	(6.8)
1986	0	0	0.0	0	0.0	0	0.0	0	0.0	(63)	(24.1)	(9)	(6.8)
1987	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(9)	(6.8)
1988	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(9)	(6.8)
1989	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(6.8)
1990	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(6.8)
1991	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(8)	(6.8)
1992	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(6.8)
1993	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(6.8)
1994	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(7)	(6.8)
1995	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(6.8)
1996	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(6.8)
1997	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(6.8)
1998	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(6.8)
1999	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(6)	(6.8)
2000	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2001	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2002	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2003	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2004	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2005	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)

MDU Electric

ACCOUNT 366.00 - DISTRIBUTION - UNDERGROUND CONDUIT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2007	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(5)	(6.8)
2008	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2009	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2010	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2011	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2012	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2013	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2015	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2016	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2017	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2018	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(4)	(6.8)
2019	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(3)	(6.8)
2020	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	(3)	(6.8)
TOTAL	2,639	329	12.5	149	5.6	(180)	(6.8)						

Currently Approved
Recommended

0
0

Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 367.00 - DISTRIBUTION - UNDERGROUND CONDUCTOR & DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	1,280	141	11.0	515	40.3	375	29.3					375	29.3
1969	77	9	11.9	30	38.6	20	26.7					198	29.1
1970	1,014	10	1.0	78	7.7	68	6.7	154	19.5			154	19.5
1971	1,011	23	2.3	359	35.5	336	33.2	141	20.2			200	23.6
1972	4,365	67	1.5	177	4.0	109	2.5	171	8.0	182	11.7	182	11.7
1973	1,354	87	6.4	223	16.5	136	10.1	194	8.6	134	8.6	174	11.5
1974	1,753	524	29.9	666	38.0	143	8.1	129	5.2	158	8.3	170	10.9
1975	1,938	164	8.5	325	16.8	161	8.3	147	8.7	177	8.5	168	10.5
1976	3,580	848	23.7	294	8.2	(555)	(15.5)	(84)	(3.5)	(1)	(0.0)	88	4.8
1977	9,456	1,066	11.3	2,515	26.6	1,449	15.3	352	7.0	267	7.4	224	8.7
1978	8,463	2,114	25.0	2,692	31.8	578	6.8	491	6.9	355	7.1	256	8.2
1979	20,033	2,476	12.4	4,042	20.2	1,566	7.8	1,198	9.5	640	7.4	366	8.1
1980	17,239	1,208	7.0	2,470	14.3	1,262	7.3	1,135	7.4	860	7.3	435	7.9
1981	27,613	2,355	8.5	2,266	8.2	(88)	(0.3)	913	4.2	953	5.8	397	5.6
1982	25,742	6,978	27.1	5,700	22.1	(1,278)	(5.0)	(35)	(0.1)	408	2.1	286	3.4
1983	27,472	4,189	15.2	3,909	14.2	(280)	(1.0)	(549)	(2.0)	236	1.0	250	2.6
1984	21,143	14,570	68.9	4,476	21.2	(10,095)	(47.7)	(3,884)	(15.7)	(2,096)	(8.8)	(358)	(3.5)
1985	65,087	10,394	16.0	7,436	11.4	(2,958)	(4.5)	(4,444)	(11.7)	(2,940)	(8.8)	(503)	(3.8)
1986	10,482	6,494	61.9	2,179	20.8	(4,314)	(41.2)	(5,789)	(18.0)	(3,785)	(12.6)	(703)	(5.4)
1987	35,629	4,319	12.1	8,900	25.0	4,581	12.9	(897)	(2.4)	(2,613)	(8.2)	(439)	(3.1)
1988	37,496	6,818	18.2	13,539	36.1	6,721	17.9	2,329	8.4	(1,213)	(3.6)	(98)	(0.6)
1989	31,506	5,502	17.5	5,276	16.7	(226)	(0.7)	3,692	10.6	761	2.1	(104)	(0.6)
1990	41,384	6,357	15.4	6,411	15.5	54	0.1	2,183	5.9	1,363	4.4	(97)	(0.6)
1991	393,513	18,450	4.7	18,985	4.8	535	0.1	121	0.1	2,333	2.2	(71)	(0.2)
1992	81,435	16,091	19.8	27,115	33.3	11,024	13.5	3,871	2.2	3,622	3.1	373	1.1
1993	142,440	10,096	7.1	6,917	4.9	(3,179)	(2.2)	2,793	1.4	1,642	1.2	236	0.6
1994	182,606	22,651	12.4	9,236	5.1	(13,415)	(7.3)	(1,857)	(1.4)	(996)	(0.6)	(269)	(0.6)
1995	130,429	4,452	3.4	11,778	9.0	7,326	5.6	(3,089)	(2.0)	458	0.2	2	0.0
1996	393,131	21,388	5.4	13,984	3.6	(7,404)	(1.9)	(4,497)	(1.9)	(1,129)	(0.6)	(253)	(0.4)
1997	177,535	20,323	11.4	5,348	3.0	(14,975)	(8.4)	(5,017)	(2.1)	(6,329)	(3.1)	(744)	(1.2)
1998	182,711	28,994	15.9	10,938	6.0	(18,056)	(9.9)	(13,478)	(5.4)	(9,305)	(4.4)	(1,302)	(1.9)
1999	275,781	24,829	9.0	2,957	1.1	(21,872)	(7.9)	(18,301)	(8.6)	(10,996)	(4.7)	(1,945)	(2.6)
2000	251,265	35,746	14.2	12,390	4.9	(23,356)	(9.3)	(21,094)	(8.9)	(17,132)	(6.7)	(2,594)	(3.3)
2001	242,466	35,601	14.7	4,819	2.0	(30,781)	(12.7)	(25,336)	(9.9)	(21,808)	(9.7)	(3,423)	(4.1)
2002	313,978	52,474	16.7	4,266	1.4	(48,208)	(15.4)	(34,115)	(12.7)	(28,454)	(11.2)	(4,703)	(5.2)
2003	312,482	39,003	12.5	2,587	0.8	(36,416)	(11.7)	(38,468)	(13.3)	(32,127)	(11.5)	(5,584)	(5.8)
2004	259,179	47,857	18.5	9,529	3.7	(38,328)	(14.8)	(40,984)	(13.9)	(35,418)	(12.8)	(6,469)	(6.4)
2005	244,022	35,927	14.7	3,514	1.4	(32,413)	(13.3)	(35,719)	(13.1)	(37,229)	(13.6)	(7,151)	(6.8)

MDU Electric

ACCOUNT 367.00 - DISTRIBUTION - UNDERGROUND CONDUCTOR & DEVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	162,043	50,781	31.3	8,630	5.3	(42,152)	(26.0)	(37,631)	(17.0)	(39,503)	(15.3)	(8,049)	(7.6)
2007	196,914	38,297	19.4	4,344	2.2	(33,953)	(17.2)	(36,173)	(18.0)	(36,652)	(15.6)	(8,696)	(8.0)
2008	638,234	135,231	21.2	23,155	3.6	(112,076)	(17.6)	(62,727)	(18.9)	(51,784)	(17.3)	(11,218)	(9.2)
2009	391,986	76,699	19.6	5,909	1.5	(70,790)	(18.1)	(72,273)	(17.7)	(58,277)	(17.8)	(12,636)	(9.9)
2010	189,625	42,882	22.6	3,665	1.9	(39,217)	(20.7)	(74,028)	(18.2)	(59,638)	(18.9)	(13,254)	(10.3)
2011	523,961	146,727	28.0	7,992	1.5	(138,735)	(26.5)	(82,914)	(22.5)	(78,954)	(20.3)	(16,106)	(11.7)
2012	221,461	67,623	30.5	13,990	6.3	(53,633)	(24.2)	(77,195)	(24.8)	(82,890)	(21.1)	(16,940)	(12.1)
2013	443,661	621,586	140.1	9,758	2.2	(611,828)	(137.9)	(268,065)	(67.6)	(182,840)	(51.6)	(29,872)	(20.4)
2014	455,032	465,097	102.2	0	0.0	(465,097)	(102.2)	(376,852)	(100.9)	(261,702)	(71.4)	(39,133)	(25.5)
2015	547,539	748,021	136.6	1,771	0.3	(746,250)	(136.3)	(607,725)	(126.1)	(403,108)	(92.0)	(53,864)	(33.4)
2016	590,839	636,529	107.7	954	0.2	(635,575)	(107.6)	(615,641)	(115.9)	(502,477)	(111.2)	(65,736)	(38.6)
2017	849,817	1,553,186	182.8	19,700	2.3	(1,533,486)	(180.4)	(971,771)	(146.6)	(798,447)	(138.3)	(95,091)	(51.7)
2018	839,548	856,265	102.0	1,184	0.1	(855,080)	(101.9)	(1,008,047)	(132.6)	(847,098)	(129.0)	(109,993)	(55.9)
2019	503,891	1,821,219	361.4	1,427	0.3	(1,819,793)	(361.1)	(1,402,786)	(191.9)	(1,118,037)	(167.8)	(142,873)	(70.5)
2020	903,169	2,016,539	223.3	5,580	0.6	(2,010,958)	(222.7)	(1,561,944)	(208.6)	(1,370,979)	(185.9)	(178,120)	(82.6)
TOTAL	11,435,813	9,767,276	85.4	326,902	2.9	(9,440,374)	(82.6)						

Currently Approved
Recommended

(40)
(50) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 368.00 - DISTRIBUTION - LINE TRANSFORMERS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	50,315	114	0.2	2,515	5.0	2,401	4.8					2,401	4.8
1969	55,663	159	0.3	1,551	2.8	1,392	2.5					1,896	3.6
1970	46,715	390	0.8	2,690	5.8	2,299	4.9	2,031	4.0			2,031	4.0
1971	50,669	45	0.1	6,951	13.7	6,906	13.6	3,532	6.9			3,250	6.4
1972	49,964	0	0.0	3,450	6.9	3,450	6.9	4,219	8.6	3,290	6.5	3,290	6.5
1973	27,614	255	0.9	3,884	14.1	3,629	13.1	4,662	10.9	3,535	7.7	3,346	7.1
1974	31,759	0	0.0	2,678	8.4	2,678	8.4	3,252	8.9	3,792	9.2	3,251	7.3
1975	18,494	(598)	(3.2)	963	5.2	1,561	8.4	2,622	10.1	3,645	10.2	3,039	7.3
1976	77,938	3	0.0	28,545	36.6	28,542	36.6	10,927	25.6	7,972	19.4	5,873	12.9
1977	41,175	0	0.0	10,613	25.8	10,613	25.8	13,572	29.6	9,404	23.9	6,347	14.1
1978	58,538	389	0.7	5,656	9.7	5,267	9.0	14,807	25.0	9,732	21.4	6,249	13.5
1979	43,842	91	0.2	4,664	10.6	4,573	10.4	6,818	14.2	10,111	21.1	6,109	13.3
1980	69,533	(141)	(0.2)	8,113	11.7	8,255	11.9	6,032	10.5	11,450	19.7	6,274	13.1
1981	45,329	0	0.0	4,573	10.1	4,573	10.1	5,800	11.0	6,656	12.9	6,153	12.9
1982	76,339	62	0.1	5,399	7.1	5,337	7.0	6,055	9.5	5,601	9.5	6,098	12.3
1983	112,657	0	0.0	19,087	16.9	19,087	16.9	9,666	12.4	8,365	12.0	6,910	12.9
1984	120,384	0	0.0	5,379	4.5	5,379	4.5	9,934	9.6	8,526	10.0	6,820	11.9
1985	181,599	0	0.0	6,531	3.6	6,531	3.6	10,333	7.5	8,182	7.6	6,804	10.6
1986	118,405	0	0.0	14,601	12.3	14,601	12.3	8,837	6.3	10,187	8.4	7,214	10.7
1987	185,678	0	0.0	2,964	1.6	2,964	1.6	8,032	5.0	9,713	6.8	7,002	9.6
1988	109,827	19	0.0	6,538	6.0	6,519	5.9	8,028	5.8	7,199	5.0	6,979	9.3
1989	151,300	11,581	7.7	11,449	7.6	(132)	(0.1)	3,117	2.1	6,097	4.1	6,656	8.5
1990	62,769	0	0.0	16,855	26.9	16,855	26.9	7,747	7.2	8,161	6.5	7,099	9.1
1991	124,206	0	0.0	2,633	2.1	2,633	2.1	6,452	5.7	5,768	4.6	6,913	8.7
1992	64,562	535	0.8	10,872	16.8	10,337	16.0	9,941	11.9	7,242	7.1	7,050	8.9
1993	88,044	0	0.0	13,413	15.2	13,413	15.2	8,794	9.5	8,621	8.8	7,295	9.2
1994	59,548	138	0.2	1,673	2.8	1,535	2.6	8,428	11.9	8,955	11.2	7,081	9.0
1995	22,430	0	0.0	2,307	10.3	2,307	10.3	5,752	10.1	6,045	8.4	6,911	9.0
1996	90,418	0	0.0	4,201	4.6	4,201	4.6	2,681	4.7	6,359	9.8	6,817	8.8
1997	67,872	0	0.0	422	0.6	422	0.6	2,310	3.8	4,376	6.7	6,604	8.6
1998	152,731	0	0.0	1,120	0.7	1,120	0.7	1,915	1.8	1,917	2.4	6,427	8.1
1999	93,915	0	0.0	10,904	11.6	10,904	11.6	4,149	4.0	3,791	4.4	6,567	8.2
2000	86,091	0	0.0	2,565	3.0	2,565	3.0	4,863	4.4	3,843	3.9	6,446	8.1
2001	84,740	32,429	38.3	6,574	7.8	(25,854)	(30.5)	(4,128)	(4.7)	(2,169)	(2.2)	5,496	6.9
2002	120,296	34,679	28.8	1,996	1.7	(32,683)	(27.2)	(18,657)	(19.2)	(8,790)	(8.2)	4,405	5.4
2003	102,453	30,974	30.2	3,713	3.6	(27,261)	(26.6)	(28,599)	(27.9)	(14,466)	(14.8)	3,526	4.3
2004	114,344	45,374	39.7	3,103	2.7	(42,271)	(37.0)	(34,072)	(30.3)	(25,101)	(24.7)	2,288	2.8
2005	102,239	35,093	34.3	6,661	6.5	(28,432)	(27.8)	(32,655)	(30.7)	(31,300)	(29.9)	1,479	1.8

MDU Electric

ACCOUNT 368.00 - DISTRIBUTION - LINE TRANSFORMERS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	141,364	66,831	47.3	38,496	27.2	(28,335)	(20.0)	(33,013)	(27.7)	(31,796)	(27.4)	715	0.8
2007	119,350	41,681	34.9	20,322	17.0	(21,359)	(17.9)	(26,042)	(21.5)	(29,532)	(25.5)	163	0.2
2008	197,560	41,290	20.9	41,451	21.0	161	0.1	(16,511)	(10.8)	(24,047)	(17.8)	163	0.2
2009	179,904	85,773	47.7	30,778	17.1	(54,994)	(30.6)	(25,397)	(15.3)	(26,592)	(18.0)	(1,150)	(1.3)
2010	138,692	48,135	34.7	12,554	9.1	(35,581)	(25.7)	(30,138)	(17.5)	(28,022)	(18.0)	(1,951)	(2.1)
2011	190,171	90,701	47.7	37,824	19.9	(52,877)	(27.8)	(47,818)	(28.2)	(32,930)	(19.9)	(3,108)	(3.3)
2012	179,493	66,361	37.0	48,618	27.1	(17,743)	(9.9)	(35,401)	(20.9)	(32,207)	(18.2)	(3,434)	(3.6)
2013	577,260	0	0.0	890	0.2	890	0.2	(23,243)	(7.4)	(32,061)	(12.7)	(3,340)	(3.1)
2014	542,257	266,826	49.2	0	0.0	(266,826)	(49.2)	(94,560)	(21.8)	(74,427)	(22.9)	(8,946)	(7.7)
2015	379,692	153,746	40.5	43,601	11.5	(110,145)	(29.0)	(125,360)	(25.1)	(89,340)	(23.9)	(11,054)	(9.1)
2016	583,233	219,280	37.6	38,400	6.6	(180,880)	(31.0)	(185,950)	(37.1)	(114,941)	(25.4)	(14,520)	(11.1)
2017	424,827	163,179	38.4	40,605	9.6	(122,575)	(28.9)	(137,867)	(29.8)	(135,907)	(27.1)	(16,681)	(12.2)
2018	450,044	199,682	44.4	22,788	5.1	(176,894)	(39.3)	(160,116)	(32.9)	(171,464)	(36.0)	(19,822)	(13.9)
2019	384,353	192,354	50.0	73,931	19.2	(118,423)	(30.8)	(139,297)	(33.2)	(141,783)	(31.9)	(21,719)	(14.8)
2020	509,365	188,975	37.1	40,634	8.0	(148,342)	(29.1)	(147,886)	(33.0)	(149,423)	(31.8)	(24,108)	(15.7)
TOTAL	8,157,960	2,016,404	24.7	738,697	9.1	(1,277,707)	(15.7)						

Currently Approved
Recommended

(20)
(20) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 389.10 - DISTRIBUTION - SERVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	59,690	17,960	30.1	11,395	19.1	(6,565)	(11.0)					(6,565)	(11.0)
1969	59,089	20,797	35.2	14,941	25.3	(5,856)	(9.9)					(6,211)	(10.5)
1970	64,904	23,310	35.9	15,057	23.2	(8,254)	(12.7)	(6,892)	(11.3)			(6,892)	(11.3)
1971	51,502	19,138	37.2	12,945	25.1	(6,193)	(12.0)	(6,768)	(11.6)			(6,717)	(11.4)
1972	46,391	20,115	43.4	12,287	26.5	(7,829)	(16.9)	(7,425)	(13.7)	(6,940)	(12.3)	(6,940)	(12.3)
1973	59,332	25,067	42.2	28,213	47.6	3,146	5.3	(3,625)	(6.9)	(4,997)	(8.9)	(5,259)	(9.3)
1974	52,701	24,321	46.1	13,833	26.2	(10,487)	(19.9)	(5,057)	(9.6)	(5,923)	(10.8)	(6,006)	(10.7)
1975	57,556	27,517	47.8	18,573	32.3	(8,944)	(15.5)	(5,428)	(9.6)	(6,062)	(11.3)	(6,373)	(11.3)
1976	50,750	29,996	59.1	14,401	28.4	(15,596)	(30.7)	(11,676)	(21.8)	(7,942)	(14.9)	(7,398)	(13.3)
1977	71,702	45,184	63.0	23,040	32.1	(22,144)	(30.9)	(15,561)	(25.9)	(10,805)	(18.5)	(8,872)	(15.5)
1978	50,201	26,220	52.2	13,741	27.4	(12,479)	(24.9)	(16,739)	(29.1)	(13,930)	(24.6)	(9,200)	(16.2)
1979	66,097	38,602	58.4	20,783	31.4	(17,819)	(27.0)	(17,480)	(27.9)	(15,396)	(26.0)	(9,918)	(17.3)
1980	58,165	38,128	65.6	17,669	30.4	(20,459)	(35.2)	(16,919)	(29.1)	(17,699)	(29.8)	(10,729)	(18.6)
1981	59,105	42,924	72.6	17,453	29.5	(25,471)	(43.1)	(21,250)	(34.8)	(19,674)	(32.2)	(11,782)	(20.4)
1982	57,688	43,127	74.8	18,267	31.7	(24,860)	(43.1)	(23,597)	(40.5)	(20,217)	(34.7)	(12,654)	(21.9)
1983	60,445	48,476	80.2	16,173	26.8	(32,303)	(53.4)	(27,545)	(46.6)	(24,182)	(40.1)	(13,882)	(24.0)
1984	53,539	48,174	90.0	14,729	27.5	(33,445)	(62.5)	(30,203)	(52.8)	(27,308)	(47.3)	(15,033)	(26.1)
1985	74,716	61,353	82.1	19,611	26.2	(41,742)	(55.9)	(35,830)	(57.0)	(31,564)	(51.7)	(16,517)	(28.2)
1986	45,286	40,051	88.4	13,677	30.2	(26,374)	(58.2)	(33,854)	(58.5)	(31,745)	(54.4)	(17,035)	(29.5)
1987	51,276	44,388	86.6	13,352	26.0	(31,036)	(60.5)	(33,051)	(57.9)	(32,980)	(57.8)	(17,736)	(30.8)
1988	53,290	46,533	87.3	13,279	24.9	(33,255)	(62.4)	(30,222)	(60.5)	(33,170)	(59.6)	(18,475)	(32.2)
1989	60,866	53,727	88.3	15,017	24.7	(38,710)	(63.6)	(34,334)	(62.3)	(34,223)	(59.9)	(19,394)	(33.7)
1990	54,332	41,674	76.7	12,422	22.9	(29,252)	(53.8)	(33,739)	(60.1)	(31,725)	(59.8)	(19,823)	(34.6)
1991	65,151	48,668	74.7	14,733	22.6	(33,935)	(52.1)	(33,966)	(56.5)	(33,237)	(58.3)	(20,411)	(35.4)
1992	78,604	48,443	61.6	17,733	22.6	(30,710)	(39.1)	(31,299)	(47.4)	(33,172)	(53.1)	(20,823)	(35.6)
1993	65,478	43,769	66.8	11,378	17.4	(32,391)	(49.5)	(32,345)	(46.4)	(32,999)	(50.9)	(21,268)	(36.2)
1994	112,538	58,334	51.8	14,070	12.5	(44,264)	(39.3)	(35,788)	(41.8)	(34,110)	(45.3)	(22,119)	(36.4)
1995	10,832	12,898	119.1	2,982	27.5	(9,916)	(91.5)	(28,857)	(45.8)	(30,243)	(45.5)	(21,684)	(36.8)
1996	119,540	79,739	66.7	18,062	15.1	(61,677)	(51.6)	(38,619)	(47.7)	(35,791)	(46.2)	(23,063)	(37.8)
1997	75,655	49,247	65.1	10,238	13.5	(39,010)	(51.6)	(36,868)	(53.7)	(37,452)	(48.8)	(23,594)	(38.3)
1998	86,268	52,376	60.7	9,701	11.2	(42,675)	(49.5)	(47,787)	(50.9)	(39,508)	(48.8)	(24,210)	(38.8)
1999	100,500	48,276	48.0	7,514	7.5	(40,763)	(40.6)	(40,816)	(46.7)	(38,808)	(49.4)	(24,727)	(38.9)
2000	84,425	54,382	64.4	9,343	11.1	(45,039)	(53.3)	(42,826)	(47.4)	(45,833)	(49.1)	(25,343)	(39.5)
2001	73,349	42,191	57.5	3,743	5.1	(38,448)	(52.4)	(41,417)	(48.1)	(41,187)	(49.0)	(25,728)	(39.9)
2002	87,799	49,064	55.9	3,976	4.5	(45,088)	(51.4)	(42,858)	(52.4)	(42,402)	(49.0)	(26,281)	(40.4)
2003	70,356	50,974	72.5	3,446	4.9	(47,529)	(67.6)	(43,688)	(56.6)	(43,373)	(52.1)	(26,871)	(41.2)
2004	106,841	67,932	63.6	6,554	6.1	(61,378)	(57.4)	(51,331)	(58.1)	(47,496)	(56.2)	(27,804)	(41.9)
2005	109,074	71,207	65.3	3,579	3.3	(67,627)	(62.0)	(58,845)	(61.7)	(52,014)	(58.1)	(28,852)	(42.7)

MDU Electric

ACCOUNT 389.10 - DISTRIBUTION - SERVICES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	127,753	88,707	69.4	4,155	3.3	(84,551)	(66.2)	(71,185)	(62.1)	(61,235)	(61.0)	(30,280)	(43.9)
2007	69,040	35,415	51.3	2,899	4.2	(32,516)	(47.1)	(61,565)	(60.4)	(58,720)	(60.8)	(30,336)	(43.9)
2008	239,101	100,275	41.9	15,991	6.7	(84,283)	(35.2)	(67,117)	(46.2)	(66,071)	(50.7)	(31,652)	(43.2)
2009	120,070	78,698	65.5	8,864	7.4	(69,834)	(58.2)	(62,211)	(43.6)	(67,762)	(50.9)	(32,561)	(43.8)
2010	103,750	41,916	40.4	1,077	1.0	(40,838)	(39.4)	(64,985)	(42.1)	(62,405)	(47.3)	(32,753)	(43.7)
2011	199,744	94,646	47.4	2,147	1.1	(92,499)	(46.3)	(67,724)	(48.0)	(63,994)	(43.7)	(34,111)	(43.8)
2012	174,253	60,109	34.5	4,320	2.5	(55,789)	(32.0)	(63,042)	(39.6)	(68,649)	(41.0)	(34,593)	(43.3)
2013	148,391	66,812	45.0	11,870	8.0	(54,942)	(37.0)	(67,744)	(38.9)	(62,781)	(42.1)	(35,035)	(43.0)
2014	169,167	51,155	30.2	0	0.0	(51,155)	(30.2)	(53,962)	(32.9)	(59,045)	(37.1)	(35,378)	(42.5)
2015	178,099	50,504	28.4	0	0.0	(50,504)	(28.4)	(52,200)	(31.6)	(60,978)	(35.1)	(35,693)	(41.8)
2016	181,376	50,391	27.8	0	0.0	(50,391)	(27.8)	(50,683)	(28.8)	(52,556)	(30.9)	(35,993)	(41.2)
2017	162,658	89,243	54.9	0	0.0	(89,243)	(54.9)	(63,379)	(36.4)	(59,247)	(35.3)	(37,058)	(41.7)
2018	142,000	47,274	33.3	0	0.0	(47,274)	(33.3)	(62,302)	(38.5)	(57,713)	(34.6)	(37,259)	(41.5)
2019	148,900	80,566	54.1	0	0.0	(80,566)	(54.1)	(72,361)	(47.9)	(63,595)	(39.1)	(38,092)	(41.9)
2020	182,709	94,916	51.9	0	0.0	(94,916)	(51.9)	(74,252)	(47.0)	(72,478)	(44.3)	(39,164)	(42.3)
TOTAL	4,912,045	2,634,908	53.6	559,232	11.4	(2,075,676)	(42.3)						

Currently Approved
Recommended

(50)
(50) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 370.00 - DISTRIBUTION - METERS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	49,396	0	0.0	128	0.3	128	0.3					128	0.3
1969	33,679	0	0.0	255	0.8	255	0.8					191	0.5
1970	38,220	4	0.0	845	2.2	841	2.2	408	1.0			408	1.0
1971	20,712	386	1.9	2,705	13.1	2,319	11.2	1,138	3.7			886	2.5
1972	32,860	0	0.0	38	0.1	38	0.1	1,066	3.5	716	2.0	716	2.0
1973	37,470	(386)	(1.0)	(830)	(2.2)	(445)	(1.2)	637	2.1	602	1.8	523	1.5
1974	58,485	0	0.0	3,257	5.6	3,257	5.6	950	2.2	1,202	3.2	913	2.4
1975	74,859	19	0.0	7,659	10.2	7,640	10.2	3,484	6.1	2,562	5.7	1,754	4.1
1976	57,076	0	0.0	160	0.3	160	0.3	3,686	5.8	2,130	4.1	1,577	3.5
1977	72,307	0	0.0	736	1.0	736	1.0	2,845	4.2	2,270	3.8	1,493	3.1
1978	47,133	0	0.0	309	0.7	309	0.7	402	0.7	2,421	3.9	1,385	2.9
1979	53,521	(626)	(1.2)	1,131	2.1	1,757	3.3	934	1.6	2,121	3.5	1,416	3.0
1980	98,473	0	0.0	431	0.4	431	0.4	832	1.3	679	1.0	1,341	2.6
1981	52,877	0	0.0	3,034	5.7	3,034	5.7	1,741	2.5	1,253	1.9	1,461	2.8
1982	67,981	(266)	(0.4)	53	0.1	320	0.5	1,262	1.7	1,170	1.8	1,385	2.6
1983	98,944	0	0.0	1,827	1.8	1,827	1.8	1,727	2.4	1,474	2.0	1,413	2.5
1984	87,297	0	0.0	223	0.3	223	0.3	790	0.9	1,167	1.4	1,343	2.3
1985	88,268	0	0.0	194	0.2	194	0.2	748	0.8	1,119	1.4	1,279	2.2
1986	77,450	0	0.0	321	0.4	321	0.4	246	0.3	577	0.7	1,229	2.0
1987	140,617	0	0.0	0	0.0	0	0.0	171	0.2	513	0.5	1,167	1.8
1988	103,627	0	0.0	87	0.1	87	0.1	136	0.1	165	0.2	1,116	1.7
1989	80,878	0	0.0	0	0.0	0	0.0	29	0.0	120	0.1	1,065	1.6
1990	78,739	0	0.0	0	0.0	0	0.0	29	0.0	82	0.1	1,019	1.5
1991	78,636	0	0.0	0	0.0	0	0.0	0	0.0	17	0.0	976	1.4
1992	239,561	0	0.0	0	0.0	0	0.0	0	0.0	17	0.0	937	1.3
1993	105,027	0	0.0	1,355	1.3	1,355	1.3	452	0.3	271	0.2	953	1.3
1994	134,306	98	0.1	956	0.7	857	0.6	737	0.5	442	0.3	950	1.2
1995	36,610	0	0.0	176	0.5	176	0.5	796	0.9	478	0.4	922	1.2
1996	249,171	1,056	0.4	10,021	4.0	8,966	3.6	3,333	2.4	2,271	1.5	1,199	1.5
1997	114,474	0	0.0	(176)	(0.2)	(176)	(0.2)	2,989	2.2	2,236	1.7	1,154	1.4
1998	91,468	0	0.0	1,362	1.5	1,362	1.5	3,384	2.2	2,237	1.8	1,160	1.4
1999	118,312	0	0.0	(259)	(0.2)	(259)	(0.2)	309	0.3	2,014	1.7	1,116	1.3
2000	120,307	0	0.0	1,590	1.3	1,590	1.3	898	0.8	2,297	1.7	1,130	1.3
2001	172,893	24,234	14.0	0	0.0	(24,234)	(14.0)	(7,634)	(5.6)	(4,343)	(3.5)	384	0.4
2002	86,008	14,086	16.4	0	0.0	(14,086)	(16.4)	(12,243)	(9.7)	(7,125)	(6.0)	(29)	(0.0)
2003	54,897	13,757	25.1	0	0.0	(13,757)	(25.1)	(17,359)	(16.6)	(10,149)	(9.2)	(410)	(0.5)
2004	56,820	18,870	33.2	0	0.0	(18,870)	(33.2)	(15,571)	(23.6)	(13,871)	(14.1)	(909)	(1.0)
2005	69,827	20,910	29.9	0	0.0	(20,910)	(29.9)	(17,846)	(29.5)	(18,371)	(20.9)	(1,436)	(1.7)

MDU Electric

ACCOUNT 370.00 - DISTRIBUTION - METERS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	108,047	33,337	30.9	0	0.0	(33,337)	(30.9)	(24,372)	(31.2)	(20,192)	(26.9)	(2,254)	(2.6)
2007	2,905,248	2,235	0.1	3,499	0.1	1,264	0.0	(17,661)	(1.7)	(17,122)	(2.7)	(2,166)	(1.4)
2008	829,577	4,324	0.5	25,029	3.0	20,705	2.5	(3,790)	(0.3)	(10,230)	(1.3)	(1,608)	(0.9)
2009	272,661	43,081	15.8	0	0.0	(43,081)	(15.8)	(7,038)	(0.5)	(15,072)	(1.8)	(2,595)	(1.5)
2010	418,911	47,809	11.4	0	0.0	(47,809)	(11.4)	(23,395)	(4.6)	(20,452)	(2.3)	(3,647)	(2.0)
2011	382,351	27,350	7.2	0	0.0	(27,350)	(7.2)	(39,413)	(11.0)	(19,254)	(2.0)	(4,186)	(2.2)
2012	2,639,326	232,701	8.8	13,793	0.5	(218,907)	(8.3)	(98,022)	(8.5)	(63,289)	(7.0)	(8,957)	(3.7)
2013	40,962	14,941	36.5	14,043	34.3	(898)	(2.2)	(82,385)	(8.1)	(67,609)	(9.0)	(8,782)	(3.7)
2014	1,620,237	16,599	1.0	0	0.0	(16,599)	(1.0)	(78,801)	(5.5)	(62,313)	(6.1)	(8,948)	(3.4)
2015	131,053	173,769	132.6	80	0.1	(173,689)	(132.5)	(63,729)	(10.7)	(87,489)	(9.1)	(12,380)	(4.7)
2016	78,585	7,802	9.9	200	0.3	(7,602)	(9.7)	(65,964)	(10.8)	(83,539)	(9.3)	(12,283)	(4.7)
2017	81,783	6,683	8.2	638	0.8	(6,045)	(7.4)	(62,446)	(64.3)	(40,967)	(10.5)	(12,158)	(4.8)
2018	112,796	11,081	9.8	80	0.1	(11,001)	(9.8)	(8,216)	(9.0)	(42,987)	(10.6)	(12,135)	(4.8)
2019	107,075	10,101	9.4	246	0.2	(9,855)	(9.2)	(8,967)	(8.9)	(41,638)	(40.7)	(12,092)	(4.8)
2020	166,037	16,413	9.9	375	0.2	(16,038)	(9.7)	(12,298)	(9.6)	(10,108)	(9.3)	(12,166)	(4.9)
TOTAL	13,173,831	740,366	5.6	95,568	0.7	(644,798)	(4.9)						

Currently Approved
Recommended

(5)

(5) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 371.00 - INSTALLATION ON CUSTOMERS PREMISES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	19,378	1,640	8.5	8,209	42.4	6,569	33.9					6,569	33.9
1969	26,935	2,121	7.9	9,016	33.5	6,896	25.6					6,732	29.1
1970	21,871	2,736	12.5	7,959	36.4	5,223	23.9	6,229	27.4			6,229	27.4
1971	21,026	2,115	10.1	6,763	32.2	4,648	22.1	5,589	24.0			5,834	26.2
1972	20,694	2,408	11.6	7,017	33.9	4,609	22.3	4,827	22.8	5,589	25.4	5,589	25.4
1973	28,396	3,659	12.9	9,874	34.8	6,215	21.9	5,157	22.1	5,518	23.2	5,693	24.7
1974	27,705	3,745	13.5	10,939	39.5	7,194	26.0	6,006	23.5	5,578	23.3	5,908	24.9
1975	25,665	3,690	14.4	11,200	43.6	7,510	29.3	6,973	25.6	6,035	24.4	6,108	25.5
1976	0	0	0.0	0	0.0	0	0.0	4,901	27.6	5,106	24.9	5,429	25.5
1977	46,033	9,188	20.0	21,128	45.9	11,941	25.9	6,484	27.1	6,572	25.7	6,081	25.6
1978	56,721	7,721	13.6	24,523	43.2	16,802	29.6	9,581	28.0	8,689	27.8	7,055	26.4
1979	39,454	7,631	19.3	14,190	36.0	6,559	16.6	11,767	24.8	8,562	25.5	7,014	25.2
1980	44,589	8,839	19.8	21,073	47.3	12,234	27.4	11,865	25.3	9,507	25.4	7,415	25.5
1981	47,186	10,590	22.4	21,887	46.4	11,297	23.9	10,030	22.9	11,766	25.1	7,693	25.3
1982	49,484	12,523	25.3	24,366	49.2	11,843	23.9	11,791	25.0	11,747	24.7	7,969	25.2
1983	52,664	13,296	25.2	23,613	44.8	10,317	19.6	11,152	22.4	10,450	22.4	8,116	24.6
1984	59,606	16,752	28.1	25,163	42.2	8,411	14.1	10,190	18.9	10,820	21.3	8,133	23.5
1985	61,280	16,032	26.2	27,733	45.3	11,702	19.1	10,143	17.5	10,714	19.8	8,332	23.1
1986	55,054	14,163	25.7	22,728	41.3	8,565	15.6	9,559	16.3	10,167	18.3	8,344	22.5
1987	59,426	15,915	26.8	23,932	40.3	8,017	13.5	9,428	16.1	9,402	16.3	8,328	21.8
1988	43,565	12,160	27.9	17,810	40.9	5,650	13.0	7,411	14.1	8,469	15.2	8,200	21.3
1989	45,041	13,071	29.0	15,172	33.7	2,101	4.7	5,256	10.7	7,207	13.6	7,923	20.5
1990	46,896	12,988	27.7	17,990	38.4	5,002	10.7	4,251	9.4	5,867	11.7	7,796	20.0
1991	51,053	14,423	28.3	16,618	32.6	2,195	4.3	3,099	6.5	4,593	9.3	7,562	19.1
1992	42,424	12,014	28.3	9,856	23.2	(2,158)	(5.1)	1,680	3.6	2,558	5.6	7,174	18.1
1993	51,351	10,005	19.5	13,411	26.1	3,406	6.6	1,148	2.4	2,109	4.5	7,029	17.5
1994	40,691	14,378	35.3	10,945	26.9	(3,433)	(8.4)	(728)	(1.6)	1,002	2.2	6,641	16.5
1995	4,900	3,561	72.7	3,100	63.3	(461)	(9.4)	(163)	(0.5)	(90)	(0.2)	6,388	16.4
1996	85,556	24,130	28.2	18,619	21.8	(5,510)	(6.4)	(3,135)	(7.2)	(1,631)	(3.6)	5,977	14.8
1997	53,238	14,998	28.2	13,662	25.7	(1,336)	(2.5)	(2,436)	(5.1)	(1,467)	(3.1)	5,734	14.0
1998	64,851	20,376	31.4	14,771	22.8	(5,605)	(8.6)	(4,150)	(6.1)	(3,269)	(6.6)	5,368	12.9
1999	53,614	12,440	23.2	13,645	25.5	1,205	2.2	(1,912)	(3.3)	(2,341)	(4.5)	5,238	12.4
2000	60,069	14,291	23.8	13,987	23.3	(304)	(0.5)	(1,568)	(2.6)	(2,310)	(3.6)	5,070	11.9
2001	41,531	9,317	22.4	6,439	15.5	(2,878)	(6.9)	(659)	(1.3)	(1,784)	(3.3)	4,836	11.4
2002	47,502	13,688	28.8	9,586	20.2	(4,102)	(8.6)	(2,428)	(4.9)	(2,337)	(4.4)	4,581	10.7
2003	66,457	15,037	22.6	13,836	20.8	(1,200)	(1.8)	(2,727)	(5.3)	(1,456)	(2.7)	4,420	10.2
2004	59,954	18,256	30.5	14,170	23.6	(4,086)	(6.8)	(3,130)	(5.4)	(2,514)	(4.6)	4,190	9.6
2005	63,804	19,415	30.4	11,404	17.9	(8,010)	(12.6)	(4,432)	(7.0)	(4,055)	(7.3)	3,869	8.7

MDU Electric

ACCOUNT 371.00 - INSTALLATION ON CUSTOMERS PREMISES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	59,017	19,401	32.9	6,815	11.5	(12,585)	(21.3)	(8,227)	(13.5)	(5,997)	(10.1)	3,447	7.7
2007	34,765	13,125	37.8	5,092	14.6	(8,032)	(23.1)	(9,543)	(18.2)	(6,783)	(11.9)	3,160	7.1
2008	79,643	23,680	29.7	9,936	12.5	(13,744)	(17.3)	(11,454)	(19.8)	(9,292)	(15.6)	2,748	6.1
2009	109,355	28,893	26.4	30,377	27.8	1,484	1.4	(6,764)	(9.1)	(8,178)	(11.8)	2,718	5.8
2010	51,160	11,818	23.1	8,718	17.0	(3,100)	(6.1)	(5,120)	(6.4)	(7,196)	(10.8)	2,583	5.5
2011	74,407	19,360	26.0	6,332	8.5	(13,028)	(17.5)	(4,881)	(6.2)	(7,284)	(10.4)	2,228	4.7
2012	72,737	21,767	29.9	9,769	13.4	(11,998)	(16.5)	(9,375)	(14.2)	(8,077)	(10.4)	1,912	4.0
2013	64,892	53,123	81.9	0	0.0	(53,123)	(81.9)	(26,049)	(36.9)	(15,953)	(21.4)	715	1.5
2014	81,622	35,153	43.1	0	0.0	(35,153)	(43.1)	(33,424)	(45.7)	(23,280)	(33.8)	(48)	(0.1)
2015	87,346	35,515	40.7	0	0.0	(35,515)	(40.7)	(41,264)	(52.9)	(29,763)	(39.1)	(787)	(1.6)
2016	99,027	33,990	34.3	0	0.0	(33,990)	(34.3)	(34,886)	(39.1)	(33,956)	(41.9)	(1,464)	(2.9)
2017	90,593	32,684	36.1	0	0.0	(32,684)	(36.1)	(34,063)	(36.9)	(38,093)	(45.0)	(2,089)	(4.0)
2018	156,664	39,103	25.0	2,025	1.3	(37,078)	(23.7)	(34,584)	(30.0)	(34,884)	(33.9)	(2,775)	(5.2)
2019	1,091,979	41,731	3.8	0	0.0	(41,731)	(3.8)	(37,164)	(8.3)	(36,199)	(11.9)	(3,524)	(4.8)
2020	596,512	98,193	16.5	0	0.0	(98,193)	(16.5)	(59,000)	(9.6)	(48,735)	(12.0)	(5,310)	(6.3)
TOTAL	4,435,381	916,846	20.7	635,402	14.3	(281,444)	(6.3)						

Currently Approved
Recommended

(15)
(15) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 373.00 - STREET LIGHTING SYSTEM SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1968	31,553	4,692	14.9	4,353	13.8	(339)	(1.1)					(339)	(1.1)
1969	39,427	7,474	19.0	6,870	17.4	(604)	(1.5)					(471)	(1.3)
1970	28,523	4,686	16.4	6,874	24.1	2,189	7.7	415	1.3	1,365	4.1	939	2.9
1971	30,912	5,032	16.3	7,543	24.4	2,511	8.1	1,365	4.1				
1972	23,296	3,929	16.9	1,786	7.7	(2,143)	(9.2)	852	3.1	323	1.1	323	1.1
1973	35,901	4,693	13.1	2,000	5.6	(2,693)	(7.5)	(775)	(2.6)	(148)	(0.5)	(180)	(0.6)
1974	22,585	4,303	19.1	2,259	10.0	(2,043)	(9.0)	(2,293)	(8.4)	(436)	(1.5)	(446)	(1.5)
1975	32,601	6,696	20.5	10,571	32.4	3,875	11.9	(287)	(0.9)	(98)	(0.3)	94	0.3
1976	6,042	2,314	38.3	127	2.1	(2,187)	(36.2)	(118)	(0.6)	(1,038)	(4.3)	(159)	(0.6)
1977	25,482	4,203	16.5	6,769	26.6	2,566	10.1	1,418	6.6	(96)	(0.4)	113	0.4
1978	29,152	6,657	22.8	6,364	21.8	(293)	(1.0)	29	0.1	384	1.7	76	0.3
1979	21,014	4,729	22.5	6,451	30.7	1,723	8.2	1,332	5.3	1,137	5.0	214	0.8
1980	26,354	4,775	18.1	14,148	53.7	9,373	35.6	3,601	14.1	2,237	10.4	918	3.4
1981	27,544	6,802	24.7	14,069	51.1	7,267	26.4	6,121	24.5	4,127	15.9	1,372	5.0
1982	31,558	7,733	24.5	24,149	76.5	16,416	52.0	11,019	38.7	6,897	25.4	2,375	8.6
1983	21,680	5,249	24.2	11,358	52.4	6,109	28.2	9,931	36.9	8,178	31.9	2,608	9.6
1984	22,717	5,014	22.1	5,978	26.3	965	4.2	7,830	30.9	8,026	30.9	2,511	9.4
1985	59,132	16,577	28.0	25,068	42.4	8,490	14.4	5,188	15.0	7,849	24.1	2,844	9.9
1986	33,627	12,154	36.1	6,224	18.5	(5,930)	(17.6)	1,175	3.1	5,210	15.4	2,382	8.2
1987	42,650	15,266	35.8	11,628	27.3	(3,638)	(8.5)	(359)	(0.8)	1,199	3.3	2,081	7.0
1988	39,455	16,072	40.7	9,911	25.1	(6,161)	(15.6)	(5,243)	(13.6)	(1,255)	(3.2)	1,688	5.6
1989	39,609	17,650	44.6	8,628	21.8	(9,021)	(22.8)	(6,273)	(15.5)	(3,252)	(7.6)	1,202	3.9
1990	26,511	9,785	36.9	11,731	44.2	1,946	7.3	(4,412)	(12.5)	(4,561)	(12.5)	1,234	4.1
1991	31,256	13,345	42.7	6,784	21.7	(6,561)	(21.0)	(4,545)	(14.0)	(4,687)	(13.1)	909	3.0
1992	42,454	12,233	28.8	12,061	28.4	(172)	(0.4)	(1,596)	(4.8)	(3,994)	(11.1)	866	2.8
1993	31,924	13,628	42.7	5,861	18.4	(7,767)	(24.3)	(4,833)	(13.7)	(4,315)	(12.6)	534	1.7
1994	58,228	25,318	43.5	8,480	14.6	(16,838)	(28.9)	(8,259)	(18.7)	(5,878)	(15.4)	(110)	(0.3)
1995	10,764	6,464	60.1	7,398	68.7	935	8.7	(7,890)	(23.5)	(6,081)	(17.4)	(72)	(0.2)
1996	90,087	28,872	32.0	17,124	19.0	(11,748)	(13.0)	(9,217)	(17.4)	(7,118)	(15.2)	(475)	(1.4)
1997	69,440	21,020	30.3	16,912	24.4	(4,108)	(5.9)	(4,974)	(8.8)	(7,905)	(15.2)	(596)	(1.7)
1998	46,365	21,605	46.6	7,280	15.7	(14,326)	(30.9)	(10,060)	(14.7)	(9,217)	(16.8)	(1,039)	(3.0)
1999	43,493	18,855	43.4	7,302	16.8	(11,553)	(26.6)	(9,996)	(18.8)	(8,160)	(15.7)	(1,367)	(3.9)
2000	45,694	18,154	39.7	7,342	16.1	(10,812)	(23.7)	(12,230)	(27.1)	(10,509)	(17.8)	(1,654)	(4.7)
2001	53,502	16,724	31.3	2,732	5.1	(13,991)	(26.2)	(12,119)	(25.5)	(10,958)	(21.2)	(2,016)	(5.6)
2002	75,132	34,164	45.5	11,399	15.2	(22,764)	(30.3)	(15,856)	(27.3)	(14,689)	(27.8)	(2,609)	(7.0)
2003	52,166	21,318	40.9	3,453	6.6	(17,865)	(34.2)	(18,207)	(30.2)	(15,397)	(28.5)	(3,033)	(8.1)
2004	89,229	37,311	41.8	10,795	12.1	(26,516)	(29.7)	(22,382)	(31.0)	(18,390)	(29.1)	(3,668)	(9.4)
2005	52,267	23,634	45.2	6,125	11.7	(17,509)	(33.5)	(20,630)	(32.0)	(19,729)	(30.6)	(4,032)	(10.3)

MDU Electric

ACCOUNT 373.00 - STREET LIGHTING SYSTEM SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2006	75,811	38,556	50.9	8,906	11.7	(29,650)	(39.1)	(24,558)	(33.9)	(22,861)	(33.2)	(4,689)	(11.7)
2007	33,042	20,463	61.9	1,763	5.3	(18,700)	(56.6)	(21,953)	(40.9)	(22,048)	(36.4)	(5,039)	(12.6)
2008	80,794	36,574	45.3	3,237	4.0	(33,337)	(41.3)	(27,229)	(43.1)	(25,142)	(38.0)	(5,729)	(14.0)
2009	89,188	36,580	41.0	5,472	6.1	(31,108)	(34.9)	(27,715)	(41.0)	(26,061)	(39.4)	(6,334)	(15.0)
2010	55,662	19,567	35.2	4,453	8.0	(15,114)	(27.2)	(26,520)	(35.3)	(25,582)	(38.2)	(6,538)	(15.4)
2011	131,149	65,352	49.8	4,216	3.2	(61,136)	(46.6)	(35,786)	(38.9)	(31,879)	(40.9)	(7,779)	(17.5)
2012	82,830	43,399	52.4	7,675	9.3	(35,724)	(43.1)	(37,325)	(41.5)	(35,284)	(40.1)	(8,400)	(18.5)
2013	77,039	92,052	119.5	0	0.0	(92,052)	(119.5)	(62,970)	(64.9)	(47,027)	(53.9)	(10,218)	(22.2)
2014	126,208	147,091	116.5	0	0.0	(147,091)	(116.5)	(91,622)	(96.1)	(70,223)	(74.2)	(13,130)	(27.5)
2015	98,861	81,204	82.1	0	0.0	(81,204)	(82.1)	(106,782)	(106.0)	(83,441)	(80.8)	(14,549)	(29.8)
2016	159,324	116,348	73.0	0	0.0	(116,348)	(73.0)	(114,881)	(89.7)	(94,484)	(86.8)	(16,626)	(32.6)
2017	127,779	92,372	72.3	0	0.0	(92,372)	(72.3)	(96,641)	(75.1)	(105,813)	(89.8)	(18,141)	(34.5)
2018	1,127,626	118,834	10.5	0	0.0	(118,834)	(10.5)	(109,185)	(23.2)	(111,170)	(33.9)	(20,115)	(27.3)
2019	2,056,723	261,553	12.7	1,470	0.1	(260,083)	(12.6)	(157,096)	(14.2)	(133,768)	(18.7)	(24,730)	(22.1)
2020	379,841	99,299	26.1	1,693	0.4	(97,606)	(25.7)	(158,841)	(13.4)	(137,049)	(17.8)	(26,105)	(22.3)
TOTAL	6,191,205	1,758,368	28.4	374,795	6.1	(1,383,573)	(22.3)						

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Recommended

(50)
(45) Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 390.00 - STRUCTURES & IMPROVEMENTS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1973	6,819	1,377	20.2	0	0.0	(1,377)	(20.2)	(459)	(20)	(275)	(20)	(1,377)	(20.2)
1974	12,586	3,567	28.3	511	4.1	(3,056)	(24.3)	(1,478)	(23)	(887)	(23)	(2,216)	(22.8)
1975	2,598	0	0.0	2,506	96.5	2,506	96.5	(642)	(8.8)	(385)	(9)	(642)	(8.8)
1976	1,111	1,638	147.5	0	0.0	(1,638)	(147.5)	(729)	(13.4)	(713)	(15)	(891)	(15.4)
1977	0	0	0.0	0	0.0	0	0.0	289	23.4	(713)	(15.4)	(713)	(15.4)
1978	0	0	0.0	0	0.0	0	0.0	(546)	(147.5)	(437)	(13.4)	(594)	(15.4)
1979	10,525	10	0.1	11,060	105.1	11,049	105.0	3,683	105.0	2,384	83.7	1,069	22.3
1980	0	1	0.0	0	0.0	(1)	0.0	3,683	105.0	1,882	80.9	935	22.2
1981	26,603	367	1.4	43,451	163.3	43,085	162.0	18,044	145.8	10,827	145.8	5,619	83.9
1982	0	0	0.0	0	0.0	0	0.0	14,361	161.9	10,827	145.8	5,057	83.9
1983	10,564	4,594	43.5	(104)	(1.0)	(4,698)	(44.5)	12,796	103.3	9,887	103.7	4,170	64.8
1984	0	0	0.0	0	0.0	0	0.0	(1,566)	(44.5)	7,677	103.3	3,823	64.8
1985	4,044	0	0.0	0	0.0	0	0.0	(1,566)	(32.2)	7,677	93.1	3,528	61.3
1986	3,864	0	0.0	2,085	53.9	2,085	53.9	695	26.4	(523)	(14.1)	3,425	60.9
1987	42,792	0	0.0	(2,341)	(5.5)	(2,341)	(5.5)	(85)	(0.5)	(991)	(8.1)	3,041	37.5
1988	0	0	0.0	0	0.0	0	0.0	(85)	(0.5)	(51)	(0.5)	2,851	37.5
1989	25,745	7,997	31.1	729	2.8	(7,267)	(28.2)	(3,203)	(14.0)	(1,505)	(9.8)	2,256	26.0
1990	8,971	37,678	420.0	0	0.0	(37,678)	(420.0)	(14,982)	(129.5)	(9,040)	(55.5)	37	0.4
1991	7,571	0	0.0	0	0.0	0	0.0	(14,982)	(106.3)	(9,457)	(55.6)	35	0.4
1992	1,500	7	0.5	0	0.0	(7)	(0.5)	(12,562)	(208.9)	(8,991)	(102.7)	33	0.4
1993	0	0	0.0	0	0.0	0	0.0	(2)	(0.1)	(8,991)	(102.7)	32	0.4
1994	13,344	631	4.7	12,387	92.8	11,756	88.1	3,916	79.1	(5,186)	(82.6)	564	7.0
1995	21,447	470	2.2	13,543	63.1	13,073	61.0	8,276	71.4	4,964	56.6	1,108	12.7
1996	63,049	1,100	1.7	39,125	62.1	38,025	60.3	20,951	64.2	12,569	63.3	2,646	24.1
1997	0	0	0.0	0	0.0	0	0.0	17,033	60.5	12,571	64.2	2,541	24.1
1998	179,676	500	0.3	84,879	47.2	84,379	47.0	40,801	50.4	29,446	53.1	5,688	33.4
1999	0	0	0.0	0	0.0	0	0.0	28,126	47.0	27,095	51.3	5,478	33.4
2000	0	0	0.0	0	0.0	0	0.0	28,126	47.0	24,481	50.4	5,282	33.4
2001	446	0	0.0	0	0.0	0	0.0	0	0.0	16,876	46.8	5,100	33.4
2002	0	0	0.0	0	0.0	0	0.0	0	0.0	16,876	46.8	4,930	33.4
2003	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4,771	33.4
2004	11,164	18,500	165.7	0	0.0	(18,500)	(165.7)	(6,167)	(165.7)	(3,700)	(199.3)	4,044	28.5
2005	0	0	0.0	0	0.0	0	0.0	(6,167)	(165.7)	(3,700)	(199.3)	3,921	28.5
2006	0	0	0.0	0	0.0	0	0.0	(6,167)	(165.7)	(3,700)	(165.7)	3,806	28.5
2007	4,054	0	0.0	0	0.0	0	0.0	0	0.0	(3,700)	(121.6)	3,697	28.2
2008	0	0	0.0	0	0.0	0	0.0	0	0.0	(3,700)	(121.6)	3,594	28.2
2009	642	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,497	28.2
2010	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,405	28.2

MDU Electric

ACCOUNT 390.00 - STRUCTURES & IMPROVEMENTS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2011	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,318	28.2
2012	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,235	28.2
2013	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,156	28.2
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3,081	28.2
2015	0	400	0.0	142,258	0.0	141,858	0.0	47,286	0.0	28,372	0.0	6,308	59.1
2016	165,689	1,901	1.1	46,163	27.9	44,263	26.7	62,040	112.3	37,224	112.3	7,171	50.5
2017	12,587	9,333	74.1	0	0.0	(9,333)	(74.1)	58,929	99.2	35,357	99.2	6,804	48.0
2018	908	487	53.6	0	0.0	(487)	(53.6)	11,481	19.2	35,260	98.4	6,646	47.9
2019	0	0	0.0	0	0.0	0	0.0	(3,273)	(72.8)	35,260	98.4	6,504	47.9
2020	9,103	300	3.3	0	0.0	(300)	(3.3)	(262)	(7.9)	6,829	18.1	6,362	47.2
TOTAL	647,404	90,858	14.0	396,252	61.2	305,394	47.2						

Currently Approved
Recommended

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10 Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 392.10 - TRANSPORTATION EQUIPMENT - TRAILERS SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2004	1,811	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0.0
2005	0	0	0.0	0	0.0	0	0.0	0	0	0	0	0	0.0
2006	1,358	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0	0.0
2007	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0	0	0.0
2008	2,343	0	0.0	900	38.4	900	38.4	300	24.3	180	16.3	180	16.3
2009	10,769	0	0.0	0	0.0	0	0.0	300	6.9	180	6.2	150	5.5
2010	8,914	0	0.0	0	0.0	0	0.0	300	4.1	180	3.8	129	3.6
2011	7,994	0	0.0	3,606	45.1	3,606	45.1	1,202	13.0	901	15.0	563	13.6
2012	5,802	0	0.0	1,481	25.5	1,481	25.5	1,696	22.4	1,197	16.7	665	15.4
2013	4,363	0	0.0	0	0.0	0	0.0	1,696	28.0	1,017	13.4	599	13.8
2014	5,357	0	0.0	0	0.0	0	0.0	494	9.5	1,017	15.7	544	12.3
2015	5,555	0	0.0	150	2.7	150	2.7	50	1.0	1,047	18.0	511	11.3
2016	14,741	0	0.0	150	1.0	150	1.0	100	1.2	356	5.0	484	9.1
2017	28,623	0	0.0	13,788	48.2	13,788	48.2	4,696	28.8	2,818	24.0	1,434	20.6
2018	20,195	0	0.0	3,722	18.4	3,722	18.4	5,887	27.8	3,562	23.9	1,586	20.2
2019	25,393	0	0.0	8,050	31.7	8,050	31.7	8,520	34.4	5,172	27.4	1,990	22.2
2020	0	0	0.0	195	0.0	195	0.0	3,989	26.2	5,181	29.1	1,885	22.4
TOTAL	143,219	0	0.0	32,042	22.4	32,042	22.4						

Currently Approved
Recommended

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20 Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 392.20 - TRANSPORTATION EQUIPMENT - VEHICLES SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1995	210,730	144	0.1	37,265	17.7	37,122	17.6	12,374	17.6	7,424	17.6	37,122	17.6
1996	291,507	216	0.1	73,909	25.4	73,693	25.3	36,938	22.1	22,163	22.1	55,407	22.1
1997	151,642	258	0.2	29,077	19.2	28,819	19.0	46,544	21.4	27,927	21.4	46,544	21.4
1998	249,999	943	0.4	42,593	17.0	41,650	16.7	48,054	20.8	36,257	20.1	45,321	20.1
1999	131,832	0	0.0	23,608	17.9	23,608	17.9	31,359	17.6	40,978	19.8	40,978	19.8
2000	185,845	0	0.0	40,636	21.9	40,636	21.9	35,298	18.7	41,681	20.6	40,921	20.1
2001	368,923	0	0.0	76,862	20.8	76,862	20.8	47,035	20.6	42,315	19.4	46,056	20.3
2002	206,123	0	0.0	55,230	26.8	55,230	26.8	57,576	22.7	47,597	20.8	47,202	21.0
2003	163,178	0	0.0	22,241	13.6	22,241	13.6	51,444	20.9	43,715	20.7	44,429	20.4
2004	562,111	0	0.0	117,336	20.9	117,336	20.9	64,936	20.9	62,461	21.0	51,720	20.5
2005	307,528	0	0.0	74,590	24.3	74,590	24.3	71,389	20.7	69,252	21.5	53,799	20.9
2006	233,734	0	0.0	52,575	22.5	52,575	22.5	81,500	22.2	64,394	21.9	53,697	21.0
2007	568,265	0	0.0	116,523	20.5	116,523	20.5	81,229	22.0	76,653	20.9	58,530	21.0
2008	272,077	0	0.0	66,200	24.3	66,200	24.3	78,433	21.9	85,445	22.0	59,077	21.2
2009	269,462	0	0.0	40,755	15.1	40,755	15.1	74,493	20.1	70,129	21.2	57,856	20.8
2010	441,049	0	0.0	92,469	21.0	92,469	21.0	66,475	20.3	73,704	20.7	60,019	20.8
2011	253,822	0	0.0	70,026	27.6	70,026	27.6	67,750	21.1	77,195	21.4	60,608	21.2
2012	256,068	0	0.0	68,996	26.9	68,996	26.9	77,164	24.3	67,689	22.7	61,074	21.5
2013	154,788	0	0.0	27,800	18.0	27,800	18.0	55,607	25.1	60,009	21.8	59,323	21.4
2014	226,182	0	0.0	0	0.0	0	0.0	32,265	15.2	51,858	19.5	56,356	20.5
2015	581,992	0	0.0	134,186	23.1	134,186	23.1	53,995	16.8	60,202	20.4	60,063	20.7
2016	1,207,023	0	0.0	110,667	9.2	110,667	9.2	81,618	12.2	68,330	14.1	62,363	18.8
2017	870,072	0	0.0	151,796	17.4	151,796	17.4	132,216	14.9	84,890	14.0	66,251	18.7
2018	526,274	0	0.0	88,880	16.9	88,880	16.9	117,114	13.5	97,106	14.2	67,194	18.6
2019	629,906	0	0.0	112,312	17.8	112,312	17.8	117,663	17.4	119,568	15.7	68,999	18.5
2020	745,633	0	0.0	167,332	22.4	167,332	22.4	122,841	19.4	126,197	15.9	72,781	18.8
TOTAL	10,065,766	1,561	0.0	1,893,863	18.8	1,892,302	18.8						

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Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 386.10 - TRAILERS - WORK EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2008	796	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2009	12,903	0	0.0	850	6.6	850	6.6	283	6.2	170	6.2	425	6.2
2010	10,605	0	0.0	2,000	18.9	2,000	18.9	950	11.7	570	11.7	930	11.7
2011	0	0	0.0	0	0.0	0	0.0	950	12.1	570	11.7	713	11.7
2012	0	0	0.0	0	0.0	0	0.0	667	18.9	570	11.7	570	11.7
2013	3,014	0	0.0	0	0.0	0	0.0	0	0.0	570	10.7	475	10.4
2014	0	0	0.0	0	0.0	0	0.0	0	0.0	400	14.7	407	10.4
2015	0	0	0.0	381	0.0	381	0.0	127	12.6	76	12.6	404	11.8
2016	0	0	0.0	0	0.0	0	0.0	127	0.0	76	12.6	359	11.8
2017	25,177	0	0.0	10,071	40.0	10,071	40.0	3,484	41.5	2,090	37.1	1,330	25.3
2018	6,095	0	0.0	1,650	27.1	1,650	27.1	3,907	37.5	2,420	38.7	1,359	25.5
2019	34,771	0	0.0	10,800	31.1	10,800	31.1	7,507	34.1	4,580	34.7	2,146	27.6
2020	8,954	0	0.0	3,500	39.1	3,500	39.1	5,317	32.0	5,204	34.7	2,250	28.6
TOTAL	102,315	0	0.0	29,252	28.6	29,252	28.6						

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Recommended

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0 Cost of removal not necessarily synchronized with retirements.

MDU Electric

ACCOUNT 386.20 - POWER OPERATED EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
1969	3,182	0	0.0	135	4.2	135	4.2					135	4.2
1970	28,903	9	0.0	2,280	7.9	2,271	7.9	802	7			1,203	7.5
1971	29,543	6	0.0	377	1.3	371	1.3	926	4.5			926	4.5
1972	15,956	606	3.8	1,578	9.9	972	6.1	1,205	4.9	750	5	937	4.8
1973	37,800	0	0.0	1,480	3.9	1,480	3.9	941	3.4	1,046	4.5	1,046	4.5
1974	45,509	0	0.0	7,800	17.1	7,800	17.1	3,417	10.3	2,579	8.2	2,172	8.1
1975	102,283	106	0.1	14,656	14.3	14,550	14.2	7,943	12.8	5,035	10.9	3,940	10.5
1976	38,824	92	0.2	6,961	17.9	6,869	17.7	9,740	15.7	6,334	13.2	4,306	11.4
1977	34,893	56	0.2	7,250	20.8	7,194	20.6	9,538	16.3	7,579	14.6	4,627	12.4
1978	10,064	0	0.0	5,500	54.7	5,500	54.7	6,521	23.4	8,383	18.1	4,714	13.6
1979	(849)	0	0.0	0	0.0	0	0.0	4,231	28.8	6,823	18.4	4,286	13.6
1980	45,393	0	0.0	21,361	47.1	21,361	47.1	8,954	49.2	8,185	31.9	5,709	17.5
1981	38,847	0	0.0	18,872	48.6	18,872	48.6	13,411	48.2	10,585	41.2	6,721	20.3
1982	51,782	0	0.0	13,092	25.3	13,092	25.3	17,775	39.2	11,765	40.5	7,176	20.8
1983	124,417	470	0.4	33,600	27.0	33,130	26.6	21,698	30.3	17,291	33.3	8,906	22.0
1984	35,979	0	0.0	3,713	10.3	3,713	10.3	16,645	23.5	18,034	30.4	8,582	21.4
1985	95,449	266	0.3	45,647	47.8	45,381	47.5	27,408	32.1	22,838	33.0	10,747	24.8
1986	50,362	672	1.3	12,597	25.0	11,926	23.7	20,340	33.6	21,448	30.0	10,812	24.7
1987	22,933	70	0.3	211	0.9	141	0.6	19,149	34.0	18,858	28.6	10,250	24.0
1988	46,474	47	0.1	11,088	23.9	11,041	23.8	7,703	19.3	14,440	28.7	10,290	24.0
1989	50,958	463	0.9	9,760	19.2	9,297	18.2	6,827	17.0	15,557	29.2	10,243	23.7
1990	69,625	882	1.3	6,536	9.4	5,654	8.1	8,664	15.6	7,612	15.8	10,034	22.6
1991	181,835	458	0.3	23,199	12.8	22,741	12.5	12,564	12.5	9,775	13.1	10,587	21.0
1992	102,293	6	0.0	43,250	42.3	43,244	42.3	23,880	20.3	18,395	20.4	11,947	22.7
1993	162,633	1,595	1.0	35,395	21.8	33,801	20.8	33,262	22.3	22,947	20.2	12,821	22.5
1994	513,993	2,178	0.4	19,734	3.8	17,556	3.4	31,534	12.1	24,599	11.9	13,004	17.4
1995	188,518	282	0.1	29,200	15.5	28,918	15.3	26,758	9.3	29,252	12.7	13,593	17.2
1996	323,739	112	0.0	89,119	27.5	89,007	27.5	45,161	13.2	42,505	16.5	16,286	18.6
1997	121,228	0	0.0	17,874	14.7	17,874	14.7	45,266	21.4	37,431	14.3	16,341	18.4
1998	368,747	0	0.0	105,112	28.5	105,112	28.5	70,664	26.1	51,693	17.0	19,300	19.7
1999	624,904	39	0.0	85,484	13.7	85,446	13.7	69,477	18.7	65,271	20.1	21,434	18.6
2000	91,106	889	1.0	28,400	31.2	27,511	30.2	72,690	20.1	64,990	21.2	21,624	18.9
2001	416,965	0	0.0	76,870	18.4	76,870	18.4	63,276	16.8	62,563	19.3	23,298	18.9
2002	42,459	200	0.5	9,600	22.6	9,400	22.1	37,927	20.7	60,868	19.7	22,889	18.9
2003	173,259	150	0.1	13,550	7.8	13,400	7.7	33,223	15.8	42,525	15.8	22,618	18.5
2004	551,345	0	0.0	46,225	8.4	46,225	8.4	23,008	9.0	34,681	13.6	23,274	17.3
2005	202,783	39	0.0	44,451	21.9	44,413	21.9	34,679	11.2	38,062	13.7	23,845	17.5
2006	236,121	0	0.0	35,541	15.1	35,541	15.1	42,060	12.7	29,796	12.4	24,153	17.4

MDU Electric

ACCOUNT 386.20 - POWER OPERATED EQUIPMENT SUMMARY OF BOOK SALVAGE

Year	Regular Retirements	Cost of Removal Amount	Cost of Removal Percent %	Gross Salvage Amount	Gross Salvage Percent %	Net Salvage Amount	Net Salvage Percent %	3-Year Amount	3-Year Percent %	5-Year Amount	5-Year Percent %	Historical Amount	Historical Percent %
2007	231,734	0	0.0	56,549	24.4	56,549	24.4	45,501	20.4	39,225	14.1	24,984	17.7
2008	231,953	0	0.0	41,425	17.9	41,425	17.9	44,505	19.1	44,831	15.4	25,395	17.7
2009	747,246	0	0.0	81,341	10.9	81,341	10.9	59,772	14.8	51,854	15.7	26,759	16.9
2010	283,590	0	0.0	40,446	14.3	40,446	14.3	54,404	12.9	51,060	14.8	27,085	16.8
2011	538,073	0	0.0	248,536	46.2	248,536	46.2	123,441	23.6	93,660	23.0	32,235	19.0
2012	400,294	0	0.0	303,754	75.9	303,754	75.9	197,579	48.5	143,101	32.5	38,406	21.9
2013	275,510	0	0.0	224,206	81.4	224,206	81.4	258,832	64.0	179,657	40.0	42,535	24.0
2014	603,764	0	0.0	0	0.0	0	0.0	175,987	41.3	163,388	38.9	41,610	22.3
2015	646,273	0	0.0	654,446	101.3	654,446	101.3	292,884	57.6	286,188	58.1	54,649	27.8
2016	3,032,460	0	0.0	690,072	22.8	690,072	22.8	448,173	31.4	374,495	37.8	67,887	26.6
2017	817,060	0	0.0	489,573	59.9	489,573	59.9	611,364	40.8	411,659	38.3	76,493	28.6
2018	1,505,673	0	0.0	640,416	42.5	640,416	42.5	606,687	34.0	494,901	37.5	87,771	30.1
2019	1,657,308	0	0.0	551,592	33.3	551,592	33.3	560,527	42.3	605,220	39.5	96,866	30.4
2020	1,056,580	0	0.0	561,614	53.2	561,614	53.2	584,540	41.6	586,653	36.4	105,803	31.8
TOTAL	17,307,777	9,689	0.1	5,511,468	31.8	5,501,779	31.8						

Currently Approved
Recommended

25

25 Cost of removal not necessarily synchronized with retirements.



SECTION 8

8 DETAILED DEPRECIATION CALCULATIONS

MDU Electric

Account #: 311.15 - Steam - Structures and Improvements - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation	Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1954	262,500.00	206,747	262,500	1.0000		0	14.44	0	66.5
1955	10,000.00	7,803	10,000	1.0000		0	14.94	0	65.5
1976	2,000.00	1,168	2,000	1.0000		0	28.29	0	44.5
1978	10,000.00	5,618	10,000	1.0000		0	29.80	0	42.5
1984	750,000.00	369,176	750,000	1.0000		0	34.53	0	36.5
1985	88,005.00	42,265	88,005	1.0000		0	35.34	0	35.5
1992	7,007.64	2,757	7,008	1.0000		0	41.25	0	28.5
1993	2,000.00	761	2,000	1.0000		0	42.12	0	27.5
1995	17,885.39	6,344	17,885	1.0000		0	43.88	0	25.5
1996	244,527.77	83,531	244,528	1.0000		0	44.77	0	24.5
1997	105,159.90	34,537	105,160	1.0000		0	45.67	0	23.5
1998	253,237.51	79,812	253,238	1.0000		0	46.57	0	22.5
1999	101,813.18	30,729	101,813	1.0000		0	47.48	0	21.5
2000	15,412.10	4,445	15,412	1.0000		0	48.39	0	20.5
2001	534,160.54	146,840	534,161	1.0000		0	49.31	0	19.5
2002	89,158.41	23,299	89,158	1.0000		0	50.23	0	18.5
2003	157,374.64	38,978	150,264	0.9548		7,111	51.16	139	17.5
2004	570,631.21	133,503	514,670	0.9019		55,962	52.09	1,074	16.5
2005	136,031.86	29,950	115,462	0.8488		20,569	53.03	388	15.5
2006	41,127.10	8,485	32,712	0.7954		8,415	53.97	156	14.5
2007	572,066.31	110,073	424,344	0.7418		147,722	54.92	2,690	13.5
2008	568,519.23	101,448	391,092	0.6879		177,427	55.87	3,176	12.5
2009	700,335.07	115,149	443,911	0.6339		256,424	56.82	4,513	11.5
2010	21,423.28	3,221	12,416	0.5796		9,007	57.78	156	10.5
2011	96,090.64	13,089	50,459	0.5251		45,632	58.74	777	9.5
2012	237,229.16	28,950	111,607	0.4705		125,622	59.70	2,104	8.5
2013	1,873,861.88	202,036	778,872	0.4157		1,094,990	60.67	18,049	7.5
2014	171,043.60	16,002	61,688	0.3607		109,355	61.64	1,774	6.5

MDU Electric

Account #: 311.15 - Steam - Structures and Improvements - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2015	105,544.26	8,365	32,247	0.3055	73,297	62.61	1,171 5.5
2016	25,121.12	1,631	6,287	0.2502	18,835	63.59	296 4.5
2018	99,179.40	3,584	13,816	0.1393	85,363	65.54	1,302 2.5
2019	1,687,797.05	36,628	141,205	0.0837	1,546,592	66.52	23,249 1.5
TOTAL	9,556,243.25	1,896,921	5,773,921		3,782,323		61,014

COMPOSITE ANNUAL ACCRUAL RATE

0.64%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.60

COMPOSITE AVERAGE AGE (YEARS)

14.45

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

54.50

MDU Electric

Account #: 311.25 - Steam - Structures and Improvements - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated			ALG		
			Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1958	95,822.00	72,548	93,488	0.9756	2,334	16.52	141	62.5
1960	4,900.00	3,629	4,677	0.9544	223	17.64	13	60.5
1973	4,000.00	2,465	3,177	0.7942	823	26.09	32	47.5
1982	80,495.00	41,525	53,511	0.6648	26,984	32.92	820	38.5
1985	3,000.00	1,441	1,857	0.6189	1,143	35.34	32	35.5
1989	2,500.00	1,078	1,389	0.5557	1,111	38.68	29	31.5
1993	12,773.00	4,861	6,264	0.4904	6,509	42.12	155	27.5
1996	4,069.07	1,390	1,791	0.4402	2,278	44.77	51	24.5
1997	4,368.12	1,435	1,849	0.4232	2,519	45.67	55	23.5
1999	52,654.60	15,892	20,480	0.3889	32,175	47.48	678	21.5
2001	60,223.53	16,555	21,334	0.3542	38,890	49.31	789	19.5
2002	14,766.27	3,859	4,973	0.3368	9,794	50.23	195	18.5
2003	27,642.05	6,846	8,822	0.3192	18,820	51.16	368	17.5
2007	30,250.53	5,821	7,501	0.2480	22,750	54.92	414	13.5
2008	43,852.75	7,825	10,084	0.2299	33,769	55.87	604	12.5
2010	76,966.87	11,571	14,911	0.1937	62,056	57.78	1,074	10.5
2012	4,517.58	551	710	0.1573	3,807	59.70	64	8.5
2015	77,575.56	6,148	7,923	0.1021	69,653	62.61	1,112	5.5
2016	86,645.31	5,624	7,248	0.0837	79,397	63.59	1,249	4.5
2017	25,583.63	1,293	1,666	0.0651	23,917	64.56	370	3.5
2018	119,920.72	4,333	5,584	0.0466	114,336	65.54	1,744	2.5
2019	4,066,762.93	88,255	113,730	0.0280	3,953,033	66.52	59,422	1.5

MDU Electric

Account #: 311.25 - Steam - Structures and Improvements - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Remaining Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	4,899,289.52	304,947	392,969		4,506,321		69,411	
COMPOSITE ANNUAL ACCRUAL RATE								
				1.42%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR								
				0.08				
COMPOSITE AVERAGE AGE (YEARS)								
				4.59				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)								
				63.77				

MDU Electric

Account #: 311.30 - Steam - Structures and Improvements - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1981	22,905,328.54	15,302,877	19,474,909	0.8502	3,430,419	18.46	185,797 39.5
1982	194,216.79	128,516	163,554	0.8421	30,663	18.58	1,651 38.5
1983	52,717.51	34,540	43,957	0.8338	8,761	18.68	469 37.5
1984	17,800.83	11,544	14,691	0.8253	3,110	18.78	166 36.5
1985	105,911.18	67,952	86,477	0.8165	19,434	18.88	1,029 35.5
1986	18,615.66	11,812	15,032	0.8075	3,584	18.97	189 34.5
1987	16,756.60	10,509	13,375	0.7982	3,382	19.06	177 33.5
1988	10,061.31	6,234	7,934	0.7886	2,127	19.14	111 32.5
1989	18,350.12	11,227	14,288	0.7786	4,062	19.22	211 31.5
1990	33,590.83	20,281	25,810	0.7684	7,781	19.29	403 30.5
1991	25,451.18	15,154	19,285	0.7577	6,166	19.37	318 29.5
1992	33,448.48	19,625	24,975	0.7467	8,473	19.43	436 28.5
1993	109,080.07	63,017	80,198	0.7352	28,883	19.50	1,481 27.5
1994	28,328.81	16,101	20,490	0.7233	7,838	19.56	401 26.5
1996	11,507.54	6,311	8,032	0.6980	3,476	19.67	177 24.5
1997	142,975.92	76,900	97,865	0.6845	45,111	19.72	2,287 23.5
1998	4,695.75	2,474	3,148	0.6704	1,548	19.77	78 22.5
1999	468,950.66	241,609	307,479	0.6557	161,472	19.82	8,146 21.5
2000	60,671.14	30,523	38,845	0.6403	21,826	19.87	1,099 20.5
2001	49,497.10	24,273	30,890	0.6241	18,607	19.91	935 19.5
2002	183,662.30	87,616	111,503	0.6071	72,159	19.95	3,617 18.5
2003	222,778.54	103,153	131,275	0.5893	91,503	19.99	4,578 17.5
2004	6,295.47	2,822	3,591	0.5705	2,704	20.02	135 16.5
2005	182,742.48	79,073	100,631	0.5507	82,112	20.06	4,094 15.5
2006	31,469.46	13,100	16,671	0.5297	14,799	20.09	737 14.5
2007	316,528.00	126,256	160,677	0.5076	155,851	20.12	7,746 13.5
2008	6,913.89	2,630	3,348	0.4842	3,566	20.15	177 12.5
2009	290,525.66	104,850	133,435	0.4593	157,091	20.18	7,786 11.5

MDU Electric

Account #: 311.30 - Steam - Structures and Improvements - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	112,866.05	38,385	48,849	0.4328	64,017	20.20	3,169 10.5
2011	287,206.85	91,308	116,202	0.4046	171,005	20.23	8,455 9.5
2012	955,494.91	281,134	357,780	0.3744	597,715	20.25	29,519 8.5
2013	95,820.60	25,763	32,787	0.3422	63,034	20.27	3,110 7.5
2014	228,672.19	55,256	70,321	0.3075	158,351	20.29	7,805 6.5
2015	753,243.97	159,941	203,546	0.2702	549,698	20.31	27,069 5.5
2016	308,162.97	55,686	70,867	0.2300	237,296	20.32	11,675 4.5
2017	694,510.61	101,710	129,440	0.1864	565,071	20.34	27,781 3.5
2018	44,398.36	4,850	6,172	0.1390	38,227	20.36	1,878 2.5
2019	703,006.14	48,258	61,415	0.0874	641,591	20.37	31,499 1.5
2020	43,363.00	1,050	1,336	0.0308	42,027	20.38	2,062 0.5
TOTAL	29,775,617.47	17,484,319	22,251,079		7,524,538		388,451

COMPOSITE ANNUAL ACCRUAL RATE

1.30%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.75

COMPOSITE AVERAGE AGE (YEARS)

33.08

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

18.84

MDU Electric

Account #: 311.61 - Steam - Structures and Improvements - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated			ALG		
			Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1975	7,450,146.59	4,972,076	4,336,353	0.5820	3,113,793	20.72	150,289	45.5
1976	31,310.69	20,687	18,042	0.5762	13,269	20.96	633	44.5
1977	10,373.42	6,784	5,916	0.5703	4,457	21.20	210	43.5
1978	3,672.04	2,376	2,072	0.5644	1,600	21.42	75	42.5
1979	8,678.65	5,556	4,846	0.5584	3,833	21.64	177	41.5
1980	18,664.69	11,819	10,308	0.5523	8,357	21.84	383	40.5
1981	77,949.38	48,807	42,567	0.5461	35,382	22.04	1,606	39.5
1982	37,033.73	22,921	19,991	0.5398	17,043	22.22	767	38.5
1983	3,522.21	2,154	1,879	0.5334	1,643	22.40	73	37.5
1984	14,000.54	8,458	7,376	0.5269	6,624	22.57	294	36.5
1985	136,625.87	81,494	71,074	0.5202	65,552	22.73	2,884	35.5
1986	8,605.35	5,066	4,418	0.5134	4,187	22.88	183	34.5
1987	596.80	347	302	0.5064	295	23.03	13	33.5
1989	772.81	436	380	0.4919	393	23.30	17	31.5
1990	39,072.42	21,701	18,926	0.4844	20,146	23.42	860	30.5
1991	19,596.25	10,709	9,340	0.4766	10,256	23.54	436	29.5
1992	6,081.78	3,268	2,850	0.4686	3,232	23.65	137	28.5
1993	470,088.90	248,134	216,408	0.4604	253,681	23.76	10,676	27.5
1994	72,897.87	37,766	32,937	0.4518	39,961	23.86	1,675	26.5
1995	2,825.72	1,435	1,252	0.4430	1,574	23.96	66	25.5
1996	24,108.58	11,993	10,459	0.4338	13,649	24.05	567	24.5
1997	4,002.42	1,947	1,698	0.4244	2,304	24.14	95	23.5
1998	10,608.33	5,042	4,397	0.4145	6,211	24.23	256	22.5
1999	10,063.94	4,665	4,069	0.4043	5,995	24.31	247	21.5
2000	50,209.51	22,663	19,765	0.3937	30,444	24.38	1,249	20.5
2001	70,444.93	30,901	26,950	0.3826	43,495	24.45	1,779	19.5
2002	13,543.69	5,762	5,025	0.3710	8,519	24.52	347	18.5
2003	26,210.00	10,787	9,408	0.3589	16,802	24.59	683	17.5

MDU Electric

Account #: 311.61 - Steam - Structures and Improvements - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		Annual Average
		Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Life	Accrual	
2004	26,339.58	10,460	9,122	0.3463	17,217	24.65	698	16.5
2005	12,714.10	4,856	4,236	0.3331	8,479	24.71	343	15.5
2006	17,387.17	6,366	5,552	0.3193	11,835	24.76	478	14.5
2007	4,000.17	1,398	1,219	0.3048	2,781	24.82	112	13.5
2008	22,085.01	7,332	6,394	0.2895	15,691	24.87	631	12.5
2009	7,759.78	2,433	2,122	0.2735	5,638	24.91	226	11.5
2010	22,987.94	6,762	5,898	0.2565	17,090	24.96	685	10.5
2011	21,377.30	5,850	5,102	0.2387	16,275	25.00	651	9.5
2012	44,420.83	11,195	9,763	0.2198	34,658	25.04	1,384	8.5
2013	37,733.56	8,643	7,538	0.1998	30,195	25.07	1,204	7.5
2014	99,192.89	20,305	17,709	0.1785	81,484	25.11	3,245	6.5
2015	23,812,872.59	4,257,716	3,713,330	0.1559	20,099,542	25.14	799,497	5.5
2016	48,412.51	7,320	6,384	0.1319	42,029	25.17	1,670	4.5
2017	152,793.90	18,596	16,218	0.1061	136,575	25.20	5,420	3.5
2018	138,864.31	12,517	10,917	0.0786	127,948	25.22	5,072	2.5
2019	52,846.24	2,973	2,593	0.0491	50,253	25.25	1,990	1.5
2020	19,951.93	395	344	0.0173	19,607	25.27	776	0.5
TOTAL	33,163,446.92	9,990,872	8,713,452		24,449,995		1,000,759	

COMPOSITE ANNUAL ACCRUAL RATE

3.02%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.26

COMPOSITE AVERAGE AGE (YEARS)

15.34

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

24.08

MDU Electric

Account #: 311.72 - Steam - Structures and Improvements - Wygen III Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 68
Net Salvage: 0%
Truncation Year: 2060

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2010	3,130,169.41	679,842	646,265	0.2065	2,483,905	37.47	66,294	10.5	
2013	5,283.92	870	827	0.1565	4,457	37.85	118	7.5	
2014	312,161.89	45,486	43,240	0.1385	268,922	37.97	7,083	6.5	
2015	109,116.58	13,752	13,072	0.1198	96,044	38.07	2,523	5.5	
2016	7,128.99	752	715	0.1003	6,414	38.18	168	4.5	
2018	46,746.23	2,885	2,742	0.0587	44,004	38.36	1,147	2.5	
2019	27,530.25	1,054	1,002	0.0364	26,528	38.45	690	1.5	
2020	80,882.84	1,113	1,058	0.0131	79,825	38.53	2,072	0.5	
TOTAL	3,719,020.11	745,754	708,921		3,010,099		80,095		

COMPOSITE ANNUAL ACCRUAL RATE

2.15%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.19

COMPOSITE AVERAGE AGE (YEARS)

9.62

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

37.57

MDU Electric

Account #: 312.15 - Steam - Boiler Plant Equipment - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1995	7,451.78	2,636	7,452	1.0000	0	32.31	0
2001	10,327.18	2,837	9,108	0.8819	1,219	36.27	34
2002	146,753.13	38,336	123,088	0.8387	23,665	36.94	641
2003	18,238.23	4,518	14,505	0.7953	3,733	37.61	99
2005	265,762.91	58,592	188,127	0.7079	77,635	38.98	1,992
2006	207,485.45	42,900	137,742	0.6639	69,743	39.66	1,758
2010	19,745.88	2,988	9,593	0.4858	10,153	42.43	239
2011	12,018.58	1,650	5,297	0.4408	6,721	43.14	156
2012	174,012.49	21,434	68,820	0.3955	105,192	43.84	2,399
2016	33,011.98	2,178	6,993	0.2118	26,019	46.70	557
2017	44,386.27	2,284	7,335	0.1652	37,052	47.43	781
TOTAL	939,193.88	180,353	578,061		361,133		8,657

COMPOSITE ANNUAL ACCRUAL RATE

0.92%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.62

COMPOSITE AVERAGE AGE (YEARS)

13.48

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

40.40

MDU Electric

Account #: 312.25 - Steam - Boiler Plant Equipment - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1995	24,741.29	8,753	24,741	1.0000	0	32.31	0
2004	13,076.15	3,061	9,692	0.7412	3,384	38.29	88
2005	23,561.07	5,194	16,446	0.6980	7,115	38.98	183
2006	20,522.91	4,243	13,434	0.6546	7,089	39.66	179
2014	20,491.57	1,941	6,146	0.2999	14,345	45.26	317
2015	17,294.62	1,390	4,402	0.2545	12,893	45.98	280
2017	169,896.86	8,744	27,683	0.1629	142,214	47.43	2,999
2019	8,597.20	191	604	0.0702	7,993	48.89	163
TOTAL	298,181.67	33,518	103,148		195,034		4,209

COMPOSITE ANNUAL ACCRUAL RATE

1.41%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.35

COMPOSITE AVERAGE AGE (YEARS)

7.87

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

44.38

MDU Electric

Account #: 312.30 - Steam - Boiler Plant Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		
		Depreciation	Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1979	24,622.15	16,114	20,716	0.8414	3,906	15.85	247	41.5
1981	53,657,047.45	34,462,979	44,305,219	0.8257	9,351,828	16.14	579,357	39.5
1982	713,790.46	453,959	583,604	0.8176	130,186	16.28	7,995	38.5
1983	733,842.92	461,977	593,912	0.8093	139,931	16.42	8,521	37.5
1984	110,530.73	68,851	88,514	0.8008	22,017	16.56	1,330	36.5
1985	66,127.82	40,743	52,378	0.7921	13,750	16.69	824	35.5
1986	62,573.43	38,115	49,001	0.7831	13,573	16.81	807	34.5
1987	42,023.63	25,296	32,520	0.7739	9,504	16.94	561	33.5
1988	5,115.48	3,041	3,910	0.7643	1,206	17.05	71	32.5
1989	47,313.56	27,768	35,698	0.7545	11,615	17.17	676	31.5
1990	539,992.14	312,659	401,951	0.7444	138,042	17.28	7,988	30.5
1991	5,000,581.11	2,854,586	3,669,824	0.7339	1,330,757	17.39	76,528	29.5
1992	363,894.59	204,658	263,106	0.7230	100,788	17.49	5,762	28.5
1993	281,057.77	155,612	200,054	0.7118	81,004	17.59	4,604	27.5
1994	473,952.30	258,113	331,828	0.7001	142,125	17.69	8,034	26.5
1996	124,394.88	65,356	84,021	0.6754	40,374	17.87	2,259	24.5
1997	18,931.66	9,754	12,539	0.6623	6,393	17.96	356	23.5
1998	3,949.52	1,993	2,562	0.6487	1,388	18.04	77	22.5
1999	19,781.57	9,762	12,550	0.6344	7,232	18.12	399	21.5
2000	304,768.52	146,872	188,817	0.6195	115,952	18.20	6,372	20.5
2001	135,686.74	63,745	81,949	0.6040	53,737	18.27	2,941	19.5
2002	23,021.97	10,523	13,528	0.5876	9,494	18.34	518	18.5
2003	188,980.15	83,862	107,812	0.5705	81,168	18.40	4,410	17.5
2004	229,764.11	98,740	126,939	0.5525	102,825	18.47	5,568	16.5
2005	227,114.23	94,249	121,165	0.5335	105,949	18.53	5,719	15.5
2006	598,772.92	239,156	307,456	0.5135	291,317	18.58	15,676	14.5
2007	90,012.14	34,470	44,314	0.4923	45,698	18.64	2,452	13.5
2008	158,417.43	57,902	74,438	0.4699	83,979	18.69	4,493	12.5

MDU Electric

Account #: 312.30 - Steam - Boiler Plant Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		
		Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
2009	1,641,209.30	569,474	732,109	0.4461	909,100	18.74	48,511	11.5
2010	194,294.20	63,588	81,748	0.4207	112,546	18.79	5,990	10.5
2011	181,937.12	55,720	71,633	0.3937	110,304	18.83	5,857	9.5
2012	1,110,000.71	315,007	404,970	0.3648	705,031	18.88	37,344	8.5
2013	94,003.56	24,413	31,386	0.3339	62,618	18.92	3,309	7.5
2014	219,579.80	51,343	66,006	0.3006	153,573	18.96	8,098	6.5
2015	3,513,810.12	723,622	930,280	0.2647	2,583,530	19.01	135,933	5.5
2016	6,503,286.89	1,143,245	1,469,743	0.2260	5,033,544	19.05	264,284	4.5
2017	446,540.75	63,907	82,158	0.1840	364,382	19.09	19,092	3.5
2018	312,725.59	33,639	43,246	0.1383	269,480	19.12	14,091	2.5
2019	3,121,205.92	214,597	275,883	0.0884	2,845,323	19.16	148,491	1.5
2020	381,111.09	9,989	12,842	0.0337	368,269	19.20	19,182	0.5
TOTAL	81,965,766.43	43,569,398	56,012,330		25,953,436		1,464,728	

COMPOSITE ANNUAL ACCRUAL RATE

1.79%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.68

COMPOSITE AVERAGE AGE (YEARS)

30.59

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

16.93

MDU Electric

Account #: 312.61 - Steam - Boiler Plant Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		
		Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1995	14,722,147.36	7,142,824	5,861,927	0.3982	8,860,220	21.13	419,257	25.5
1996	1,108,821.19	526,679	432,232	0.3898	676,589	21.27	31,804	24.5
1997	69,362.91	32,217	26,439	0.3812	42,924	21.41	2,005	23.5
1998	256,916.48	116,530	95,633	0.3722	161,283	21.54	7,488	22.5
1999	117,722.60	52,068	42,731	0.3630	74,992	21.66	3,461	21.5
2000	1,149.08	495	406	0.3534	743	21.79	34	20.5
2001	210,309.74	88,001	72,220	0.3434	138,089	21.90	6,305	19.5
2002	233,120.44	94,600	77,636	0.3330	155,484	22.01	7,064	18.5
2003	522,161.16	205,022	168,257	0.3222	353,905	22.12	16,001	17.5
2004	59,970.86	22,724	18,649	0.3110	41,322	22.22	1,860	16.5
2005	240,486.10	87,678	71,955	0.2992	168,531	22.32	7,552	15.5
2006	13,935.25	4,872	3,998	0.2869	9,937	22.41	443	14.5
2007	518,132.54	172,997	141,974	0.2740	376,159	22.50	16,719	13.5
2008	9,156.68	2,906	2,385	0.2605	6,772	22.58	300	12.5
2009	64,155.33	19,249	15,797	0.2462	48,358	22.67	2,133	11.5
2010	156,336.83	44,049	36,150	0.2312	120,187	22.75	5,284	10.5
2011	3,574,601.72	938,166	769,928	0.2154	2,804,674	22.82	122,898	9.5
2012	446,197.31	107,993	88,627	0.1986	357,571	22.89	15,618	8.5
2013	173,355.37	38,203	31,353	0.1809	142,003	22.96	6,183	7.5
2014	214,403.03	42,318	34,729	0.1620	179,674	23.03	7,801	6.5
2015	57,273,436.85	9,902,080	8,126,375	0.1419	49,147,062	23.10	2,127,592	5.5
2016	84,268.04	12,368	10,150	0.1204	74,118	23.16	3,200	4.5
2017	160,258.09	19,044	15,629	0.0975	144,629	23.23	6,227	3.5
2018	3,018,607.41	268,321	220,204	0.0729	2,798,404	23.29	120,161	2.5
2019	1,387,925.53	78,705	64,591	0.0465	1,323,334	23.35	56,677	1.5
2020	1,048,349.75	23,092	18,951	0.0181	1,029,399	23.41	43,977	0.5

MDU Electric

Account #: 312.61 - Steam - Boiler Plant Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG	
					Net Book Remaining Value	Annual Average Accrual Age
TOTAL	85,685,287.65	20,043,203	16,448,927		69,236,361	3,038,043
COMPOSITE ANNUAL ACCRUAL RATE						
				3.55%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR						
				0.19		
COMPOSITE AVERAGE AGE (YEARS)						
				9.47		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)						
				22.71		

MDU Electric

Account #: 312.72 - Steam - Boiler Plant Equipment - Wygen III Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 50
Net Salvage: 0%
Truncation Year: 2060

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	26,461,468.50	5,510,206	5,208,292	0.1968	21,253,176	32.08	662,453
2012	5,672.74	997	943	0.1662	4,730	32.49	146
2013	91,025.82	14,447	13,655	0.1500	77,371	32.68	2,367
2014	221,527.55	31,218	29,508	0.1332	192,020	32.87	5,842
2015	179,186.04	21,934	20,732	0.1157	158,454	33.05	4,794
2016	434,289.06	44,777	42,324	0.0975	391,965	33.23	11,797
2017	129,411.99	10,735	10,147	0.0784	119,265	33.40	3,571
2018	291,285.32	18,026	17,038	0.0585	274,247	33.56	8,171
2019	1,292,747.02	51,478	48,658	0.0376	1,244,089	33.72	36,891
2020	24,959.96	416	394	0.0158	24,566	33.88	725
TOTAL	29,131,574.00	5,704,235	5,391,690		23,739,884		736,758

COMPOSITE ANNUAL ACCRUAL RATE

2.53%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.19

COMPOSITE AVERAGE AGE (YEARS)

9.82

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

32.21

MDU Electric

Account #: 314.15 - Steam - Turbogenerator Unit - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1954	900,000.00	643,374	900,000	1.0000	0	14.26	0	66.5
1975	5,000.00	2,621	5,000	1.0000	0	23.79	0	45.5
1982	5,000.00	2,259	5,000	1.0000	0	27.41	0	38.5
1996	17,379.35	5,130	17,379	1.0000	0	35.24	0	24.5
2000	8,933.53	2,218	8,934	1.0000	0	37.59	0	20.5
2006	9,976.00	1,764	7,716	0.7734	2,260	41.16	55	14.5
2008	16,251.62	2,484	10,862	0.6684	5,390	42.36	127	12.5
2012	16,369.49	1,710	7,478	0.4568	8,892	44.78	199	8.5
2015	54,562.68	3,702	16,191	0.2967	38,371	46.61	823	5.5
2018	28,702.95	889	3,886	0.1354	24,817	48.45	512	2.5
TOTAL	1,062,175.62	666,149	982,446		79,730		1,716	

COMPOSITE ANNUAL ACCRUAL RATE

0.16%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.92

COMPOSITE AVERAGE AGE (YEARS)

58.12

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

18.64

MDU Electric

Account #: 314.25 - Steam - Turbogenerator Unit - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	Remaining Life	ALG	Annual Accrual	Average Age
1958	23,310.00	15,880	23,310	1.0000	0	15.94		0	62.5
2012	214,264.36	22,379	66,794	0.3117	147,471	44.78		3,293	8.5
TOTAL	237,574.36	38,259	90,104		147,471			3,293	

COMPOSITE ANNUAL ACCRUAL RATE

1.39%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.38

COMPOSITE AVERAGE AGE (YEARS)

13.80

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

41.95

MDU Electric

Account #: 314.30 - Steam - Turbogenerator Unit - Coyote Generating Station
CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated Depreciation		ALG		
			Allocated Actual Booked Amount	Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
1981	7,861,732.21	4,882,967	5,816,346	0.7398	2,045,386	16.56	123,500 39.5
1982	1,011,932.17	622,609	741,621	0.7329	270,311	16.66	16,222 38.5
1983	71,571.10	43,606	51,941	0.7257	19,630	16.76	1,171 37.5
1986	5,817.57	3,433	4,090	0.7030	1,728	17.04	101 34.5
1987	11,108.61	6,481	7,720	0.6950	3,389	17.13	198 33.5
1988	18,545.82	10,691	12,734	0.6866	5,811	17.21	338 32.5
1989	87,426.03	49,767	59,280	0.6781	28,146	17.29	1,627 31.5
1990	9,901.32	5,562	6,626	0.6692	3,276	17.37	189 30.5
1991	41,283.99	22,873	27,246	0.6600	14,038	17.45	804 29.5
1992	10,861.62	5,931	7,064	0.6504	3,797	17.53	217 28.5
1993	16,192.14	8,707	10,371	0.6405	5,821	17.60	331 27.5
1994	3,508.43	1,856	2,211	0.6302	1,297	17.67	73 26.5
1996	29,807.89	15,223	18,133	0.6083	11,675	17.80	656 24.5
1997	80,380.81	40,266	47,963	0.5967	32,418	17.86	1,815 23.5
1998	11,082.65	5,439	6,478	0.5846	4,604	17.92	257 22.5
2001	3,952.60	1,807	2,153	0.5447	1,800	18.09	100 19.5
2002	18,250.45	8,121	9,674	0.5301	8,577	18.14	473 18.5
2003	1,534,090.61	662,906	789,621	0.5147	744,470	18.19	40,933 17.5
2004	32,735.89	13,702	16,321	0.4986	16,415	18.23	900 16.5
2005	31,616.23	12,781	15,224	0.4815	16,392	18.28	897 15.5
2006	44,480.92	17,310	20,619	0.4635	23,862	18.32	1,302 14.5
2007	24,280.80	9,061	10,793	0.4445	13,488	18.36	735 13.5
2008	62,399.98	22,229	26,479	0.4243	35,921	18.40	1,952 12.5
2009	2,890,887.38	977,838	1,164,752	0.4029	1,726,135	18.44	93,601 11.5
2010	46,798.78	14,933	17,788	0.3801	29,011	18.48	1,570 10.5
2011	23,311.07	6,962	8,293	0.3558	15,018	18.51	811 9.5
2012	294,426.70	81,503	97,083	0.3297	197,344	18.55	10,639 8.5
2013	2,871,990.33	727,780	866,895	0.3018	2,005,095	18.58	107,904 7.5

MDU Electric

Account #: 314.30 - Steam - Turbogenerator Unit - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2015	34,666.87	6,973	8,306	0.2396	26,361	18.65	1,414
2016	355,802.98	61,140	72,827	0.2047	282,976	18.68	15,151
2017	54,363.60	7,615	9,071	0.1669	45,293	18.71	2,421
2018	68,926.87	7,275	8,665	0.1257	60,262	18.74	3,216
2019	650,394.99	44,120	52,553	0.0808	597,841	18.77	31,857
TOTAL	18,314,529.41	8,409,471	10,016,940		8,297,589		463,376

COMPOSITE ANNUAL ACCRUAL RATE

2.53%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.55

COMPOSITE AVERAGE AGE (YEARS)

24.71

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

17.53

MDU Electric

Account #: 314.61 - Steam - Turbogenerator Unit - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1975	4,475,956.96	2,738,191	4,265,544	0.9530	210,413	18.35	11,464 45.5
1976	49,935.50	30,255	47,131	0.9438	2,804	18.53	151 44.5
1977	1,850.39	1,110	1,729	0.9346	121	18.70	6 43.5
1978	39,763.80	23,614	36,787	0.9251	2,977	18.87	158 42.5
1982	6,427.94	3,654	5,693	0.8856	735	19.50	38 38.5
1983	10,652.22	5,985	9,324	0.8753	1,329	19.64	68 37.5
1984	3,964.90	2,201	3,428	0.8647	537	19.79	27 36.5
1985	2,332.11	1,278	1,991	0.8538	341	19.93	17 35.5
1986	605.82	328	511	0.8427	95	20.07	5 34.5
1987	30,186.58	16,108	25,093	0.8313	5,093	20.20	252 33.5
1988	49,327.44	25,952	40,427	0.8196	8,900	20.33	438 32.5
1990	45,507.85	23,230	36,187	0.7952	9,321	20.58	453 30.5
1991	257.18	129	201	0.7824	56	20.70	3 29.5
1992	42,598.10	21,037	32,772	0.7693	9,826	20.81	472 28.5
1993	36,440.53	17,680	27,542	0.7558	8,899	20.92	425 27.5
1996	1,383,648.10	632,800	985,774	0.7124	397,874	21.24	18,736 24.5
1998	26,865.26	11,743	18,293	0.6809	8,572	21.43	400 22.5
1999	19,434.84	8,287	12,910	0.6643	6,525	21.52	303 21.5
2000	572.07	238	370	0.6470	202	21.61	9 20.5
2001	361,404.02	145,915	227,305	0.6290	134,099	21.69	6,182 19.5
2002	26,482.30	10,373	16,159	0.6102	10,323	21.77	474 18.5
2004	935.81	343	534	0.5702	402	21.92	18 16.5
2005	1,931,815.19	680,538	1,060,140	0.5488	871,675	22.00	39,628 15.5
2006	11,411.17	3,856	6,007	0.5264	5,405	22.07	245 14.5
2007	2,797,336.56	902,996	1,406,683	0.5029	1,390,653	22.13	62,834 13.5
2008	278,507.54	85,487	133,171	0.4782	145,337	22.20	6,548 12.5
2009	44,419.68	12,893	20,084	0.4522	24,335	22.26	1,093 11.5
2010	4,466.01	1,218	1,897	0.4247	2,569	22.32	115 10.5

MDU Electric

Account #: 314.61 - Steam - Turbogenerator Unit - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2011	156,731.19	39,816	62,026	0.3957	94,705	22.37	4,233 9.5
2012	61,913.53	14,510	22,603	0.3651	39,310	22.43	1,753 8.5
2013	607,300.61	129,648	201,965	0.3326	405,335	22.48	18,028 7.5
2014	44,148.26	8,446	13,157	0.2980	30,991	22.54	1,375 6.5
2015	651,045.35	109,178	170,077	0.2612	480,968	22.59	21,294 5.5
2016	78,521.28	11,190	17,432	0.2220	61,090	22.64	2,699 4.5
2017	103,555.43	11,968	18,644	0.1800	84,911	22.68	3,743 3.5
2018	26,251.81	2,276	3,546	0.1351	22,706	22.73	999 2.5
2019	94,871.15	5,283	8,230	0.0868	86,641	22.78	3,804 1.5
2020	17,791.71	396	617	0.0347	17,174	22.82	753 0.5
TOTAL	13,525,236.19	5,740,150	8,941,985		4,583,251		209,242

COMPOSITE ANNUAL ACCRUAL RATE

1.55%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.66

COMPOSITE AVERAGE AGE (YEARS)

25.18

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

20.76

MDU Electric

Account #: 314.72 - Steam - Turbogenerator Unit - Wygen III Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2060

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	27,471,457.92	5,394,679	4,159,726	0.1514	23,311,732	31.45	741,255
2011	5,901.86	1,071	826	0.1400	5,076	31.60	161
2012	44,111.16	7,325	5,648	0.1281	38,463	31.75	1,212
2013	113,481.36	17,026	13,128	0.1157	100,353	31.89	3,147
2014	413,932.28	55,199	42,562	0.1028	371,370	32.03	11,596
2015	14,561.13	1,689	1,302	0.0894	13,259	32.16	412
2016	300,051.73	29,361	22,639	0.0755	277,412	32.29	8,592
2017	75,874.33	5,988	4,617	0.0609	71,257	32.41	2,198
2018	281,050.21	16,616	12,812	0.0456	268,238	32.54	8,244
2019	956,534.46	36,717	28,312	0.0296	928,223	32.66	28,424
2020	259,807.93	4,322	3,333	0.0128	256,475	32.77	7,826
TOTAL	29,936,764.37	5,569,993	4,294,907		25,641,857		813,066

COMPOSITE ANNUAL ACCRUAL RATE

2.72%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.14

COMPOSITE AVERAGE AGE (YEARS)

9.90

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

31.53

MDU Electric

Account #: 315.30 - Steam - Accessory Electric Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1981	6,787,758.65	4,723,865	5,822,594	0.8578	965,165	14.60	66,122 39.5
1982	46,782.77	32,161	39,641	0.8473	7,142	14.91	479 38.5
1983	6,722.92	4,564	5,626	0.8368	1,097	15.21	72 37.5
1986	4,415.15	2,881	3,552	0.8044	864	16.05	54 34.5
1988	1,096.41	696	858	0.7822	239	16.55	14 32.5
1989	6,485.39	4,056	4,999	0.7708	1,487	16.78	89 31.5
1992	9,242.29	5,514	6,796	0.7353	2,446	17.41	140 28.5
1994	526.72	304	374	0.7103	153	17.78	9 26.5
1995	7,322.68	4,142	5,106	0.6972	2,217	17.94	124 25.5
1996	20,788.14	11,532	14,214	0.6838	6,574	18.10	363 24.5
1997	6,773.43	3,681	4,537	0.6699	2,236	18.25	123 23.5
2002	12,555.72	6,028	7,430	0.5918	5,126	18.88	271 18.5
2006	12,007.20	5,020	6,187	0.5153	5,820	19.27	302 14.5
2007	20,891.15	8,366	10,312	0.4936	10,579	19.35	547 13.5
2008	1,180,526.67	450,770	555,615	0.4707	624,912	19.43	32,168 12.5
2009	402,326.37	145,686	179,571	0.4463	222,756	19.50	11,423 11.5
2010	110,974.32	37,860	46,666	0.4205	64,309	19.57	3,286 10.5
2011	12,534.39	3,997	4,926	0.3930	7,608	19.63	387 9.5
2012	34,735.51	10,250	12,634	0.3637	22,102	19.69	1,122 8.5
2014	6,365.05	1,543	1,901	0.2987	4,464	19.81	225 6.5
2015	11,770.03	2,507	3,090	0.2626	8,680	19.86	437 5.5
2017	32,902.52	4,841	5,967	0.1814	26,935	19.95	1,350 3.5
2018	20,445.44	2,248	2,771	0.1355	17,674	19.99	884 2.5
2019	160,397.78	11,137	13,727	0.0856	146,670	20.03	7,324 1.5

MDU Electric

Account #: 315.30 - Steam - Accessory Electric Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
TOTAL	8,916,346.70	5,483,647	6,759,094		2,157,253		127,318
COMPOSITE ANNUAL ACCRUAL RATE							
				1.43%			
THEORETICAL ACCUMULATED DEPRECIATION FACTOR							
				0.76			
COMPOSITE AVERAGE AGE (YEARS)							
				32.96			
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)							
				15.73			

MDU Electric

Account #: 315.61 - Steam - Accessory Electric Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated			ALG		
			Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1975	2,872,978.67	2,097,108	2,138,723	0.7444	734,255	13.50	54,378	45.5
1976	11,590.50	8,355	8,520	0.7351	3,070	13.94	220	44.5
1977	3,769.60	2,682	2,735	0.7256	1,034	14.37	72	43.5
1978	1,042.26	732	746	0.7159	296	14.81	20	42.5
1980	4,709.76	3,215	3,278	0.6961	1,431	15.68	91	40.5
1981	28,400.37	19,104	19,483	0.6860	8,917	16.11	554	39.5
1988	5,045.68	3,031	3,091	0.6127	1,954	18.91	103	32.5
1989	2,796.91	1,650	1,683	0.6018	1,114	19.26	58	31.5
1990	1,033.94	599	611	0.5908	423	19.61	22	30.5
1992	7,864.16	4,383	4,470	0.5684	3,394	20.25	168	28.5
2000	22,641.60	10,429	10,635	0.4697	12,006	22.29	539	20.5
2001	1,451.70	649	662	0.4558	790	22.48	35	19.5
2002	2,680.81	1,161	1,184	0.4415	1,497	22.67	66	18.5
2004	3,209.77	1,294	1,320	0.4112	1,890	23.02	82	16.5
2005	407,557.47	157,885	161,018	0.3951	246,539	23.18	10,637	15.5
2007	7,051.04	2,495	2,544	0.3608	4,507	23.47	192	13.5
2008	14,149.65	4,752	4,846	0.3425	9,303	23.60	394	12.5
2009	8,166.90	2,589	2,640	0.3233	5,527	23.73	233	11.5
2010	15,732.58	4,676	4,769	0.3031	10,964	23.85	460	10.5
2011	383,144.98	105,902	108,003	0.2819	275,142	23.96	11,485	9.5
2012	54,847.41	13,955	14,232	0.2595	40,615	24.06	1,688	8.5
2013	45,984.60	10,632	10,843	0.2358	35,141	24.16	1,454	7.5
2014	68,782.26	14,212	14,494	0.2107	54,288	24.25	2,238	6.5
2015	4,969,972.07	897,190	914,994	0.1841	4,054,978	24.34	166,596	5.5
2018	2,550.46	233	238	0.0933	2,313	24.57	94	2.5

MDU Electric

Account #: 315.61 - Steam - Accessory Electric Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
TOTAL	8,947,155.15	3,368,913	3,435,766		5,511,389		251,879
COMPOSITE ANNUAL ACCRUAL RATE							
				2.82%			
THEORETICAL ACCUMULATED DEPRECIATION FACTOR							
				0.38			
COMPOSITE AVERAGE AGE (YEARS)							
				19.33			
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)							
				20.72			

MDU Electric

Account #: 315.72 - Steam - Accessory Electric Equipment - Wygen III Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: 0%
Truncation Year: 2060

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	2,572,725.80	590,671	-384,688	-0.1495	2,957,414	33.69	87,791
2015	5,085.86	673	-438	-0.0862	5,524	35.28	157
2016	39,088.89	4,336	-2,824	-0.0722	41,913	35.55	1,179
2018	67,227.96	4,403	-2,867	-0.0427	70,095	36.04	1,945
2019	316,233.07	13,081	-8,519	-0.0269	324,752	36.27	8,954
TOTAL	3,000,361.58	613,164	-399,337		3,399,699		100,025

COMPOSITE ANNUAL ACCRUAL RATE

3.33%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

-0.13

COMPOSITE AVERAGE AGE (YEARS)

9.29

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

34.04

MDU Electric

Account #: 316.15 - Steam - Misc Power Plant Equipment - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1980	3,500.00	2,530	3,500	1.0000	0	8.31	0 40.5
1981	300.00	213	300	1.0000	0	8.72	0 39.5
1982	800.00	556	800	1.0000	0	9.14	0 38.5
1983	3,750.00	2,554	3,750	1.0000	0	9.57	0 37.5
1984	10,000.00	6,668	10,000	1.0000	0	10.00	0 36.5
1985	2,500.00	1,631	2,500	1.0000	0	10.43	0 35.5
1987	2,800.00	1,743	2,800	1.0000	0	11.33	0 33.5
1989	2,350.00	1,391	2,350	1.0000	0	12.25	0 31.5
1990	2,200.00	1,267	2,200	1.0000	0	12.72	0 30.5
1991	2,950.00	1,652	2,950	1.0000	0	13.20	0 29.5
1992	750.00	408	750	1.0000	0	13.68	0 28.5
1993	250.00	132	250	1.0000	0	14.18	0 27.5
1994	3,239.98	1,654	3,223	0.9948	17	14.68	1 26.5
1996	8,545.47	4,070	7,931	0.9280	615	15.71	39 24.5
1997	12,665.20	5,811	11,322	0.8939	1,344	16.24	83 23.5
1998	110,501.32	48,735	94,955	0.8593	15,546	16.77	927 22.5
2000	5,477.75	2,217	4,320	0.7887	1,157	17.86	65 20.5
2001	41,077.97	15,871	30,923	0.7528	10,155	18.41	552 19.5
2002	6,714.09	2,469	4,810	0.7164	1,904	18.97	100 18.5
2003	14,683.50	5,122	9,980	0.6797	4,703	19.53	241 17.5
2005	2,922.14	908	1,768	0.6052	1,154	20.68	56 15.5
2006	52,761.83	15,367	29,941	0.5675	22,821	21.26	1,073 14.5
2007	59,801.84	16,252	31,666	0.5295	28,136	21.85	1,288 13.5
2008	31,228.73	7,875	15,343	0.4913	15,886	22.44	708 12.5
2009	10,603.93	2,465	4,802	0.4529	5,802	23.03	252 11.5
2010	283,343.09	60,250	117,391	0.4143	165,952	23.62	7,026 10.5
2011	106,511.28	20,531	40,002	0.3756	66,510	24.22	2,746 9.5
2013	40,876.14	6,245	12,168	0.2977	28,709	25.42	1,130 7.5

MDU Electric

Account #: 316.15 - Steam - Misc Power Plant Equipment - Heskett Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2014	27,617.93	3,664	7,139	0.2585	20,478	26.02	787
2015	395,455.44	44,489	86,682	0.2192	308,773	26.62	11,597
2016	38,920.65	3,590	6,995	0.1797	31,926	27.23	1,172
2017	292,516.84	21,030	40,975	0.1401	251,542	27.84	9,034
2018	847,596.65	43,613	84,975	0.1003	762,622	28.46	26,800
2019	57,802.83	1,788	3,483	0.0603	54,320	29.07	1,868
2020	25,345.95	261	508	0.0201	24,838	29.69	837
TOTAL	2,508,360.55	355,023	683,452		1,824,909		68,382

COMPOSITE ANNUAL ACCRUAL RATE

2.73%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.27

COMPOSITE AVERAGE AGE (YEARS)

7.06

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

25.75

MDU Electric

Account #: 316.25 - Steam - Misc Power Plant Equipment - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		Annual Average Age
		Depreciation	Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Accrual	
1960	500.00	500	500	1.0000	0			61.5
1976	300.00	233	300	1.0000	0	6.70	0	44.5
1981	600.00	426	600	1.0000	0	8.72	0	39.5
1984	3,463.00	2,309	3,463	1.0000	0	10.00	0	36.5
1985	3,500.00	2,283	3,500	1.0000	0	10.43	0	35.5
1989	3,040.00	1,799	3,040	1.0000	0	12.25	0	31.5
1990	1,750.00	1,008	1,750	1.0000	0	12.72	0	30.5
1992	1,500.00	816	1,500	1.0000	0	13.68	0	28.5
1993	7,190.00	3,792	7,190	1.0000	0	14.18	0	27.5
1995	3,784.64	1,868	3,785	1.0000	0	15.19	0	25.5
1996	20,033.15	9,542	20,033	1.0000	0	15.71	0	24.5
1997	17,616.67	8,083	17,617	1.0000	0	16.24	0	23.5
1998	8,420.09	3,714	8,420	1.0000	0	16.77	0	22.5
1999	103,741.36	43,886	103,741	1.0000	0	17.31	0	21.5
2000	4,766.02	1,929	4,766	1.0000	0	17.86	0	20.5
2001	29,329.34	11,332	29,329	1.0000	0	18.41	0	19.5
2004	26,203.91	8,642	26,204	1.0000	0	20.11	0	16.5
2007	22,164.33	6,024	18,482	0.8338	3,683	21.85	169	13.5
2008	22,830.12	5,757	17,663	0.7737	5,167	22.44	230	12.5
2009	1,473.89	343	1,051	0.7132	423	23.03	18	11.5
2010	11,766.23	2,502	7,677	0.6524	4,090	23.62	173	10.5
2011	5,515.15	1,063	3,262	0.5914	2,253	24.22	93	9.5
2012	29,868.66	5,161	15,836	0.5302	14,033	24.82	565	8.5
2013	43,473.45	6,642	20,378	0.4688	23,095	25.42	909	7.5
2014	17,976.72	2,385	7,318	0.4071	10,659	26.02	410	6.5
2015	325,441.33	36,613	112,335	0.3452	213,106	26.62	8,004	5.5
2016	6,183.54	570	1,750	0.2830	4,433	27.23	163	4.5
2017	42,738.71	3,073	9,427	0.2206	33,311	27.84	1,196	3.5

MDU Electric

Account #: 316.25 - Steam - Misc Power Plant Equipment - Lewis & Clark Common Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2018	30,924.89	1,591	4,882	0.1579	26,043	28.46	915 2.5
2019	418,090.01	12,929	39,670	0.0949	378,420	29.07	13,017 1.5
2020	85,816.06	883	2,710	0.0316	83,106	29.69	2,799 0.5
TOTAL	1,300,001.27	187,697	498,180		801,821		28,661

COMPOSITE ANNUAL ACCRUAL RATE

2.20%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.38

COMPOSITE AVERAGE AGE (YEARS)

7.25

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

25.67

MDU Electric

Account #: 316.30 - Steam - Misc Power Plant Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation	Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1977	28,724.22	21,928	24,513	0.8534		4,211	7.10	593	43.5
1978	104.79	79	88	0.8385		17	7.50	2	42.5
1979	2,295.40	1,691	1,890	0.8234		405	7.90	51	41.5
1980	1,322.12	956	1,069	0.8082		254	8.31	31	40.5
1981	407,221.63	288,793	322,844	0.7928		84,378	8.72	9,671	39.5
1982	16,907.36	11,762	13,149	0.7777		3,759	9.13	412	38.5
1983	46,632.93	31,840	35,594	0.7633		11,039	9.52	1,160	37.5
1984	15,768.33	10,571	11,817	0.7494		3,951	9.89	400	36.5
1985	22,556.70	14,852	16,603	0.7361		5,953	10.25	581	35.5
1986	49,491.77	32,014	35,789	0.7231		13,703	10.59	1,293	34.5
1987	11,911.98	7,571	8,464	0.7105		3,448	10.93	315	33.5
1988	8,430.91	5,266	5,887	0.6983		2,544	11.26	226	32.5
1989	18,477.80	11,345	12,682	0.6864		5,795	11.58	500	31.5
1990	9,641.07	5,819	6,505	0.6747		3,136	11.89	264	30.5
1991	7,513.17	4,450	4,974	0.6621		2,539	12.20	208	29.5
1992	17,946.97	10,418	11,646	0.6489		6,301	12.49	504	28.5
1993	14,098.47	8,017	8,962	0.6357		5,137	12.78	402	27.5
1994	179,581.03	99,966	111,753	0.6223		67,828	13.06	5,192	26.5
1996	12,978.94	6,908	7,723	0.5950		5,256	13.60	386	24.5
1997	488.19	254	284	0.5810		205	13.86	15	23.5
1998	11,194.65	5,676	6,345	0.5668		4,850	14.11	344	22.5
1999	27,908.81	13,786	15,412	0.5522		12,497	14.35	871	21.5
2000	10,662.05	5,124	5,729	0.5373		4,934	14.58	338	20.5
2001	35,769.59	16,700	18,670	0.5219		17,100	14.80	1,155	19.5
2002	1,153.38	522	584	0.5061		570	15.02	38	18.5
2003	1,032,969.67	452,596	505,959	0.4898		527,011	15.23	34,613	17.5
2004	26,572.17	11,241	12,567	0.4729		14,006	15.42	908	16.5
2005	14,160.32	5,768	6,448	0.4554		7,712	15.61	494	15.5

MDU Electric

Account #: 316.30 - Steam - Misc Power Plant Equipment - Coyote Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year: 2041

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2006	41,346.86	16,168	18,075	0.4372	23,272	15.79	1,473 14.5
2007	36,926.23	13,811	15,440	0.4181	21,486	15.97	1,346 13.5
2008	69,735.26	24,841	27,770	0.3982	41,965	16.13	2,602 12.5
2009	12,714.36	4,292	4,798	0.3773	7,917	16.28	486 11.5
2010	54,421.11	17,300	19,340	0.3554	35,081	16.43	2,135 10.5
2011	66,972.34	19,901	22,247	0.3322	44,725	16.57	2,699 9.5
2012	22,938.06	6,312	7,056	0.3076	15,882	16.70	951 8.5
2013	109,849.04	27,661	30,923	0.2815	78,926	16.82	4,692 7.5
2014	52,810.36	11,981	13,394	0.2536	39,417	16.94	2,327 6.5
2015	59,557.76	11,920	13,326	0.2237	46,232	17.05	2,712 5.5
2016	171,298.32	29,360	32,822	0.1916	138,477	17.15	8,074 4.5
2017	164,711.59	23,115	25,840	0.1569	138,872	17.25	8,050 3.5
2018	22,347.98	2,383	2,664	0.1192	19,684	17.34	1,135 2.5
2019	788,994.08	55,180	61,686	0.0782	727,308	17.43	41,719 1.5
2020	69,392.10	2,066	2,309	0.0333	67,083	17.52	3,829 0.5
TOTAL	3,776,499.87	1,352,206	1,511,638		2,264,862		145,199

COMPOSITE ANNUAL ACCRUAL RATE

3.84%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.40

COMPOSITE AVERAGE AGE (YEARS)

15.59

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

14.92

MDU Electric

Account #: 316.61 - Steam - Misc Power Plant Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1975	265,704.95	209,873	265,705	1.0000	0	6.30	0 45.5
1977	3,995.28	3,050	3,995	1.0000	0	7.10	0 43.5
1978	2,391.91	1,794	2,392	1.0000	0	7.50	0 42.5
1979	5,993.28	4,414	5,993	1.0000	0	7.90	0 41.5
1980	1,328.76	961	1,314	0.9890	15	8.31	2 40.5
1981	7,217.00	5,118	7,002	0.9702	215	8.72	25 39.5
1982	3,681.61	2,560	3,502	0.9511	180	9.14	20 38.5
1983	4,958.07	3,377	4,620	0.9318	338	9.57	35 37.5
1984	8,517.48	5,679	7,770	0.9122	748	10.00	75 36.5
1985	5,174.26	3,375	4,617	0.8923	557	10.43	53 35.5
1986	11,236.63	7,163	9,799	0.8721	1,437	10.88	132 34.5
1987	19,084.11	11,886	16,260	0.8520	2,824	11.32	250 33.5
1988	4,871.84	2,965	4,056	0.8325	816	11.74	69 32.5
1989	30,343.39	18,042	24,682	0.8134	5,661	12.16	465 31.5
1990	8,945.72	5,197	7,110	0.7948	1,836	12.57	146 30.5
1991	12,157.64	6,900	9,440	0.7765	2,718	12.97	210 29.5
1992	6,966.08	3,862	5,284	0.7585	1,682	13.37	126 28.5
1993	1,548.41	839	1,147	0.7409	401	13.75	29 27.5
1994	15,666.34	8,286	11,336	0.7236	4,331	14.13	306 26.5
1995	28,650.90	14,798	20,245	0.7066	8,406	14.50	580 25.5
1996	42,238.25	21,242	29,060	0.6880	13,178	14.87	886 24.5
1997	1,716.73	839	1,148	0.6686	569	15.23	37 23.5
1998	6,441.60	3,056	4,181	0.6490	2,261	15.57	145 22.5
1999	10,947.95	5,035	6,888	0.6292	4,060	15.91	255 21.5
2000	19,331.55	8,606	11,774	0.6091	7,558	16.24	465 20.5
2001	2,887.80	1,243	1,700	0.5886	1,188	16.57	72 19.5
2002	19,935.44	8,274	11,320	0.5678	8,616	16.88	510 18.5
2003	8,339.81	3,332	4,558	0.5466	3,781	17.18	220 17.5

MDU Electric

Account #: 316.61 - Steam - Misc Power Plant Equipment - Big Stone Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		Annual Average Age
		Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Accrual	
2004	8,552.76	3,282	4,489	0.5249	4,063	17.47	233	16.5
2005	5,002.68	1,838	2,515	0.5027	2,488	17.76	140	15.5
2006	15,008.83	5,265	7,202	0.4799	7,806	18.03	433	14.5
2007	18,748.14	6,255	8,557	0.4564	10,191	18.29	557	13.5
2008	17,840.13	5,636	7,711	0.4322	10,129	18.54	546	12.5
2009	143,865.81	42,821	58,580	0.4072	85,286	18.78	4,542	11.5
2010	24,097.44	6,715	9,187	0.3812	14,911	19.00	785	10.5
2011	11,874.95	3,075	4,207	0.3542	7,668	19.22	399	9.5
2012	20,597.88	4,910	6,717	0.3261	13,881	19.43	715	8.5
2013	164,317.48	35,630	48,743	0.2966	115,575	19.62	5,890	7.5
2014	24,647.19	4,787	6,548	0.2657	18,099	19.81	914	6.5
2015	361,588.45	61,598	84,268	0.2331	277,320	19.99	13,876	5.5
2016	71,994.99	10,448	14,293	0.1985	57,702	20.15	2,863	4.5
2017	95,953.09	11,352	15,530	0.1619	80,423	20.31	3,959	3.5
2018	47,445.02	4,258	5,825	0.1228	41,620	20.47	2,034	2.5
2019	34,661.66	2,052	2,807	0.0810	31,854	20.61	1,545	1.5
2020	22,789.83	602	824	0.0361	21,966	20.75	1,059	0.5
TOTAL	1,649,259.12	582,293	774,901		874,358		45,604	

COMPOSITE ANNUAL ACCRUAL RATE

2.77%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.47

COMPOSITE AVERAGE AGE (YEARS)

16.79

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

16.42

MDU Electric

Account #: 316.72 - Steam - Misc Power Plant Equipment - Wygen III Generating Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 30
Net Salvage: 0%
Truncation Year: 2060

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	9,443.78	2,180	1,864	0.1973	7,580	23.01	329
2014	60,499.91	9,276	7,931	0.1311	52,569	24.79	2,120
2017	1,900.48	174	148	0.0781	1,752	26.00	67
2020	91,161.76	2,195	1,877	0.0206	89,285	27.10	3,295
TOTAL	163,005.93	13,825	11,820		151,186		5,812

COMPOSITE ANNUAL ACCRUAL RATE

3.57%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.07

COMPOSITE AVERAGE AGE (YEARS)

3.34

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

25.99

MDU Electric

Account #: 341.10 - Other Production Plant - Structures and Improvements - Heskett Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2057

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2014	7,055,153.67	1,036,525	126,076	0.0179	6,929,077	33.05	209,635
2016	49,178.45	5,284	643	0.0131	48,536	33.19	1,463
TOTAL	7,104,332.12	1,041,808	126,719		6,977,613		211,098

COMPOSITE ANNUAL ACCRUAL RATE

2.97%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.02

COMPOSITE AVERAGE AGE (YEARS)

6.49

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

33.05

MDU Electric

Account #: 341.11 - Other Production Plant - Structures and Improvements - Glendive Turbine Common

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Accrual Average Age
1979	201.70	121	179	0.8876	23	22.10	1 41.5
1983	4,718.63	2,709	4,021	0.8521	698	22.42	31 37.5
1989	9,524.74	5,072	7,527	0.7903	1,998	22.83	88 31.5
1993	1,620.51	810	1,202	0.7418	418	23.07	18 27.5
1994	1,424.22	699	1,038	0.7285	387	23.12	17 26.5
2003	1,198,529.59	470,542	698,322	0.5826	500,207	23.53	21,255 17.5
2008	273,299.10	86,924	129,002	0.4720	144,297	23.72	6,084 12.5
2016	15,244.57	2,235	3,317	0.2176	11,928	23.97	498 4.5
2020	909,155.69	18,963	28,143	0.0310	881,013	24.09	36,568 0.5
TOTAL	2,413,718.75	588,074	872,750		1,540,969		64,559

COMPOSITE ANNUAL ACCRUAL RATE

2.67%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.36

COMPOSITE AVERAGE AGE (YEARS)

10.56

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

23.76

MDU Electric

Account #: 341.21 - Other Production Plant - Structures and Improvements - Miles City Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1978	4,636.58	3,492	4,637	1.0000	0	11.72	0 42.5
1996	5,264.17	3,405	5,264	1.0000	0	11.99	0 24.5
2005	29,641.95	16,064	29,642	1.0000	0	12.07	0 15.5
2006	32,225.75	16,947	32,132	0.9971	94	12.08	8 14.5
2008	75,421.88	36,952	70,060	0.9289	5,362	12.10	443 12.5
2013	76,627.02	28,220	53,504	0.6982	23,123	12.14	1,905 7.5
TOTAL	223,817.35	105,081	195,239		28,578		2,356

COMPOSITE ANNUAL ACCRUAL RATE

1.05%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.87

COMPOSITE AVERAGE AGE (YEARS)

12.38

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

12.10

MDU Electric

Account #: 341.22 - Other Production Plant - Structures and Improvements - Lewis & Clark RICE

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2045

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2015	6,836,313.57	1,221,985	877,247	0.1283	5,959,067	23.07	258,295
TOTAL	6,836,313.57	1,221,985	877,247		5,959,067		258,295

COMPOSITE ANNUAL ACCRUAL RATE

3.78%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.13

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

23.07

MDU Electric

Account #: 341.26 - Other Production Plant - Structures and Improvements - Diamond Willow Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2007	1,862,158.47	877,121	1,084,419	0.5823	777,740	13.94	55,776 13.5
2010	1,501,835.38	616,991	762,810	0.5079	739,025	13.98	52,881 10.5
2017	257,432.19	49,313	60,968	0.2368	196,464	14.04	13,988 3.5
TOTAL	3,621,426.04	1,543,426	1,908,197		1,713,229		122,645

COMPOSITE ANNUAL ACCRUAL RATE

3.39%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.53

COMPOSITE AVERAGE AGE (YEARS)

11.55

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.96

MDU Electric

Account #: 341.27 - Other Production Plant - Structures and Improvements - Thunder Spirit Wind Farm II

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2043

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2018	8,482,596.26	837,885	28,527	0.0034	8,454,069	21.38	395,472
TOTAL	8,482,596.26	837,885	28,527		8,454,069		395,472

COMPOSITE ANNUAL ACCRUAL RATE

4.66%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.00

COMPOSITE AVERAGE AGE (YEARS)

2.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

21.38

MDU Electric

Account #: 341.28 - Other Production Plant - Structures and Improvements - Cedar Hills Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	2,800,540.99	1,150,532	1,319,398	0.4711	1,481,143	13.98	105,983
2018	158,162.14	22,996	26,372	0.1667	131,790	14.05	9,377
2019	12,217.42	1,142	1,309	0.1072	10,908	14.06	776
TOTAL	2,970,920.55	1,174,670	1,347,079		1,623,842		116,135

COMPOSITE ANNUAL ACCRUAL RATE

3.91%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.45

COMPOSITE AVERAGE AGE (YEARS)

10.04

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.98

MDU Electric

Account #: 341.29 - Other Production Plant - Structures and Improvements - Thunder Spirit Wind Farm I

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2040

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2015	27,390,078.24	5,891,435	2,389,067	0.0872	25,001,011	18.62	1,342,834	5.5	
2018	22,640.34	2,541	1,030	0.0455	21,610	18.67	1,157	2.5	
2019	49,456.62	3,530	1,431	0.0289	48,025	18.69	2,570	1.5	
2020	9,803.05	259	105	0.0107	9,698	18.70	518	0.5	
TOTAL	27,471,978.25	5,897,765	2,391,634		25,080,344		1,347,080		

COMPOSITE ANNUAL ACCRUAL RATE

4.90%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.09

COMPOSITE AVERAGE AGE (YEARS)

5.49

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

18.62

MDU Electric

Account #: 341.51 - Other Production Plant - Structures and Improvements - Portable Generators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2047

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2005	33,485.81	11,923	11,639	0.3476	21,847	24.45	894
2012	135,973.35	32,016	31,255	0.2299	104,719	24.71	4,238
TOTAL	169,459.16	43,939	42,894		126,565		5,132

COMPOSITE ANNUAL ACCRUAL RATE

3.03%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.25

COMPOSITE AVERAGE AGE (YEARS)

9.88

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

24.66

MDU Electric

Account #: 341.71 - Other Production Plant - Structures and Improvements - Ormat Generation Facility

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 70
Net Salvage: 0%
Truncation Year: 2034

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2000	9,921.80	5,841	7,372	0.7430	2,550	12.95	197
2009	691,412.65	311,353	392,993	0.5684	298,420	13.04	22,887
TOTAL	701,334.45	317,193	400,365		300,969		23,084

COMPOSITE ANNUAL ACCRUAL RATE

3.29%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.57

COMPOSITE AVERAGE AGE (YEARS)

11.63

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.04

MDU Electric

Account #: 342.11 - Other Production Plant - Fuel Holders, Producers, & Accessories - Glendive Turbine C
CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 40
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1980	4,305.00	3,699	4,305	1.0000	0	5.63	0
1987	1,172.41	889	1,164	0.9925	9	9.67	1
1991	11,079.56	7,612	9,965	0.8994	1,114	12.52	89
1993	22,315.05	14,497	18,978	0.8505	3,337	14.01	238
1994	35,882.41	22,633	29,628	0.8257	6,254	14.77	423
2003	872,296.35	397,080	519,810	0.5959	352,486	20.96	16,817
2006	7,198.54	2,838	3,715	0.5160	3,484	22.40	156
2007	216,042.36	80,672	105,607	0.4888	110,436	22.79	4,846
2016	86,817.66	13,445	17,600	0.2027	69,217	24.84	2,787
TOTAL	1,257,109.34	543,364	710,772		546,338		25,357

COMPOSITE ANNUAL ACCRUAL RATE

2.02%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.57

COMPOSITE AVERAGE AGE (YEARS)

16.53

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

21.11

MDU Electric

Account #: 342.20 - Other Production Plant - Fuel Holders, Producers, & Accessories - Lewis & Clark RICE

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 40
Net Salvage: 0%
Truncation Year: 2045

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2015	2,984,778.90	563,525	383,769	0.1286	2,601,010	23.84	109,106
TOTAL	2,984,778.90	563,525	383,769		2,601,010		109,106

COMPOSITE ANNUAL ACCRUAL RATE

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

COMPOSITE AVERAGE AGE (YEARS)

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

3.66%

0.13

5.50

23.84

MDU Electric

Account #: 342.21 - Other Production Plant - Fuel Holders, Producers, & Accessories - Miles City Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 40
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1975	74,848.64	67,728	59,122	0.7899	15,727	3.81	4,133	45.5	
1978	258.35	227	199	0.7686	60	4.78	13	42.5	
1980	2,072.92	1,786	1,559	0.7523	514	5.53	93	40.5	
1988	11,257.93	8,678	7,575	0.6729	3,683	8.99	410	32.5	
1991	5,393.54	3,974	3,469	0.6431	1,925	10.01	192	29.5	
2013	46,555.61	17,517	15,291	0.3285	31,264	12.43	2,515	7.5	
2016	21,223.89	5,630	4,915	0.2316	16,309	12.47	1,308	4.5	
TOTAL	161,610.88	105,542	92,130		69,481		8,664		

COMPOSITE ANNUAL ACCRUAL RATE

5.36%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.57

COMPOSITE AVERAGE AGE (YEARS)

27.66

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

8.02

MDU Electric

Account #: 342.51 - Other Production Plant - Fuel Holders, Producers, & Accessories - Portable Generator

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 40
Net Salvage: 0%
Truncation Year: 2047

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2012	135,973.35	34,803	33,942	0.2496	102,031	24.97	4,087
TOTAL	135,973.35	34,803	33,942		102,031		4,087

COMPOSITE ANNUAL ACCRUAL RATE

3.01%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.25

COMPOSITE AVERAGE AGE (YEARS)

8.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

24.97

MDU Electric

Account #: 342.81 - Other Production Plant - Fuel Holders, Producers, & Accessories - Heskett Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 40
Net Salvage: 0%
Truncation Year: 2057

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2014	1,100,965.28	193,836	19,197	0.0174	1,081,768	31.70	34,125
TOTAL	1,100,965.28	193,836	19,197		1,081,768		34,125

COMPOSITE ANNUAL ACCRUAL RATE

3.10%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.02

COMPOSITE AVERAGE AGE (YEARS)

6.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

31.70

MDU Electric

Account #: 344.11 - Other Production Plant - Generators - Glendive Turbine 1

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1979	4,460,173.97	3,466,000	4,460,174	1.0000	0	10.83	0
1980	7,320.08	5,651	7,320	1.0000	0	10.94	0
1981	278,930.23	213,866	278,930	1.0000	0	11.05	0
1982	2,194.14	1,671	2,194	1.0000	0	11.14	0
1983	319,427.63	241,462	319,428	1.0000	0	11.24	0
1984	4,297.67	3,225	4,298	1.0000	0	11.32	0
1986	9,144.04	6,754	9,144	1.0000	0	11.48	0
1987	111.98	82	112	1.0000	0	11.55	0
1994	113,331.78	77,286	113,332	1.0000	0	11.93	0
1999	1,582.84	1,004	1,583	1.0000	0	12.11	0
2000	176,856.20	110,152	176,856	1.0000	0	12.14	0
2005	6,048.10	3,355	5,894	0.9745	154	12.27	13
2007	1,298,998.74	675,704	1,187,079	0.9138	111,920	12.31	9,093
2016	12,711.77	3,370	5,920	0.4657	6,791	12.43	546
2018	74,142.13	12,383	21,754	0.2934	52,388	12.44	4,210
2020	64,825.78	2,515	4,418	0.0681	60,408	12.46	4,850
TOTAL	6,830,097.08	4,824,478	6,598,436		231,662		18,712

COMPOSITE ANNUAL ACCRUAL RATE

0.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.97

COMPOSITE AVERAGE AGE (YEARS)

34.19

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

11.23

MDU Electric

Account #: 344.12 - Other Production Plant - Generators - Glendive Turbine 2

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2003	14,168,991.52	5,921,028	5,061,461	0.3572	9,107,530	23.77	383,205
2006	94,852.83	35,177	30,071	0.3170	64,782	24.13	2,684
2007	29,945.96	10,594	9,056	0.3024	20,890	24.24	862
2009	1,941,845.46	615,623	526,252	0.2710	1,415,593	24.43	57,934
2016	16,634.51	2,536	2,168	0.1303	14,467	24.94	580
2017	45,265.89	5,556	4,750	0.1049	40,516	25.00	1,621
2018	150,310.29	13,672	11,688	0.0778	138,623	25.05	5,535
2019	60,898.47	3,464	2,961	0.0486	57,937	25.09	2,309
TOTAL	16,508,744.93	6,607,651	5,648,406		10,860,339		454,730

COMPOSITE ANNUAL ACCRUAL RATE

2.75%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.34

COMPOSITE AVERAGE AGE (YEARS)

16.52

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

23.87

MDU Electric

Account #: 344.21 - Other Production Plant - Generators - Miles City Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1972	1,865,820.31	1,513,414	1,865,820	1.0000	0	9.83	0
1973	15,141.51	12,210	15,142	1.0000	0	9.99	0
1996	4,888.57	3,247	4,064	0.8313	825	12.01	69
2000	82,554.87	51,418	64,341	0.7794	18,213	12.14	1,500
2004	553,186.44	315,414	394,688	0.7135	158,498	12.25	12,942
2017	1,165,566.14	255,401	319,593	0.2742	845,973	12.44	68,031
TOTAL	3,687,157.84	2,151,105	2,663,648		1,023,510		82,541

COMPOSITE ANNUAL ACCRUAL RATE

2.24%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.72

COMPOSITE AVERAGE AGE (YEARS)

28.81

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

11.07

MDU Electric

Account #: 344.22 - Other Production Plant - Generators - Lewis & Clark RICE

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2045

		Accumulated		ALG		
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Annual Average Accrual Age
2015	25,874,335.21	4,812,172	3,320,238	0.1283	22,554,097	23.96
TOTAL	25,874,335.21	4,812,172	3,320,238		22,554,097	5.5

COMPOSITE ANNUAL ACCRUAL RATE

3.64%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.13

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

23.96

MDU Electric

Account #: 344.26 - Other Production Plant - Generators - Diamond Willow Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated Depreciation		ALG		
			Allocated Actual Booked Amount	Factor	Net Book Value	Remaining Life	Annual Accrual Average Age
2007	26,294,371.32	12,720,385	13,613,655	0.5177	12,680,717	14.22	891,578 13.5
2010	18,684,765.60	7,870,488	8,423,181	0.4508	10,261,585	14.29	717,963 10.5
2011	472,401.63	187,514	200,682	0.4248	271,720	14.31	18,985 9.5
2012	1,019,015.61	377,603	404,120	0.3966	614,895	14.33	42,906 8.5
2015	212,455.30	58,575	62,689	0.2951	149,766	14.38	10,416 5.5
2017	1,016,931.17	198,301	212,227	0.2087	804,704	14.40	55,868 3.5
2018	523,082.08	77,182	82,602	0.1579	440,480	14.41	30,558 2.5
2019	118,836.83	11,194	11,980	0.1008	106,857	14.42	7,408 1.5
2020	23,106.91	780	834	0.0361	22,273	14.43	1,543 0.5
TOTAL	48,364,966.45	21,502,022	23,011,969		25,352,997		1,777,225

COMPOSITE ANNUAL ACCRUAL RATE

3.67%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.48

COMPOSITE AVERAGE AGE (YEARS)

11.80

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

14.26

MDU Electric

Account #: 344.27 - Other Production Plant - Generators - Thunder Spirit Wind Farm II

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2043

		Accumulated		ALG		
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Annual Average Accrual Age
2018	69,802,607.62	7,069,816	7,337,837	0.1051	62,464,771	22.19
TOTAL	69,802,607.62	7,069,816	7,337,837		62,464,771	2.5

COMPOSITE ANNUAL ACCRUAL RATE

4.03%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.11

COMPOSITE AVERAGE AGE (YEARS)

2.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

22.19

MDU Electric

Account #: 344.28 - Other Production Plant - Generators - Cedar Hills Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	34,268,341.61	14,434,677	15,645,303	0.4566	18,623,039	14.29	1,302,98210.5
2017	74,367.01	14,502	15,718	0.2114	58,649	14.40	4,0723.5
2018	87,008.34	12,838	13,915	0.1599	73,093	14.41	5,0712.5
2019	272,878.35	25,703	27,859	0.1021	245,019	14.42	16,9861.5
2020	342,113.27	11,541	12,509	0.0366	329,604	14.43	22,8360.5
TOTAL	35,044,708.58	14,499,261	15,715,304		19,329,405		1,351,947

COMPOSITE ANNUAL ACCRUAL RATE

3.86%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.45

COMPOSITE AVERAGE AGE (YEARS)

10.30

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

14.30

MDU Electric

Account #: 344.29 - Other Production Plant - Generators - Thunder Spirit Wind Farm I

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2040

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2015	140,718,836.96	31,175,415	33,544,670	0.2384	107,174,167	19.22	5,575,115
2016	356,688.64	67,353	72,471	0.2032	284,217	19.25	14,763
TOTAL	141,075,525.60	31,242,768	33,617,141		107,458,385		5,589,878

COMPOSITE ANNUAL ACCRUAL RATE

3.96%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.24

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

19.22

MDU Electric

Account #: 344.51 - Other Production Plant - Generators - Portable Generators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2047

		Accumulated		ALG		
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Annual Average Accrual Age
2012	1,206,071.50	298,727	264,192	0.2191	941,880	36,818
TOTAL	1,206,071.50	298,727	264,192		941,880	36,818

COMPOSITE ANNUAL ACCRUAL RATE

3.05%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.22

COMPOSITE AVERAGE AGE (YEARS)

8.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

25.58

MDU Electric

Account #: 344.71 - Other Production Plant - Generators - Ormat Generating Facility

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2034

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2009	11,903,790.72	5,488,342	6,629,972	0.5570	5,273,818	13.31	396,261 11.5
2013	71,353.50	25,534	30,845	0.4323	40,509	13.37	3,029 7.5
2016	1,165.77	292	353	0.3026	813	13.41	61 4.5
2018	52,609.35	8,242	9,957	0.1893	42,653	13.43	3,176 2.5
2020	145,774.58	5,259	6,353	0.0436	139,421	13.45	10,369 0.5
TOTAL	12,174,693.92	5,527,669	6,677,480		5,497,214		412,896

COMPOSITE ANNUAL ACCRUAL RATE

3.39%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.55

COMPOSITE AVERAGE AGE (YEARS)

11.31

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.31

MDU Electric

Account #: 344.81 - Other Production Plant - Generators - Heskett Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: 0%
Truncation Year: 2057

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2014	37,381,821.36	5,942,100	7,701,862	0.2060	29,679,959	34.34	864,337
2017	14,612.28	1,346	1,745	0.1194	12,868	34.82	370
TOTAL	37,396,433.64	5,943,446	7,703,607		29,692,827		864,706

COMPOSITE ANNUAL ACCRUAL RATE

2.31%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.21

COMPOSITE AVERAGE AGE (YEARS)

6.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

34.34

MDU Electric

Account #: 345.11 - Other Production Plant - Accessory Electric Equipment - Glendive Turbine Common

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated Depreciation		Net Book Value	Remaining Life		Annual Accrual	Average Age
			Allocated Actual Booked Amount	Factor		Value	Life		
1980	256.44	196	0	0.0000	256	5.93	43	40.5	
1992	15,961.31	10,331	0	0.0000	15,961	8.82	1,810	28.5	
1993	3,122.10	1,993	0	0.0000	3,122	9.04	345	27.5	
2003	847,899.20	463,374	0	0.0000	847,899	11.34	74,786	17.5	
2007	89,391.15	43,026	0	0.0000	89,391	12.82	6,975	13.5	
2008	39,270.28	18,035	0	0.0000	39,270	13.29	2,955	12.5	
2017	45,265.89	7,584	0	0.0000	45,266	18.76	2,412	3.5	
2018	671,946.38	84,677	0	0.0000	671,946	19.40	34,642	2.5	
TOTAL	1,713,112.75	629,215	0		1,713,113		123,969		

COMPOSITE ANNUAL ACCRUAL RATE

7.24%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.00

COMPOSITE AVERAGE AGE (YEARS)

11.05

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

14.79

MDU Electric

Account #: 345.12 - Other Production Plant - Accessory Electric Equipment - Glendive Turbine 2

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2019	472,685.81	38,965	131,729	0.2787	340,957	20.02	17,033
TOTAL	472,685.81	38,965	131,729		340,957		17,033

COMPOSITE ANNUAL ACCRUAL RATE

3.60%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.28

COMPOSITE AVERAGE AGE (YEARS)

1.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

20.02

MDU Electric

Account #: 345.21 - Other Production Plant - Accessory Electric Equipment - Miles City Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1994	2,407.78	1,675	306	0.1272	2,102	7.52	279
1997	3,132.89	2,127	389	0.1241	2,744	7.79	352
1999	22,792.35	15,182	2,776	0.1218	20,016	7.97	2,510
2010	19,896.72	9,938	1,817	0.0913	18,080	10.00	1,809
2017	5,384.88	1,256	230	0.0427	5,155	11.69	441
2018	503,766.68	89,554	16,374	0.0325	487,393	11.86	41,099
2020	449,296.20	19,476	3,561	0.0079	445,735	12.13	36,757
TOTAL	1,006,677.50	139,209	25,453		981,225		83,248

COMPOSITE ANNUAL ACCRUAL RATE

8.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.03

COMPOSITE AVERAGE AGE (YEARS)

2.32

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

11.83

MDU Electric

Account #: 345.22 - Other Production Plant - Accessory Electric Equipment - Lewis & Clark RICE

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2045

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2015	5,701,040.81	1,410,308	731,567	0.1283	4,969,474	17.20	288,843
TOTAL	5,701,040.81	1,410,308	731,567		4,969,474		288,843

COMPOSITE ANNUAL ACCRUAL RATE

5.07%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.13

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

17.20

MDU Electric

Account #: 345.26 - Other Production Plant - Accessory Electric Equipment - Diamond Willow Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Accrual Average Age
2007	4,048,339.99	2,210,454	2,075,777	0.5127	1,972,563	10.08	195,779 13.5
2010	3,205,174.49	1,521,529	1,428,826	0.4458	1,776,348	11.01	161,310 10.5
2016	282,514.86	73,705	69,214	0.2450	213,301	12.94	16,479 4.5
2017	61,289.59	13,104	12,305	0.2008	48,984	13.21	3,709 3.5
2018	49,442.52	8,005	7,517	0.1520	41,925	13.45	3,118 2.5
2019	69,514.43	7,253	6,811	0.0980	62,704	13.66	4,591 1.5
2020	124,743.42	4,997	4,692	0.0376	120,051	13.85	8,671 0.5
TOTAL	7,841,019.30	3,839,046	3,605,143		4,235,876		393,657

COMPOSITE ANNUAL ACCRUAL RATE

5.02%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.46

COMPOSITE AVERAGE AGE (YEARS)

11.49

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

10.70

MDU Electric

Account #: 345.27 - Other Production Plant - Accessory Electric Equipment - Thunder Spirit Wind Farm II

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2043

		Accumulated		ALG		
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Annual Average Accrual Age
2018	6,659,678.51	873,261	22,397	0.0034	6,637,282	18.21
TOTAL	6,659,678.51	873,261	22,397		6,637,282	2.5

COMPOSITE ANNUAL ACCRUAL RATE

5.47%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.00

COMPOSITE AVERAGE AGE (YEARS)

2.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

18.21

MDU Electric

Account #: 345.28 - Other Production Plant - Accessory Electric Equipment - Cedar Hills Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2010	5,793,174.88	2,750,079	2,666,325	0.4603	3,126,849	11.01	283,949
2016	179,992.71	46,958	45,528	0.2529	134,465	12.94	10,388
2017	29,686.71	6,347	6,154	0.2073	23,533	13.21	1,782
2018	7,022.58	1,137	1,102	0.1570	5,920	13.45	440
2019	4,082.47	426	413	0.1012	3,669	13.66	269
2020	10,139.54	406	394	0.0388	9,746	13.85	704
TOTAL	6,024,098.89	2,805,353	2,719,916		3,304,183		297,532

COMPOSITE ANNUAL ACCRUAL RATE

4.94%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.45

COMPOSITE AVERAGE AGE (YEARS)

10.25

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

11.09

MDU Electric

Account #: 345.29 - Other Production Plant - Accessory Electric Equipment - Thunder Spirit Wind Farm I

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2040

		Accumulated		ALG			
Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2015	30,877,016.70	8,242,824	-913,610	-0.0296	31,790,627	15.37	2,068,721
TOTAL	30,877,016.70	8,242,824	-913,610		31,790,627		2,068,721

COMPOSITE ANNUAL ACCRUAL RATE

6.70%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

-0.03

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

15.37

MDU Electric

Account #: 345.51 - Other Production Plant - Accessory Electric Equipment - Portable Generators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2047

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2005	53,577.30	27,638	26,856	0.5013	26,721	12.10	2,208 15.5
2012	479,224.44	165,209	160,535	0.3350	318,690	15.78	20,192 8.5
TOTAL	532,801.74	192,847	187,391		345,411		22,400

COMPOSITE ANNUAL ACCRUAL RATE

4.20%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.35

COMPOSITE AVERAGE AGE (YEARS)

9.20

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

15.41

MDU Electric

Account #: 345.71 - Other Production Plant - Accessory Electric Equipment - Ormat Generation Facility

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2034

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2009	2,197,920.94	1,126,665	1,248,893	0.5682	949,028	10.22	92,882
2018	9,453.68	1,599	1,773	0.1875	7,681	12.67	606
TOTAL	2,207,374.62	1,128,264	1,250,666		956,709		93,488

COMPOSITE ANNUAL ACCRUAL RATE

4.24%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.57

COMPOSITE AVERAGE AGE (YEARS)

11.46

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

10.23

MDU Electric

Account #: 345.81 - Other Production Plant - Accessory Electric Equipment - Heskett Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year: 2057

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2014	5,894,695.87	1,541,357	-133,917	-0.0227	6,028,613	18.46	326,525
2017	31,635.27	4,947	-430	-0.0136	32,065	20.94	1,531
2019	58,610.85	4,590	-399	-0.0068	59,010	22.65	2,605
2020	245,855.06	9,281	-806	-0.0033	246,661	23.51	10,492
TOTAL	6,230,797.05	1,560,175	-135,552		6,366,349		341,153

COMPOSITE ANNUAL ACCRUAL RATE

5.48%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

-0.02

COMPOSITE AVERAGE AGE (YEARS)

6.20

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

18.71

MDU Electric

Account #: 346.11 - Other Production Plant - Misc Power Plant Equipment - Glendive Turbine - Common

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Accumulated Depreciation		ALG		
			Allocated Actual Booked Amount	Factor	Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
1979	3,890.84	3,315	3,891	1.0000	0	4.15	0 41.5
1980	592.82	498	593	1.0000	0	4.46	0 40.5
1981	313.45	260	313	1.0000	0	4.79	0 39.5
1983	429.74	346	430	1.0000	0	5.45	0 37.5
1985	1,869.90	1,460	1,870	1.0000	0	6.14	0 35.5
1990	3,329.86	2,380	3,330	1.0000	0	7.99	0 30.5
1991	531.58	372	532	1.0000	0	8.38	0 29.5
1992	937.22	643	934	0.9968	3	8.79	0 28.5
1993	503.92	338	491	0.9753	12	9.20	1 27.5
1994	1,128.37	741	1,076	0.9534	53	9.62	6 26.5
1997	225.59	138	200	0.8855	26	10.93	2 23.5
1998	893.93	531	771	0.8622	123	11.38	11 22.5
2003	7,893.64	4,034	5,861	0.7424	2,033	13.69	148 17.5
2004	9,162.41	4,528	6,577	0.7179	2,585	14.16	183 16.5
2005	6,200.90	2,943	4,276	0.6895	1,925	14.64	131 15.5
2006	4,130.55	1,877	2,727	0.6601	1,404	15.12	93 14.5
2007	1,050.70	455	661	0.6295	389	15.61	25 13.5
2008	86,726.10	35,671	51,821	0.5975	34,905	16.09	2,169 12.5
2009	441.34	171	249	0.5641	192	16.59	12 11.5
2011	20,908.81	7,082	10,288	0.4921	10,621	17.58	604 9.5
2012	11,313.22	3,529	5,126	0.4531	6,187	18.08	342 8.5
2016	20,925.28	3,937	5,720	0.2734	15,205	20.07	758 4.5
2017	13,392.28	2,041	2,965	0.2214	10,428	20.55	507 3.5
2019	37,427.81	2,772	4,027	0.1076	33,401	21.50	1,554 1.5

MDU Electric

Account #: 346.11 - Other Production Plant - Misc Power Plant Equipment - Glendive Turbine - Common

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2046

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG	
					Net Book Remaining Value	Annual Average Accrual Age
TOTAL	234,220.26	80,062	114,727		119,493	6,546
COMPOSITE ANNUAL ACCRUAL RATE						
				2.79%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR						
				0.49		
COMPOSITE AVERAGE AGE (YEARS)						
				10.82		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)						
				17.01		

MDU Electric

Account #: 346.21 - Other Production Plant - Misc Power Plant Equipment - Miles City Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2033

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1973	2,089.58	1,914	2,090	1.0000	0	2.35	0 47.5
1984	698.04	557	698	1.0000	0	5.64	0 36.5
1987	651.17	501	651	1.0000	0	6.45	0 33.5
1990	3,199.91	2,380	3,200	1.0000	0	7.18	0 30.5
1991	735.87	541	736	1.0000	0	7.41	0 29.5
1996	683.99	471	684	1.0000	0	8.46	0 24.5
2011	20,519.01	9,274	13,671	0.6663	6,848	11.00	622 9.5
2012	11,581.60	4,910	7,238	0.6250	4,343	11.15	389 8.5
2020	17,707.45	755	1,113	0.0629	16,594	12.16	1,364 0.5
TOTAL	57,866.62	21,303	30,081		27,786		2,376

COMPOSITE ANNUAL ACCRUAL RATE

4.11%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.52

COMPOSITE AVERAGE AGE (YEARS)

10.11

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

10.67

MDU Electric

Account #: 346.22 - Other Production Plant - Misc Power Plant Equipment - Lewis & Clark RICE

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2045

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2015	2,365,997.75	533,025	303,642	0.1283	2,062,356	19.15	107,706
2016	2,903.99	555	316	0.1089	2,588	19.61	132
TOTAL	2,368,901.74	533,580	303,958		2,064,944		107,838

COMPOSITE ANNUAL ACCRUAL RATE

4.55%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.13

COMPOSITE AVERAGE AGE (YEARS)

5.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

19.15

MDU Electric

Account #: 346.26 - Other Production Plant - Misc Power Plant Equipment - Diamond Willow Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2007	46,500.00	23,846	26,354	0.5668	20,146	11.57	1,741 13.5
2010	9,290.93	4,159	4,597	0.4948	4,694	12.18	385 10.5
2017	18,778.07	3,914	4,325	0.2303	14,453	13.49	1,071 3.5
TOTAL	74,569.00	31,919	35,276		39,293		3,198

COMPOSITE ANNUAL ACCRUAL RATE

4.29%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.47

COMPOSITE AVERAGE AGE (YEARS)

10.61

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

12.13

MDU Electric

Account #: 346.27 - Other Production Plant - Misc Power Plant Equipment - Thunder Spirit Wind Farm II

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2043

		Calculated Accumulated		Accumulated		ALG			
Year	Original Cost	Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2018	819.71	99	3	0.0037	817	19.38	42	2.5	
TOTAL	819.71	99	3		817		42		

COMPOSITE ANNUAL ACCRUAL RATE

5.14%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.00

COMPOSITE AVERAGE AGE (YEARS)

2.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

19.38

MDU Electric

Account #: 346.28 - Other Production Plant - Misc Power Plant Equipment - Cedar Hills Wind Farm

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2035

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2010	38,642.98	17,300	14,746	0.3816	23,897	12.18	1,962 10.5
2011	24,665.49	10,414	8,877	0.3599	15,789	12.38	1,275 9.5
2018	83,467.81	13,204	11,254	0.1348	72,213	13.65	5,290 2.5
TOTAL	146,776.28	40,918	34,877		111,899		8,527

COMPOSITE ANNUAL ACCRUAL RATE

5.81%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.24

COMPOSITE AVERAGE AGE (YEARS)

5.78

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.05

MDU Electric

Account #: 346.29 - Other Production Plant - Misc Power Plant Equipment - Thunder Spirit Wind Farm I

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2040

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2004	8,592.63	4,469	3,118	0.3629	5,475	12.89	425	16.5	
2013	5,883.14	1,854	1,294	0.2199	4,590	15.90	289	7.5	
2015	195,421.27	48,855	34,083	0.1744	161,338	16.54	9,754	5.5	
2017	40,304.26	7,005	4,887	0.1213	35,417	17.16	2,064	3.5	
2018	96,759.14	12,659	8,831	0.0913	87,928	17.45	5,038	2.5	
2019	91,389.55	7,687	5,363	0.0587	86,027	17.73	4,851	1.5	
TOTAL	438,349.99	82,530	57,576		380,774		22,421		

COMPOSITE ANNUAL ACCRUAL RATE

5.11%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.13

COMPOSITE AVERAGE AGE (YEARS)

4.06

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

16.97

MDU Electric

Account #: 346.81 - Other Production Plant - Misc Power Plant Equipment - Heskett Turbine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: S1
ASL: 28
Net Salvage: 0%
Truncation Year: 2057

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2014	916,531.77	211,960	153,292	0.1673	763,239	21.52	35,459
2017	43,805.73	6,077	4,395	0.1003	39,410	23.87	1,651
2018	23,249.20	2,429	1,756	0.0755	21,493	24.66	871
2019	70,942.20	4,894	3,540	0.0499	67,403	25.45	2,648
2020	513,968.62	16,679	12,062	0.0235	501,906	26.23	19,132
TOTAL	1,568,497.52	242,039	175,046		1,393,452		59,761

COMPOSITE ANNUAL ACCRUAL RATE

3.81%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.11

COMPOSITE AVERAGE AGE (YEARS)

4.16

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

23.36

MDU Electric

Account #: 350.20 - Transmission Plant - Land Rights

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 70
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1958	69.29	55	69	1.0000	0	14.38	0	62.5	
1964	9,631.40	7,100	9,631	1.0000	0	18.39	0	56.5	
1977	155,792.83	92,603	137,024	0.8795	18,769	28.39	661	43.5	
1978	772,255.66	449,730	665,464	0.8617	106,792	29.23	3,653	42.5	
1979	31,369.64	17,886	26,467	0.8437	4,903	30.09	163	41.5	
1980	313,167.33	174,710	258,517	0.8255	54,650	30.95	1,766	40.5	
1981	120,334.73	65,635	97,120	0.8071	23,215	31.82	730	39.5	
1982	58,698.30	31,279	46,284	0.7885	12,415	32.70	380	38.5	
1983	42,080.06	21,889	32,390	0.7697	9,690	33.59	289	37.5	
1984	438,615.45	222,547	329,302	0.7508	109,313	34.48	3,170	36.5	
1985	34,526.03	17,072	25,261	0.7317	9,265	35.39	262	35.5	
1986	37,272.70	17,945	26,553	0.7124	10,720	36.30	295	34.5	
1987	13,064.40	6,118	9,053	0.6930	4,011	37.22	108	33.5	
1988	14,436.09	6,570	9,722	0.6734	4,715	38.14	124	32.5	
1989	19,603.26	8,661	12,815	0.6537	6,788	39.07	174	31.5	
1990	5,847.27	2,505	3,707	0.6339	2,141	40.01	54	30.5	
1991	12,896.73	5,351	7,918	0.6140	4,978	40.95	122	29.5	
1992	37,161.27	14,916	22,071	0.5939	15,090	41.90	360	28.5	
1993	61,781.74	23,957	35,450	0.5738	26,332	42.86	614	27.5	
1994	24,581.09	9,196	13,607	0.5535	10,974	43.81	250	26.5	
1995	11,924.58	4,297	6,358	0.5332	5,566	44.78	124	25.5	
1996	14,686.46	5,090	7,531	0.5128	7,155	45.74	156	24.5	
1997	79,902.17	26,584	39,336	0.4923	40,566	46.71	868	23.5	
1998	6,297.77	2,008	2,971	0.4717	3,327	47.68	70	22.5	
1999	28,655.73	8,736	12,927	0.4511	15,729	48.66	323	21.5	
2000	14,669.06	4,267	6,314	0.4304	8,355	49.64	168	20.5	
2001	3,511.20	972	1,439	0.4097	2,073	50.62	41	19.5	
2002	14,761.59	3,880	5,741	0.3889	9,021	51.60	175	18.5	

MDU Electric

Account #: 350.20 - Transmission Plant - Land Rights

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 70
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2003	924.19	230	340	0.3681	584	52.59	11	17.5	
2004	42,887.23	10,064	14,891	0.3472	27,996	53.57	523	16.5	
2005	1,943.56	429	634	0.3263	1,309	54.56	24	15.5	
2006	11,843.91	2,444	3,617	0.3054	8,227	55.55	148	14.5	
2007	48,194.42	9,264	13,708	0.2844	34,486	56.54	610	13.5	
2008	9,291.02	1,654	2,448	0.2635	6,843	57.54	119	12.5	
2009	2,269.76	372	550	0.2424	1,719	58.53	29	11.5	
2010	1,633.61	244	362	0.2214	1,272	59.53	21	10.5	
2011	328,235.24	44,450	65,773	0.2004	262,462	60.52	4,337	9.5	
2012	46,206.87	5,600	8,286	0.1793	37,921	61.52	616	8.5	
2014	32,052.41	2,972	4,397	0.1372	27,655	63.51	435	6.5	
2015	29,782.81	2,337	3,458	0.1161	26,325	64.51	408	5.5	
2016	234,071.00	15,028	22,236	0.0950	211,835	65.51	3,234	4.5	
2017	157.63	8	12	0.0739	146	66.50	2	3.5	
2018	27,247.80	972	1,438	0.0528	25,809	67.50	382	2.5	
2019	12,222,247.36	261,610	387,103	0.0317	11,835,144	68.50	172,772	1.5	
2020	186,022.54	1,327	1,963	0.0106	184,059	69.50	2,648	0.5	
TOTAL	15,602,605.19	1,610,564	2,382,259		13,220,346		201,419		

COMPOSITE ANNUAL ACCRUAL RATE

1.29%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.15

COMPOSITE AVERAGE AGE (YEARS)

7.42

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

62.77

MDU Electric

Account #: 352.00 - Transmission Plant - Structures and Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Remaining Value	ALG Remaining Life	Annual Accrual	Average Age
1948	1,788.84	1,586	1,533	0.8571	256	5.66	45	72.5
2019	327,313.79	8,867	8,570	0.0262	318,744	48.65	6,552	1.5
TOTAL	329,102.63	10,453	10,103		319,000		6,598	

COMPOSITE ANNUAL ACCRUAL RATE

2.00%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.03

COMPOSITE AVERAGE AGE (YEARS)

1.89

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

48.41

MDU Electric

Account #: 353.00 - Transmission Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 65
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG			Annual Average Age
				Factor	Net Book Value	Remaining Life	Value	Life	Accrual	
1946	1,039.92	937	1,144	1.0000	0	11.77	0	11.77	0	74.5
1947	26,186.83	23,439	28,806	1.0000	0	12.11	0	12.11	0	73.5
1948	32,929.78	29,276	36,223	1.0000	0	12.47	0	12.47	0	72.5
1949	26,958.24	23,800	29,654	1.0000	0	12.83	0	12.83	0	71.5
1950	31,694.67	27,778	34,864	1.0000	0	13.21	0	13.21	0	70.5
1951	18,431.16	16,031	20,274	1.0000	0	13.60	0	13.60	0	69.5
1952	2,736.65	2,361	3,010	1.0000	0	14.01	0	14.01	0	68.5
1953	74,596.87	63,842	82,057	1.0000	0	14.43	0	14.43	0	67.5
1954	74,743.46	63,421	82,218	1.0000	0	14.86	0	14.86	0	66.5
1955	12,729.55	10,705	14,003	1.0000	0	15.31	0	15.31	0	65.5
1956	103,117.65	85,919	113,429	1.0000	0	15.76	0	15.76	0	64.5
1957	236,630.55	195,273	260,294	1.0000	0	16.24	0	16.24	0	63.5
1958	250,582.37	204,727	275,641	1.0000	0	16.72	0	16.72	0	62.5
1959	35,197.76	28,459	38,718	1.0000	0	17.22	0	17.22	0	61.5
1960	245,782.77	196,601	270,361	1.0000	0	17.73	0	17.73	0	60.5
1961	23,024.36	18,212	25,327	1.0000	0	18.26	0	18.26	0	59.5
1962	209,762.33	164,015	230,739	1.0000	0	18.80	0	18.80	0	58.5
1963	507,618.72	392,175	558,381	1.0000	0	19.35	0	19.35	0	57.5
1964	504,452.76	384,929	550,390	0.9919	4,508	19.91	226	19.91	226	56.5
1965	72,322.07	54,482	77,901	0.9792	1,653	20.49	81	20.49	81	55.5
1966	43,249.98	32,152	45,973	0.9663	1,602	21.07	76	21.07	76	54.5
1967	1,133,711.57	831,319	1,188,660	0.9532	58,423	21.67	2,696	21.67	2,696	53.5
1968	106,494.46	76,991	110,086	0.9397	7,058	22.28	317	22.28	317	52.5
1969	8,650.91	6,163	8,813	0.9261	703	22.90	31	22.90	31	51.5
1970	558,513.12	391,954	560,435	0.9122	53,929	23.53	2,292	23.53	2,292	50.5
1971	397,153.64	274,406	392,359	0.8981	44,510	24.17	1,841	24.17	1,841	49.5
1972	472,730.23	321,411	459,568	0.8838	60,435	24.82	2,435	24.82	2,435	48.5
1973	284,211.39	190,058	271,754	0.8692	40,878	25.48	1,604	25.48	1,604	47.5

MDU Electric

Account #: 353.00 - Transmission Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 65
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1974	810,802.15	532,989	762,093	0.8545	129,789	26.16	4,962	46.5	
1975	960,736.80	620,504	887,226	0.8395	169,584	26.84	6,319	45.5	
1976	527,150.52	334,312	478,016	0.8244	101,850	27.53	3,700	44.5	
1977	792,071.82	492,971	704,874	0.8090	166,405	28.22	5,896	43.5	
1978	1,465,841.30	894,771	1,279,388	0.7935	333,038	28.93	11,512	42.5	
1979	4,087,156.06	2,445,415	3,496,573	0.7777	999,299	29.64	33,709	41.5	
1980	788,964.86	462,389	661,146	0.7618	206,715	30.37	6,807	40.5	
1981	7,987,371.96	4,582,292	6,551,984	0.7457	2,234,125	31.10	71,837	39.5	
1982	5,964,442.56	3,347,111	4,785,862	0.7295	1,775,025	31.84	55,749	38.5	
1983	2,605,275.38	1,429,071	2,043,355	0.7130	822,448	32.59	25,239	37.5	
1984	7,346,962.93	3,936,188	5,628,154	0.6964	2,453,506	33.34	73,587	36.5	
1985	847,013.43	442,861	633,224	0.6796	298,491	34.10	8,752	35.5	
1986	793,415.85	404,506	578,382	0.6627	294,375	34.87	8,441	34.5	
1987	909,799.21	451,871	646,107	0.6456	354,672	35.65	9,948	33.5	
1988	247,772.52	119,775	171,261	0.6284	101,289	36.43	2,780	32.5	
1989	536,361.58	252,095	360,458	0.6109	229,540	37.23	6,166	31.5	
1990	863,133.96	394,029	563,401	0.5934	386,046	38.02	10,153	30.5	
1991	521,136.75	230,802	330,012	0.5757	243,238	38.83	6,264	29.5	
1992	550,065.67	236,062	337,533	0.5578	267,540	39.64	6,749	28.5	
1993	27,899.54	11,587	16,567	0.5398	14,122	40.46	349	27.5	
1994	138,300.48	55,507	79,367	0.5217	72,763	41.28	1,763	26.5	
1996	638,026.07	238,067	340,400	0.4850	361,429	42.95	8,415	24.5	
1997	871,831.61	312,872	447,360	0.4665	511,655	43.79	11,683	23.5	
1998	164,483.92	56,665	81,022	0.4478	99,910	44.64	2,238	22.5	
1999	131,485.90	43,396	62,049	0.4290	82,585	45.50	1,815	21.5	
2000	1,281,376.11	404,247	578,012	0.4101	831,501	46.36	17,936	20.5	
2001	401,194.06	120,693	172,573	0.3910	268,741	47.22	5,691	19.5	
2002	254,526.11	72,817	104,117	0.3719	175,862	48.09	3,657	18.5	

MDU Electric

Account #: 353.00 - Transmission Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 65
Net Salvage: -10%
Truncation Year:

Year	Calculated Accumulated			Accumulated		ALG		
	Original Cost	Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
2003	1,241,346.60	336,730	481,473	0.3526	884,008	48.97	18,052	17.5
2004	2,344,539.28	601,005	859,346	0.3332	1,719,647	49.85	34,495	16.5
2005	767,061.79	185,128	264,705	0.3137	579,063	50.74	11,413	15.5
2006	1,096,674.32	248,139	354,801	0.2941	851,540	51.63	16,493	14.5
2007	7,356,177.46	1,552,947	2,220,479	0.2744	5,871,317	52.53	111,780	13.5
2008	1,547,781.01	303,170	433,487	0.2546	1,269,072	53.43	23,754	12.5
2009	3,790,505.85	684,435	978,638	0.2347	3,190,919	54.33	58,732	11.5
2010	6,926,797.10	1,144,226	1,636,071	0.2147	5,983,406	55.24	108,319	10.5
2011	7,276,331.70	1,089,550	1,557,892	0.1946	6,446,073	56.15	114,797	9.5
2012	7,322,831.70	982,930	1,405,441	0.1745	6,649,673	57.07	116,521	8.5
2013	8,580,995.68	1,018,112	1,455,747	0.1542	7,983,348	57.99	137,670	7.5
2014	19,349,279.99	1,993,210	2,849,989	0.1339	18,434,219	58.91	312,906	6.5
2015	13,838,709.50	1,208,251	1,727,617	0.1135	13,494,964	59.84	225,514	5.5
2016	8,800,182.11	629,711	900,392	0.0930	8,779,808	60.77	144,472	4.5
2017	6,054,484.01	337,499	482,572	0.0725	6,177,360	61.71	100,109	3.5
2018	6,743,158.18	268,932	384,532	0.0518	7,032,942	62.64	112,270	2.5
2019	35,581,237.23	852,790	1,219,361	0.0312	37,920,000	63.58	596,379	1.5
2020	35,705,834.07	285,855	408,730	0.0104	38,867,688	64.53	602,348	0.5
TOTAL	222,333,780.46	40,759,321	58,172,868		186,394,290		3,269,741	

COMPOSITE ANNUAL ACCRUAL RATE

1.47%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.26

COMPOSITE AVERAGE AGE (YEARS)

12.34

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

54.17

MDU Electric

Account #: 354.00 - Transmission Plant - Towers and Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 60
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG			Annual Average Age
				Factor	Net Book Value	Remaining Life	Value	Life	Accrual	
1960	53,560.45	55,106	56,772	0.8833	7,501	8.56	7,501	8.56	877	60.5
1967	410,105.96	390,656	402,463	0.8178	89,664	12.37	89,664	12.37	7,248	53.5
1976	311.86	258	266	0.7106	108	18.61	108	18.61	6	44.5
1979	9,301.65	7,271	7,491	0.6711	3,671	20.91	3,671	20.91	176	41.5
1980	26,315.04	20,154	20,763	0.6575	10,815	21.71	10,815	21.71	498	40.5
1981	58,398.89	43,786	45,110	0.6437	24,969	22.51	24,969	22.51	1,109	39.5
1982	29,524.45	21,654	22,309	0.6297	13,120	23.33	13,120	23.33	562	38.5
1983	3,779,020.84	2,708,991	2,790,870	0.6154	1,743,955	24.16	1,743,955	24.16	72,191	37.5
1986	77,282.79	51,449	53,004	0.5715	39,735	26.71	39,735	26.71	1,487	34.5
1987	3,894.34	2,525	2,601	0.5565	2,072	27.59	2,072	27.59	75	33.5
2008	545,169.84	135,792	139,897	0.2138	514,307	47.55	514,307	47.55	10,817	12.5
TOTAL	4,992,886.11	3,437,643	3,541,545		2,449,918				95,046	

COMPOSITE ANNUAL ACCRUAL RATE

1.90%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.71

COMPOSITE AVERAGE AGE (YEARS)

36.33

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

25.57

MDU Electric

Account #: 355.00 - Transmission Plant - Poles and Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 63
Net Salvage: -35%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1925	4,808.02	5,932	6,491	1.0000	0	5.42	0 95.5
1939	6,011.47	6,996	8,115	1.0000	0	8.69	0 81.5
1940	6,161.76	7,137	8,318	1.0000	0	8.95	0 80.5
1941	6,315.80	7,279	8,526	1.0000	0	9.21	0 79.5
1946	18,762.33	21,043	24,827	0.9802	502	10.66	47 74.5
1947	23,386.17	26,070	30,758	0.9742	813	10.98	74 73.5
1948	27,671.38	30,652	36,164	0.9681	1,192	11.31	105 72.5
1949	7,467.33	8,217	9,695	0.9617	386	11.65	33 71.5
1950	81,711.15	89,301	105,361	0.9551	4,949	12.00	412 70.5
1951	20,386.50	22,121	26,099	0.9483	1,422	12.36	115 69.5
1952	12,883.85	13,876	16,371	0.9413	1,022	12.74	80 68.5
1953	51,261.32	54,780	64,632	0.9339	4,571	13.13	348 67.5
1954	17,705.73	18,768	22,143	0.9264	1,760	13.53	130 66.5
1955	44,204.51	46,461	54,817	0.9186	4,859	13.95	348 65.5
1956	120,925.01	125,979	148,637	0.9105	14,612	14.38	1,016 64.5
1957	42,653.10	44,029	51,948	0.9022	5,634	14.83	380 63.5
1958	85,088.50	86,997	102,644	0.8936	12,226	15.29	800 62.5
1959	29,602.16	29,966	35,356	0.8847	4,607	15.76	292 61.5
1960	136,258.45	136,515	161,067	0.8756	22,882	16.25	1,409 60.5
1961	167,581.51	166,098	195,971	0.8662	30,264	16.75	1,807 59.5
1962	87,919.62	86,174	101,673	0.8566	17,019	17.26	986 58.5
1963	166,631.18	161,440	190,475	0.8467	34,478	17.79	1,938 57.5
1964	462,262.33	442,506	522,092	0.8366	101,963	18.33	5,563 56.5
1965	47,626.29	45,027	53,125	0.8263	11,171	18.88	592 55.5
1966	133,157.39	124,273	146,623	0.8156	33,139	19.45	1,704 54.5
1967	552,607.14	508,893	600,418	0.8048	145,601	20.02	7,271 53.5
1968	156,633.21	142,260	167,845	0.7938	43,610	20.62	2,115 52.5
1969	233,465.18	209,029	246,623	0.7825	68,555	21.22	3,231 51.5

MDU Electric

Account #: 355.00 - Transmission Plant - Poles and Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 63
Net Salvage: -35%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Actual Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Average Accrual Age
1970	118,533.67	104,569	123,376	0.7710		0.7710	36,645	21.83	1,679 50.5
1971	113,621.16	98,713	116,467	0.7593		0.7593	36,922	22.46	1,644 49.5
1972	162,407.52	138,889	163,868	0.7474		0.7474	55,382	23.09	2,398 48.5
1973	133,016.11	111,910	132,037	0.7353		0.7353	47,535	23.74	2,002 47.5
1974	1,419,434.67	1,174,247	1,385,436	0.7230		0.7230	530,801	24.39	21,759 46.5
1975	635,677.15	516,794	609,740	0.7105		0.7105	248,424	25.06	9,913 45.5
1976	109,146.56	87,152	102,827	0.6979		0.6979	44,521	25.74	1,730 44.5
1977	8,951.29	7,016	8,278	0.6850		0.6850	3,806	26.42	144 43.5
1978	267,842.83	205,946	242,986	0.6720		0.6720	118,602	27.12	4,374 42.5
1979	316,018.76	238,225	281,070	0.6588		0.6588	145,555	27.82	5,232 41.5
1980	329,415.23	243,292	287,048	0.6455		0.6455	157,662	28.53	5,525 40.5
1981	4,333,546.55	3,133,598	3,697,177	0.6320		0.6320	2,153,111	29.26	73,597 39.5
1982	2,512,651.24	1,777,634	2,097,342	0.6183		0.6183	1,294,737	29.98	43,180 38.5
1983	602,060.31	416,417	491,310	0.6045		0.6045	321,471	30.72	10,464 37.5
1984	1,372,071.07	927,080	1,093,816	0.5905		0.5905	758,480	31.47	24,103 36.5
1985	735,496.62	485,072	572,313	0.5764		0.5764	420,607	32.22	13,053 35.5
1986	484,387.78	311,558	367,592	0.5621		0.5621	286,332	32.98	8,681 34.5
1987	593,693.32	372,078	438,996	0.5477		0.5477	362,490	33.75	10,739 33.5
1988	227,726.60	138,929	163,915	0.5332		0.5332	143,516	34.53	4,156 32.5
1989	211,907.05	125,719	148,330	0.5185		0.5185	137,744	35.31	3,901 31.5
1990	374,686.62	215,935	254,771	0.5037		0.5037	251,056	36.11	6,953 30.5
1991	503,810.79	281,732	332,402	0.4887		0.4887	347,742	36.90	9,423 29.5
1992	914,847.61	495,795	584,964	0.4736		0.4736	650,081	37.71	17,239 28.5
1993	714,563.34	374,813	442,224	0.4584		0.4584	522,437	38.52	13,562 27.5
1994	1,515,576.58	768,385	906,579	0.4431		0.4431	1,139,449	39.34	28,964 26.5
1996	616,311.50	290,572	342,832	0.4120		0.4120	489,189	41.00	11,932 24.5
1997	1,100,936.60	499,275	589,070	0.3963		0.3963	897,194	41.84	21,445 23.5
1998	140,108.74	61,004	71,975	0.3805		0.3805	117,171	42.68	2,745 22.5

MDU Electric

Account #: 355.00 - Transmission Plant - Poles and Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 63
Net Salvage: -35%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Actual Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual Average Age
1999	164,534.60	68,640	80,985	0.3646			141,136	43.53	3,242 21.5
2000	504,706.38	201,288	237,489	0.3486			443,864	44.39	10,000 20.5
2001	280,745.40	106,782	125,987	0.3324			253,020	45.25	5,592 19.5
2002	381,883.92	138,146	162,991	0.3162			352,552	46.12	7,644 18.5
2003	500,839.90	171,806	202,705	0.2998			473,428	46.99	10,075 17.5
2004	1,394,100.07	451,979	533,267	0.2833			1,348,768	47.87	28,175 16.5
2005	386,355.02	117,942	139,153	0.2668			382,426	48.75	7,844 15.5
2006	440,625.87	126,119	148,802	0.2502			446,043	49.64	8,985 14.5
2007	1,305,021.74	348,534	411,218	0.2334			1,350,561	50.54	26,724 13.5
2008	981,706.64	243,291	287,047	0.2166			1,038,257	51.43	20,186 12.5
2009	369,955.06	84,525	99,727	0.1997			399,712	52.34	7,637 11.5
2010	1,266,876.95	264,818	312,446	0.1827			1,397,838	53.25	26,253 10.5
2011	3,919,701.14	742,794	876,386	0.1656			4,415,210	54.16	81,527 9.5
2012	6,020,120.48	1,022,689	1,206,620	0.1485			6,920,543	55.07	125,663 8.5
2013	3,572,305.17	536,479	632,965	0.1312			4,189,647	55.99	74,826 7.5
2014	9,153,987.05	1,193,575	1,408,241	0.1140			10,949,642	56.92	192,385 6.5
2015	13,476,938.62	1,489,540	1,757,434	0.0966			16,436,433	57.84	284,160 5.5
2016	2,722,335.32	246,609	290,962	0.0792			3,384,191	58.77	57,581 4.5
2017	5,148,928.35	363,381	428,735	0.0617			6,522,318	59.71	109,240 3.5
2018	2,283,703.51	115,322	136,063	0.0441			2,946,937	60.64	48,594 2.5
2019	75,766,208.43	2,299,348	2,712,887	0.0265			99,571,495	61.58	1,616,847 1.5
2020	18,781,346.58	190,430	224,679	0.0089			25,130,139	62.53	401,910 0.5

MDU Electric

Account #: 355.00 - Transmission Plant - Poles and Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 63
Net Salvage: -35%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG Net Book Remaining Value	Annual Average Age Accrual
TOTAL	172,142,521.86	26,794,205	31,612,348		200,780,056	3,546,427
COMPOSITE ANNUAL ACCRUAL RATE						
				2.06%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR						
				0.18		
COMPOSITE AVERAGE AGE (YEARS)						
				8.27		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)						
				55.74		

MDU Electric

Account #: 356.00 - Transmission Plant - Overhead Conductors and Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 70
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1936	11,271.83	11,856	13,464	0.9954	62	8.64	7
1937	12,369.23	12,946	14,702	0.9905	141	8.95	16
1938	12,678.47	13,201	14,992	0.9854	222	9.26	24
1939	12,995.43	13,460	15,286	0.9802	309	9.58	32
1940	13,320.31	13,720	15,581	0.9748	403	9.92	41
1941	13,653.32	13,983	15,880	0.9692	504	10.26	49
1946	41,253.03	40,912	46,462	0.9386	3,042	12.15	250
1947	46,759.93	46,040	52,286	0.9318	3,826	12.56	304
1948	52,711.10	51,511	58,500	0.9248	4,754	12.99	366
1949	13,230.71	12,829	14,570	0.9177	1,307	13.44	97
1950	152,925.41	147,089	167,044	0.9103	16,466	13.89	1,185
1951	37,989.21	36,234	41,149	0.9027	4,438	14.36	309
1952	24,243.65	22,923	26,032	0.8948	3,060	14.85	206
1953	102,516.37	96,056	109,087	0.8867	13,932	15.34	908
1954	30,232.49	28,063	31,870	0.8785	4,409	15.85	278
1955	66,556.91	61,182	69,483	0.8700	10,386	16.38	634
1956	198,277.59	180,441	204,921	0.8613	33,012	16.91	1,952
1957	55,232.61	49,742	56,491	0.8523	9,788	17.47	560
1958	123,499.14	110,030	124,957	0.8432	23,242	18.03	1,289
1959	40,593.56	35,765	40,617	0.8338	8,095	18.60	435
1960	224,731.21	195,730	222,284	0.8243	47,393	19.19	2,469
1961	338,036.83	290,934	330,404	0.8145	75,240	19.79	3,801
1962	117,301.19	99,721	113,249	0.8045	27,512	20.41	1,348
1963	241,746.34	202,925	230,456	0.7944	59,640	21.03	2,835
1964	561,700.04	465,365	528,499	0.7841	145,541	21.67	6,716
1965	130,378.75	106,570	121,028	0.7736	35,427	22.32	1,587
1966	197,075.02	158,861	180,414	0.7629	56,076	22.98	2,440
1967	704,924.81	560,142	636,134	0.7520	209,776	23.65	8,871

MDU Electric

Account #: 356.00 - Transmission Plant - Overhead Conductors and Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 70
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1968	222,232.22	174,002	197,608	0.7410	69,071	24.33	2,839
1969	330,261.25	254,675	289,226	0.7298	107,088	25.02	4,281
1970	143,535.03	108,964	123,747	0.7184	48,495	25.72	1,886
1971	145,657.62	108,804	123,565	0.7069	51,224	26.43	1,938
1972	188,608.04	138,564	157,363	0.6953	68,967	27.14	2,541
1973	142,020.63	102,567	116,482	0.6835	53,942	27.87	1,935
1974	503,377.37	357,182	405,640	0.6715	198,413	28.61	6,936
1975	416,006.86	289,880	329,206	0.6595	170,002	29.35	5,792
1976	38,645.23	26,429	30,014	0.6472	16,360	30.11	543
1977	242,050.86	162,376	184,405	0.6349	106,056	30.87	3,436
1978	308,317.40	202,761	230,268	0.6224	139,712	31.64	4,416
1979	260,130.37	167,603	190,341	0.6098	121,815	32.42	3,758
1980	114,303.38	72,107	81,890	0.5970	55,274	33.20	1,665
1981	3,197,930.24	1,973,889	2,241,679	0.5841	1,595,838	33.99	46,944
1982	2,081,847.17	1,256,444	1,426,901	0.5712	1,071,315	34.79	30,790
1983	3,235,490.55	1,907,834	2,166,663	0.5580	1,715,926	35.60	48,196
1984	1,483,637.80	854,107	969,980	0.5448	810,385	36.42	22,252
1985	737,193.33	413,991	470,156	0.5315	414,476	37.24	11,129
1986	458,946.47	251,206	285,286	0.5180	265,450	38.07	6,972
1987	482,526.45	257,193	292,085	0.5044	286,947	38.91	7,375
1988	37,761.45	19,581	22,238	0.4907	23,076	39.75	581
1989	78,846.14	39,737	45,128	0.4770	49,488	40.60	1,219
1990	162,812.95	79,660	90,468	0.4630	104,908	41.46	2,530
1991	272,742.44	129,410	146,967	0.4490	180,324	42.32	4,261
1992	627,157.60	288,218	327,319	0.4349	425,270	43.19	9,846
1993	531,264.67	236,169	268,209	0.4207	369,308	44.07	8,380
1994	1,106,270.92	475,054	539,503	0.4064	788,022	44.95	17,531
1995	8,741.35	3,621	4,112	0.3920	6,378	45.84	139

MDU Electric

Account #: 356.00 - Transmission Plant - Overhead Conductors and Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF DECEMBER 31, 2020

ALG - Remaining Life

Survivor Curve: R3

ASL: 70

Net Salvage: -20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated		ALG		
				Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1996	189,719.90	75,673	85,939	0.3775	141,725	46.73	3,033	24.5
1997	681,523.56	261,320	296,772	0.3629	521,056	47.63	10,939	23.5
1998	94,545.25	34,785	39,504	0.3482	73,950	48.54	1,524	22.5
1999	3,333.70	1,174	1,334	0.3334	2,667	49.45	54	21.5
2000	322,836.76	108,667	123,410	0.3186	263,994	50.36	5,242	20.5
2001	71,706.86	23,005	26,126	0.3036	59,923	51.29	1,168	19.5
2002	104,639.87	31,909	36,238	0.2886	89,330	52.21	1,711	18.5
2003	71,381.33	20,629	23,427	0.2735	62,230	53.14	1,171	17.5
2004	672,472.40	183,557	208,459	0.2583	598,507	54.08	11,068	16.5
2005	40,651.60	10,442	11,858	0.2431	36,924	55.02	671	15.5
2006	220,871.07	53,159	60,371	0.2278	204,674	55.96	3,657	14.5
2007	703,242.14	157,833	179,246	0.2124	664,645	56.91	11,679	13.5
2008	789,023.77	164,219	186,498	0.1970	760,331	57.86	13,141	12.5
2009	215,514.97	41,326	46,933	0.1815	211,685	58.81	3,599	11.5
2010	1,286,882.51	225,630	256,241	0.1659	1,288,018	59.77	21,549	10.5
2011	1,667,275.75	264,833	300,761	0.1503	1,699,969	60.73	27,990	9.5
2012	3,399,294.08	483,737	549,363	0.1347	3,529,790	61.70	57,210	8.5
2013	2,782,483.24	349,802	397,259	0.1190	2,941,721	62.67	46,942	7.5
2014	7,760,933.86	846,569	961,420	0.1032	8,351,701	63.64	131,240	6.5
2015	8,996,196.57	831,273	944,049	0.0874	9,851,387	64.61	152,475	5.5
2016	4,490,409.12	339,838	385,942	0.0716	5,002,549	65.59	76,275	4.5
2017	4,671,674.22	275,275	312,620	0.0558	5,293,389	66.56	79,525	3.5
2018	1,827,564.71	76,989	87,434	0.0399	2,105,643	67.54	31,175	2.5
2019	23,662,115.84	598,632	679,846	0.0239	27,714,693	68.52	404,451	1.5
2020	15,973,466.96	134,798	153,086	0.0080	19,015,075	69.51	273,568	0.5

MDU Electric

Account #: 356.00 - Transmission Plant - Overhead Conductors and Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 70
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Remaining Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	101,836,280.32	19,025,334	21,606,428		100,597,108		1,670,180	
COMPOSITE ANNUAL ACCRUAL RATE								
				1.64%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR								
				0.21				
COMPOSITE AVERAGE AGE (YEARS)								
				11.88				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)								
				59.10				

MDU Electric

Account #: 357.00 - Transmission Plant - Underground Conduit

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
2008	1,942,209.80	467,737	472,690	0.2434	1,469,520	37.96	38,714	12.5
2014	2,373.36	301	304	0.1282	2,069	43.66	47	6.5
TOTAL	1,944,583.16	468,039	472,994		1,471,589		38,761	

COMPOSITE ANNUAL ACCRUAL RATE

1.99%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.24

COMPOSITE AVERAGE AGE (YEARS)

12.49

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

37.97

MDU Electric

Account #: 358.00 - Transmission Plant - Underground Conductors and Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2008	3,101,857.38	747,012	759,136	0.2447	2,342,721	37.96	61,718
TOTAL	3,101,857.38	747,012	759,136		2,342,721		61,718

COMPOSITE ANNUAL ACCRUAL RATE

1.99%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.24

COMPOSITE AVERAGE AGE (YEARS)

12.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

37.96

MDU Electric

Account #: 360.20 - Distribution Plant - Rights of Ways

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 62
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1977	181,841.02	112,474	162,886	0.8958	18,955	23.65	801	43.5	
1978	169,596.80	102,923	149,055	0.8789	20,542	24.37	843	42.5	
1979	6,642.87	3,953	5,725	0.8618	918	25.11	37	41.5	
1980	43,620.64	25,434	36,834	0.8444	6,786	25.85	263	40.5	
1981	60,680.06	34,645	50,174	0.8269	10,506	26.60	395	39.5	
1982	38,133.37	21,304	30,853	0.8091	7,280	27.36	266	38.5	
1983	26,028.91	14,218	20,591	0.7911	5,438	28.13	193	37.5	
1984	39,095.40	20,864	30,216	0.7729	8,880	28.91	307	36.5	
1985	56,126.27	29,239	42,345	0.7545	13,781	29.70	464	35.5	
1986	21,234.70	10,789	15,625	0.7358	5,609	30.50	184	34.5	
1987	2,677.34	1,326	1,920	0.7170	758	31.30	24	33.5	
1988	7,589.00	3,658	5,297	0.6980	2,292	32.12	71	32.5	
1989	4,315.35	2,023	2,929	0.6788	1,386	32.94	42	31.5	
1990	13,486.70	6,141	8,894	0.6595	4,593	33.77	136	30.5	
1991	8,741.25	3,862	5,593	0.6399	3,148	34.61	91	29.5	
1992	22,640.28	9,695	14,040	0.6202	8,600	35.45	243	28.5	
1993	3,053.55	1,266	1,833	0.6002	1,221	36.30	34	27.5	
1994	18,873.28	7,560	10,949	0.5801	7,924	37.16	213	26.5	
1995	6,717.69	2,597	3,761	0.5599	2,957	38.03	78	25.5	
1996	668.34	249	361	0.5394	308	38.91	8	24.5	
1997	24,644.97	8,829	12,787	0.5188	11,858	39.79	298	23.5	
1998	3,405.65	1,171	1,696	0.4981	1,709	40.68	42	22.5	
1999	14,588.14	4,807	6,961	0.4772	7,627	41.57	183	21.5	
2000	29,992.32	9,446	13,680	0.4561	16,312	42.47	384	20.5	
2001	2,145.61	644	933	0.4349	1,212	43.38	28	19.5	
2002	1,523.49	435	630	0.4136	893	44.29	20	18.5	
2003	2,772.58	751	1,087	0.3921	1,685	45.21	37	17.5	
2004	5,072.96	1,298	1,879	0.3705	3,193	46.14	69	16.5	

MDU Electric

Account #: 360.20 - Distribution Plant - Rights of Ways

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 62
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2005	980.51	236	342	0.3488	639	47.07	14	15.5	
2006	4,732.21	1,068	1,547	0.3269	3,185	48.00	66	14.5	
2007	9,420.85	1,984	2,873	0.3050	6,548	48.94	134	13.5	
2008	3,880.32	758	1,098	0.2829	2,783	49.89	56	12.5	
2009	3,902.19	702	1,017	0.2607	2,885	50.84	57	11.5	
2011	9,916.23	1,480	2,143	0.2161	7,774	52.75	147	9.5	
2012	908.46	121	176	0.1936	733	53.71	14	8.5	
2013	6,374.31	753	1,091	0.1711	5,284	54.68	97	7.5	
2014	37,119.91	3,806	5,512	0.1485	31,608	55.64	568	6.5	
2015	55,285.52	4,803	6,955	0.1258	48,330	56.61	854	5.5	
2016	8,587.70	611	885	0.1031	7,703	57.59	134	4.5	
2018	4,122.87	163	237	0.0574	3,886	59.54	65	2.5	
TOTAL	961,139.62	458,088	663,409		297,731		7,959		

COMPOSITE ANNUAL ACCRUAL RATE

0.83%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.69

COMPOSITE AVERAGE AGE (YEARS)

32.82

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

32.45

MDU Electric

Account #: 362.00 - Distribution Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 53
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Actual Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Average Accrual Age
1946	14,110.98	14,179	16,079	0.9908		0.9908	149	6.69	22 74.5
1947	8,094.19	8,081	9,163	0.9844		0.9844	145	6.99	21 73.5
1948	24,642.02	24,439	27,713	0.9779		0.9779	625	7.29	86 72.5
1949	18,378.16	18,104	20,530	0.9714		0.9714	605	7.60	80 71.5
1950	29,518.82	28,880	32,749	0.9647		0.9647	1,198	7.91	151 70.5
1952	26,577.74	25,634	29,069	0.9511		0.9511	1,496	8.55	175 68.5
1953	47,753.01	45,717	51,842	0.9440		0.9440	3,074	8.88	346 67.5
1954	49,153.17	46,699	52,956	0.9368		0.9368	3,570	9.21	387 66.5
1956	48,154.18	45,023	51,055	0.9219		0.9219	4,322	9.91	436 64.5
1957	66,968.41	62,090	70,408	0.9142		0.9142	6,606	10.27	643 63.5
1958	95,666.79	87,930	99,710	0.9063		0.9063	10,307	10.64	969 62.5
1959	123,732.64	112,708	127,807	0.8982		0.8982	14,485	11.02	1,315 61.5
1960	200,352.37	180,810	205,032	0.8899		0.8899	25,373	11.41	2,224 60.5
1961	99,287.22	88,742	100,631	0.8813		0.8813	13,549	11.81	1,147 59.5
1962	101,386.59	89,718	101,737	0.8726		0.8726	14,858	12.22	1,216 58.5
1963	110,388.06	96,676	109,628	0.8636		0.8636	17,319	12.64	1,370 57.5
1964	128,668.04	111,482	126,417	0.8544		0.8544	21,551	13.07	1,649 56.5
1965	232,527.65	199,239	225,931	0.8449		0.8449	41,476	13.51	3,070 55.5
1966	127,731.73	108,190	122,684	0.8352		0.8352	24,207	13.96	1,734 54.5
1967	131,489.80	110,049	124,792	0.8253		0.8253	26,421	14.43	1,831 53.5
1968	348,914.42	288,420	327,059	0.8151		0.8151	74,193	14.90	4,978 52.5
1969	193,056.47	157,545	178,651	0.8047		0.8047	43,364	15.39	2,818 51.5
1970	128,770.62	103,692	117,584	0.7940		0.7940	30,503	15.89	1,920 50.5
1971	82,182.39	65,269	74,013	0.7831		0.7831	20,497	16.40	1,250 49.5
1972	168,306.28	131,767	149,420	0.7720		0.7720	44,133	16.92	2,609 48.5
1973	329,022.25	253,796	287,797	0.7606		0.7606	90,579	17.45	5,191 47.5
1974	330,291.93	250,886	284,497	0.7490		0.7490	95,339	17.99	5,299 46.5
1975	848,249.90	634,131	719,083	0.7372		0.7372	256,404	18.55	13,825 45.5

MDU Electric

Account #: 362.00 - Distribution Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 53
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG			
					Net Book Value	Remaining Life	Annual Accrual	Average Age
1976	619,498.73	455,533	516,560	0.7251	195,864	19.11	10,249	44.5
1977	800,184.00	578,402	655,889	0.7128	264,323	19.69	13,426	43.5
1978	582,526.38	413,660	469,077	0.7002	200,829	20.27	9,906	42.5
1979	1,145,408.98	798,537	905,514	0.6874	411,706	20.87	19,727	41.5
1980	1,287,546.05	880,666	998,646	0.6745	482,032	21.48	22,444	40.5
1981	235,948.03	158,225	179,422	0.6612	91,919	22.09	4,160	39.5
1982	1,281,296.15	841,783	954,554	0.6478	518,937	22.72	22,839	38.5
1983	1,534,625.36	986,992	1,119,217	0.6342	645,602	23.36	27,638	37.5
1984	191,235.44	120,308	136,425	0.6203	83,496	24.01	3,478	36.5
1985	281,589.92	173,139	196,334	0.6063	127,495	24.66	5,170	35.5
1986	172,481.75	103,558	117,432	0.5920	80,922	25.33	3,195	34.5
1987	166,737.90	97,665	110,749	0.5776	81,000	26.01	3,115	33.5
1988	260,608.10	148,776	168,708	0.5629	130,992	26.69	4,908	32.5
1989	541,286.23	300,863	341,169	0.5481	281,310	27.38	10,273	31.5
1990	449,199.43	242,832	275,364	0.5331	241,215	28.09	8,588	30.5
1991	277,795.29	145,887	165,432	0.5178	154,033	28.80	5,349	29.5
1992	1,552,616.65	791,137	897,123	0.5024	888,386	29.52	30,098	28.5
1993	1,096,310.31	541,314	613,832	0.4869	646,925	30.24	21,390	27.5
1994	240,284.75	114,806	130,186	0.4711	146,141	30.98	4,717	26.5
1996	122,750.44	54,664	61,987	0.4391	79,176	32.48	2,438	24.5
1997	195,892.46	84,006	95,260	0.4229	130,017	33.24	3,912	23.5
1998	112,378.84	46,321	52,526	0.4064	76,709	34.00	2,256	22.5
1999	184,831.11	73,077	82,867	0.3899	129,688	34.78	3,729	21.5
2000	219,470.62	83,048	94,174	0.3731	158,217	35.56	4,449	20.5
2001	437,676.47	158,123	179,306	0.3562	324,022	36.35	8,914	19.5
2002	458,196.57	157,619	178,735	0.3392	348,191	37.15	9,374	18.5
2003	1,559,948.62	509,431	577,678	0.3220	1,216,263	37.95	32,050	17.5
2004	362,856.82	112,118	127,138	0.3047	290,148	38.76	7,486	16.5

MDU Electric

Account #: 362.00 - Distribution Plant - Station Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 53
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
2005	834,423.24	243,033	275,592	0.2872	683,995	39.58	17,283	15.5	
2006	3,298,590.20	901,803	1,022,615	0.2696	2,770,764	40.40	68,583	14.5	
2007	3,076,074.58	785,577	890,818	0.2518	2,646,668	41.23	64,192	13.5	
2008	1,919,685.45	455,424	516,436	0.2339	1,691,202	42.07	40,203	12.5	
2009	2,154,354.40	471,720	534,915	0.2159	1,942,592	42.91	45,273	11.5	
2010	1,473,834.52	295,582	335,180	0.1978	1,359,730	43.76	31,074	10.5	
2011	2,715,368.19	494,240	560,452	0.1795	2,562,222	44.61	57,434	9.5	
2012	6,786,963.06	1,108,659	1,257,183	0.1611	6,547,824	45.47	143,998	8.5	
2013	2,204,108.58	318,627	361,313	0.1425	2,173,412	46.34	46,904	7.5	
2014	7,588,489.74	953,492	1,081,229	0.1239	7,645,534	47.21	161,950	6.5	
2015	5,896,465.65	628,692	712,917	0.1051	6,068,019	48.09	126,191	5.5	
2016	7,689,645.88	672,687	762,805	0.0863	8,080,288	48.97	165,010	4.5	
2017	5,884,934.70	401,503	455,291	0.0673	6,312,384	49.86	126,613	3.5	
2018	5,504,073.08	268,943	304,973	0.0482	6,024,711	50.75	118,718	2.5	
2019	3,497,200.68	102,795	116,566	0.0290	3,905,215	51.65	75,616	1.5	
2020	8,772,088.44	86,151	97,692	0.0097	9,990,209	52.55	190,118	0.5	
TOTAL	89,780,857.62	20,751,319	23,531,314		79,716,672		1,841,200		

COMPOSITE ANNUAL ACCRUAL RATE

2.05%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.26

COMPOSITE AVERAGE AGE (YEARS)

13.06

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

42.35

MDU Electric

Account #: 364.00 - Distribution Plant - Poles, Towers & Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 60
Net Salvage: -120%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation	Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1935	232.35	428	404	0.7895	108	9.79	11	85.5	
1936	894.22	1,636	1,544	0.7848	423	10.09	42	84.5	
1937	894.22	1,626	1,535	0.7800	433	10.40	42	83.5	
1938	916.57	1,657	1,563	0.7752	453	10.71	42	82.5	
1939	939.49	1,687	1,592	0.7702	475	11.02	43	81.5	
1940	962.98	1,718	1,621	0.7653	497	11.34	44	80.5	
1941	871.05	1,544	1,457	0.7602	460	11.66	39	79.5	
1946	8,211.37	14,046	13,252	0.7336	4,813	13.35	361	74.5	
1947	10,257.39	17,411	16,428	0.7280	6,138	13.71	448	73.5	
1948	12,313.02	20,736	19,565	0.7223	7,523	14.07	535	72.5	
1949	15,408.53	25,740	24,286	0.7164	9,613	14.44	666	71.5	
1950	5,129.25	8,497	8,017	0.7105	3,267	14.82	220	70.5	
1951	21,115.05	34,681	32,722	0.7044	13,731	15.21	903	69.5	
1952	31,632.85	51,500	48,591	0.6982	21,001	15.60	1,346	68.5	
1953	43,138.51	69,596	65,665	0.6919	29,239	16.00	1,827	67.5	
1954	46,269.16	73,952	69,775	0.6855	32,017	16.41	1,951	66.5	
1955	51,672.15	81,795	77,175	0.6789	36,504	16.83	2,169	65.5	
1956	66,063.49	103,542	97,694	0.6722	47,645	17.26	2,761	64.5	
1957	77,192.44	119,754	112,990	0.6653	56,833	17.69	3,213	63.5	
1958	80,763.22	123,980	116,977	0.6584	60,702	18.13	3,347	62.5	
1959	106,745.46	162,094	152,939	0.6512	81,901	18.59	4,407	61.5	
1960	101,290.38	152,099	143,508	0.6440	79,330	19.05	4,165	60.5	
1961	115,677.90	171,711	162,013	0.6366	92,479	19.52	4,738	59.5	
1962	134,979.66	197,993	186,811	0.6291	110,145	20.00	5,509	58.5	
1963	142,186.96	206,026	194,390	0.6214	118,422	20.48	5,782	57.5	
1964	171,199.22	244,950	231,116	0.6136	145,523	20.98	6,937	56.5	
1965	166,808.89	235,581	222,275	0.6057	144,704	21.48	6,736	55.5	
1966	196,588.65	273,939	258,467	0.5976	174,028	22.00	7,912	54.5	

MDU Electric

Account #: 364.00 - Distribution Plant - Poles, Towers & Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 60
Net Salvage: -120%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG			
					Net Book Value	Remaining Life		
1967	180,034.73	247,426	233,451	0.5894	162,625	22.52	7,222	53.5
1968	211,499.87	286,553	270,369	0.5811	194,931	23.05	8,457	52.5
1969	299,836.31	400,312	377,703	0.5726	281,937	23.59	11,953	51.5
1970	219,470.72	288,610	272,310	0.5640	210,526	24.14	8,723	50.5
1971	179,338.56	232,179	219,066	0.5552	175,479	24.69	7,107	49.5
1972	352,511.56	449,088	423,724	0.5464	351,801	25.26	13,930	48.5
1973	255,443.69	320,067	301,990	0.5374	259,986	25.83	10,066	47.5
1974	163,790.14	201,740	190,346	0.5282	169,992	26.41	6,437	46.5
1975	292,660.89	354,161	334,158	0.5190	309,695	27.00	11,472	45.5
1976	402,185.36	477,911	450,920	0.5096	433,888	27.59	15,725	44.5
1977	374,250.18	436,429	411,780	0.5001	411,570	28.20	14,597	43.5
1978	363,138.46	415,334	391,876	0.4905	407,028	28.81	14,129	42.5
1979	468,019.38	524,671	495,038	0.4808	534,604	29.43	18,168	41.5
1980	591,183.45	649,167	612,503	0.4709	688,101	30.05	22,897	40.5
1981	555,680.39	597,282	563,548	0.4610	658,948	30.69	21,474	39.5
1982	522,362.77	549,204	518,186	0.4509	631,012	31.33	20,143	38.5
1983	647,250.11	665,142	627,576	0.4407	796,374	31.97	24,907	37.5
1984	501,460.23	503,299	474,874	0.4304	628,339	32.63	19,258	36.5
1985	875,164.79	857,172	808,760	0.4201	1,116,602	33.29	33,544	35.5
1986	740,695.65	707,341	667,392	0.4096	962,139	33.96	28,335	34.5
1987	454,692.86	422,991	399,101	0.3990	601,223	34.63	17,362	33.5
1988	434,366.17	393,255	371,044	0.3883	584,561	35.31	16,556	32.5
1989	468,345.93	412,238	388,955	0.3775	641,406	35.99	17,820	31.5
1990	610,667.47	522,025	492,542	0.3666	850,926	36.69	23,195	30.5
1991	760,883.04	630,978	595,341	0.3557	1,078,601	37.38	28,852	29.5
1992	929,267.22	746,654	704,484	0.3446	1,339,904	38.09	35,180	28.5
1993	924,518.83	718,828	678,230	0.3335	1,355,712	38.80	34,946	27.5
1994	1,209,657.64	908,871	857,539	0.3222	1,803,708	39.51	45,653	26.5

MDU Electric

Account #: 364.00 - Distribution Plant - Poles, Towers & Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 60
Net Salvage: -120%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Actual Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Average Accrual Age
1995	747,543.17	541,955	511,346	0.3109		0.3109	1,133,249	40.23	28,171
1996	921,564.17	643,663	607,310	0.2995		0.2995	1,420,131	40.95	34,678
1997	743,725.77	499,582	471,366	0.2881		0.2881	1,164,830	41.68	27,947
1998	548,086.30	353,425	333,464	0.2766		0.2766	872,326	42.41	20,567
1999	716,800.37	442,827	417,817	0.2650		0.2650	1,159,144	43.15	26,862
2000	498,729.29	294,532	277,897	0.2533		0.2533	819,307	43.89	18,666
2001	505,841.08	284,882	268,792	0.2415		0.2415	844,058	44.64	18,908
2002	755,402.65	404,639	381,786	0.2297		0.2297	1,280,100	45.39	28,202
2003	468,126.53	237,799	224,368	0.2179		0.2179	805,510	46.15	17,456
2004	636,818.31	305,767	288,497	0.2059		0.2059	1,112,503	46.91	23,718
2005	628,151.17	284,036	267,994	0.1939		0.1939	1,113,939	47.67	23,369
2006	664,424.12	281,753	265,840	0.1819		0.1819	1,195,893	48.43	24,691
2007	660,568.08	261,443	246,677	0.1697		0.1697	1,206,573	49.21	24,521
2008	781,004.21	286,924	270,719	0.1576		0.1576	1,447,491	49.98	28,961
2009	831,022.86	281,568	265,665	0.1453		0.1453	1,562,585	50.76	30,784
2010	665,854.61	206,492	194,829	0.1330		0.1330	1,270,051	51.54	24,641
2011	904,450.62	254,399	240,031	0.1206		0.1206	1,749,760	52.33	33,438
2012	1,468,247.03	370,418	349,498	0.1082		0.1082	2,880,646	53.12	54,230
2013	3,398,233.21	758,316	715,487	0.0957		0.0957	6,760,626	53.91	125,396
2014	3,834,036.84	743,344	701,362	0.0832		0.0832	7,733,519	54.71	141,349
2015	2,765,046.40	454,751	429,067	0.0705		0.0705	5,654,035	55.51	101,848
2016	2,483,282.06	334,999	316,079	0.0579		0.0579	5,147,142	56.32	91,390
2017	1,737,115.56	182,756	172,435	0.0451		0.0451	3,649,220	57.13	63,875
2018	1,370,555.91	103,294	97,460	0.0323		0.0323	2,917,763	57.94	50,354
2019	1,066,763.17	48,412	45,678	0.0195		0.0195	2,301,201	58.76	39,161
2020	1,582,730.19	24,162	22,798	0.0065		0.0065	3,459,209	59.58	58,056

MDU Electric

Account #: 364.00 - Distribution Plant - Poles, Towers & Fixtures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 60
Net Salvage: -120%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG Net Book Remaining Value	Annual Average Age Accrual
TOTAL	46,982,854.51	25,204,981	23,781,444		79,580,836	1,765,540
COMPOSITE ANNUAL ACCRUAL RATE						
				3.76%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.51		
COMPOSITE AVERAGE AGE (YEARS)				19.38		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				45.37		

MDU Electric

Account #: 365.00 - Distribution Plant - Overhead Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 65
Net Salvage: -110%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation		ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1935	0.59	1	1	0.9423	0	10.00	0	85.5
1936	0.83	1	2	0.9368	0	10.32	0	84.5
1937	0.83	1	2	0.9313	0	10.65	0	83.5
1938	0.85	1	2	0.9256	0	10.98	0	82.5
1939	0.87	2	2	0.9198	0	11.32	0	81.5
1940	0.89	2	2	0.9139	0	11.66	0	80.5
1941	0.91	2	2	0.9079	0	12.01	0	79.5
1946	1,211.46	2,001	2,229	0.8761	315	13.87	23	74.5
1947	2,488.99	4,080	4,544	0.8693	683	14.27	48	73.5
1948	3,536.40	5,750	6,404	0.8623	1,022	14.67	70	72.5
1949	4,816.02	7,767	8,650	0.8553	1,464	15.08	97	71.5
1950	3,112.97	4,978	5,544	0.8480	993	15.51	64	70.5
1951	9,448.19	14,977	16,680	0.8407	3,161	15.94	198	69.5
1952	14,542.45	22,846	25,444	0.8331	5,096	16.38	311	68.5
1953	21,289.54	33,137	36,905	0.8255	7,803	16.82	464	67.5
1954	26,662.43	41,106	45,780	0.8176	10,211	17.28	591	66.5
1955	25,257.28	38,559	42,944	0.8096	10,097	17.75	569	65.5
1956	34,974.43	52,856	58,867	0.8015	14,580	18.22	800	64.5
1957	45,969.37	68,752	76,571	0.7932	19,965	18.71	1,067	63.5
1958	49,192.98	72,789	81,066	0.7847	22,239	19.20	1,158	62.5
1959	66,904.31	97,907	109,042	0.7761	31,457	19.70	1,596	61.5
1960	75,245.00	108,869	121,249	0.7673	36,765	20.22	1,819	60.5
1961	91,527.66	130,884	145,769	0.7584	46,440	20.74	2,239	59.5
1962	113,654.42	160,579	178,841	0.7493	59,834	21.27	2,813	58.5
1963	112,344.68	156,768	174,596	0.7401	61,328	21.81	2,812	57.5
1964	140,180.12	193,128	215,090	0.7307	79,288	22.36	3,547	56.5
1965	148,535.80	201,962	224,929	0.7211	86,996	22.91	3,797	55.5
1966	155,620.53	208,749	232,488	0.7114	94,316	23.48	4,017	54.5

MDU Electric

Account #: 365.00 - Distribution Plant - Overhead Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 65
Net Salvage: -110%
Truncation Year:

Year	Original Cost	Calculated Accumulated		Allocated Actual Booked Amount	Accumulated		ALG		
		Depreciation	Depreciation		Factor	Depreciation	Net Book Value	Remaining Life	Annual Average Accrual Age
1967	139,938.19	185,111		206,162	0.7015		87,708	24.06	3,646 53.5
1968	171,487.35	223,609		249,038	0.6915		111,085	24.64	4,508 52.5
1969	238,713.52	306,698		341,576	0.6814		159,722	25.23	6,330 51.5
1970	226,746.67	286,919		319,548	0.6711		156,620	25.83	6,063 50.5
1971	147,236.54	183,411		204,268	0.6606		104,929	26.44	3,968 49.5
1972	230,691.66	282,763		314,918	0.6501		169,534	27.06	6,265 48.5
1973	193,119.06	232,805		259,280	0.6393		146,270	27.69	5,283 47.5
1974	84,002.43	99,543		110,863	0.6285		65,543	28.32	2,314 46.5
1975	231,495.47	269,522		300,172	0.6175		185,968	28.96	6,421 45.5
1976	306,070.69	349,912		389,704	0.6063		253,044	29.61	8,545 44.5
1977	269,276.55	302,127		336,485	0.5950		228,996	30.27	7,565 43.5
1978	279,781.22	307,892		342,906	0.5836		244,635	30.94	7,907 42.5
1979	295,732.56	319,015		355,294	0.5721		265,744	31.61	8,407 41.5
1980	415,889.04	439,482		489,460	0.5604		383,907	32.29	11,889 40.5
1981	321,484.21	332,575		370,396	0.5486		304,721	32.98	9,240 39.5
1982	431,386.51	436,577		486,224	0.5367		419,687	33.68	12,463 38.5
1983	518,927.43	513,391		571,774	0.5247		517,974	34.38	15,067 37.5
1984	304,240.74	294,021		327,457	0.5125		311,448	35.09	8,876 36.5
1985	816,843.78	770,489		858,109	0.5002		857,263	35.80	23,943 35.5
1986	568,493.28	522,951		582,421	0.4879		611,414	36.53	16,739 34.5
1987	299,798.10	268,705		299,262	0.4753		330,314	37.26	8,866 33.5
1988	284,570.65	248,287		276,523	0.4627		321,076	37.99	8,451 32.5
1989	331,745.15	281,474		313,483	0.4500		383,181	38.74	9,892 31.5
1990	306,612.06	252,725		281,465	0.4371		362,420	39.49	9,178 30.5
1991	598,517.60	478,700		533,138	0.4242		723,749	40.24	17,984 29.5
1992	570,015.58	441,866		492,116	0.4111		704,917	41.01	17,190 28.5
1993	493,634.34	370,396		412,518	0.3979		624,114	41.78	14,940 27.5
1994	595,846.98	432,179		481,326	0.3847		769,953	42.55	18,095 26.5

MDU Electric

Account #: 365.00 - Distribution Plant - Overhead Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 65
Net Salvage: -110%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1995	1,882,279.37	1,317,775	1,467,632	0.3713	2,485,154	43.33	57,354	25.5	
1996	375,134.45	253,095	281,878	0.3578	505,905	44.12	11,467	24.5	
1997	470,889.40	305,646	340,404	0.3442	648,464	44.91	14,439	23.5	
1998	344,425.25	214,677	239,090	0.3306	484,203	45.71	10,593	22.5	
1999	504,568.77	301,394	335,668	0.3168	723,926	46.51	15,565	21.5	
2000	231,177.31	132,042	147,058	0.3029	338,415	47.32	7,151	20.5	
2001	381,730.20	207,989	231,641	0.2890	569,992	48.14	11,841	19.5	
2002	254,395.32	131,864	146,860	0.2749	387,370	48.96	7,913	18.5	
2003	256,479.56	126,106	140,447	0.2608	398,160	49.78	7,998	17.5	
2004	382,167.83	177,644	197,846	0.2465	604,707	50.61	11,948	16.5	
2005	379,331.27	166,083	184,970	0.2322	611,626	51.45	11,888	15.5	
2006	380,789.91	156,374	174,157	0.2178	625,502	52.29	11,962	14.5	
2007	458,071.35	175,591	195,559	0.2033	766,390	53.14	14,423	13.5	
2008	450,434.71	160,282	178,509	0.1887	767,404	53.99	14,215	12.5	
2009	321,220.00	105,422	117,410	0.1741	557,152	54.84	10,159	11.5	
2010	347,335.46	104,339	116,204	0.1593	613,201	55.70	11,009	10.5	
2011	421,245.51	114,766	127,817	0.1445	756,798	56.57	13,379	9.5	
2012	1,427,215.71	348,750	388,410	0.1296	2,608,743	57.44	45,420	8.5	
2013	3,961,149.54	856,044	953,393	0.1146	7,365,021	58.31	126,306	7.5	
2014	3,814,744.61	716,175	797,618	0.0996	7,213,345	59.19	121,870	6.5	
2015	2,699,715.14	429,818	478,697	0.0844	5,190,705	60.07	86,408	5.5	
2016	1,578,483.86	206,085	229,521	0.0692	3,085,295	60.96	50,613	4.5	
2017	749,153.68	76,236	84,905	0.0540	1,488,317	61.85	24,063	3.5	
2018	1,024,067.89	74,599	83,083	0.0386	2,067,460	62.75	32,950	2.5	
2019	702,892.51	30,783	34,284	0.0232	1,441,791	63.64	22,654	1.5	
2020	1,960,482.63	28,668	31,928	0.0078	4,085,086	64.55	63,288	0.5	

MDU Electric

Account #: 365.00 - Distribution Plant - Overhead Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2
ASL: 65
Net Salvage: -110%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
TOTAL	36,578,399.40	17,979,842	20,024,517		56,790,122		1,125,010
COMPOSITE ANNUAL ACCRUAL RATE							
				3.08%			
THEORETICAL ACCUMULATED DEPRECIATION FACTOR							
				0.55			
COMPOSITE AVERAGE AGE (YEARS)							
				18.38			
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)							
				49.79			

MDU Electric

Account #: 366.00 - Distribution Plant - Underground Conduit

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation	Factor	Depreciation	Net Book Value	Remaining Life	Annual Average Accrual Age
1949	130.44	122	130	1.0000	1.0000	0	0	3.21	0 71.5
1950	7,926.12	7,377	7,926	1.0000	1.0000	0	0	3.46	0 70.5
1951	847.30	784	847	1.0000	1.0000	0	0	3.72	0 69.5
1952	6,022.29	5,544	6,022	1.0000	1.0000	0	0	3.97	0 68.5
1954	103.06	94	103	1.0000	1.0000	0	0	4.49	0 66.5
1956	1,237.06	1,113	1,237	1.0000	1.0000	0	0	5.01	0 64.5
1961	1,419.95	1,237	1,420	1.0000	1.0000	0	0	6.44	0 59.5
1962	1,011.82	875	1,008	0.9962	0.9962	4	4	6.75	1 58.5
1963	77.11	66	76	0.9886	0.9886	1	1	7.08	0 57.5
1964	3,403.57	2,898	3,338	0.9807	0.9807	66	66	7.43	9 56.5
1965	5,764.92	4,867	5,606	0.9724	0.9724	159	159	7.79	20 55.5
1966	2,882.38	2,412	2,778	0.9637	0.9637	105	105	8.17	13 54.5
1967	3,659.12	3,032	3,493	0.9546	0.9546	166	166	8.56	19 53.5
1968	183.04	150	173	0.9451	0.9451	10	10	8.98	1 52.5
1983	27,140.52	17,708	20,398	0.7516	0.7516	6,743	6,743	17.38	388 37.5
1986	1,150.22	702	808	0.7028	0.7028	342	342	19.49	18 34.5
1987	9,443.09	5,624	6,478	0.6860	0.6860	2,965	2,965	20.22	147 33.5
1989	851.50	482	555	0.6515	0.6515	297	297	21.72	14 31.5
1996	15,673.33	7,112	8,192	0.5227	0.5227	7,482	7,482	27.31	274 24.5
1997	5,807.65	2,538	2,923	0.5033	0.5033	2,885	2,885	28.15	102 23.5
1999	21,859.09	8,805	10,142	0.4640	0.4640	11,717	11,717	29.86	392 21.5
2000	1,715.65	661	762	0.4440	0.4440	954	954	30.73	31 20.5
2001	73,079.78	26,889	30,972	0.4238	0.4238	42,107	42,107	31.60	1,332 19.5
2004	26,764.87	8,414	9,692	0.3621	0.3621	17,073	17,073	34.28	498 16.5
2014	5,833.94	740	853	0.1461	0.1461	4,981	4,981	43.66	114 6.5
2017	11,930.21	819	943	0.0791	0.0791	10,987	10,987	46.57	236 3.5

MDU Electric

Account #: 366.00 - Distribution Plant - Underground Conduit

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG Net Book Remaining Value	Annual Average Accrual Age
TOTAL	235,918.03	111,065	126,875		109,043	3,610
COMPOSITE ANNUAL ACCRUAL RATE						
				1.53%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR						
				0.54		
COMPOSITE AVERAGE AGE (YEARS)						
				27.64		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)						
				26.46		

MDU Electric

Account #: 367.00 - Distribution Plant - Underground Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 42
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1949	0.03	0	0	0.6648	0	1.44	0 71.5
1951	1.66	2	2	0.6521	1	2.22	0 69.5
1952	2.84	4	3	0.6475	2	2.50	1 68.5
1954	0.14	0	0	0.6394	0	2.99	0 66.5
1955	0.47	1	0	0.6357	0	3.22	0 65.5
1956	3.29	5	3	0.6321	2	3.44	1 64.5
1961	84.30	113	78	0.6138	49	4.55	11 59.5
1962	33.23	44	30	0.6100	19	4.78	4 58.5
1963	6.37	8	6	0.6062	4	5.02	1 57.5
1964	349.26	458	316	0.6023	208	5.26	40 56.5
1965	1,017.51	1,326	913	0.5982	613	5.50	111 55.5
1966	2,611.10	3,380	2,327	0.5941	1,590	5.76	276 54.5
1967	6,260.03	8,045	5,539	0.5898	3,851	6.02	640 53.5
1968	3,889.20	4,961	3,415	0.5854	2,419	6.29	385 52.5
1969	7,790.72	9,860	6,788	0.5808	4,898	6.56	746 51.5
1970	19,987.36	25,086	17,270	0.5760	12,711	6.86	1,854 50.5
1971	15,960.28	19,857	13,670	0.5710	10,270	7.16	1,434 49.5
1972	12,517.28	15,429	10,622	0.5657	8,154	7.49	1,089 48.5
1973	84,606.47	103,261	71,089	0.5602	55,820	7.83	7,132 47.5
1974	205,023.14	247,609	170,465	0.5543	137,070	8.18	16,748 46.5
1975	219,490.00	262,126	180,459	0.5481	148,776	8.56	17,378 45.5
1976	318,049.54	375,325	258,390	0.5416	218,684	8.96	24,413 44.5
1977	386,194.83	449,987	309,791	0.5348	269,501	9.37	28,747 43.5
1978	464,362.42	533,807	367,496	0.5276	329,047	9.81	33,533 42.5
1979	808,995.96	916,728	631,116	0.5201	582,378	10.27	56,700 41.5
1980	613,578.33	684,777	471,431	0.5122	448,937	10.75	41,758 40.5
1981	838,883.99	921,255	634,232	0.5040	624,094	11.25	55,472 39.5
1982	699,215.40	754,868	519,684	0.4955	529,139	11.77	44,951 38.5

MDU Electric

Account #: 367.00 - Distribution Plant - Underground Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 42
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1983	709,861.39	752,667	518,169	0.4866	546,623	12.31	44,39937.5
1984	656,665.67	683,148	470,309	0.4775	514,690	12.87	39,98936.5
1985	670,961.27	684,157	471,003	0.4680	535,438	13.45	39,81135.5
1986	719,167.60	718,005	494,306	0.4582	584,445	14.05	41,61234.5
1987	419,602.59	409,729	282,075	0.4482	347,329	14.66	23,69433.5
1988	370,882.73	353,807	243,576	0.4378	312,748	15.29	20,45632.5
1989	242,372.09	225,625	155,330	0.4272	208,228	15.93	13,06831.5
1990	618,516.53	561,159	386,326	0.4164	541,449	16.60	32,62430.5
1991	546,626.96	482,739	332,339	0.4053	487,602	17.27	28,23029.5
1992	1,353,972.06	1,162,356	800,217	0.3940	1,230,741	17.96	68,51728.5
1993	1,205,728.11	1,004,777	691,732	0.3825	1,116,860	18.67	59,83227.5
1994	1,456,380.38	1,176,381	809,872	0.3707	1,374,698	19.38	70,92226.5
1995	762,814.81	596,277	410,503	0.3588	733,719	20.11	36,48025.5
1996	777,629.44	587,253	404,291	0.3466	762,153	20.85	36,54624.5
1997	1,455,165.42	1,059,757	729,583	0.3342	1,453,165	21.61	67,25023.5
1998	1,285,851.78	901,287	620,485	0.3217	1,308,293	22.37	58,47422.5
1999	1,746,604.40	1,175,799	809,471	0.3090	1,810,435	23.15	78,20221.5
2000	1,317,771.88	850,041	585,205	0.2961	1,391,453	23.94	58,12720.5
2001	1,901,642.42	1,172,439	807,159	0.2830	2,045,305	24.74	82,68219.5
2002	2,104,553.95	1,236,769	851,446	0.2697	2,305,385	25.55	90,24618.5
2003	2,031,047.62	1,134,150	780,799	0.2563	2,265,773	26.36	85,94017.5
2004	1,920,355.97	1,015,499	699,114	0.2427	2,181,420	27.19	80,21916.5
2005	1,796,905.89	896,427	617,139	0.2290	2,078,220	28.03	74,13915.5
2006	3,170,361.77	1,485,618	1,022,764	0.2151	3,732,778	28.88	129,25414.5
2007	3,673,822.98	1,609,180	1,107,830	0.2010	4,402,904	29.74	148,06813.5
2008	4,503,779.49	1,833,559	1,262,302	0.1869	5,493,367	30.60	179,51712.5
2009	3,826,218.53	1,438,369	990,236	0.1725	4,749,092	31.47	150,88911.5
2010	3,766,350.78	1,297,358	893,158	0.1581	4,756,368	32.36	147,00510.5

MDU Electric

Account #: 367.00 - Distribution Plant - Underground Conductor & Devices

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 42
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2011	3,858,256.02	1,206,517	830,619	0.1435	4,956,765	33.24	149,102 9.5
2012	8,202,084.86	2,302,422	1,585,088	0.1288	10,718,039	34.14	313,943 8.5
2013	11,689,077.59	2,904,360	1,999,488	0.1140	15,534,128	35.04	443,289 7.5
2014	12,004,644.13	2,592,830	1,785,017	0.0991	16,221,949	35.95	451,206 6.5
2015	14,227,525.89	2,607,759	1,795,295	0.0841	19,545,994	36.87	530,163 5.5
2016	7,831,916.20	1,177,748	810,813	0.0690	10,937,061	37.79	289,421 4.5
2017	6,723,061.84	788,424	542,785	0.0538	9,541,807	38.72	246,454 3.5
2018	6,763,471.83	568,018	391,049	0.0385	9,754,159	39.65	246,016 2.5
2019	6,042,344.04	305,217	210,125	0.0232	8,853,391	40.59	218,141 1.5
2020	6,731,733.46	113,662	78,250	0.0077	10,019,350	41.53	241,272 0.5
TOTAL	133,794,645.52	46,409,612	31,950,405		168,741,563		5,448,624

COMPOSITE ANNUAL ACCRUAL RATE

4.07%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.24

COMPOSITE AVERAGE AGE (YEARS)

11.10

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

32.29

MDU Electric

Account #: 368.00 - Distribution Plant - Line Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1936	149,46	173	175	0.9754	4	2.05	2	84.5	
1937	149,46	172	174	0.9709	5	2.30	2	83.5	
1938	306,40	351	355	0.9662	12	2.55	5	82.5	
1939	314,06	358	362	0.9617	14	2.80	5	81.5	
1940	321,91	365	370	0.9570	17	3.05	6	80.5	
1941	329,95	372	377	0.9523	19	3.31	6	79.5	
1946	5,546.57	6,101	6,181	0.9287	475	4.59	104	74.5	
1947	7,238.86	7,921	8,026	0.9239	661	4.85	136	73.5	
1948	9,234.69	10,053	10,186	0.9191	896	5.11	175	72.5	
1949	11,294.45	12,230	12,392	0.9143	1,162	5.37	216	71.5	
1950	9,714.73	10,463	10,602	0.9094	1,056	5.64	187	70.5	
1951	23,527.58	25,201	25,535	0.9044	2,698	5.91	457	69.5	
1952	31,740.47	33,806	34,253	0.8993	3,835	6.18	620	68.5	
1953	36,723.25	38,885	39,399	0.8941	4,669	6.47	722	67.5	
1954	38,998.74	41,044	41,586	0.8886	5,212	6.76	771	66.5	
1955	42,941.82	44,909	45,503	0.8830	6,028	7.07	853	65.5	
1956	70,739.61	73,494	74,466	0.8772	10,422	7.38	1,412	64.5	
1957	72,273.76	74,571	75,557	0.8712	11,171	7.71	1,449	63.5	
1958	79,984.02	81,932	83,015	0.8649	12,966	8.05	1,611	62.5	
1959	107,613.21	109,400	110,846	0.8584	18,289	8.41	2,176	61.5	
1961	139,101.50	139,119	140,958	0.8445	25,964	9.16	2,834	59.5	
1962	116,535.60	115,529	117,056	0.8371	22,786	9.56	2,383	58.5	
1963	157,144.32	154,353	156,394	0.8294	32,179	9.98	3,224	57.5	
1964	153,504.60	149,321	151,296	0.8213	32,910	10.42	3,160	56.5	
1965	214,074.08	206,129	208,854	0.8130	48,034	10.87	4,420	55.5	
1966	158,766.61	151,248	153,248	0.8044	37,272	11.34	3,288	54.5	
1967	330,202.30	311,055	315,168	0.7954	81,075	11.82	6,857	53.5	
1968	335,985.05	312,806	316,942	0.7861	86,240	12.33	6,995	52.5	

MDU Electric

Account #: 368.00 - Distribution Plant - Line Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1969	79,574.72	73,180	74,147	0.7765	21,342	12.85	1,661	51.5	
1970	198,552.49	180,264	182,648	0.7666	55,615	13.39	4,154	50.5	
1971	226,601.26	202,986	205,670	0.7564	66,251	13.94	4,752	49.5	
1972	260,212.81	229,846	232,885	0.7458	79,370	14.52	5,468	48.5	
1973	414,097.61	360,459	365,225	0.7350	131,692	15.10	8,719	47.5	
1974	714,553.09	612,587	620,686	0.7239	236,777	15.71	15,075	46.5	
1975	381,429.76	321,852	326,107	0.7125	131,609	16.33	8,061	45.5	
1976	551,367.69	457,628	463,679	0.7008	197,962	16.96	11,673	44.5	
1977	934,832.49	762,684	772,768	0.6889	349,031	17.61	19,824	43.5	
1978	1,179,477.43	945,239	957,737	0.6767	457,636	18.27	25,050	42.5	
1979	1,206,114.57	948,818	961,363	0.6642	485,975	18.94	25,653	41.5	
1980	1,060,779.52	818,565	829,388	0.6516	443,548	19.63	22,593	40.5	
1981	1,321,990.66	999,934	1,013,155	0.6387	573,233	20.33	28,193	39.5	
1982	1,133,920.06	840,062	851,169	0.6255	509,535	21.04	24,212	38.5	
1983	919,856.32	666,931	675,749	0.6122	428,078	21.77	19,665	37.5	
1984	1,227,744.04	870,455	881,964	0.5986	591,329	22.50	26,276	36.5	
1985	841,116.91	582,642	590,345	0.5849	418,995	23.25	18,020	35.5	
1986	646,586.87	437,212	442,992	0.5709	332,912	24.01	13,867	34.5	
1987	261,188.89	172,239	174,517	0.5568	138,910	24.78	5,607	33.5	
1988	477,260.80	306,629	310,683	0.5425	262,030	25.55	10,254	32.5	
1989	730,396.87	456,707	462,746	0.5280	413,730	26.34	15,707	31.5	
1990	531,507.54	323,098	327,369	0.5133	310,440	27.14	11,439	30.5	
1991	431,113.85	254,481	257,846	0.4984	259,491	27.95	9,286	29.5	
1992	335,586.70	192,118	194,658	0.4834	208,046	28.76	7,234	28.5	
1993	225,255.12	124,901	126,552	0.4682	143,754	29.59	4,859	27.5	
1994	328,242.45	176,029	178,357	0.4528	215,534	30.42	7,085	26.5	
1995	788,402.47	408,300	413,698	0.4373	532,385	31.26	17,029	25.5	
1996	938,000.59	468,346	474,538	0.4216	651,063	32.12	20,273	24.5	

MDU Electric

Account #: 368.00 - Distribution Plant - Line Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Actual Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual Average Age
1997	1,095,228.07	526,302	533,261	0.4057			781,013	32.98	23,685 23.5
1998	1,040,937.32	480,500	486,853	0.3898			762,271	33.84	22,524 22.5
1999	982,221.47	434,620	440,367	0.3736			738,299	34.72	21,265 21.5
2000	846,730.62	358,334	363,072	0.3573			653,005	35.60	18,341 20.5
2001	820,240.59	331,168	335,547	0.3409			648,742	36.50	17,776 19.5
2002	1,103,328.72	423,829	429,432	0.3243			894,562	37.39	23,923 18.5
2003	1,079,942.16	393,504	398,707	0.3077			897,224	38.30	23,427 17.5
2004	1,314,298.56	452,733	458,719	0.2909			1,118,440	39.21	28,523 16.5
2005	944,032.16	306,252	310,301	0.2739			822,537	40.13	20,496 15.5
2006	1,835,290.12	558,324	565,707	0.2569			1,636,642	41.06	39,863 14.5
2007	3,720,441.52	1,056,214	1,070,179	0.2397			3,394,351	41.99	80,841 13.5
2008	4,011,433.07	1,056,817	1,070,790	0.2224			3,742,929	42.93	87,197 12.5
2009	2,047,597.78	497,344	503,920	0.2051			1,953,198	43.87	44,525 11.5
2010	1,854,370.69	412,074	417,522	0.1876			1,807,723	44.82	40,337 10.5
2011	2,876,283.01	579,390	587,051	0.1701			2,864,488	45.77	62,588 9.5
2012	5,733,025.11	1,035,155	1,048,841	0.1525			5,830,789	46.72	124,791 8.5
2013	5,441,091.83	868,353	879,834	0.1348			5,649,476	47.69	118,474 7.5
2014	4,850,801.87	672,023	680,908	0.1170			5,140,054	48.65	105,653 6.5
2015	4,011,055.60	470,923	477,150	0.0991			4,336,117	49.62	87,388 5.5
2016	2,454,186.77	236,084	239,205	0.0812			2,705,819	50.59	53,484 4.5
2017	3,410,781.83	255,535	258,913	0.0633			3,834,025	51.57	74,352 3.5
2018	3,260,442.78	174,699	177,009	0.0452			3,735,523	52.54	71,093 2.5
2019	2,925,992.33	94,178	95,423	0.0272			3,415,768	53.52	63,817 1.5
2020	2,692,606.84	28,920	29,302	0.0091			3,201,826	54.51	58,741 0.5

MDU Electric

Account #: 368.00 - Distribution Plant - Line Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
TOTAL	80,852,581.46	27,008,823	27,365,932		69,657,166		1,748,862
COMPOSITE ANNUAL ACCRUAL RATE							
				2.16%			
THEORETICAL ACCUMULATED DEPRECIATION FACTOR							
				0.34			
COMPOSITE AVERAGE AGE (YEARS)							
				16.93			
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)							
				39.69			

MDU Electric

Account #: 369.10 - Distribution Plant - Services

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1957	6.37	9	10	1.0000	0	5.28	0	63.5	
1958	1.52	2	2	1.0000	0	5.56	0	62.5	
1959	223.66	296	335	1.0000	0	5.84	0	61.5	
1961	209.62	274	314	1.0000	0	6.44	0	59.5	
1963	3,036.76	3,910	4,555	1.0000	0	7.08	0	57.5	
1964	4,310.58	5,505	6,466	1.0000	0	7.43	0	56.5	
1965	6,729.69	8,522	10,095	1.0000	0	7.79	0	55.5	
1966	9,274.54	11,639	13,912	1.0000	0	8.17	0	54.5	
1967	11,694.60	14,538	17,542	1.0000	0	8.56	0	53.5	
1968	22,124.84	27,229	33,187	1.0000	0	8.98	0	52.5	
1969	27,441.14	33,417	41,162	1.0000	0	9.41	0	51.5	
1970	34,468.03	41,508	51,702	1.0000	0	9.86	0	50.5	
1971	47,640.41	56,700	71,461	1.0000	0	10.33	0	49.5	
1972	74,310.80	87,353	111,466	1.0000	0	10.82	0	48.5	
1973	103,170.66	119,707	154,756	1.0000	0	11.32	0	47.5	
1974	218,884.19	250,509	328,326	1.0000	0	11.85	0	46.5	
1975	262,774.79	296,443	394,162	1.0000	0	12.40	0	45.5	
1976	411,375.92	457,128	612,460	0.9925	4,604	12.96	355	44.5	
1977	537,065.08	587,428	787,035	0.9770	18,563	13.54	1,371	43.5	
1978	560,385.89	602,867	807,721	0.9609	32,858	14.14	2,324	42.5	
1979	637,237.25	673,772	902,719	0.9444	53,137	14.76	3,601	41.5	
1980	679,475.42	705,546	945,290	0.9275	73,924	15.39	4,804	40.5	
1981	817,544.15	833,021	1,116,081	0.9101	110,235	16.04	6,874	39.5	
1982	736,998.71	736,289	986,480	0.8923	119,018	16.70	7,127	38.5	
1983	667,509.26	653,295	875,284	0.8742	125,980	17.38	7,250	37.5	
1984	559,166.12	535,654	717,669	0.8556	121,081	18.07	6,701	36.5	
1985	459,694.42	430,637	576,968	0.8367	112,574	18.77	5,996	35.5	
1986	385,455.72	352,784	472,659	0.8175	105,524	19.49	5,414	34.5	

MDU Electric

Account #: 369.10 - Distribution Plant - Services

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1987	355,001.75	317,126	424,885	0.7979	107,618	20.22	5,322	33.5	
1988	347,992.61	303,105	406,100	0.7780	115,889	20.97	5,527	32.5	
1989	346,092.97	293,611	393,380	0.7578	125,759	21.72	5,790	31.5	
1990	320,529.34	264,554	354,449	0.7372	126,345	22.49	5,618	30.5	
1991	310,687.04	249,182	333,853	0.7164	132,177	23.27	5,681	29.5	
1992	445,557.31	346,811	464,658	0.6952	203,678	24.05	8,467	28.5	
1993	435,279.05	328,374	439,956	0.6738	212,963	24.85	8,569	27.5	
1994	677,197.08	494,429	662,436	0.6521	353,360	25.66	13,769	26.5	
1995	226,171.30	159,568	213,789	0.6302	125,468	26.48	4,738	25.5	
1996	552,657.13	376,152	503,968	0.6079	325,018	27.31	11,900	24.5	
1997	551,186.16	361,269	484,028	0.5854	342,751	28.15	12,175	23.5	
1998	508,105.84	320,091	428,857	0.5627	333,302	29.00	11,493	22.5	
1999	482,921.75	291,790	390,941	0.5397	333,442	29.86	11,167	21.5	
2000	425,696.76	246,137	329,774	0.5164	308,771	30.73	10,049	20.5	
2001	557,513.37	307,699	412,254	0.4930	424,016	31.60	13,417	19.5	
2002	537,181.99	282,220	378,118	0.4693	427,655	32.49	13,164	18.5	
2003	622,020.34	310,128	415,510	0.4453	517,521	33.38	15,504	17.5	
2004	674,208.85	317,926	425,957	0.4212	585,356	34.28	17,075	16.5	
2005	741,270.23	329,344	441,255	0.3968	670,651	35.19	19,058	15.5	
2006	835,769.76	348,364	466,738	0.3723	786,917	36.11	21,795	14.5	
2007	839,322.79	326,606	437,586	0.3476	821,398	37.03	22,183	13.5	
2008	1,145,927.72	413,956	554,618	0.3227	1,164,273	37.96	30,672	12.5	
2009	1,114,749.42	371,393	497,592	0.2976	1,174,532	38.89	30,198	11.5	
2010	1,323,273.82	403,473	540,573	0.2723	1,444,338	39.84	36,257	10.5	
2011	1,586,958.47	438,760	587,851	0.2470	1,792,587	40.78	43,953	9.5	
2012	2,870,830.55	711,663	953,486	0.2214	3,352,760	41.74	80,331	8.5	
2013	3,092,026.55	677,658	907,925	0.1958	3,730,115	42.69	87,367	7.5	
2014	2,729,912.44	519,487	696,009	0.1700	3,398,860	43.66	77,854	6.5	

MDU Electric

Account #: 369.10 - Distribution Plant - Services

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R3
ASL: 50
Net Salvage: -50%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Value	Remaining Life	Net Book Value	Annual Accrual	Average Age
2015	2,260,187.58	364,568	488,447	0.1441	2,901,834	44.62	2,901,834	65,030	5.5
2016	1,359,936.16	179,768	240,853	0.1181	1,799,052	45.59	1,799,052	39,458	4.5
2017	1,072,258.22	110,411	147,928	0.0920	1,460,459	46.57	1,460,459	31,362	3.5
2018	1,045,781.38	77,027	103,201	0.0658	1,465,471	47.54	1,465,471	30,823	2.5
2019	1,044,997.12	46,243	61,956	0.0395	1,505,540	48.52	1,505,540	31,026	1.5
2020	1,185,644.67	17,510	23,460	0.0132	1,755,007	49.51	1,755,007	35,449	0.5
TOTAL	39,903,057.66	18,432,381	24,652,206		35,202,380			914,058	

COMPOSITE ANNUAL ACCRUAL RATE

2.29%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.62

COMPOSITE AVERAGE AGE (YEARS)

17.02

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

34.60

MDU Electric

Account #: 370.00 - Distribution Plant - Meters

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 20
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1995	56,457.24	44,685	26,184	0.4417	33,096	4.92	6,721	25.5	
1996	169,771.02	132,239	77,488	0.4347	100,771	5.16	19,517	24.5	
1997	69,819.95	53,573	31,392	0.4282	41,919	5.38	7,785	23.5	
1998	62,934.94	47,628	27,909	0.4223	38,173	5.59	6,835	22.5	
1999	46,117.61	34,464	20,195	0.4170	28,229	5.77	4,896	21.5	
2000	29,656.39	21,901	12,833	0.4121	18,306	5.93	3,085	20.5	
2001	79,079.87	57,704	33,813	0.4072	49,221	6.10	8,067	19.5	
2002	36,201.30	26,066	15,274	0.4018	22,738	6.29	3,618	18.5	
2003	66,916.17	47,410	27,781	0.3954	42,481	6.50	6,531	17.5	
2004	108,423.59	75,263	44,102	0.3874	69,743	6.78	10,290	16.5	
2005	132,515.13	89,598	52,502	0.3773	86,639	7.12	12,166	15.5	
2006	139,047.97	90,907	53,269	0.3649	92,731	7.55	12,287	14.5	
2007	4,817,381.60	3,019,171	1,769,152	0.3498	3,289,099	8.06	407,956	13.5	
2008	2,184,244.65	1,299,425	761,427	0.3320	1,532,029	8.67	176,737	12.5	
2009	445,447.25	248,853	145,821	0.3118	321,898	9.36	34,395	11.5	
2010	1,200,514.16	622,618	364,837	0.2894	895,703	10.12	88,496	10.5	
2011	632,080.58	300,631	176,162	0.2654	487,523	10.94	44,561	9.5	
2012	3,436,311.10	1,479,015	866,662	0.2402	2,741,464	11.80	232,293	8.5	
2013	1,694,357.29	649,813	380,773	0.2140	1,398,303	12.69	110,147	7.5	
2014	848,690.87	284,503	166,711	0.1871	724,414	13.61	53,208	6.5	
2015	1,164,580.03	332,693	194,949	0.1594	1,027,860	14.56	70,602	5.5	
2016	409,487.30	96,231	56,389	0.1311	373,573	15.52	24,065	4.5	
2017	316,415.65	58,038	34,009	0.1024	298,228	16.51	18,068	3.5	
2018	292,745.83	38,417	22,511	0.0732	284,872	17.50	16,278	2.5	
2019	334,223.83	26,326	15,426	0.0440	335,509	18.50	18,136	1.5	
2020	272,760.50	7,164	4,198	0.0147	282,200	19.50	14,472	0.5	

MDU Electric

Account #: 370.00 - Distribution Plant - Meters

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 20
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG Net Book Remaining Value	Annual Average Age Accrual
TOTAL	19,046,181.82	9,184,335	5,381,770		14,616,721	1,411,209
COMPOSITE ANNUAL ACCRUAL RATE						
				7.41%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR						
				0.28		
COMPOSITE AVERAGE AGE (YEARS)						
				10.17		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)						
				10.81		

MDU Electric

Account #: 371.00 - Distribution Plant - Installation on Customers Premises

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 20
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
1983	1,668.77	1,798	-1,190	-0.6203	3,109	1.26	2,474 37.5
1984	340.92	359	-237	-0.6056	629	1.70	370 36.5
1985	217.65	224	-148	-0.5913	398	2.13	187 35.5
1986	2,160.86	2,168	-1,435	-0.5775	3,920	2.55	1,538 34.5
1987	3,601.36	3,529	-2,336	-0.5640	6,478	2.96	2,191 33.5
1988	9,490.91	9,083	-6,012	-0.5508	16,927	3.36	5,045 32.5
1989	2,481.84	2,319	-1,535	-0.5377	4,389	3.75	1,170 31.5
1990	2,582.62	2,354	-1,558	-0.5247	4,528	4.15	1,092 30.5
1991	36,043.03	32,039	-21,206	-0.5116	62,655	4.54	13,799 29.5
1992	28,561.71	24,734	-16,371	-0.4984	49,217	4.94	9,965 28.5
1993	22,403.50	18,881	-12,497	-0.4851	38,261	5.34	7,161 27.5
1994	34,928.09	28,613	-18,938	-0.4715	59,105	5.75	10,274 26.5
1995	5,112.78	4,066	-2,691	-0.4577	8,571	6.17	1,389 25.5
1996	74,215.75	57,195	-37,856	-0.4435	123,204	6.60	18,675 24.5
1997	35,366.43	26,369	-17,453	-0.4291	58,124	7.03	8,265 23.5
1998	33,408.73	24,053	-15,920	-0.4144	54,340	7.48	7,266 22.5
1999	37,618.63	26,096	-17,272	-0.3993	60,534	7.94	7,628 21.5
2000	16,653.55	11,105	-7,350	-0.3838	26,502	8.40	3,154 20.5
2001	38,640.28	24,701	-16,349	-0.3679	60,785	8.88	6,843 19.5
2002	26,905.38	16,440	-10,881	-0.3517	41,823	9.37	4,462 18.5
2003	40,158.84	23,379	-15,474	-0.3351	61,656	9.88	6,243 17.5
2004	40,960.61	22,635	-14,981	-0.3180	62,086	10.39	5,976 16.5
2005	39,317.04	20,539	-13,594	-0.3007	58,809	10.91	5,388 15.5
2006	50,604.66	24,875	-16,464	-0.2829	74,659	11.45	6,520 14.5
2007	43,253.18	19,902	-13,172	-0.2648	62,913	12.00	5,244 13.5
2008	70,820.75	30,320	-20,068	-0.2464	101,512	12.55	8,086 12.5
2009	54,725.96	21,650	-14,329	-0.2277	77,264	13.12	5,889 11.5
2010	34,823.95	12,628	-8,358	-0.2087	48,406	13.69	3,535 10.5

MDU Electric

Account #: 371.00 - Distribution Plant - Installation on Customers Premises

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 20
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2011	66,126.86	21,772	-14,411	-0.1895	90,456	14.27	6,337 9.5
2012	43,995.07	13,002	-8,606	-0.1701	59,200	14.86	3,984 8.5
2013	133,197.68	34,836	-23,057	-0.1505	176,234	15.45	11,406 7.5
2014	49,395.65	11,228	-7,431	-0.1308	64,236	16.05	4,003 6.5
2015	41,770.67	8,057	-5,333	-0.1110	53,369	16.65	3,206 5.5
2016	40,858.09	6,467	-4,280	-0.0911	51,267	17.25	2,972 4.5
2017	49,971.40	6,171	-4,084	-0.0711	61,551	17.85	3,448 3.5
2018	113,661.21	10,055	-6,655	-0.0509	137,365	18.46	7,441 2.5
2019	1,476,504.54	78,562	-51,998	-0.0306	1,749,978	19.07	91,744 1.5
2020	765,976.77	13,565	-8,978	-0.0102	889,852	19.69	45,188 0.5
TOTAL	3,568,525.72	695,772	-460,509		4,564,314		339,556

COMPOSITE ANNUAL ACCRUAL RATE

9.52%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

-0.13

COMPOSITE AVERAGE AGE (YEARS)

5.91

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

16.61

MDU Electric

Account #: 373.00 - Distribution Plant - Street Lighting System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 43
Net Salvage: -45%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG			Annual Average Age
				Factor	Net Book Value	Remaining Life	Value	Life	Accrual	
1948	0.45	1		0	0.3593		0	4.43	0	72.5
1949	14.82	19		8	0.3564		14	4.73	3	71.5
1950	15.50	20		8	0.3536		15	5.04	3	70.5
1951	26.92	34		14	0.3507		25	5.35	5	69.5
1952	301.86	380		152	0.3477		286	5.67	50	68.5
1953	973.50	1,215		487	0.3447		925	5.99	154	67.5
1954	2,114.30	2,615		1,047	0.3417		2,018	6.32	319	66.5
1955	1,727.84	2,118		848	0.3386		1,657	6.65	249	65.5
1956	1,968.09	2,390		957	0.3354		1,897	6.99	271	64.5
1958	2,268.46	2,701		1,082	0.3289		2,207	7.69	287	62.5
1959	5,414.69	6,383		2,557	0.3256		5,295	8.04	658	61.5
1962	1,658.28	1,893		758	0.3154		1,646	9.14	180	58.5
1964	24.41	27		11	0.3082		24	9.91	2	56.5
1967	29,173.45	31,375		12,567	0.2971		29,735	11.11	2,677	53.5
1968	45,665.50	48,476		19,417	0.2932		46,798	11.52	4,062	52.5
1969	50,551.28	52,948		21,208	0.2893		52,092	11.94	4,363	51.5
1970	32,521.17	33,596		13,456	0.2854		33,699	12.36	2,725	50.5
1971	24,900.94	25,360		10,158	0.2813		25,949	12.80	2,028	49.5
1972	60,595.35	60,813		24,358	0.2772		63,506	13.24	4,797	48.5
1973	63,411.40	62,681		25,106	0.2731		66,840	13.69	4,884	47.5
1974	70,722.80	68,823		27,566	0.2688		74,982	14.14	5,302	46.5
1975	63,042.09	60,365		24,178	0.2645		67,233	14.60	4,604	45.5
1976	102,040.39	96,088		38,487	0.2601		109,472	15.07	7,262	44.5
1977	81,292.81	75,240		30,137	0.2557		87,738	15.55	5,641	43.5
1978	91,043.19	82,773		33,154	0.2511		98,859	16.04	6,164	42.5
1979	290,857.17	259,590		103,976	0.2465		317,767	16.53	19,220	41.5
1980	199,256.36	174,465		69,880	0.2419		219,042	17.03	12,859	40.5
1981	121,444.62	104,247		41,755	0.2371		134,340	17.54	7,657	39.5

MDU Electric

Account #: 373.00 - Distribution Plant - Street Lighting System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 43
Net Salvage: -45%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1982	148,652.61	125,005	50,069	0.2323	165,477	18.06	9,161	38.5	
1983	160,729.57	132,309	52,995	0.2274	180,063	18.59	9,687	37.5	
1984	24,769.05	19,943	7,988	0.2224	27,927	19.12	1,460	36.5	
1985	142,627.50	112,230	44,952	0.2174	161,858	19.67	8,231	35.5	
1986	69,645.04	53,509	21,432	0.2122	79,553	20.22	3,935	34.5	
1987	53,722.07	40,264	16,127	0.2070	61,770	20.77	2,973	33.5	
1988	48,184.82	35,193	14,096	0.2018	55,772	21.34	2,613	32.5	
1989	54,860.81	39,006	15,623	0.1964	63,925	21.92	2,917	31.5	
1990	53,716.29	37,137	14,875	0.1910	63,014	22.50	2,801	30.5	
1991	37,910.93	25,455	10,196	0.1855	44,775	23.09	1,939	29.5	
1992	50,688.12	33,013	13,223	0.1799	60,275	23.69	2,545	28.5	
1993	29,516.04	18,621	7,459	0.1743	35,340	24.29	1,455	27.5	
1996	61,395.01	34,886	13,973	0.1570	75,050	26.15	2,870	24.5	
1997	32,881.84	17,982	7,202	0.1511	40,476	26.78	1,511	23.5	
1998	54,491.89	28,626	11,466	0.1451	67,548	27.42	2,463	22.5	
1999	49,758.80	25,057	10,036	0.1391	62,114	28.07	2,213	21.5	
2000	51,641.12	24,871	9,962	0.1330	64,918	28.72	2,261	20.5	
2001	39,207.58	18,016	7,216	0.1269	49,635	29.37	1,690	19.5	
2002	42,760.99	18,695	7,488	0.1208	54,515	30.03	1,815	18.5	
2003	45,754.38	18,977	7,601	0.1146	58,743	30.70	1,913	17.5	
2004	42,945.87	16,842	6,746	0.1083	55,526	31.37	1,770	16.5	
2005	49,100.80	18,139	7,265	0.1020	63,931	32.04	1,995	15.5	
2006	50,328.61	17,442	6,986	0.0957	65,990	32.72	2,017	14.5	
2007	63,064.63	20,407	8,174	0.0894	83,270	33.40	2,493	13.5	
2008	124,691.04	37,468	15,007	0.0830	165,795	34.09	4,864	12.5	
2009	62,886.02	17,436	6,984	0.0766	84,201	34.78	2,421	11.5	
2010	65,659.58	16,673	6,678	0.0701	88,528	35.47	2,496	10.5	
2011	59,866.70	13,797	5,526	0.0637	81,280	36.17	2,247	9.5	

MDU Electric

Account #: 373.00 - Distribution Plant - Street Lighting System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R1
ASL: 43
Net Salvage: -45%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2012	45,174.77	9,345	3,743	0.0571	61,760	36.87	1,6758.5
2013	197,044.49	36,082	14,452	0.0506	271,262	37.57	7,2207.5
2014	292,941.97	46,645	18,683	0.0440	406,083	38.28	10,6096.5
2015	227,670.66	30,778	12,328	0.0373	317,795	38.99	8,1505.5
2016	156,128.59	17,327	6,940	0.0307	219,446	39.71	5,5264.5
2017	306,117.31	26,514	10,620	0.0239	433,250	40.43	10,7163.5
2018	1,845,631.90	114,570	45,890	0.0171	2,630,277	41.16	63,9052.5
2019	2,492,983.38	93,139	37,306	0.0103	3,577,520	41.89	85,3991.5
2020	696,499.40	8,685	3,479	0.0034	1,006,445	42.63	23,6090.5
TOTAL	9,374,677.82	2,656,718	1,064,116		12,529,167		399,995

COMPOSITE ANNUAL ACCRUAL RATE

4.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.11

COMPOSITE AVERAGE AGE (YEARS)

12.78

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

34.60

MDU Electric

Account #: 390.00 - General Plant - Structures and Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L0.5
ASL: 30
Net Salvage: 10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation	Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1933	2,970.24	2,111		2,673	1.0000	0	6.31	0	87.5
1934	4,683.84	3,328		4,215	1.0000	0	6.32	0	86.5
1935	4,800.94	3,409		4,321	1.0000	0	6.33	0	85.5
1936	5,043.99	3,577		4,540	1.0000	0	6.36	0	84.5
1937	5,043.99	3,571		4,540	1.0000	0	6.40	0	83.5
1938	5,170.09	3,653		4,653	1.0000	0	6.45	0	82.5
1939	5,299.34	3,735		4,769	1.0000	0	6.50	0	81.5
1940	5,431.82	3,819		4,889	1.0000	0	6.56	0	80.5
1941	5,567.62	3,904		5,011	1.0000	0	6.63	0	79.5
1946	5,567.62	3,838		5,011	1.0000	0	7.02	0	74.5
1947	5,567.62	3,823		5,011	1.0000	0	7.11	0	73.5
1948	5,567.62	3,807		5,011	1.0000	0	7.21	0	72.5
1949	497.53	339		448	1.0000	0	7.31	0	71.5
1950	3,578.09	2,424		3,220	1.0000	0	7.42	0	70.5
1951	12,627.24	8,513		11,365	1.0000	0	7.53	0	69.5
1952	1,869.74	1,254		1,683	1.0000	0	7.64	0	68.5
1953	1,142.52	762		1,028	1.0000	0	7.77	0	67.5
1954	7,276.16	4,826		6,549	1.0000	0	7.89	0	66.5
1955	2,806.55	1,850		2,526	1.0000	0	8.02	0	65.5
1956	1,449.95	950		1,305	1.0000	0	8.16	0	64.5
1957	461.49	300		415	1.0000	0	8.30	0	63.5
1958	946.47	612		852	1.0000	0	8.44	0	62.5
1959	728.01	468		655	1.0000	0	8.59	0	61.5
1960	625.77	399		563	1.0000	0	8.75	0	60.5
1961	630.72	399		568	1.0000	0	8.91	0	59.5
1962	434.20	273		391	1.0000	0	9.07	0	58.5
1963	404.13	252		364	1.0000	0	9.24	0	57.5
1964	1,675.67	1,035		1,508	1.0000	0	9.41	0	56.5

MDU Electric

Account #: 390.00 - General Plant - Structures and Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L0.5
ASL: 30
Net Salvage: 10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG			Annual Average Age
				Factor	Net Book Value	Remaining Life	Value	Life	Accrual	
1965	1,271.45	779	1,144	1.0000	0	9.59	0	9.59	0	55.5
1966	461.70	280	416	1.0000	0	9.77	0	9.77	0	54.5
1967	855.11	514	770	1.0000	0	9.96	0	9.96	0	53.5
1968	617.84	368	556	1.0000	0	10.15	0	10.15	0	52.5
1969	501.43	296	451	1.0000	0	10.34	0	10.34	0	51.5
1970	43.53	25	39	1.0000	0	10.54	0	10.54	0	50.5
1971	1,694.22	979	1,525	1.0000	0	10.75	0	10.75	0	49.5
1972	7,088.56	4,051	6,380	1.0000	0	10.95	0	10.95	0	48.5
1973	4,419.35	2,497	3,977	1.0000	0	11.17	0	11.17	0	47.5
1974	16,856.90	9,415	15,171	1.0000	0	11.38	0	11.38	0	46.5
1975	913.30	504	822	1.0000	0	11.60	0	11.60	0	45.5
1976	2,275.10	1,240	2,048	1.0000	0	11.83	0	11.83	0	44.5
1978	70.12	37	63	1.0000	0	12.29	0	12.29	0	42.5
1979	10,868.62	5,695	9,782	1.0000	0	12.53	0	12.53	0	41.5
1980	7,552.74	3,902	6,797	1.0000	0	12.78	0	12.78	0	40.5
1981	24,591.86	12,523	22,133	1.0000	0	13.03	0	13.03	0	39.5
1982	4,075.75	2,045	3,668	1.0000	0	13.28	0	13.28	0	38.5
1983	3,472.40	1,715	3,125	1.0000	0	13.54	0	13.54	0	37.5
1985	958.30	458	862	1.0000	0	14.07	0	14.07	0	35.5
1987	1,598.50	738	1,439	1.0000	0	14.62	0	14.62	0	33.5
1988	3,654.26	1,655	3,289	1.0000	0	14.90	0	14.90	0	32.5
1989	46,335.97	20,588	41,348	0.9915	355	15.19	23	15.19	23	31.5
1990	48,805.21	21,256	42,688	0.9718	1,237	15.48	80	15.48	80	30.5
1991	6,318.27	2,695	5,412	0.9518	274	15.78	17	15.78	17	29.5
1992	4,408.75	1,840	3,696	0.9314	272	16.09	17	16.09	17	28.5
1993	7,414.56	3,026	6,077	0.9106	596	16.40	36	16.40	36	27.5
1994	949.33	378	760	0.8895	94	16.71	6	16.71	6	26.5
1995	310,863.61	120,908	242,820	0.8679	36,958	17.04	2,169	17.04	2,169	25.5

MDU Electric

Account #: 390.00 - General Plant - Structures and Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L0.5
ASL: 30
Net Salvage: 10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1997	3,318.83	1,225	2,460	0.8236	527	17.70	30	23.5	
2000	17,890.44	6,044	12,139	0.7539	3,963	18.74	211	20.5	
2001	38,053.91	12,445	24,994	0.7298	9,255	19.10	485	19.5	
2003	58,200.84	17,740	35,628	0.6802	16,753	19.84	844	17.5	
2004	20,575.64	6,035	12,121	0.6545	6,397	20.22	316	16.5	
2005	176,979.47	49,813	100,040	0.6281	59,242	20.62	2,873	15.5	
2006	130,088.76	35,012	70,315	0.6006	46,765	21.03	2,224	14.5	
2007	3,855.84	988	1,985	0.5719	1,486	21.46	69	13.5	
2009	4,259.08	973	1,955	0.5100	1,878	22.38	84	11.5	
2012	7,202.07	1,305	2,621	0.4043	3,861	23.96	161	8.5	
2013	51,151.35	8,372	16,814	0.3652	29,222	24.54	1,191	7.5	
2014	218,680.47	31,765	63,793	0.3241	133,020	25.16	5,287	6.5	
2015	122,162.57	15,382	30,893	0.2810	79,054	25.80	3,064	5.5	
2016	24,260.43	2,563	5,147	0.2357	16,687	26.48	630	4.5	
2017	14,597.98	1,231	2,473	0.1882	10,665	27.19	392	3.5	
2018	14,946.77	927	1,861	0.1383	11,591	27.93	415	2.5	
2019	187,431.02	7,209	14,478	0.0858	154,210	28.72	5,370	1.5	
2020	21,482.60	287	577	0.0298	18,758	29.55	635	0.5	
TOTAL	1,731,943.78	486,956	915,629		643,120		26,631		

COMPOSITE ANNUAL ACCRUAL RATE

1.54%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.53

COMPOSITE AVERAGE AGE (YEARS)

19.10

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

20.63

MDU Electric

Account #: 391.10 - General Plant - Office Furniture and Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 15
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2007	1,255.00	1,130	967	0.7703	288	1.50	192
2011	129,153.25	81,797	70,013	0.5421	59,140	5.50	10,753
2015	10,847.58	3,977	3,404	0.3138	7,443	9.50	783
TOTAL	141,255.83	86,904	74,384		66,872		11,728

COMPOSITE ANNUAL ACCRUAL RATE

8.30%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.53

COMPOSITE AVERAGE AGE (YEARS)

9.23

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

5.77

MDU Electric

Account #: 391.30 - General Plant - Computer Equipment - PC

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 5
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2016	16,537.01	14,883	16,537	1.0000	0	0.50	0
TOTAL	16,537.01	14,883	16,537		0		0

COMPOSITE ANNUAL ACCRUAL RATE

0.00%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

1.00

COMPOSITE AVERAGE AGE (YEARS)

4.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

0.50

MDU Electric

Account #: 391.40 - General Plant - Computer Equipment - Prime

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 5
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2016	5,436.55	4,893	2,332	0.4289	3,105	0.50	3,105
TOTAL	5,436.55	4,893	2,332		3,105		3,105

COMPOSITE ANNUAL ACCRUAL RATE

57.11%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.43

COMPOSITE AVERAGE AGE (YEARS)

4.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

0.50

MDU Electric

Account #: 391.50 - General Plant - Computer Equipment - Other

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2011	22,521.71	21,396	19,047	0.8457	3,475	0.50	3,475 9.5
2015	10,168.64	5,593	4,979	0.4896	5,190	4.50	1,153 5.5
2016	4,383.35	1,973	1,756	0.4006	2,627	5.50	478 4.5
2017	2,521.40	882	786	0.3116	1,736	6.50	267 3.5
2018	7,423.56	1,856	1,652	0.2226	5,771	7.50	769 2.5
2019	23,668.62	3,550	3,161	0.1335	20,508	8.50	2,413 1.5
TOTAL	70,687.28	35,250	31,380		39,307		8,555

COMPOSITE ANNUAL ACCRUAL RATE

12.10%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.44

COMPOSITE AVERAGE AGE (YEARS)

4.99

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

5.01

MDU Electric

Account #: 392.10 - General Plant - Transportation Equipment - Trailers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: R4
ASL: 25
Net Salvage: 20%
Truncation Year:

Year	Calculated Accumulated		Accumulated		ALG		
	Original Cost	Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Average Annual Accrual Age
1983	1,419.80	1,113	1,136	1.0000	0	0.50	0 37.5
1993	28,931.50	20,655	23,145	1.0000	0	2.69	0 27.5
1995	5,831.80	4,022	4,665	1.0000	0	3.45	0 25.5
1998	19,633.76	12,548	15,707	1.0000	0	5.03	0 22.5
1999	32,668.85	20,206	26,135	1.0000	0	5.67	0 21.5
2000	11,900.93	7,103	9,521	1.0000	0	6.35	0 20.5
2001	14,188.84	8,148	11,351	1.0000	0	7.05	0 19.5
2002	21,319.83	11,743	17,056	1.0000	0	7.79	0 18.5
2003	26,192.95	13,786	20,954	1.0000	0	8.55	0 17.5
2004	20,394.39	10,216	16,316	1.0000	0	9.35	0 16.5
2005	6,534.49	3,101	5,228	1.0000	0	10.17	0 15.5
2006	21,060.53	9,420	16,848	1.0000	0	11.02	0 14.5
2007	95,414.03	39,997	76,331	1.0000	0	11.90	0 13.5
2008	73,093.71	28,533	58,475	1.0000	0	12.80	0 12.5
2009	25,149.42	9,076	20,120	1.0000	0	13.72	0 11.5
2010	201,423.40	66,644	161,139	1.0000	0	14.66	0 10.5
2011	209,204.41	62,838	167,364	1.0000	0	15.61	0 9.5
2012	56,123.86	15,125	44,899	1.0000	0	16.58	0 8.5
2018	65,003.19	5,192	52,003	1.0000	0	22.50	0 2.5
TOTAL	935,489.69	349,464	748,392		0		0

Booked Accumulated Depreciation exceeds Original Cost plus Net Salvage

COMPOSITE ANNUAL ACCRUAL RATE

0.00%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.87

COMPOSITE AVERAGE AGE (YEARS)

12.28

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.33

MDU Electric

Account #: 392.20 - General Plant - Transportation Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 11
Net Salvage: 20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated			ALG		
				Depreciation Factor	Depreciation Amount	Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual Average Age
1998	17,875.90	13,231	9,354	0.6541			4,947	0.82	4,947 22.5
1999	22,823.32	16,595	11,732	0.6426			6,526	1.00	6,509 21.5
2000	58,849.02	41,960	29,665	0.6301			17,414	1.20	14,558 20.5
2001	40,114.84	28,001	19,796	0.6169			12,295	1.40	8,768 19.5
2002	20,339.33	13,874	9,809	0.6028			6,463	1.62	3,988 18.5
2003	86,482.66	57,539	40,680	0.5880			28,506	1.85	15,394 17.5
2004	106,708.23	69,105	48,857	0.5723			36,510	2.10	17,423 16.5
2005	99,396.43	62,534	44,211	0.5560			35,306	2.35	15,028 15.5
2006	76,660.28	46,800	33,087	0.5395			28,241	2.61	10,838 14.5
2007	72,022.12	42,691	30,182	0.5238			27,435	2.85	9,627 13.5
2008	18,313.23	10,571	7,474	0.5101			7,177	3.06	2,343 12.5
2009	139,885.56	78,935	55,806	0.4987			56,102	3.24	17,309 11.5
2010	32,788.79	18,101	12,797	0.4879			13,434	3.41	3,940 10.5
2011	313,286.94	168,132	118,868	0.4743			131,761	3.62	36,390 9.5
2012	125,668.59	64,568	45,649	0.4541			54,886	3.94	13,947 8.5
2013	396,385.96	190,308	134,547	0.4243			182,562	4.40	41,505 7.5
2014	795,316.32	345,596	244,334	0.3840			391,919	5.03	77,992 6.5
2015	1,091,387.65	413,510	292,349	0.3348			580,761	5.79	100,298 5.5
2016	832,736.69	263,660	186,406	0.2798			479,784	6.65	72,186 4.5
2017	688,480.27	172,312	121,824	0.2212			428,960	7.56	56,751 3.5
2018	861,361.59	155,740	110,107	0.1598			578,982	8.51	68,004 2.5
2019	708,597.77	77,269	54,629	0.0964			512,249	9.50	53,917 1.5
2020	699,842.59	25,455	17,996	0.0321			541,878	10.50	51,608 0.5

MDU Electric

Account #: 392.20 - General Plant - Transportation Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 11
Net Salvage: 20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		Annual Average Age
TOTAL	7,305,324.08	2,376,486	1,680,161		Net Book Value	Remaining Life	Accrual
					4,164,098		703,274
COMPOSITE ANNUAL ACCRUAL RATE							
				9.63%			
THEORETICAL ACCUMULATED DEPRECIATION FACTOR							
				0.23			
COMPOSITE AVERAGE AGE (YEARS)							
				5.51			
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)							
				6.53			

MDU Electric

Account #: 393.00 - General Plant - Stores Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 30
Net Salvage: 0%
Truncation Year:

		Calculated Accumulated		Allocated Actual		Accumulated		ALG			
Year	Original Cost	Depreciation		Booked Amount	Depreciation	Factor		Net Book Value	Remaining Life	Annual Accrual	Average Age
2003	14,773.68	8,618		11,720	0.7933			3,054	12.50	244	17.5
TOTAL	14,773.68	8,618		11,720				3,054		244	

COMPOSITE ANNUAL ACCRUAL RATE

1.65%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.79

COMPOSITE AVERAGE AGE (YEARS)

17.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

12.50

MDU Electric

Account #: 394.00 - General Plant - Tools, Shop & Garage Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 20
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated		Accumulated		ALG		Annual Average	
		Depreciation	Allocated Actual Booked Amount	Depreciation Factor	Net Book Value	Remaining Life	Accrual	Age	Age
2001	130,631.43	127,366	129,740	0.9932	891	0.50	891	19.5	
2002	56,449.12	52,215	53,189	0.9422	3,260	1.50	2,173	18.5	
2003	94,065.16	82,307	83,842	0.8913	10,223	2.50	4,089	17.5	
2004	96,311.35	79,457	80,938	0.8404	15,373	3.50	4,392	16.5	
2005	173,083.61	134,140	136,641	0.7895	36,443	4.50	8,098	15.5	
2006	149,117.96	108,111	110,126	0.7385	38,992	5.50	7,089	14.5	
2007	119,945.18	80,963	82,473	0.6876	37,473	6.50	5,765	13.5	
2008	220,928.33	138,080	140,655	0.6367	80,274	7.50	10,703	12.5	
2009	159,728.52	91,844	93,556	0.5857	66,172	8.50	7,785	11.5	
2010	267,569.53	140,474	143,093	0.5348	124,476	9.50	13,103	10.5	
2011	362,286.71	172,086	175,295	0.4839	186,992	10.50	17,809	9.5	
2012	252,486.49	107,307	109,308	0.4329	143,179	11.50	12,450	8.5	
2013	353,754.17	132,658	135,131	0.3820	218,623	12.50	17,490	7.5	
2014	464,039.24	150,813	153,625	0.3311	310,414	13.50	22,994	6.5	
2015	212,047.47	58,313	59,400	0.2801	152,647	14.50	10,527	5.5	
2016	283,592.79	63,808	64,998	0.2292	218,595	15.50	14,103	4.5	
2017	503,148.57	88,051	89,693	0.1783	413,456	16.50	25,058	3.5	
2018	673,104.38	84,138	85,707	0.1273	587,398	17.50	33,566	2.5	
2019	911,362.92	68,352	69,627	0.0764	841,736	18.50	45,499	1.5	
2020	416,849.50	10,421	10,616	0.0255	406,234	19.50	20,833	0.5	
TOTAL	5,900,502.43	1,970,904	2,007,653		3,892,849		284,418		

COMPOSITE ANNUAL ACCRUAL RATE

4.82%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.34

COMPOSITE AVERAGE AGE (YEARS)

6.68

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

13.32

MDU Electric

Account #: 395.00 - General Plant - Laboratory Equipment
CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 20
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ELG Remaining Life	Annual Accrual	Average Age
2001	39,906.52	38,909	39,907	1.0000	0	0.50	0	19.5
2002	27,511.35	25,448	27,511	1.0000	0	1.50	0	18.5
2003	51,789.82	45,316	51,790	1.0000	0	2.50	0	17.5
2004	2,182.54	1,801	2,080	0.9529	103	3.50	29	16.5
2005	14,617.70	11,329	13,086	0.8952	1,532	4.50	340	15.5
2006	18,898.49	13,701	15,826	0.8374	3,072	5.50	559	14.5
2007	5,086.83	3,434	3,966	0.7797	1,121	6.50	172	13.5
2008	10,954.65	6,847	7,908	0.7219	3,046	7.50	406	12.5
2009	10,638.72	6,117	7,066	0.6642	3,573	8.50	420	11.5
2010	39,724.94	20,856	24,090	0.6064	15,635	9.50	1,646	10.5
2011	12,209.79	5,800	6,699	0.5487	5,511	10.50	525	9.5
2013	60,947.40	22,855	26,400	0.4332	34,548	12.50	2,764	7.5
2014	82,565.69	26,834	30,995	0.3754	51,570	13.50	3,820	6.5
2015	85,493.34	23,511	27,157	0.3176	58,336	14.50	4,023	5.5
2016	132,600.12	29,835	34,462	0.2599	98,138	15.50	6,331	4.5
2017	4,914.59	860	993	0.2021	3,921	16.50	238	3.5
TOTAL	600,042.49	283,451	327,411		280,106		21,274	

COMPOSITE ANNUAL ACCRUAL RATE

3.55%

COMPOSITE ACTUAL ACCUMULATED DEPRECIATION FACTOR

0.55

COMPOSITE AVERAGE AGE (YEARS)

9.45

DIRECTED WEIGHTED ELG COMPOSITE REMAINING LIFE (YEARS)

10.55

MDU Electric

Account #: 396.10 - General Plant - Work Equipment - Trailers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated		Allocated Actual Booked Amount	Accumulated		ALG		
		Depreciation			Depreciation Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age
1971	2,209.33	2,031		2,209	1.0000	0	2.02	0	49.5
1978	2,406.34	2,069		2,406	1.0000	0	3.50	0	42.5
1979	3,141.32	2,672		3,141	1.0000	0	3.73	0	41.5
1988	7,781.60	5,916		7,782	1.0000	0	5.99	0	32.5
1989	7,190.83	5,396		7,191	1.0000	0	6.24	0	31.5
1992	8,380.11	6,066		8,380	1.0000	0	6.90	0	28.5
1993	10,525.56	7,540		10,526	1.0000	0	7.09	0	27.5
1994	2,175.00	1,543		2,175	1.0000	0	7.27	0	26.5
1997	12,969.07	8,934		12,969	1.0000	0	7.78	0	23.5
1999	5,173.37	3,472		5,173	1.0000	0	8.22	0	21.5
2002	5,117.56	3,222		5,023	0.9815	95	9.26	10	18.5
2004	9,365.08	5,510		8,589	0.9171	776	10.29	75	16.5
2006	20,052.29	10,743		16,746	0.8351	3,307	11.61	285	14.5
2007	34,124.45	17,259		26,902	0.7883	7,223	12.36	585	13.5
2008	39,491.83	18,711		29,166	0.7385	10,326	13.15	785	12.5
2011	16,461.58	6,088		9,489	0.5764	6,973	15.75	443	9.5
2012	61,268.51	20,415		31,822	0.5194	29,447	16.67	1,766	8.5
2013	96,507.07	28,549		44,500	0.4611	52,007	17.60	2,954	7.5
2014	105,826.99	27,273		42,511	0.4017	63,316	18.56	3,412	6.5
2015	116,331.75	25,470		39,701	0.3413	76,631	19.53	3,924	5.5
2016	46,722.34	8,393		13,083	0.2800	33,640	20.51	1,640	4.5
2017	92,428.47	12,934		20,161	0.2181	72,267	21.50	3,361	3.5
2018	65,960.80	6,597		10,283	0.1559	55,678	22.50	2,475	2.5
2019	6,657.10	400		623	0.0935	6,034	23.50	257	1.5
2020	86,001.14	1,721		2,683	0.0312	83,318	24.50	3,401	0.5

MDU Electric

Account #: 396.10 - General Plant - Work Equipment - Trailers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L3
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG Net Book Remaining Value	Annual Average Accrual Age
TOTAL	864,269.49	238,924	363,232		501,037	25,373
COMPOSITE ANNUAL ACCRUAL RATE						
				2.94%		
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.42		
COMPOSITE AVERAGE AGE (YEARS)				7.87		
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				18.09		

MDU Electric

Account #: 396.20 - General Plant - Power Operated Equipment
CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: L0
ASL: 9
Net Salvage: 25%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation			ALG		
				Factor	Net Book Value	Remaining Life	Annual Accrual	Average Age	
1993	38,422.41	23,912	24,420	0.8474	4,397	1.53	2,870	27.5	
1994	1,979.46	1,210	1,235	0.8320	249	1.67	149	26.5	
1999	186,447.74	102,189	104,360	0.7463	35,476	2.42	14,642	21.5	
2001	144,535.58	75,066	76,661	0.7072	31,741	2.77	11,469	19.5	
2002	23,532.27	11,863	12,115	0.6864	5,535	2.95	1,876	18.5	
2005	78,079.19	35,462	36,215	0.6184	22,344	3.55	6,294	15.5	
2006	551,021.69	240,238	245,341	0.5937	167,925	3.77	44,564	14.5	
2007	917,117.33	382,363	390,484	0.5677	297,354	4.00	74,395	13.5	
2008	488,054.78	193,714	197,829	0.5405	168,212	4.24	39,700	12.5	
2010	219,366.10	77,602	79,251	0.4817	85,274	4.75	17,934	10.5	
2011	832,939.46	275,242	281,088	0.4500	343,616	5.03	68,250	9.5	
2012	633,308.13	193,705	197,819	0.4165	277,162	5.33	52,004	8.5	
2013	642,909.07	179,953	183,775	0.3811	298,407	5.64	52,898	7.5	
2014	2,310,326.88	583,288	595,677	0.3438	1,137,068	5.97	190,452	6.5	
2015	1,116,282.91	249,432	254,730	0.3043	582,482	6.32	92,185	5.5	
2016	1,372,670.74	264,547	270,166	0.2624	759,337	6.69	113,549	4.5	
2017	824,827.44	131,942	134,745	0.2178	483,876	7.08	68,340	3.5	
2018	528,313.67	65,413	66,802	0.1686	329,433	7.51	43,841	2.5	
2019	1,183,520.30	97,473	99,544	0.1121	788,097	8.01	98,368	1.5	
2020	566,815.51	18,147	18,533	0.0436	406,579	8.62	47,190	0.5	
TOTAL	12,660,470.66	3,202,760	3,270,789		6,224,564		1,040,970		

COMPOSITE ANNUAL ACCRUAL RATE

8.22%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.26

COMPOSITE AVERAGE AGE (YEARS)

7.11

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

5.96

MDU Electric

Account #: 397.10 - General Plant - Radio Communication Equipment - Fixed
CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 15
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2006	8,169.62	7,897	7,244	0.8867	925	0.50	925 14.5
2007	1,110.00	999	916	0.8256	194	1.50	129 13.5
2010	6,525.80	4,568	4,190	0.6421	2,335	4.50	519 10.5
2011	24,315.11	15,400	14,126	0.5810	10,189	5.50	1,853 9.5
2012	18,430.46	10,444	9,580	0.5198	8,850	6.50	1,362 8.5
2013	43,466.42	21,733	19,936	0.4587	23,530	7.50	3,137 7.5
2014	48,612.64	21,065	19,324	0.3975	29,289	8.50	3,446 6.5
2015	114,760.27	42,079	38,599	0.3363	76,161	9.50	8,017 5.5
2016	33,896.64	10,169	9,328	0.2752	24,568	10.50	2,340 4.5
2017	11,937.18	2,785	2,555	0.2140	9,382	11.50	816 3.5
2018	307,442.63	51,240	47,004	0.1529	260,439	12.50	20,835 2.5
2019	10,469.24	1,047	960	0.0917	9,509	13.50	704 1.5
2020	54,480.06	1,816	1,666	0.0306	52,814	14.50	3,642 0.5
TOTAL	683,616.07	191,243	175,430		508,186		47,725

COMPOSITE ANNUAL ACCRUAL RATE

6.98%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.26

COMPOSITE AVERAGE AGE (YEARS)

4.20

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

10.80

MDU Electric

Account #: 397.20 - General Plant - Radio Communication Equipment - Mobile

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 15
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2009	4,727.90	3,625	3,393	0.7176	1,335	3.50	381
2010	3,298.26	2,309	2,161	0.6552	1,137	4.50	253
2012	7,470.90	4,234	3,962	0.5304	3,509	6.50	540
2013	1,612.00	806	754	0.4680	858	7.50	114
2014	6,479.79	2,808	2,628	0.4056	3,852	8.50	453
2016	34,444.09	10,333	9,671	0.2808	24,773	10.50	2,359
2017	13,423.15	3,132	2,931	0.2184	10,492	11.50	912
2018	35,899.21	5,983	5,600	0.1560	30,299	12.50	2,424
2019	29,683.45	2,968	2,778	0.0936	26,905	13.50	1,993
2020	12,115.15	404	378	0.0312	11,737	14.50	809
TOTAL	149,153.90	36,602	34,257		114,897		10,240

COMPOSITE ANNUAL ACCRUAL RATE

6.87%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.23

COMPOSITE AVERAGE AGE (YEARS)

3.68

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

11.32

MDU Electric

Account #: 397.30 - General Plant - Genera Telephone Communication Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Remaining Value	Remaining Life	Annual Average Accrual Age
2011	9,878.47	9,385	9,146	0.9259	732	0.50	732
TOTAL	9,878.47	9,385	9,146		732		732

COMPOSITE ANNUAL ACCRUAL RATE

7.41%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.93

COMPOSITE AVERAGE AGE (YEARS)

9.50

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

0.50

MDU Electric

Account #: 397.50 - General Plant - Supervisory & Telemetering Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2012	9,124.80	7,756	6,730	0.7376	2,394	1.50	1,596 8.5
2013	41,640.87	31,231	27,100	0.6508	14,541	2.50	5,816 7.5
2014	1,401.37	911	790	0.5640	611	3.50	175 6.5
2019	3,525.89	529	459	0.1302	3,067	8.50	361 1.5
TOTAL	55,692.93	40,427	35,080		20,613		7,948

COMPOSITE ANNUAL ACCRUAL RATE

14.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.63

COMPOSITE AVERAGE AGE (YEARS)

7.26

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

2.74

MDU Electric

Account #: 397.60 - General Plant - SCADA System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2012	1,834,53	1,559	1,648	0.8981	187	1.50	125
2013	70,887.01	53,165	56,177	0.7925	14,710	2.50	5,884
2014	13,349.80	8,677	9,169	0.6868	4,181	3.50	1,195
2015	30,450.88	16,748	17,697	0.5812	12,754	4.50	2,834
2017	527,261.34	184,541	194,995	0.3698	332,266	6.50	51,118
2019	10,849.93	1,627	1,720	0.1585	9,130	8.50	1,074
2020	1,025,468.86	51,273	54,178	0.0528	971,291	9.50	102,241
TOTAL	1,680,102.35	317,592	335,583		1,344,519		164,471

COMPOSITE ANNUAL ACCRUAL RATE

9.79%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.20

COMPOSITE AVERAGE AGE (YEARS)

1.89

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

8.11

MDU Electric

Account #: 397.80 - General Plant - Network Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 5
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	ALG		
					Net Book Value	Remaining Life	Annual Average Accrual Age
2016	41,126.36	37,014	31,977	0.7775	9,150	0.50	9,150 4.5
2017	29,665.86	20,766	17,940	0.6047	11,726	1.50	7,817 3.5
2018	276,505.14	138,253	119,439	0.4320	157,067	2.50	62,827 2.5
2019	21,347.06	6,404	5,533	0.2592	15,814	3.50	4,518 1.5
TOTAL	368,644.42	202,437	174,888		193,756		84,312

COMPOSITE ANNUAL ACCRUAL RATE

22.87%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR

0.47

COMPOSITE AVERAGE AGE (YEARS)

2.75

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)

2.25

MDU Electric

Account #: 398.00 - General Plant - Miscellaneous Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2020

ALG - Remaining Life
Survivor Curve: SQ
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ELG Remaining Life	Annual Accrual	Average Age
1996	11,912.64	11,674	11,913	1.0000	0	0.50	0	24.5
1997	3,603.78	3,388	3,604	1.0000	0	1.50	0	23.5
1999	1,312.52	1,129	1,210	0.9222	102	3.50	29	21.5
2001	1,218.60	951	1,019	0.8364	199	5.50	36	19.5
2008	5,493.81	2,747	2,946	0.5362	2,548	12.50	204	12.5
2013	29,879.52	8,964	9,612	0.3217	20,267	17.50	1,158	7.5
2014	1,596.10	415	445	0.2788	1,151	18.50	62	6.5
2020	13,127.82	263	282	0.0214	12,846	24.50	524	0.5
TOTAL	68,144.79	29,530	31,665		37,114		2,014	

COMPOSITE ANNUAL ACCRUAL RATE

2.96%

COMPOSITE ACTUAL ACCUMULATED DEPRECIATION FACTOR

0.46

COMPOSITE AVERAGE AGE (YEARS)

10.83

DIRECTED WEIGHTED ELG COMPOSITE REMAINING LIFE (YEARS)

14.17



SECTION 9

9 ESTIMATION OF SURVIVOR CURVES

9.1 Average Service Life

All assets have a service life, which is defined as *“the period of time from its installation until it is retired from service”*¹. All account groups of property are made up of various assets with differing service lives and investment values. To calculate a depreciation rate, one must first calculate an average life for all assets in a single account. This can be done by ascertaining the age at retirement for every asset in an account and plotting it as a percentage of the units surviving at each age interval (a “Survivor Curve”). From the average life for each account, remaining lives can then be found which are then used to calculate the annual depreciation accruals and ultimately depreciation rate. A discussion of the general concept of survivor curves is presented and the Iowa type survivor curves are reviewed.

9.2 Survivor Curves

A survivor curve is defined as *“a graph of the percent of units remaining in service expressed as a function of age”*². To calculate the average life of the group, the remaining life expectancy, the probable life and the frequency curve, one must first create a survivor curve. Figure 1, shows a typical 40-R4 smoothed survivor curve as well as the accompanying derived curves. The type 40-R4 refers to the Iowa type curve, whose designation will be explained in further detail in the next section

To calculate the average service life, one must calculate the area under the survivor curve and divide by the percent surviving at age zero. The remaining life is equal to the area under the survivor curve and to the right of the current age, divided by the percent surviving at the current age. In Figure 1, for example, the hatched area to the right of age 45 divided by 28.9% surviving balance represents the remaining life for an asset that has reached that age. The probable life is *“the total life expectancy of the property surviving at any age and is equal to the remaining life plus the current age”*³ The probable life for an entire account is calculated after calculating the probable life for each year of age. The frequency curve is calculated by taking the difference between the percent surviving on successive years on the survivor curve⁴. Alternatively, frequency can be empirically determined by finding the amount of retirements at any given age. Plotting retirement frequency from the youngest to oldest ages and then taking the cumulative frequencies will generate percent surviving versus age.

¹ Wolf, Frank K. and W. Chester Fitch, *Depreciation Systems* (Iowa State University Press, 1994), 21.

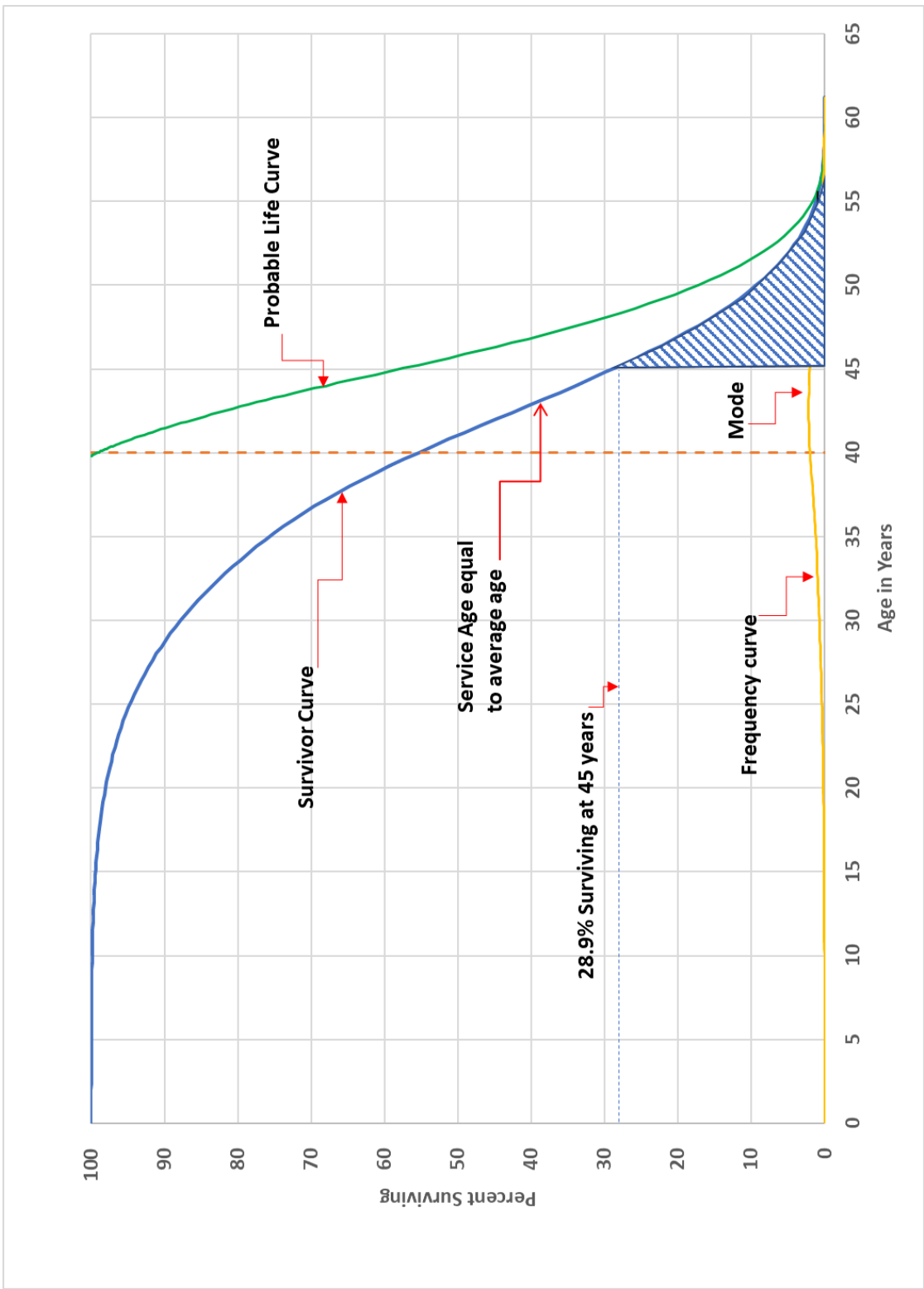
² *Ibid*, 23.

³ *Ibid*, 29.

⁴ *Ibid*, 23-24.



FIGURE 1: TYPICAL SURVIVOR CURVE (40-R4) AND DERIVED CURVES





9.3 Iowa Type Curves

In 1931, Robley Winfrey and Edwin Kurtz of the Engineering Research Institute at Iowa State University published Bulletin 103, which laid the groundwork for what would eventually be known as the Iowa Curves. *"The 13 type curves can be used as valuable aids in forecasting the probable future service lives of individual items and of groups of items of different kinds of physical equipment"*⁵. The 13 curves described in Bulletin 103 eventually became a series of 22 generalized survivor curves which are used throughout the regulated utility industry. These 22 curves were described in Bulletin 125, published in 1967 by Harold A. Cowles, which became known as the Iowa curves.

The Iowa curves are organized with three variables: the average life of the plant; the location of the mode; and the variation of the life. All Iowa curves have both a letter and a number to represent the shape and height of the mode. The L curves, or left-moded curves, are used when the mode of the curve should be to the left of the average life. There are six L curves are presented in Figure 2. The R curves, or right-moded, are used when the mode of the curve should be to the right of the average life. There are six R curves, which are presented in Figure 3. The S curves, or symmetrically-moded, are used when the mode is equal to the average life. There are seven S curves, which are presented in Figure 4. The O curves, or origin curves, are used when the mode occurs at age 0. There are four O curves, which are presented in Figure 5. There are some occasions where it is appropriate to use a half curve. In these cases, the curve is assumed to be exactly half way between the two curves.

In addition to Bulletin 125, Iowa curves have also been presented in subsequent Experiment Station bulletins and in the text *Engineering Valuation and Depreciation*⁶. In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis⁷ presenting his development of the fourth family consisting of the four O-type survivor curves.

⁵ *Ibid*, 21

⁶ Marston, Anson, Robley Winfrey and Jean C. Hempstead, *Engineering Valuation and Depreciation* (The Iowa State University Press, 1953)

⁷ Couch, Frank V. B., Jr., *Classification of Type O Retirement Characteristics of Industrial Property* Unpublished M.S. Thesis (Engineering Valuation, Library, Iowa State College, Ames, Iowa, 1957)



FIGURE 2: LEFT MODAL OR "L" IOWA TYPE SURVIVOR CURVES

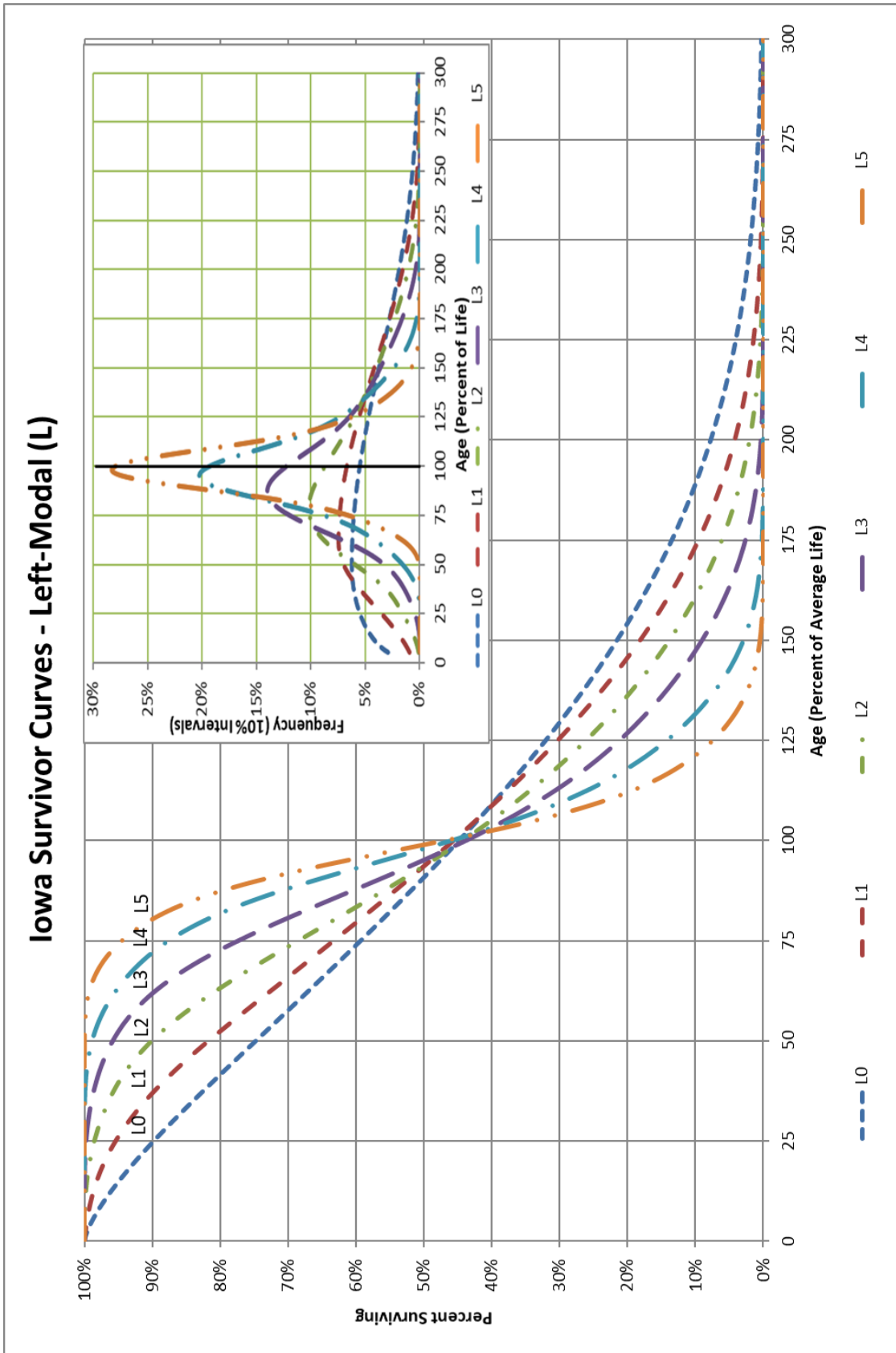




FIGURE 3: SYMMETRICAL OR "S" IOWA TYPE SURVIVOR CURVES

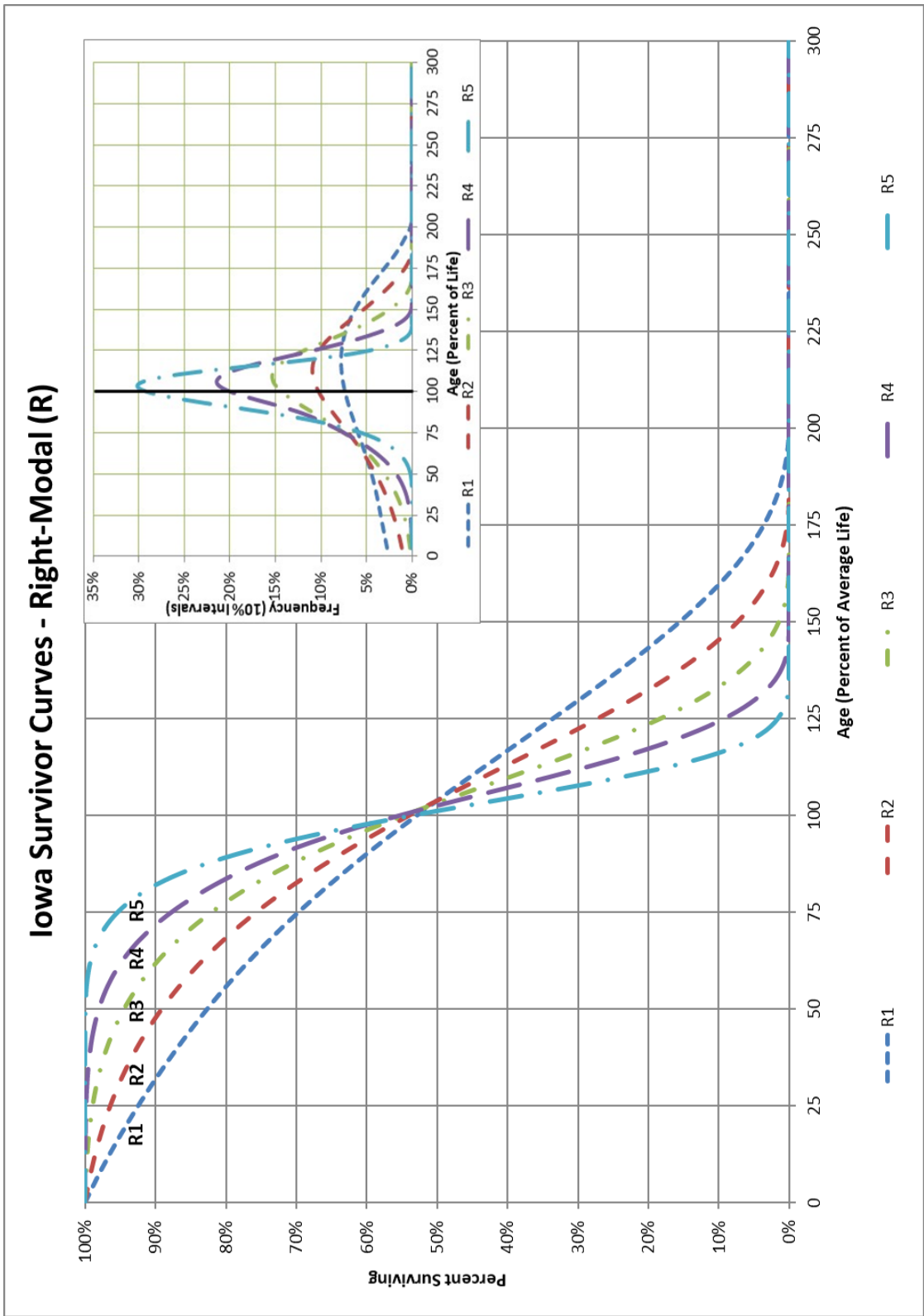




FIGURE 4: RIGHT MODAL OR "R" IOWA TYPE SURVIVOR CURVES

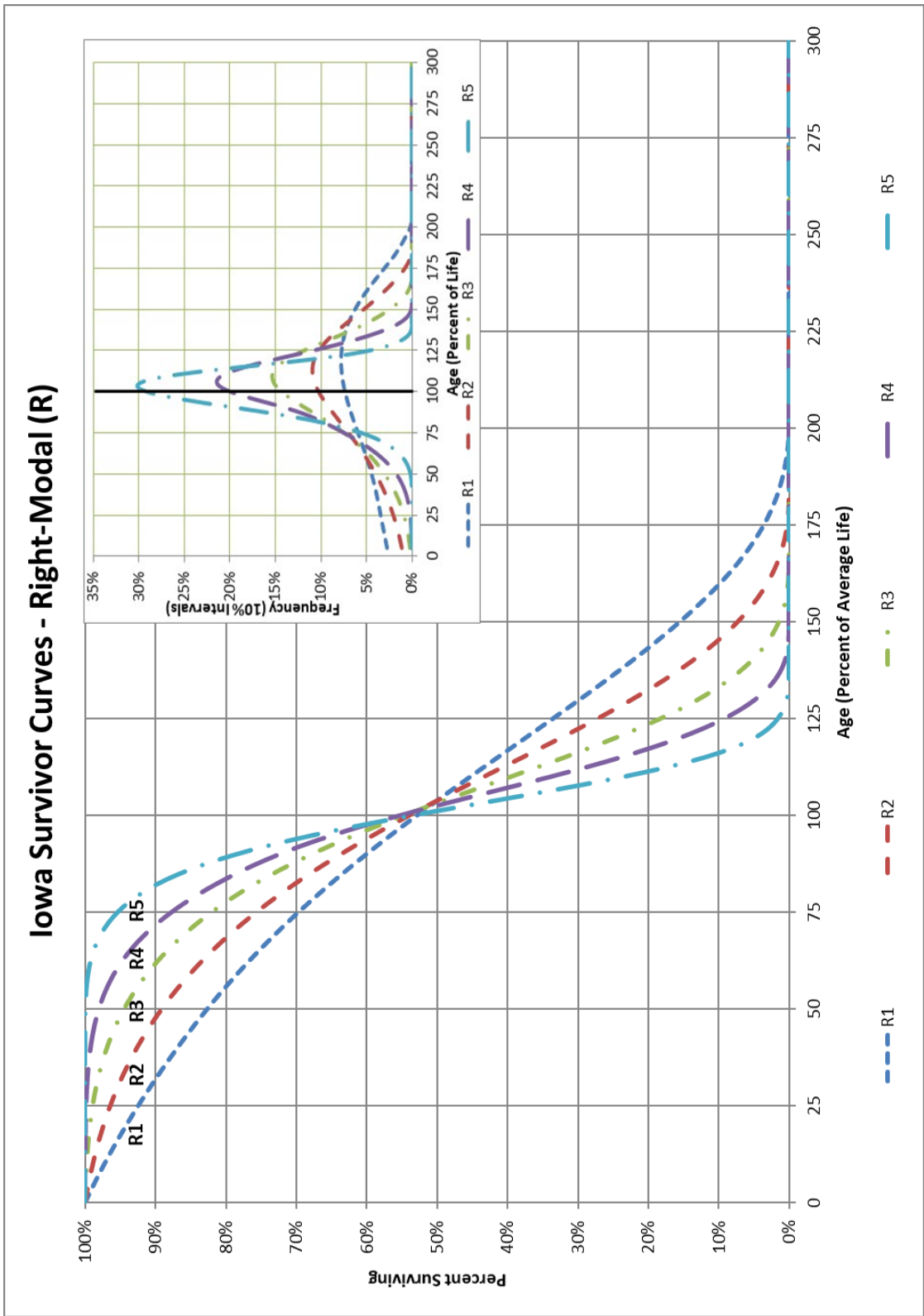
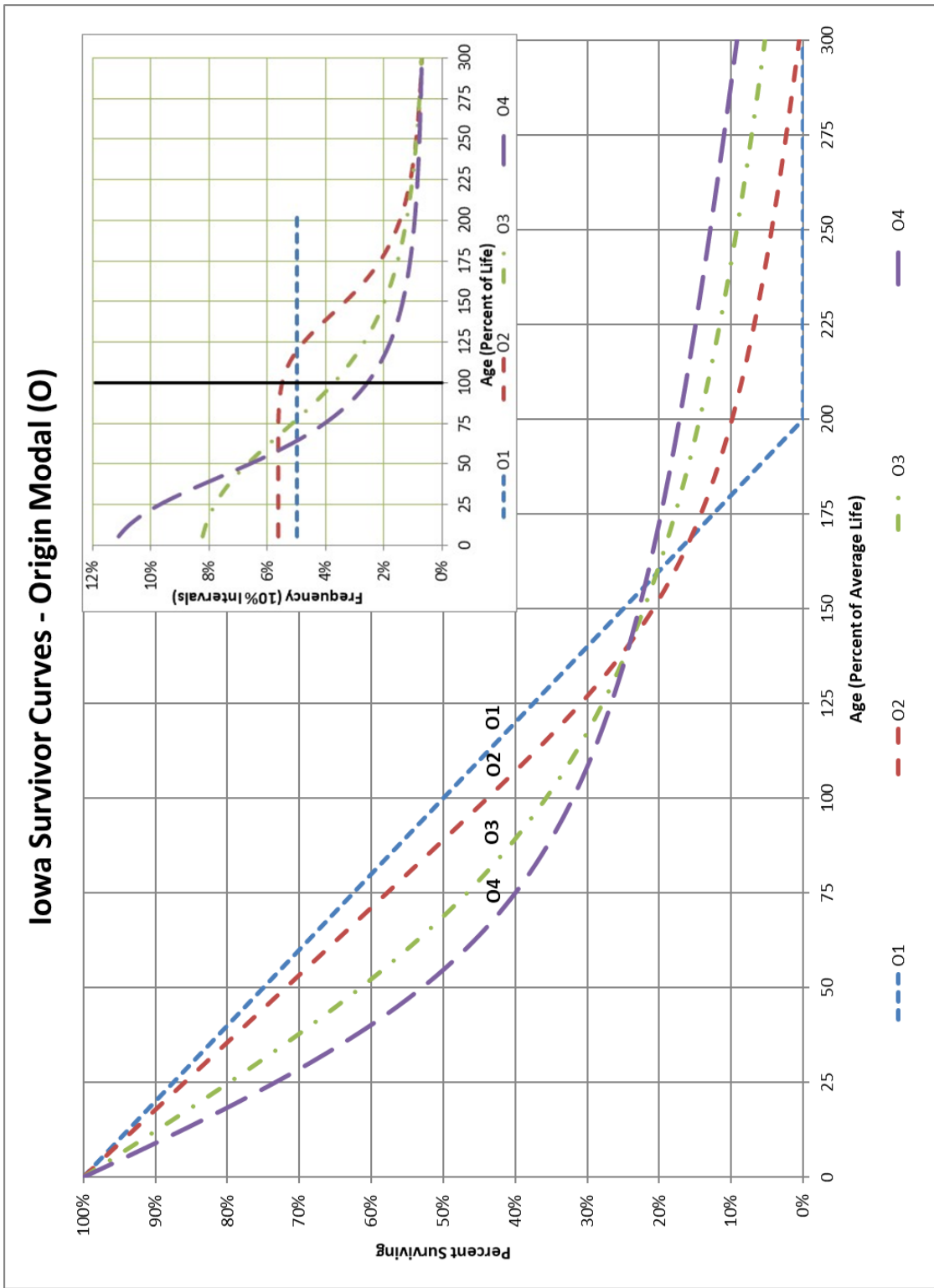




FIGURE 5: ORIGIN MODAL OR "O" IOWA TYPE SURVIVOR CURVES





9.4 Retirement Rate Method of Analysis

The Retirement Rate Method is a widely accepted actuarial method used to create survivor curves. This method is also referred to as an original life table. These survivor curves can then be used to determine the average service life of a plant account. The Retirement Rate Method is thoroughly explained in several publications, including *Statistical Analyses of Industrial Property Retirements*,⁸ *Engineering Valuation and Depreciation*⁹ and *Depreciation Systems*.¹⁰

The Retirement Rate Method is a subgroup of the placement and the Experience Band Methods, as described in “Depreciation Systems”. The Placement Band Method creates a survivor curve which describes the life characteristics of assets placed into service during a selected timeframe. The Experience Band Method creates a survivor curve which describes the life characteristics of assets removed from service during a selected time frame. The Retirement Rate Method creates both placement and experience bands to give the most complete or representative data. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

9.5 Schedules of Annual Transactions in Plant Records

The property group used to illustrate the Retirement Rate Method is observed for the experience band 2007-2016 during which there were placements during the years 2007-2016. In order to illustrate the summation of the aged data by age interval, the data was compiled in the manner presented in Schedules 1 and 2. In Schedule 1 (pg. 9-10), the year of installation (year placed) and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the asset invested in 2002 were retired in 2007. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years (2007 - 2002) on the basis that approximately one-half of the amount of property was installed prior to and after July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2007 retirements of 2002 installations and ending with the 2016 retirements of the 2011 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

⁸ Anson, Winfrey & Hempstead, *supra* note 6

⁹ Anson, Winfrey & Hempstead, *supra* note 6

¹⁰ Wolf & Fitch, *supra* note 1



$$\$10 + \$12 + \$13 + \$11 + \$13 + \$13 + \$15 + \$17 + \$19 + \$20 = \$143 \text{ k}$$

Other transactions which affect the group are recorded in a similar manner in Schedule 2 (pg.9-11). The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements but are used in developing the exposures at the beginning of each age interval.



SCHEDULE 1: RETIREMENTS FOR EACH YEAR 2007 – 2016

Summarized by age interval											
Experience Band 2007-2016						Placement Band 2002-2016					
Year Placed	Retirements, Thousands of Dollars										
	During Year										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12) (13)
2002	10	11	12	13	14	16	23	24	25	26	26 13½-14½
2003	11	12	13	15	16	18	20	21	22	19	44 12½-13½
2004	11	12	13	14	16	17	19	21	22	18	64 11½-12½
2005	8	9	10	11	11	13	14	15	16	17	83 10½-11½
2006	9	10	11	12	13	14	16	17	19	20	93 9½-10½
2007	4	9	10	11	12	13	14	15	16	20	105 8½-9½
2008		5	11	12	13	14	15	16	18	20	113 7½-8½
2009			6	12	13	15	16	17	19	19	124 6½-7½
2010				6	13	15	16	17	19	19	131 5½-6½
2011					7	14	16	17	19	20	143 4½-5½
2012						8	18	20	22	23	146 3½-4½
2013							9	20	22	25	150 2½-3½
2014								11	23	25	151 1½-2½
2015									11	24	153 ½-1½
2016										13	80 0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606



SCHEDULE 2: OTHER TRANSACTIONS FOR EACH YEAR 2003 – 2012

Summarized by age interval

Experience Band 2003-2012													Placement Band 1998-2012		
Acquisitions, Transfers and Sales, Thousands of Dollars															
During Year															
Placed	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total During				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	Age Interval				
											(12)	(13)			
1998	-	-	-	-	-	-	60 ^a	-	-	-	-	13½-14½			
1999	-	-	-	-	-	-	-	-	-	-	-	12½-13½			
2000	-	-	-	-	-	-	-	-	-	-	-	11½-12½			
2001	-	-	-	-	-	-	-	(5) ^b	-	-	60	10½-11½			
2002	-	-	-	-	-	-	-	6 ^a	-	-	-	9½-10½			
2003	-	-	-	-	-	-	-	-	-	-	(5)	8½-9½			
2004	-	-	-	-	-	-	-	-	-	-	-	7½-8½			
2005	-	-	-	-	-	-	-	-	-	-	-	6½-7½			
2006	-	-	-	-	-	-	-	(12) ^b	-	-	-	5½-6½			
2007	-	-	-	-	-	-	-	-	22 ^a	-	-	4½-5½			
2008	-	-	-	-	-	-	-	(19) ^b	-	-	10	3½-4½			
2009	-	-	-	-	-	-	-	-	-	-	-	2½-3½			
2010	-	-	-	-	-	-	-	-	-	(102) ^c	(121)	1½-2½			
2011	-	-	-	-	-	-	-	-	-	-	-	½-1½			
2012	-	-	-	-	-	-	-	-	-	-	-	0-½			
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)				

^a Transfer Affecting Exposures at Beginning of Year

^b Transfer Affecting Exposures at End of Year

^c Sale with Continued Use

Parentheses denote Credit amount.



9.6 Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 (pg. 9-13). The surviving plant at the beginning of each year from 2007 through 2016 is recorded by year in the portion of the table titled "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition, are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2012 are calculated in the following manner:

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

For the entire experience band 2007-2016, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

$$\$255 + \$268 + \$ 284 + \$311 + \$334 + \$374 + \$405 + \$448 + \$501 \$ \$609 + \$3,789k$$



SCHEDULE 3: PLANT EXPOSED TO RETIREMENT AT THE BEGINNING OF EACH YEAR 2003 - 2012

SUMMARIZED BY AGE INTERVAL

Experience Band 2007 - 2016													Placement Band 2002-2016		
Year Placed	Exposures, Thousands of Dollars												Total at Beginning of Age Interval		Age Interval
	Annual Survivors at the Beginning of the Year												(12)	(11)	(13)
(1)	2007 (2)	2008 (3)	2009 (4)	2010 (5)	2011 (6)	2012 (7)	2013 (8)	2014 (9)	2015 (10)	2016 (11)					
2002	255	245	234	222	209	195	239	216	192	167			167		13½-14½
2003	279	268	256	243	228	212	194	174	153	131			323		12½-13½
2004	307	296	284	271	257	241	224	205	184	162			531		11½-12½
2005	338	330	321	311	300	289	276	262	242	226			823		10½-11½
2006	376	367	257	346	334	321	307	267	280	261			1,097		9½-10½
2007	420 ^a	416	407	397	386	374	361	347	332	316			1,503		8½-9½
2008		460 ^a	455	444	432	419	405	390	374	356			1,952		7½-8½
2009			510 ^a	504	492	479	464	448	431	412			2,463		6½-7½
2010				580 ^a	574	561	546	530	501	482			3,057		5½-6½
2011					660 ^a	653	639	623	628	609			3,789		4½-5½
2012						750 ^a	742	724	685	663			4,332		3½-4½
2013							850 ^a	841	821	799			4,955		2½-3½
2014								960 ^a	949	923			5,719		1½-2½
2015									1,080 ^a	1,069			6,579		½-1½
2016										1,220 ^a			7,490		0-½
Total	1,975	2,382	2,824	3,318	3,872	4,494	5,247	6,017	6,852	7,799			44,780		

^a Additions during the year.



9.7 Original Life Tables

The original life table, illustrated in Schedule 4 (pg. 9-15) is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e., one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

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

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless. The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.



SCHEDULE 4: ORIGINAL LIFE TABLE - CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2007-2016			Placement Band 2002-2016		
Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	% Surviving at Beginning of Age Interval
0.0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.60
12.5	323	44	0.1362	0.8638	48.90
13.5	167	26	0.1557	0.8443	42.24
Total	44,780	1,606			

Exposure and Retirement Amounts are in Thousands of Dollars

- Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement.
- Column 3 from Schedule 1, Column 12, Retirements for Each Year.
- Column 4 = Column 3 divided by Column 2.
- Column 5 = 1.0000 minus Column 4.
- Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval.



9.8 Smoothing the Original Survivor Curve

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to 0% surviving of the original stub curve. Even if the original survivor curve is complete from 100% to 0%, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches 0%. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

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

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



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

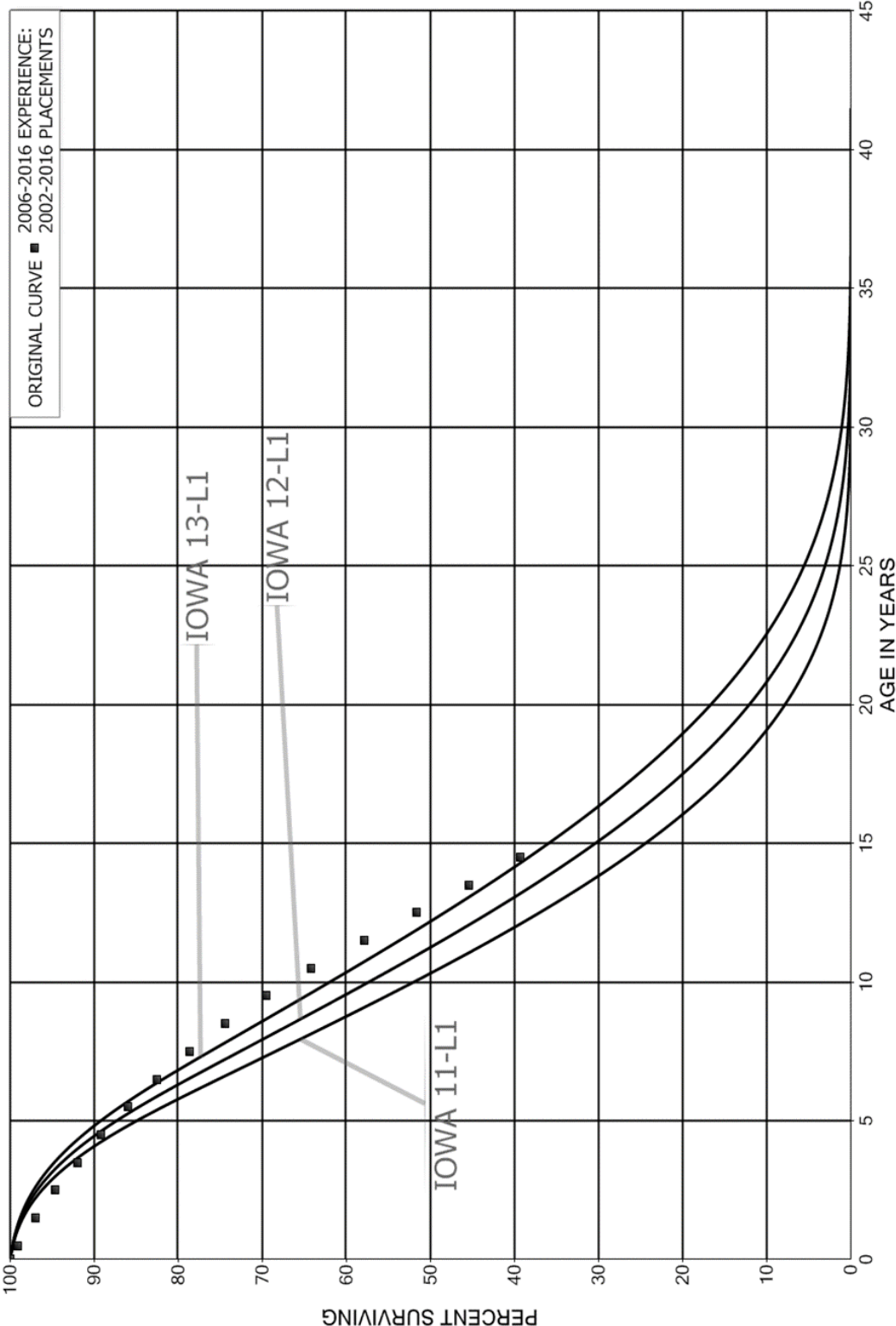




FIGURE 7: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A SO IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

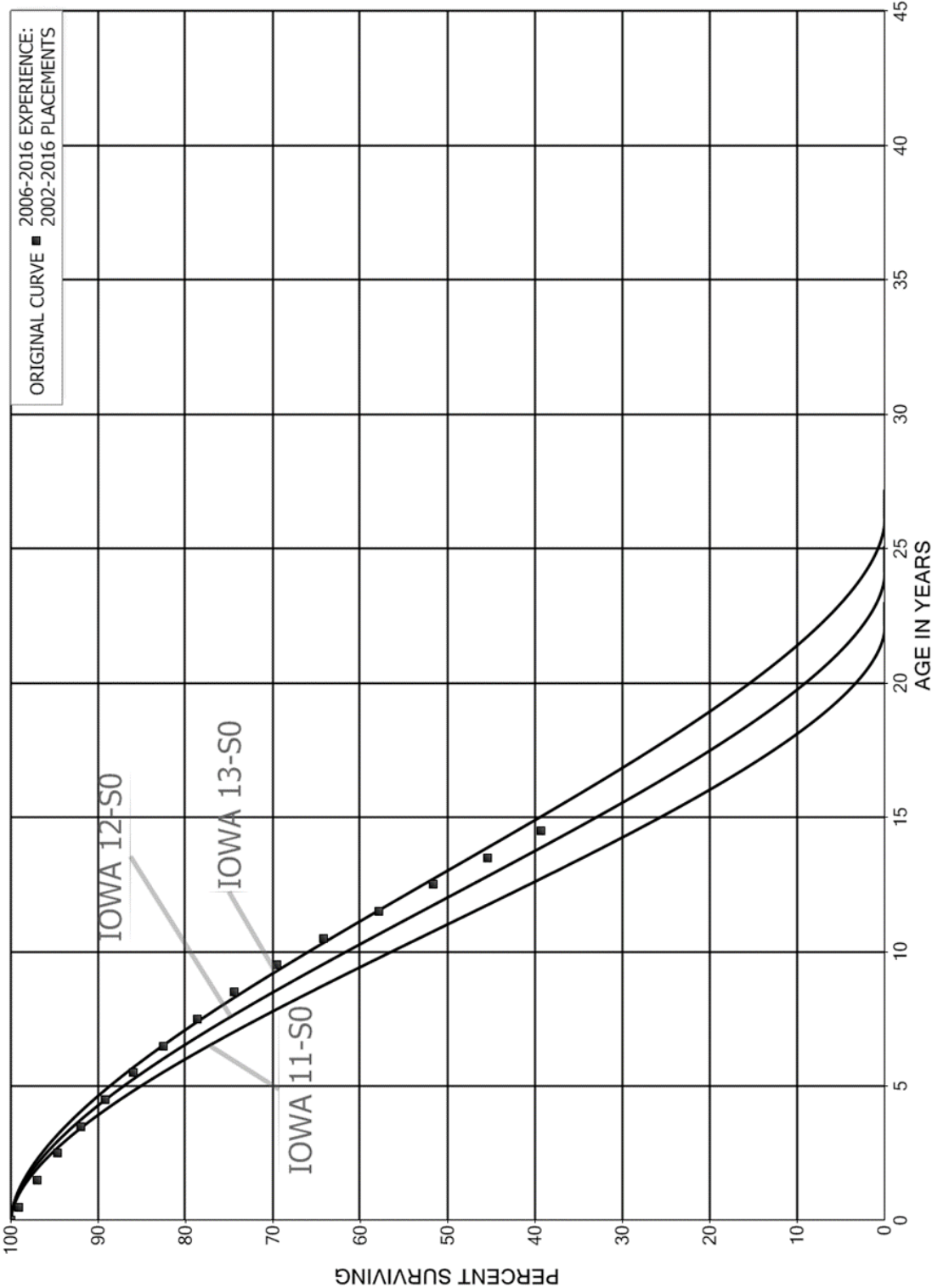




FIGURE 8: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

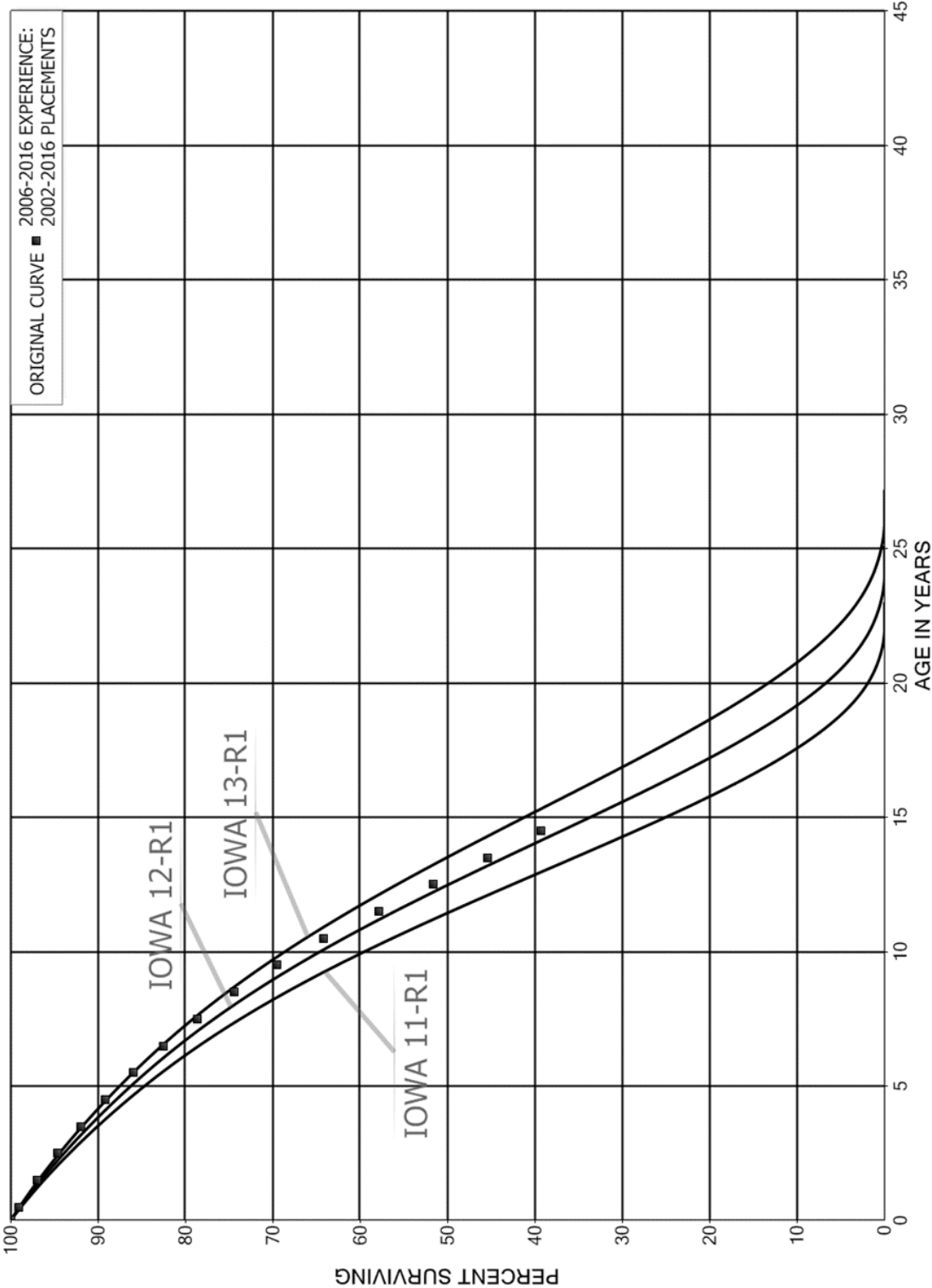




FIGURE 9: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

