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# MISSOURI PUBLIC SERVICE COMMISSION

# CASE NO. GR-2019-0077

# DIRECT TESTIMONY

### OF

# JOHN F. WIEDMAYER C.D.P. GANNETT FLEMMING VALUATION & RATE CONSULTANTS, LLC

ON

# **BEHALF OF**

# UNION ELECTRIC COMPANY d/b/a AMEREN MISSOURI

Audubon, Pennsylvania December 2018

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#### MISSOURI PUBLIC SERVICE COMMISSION

#### CASE NO. GR-2019-0077

#### DIRECT TESTIMONY OF

## JOHN F. WIEDMAYER, CDP GANNETT FLEMMING VALUATION & RATE CONSULTANTS, LLC

#### Submitted on Behalf Of

### Union Electric Company d/b/a Ameren Missouri

#### 1 I. INTRODUCTION

- 2 A. Witness Identification
- 3 Q. Please state your name and business address.
- 4 A. My name is John F. Wiedmayer. My business address is 1010 Adams Avenue, Audubon,
- 5 Pennsylvania 19403.
- 6 Q. By whom are you employed and in what capacity?
- 7 A. I am employed by Gannett Fleming, Inc. as Project Manager of Depreciation Studies.

#### 8 Q. Please describe your educational background and relevant work experience.

- 9 A. See my Statement of Qualifications, attached as an Appendix to this testimony.
- 10

# B. Purpose, Scope and Identification of Schedules

#### 11 Q. What is the purpose of your direct testimony?

12 A. The purpose of my testimony is to present the results of a gas depreciation study (Study) I

- 13 performed on behalf of Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or
- 14 the "Company") in 2014. This is the most recent depreciation study conducted with respect to
- 15 Ameren Missouri's gas facilities, and it was submitted to the Commission Staff and the Office of

the Public Counsel on June 19, 2015 in accordance with 4 CSR 240-3.275. The depreciation 1 study determines the annual remaining life depreciation accrual rates applicable to Ameren 2 Missouri's gas plant, and supports revisions to Ameren Missouri's existing annual remaining life 3 depreciation accrual rates. My testimony is offered in support of the Study and the gas plant 4 depreciation study report ("Report"), which is entitled "Depreciation Study – Calculated Annual 5 6 Depreciation Accruals Related to Gas Plant at December 31, 2014" and is attached as Schedule JFW-D1. My testimony will address: (1) the methods and procedures I used in performing the 7 Study; (2) the statistical analyses of service life and net salvage data I performed; (3) my 8 9 estimates of survivor curves and net salvage percentages; (4) my calculation of remaining life depreciation accrual rates; and (5) several examples of the manner in which the Study results are 10 11 presented in the Report.

#### 12 **Q.** Please summarize the results of the gas depreciation study you performed.

A. A table in the Executive Summary of Schedule JFW-D1 on Page v presents the proposed functional plant accrual rates as of December 31, 2014. Depreciation rates by plant account are presented on Page VI-4 and Page VI-5 of Schedule JFW-D1. The existing composite accrual rate for all accounts is 2.55 percent versus the proposed composite accrual rate of 2.34 percent.

Q. What is the basis for the depreciation rates currently being used by the Company?
A. The current gas depreciation rates were placed into effect February, 2011 by the
Commission's Order in Case No. GR-2010-0363. The gas depreciation study establishing the
parameters on which existing depreciation rates are based was performed in compliance with the
Commission's Order in Case No. GR-2010-0363.

# Q. Why is a revision of the Company's existing gas depreciation rates necessary at this time?

A. Revisions to the Company's gas depreciation rates are necessary to ensure that rates adequately reflect more current information and recent changes experienced by the Company in relation to average service lives and net salvage for gas plant. Remaining life accrual rates are not intended to remain unchanged for an extended period of time.

7 Q. Please summarize your recommendations.

A. I recommend that the Commission approve the annual gas plant depreciation accrual rates presented in Table 1 of Schedule JFW-D1, shown at Page VI-4 and Page VI-5 of the Report. These recommended rates are based on standard professional and industry practices, using estimates of survivor curves and net salvage percents. These estimates are based on informed judgment, which incorporates statistical analyses of historical retirement data, field reviews of the property, discussions with management regarding the outlook for plant, and a review of the estimates made for other gas utilities.

15 Q. Are you sponsoring any schedules with your direct testimony?

A. Yes, again, attached to this testimony as Schedule JFW-D1 is the Report containing the results of the Study. This schedule contains Table 1, which sets forth the proposed depreciation parameters and related remaining life depreciation rates and accruals by plant account. I have no other direct testimony schedules.

# 1 II. <u>OUTLINE OF DEPRECIATION STUDY REPORT</u>

2 Q. Does Schedule JFW-D1 accurately portray the results of your 2014 depreciation

- 3 study?
- 4 A. Yes.

# 5 Q. In preparing the Study, did you follow generally accepted practices in the field of

# 6 depreciation?

- 7 A. Yes, I did. I followed generally accepted practices as outlined in various depreciation
- 8 manuals such as NARUC's *Public Utility Depreciation Practices*; *Depreciation Systems* by Wolf
- 9 and Fitch; and various other public utility depreciation references.

# 10 Q. Please describe the contents of your Report.

11 A. The Depreciation Study is presented in nine parts:

12	Part I, Introduction, presents the scope and basis for the Depreci	ation Study;
13 14	Part II, Estimation of Survivor Curves, explains the process of e survivor curves and the retirement rate method of life analysis;	stimating
15 16	Part III, Service Life Considerations, discusses factors and the in judgment involved with the estimation of service life;	nformed
17 18	Part IV, Net Salvage Considerations, discusses factors and the in judgment involved with the estimation of net salvage;	nformed
19 20 21	Part V, Calculation of Annual and Accrued Depreciation, explai procedure and technique used in the calculation of annual depre- and the theoretical reserve;	
22 23 24 25	Part VI, Results of Study, sets forth the service life estimates, ne estimates, annual depreciation rates and accruals and theoretical each depreciable group. This section also includes a description tabulations supporting the Depreciation Study;	reserves for
26 27 28	Part VII, Service Life Statistics, sets forth the survivor curve est original life tables for each plant account and subaccount and se historical bases for the survivor curve estimates;	

- Part VIII, Net Salvage Statistics, sets forth the net salvage analysis for each
   plant account and subaccount; and
  - Part IX, Detailed Depreciation Calculations, sets forth the calculation of average remaining life for each property group.
- 5

3

4

# III. METHODS AND PROCEDURES USED IN THE STUDY

6 Q. I

## Please define the concept of depreciation.

A. Depreciation refers to the loss in service value not restored by current maintenance,
incurred in connection with the consumption or prospective retirement of utility plant in the
course of service from causes that can reasonably be anticipated or contemplated, against which
the Company is not protected by insurance. Among the causes to be given consideration are wear
and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in
demand, and the requirements of public authorities.

# Q. What was the basis for determining the annual depreciation related to gas plant in your Study?

15 A. I prepared a study of service life and net salvage that incorporated available historical data through 2014. The survivor curve and net salvage estimates resulting from the Study are the 16 bases of the calculated annual and accrued depreciation as of December 31, 2014. The straight-17 18 line method and the average remaining life basis using survivor curve and net salvage estimates and attained ages were applied by depreciable group to gas plant as of December 31, 2014 to 19 calculate depreciation. Use of the remaining life basis recognizes the current status of the 20 accumulated provision for depreciation and aims to allocate the previously unallocated service 21 value over the account's remaining life. The term "service value" means the difference between 22 original cost and net salvage value of gas plant. 23

1 Q. Please outline the steps you took to perform the Study.

A. I reviewed the available sources of data and discussed past causes of retirement and the outlook for future retirements with Ameren Missouri's engineering management. I specified the data to be extracted and coded for the historical analyses, supervised the statistical analyses of such data, and calculated depreciation.

6 Q. Briefly describe the steps you took to conduct the service life and net salvage study.

7 A. I assembled and compiled historical data from the continuing property and other records of Ameren Missouri (including the legacy gas operations); I analyzed the data to obtain historical 8 9 trends of survivor and salvage characteristics; I obtained supplementary information from Ameren Missouri's management and operating personnel concerning past practices and future 10 11 plans as such practices relate to plant operations; I visited representative gas facilities to gain a 12 further understanding of the nature and function of the gas operations and to observe the 13 condition of the equipment in service; and I selected appropriate survivor curves and net salvage 14 percents.

Q. Did you physically observe Ameren Missouri's gas plant and equipment as part of
 vour depreciation study?

A. Yes. On May 14 through May 15, 2015, I held meetings with personnel involved with engineering and operations of Ameren Missouri's gas distribution and general plant. Discussions were held regarding retirement, construction, and operations of gas plant assets. A field visit was also conducted to view representative gas plant assets and observe the condition of such assets on the system. The field visit included visits to representative city gate stations, district measuring and regulating stations, metering stations, an active main replacement project and tour of the newly built Columbia Works Headquarters Office Building in Columbia, Missouri. In

addition, I have previously made field visits to Company facilities during the prior two
depreciation studies that I conducted in 2006 and 2010. Meetings and field reviews are typically
conducted to become familiar with the Company's operations and obtain an understanding of the
function of the plant and information with respect to the reasons for past retirements and the
expected future causes of retirements. I incorporated this knowledge, as well as information
obtained from other interviews and discussions with management and Company personnel, in the
interpretation and extrapolation of the statistical analyses.

8 Q. What were the bases for your estimates of survivor curves and net salvage?

A. The survivor curve and net salvage estimates were based on my professional engineering
judgment with consideration of relevant factors such as the analyses of historical service life and
net salvage data, the previously approved survivor curve and net salvage estimates, a review of
utility policies and outlook with Ameren Missouri's engineering management, and comparisons
of survivor curve and net salvage estimates from studies of other gas utilities in the United
States.

- 15 **Q.** Are the factors you considered in the estimation of survivor curve and net salvage
- 16 percents presented in the Report?

A. Yes. The factors I considered in estimating survivor curves and net salvage percents are
set forth in Parts III and IV of the Report.

## 1 IV. STATISTICAL ANALYSIS OF DATA

# Q. What historical data did you analyze for the purpose of estimating the service lives and net salvage characteristics of Ameren Missouri's gas plant?

A. The service life data consisted of entries made by the legacy companies to record gas
plant transactions from the earliest available year through 2014. For most plant accounts, the
plant accounting data comprised the period 1931 through 2014. The transactions included
additions, retirements, transfers, acquisitions and the related balances. I classified data by
depreciable group, type of transaction and the year in which the transaction took place.

9 The net salvage data consisted of the entries to accumulated depreciation. The transactions included retirements, cost of removal and gross salvage. The net salvage estimates 10 were based on professional judgment with consideration given to factors such as the historical 11 net salvage analyses, the average age of past gas plant retirements, a general knowledge of 12 Company plans and operations, an understanding of the work activities associated with retiring 13 14 gas plant, the existing net salvage estimates for Ameren Missouri and the net salvage estimates used by other gas companies in the United States. The net salvage parameters that I have 15 estimated are considered to be within a reasonable range of comparable estimates for other gas 16 utilities with similar property. 17

#### 18 Q. What method did you use to analyze the service life data?

A. I used the retirement rate method. That method is the most appropriate when aged
retirement data are available, because it develops the average rates of retirement actually
experienced during the period of study. Other methods of life analysis infer the rates of
retirement based on a selected type survivor curve. The retirement rate method is described in
Part II of the Report.

# Q. Please describe how you used the retirement rate method to analyze the Company's service life data.

Each retirement rate analysis resulted in a life table which, when plotted, formed an 3 A. original survivor curve. Each original survivor curve, as plotted from the life table, represents the 4 average survivor pattern experienced by the several vintage groups during the experience band 5 6 studied. The survivor patterns do not necessarily describe the life characteristics of the property group because the life cycle is often incomplete, as well as for other reasons such as limited 7 retirement data or a newly created account; therefore, interpretation of the original curves is 8 9 required in order to use them as valid considerations in service life estimation. Iowa-type survivor curves were used in these interpretations. 10

# Q. Please explain briefly what an "Iowa-type survivor curve" is and how you use it in estimating service life characteristics for each depreciable group.

A. Iowa-type curves are a widely used group of survivor curves that contain the range of survivor characteristics usually experienced by utility and other industrial properties. The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired.

Iowa-type curves are used to smooth and extrapolate original survivor curves determined by the retirement rate method. The Iowa curves were used in the Study to describe the forecasted rates of retirement based on the observed rates of retirement and the outlook for future retirements. The estimated survivor curve designations for each depreciable group indicate the average service life, the family within the Iowa system, and the relative height of the mode. For example, the Iowa 50-R3 indicates an average service life of fifty years for the depreciable group; a Right,

or R, type curve (i.e., the mode occurs to the right of or after average life for right modal curves);
and a relatively medium height, 3, for the mode (possible modes for R type curves range from 0.5
to 5).

4

## Q. What method was used in the analysis of net salvage?

5 A. The method of analysis for net salvage consisted of expressing annual amounts of gross 6 salvage and cost of removal as percentages of the related retirement amounts. The annual 7 amounts and percents were smoothed through the use of a three-year moving average. In 8 addition, the most recent five-year average also was computed in order to identify and observe 9 trends regarding net salvage.

10

V.

### CALCULATION OF DEPRECIATION

# Q. Please describe the second phase of the process that you used in the Study, in which you calculated composite remaining lives and annual depreciation accrual rates.

A. After I estimated the service life and net salvage characteristics for each depreciable
property group, I calculated the annual depreciation accrual rates for each group based on the
straight line remaining life method, using remaining lives weighted consistent with the average
service life procedure. The annual depreciation accrual rates were developed as of December 31,
2014.

### 18 Q. Please describe the average service life procedure.

A. A group procedure is appropriate when considering more than a single item of property.
Normally the items within a group do not have identical lives, but have lives that are dispersed
over a range of time. In the average service life procedure, a constant accrual rate based on the
average life of all property in the group is applied to the surviving property. The accrued

depreciation is based on the average service life of the group and the average remaining life of each vintage within the group. The average remaining life for each vintage is derived from the area under the survivor curve between the attained age of the vintage and the maximum age.

4

### Q. Please describe the straight line remaining life method of depreciation.

5 A. The straight line remaining life method of depreciation allocates the original cost of the 6 property, less accumulated depreciation, less future net salvage, in equal amounts to each year of 7 remaining service life. Remaining life accrual rates are designed to increase or decrease based on 8 the standing of the book reserve in relation to the theoretical reserve. If past levels of 9 depreciation were too high, the remaining life rate will adjust downward and vice versa if past 10 levels of depreciation were too low. The proper application of remaining life accrual rates will 11 ensure complete capital recovery of gas plant, no more or no less.

### 12 Q. Why is this method and procedure appropriate for Ameren Missouri's gas

### 13 operations?

A. The straight-line method is used throughout the regulated utility industry to describe the
loss in service value of utility property. The average service life procedure is widely used
throughout the gas industry and has been previously used for Ameren Missouri's gas operations
by the Commission, most recently in Case No. GR-2010-0363.

### 18 Q. Did you calculate the annual depreciation rates and accrued depreciation amounts?

19 A. Yes, the annual and accrued depreciation calculations summarized in Part VI of the

20 Report and detailed in Part IX of the Report were prepared under my supervision.

### 1 VI. EXAMPLES OF PRESENTATION

#### 2 Q. Please illustrate the procedure followed in the Study and the manner in which it is

#### 3 presented in the Report using an account as an example.

I will use Ameren Missouri's Account 380, Services, to illustrate the manner in which the A. 4 5 Study was conducted. Account 380, Services is the second largest plant account behind Account 376, Mains in terms of plant investment, and the account contains over 28 percent of total 6 depreciable gas plant in service. As the initial step of the service life analysis, plant accounting 7 data were compiled for the years 1931 through 2014. This data has been coded in the course of 8 9 Ameren Missouri's normal recordkeeping according to: 1) account or property group; 2) type of transaction; and 3) year in which the transaction took place. Aged retirements and balances were 10 analyzed by the retirement rate method. The survivor curve estimate is based on the statistical 11 analysis for the period 1931-2014. The original and smooth survivor curves are plotted on Page 12 VII-14 in the Report. The original life table for the 1931-2014 experience band is set forth on 13 14 Pages VII-15 through VII-17.

The calculation of annual depreciation for the original cost of Services at December 31, 2014, is presented by vintage, on Pages IX-11 through IX-13 in the Report. The accrued depreciation was calculated by the average service life procedure using the Iowa 40-R2 survivor curve.

The total depreciation accrual shown on Page IX-13 of the Report was brought forward to Column 7 of Table 1, titled, "Calculated Annual Accrual Amount", on Page VI-4. The book reserve at the account level was allocated to the vintage level in proportion to the calculated accrued depreciation, a.k.a., the theoretical reserve. The calculated accrued depreciation amounts are set forth on the tables in Part IX of the Report by account and vintage.

# Q. Did the Study result in proposed material changes in Ameren Missouri's composite gas depreciation rates?

3 A. Yes it did, but the changes were expected. In total, the proposed overall composite depreciation rate is 2.34 percent compared with the existing composite depreciation rate of 2.55 4 based on gas plant in service as of December 31, 2014. The overall impact on depreciation 5 6 expense was a decrease of ~\$0.903 million, an 8.3 percent decrease. Some of the decrease was related to a change in the plant and reserve balances, but a significant portion of the decrease was 7 related to the change in the depreciation parameters, i.e., service lives and net salvage percents. 8 9 The Company is currently using the depreciation rates set forth in the study submitted in 2010 to the Commission and has been since the final Order was issued on January 19, 2011. 10

# Q. Why would these changes to Ameren Missouri's depreciation expense have occurred regardless of any changes in depreciation parameters?

13 A. The depreciation accrual rates set forth in the Report are remaining life depreciation 14 accrual rates. A characteristic of remaining life depreciation accrual rates is that the rates change over time based on the plant and reserve activity experienced since the last rate case or 15 depreciation study. Remaining life rates are dynamic and are designed to recover the 16 17 undepreciated plant investment, less future net salvage, over the account's average remaining life. Even without any changes to the depreciation parameters, i.e., average service lives, 18 dispersion curves and net salvage percents, remaining life depreciation rates can change based on 19 20 new plant additions and changes in the standing of the book reserve in comparison with the theoretical reserve. A characteristic of remaining life rates is that they increase when past 21 22 accruals have been too low and decrease when past accruals have been too high.

# Q. Please describe the operation of remaining life rates in comparison to whole life rates.

A. Remaining life rates act much like a thermostat. A thermostat is part of a dynamic system (i.e., a home heating system) with a closed feedback loop. The thermostat *monitors* the room temperature and creates feedback, in the form of electrical signals, when the temperature rises above or falls below the desired temperature. Remaining life rates have a similar closed feedback loop since the remaining life rate formula *monitors* how much depreciation has already been recovered and adjusts the rates up or down accordingly while whole life rates do not.

9 For example, assume a vehicle was purchased for \$20,000 and had an expected service life of 10 years. Assume salvage is zero in this example. The initial remaining life depreciation 10 rate at age zero is 10.00 percent and the depreciation accrual is \$2,000 per year. This is the same 11 rate and accrual amounts if whole life rates were used. Assume after 5 years, a new service life 12 and net salvage study is performed and the life estimate for the vehicle is revised to 11 years 13 14 instead of 10 years. Using whole life accrual rates, the new accrual rate, which does not consider the level of past depreciation recoveries, would be 9.09 percent  $\{(1/11 \text{ (years)})\}$  and the 15 depreciation accrual would be \$1818.18 per year. After an additional 6 years (years 6-11), you 16 17 would have collected \$10,909 or a total of \$20,909 over eleven years, accruing an additional capital recovery on the asset of \$909 (\$20,909 vs. \$20,000) at the time of the vehicle's 18 retirement using whole life rates. This is a shortcoming of whole life rates. 19 20 Using remaining life rates at age 5, the undepreciated cost of the vehicle, i.e., \$10,000,

20 Using remaining life rates at age 5, the undepreciated cost of the vehicle, i.e., \$10,000,
21 would be depreciated over the asset's remaining life of 6 years. The remaining life accrual rate
22 would be 8.33 percent and the depreciation accrual would be \$1,667 per year or \$10,000 / 6
23 years. Therefore, in comparing the initial remaining life rate of 10.00 percent with the revised

remaining life rate of 8.33 percent, a portion of the decrease is due to increasing the service life from 10 years to 11 years. Another portion of the change in the remaining life rate (i.e., 8.33% vs. 10.00%), which I will call the *remaining life adjustment*, is due to the over-recovery in depreciation during the asset's first five years of service. The over-recovery after 5 years is \$1,667, which will be recovered prospectively over the asset's remaining life resulting in an additional reduction of \$278 per year being charged to depreciation.

# Q. How did the use of remaining life rates in the Study affect Ameren Missouri's plant accounts?

A. The remaining life adjustment affects all plant accounts to varying degrees. Using remaining life rates, it is common to see changes in the accrual rates even when the depreciation parameters remain unchanged. The changing investment mix of vintages with different ages and varying remaining lives within an account and the standing of the book reserve in relation to the theoretical reserve are reasons why remaining life rates can change even though the depreciation parameters remain the same. Therefore, it is usually a combination of variables and not just changes to the depreciation parameters that cause remaining life rates to change.

#### 16 Q. Which two accounts experienced the largest decreases in depreciation?

A. The two accounts that experienced the largest decreases were Account 376, Mains and
Account 380, Services. Account 376, Mains experienced a decrease of \$0.530 million and
Account 380, Services experienced a decrease of \$1.141 million.

# Q. What are the primary reasons for the decrease in depreciation expense in Account 376, Mains?

A. For Account 376, Mains, the primary reasons for the decrease in depreciation expense is 3 the proposed increase in the average service life estimated for Account 376, Mains from 44 years 4 to 50 years. The Company owns mains constructed of steel and plastic of varying sizes. Steel has 5 been used to construct gas mains for over 100 years at Ameren Missouri and it continues to be 6 used today in situations that require a larger diameter pipe that can adequately handle higher gas 7 pressure. Slightly less than 30 percent of the miles of mains installed are steel mains. The 8 9 primary material used for gas distribution mains is plastic and that has been the case since the 1970's. Plastic mains comprise over 70 percent of the gas distribution system at the Company. 10 Plastic mains are lighter, less expensive and easier to install than steel mains. Plastic mains also 11 do not corrode like steel does thus eliminating one of the primary retirement causes related to 12 mains. However, plastic mains are more susceptible to damage from third-party dig-ins as 13 contractors and other utility companies replace their underground assets. Plastic mains, aside 14 from some early plastic resins manufactured in the mid-1960's through the mid-1980's, have 15 performed well and generally have an overall favorable rating within the gas industry. The 16 17 average service life of 50 years was based on a life analysis using experienced plant retirement data through 2014. The approved service life for Account 376, Mains in GR-2010-0363 was 18 44 years. The service life proposed in connection with the depreciation study report submitted to 19 20 the commission in 2015 is 50 years. The life table using experienced plant retirement data for Account 376 is set forth in Part VII of the Report on Pages VII-6 through VII-8. A 50 year 21 22 average service life is supported by the results of the life analysis, is consistent with

management's plans and outlook, and is within the typical range of service lives used by gas
companies for similar property.

# 3 Q. What are the primary reasons for the decrease in depreciation expense in Account 380, Services?

For Account 380, Services, the primary reasons for the decrease in depreciation expense 5 A. is the proposed increase in the average service life estimated for Account 380, Services from 37 6 7 years to 40 years. The reasons for the increase in service life for Account 380, Services are similar to Account 376, Mains. The Company owns services constructed of steel and plastic of 8 9 varying sizes. Steel has been used for gas service lines for over 100 years at Ameren Missouri and it continues to be used today. Slightly more than 5 percent of the total population of active 10 11 services as of December 31, 2014 are steel and are mainly used for larger customers or in 12 applications that require steel. The primary material used for gas distribution services is plastic 13 and that has been the case since the 1970's. Plastic services comprise over 94 percent of the total 14 services lines installed as of December 31, 2014. Similar to mains, plastic services are lighter, less expensive and easier to install than steel services. Plastic service also do not corrode like 15 16 steel does thus eliminating one of the primary retirement causes related to services. However, 17 plastic services are more susceptible to damage from third-party dig-ins as contractors and other utility companies replace their underground assets. Services also are often replaced in connection 18 with a main replacement assuming the service line isn't relatively new, i.e., 15 years or less, and 19 20 plastic. The average service life of 40 years was based on a life analysis using experienced plant retirement data through 2014. The approved service life for Account 380, Services in Case No. 21 GR-2010-0363 was 37 years. The service life proposed in connection with the depreciation study 22 report submitted to the commission in 2015 is 40 years. The life table using experienced plant 23

retirement data for Account 380 is set forth in Part VII of the Report on Pages VII-15 through
VII-17. A 40-R2 survivor curve is an excellent fit of Ameren Missouri's historical retirement
data, is consistent with management's plans and outlook, and is within the typical range of
service lives used by gas companies for similar property.

## 5 Q. Please re-state your recommendations with respect to the depreciation accrual rates

6 for Ameren Missouri's gas operations.

A. Revisions to the Company's current gas depreciation rates are necessary to ensure that rates adequately reflect current information and recent changes experienced by the Company in relation to average service lives and net salvage for gas plant. I recommend that the Commission approve the annual gas plant depreciation accrual rates presented in Table 1 of the Report, shown at Page VI-4 and Page VI-5 of the Report. These recommended rates are based primarily on informed professional judgment related to the service life and net salvage estimates using standard professional and industry practices, and are reasonable.

# 14 VII. <u>CONCLUSION</u>

- 15 Q. Does this conclude your direct testimony?
- 16 A. Yes, it does.

# APPENDIX

# STATEMENT OF QUALIFICATIONS JOHN F. WIEDMAYER, CDP

# EDUCATION

Mr. Wiedmayer graduated from Lafayette College in 1986 with a Bachelor of Arts Degree in Engineering. His studies concentrated on Industrial Engineering and Management with a minor in Economics and Business. Mr. Wiedmayer also earned a Masters in Business Administration from the Pennsylvania State University in 1998.

Mr. Wiedmayer's technical education in depreciation has included formal instructional programs offered by Depreciation Programs, Inc., in cooperation with Western Michigan University. Courses successfully completed include "Techniques of Life Analysis", "Techniques of Salvage and Depreciation Analysis", "Forecasting Life and Salvage", "Modeling and Life Analysis Using Simulation Techniques", and "Managing a Depreciation Study."

Mr. Wiedmayer was awarded the professional designation 'Certified Depreciation Professional' (CDP) by the Society of Depreciation Professionals. The designation is based upon education, experience and the successful completion of a comprehensive examination.

# PROFESSIONAL ASSOCIATIONS AND CERTIFICATIONS

Society of Depreciation Professionals (President in 2005), National Society of Professional Engineers, Pennsylvania Society of Professional Engineers, Certified Depreciation Professional (C.D.P.)

# FACULTY

Mr. Wiedmayer was an instructor of several depreciation courses attended by staff members of public utility commissions, utility companies and consultants sponsored by the Society of Depreciation Professionals at the Society's Annual Meeting. Courses taught by Mr. Wiedmayer included "Salvage Concepts", "Depreciation Models", "Data Requirements for Conducting a Depreciation Study", "Reserve Imbalances and True-Up", "Salvage and Cost of Removal", and "Analyzing the Life of Real-World Property".

### **PROFESSIONAL EXPERIENCE**

Mr. Wiedmayer joined the firm in 1986 as a Project Manager of Depreciation Studies. He directs the assembly of basic data required for depreciation studies, conducts statistical analyses of service life and salvage data, performs field reviews, estimates service life and net salvage and calculates annual and accrued depreciation. Mr. Wiedmayer also participates in valuation studies involving determinations of reproduction cost, present worth and in property inspections for the purposes of verifying records and certifying physical condition. He provides support for the work performed under his direction through expert testimony. Mr. Wiedmayer has conducted over several hundred

depreciation study assignments throughout his career and has testified on depreciation matters before the Kentucky Public Service Commission, the Arizona Corporation Commission, the Missouri Public Service Commission, the Illinois Commerce Commission, the Utah Public Service Commission, the Federal Energy Regulatory Commission, the Nova Scotia Utility and Review Board, and the Board of Commissioners of Public Utilities of Newfoundland and Labrador, the Pennsylvania Public Utility Commission, the New Jersey Board of Public Utilities, the New York Public Service Commission, the Maine Public Utility Commission, the Maryland Public Service Commission, and the Connecticut Public Utilities Regulatory Authority.

### BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Natural Gas Service.

File No. GR-2019-0077

### **AFFIDAVIT OF JOHN F. WIEDMAYER**

)

Commonweal ) ss **COUNTY OF** 

John F. Wiedmayer, being first duly sworn on his oath, states:

1. My name is John F. Wiedmayer. I work in Audubon, Pennsylvania and I am employed by Gannett Fleming, Inc. as Project Manager of Depreciation Studies.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of <u>20</u> pages and Schedule(s) <u>JFW-D1 and Appendix</u>, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Subscribed and sworn to before me this  $30^{\text{th}}$  day of Notary Public

Commonwealth of Pennsylvanla - Notary Seal Susan F. Warner, Notary Public Montgomery County My commission expires July 5, 2020 Commission number 1051659 Member, Pennsylvania Association of Notaries

My commission expires:

# **AMEREN MISSOURI - GAS**

ST. LOUIS, MISSOURI

# **2014 DEPRECIATION STUDY**

CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO GAS PLANT AS OF DECEMBER 31, 2014

Prepared by:



Excellence Delivered As Promised

Schedule JFW-D1 Page 1 of 138 AMEREN MISSOURI - GAS ST. LOUIS, MISSOURI

2014 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO GAS PLANT AS OF DECEMBER 31, 2014

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

> Schedule JFW-D1 Page 2 of 138



Excellence Delivered As Promised

June 19, 2015

Ameren Corporation 1901 Choteau Boulevard St. Louis, MO 63103

Attention Thomas M. Byrne, Esq. Associate General Counsel

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of Ameren Missouri - Gas as of December 31, 2014. The attached report presents a description of the methods used in the estimation of depreciation, the summary of annual depreciation accrual rates, the statistical support for the life and net salvage estimates and the detailed tabulations of annual depreciation.

We gratefully acknowledge the assistance of Ameren Missouri - Gas personnel in the conduct of this study.

Respectfully submitted,

GANNETT FLEMING VALUATION AND RATE CONSULTANTS, LLC

John F. Kredmayer

JOHN F. WIEDMAYER Project Manager, Depreciation

JFW:krm

059731.100

Gannett Fleming Valuation and Rate Consultants, LLC

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# **AMEREN MISSOURI - GAS**

## **DEPRECIATION STUDY**

#### EXECUTIVE SUMMARY

Pursuant to Ameren Missouri - Gas's ("Ameren" or "Company") request, Gannett Fleming Valuation and Rate Consultants, LLC ("Gannett Fleming") conducted a depreciation study related to the gas plant as of December 31, 2014. The purpose of this study was to determine the annual depreciation accrual rates and amounts for book and ratemaking purposes.

The annual and accrued depreciation were calculated using the straight line method, the remaining life basis and the average service life procedure. The calculations were based on attained ages and estimated service life and net salvage characteristics for each depreciable group of gas property.

The most significant change since the previous depreciation study submitted in 2010 is related to increased service lives for several major accounts which resulted in a decrease in depreciation expense. For Gas Plant, depreciation decreased \$0.903 million or approximately 8.3 percent.

Several gas plant accounts experienced increases and decreases in estimated service lives. Two of the gas distribution plant accounts that experienced the largest decreases in depreciation expense were Accounts 376, Mains and 380, Services. The service life estimates for both accounts were lengthened from 44 to 50 years for Mains and 37 to 40 years for Services. The two gas plant accounts with the largest increase in depreciation expense were Accounts 381, Meters and 383, House Regulators. The

Schedule JFW-D1 Page 6 of 138 service life estimate for Account 381 was changed from 36 to 28 years. The service life estimate for Account 383 was changed from 51 to 41 years.

Ameren Missouri's current depreciation rates are based on service life estimates that were proposed by the Commission Staff in Case No. GR-2010-0363 and were accepted by the company as part of an overall settlement agreement.

Gannett Fleming recommends the calculated annual depreciation accrual rates set forth herein apply specifically to gas plant in service as of December 31, 2014 as summarized by Table 1 of the study. Supporting analysis and calculations are provided within the study.

The study results set forth an annual depreciation expense of \$10.019 million when applied to depreciable plant balances as of December 31, 2014. The results are summarized at the functional level as follows:

FUNCTION	ORIGINAL COST AS OF DECEMBER 31, 2014	PROPOSED RATE	PROPOSED EXPENSE
Transmission Plant	\$ 5,266,879	1.62	\$ 85,274
Distribution Plant	397,642,503	2.20	8,740,732
General Plant	24,579,755	4.55	1,119,254
Amortization Accounting Adjustment	<u> </u>	-	74,000
Total	\$427,439,672		\$10,019,260

### SUMMARY OF ORIGINAL COST, ACCRUAL RATES AND AMOUNTS

PART I. INTRODUCTION

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# AMEREN MISSOURI - GAS DEPRECIATION STUDY

# PART I. INTRODUCTION

# SCOPE

This report sets forth the results of the depreciation study for Ameren Missouri - Gas ("Ameren"), as applied to gas plant in service as of December 31, 2014. The study results include annual depreciation rates and amounts for book and ratemaking purposes applicable to the original cost of gas plant as of December 31, 2014. The rates and amounts are based on the straight line method, average service life procedure using the remaining life technique. The report also describes the concepts, methods, and basic judgments which underlie recommended annual depreciation accrual rates related to gas plant in service as of December 31, 2014.

The service life and net salvage estimates resulting from the study were based on informed judgment which incorporated analyses of historical plant retirement data as recorded through 2014; a review of Company practice and outlook as they relate to plant operation and retirement; and consideration of current practice in the gas industry, including knowledge of service life and net salvage estimates used for other gas properties.

# PLAN OF REPORT

Part I, Introduction, contains statements with respect to the plan of the report, and the basis of the study. Part II, Estimation of Survivor Curves, presents descriptions of the considerations and the methods used in the service life and net salvage studies. Part III, Service Life Considerations, presents the factors and judgment utilized in the average service life analysis. Part IV, Net Salvage Considerations, presents the judgment utilized for the net salvage study. Part V, Calculation of Annual and Accrued Schedule J

Schedule JFW-D1 Page 9 of 138 Depreciation, describes the procedures used in the calculation of group depreciation. Part VI, Results of Study, presents summaries by depreciable group of annual depreciation accrual rates and amounts, as well as composite remaining lives. Part VII, Service Life Statistics presents the statistical analysis of service life estimates, Part VIII, Net Salvage Statistics sets forth the statistical indications of net salvage percents, and Part IX, Detailed Depreciation Calculations presents the detailed tabulations of annual depreciation.

# **BASIS OF THE STUDY**

### **Depreciation**

Depreciation, in public utility regulation, is the loss in service value not restored by current maintenance, incurred in connection 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.

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 gas 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.

Schedule JFW-D1 Page 10 of 138 For most accounts, the depreciation accrual rates were calculated by the straight line method using the average service life procedure and the remaining life basis. For certain General Plant accounts, the annual depreciation is based on amortization accounting. Both types of calculations were based on original cost, attained ages, and estimates of service lives and net salvage.

The straight line method, average service life procedure is a commonly used depreciation calculation procedure that has been widely accepted in jurisdictions throughout North America. Gannett Fleming recommends its continued use. Amortization accounting is used for certain General Plant accounts because of the disproportionate plant accounting effort required when compared to the minimal original cost of the large number of items in these accounts. An explanation of the calculation of annual and accrued amortization is presented beginning on page V-4 of the report.

# Service Life and Net Salvage Estimates

The service life and net salvage estimates used in the depreciation and amortization calculations were based on informed judgment which incorporated a review of management's plans, policies and outlook, a general knowledge of the gas utility industry, and comparisons of the service life and net salvage estimates from our studies of other gas utilities. The use of survivor curves to reflect the expected dispersion of retirement provides a consistent method of estimating depreciation for gas 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 through the use of widely accepted techniques, and forecasting the survivor characteristics for each depreciable group on the basis of interpretations of the historical data analyses and the

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probable future. The combination of the historical experience and the estimated future yielded estimated survivor curves from which the average service lives were derived.

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# PART II. ESTIMATION OF SURVIVOR CURVES

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#### PART II. ESTIMATION OF SURVIVOR CURVES

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

#### SURVIVOR CURVES

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

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

Schedule JFW-D1 Page 14 of 138 differences between the amount of property surviving at the beginning and at the end of each interval.

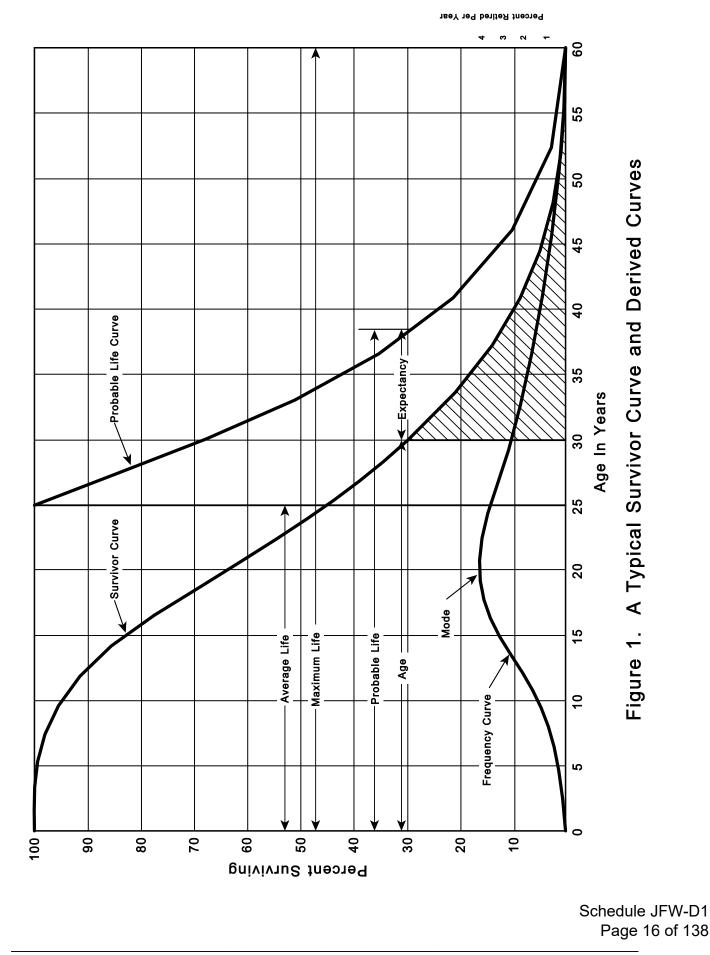
This study has incorporated the use of Iowa curves developed from a retirement rate analysis of historical retirement history. A discussion of the concepts of survivor curves and of the development of survivor curves using the retirement rate method is presented below.

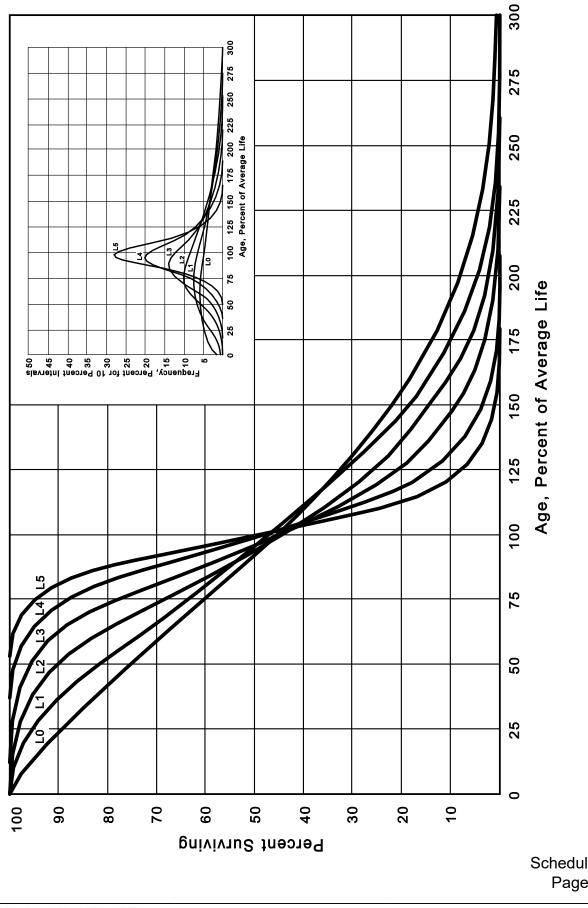
#### Iowa Type Curves

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

The lowa curves were developed at the lowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves,

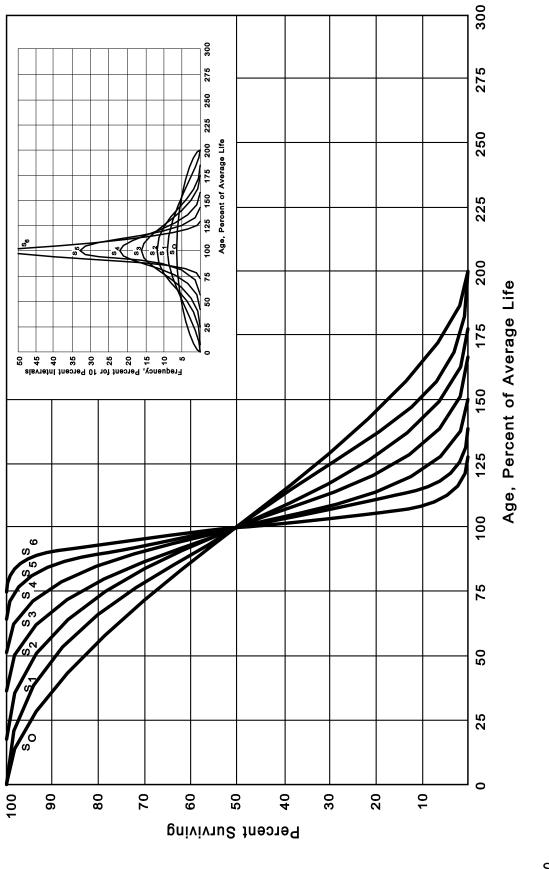
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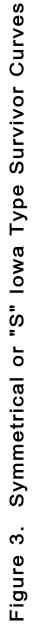




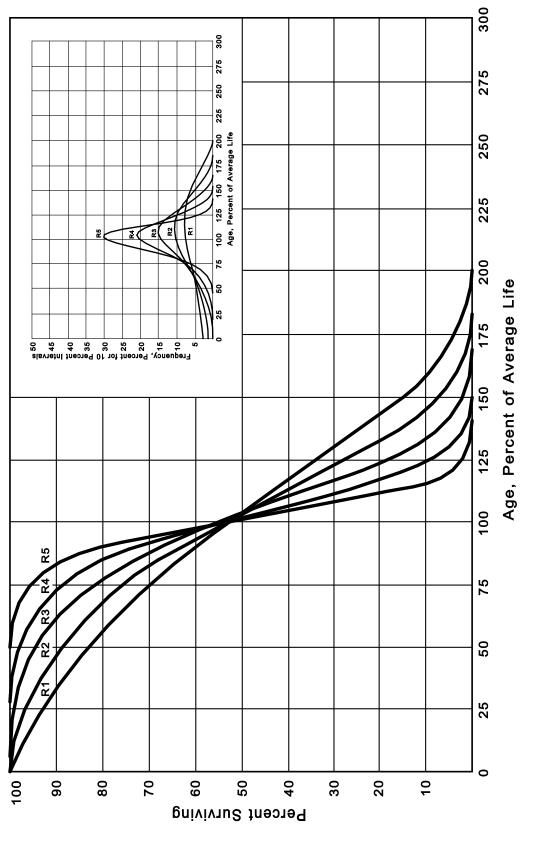


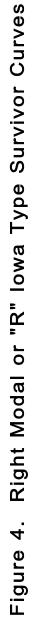
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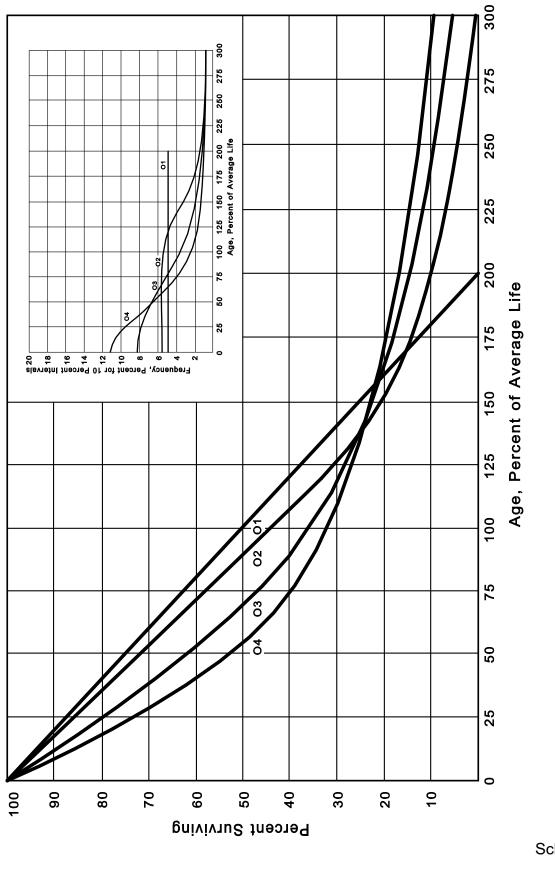


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Schedule JFW-D1 Page 20 of 138 which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125. These curve types have also been presented in subsequent Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."<sup>1</sup> In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student submitted a thesis presenting his development of the fourth family consisting of the four O type survivor curves.

#### **Retirement Rate Method of Analysis**

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

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginning of the age intervals during the same period. The period of observation is referred to as the <u>experience band</u>, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the <u>placement band</u>. 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.

<sup>&</sup>lt;sup>1</sup>Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

<sup>&</sup>lt;sup>2</sup>Winfrey, Robley, <u>Statistical Analyses of Industrial Property Retirements.</u> Iowa State College Engineering Experiment Station, Bulletin 125. 1935.

<sup>&</sup>lt;sup>3</sup>Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 1. Schedule JFW-D1 <sup>4</sup>Wolf, Frank K. and W. Chester Fitch. <u>Depreciation Systems</u>. Iowa State University Press. Page 21 of 138

#### **Schedules of Annual Transactions in Plant Records**

The property group used to illustrate the retirement rate method is observed for the experience band 2005-2014 during which there were placements during the years 2000-2014. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Schedules 1 and 2 on pages II-11 and II-12 In Schedule 1, 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 dollars invested in 2000 were retired in 2005. The \$10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval  $4\frac{1}{2}-5\frac{1}{2}$  is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2005 retirements of 2000 installations and ending with the 2014 retirements of the 2009 installations. Thus, the total amount of 143 for age interval  $4\frac{1}{2}-5\frac{1}{2}$  equals the sum of:

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

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Total During Age	2014         Age Interval         Interval           (11)         (12)         (13)	26 26 13½-14½	19 44 12½-13½	18 64 111/2-121/2	17 83 10½-11½	20 93 9½-10%	20 105 8½-9½				20 143 4½-5½				24 153 ½-1½	13 80 0-½	308 1,606
	<u>2013</u> (10)	25	22	22	16	19	16	18	19	19	19	22	22	23	11		273
	<u>2012</u> (9)	24	21	21	15	17	15	16	17	17	17	20	20	11			231
Dollars	<u>2011</u> (8)	23	20	19	14	16	14	15	16	16	16	18	6				196
Retirements, Thousands of Dollars During Year	<u>2010</u> (7)	16	18	17	13	14	13	14	15	15	14	8					157
ments, ind Durin	<u>2009</u> (6)	14	16	16	1	13	12	13	13	13	7						128
Retire	<u>2008</u> (5)	13	15	14	11	12	1	12	12	9							106
	<u>2007</u> (4)	12	13	13	10	1	10	1	9								86
	<u>2006</u> (3)	11	12	12	ი	10	ი	2									68
	<u>2005</u> (2)	10	11	11	80	റ	4										53
Year	Placed (1)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total

SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL

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#### Ameren Missouri - Gas December 31, 2014

Experience Band 2005-2014

Placement Band 2000-2014

	Age <u>Interval</u> (13)	13½-14½ 12½-13½	11½-12½	10½-11½	9½-10½	8½-9½	7½-8½	6½-7½	5½-6½	4½-5½	3½-4½	2½-3½	11/2-21/2	1/2-11/2	0-1⁄2		
	Total During <u>Age Interval</u> (12)		ı	60	·	(2)	9	ı	ı	ı	10	ı	(121)	ı	ı	(50)	
	<u>2014</u> (11)		I	I		·	ı	·		ı		·	(102) <sup>c</sup>	ı		(102)	
	<u>2013</u> (10)		·	ı			·		,	22 <sup>a</sup>	,			ı		22	
f Dollars	<u>2012</u> (9)			(5) <sup>b</sup>	6 <sup>a</sup>				(12) <sup>b</sup>		(19) <sup>b</sup>					(30)	
ousands o	<u>2011</u> (8)	60 <sup>a</sup>	ı	ı					·	·	·					60	
Sales, Tho Year	<u>2010</u> (7)			ı					ı	•	ı						
Acquisitions, Transfers and Sales, Thousands of Dollars During Year	<u>2009</u> (6)			ı					·								
ons, Trans	<u>2008</u> (5)			ı					·								
Acquisitic	<u>2007</u> (4)			ı													
	<u>2006</u> (3)			ı													
	<u>2005</u> (2)			ı													
·	Year <u>Placed</u> (1)	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total	

<sup>a</sup> Transfer Affecting Exposures at Beginning of Year <sup>b</sup> Transfer Affecting Exposures at End of Year <sup>c</sup> Sale with Continued Use

Parentheses Denote Credit Amount.

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SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL

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

#### Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 on page II-14. The surviving plant at the beginning of each year from 2005 through 2014 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2010 are calculated in the following manner:

Exposures at age 0 = amount of addition	= \$750,000
Exposures at age $\frac{1}{2}$ = \$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

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t 3 of Age		(13)			1 111/2-121/2		7 9½-10½	3 8½-9½	2 7½-8½		7 5½-6½	9 4½-5½			9 11⁄2-21⁄2		0 0-%	0
	Age Interval	(12)	167	323	531	823	1,097	1,503	1,952	2,463	3,057	3,789	4,332	4,955	5,719	6,579	7,490	44,780
	2014	(11)	167	131	162	226	261	316	356	412	482	609	663	209	926	1,069	1,220 <sup>a</sup>	7,799
	2013	(10)	192	153	184	242	280	332	374	431	501	628	685	821	949	1,080 <sup>a</sup>		6,852
ar	2012	(6)	216	174	205	262	297	347	390	448	530	623	724	841	960 <sup>a</sup>			6,017
Dollars g of the Ye	2011	(8)	239	194	224	276	307	361	405	464	546	639	742	850 <sup>a</sup>				5,247
Exposures, Thousands of Dollars al Survivors at the Beginning of the	2010	(2)	195	212	241	289	321	374	419	479	561	653	750 <sup>a</sup>					4,494
sures, Iho vivors at th	2009	(9)	209	228	257	300	334	386	432	492	574	660 <sup>a</sup>						3,872
Exposures, Inousands of Dollars Annual Survivors at the Beginning of the Year	2008	(2)	222	243	271	311	346	397	444	504	$580^{a}$							3,318
	2007	(4)	234	256	284	321	357	407	455	$510^{a}$								2,824
	2006	(3)	245	268	296	330	367	416	$460^{a}$									2,382
	2005	(2)	255	279	307	338	376	420 <sup>a</sup>										1,975
Year	Placed	(1)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	လ Total ဂ

SCHEDULE 3. PLANT EXPOSED TO RETIREMENT JANUARY 1 OF EACH YEAR 2005-2014 SUMMARIZED BY AGE INTERVAL

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For the entire experience band 2005-2014, 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  $4\frac{1}{2}$ -5 $\frac{1}{2}$ , is obtained by summing:

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

#### Original Life Table

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

Percent surviving at age 41/2	=	88.15				
Exposures at age 41/2	=	3,789,000				
Retirements from age 4½ to 5½	=	143,000				
Retirement Ratio	=	143,000	÷3	,789,000	=	0.0377
Survivor Ratio	=	1.000	-	0.0377	=	0.9623
Percent surviving at age 51/2	=	(88.15)	Х	(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.

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#### SCHEDULE 4. ORIGINAL LIFE TABLE CALCULATED BY THE RETIREMENT RATE METHOD

#### Experience Band 2005-2014

Placement Band 2000-2014

(Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	Percent Surviving at Beginning of Age Interval
(1)	(2)	(3)	(4)	(5)	(6)
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5 9.5 10.5 11.5 12.5	7,490 6,579 5,719 4,955 4,332 3,789 3,057 2,463 1,952 1,503 1,097 823 531 323	80 153 151 150 146 143 131 124 113 105 93 83 64 44	0.0107 0.0233 0.0264 0.0303 0.0337 0.0377 0.0429 0.0503 0.0579 0.0699 0.0848 0.1009 0.1205 0.1362	0.9893 0.9767 0.9736 0.9697 0.9663 0.9623 0.9571 0.9497 0.9421 0.9301 0.9152 0.8991 0.8795 0.8638	$100.00 \\98.93 \\96.62 \\94.07 \\91.22 \\88.15 \\84.83 \\81.19 \\77.11 \\72.65 \\67.57 \\61.84 \\55.60 \\48.90$
13.5	<u>    167</u>	26	0.1557	0.8443	42.24 35.66
Total	<u>44,780</u>	<u>1,606</u>			00.00

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

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

Column 4 = Column 3 Divided by Column 2.

Column 5 = 1.0000 Minus Column 4.

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

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

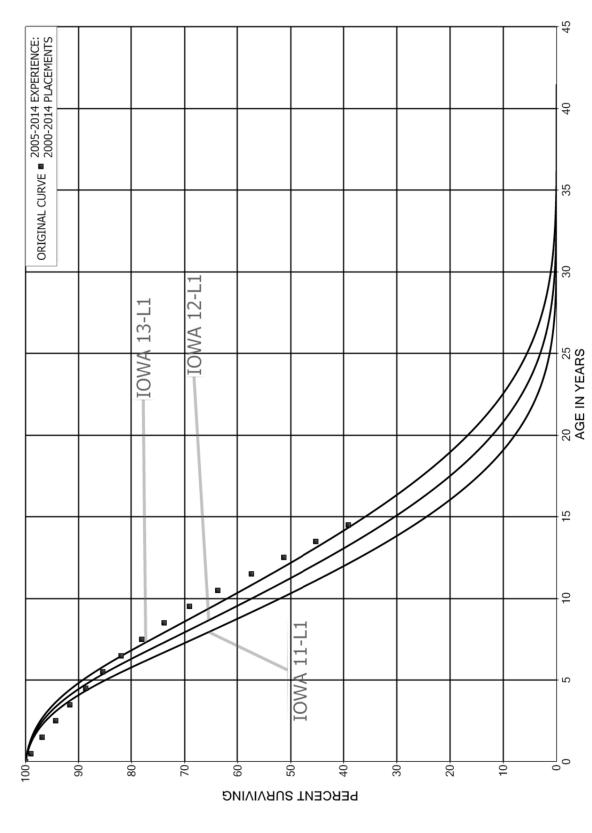
#### **Smoothing the Original Survivor Curve**

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

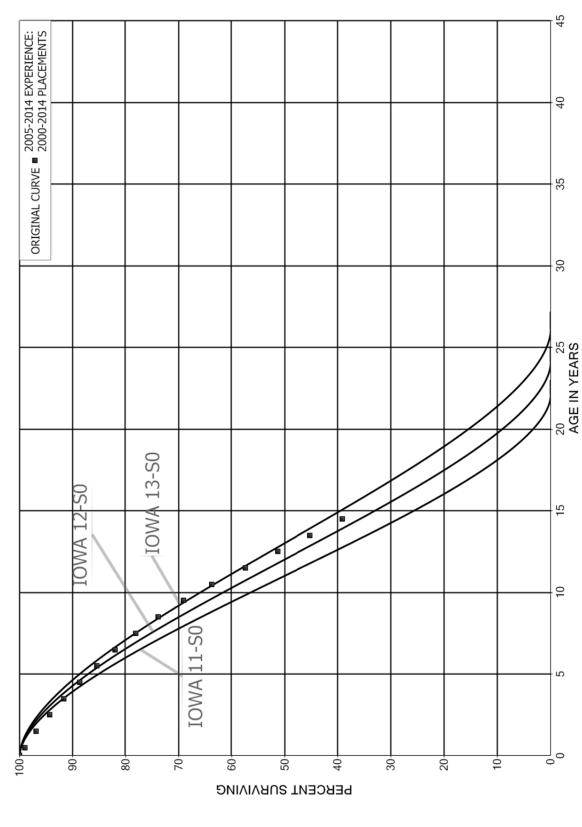
The lowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the lowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R lowa 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 lowa curve would be selected as the most representative of the plotted survivor characteristics of the group.

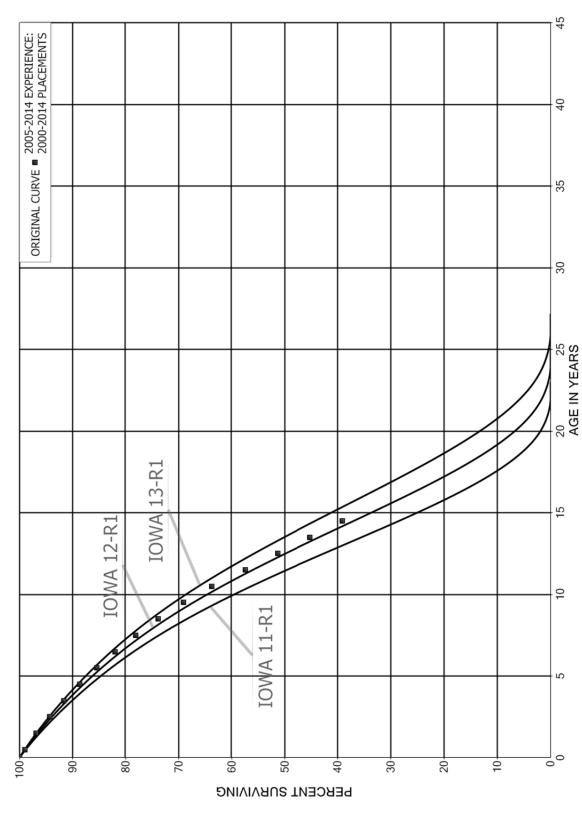
Schedule JFW-D1 Page 29 of 138 FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



Schedule JFW-D1 Page 30 of 138 FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN S0 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

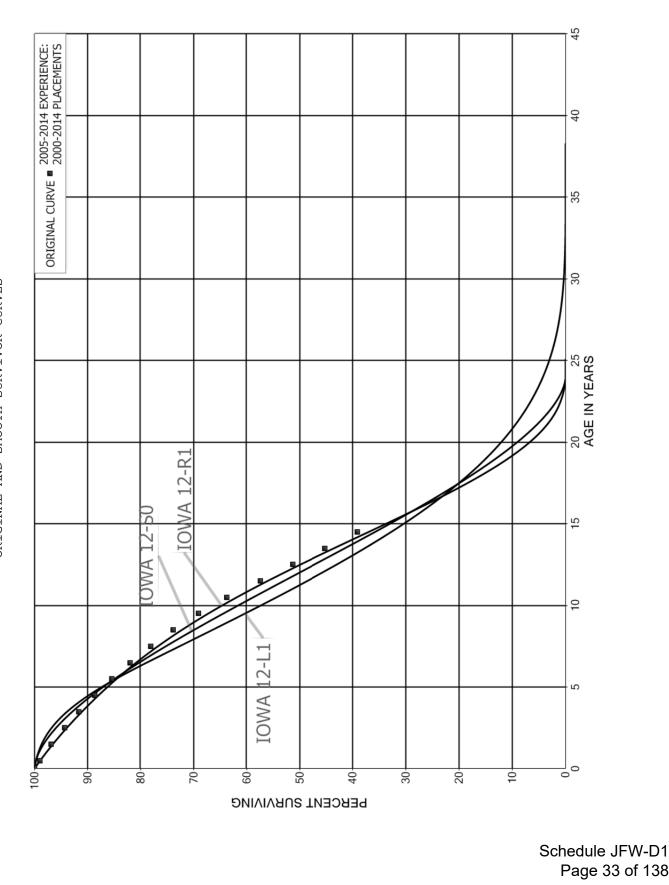


Schedule JFW-D1 Page 31 of 138 FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



II-20

Schedule JFW-D1 Page 32 of 138 FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1, S0 AND R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES



## PART III. SERVICE LIFE CONSIDERATIONS

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#### PART III. SERVICE LIFE CONSIDERATIONS

#### FIELD TRIPS

In order to be familiar with the operation of the Company and observe representative portions of the plant, a field trip was conducted for the study. 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 retirements are obtained during field trips. This knowledge and information were incorporated in the interpretation and extrapolation of the statistical analyses.

The following is a list of the locations visited during the most recent field trips.

#### <u>May 14-15, 2015</u>

Troy Operations Center Master Regulator Station at Geeding Main Replacement Project at Hawk Point Bellflower PVC Main Replacement Project Columbia Works Headquarters – New Building – Built in 2013. Loy Martin Measuring and Regulating Station – Serves Ashland, MO Columbia Measuring Station Oakland Gravel Road Regulating Station

#### SERVICE LIFE ANALYSIS

The service life estimates were based on judgment which considered a number of factors. The primary factors were the statistical analyses of data; current company policies and outlook as determined during conversations with management; and the survivor curve estimates from previous studies of this company and other gas utility companies.

For the majority of the accounts and subaccounts, the statistical analysis resulted in good to excellent indications of complete survivor patterns. These accounts represent 94% of the depreciable plant. Generally, the information external to the statistics led to no significant departure from the indicated survivor curves for the accounts listed below:

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Account No.	Account Description
376	Gas Mains
380	Gas Services
381	Gas Meters
383	House Regulators
385	Industrial Measuring & Regulating Equipment
392	Transportation Equipment
396	Power Operated Equipment

The two largest accounts, 376, Gas Mains, and 380, Gas Services, are used to illustrate the manner in which the study was conducted for the accounts in the preceding list. Aged plant accounting data have been compiled for the years through 2014. These data have been coded according to account or property group, type of transaction, year in which the transaction took place and year in which the utility plant was placed in service. The retirements, other plant transactions and plant additions were analyzed by the retirement rate method.

The survivor curve estimate for 376, Mains, is the 50-R3 and is based on the statistical indication for the period 1931 through 2014. The existing estimate is the 44-R4. A 50-R3 survivor curve is a reasonably good fit for the significant portion of original survivor curve as set forth on page VII-5. The company has used throughout its history a variety of pipe material for gas distribution mains such as cast iron, bare steel, coated steel and plastic. Additionally, all steel mains added after 1970 were cathodically protected. Cast iron and bare steel mains were used predominantly prior to 1960. Coated steel mains were installed primarily in the 1960's along with the introduction of plastic mains. The mains installed since 1970 are primarily plastic or coated and wrapped, cathodically protected steel with most mains being plastic. The majority of mains in service today are either plastic or cathodically protected, coated and wrapped steel. In the past, the Company had a higher percentage of bare steel and cash and

mains, which have shorter life expectations than plastic and cathodically protected coated and wrapped steel mains. Approximately 95% of the current investment in this account has been placed in service in the past 40 years, and as a result more emphasis was placed on the portion of the curve through age 40. The 50-R3 is an excellent fit through this age. Increasing the average service life from 44 to 50 years life is consistent with management's outlook that plastic and cathodically projected, coated and wrapped steel mains will have longer lives than the cast iron and bare steel mains that had been in service in the past. Although at the low end of the range, the average service life estimate of 50 years is within the typical service life range of 50 to 65 years for mains used by other gas companies.

The survivor curve estimate for 380, Services, is the 40-R2 and is based on the statistical indication for the period 1931 through 2014. The existing estimate is the 37-R2.5. The 40-R2 is an excellent fit of the significant portion of the original survivor curve as set forth on page VII-14. The 40 year life is consistent with management outlook and is within the typical service life range of 30-50 years for services.

Similar studies were performed for the remaining plant accounts which comprise less than 5 percent of the total depreciable plant balance. The survivor curve estimates for the remaining accounts were based on judgment incorporating the statistical analyses and previous studies for this and other gas utilities. Each of the judgments represented a consideration of statistical analyses of aged plant activity, management's outlook for the future, and the typical range of lives used by other gas companies.

The selected amortization periods used for certain general plant accounts are described in the section "Calculated Annual and Accrued Amortization." These certain

Schedule JFW-D1 Page 37 of 138 general plant accounts comprised slightly more than one percent of the depreciable plant balance.

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## PART IV. NET SALVAGE CONSIDERATIONS

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#### PART IV. NET SALVAGE CONSIDERATIONS

#### SALVAGE ANALYSIS

The estimates of net salvage were based in part on historical data compiled for the years 1984 through 2014. Cost of removal and salvage were expressed as percents of the original cost of plant retired, both on annual and three-year moving average bases. The most recent five-year average also was calculated for consideration. The net salvage estimates are expressed as a percent of the original cost of plant retired.

#### Net Salvage Considerations

The estimates of salvage were based primarily on judgment which considered a number of factors. The primary factors were the analyses of historical data, a knowledge of management's plans and operating policies, and net salvage estimates from previous studies of this company and other gas companies.

Account 380, Services, is used to illustrate the manner in which the study was conducted for the accounts in the preceding list. Depreciation reserve accounting data were compiled for the years 1984 through 2014. These data include the retirements, cost of removal and gross salvage.

The net salvage estimate for this account is negative five percent and is based on the trends in cost of removal and salvage percents as shown in the tabulation on pages VIII-14 and VIII-15. Historically the Company has experienced significant cost of removal for retirements of services, although the level of removal cost has been lower in recent years. There has been limited gross salvage, and in most years the gross salvage as a percentage of original cost has been zero. Zero percent for gross salvage is expected and consistent with management's outlook as most service lines are retired in place and most services retired in the future will be made of plastic which has little to no salvage value as scrap material. The overall average net salvage for this account of the place 40 of 138 negative 14 percent. The most recent five year average is negative 1 percent. Typical net salvage estimates for services range from negative 10 percent to as high as 200 percent. The negative 5 percent estimate for this account is below the low end of this range, but reflects the overall historical average and more recent net salvage history.

There are costs associated with retiring mains and service lines even though most are retired in place. Some of the costs are common to the installation of a new main or service, as well as the retirement of the existing asset. These costs include travel time to the job site, costs associated with digging a trench or cutting open a street or sidewalk, repaving the street and repairing the sidewalk. Some of the retirement work tasks include cutting the existing line, purging the gas and capping the line. It is expected that these costs will continue into the future. Therefore, it is reasonable to expect that removal costs will exceed the salvage value of mains and services in the future.

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# PART V. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

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### PART V. CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

#### **GROUP DEPRECIATION PROCEDURES**

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

#### Single Unit of Property

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

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

The accrued depreciation is:

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

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#### **Remaining Life Annual Accruals**

For the purpose of calculating remaining life accruals as of December 31, 2014, the depreciation reserve for each plant account is allocated among vintages in proportion to the calculated accrued depreciation for the account. Explanations of remaining life accruals and calculated accrued depreciation follow. The detailed calculations as of December 31, 2014, are set forth in the Results of Study section of the report.

#### Average Service Life Procedure

In the average service life procedure, the remaining life annual accrual for each vintage is determined by dividing future book accruals (original cost less book reserve) by the average remaining life of the vintage. The average remaining life is a directly weighted average derived from the estimated future survivor curve in accordance with the average service life procedure.

The calculated accrued depreciation for each depreciable property group represents that portion of the depreciable cost of the group which would not be allocated to expense through future depreciation accruals if current forecasts of life characteristics are used as the basis for such accruals. The accrued depreciation calculation consists of applying an appropriate ratio to the surviving original cost of each vintage of each account based upon the attained age and service life. The straight line accrued depreciation ratios are calculated as follows for the average service life procedure:

$$Ratio = 1 - \frac{Average Remaining Life}{Average Service Life}.$$

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#### CALCULATION OF ANNUAL AND ACCRUED AMORTIZATION

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 a number of accounts that represent numerous units of property, but a very small portion of depreciable gas plant in service. The accounts and their amortization periods are as follows:

<u>ACCT</u>	TITLE	AMORTIZATION PERIOD, YEARS
391,	Office Furniture and Equipment	15
391.2,	Personal Computers	5
393,	Stores Equipment	20
394,	Tools, Shop and Garage Equipment	20
395,	Laboratory Equipment	20
397,	Communication Equipment	15
398,	Miscellaneous Equipment	15

For the purpose of calculating annual amortization amounts as of December 31, 2014, 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 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.

## PART VI. RESULTS OF STUDY

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#### PART VI. RESULTS OF STUDY

#### **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 were calculated in accordance with the straight line remaining life method of depreciation using the average service life procedure based on estimates which reflect considerations of current historical evidence and expected future conditions.

The annual depreciation accrual rates are applicable specifically to the utility plant in service as of December 31, 2014. For most plant accounts, the application of such rates to future balances that reflect additions subsequent to December 31, 2014, is reasonable for a period of three to five years.

#### **DESCRIPTION OF SUMMARY TABULATIONS**

Table 1 is a summary of the results of the study as applied to the original cost of gas plant at December 31, 2014 presented on pages VI-4 and VI-5 of this report. Table 1 presents the remaining life accrual rates and amounts for each plant account.

#### **DESCRIPTION OF DETAILED TABULATIONS**

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

The service life estimates were based on judgment that incorporated statistical analysis of retirement data, discussions with management and consider and retirement data, discussions with management and consider and Page 48 of 138

estimates made for other gas utilities. The results of the statistical analysis of service life are presented in the section beginning on page VII-2, within the supporting documents of this report.

For each depreciable group analyzed by the retirement rate method, a chart depicting the original and estimated survivor curves followed by a tabular presentation of the original life table(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 percent to zero percent 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 where 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 analyses of salvage data are presented in the section titled, "Net Salvage Statistics". The tabulations present annual cost of removal and salvage data, three-year moving averages and the most recent five-year average. Data are shown in dollars and as percentages of original costs retired.

The tables of the calculated annual depreciation applicable to depreciable assets as of December 31, 2014 are presented in account sequence starting on page IX-2 of the supporting documents. The tables indicate the estimated survivor curve and net salvage percent for the account and set forth, for each installation year, the original cost, the calculated accrued depreciation, the allocated book reserve, future accruals, the remaining life, and the calculated annual accrual amount.

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VI-3

AMEREN MISSOURI GAS DIVISION
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# TABLE 1. SUMMARY OF ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENTS AND CALCULATED REMAINING LIFE ANNUAL ACCRUAL RATES AND AMOUNTS RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

COMPOSITE REMAINING LIFF	(9)=(6)/(2)		36.0 31.8		20.5 26.9 26.9 26.9 26.0 26.0 26.0		37.3	0.0 12.7	0.0 2.5	7.2 0.0	0.0 11.7	0.0 11.4	
TED CRUAL RATF	(8)=(7)/(4)		1.62 0.88	1.62	4.50 2.43 2.57 1.78 5.56 2.54 2.55 2.54	2.20	2.76	0.00 6.67 5.62	0.00 20.00 7.21	7.16 0.00	0.00 5.00 2.96	0.00 5.00 2.74	
CALCULATED ANNUAL ACCRUAL AMOUNT RAT	I		84,913 361	85,274	3,411 4,792,722 108,344 12,882 2,130,713 1,117,998 541,086 33,656	8,740,732	249,425		- 25,175 25,175	515,822 -	- 92,308 92,308	- 3,654 3,654	
FUTURE ACCRIIAI S	(9)		3,060,952 11,495	3,072,447	69,920 175,589,488 2,909,451 375,167 64,472,751 18,149,069 14,572,955 14,572,955 875,105	277,013,906	9,306,662	- 305, 738 305, 738	63,318 63,318	3,730,339 -	1,084,265 1,084,265	- 41,594 41,594	
BOOK RESERVE AT 12/31/2014	(5)		2,426,325 31,450	2,457,776	9, 670 72, 809, 928 1, 656, 098 146, 905 61, 355, 295 1, 955, 295 1, 955, 295 4, 039, 188 449, 192	142,417,201	174,461	67,724 56,263 123,987	223,288 62,556 285,844	2,608,055 6,755	1,277,100 761,874 2,038,974	60,278 31,505 91,783	
ORIGINAL COST AT 12/31/2014	(4)		5,225,979 40,900	5,266,879	75,800 236,570,873 4,348,141 497,212 119,831,472 20,104,994 14,889,714 1,324,296	397,642,503	9,029,641	67,724 362,001 429,724	223,288 125,874 349,162	7,202,721 6,755	1,277,100 1,846,139 3,123,239	60,278 73,099 133,377	
NET SALV %	(3)		(5) (5)		0 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)		(2)	00	0 0	12 0	00	00	
SURVIVOR CLIRVE	(2)		50 - R3 45 - R1.5		40 - R2 50 - R3 40 - R1 40 - R1 40 - R1 28 - 82 28 - 82 35 - R1 35 - R1		40 - R1	FULLY ACCRUED 15 - SQ	FULLY ACCRUED 5 - SQ	11.5 - L3 FULLY ACCRUED	FULLY ACCRUED 20 - SQ	FULLY ACCRUED 20 - SQ	
DEPRECIARI E GROUIP	(1)	DEPRECIABLE PLANT	<b>TRANSMISSION PLANT</b> MAINS MEASURING AND REGULATING STATION EQUIPMENT	TOTAL TRANSMISSION PLANT	DISTRIBUTION PLANT STRUCTURES AND IMPROVEMENTS GAS MAINS MEASURING AND REGULATING STATION EQUIP GENERAL MEASURING AND REGULATING STATION EQUIP CITY GATE SERVICES METERS HOUSE REGULATORS INDUSTRIAL MEASURING AND REGULATING EQUIPMENT	TOTAL DISTRIBUTION PLANT	GENERAL PLANT STRUCTURES AND IMPROVEMENTS OFFICE ET IENTITIEE AND ECHTIEMENT	FULLY ACCRUED AMORTIZED TOTAL OFFICE FURNITURE AND EQUIPMENT	OFFICE FURNITURE AND EQUIPMENT - COMPUTERS FULLY ACCRUED AMORTIZED TOTAL OFFICE FURNITURE AND EQUIPMENT - COMPUTERS	TRANSPORTATION EQUIPMENT STORES EQUIPMENT	TOOLS, SHOP, AND GARAGE EQUIPMENT FULLY ACCRUED AMORTIZED TOTAL TOOLS, SHOP, AND GARAGE EQUIPMENT	LABORATORY EQUIPMENT FULLY ACCRUED AMORTIZED TOTAL LABORATORY EQUIPMENT	
		DEPRE	367 369		375 376 378 379 381 381 383		390 301	-	391.2	392 393	394	365 <b>S</b>	chedule JFW-D1 Page 50 of 138

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	TABLE CALCULATED REMAINING	: 1. SUMI LIFE AN	ATED SURVIV RATES AND	OR CURVES, NET SAL AMOUNTS RELATED 1	.VAGE PERCENTS AND FO ORIGINAL COST AT D	JECEMBER 31, 2014	CALCULATED	ATED	COMPOSITE
	DEPRECIABLE GROUP (1)	SURVIVOR CURVE (2)	NET SALV, % (3)	ORIGINAL COST AT 12/31/2014 (4)	BOOK RESERVE AT 12/31/2014 (5)	FUTURE ACCRUALS (6)	ANNUAL ACCRUAL AMOUNT RAT (7) (8)=(7	CCRUAL RATE (8)=(7)(4)	REMAINING LIFE (9)=(6)/(7)
396		16 - S2.5	16	3,231,037	855,701	1,858,370	172,344	5.33	10.8
297	CUMMUNICATIONS EQUIPMENT FULLY ACCRUED AMORTIZED TO TAL COMMUNICATIONS EQUIPMENT	FULLY ACCRUED 15 - SQ	00	528,378 542,384 1,070,762	528,378 258,306 786,684	- 284,078 284,078	- 36,160 36,160	0.00 6.67 3.38	0.0 7.9
398	MISCELLANEOUS EQUIPMENT	15 - SQ	0	3,336	1,446	1,890	222	6.67	8.5
	TOTAL GENERAL PLANT			24,579,755	6,973,691	16,676,254	1,119,254	4.55	
TOTAL	TOTAL DEPRECIABLE PLANT			427,489,137	151,848,667	296,762,607	9,945,260	2.33	
<b>AMORT</b> 391 391.2 393 395 395 395 398	AMORTIZATION ACCOUNTING ADJUSTMENT 391 OFFICE FURNITURE AND EQUIPMENT 391.2 OFFICE FURNITURE AND EQUIPMENT - COMPUTERS 303 STORES EQUIPMENT 304 TOOLS, SHOP, AND GARAGE EQUIPMENT 305 TOOLS, SHOP, AND GARAGE EQUIPMENT 307 COMMUNICATIONS EQUIPMENT 308 MISCELLANEOUS EQUIPMENT				(66,560) 106,086 (1,965) (275,173) (15,5473) (15,660) (116,660) (629)		13,312 * (21,217) * 393 * 55,035 * 3,020 * 23,332 * 126 *		
TOTAL	TOTAL AMORTIZATION ACCOUNTING ADJUSTMENT				(370,000)		74,000		
ACCOU 305 311 365.1 365.2 366 374 387 387 389	ACCOUNTS NOT STUDIED 305 STRUCTURES AND IMPROVEMENTS 311 LIQUEFIED PETROLEUM GAS EQUIPMENT 365.1 LAND AND LAND RIGHTS 366 STRUCTURES AND IMPROVEMENTS 366 STRUCTURES AND IMPROVEMENTS 374 LAND AND LAND RIGHTS 387 OTHER EQUIPMENT 389 LAND AND LAND RIGHTS			- 1,282 118,250 1,656,776 2,174,227	(17,031) (759,970) - 3,497 (5,568)				
TOTAL	TOTAL ACCOUNTS NOT STUDIED TOTAL GAS PLANT			3,950,535 431,439,672	(779,063) 150,699,604		10,019,260		

\* 5-year amortization of reserve related to the implementation of amortization accounting.

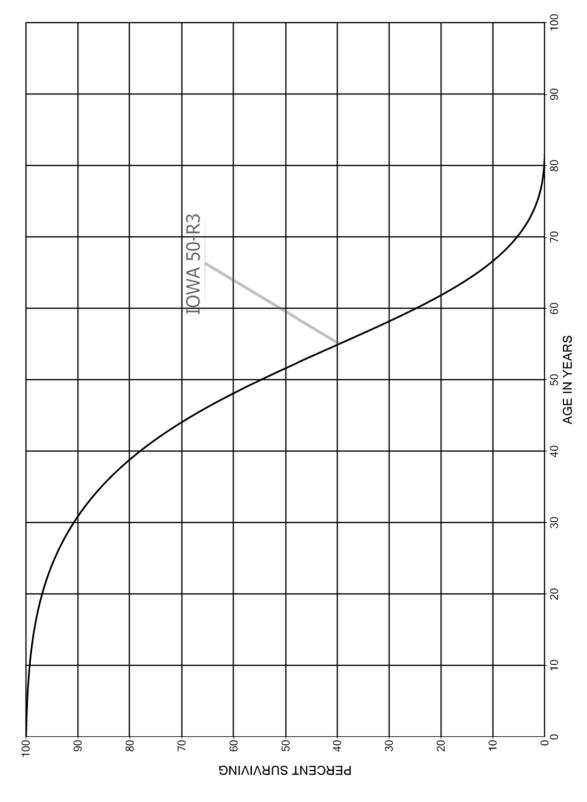
AMEREN MISSOURI GAS DIVISION

# Ameren Missouri - Gas December 31, 2014

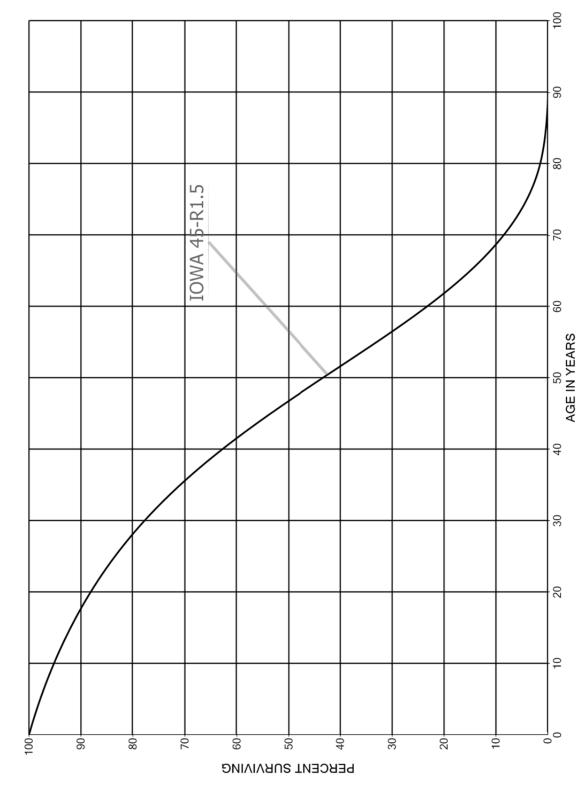
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# PART VII. SERVICE LIFE STATISTICS

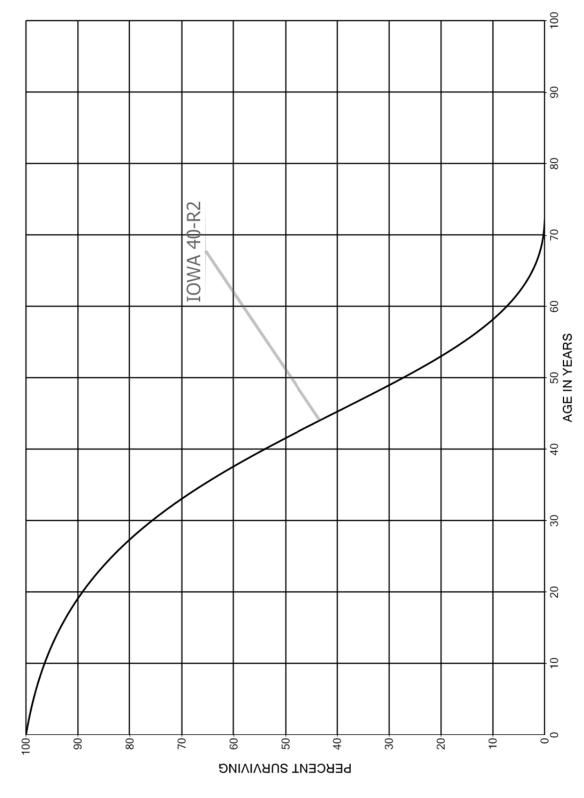
Schedule JFW-D1 Page 52 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 367 TRANSMISSION MAINS SMOOTH SURVIVOR CURVE



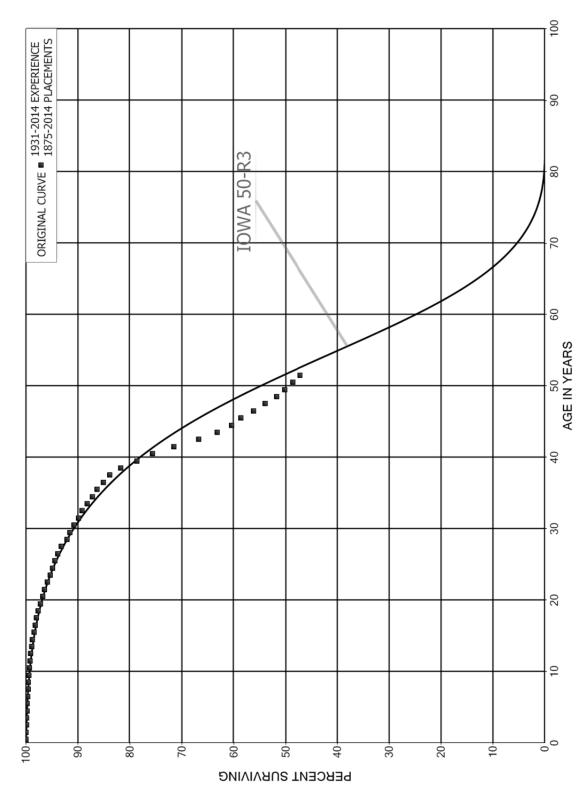
Schedule JFW-D1 Page 53 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 369 TRANSMISSION MEASURING & REGULATING STATION EQUIPMENT SMOOTH SURVIVOR CURVE



Schedule JFW-D1 Page 54 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 375 STRUCTURES AND IMPROVEMENTS SMOOTH SURVIVOR CURVE



AMEREN MISSOURI GAS DIVISION ACCOUNT 376 MAINS ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 376 MAINS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1875-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	240,849,960	56,100	0.0002	0.9998	100.00
0.5	224,905,107	76,415	0.0003	0.9997	99.98
1.5	222,077,324	135,234	0.0006	0.9994	99.94
2.5	218,555,793	206,991	0.0009	0.9991	99.88
3.5 4.5	213,553,295 204,848,070	119,895 69,461	0.0006	0.9994 0.9997	99.88 99.79 99.73
5.5	194,591,332	110,703	0.0006	0.9994	99.70
6.5	181,544,212	167,690	0.0009	0.9991	99.64
7.5	176,144,270	107,122	0.0006	0.9994	99.55
8.5	166,349,255	139,581	0.0008	0.9992	99.49
9.5	154,235,513	239,447	0.0016	0.9984	99.40
10.5	145,637,362	176,640	0.0012	0.9988	99.25
11.5	136,635,387	157,411	0.0012	0.9988	99.13
12.5	128,495,637	183,104	0.0014	0.9986	99.02
13.5	121,108,462	222,154	0.0018	0.9982	98.87
14.5	113,679,707	318,700	0.0028	0.9972	98.69
15.5	106,121,179	290,801	0.0027	0.9973	98.42
16.5	100,668,911	246,877	0.0025	0.9975	98.15
17.5	91,770,176	287,415	0.0031	0.9969	97.91
18.5 19.5	83,251,519 76,090,053	337,884 334,287	0.0041	0.9959	97.60 97.20
20.5	69,803,102	305,275	0.0044	0.9956	96.78
21.5	64,439,525	328,637	0.0051	0.9949	96.35
22.5	60,201,690	334,722	0.0056	0.9944	95.86
23.5	56,111,051	262,905	0.0047	0.9953	95.33
24.5	51,691,754	286,092	0.0055	0.9945	94.88
25.5	48,666,868	294,503	0.0061	0.9939	94.36
26.5	45,197,478	272,125	0.0060	0.9940	93.79
27.5	41,051,218	500,919	0.0122	0.9878	93.22
28.5	37,041,452	225,431	0.0061	0.9939	92.08
29.5	34,209,796	291,221	0.0085	0.9915	91.52
30.5	32,331,449	315,675		0.9902	90.74
31.5	30,750,147	227,433	0.0074	0.9926	89.86
32.5	29,339,663	320,255	0.0109	0.9891	89.19
33.5	27,803,053	318,906	0.0115	0.9885	88.22
34.5	26,521,841	281,074	0.0106	0.9894	87.21
35.5	25,760,537	363,118	0.0141	0.9859	86.28
36.5	24,498,432	343,854	0.0140	0.9860	85.07
37.5	23,642,022	606,425	0.0257	0.9743	83.87
38.5	22,682,525	865,572		0.9618	81.72

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### ACCOUNT 376 MAINS

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1875-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5	21,415,366 20,155,240	810,163 1,104,414	0.0378 0.0548	0.9622 0.9452	78.60 75.63
41.5	18,733,560	1,247,131	0.0666	0.9334	71.49
42.5	17,100,581	914,659	0.0535	0.9465	66.73
43.5	14,983,515	665,413	0.0444	0.9556	63.16
44.5	13,872,043	404,371	0.0292	0.9708	60.35
45.5	12,526,334	509,049	0.0406	0.9594	58.59
46.5	10,887,588	438,074	0.0402	0.9598	56.21
47.5	5,538,709	224,085	0.0405	0.9595	53.95
48.5	4,196,638	133,306	0.0318	0.9682	51.77
49.5	3,256,130	98,212	0.0302	0.9698	50.12
50.5	2,942,547	85,796	0.0292	0.9708	48.61
51.5	2,384,832	88,413	0.0371	0.9629	47.19
52.5	2,057,767	82,556	0.0401	0.9599	45.44
53.5	1,404,699	75,756	0.0539	0.9461	43.62
54.5	1,264,793	50,171	0.0397	0.9603	41.27
55.5	1,130,616	116,735	0.1032	0.8968	39.63
56.5	925,373	53,172	0.0575	0.9425	35.54
57.5	814,300	35,178	0.0432	0.9568	33.50
58.5	730,760	50,410	0.0690	0.9310	32.05
59.5	568,769	19,545	0.0344	0.9656	29.84
60.5	452,974	14,910	0.0329	0.9671	28.81
61.5	402,598	11,449	0.0284	0.9716	27.87
62.5	311,576	24,867	0.0798	0.9202	27.07
63.5	278,707	8,707	0.0312	0.9688	24.91
64.5	241,597	22,565	0.0934	0.9066	24.13
65.5	216,664	14,861	0.0686	0.9314	21.88
66.5	195,513	24,103	0.1233	0.8767	20.38
67.5	164,247	6,847	0.0417	0.9583	17.87
68.5	144,520	4,977	0.0344	0.9656	17.12
69.5	138,481	27,954	0.2019	0.7981	16.53
70.5	110,415	11,687	0.1058	0.8942	13.20
71.5	96,876	11,813	0.1219	0.8781	11.80
72.5	83,048	9,819	0.1182	0.8818	10.36
73.5	60,893	2,821	0.0463	0.9537	9.14
74.5	46,163	4,852	0.1051	0.8949	8.71
75.5	35,001	4,012	0.1146	0.8854	7.80
76.5	30,941	5,483	0.1772	0.8228	6.90
77.5	25,444	2,123	0.0834	0.9166	5.68
78.5	23,321	1,057	0.0453	0.9547	5.21

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### ACCOUNT 376 MAINS

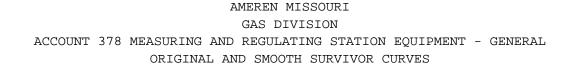
### ORIGINAL LIFE TABLE, CONT.

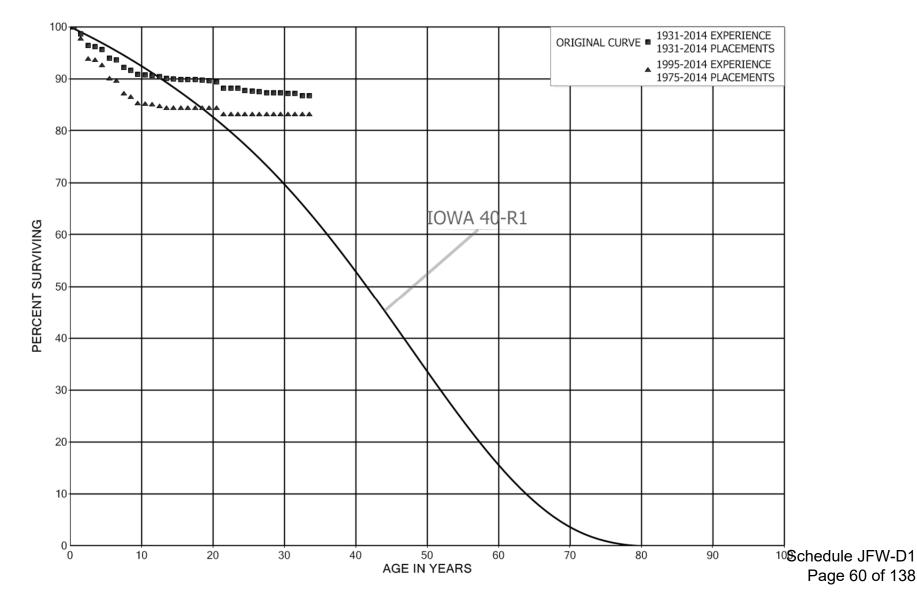
PLACEMENT BAND 1875-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5 80.5 81.5 82.5 83.5 84.5 85.5 86.5 87.5	22,162 20,747 18,251 15,351 3,878 2,031 1,698 1,607 1,607	1,409 178 2,375 150 60 9 91	0.0636 0.1301 0.0098 0.0154 0.0044 0.0536 0.0000 0.0000	0.9364 0.9914 0.8699 0.9902 0.9846 0.9956 0.9464 1.0000 1.0000	4.97 4.65 4.61 4.01 3.97 3.91 3.90 3.69 3.69
88.5 89.5 90.5 91.5 92.5 93.5 94.5 95.5 96.5 97.5 98.5	1,607 1,607 1,520 1,150 1,097 1,097 1,082 949 838 769 762 624	87 370 53 14 134 111 69 7 138	0.0540 0.2437 0.0461 0.0000 0.0129 0.1236 0.1166 0.0820 0.0097 0.1814 0.0000	0.9460 0.7563 0.9539 1.0000 0.9871 0.8764 0.8834 0.9180 0.9903 0.8186 1.0000	3.69 3.49 2.64 2.52 2.52 2.48 2.18 1.92 1.77 1.75 1.43
99.5 100.5 101.5 102.5 103.5 104.5 105.5 106.5 107.5	624 217 217 163 163 163 163 109	229 54	$\begin{array}{c} 0.3672 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.0000 \\ 0.3323 \\ 0.0000 \end{array}$	0.6328 1.0000 1.0000 1.0000 1.0000 1.0000 0.6677 1.0000	1.43 0.91 0.91 0.91 0.91 0.91 0.91 0.60 0.60

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### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

### ORIGINAL LIFE TABLE

### EXPERIENCE BAND 1931-2014

PLACEMENT BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5	5,391,348 5,133,407 4,730,916 4,786,630 4,677,812 4,532,853 4,228,468 4,045,024	3,774 66,381 107,385 9,754 28,511 79,831 13,285 65,388	0.0007 0.0129 0.0227 0.0020 0.0061 0.0176 0.0031 0.0162	0.9993 0.9871 0.9773 0.9980 0.9939 0.9824 0.9969 0.9838	100.00 99.93 98.64 96.40 96.20 95.62 93.93 93.64
7.5	3,880,550 3,812,062	19,624 34,601	0.0051	0.9949 0.9909	92.12 91.66
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5	3,520,471 3,279,573 3,111,584 3,102,111 2,686,166 2,433,449 2,318,560 2,218,805	2,527 4,309 9,473 10,931 4,291 3,081	0.0007 0.0013 0.0030 0.0035 0.0016 0.0013 0.0000 0.0000	0.9993 0.9987 0.9970 0.9965 0.9984 0.9987 1.0000 1.0000	90.83 90.76 90.64 90.37 90.05 89.90 89.79 89.79
17.5 18.5	2,218,803 2,117,776 2,083,448	2,608 1,923	0.0012	0.9988 0.9991	89.79 89.79 89.68
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	2,062,796 1,990,087 1,838,214 1,784,974 1,734,933 1,650,644 1,609,636 1,537,132 1,455,414 1,323,059	5,887 26,473 506 7,184 1,778 2,594 4,758	0.0029 0.0133 0.0000 0.0003 0.0041 0.0011 0.0016 0.0031 0.0000 0.0000	0.9971 0.9867 1.0000 0.9997 0.9959 0.9989 0.9984 0.9969 1.0000 1.0000	89.60 89.34 88.15 88.15 88.13 87.76 87.67 87.53 87.25 87.25
29.5 30.5 31.5 32.5 33.5 34.5 35.5 36.5 37.5 38.5	1,281,131 1,245,736 913,611 708,560 599,807 585,382 572,612 560,347 547,385 522,941	1,306 4,312 166 5,641 2,115 3,563 133 7,092 1,145	0.0010 0.0000 0.0047 0.0094 0.0036 0.0062 0.0002 0.0130 0.0022	0.9990 1.0000 0.9953 0.9998 0.9906 0.9964 0.9938 0.9998 0.9998 0.9870 0.9978	87.25 87.17 87.17 86.75 86.73 85.92 85.61 85.08 85.06 83.95

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### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1931-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5 47.5	508,229 454,023 425,795 411,193 366,995 346,720 325,443 282,127 208,307	1,181 32 1,373	0.0000 0.0000 0.0000 0.0032 0.0000 0.0000 0.0001 0.0001 0.0066	1.0000 1.0000 1.0000 0.9968 1.0000 1.0000 0.9999 0.9934	83.77 83.77 83.77 83.77 83.77 83.50 83.50 83.50 83.50 83.49
47.5	181,538	1,373 40	0.0008	0.9934	82.94
49.5 50.5 51.5 52.5	158,107 146,735 126,116 104,801	711 1,195 268 665	0.0045 0.0081 0.0021 0.0063	0.9955 0.9919 0.9979 0.9937	82.92 82.55 81.88 81.70
53.5 54.5 55.5 56.5	69,462 59,409 53,680 49,853	740	0.0000 0.0000 0.0138 0.0000	1.0000 1.0000 0.9862 1.0000	81.18 81.18 81.18 80.06
57.5 58.5	43,240 35,128	491	0.0000 0.0140	1.0000 0.9860	80.06 80.06
59.5 60.5 61.5 62.5 63.5	30,688 28,842 21,550 16,281 13,931	400 384 414	0.0000 0.0139 0.0000 0.0236 0.0297	1.0000 0.9861 1.0000 0.9764 0.9703	78.95 78.95 77.85 77.85 76.01
64.5 65.5 66.5 67.5 68.5	9,272 5,719 2,872 2,425 554	1,980 1,478	0.0000 0.3463 0.0000 0.6095 0.0000	1.0000 0.6537 1.0000 0.3905 1.0000	73.76 73.76 48.22 48.22 18.83
69.5 70.5 71.5 72.5 73.5 74.5	122 122 122 122 122 122		0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000	18.83 18.83 18.83 18.83 18.83 18.83 18.83

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### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

### ORIGINAL LIFE TABLE

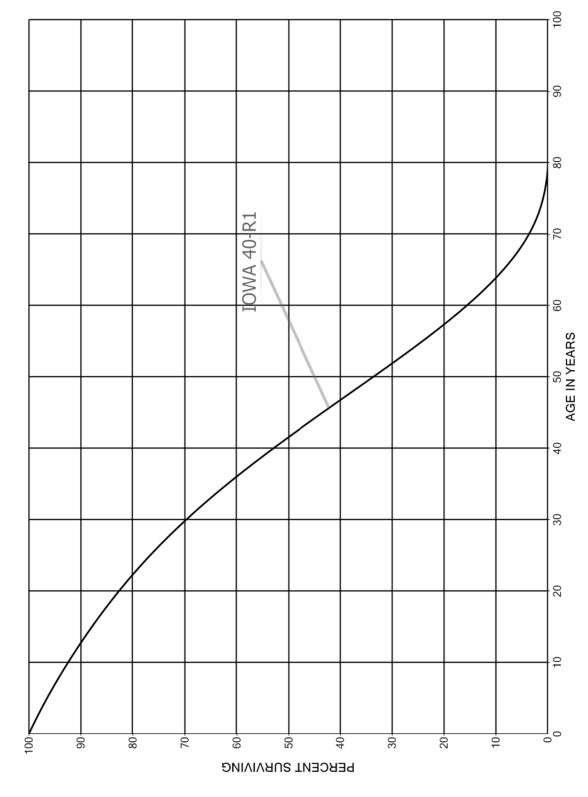
### EXPERIENCE BAND 1995-2014

PLACEMENT BAND 1975-2014

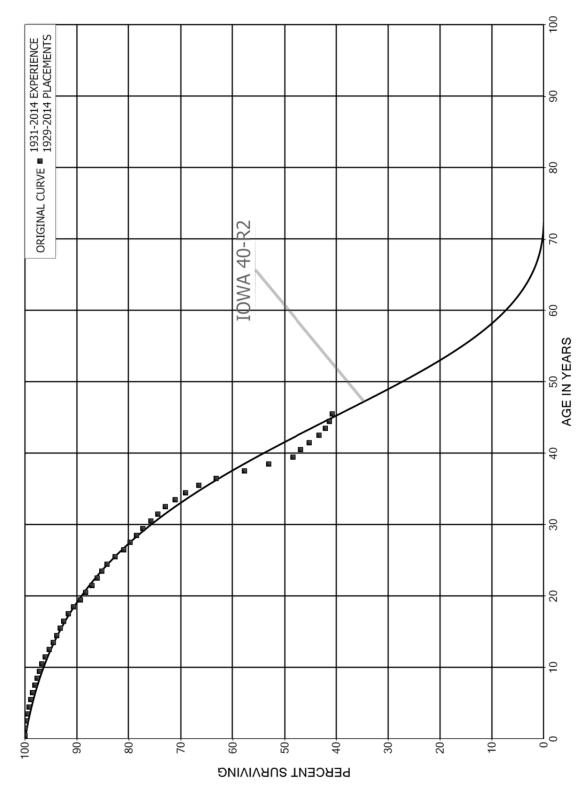
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	3,105,234 2,973,986 2,696,377 2,865,707 2,824,477 2,789,693 2,527,113 2,418,442 2,339,567 2,422,472	3,353 66,381 107,385 9,754 28,142 78,414 12,660 63,602 19,358 33,246	0.0011 0.0223 0.0398 0.0034 0.0100 0.0281 0.0050 0.0263 0.0083 0.0137	0.9989 0.9777 0.9602 0.9966 0.9900 0.9719 0.9950 0.9737 0.9917 0.9863	100.00 99.89 97.66 93.77 93.45 92.52 89.92 89.47 87.12 86.40
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	2,174,165 1,967,359 2,131,566 2,325,452 2,019,492 1,779,850 1,678,697 1,587,644 1,499,444 1,485,076	2,524 4,238 6,853 9,533	0.0012 0.0022 0.0032 0.0041 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	0.9988 0.9978 0.9968 0.9959 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	85.21 85.11 84.93 84.66 84.31 84.31 84.31 84.31 84.31 84.31
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	1,500,347 1,433,526 1,287,691 1,234,452 1,184,916 1,107,812 1,068,582 998,671 921,712 789,357	20,434	0.0000 0.0143 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 0.9857 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	84.31 84.31 83.11 83.11 83.11 83.11 83.11 83.11 83.11 83.11
29.5 30.5 31.5 32.5 33.5 34.5 35.5 36.5 37.5 38.5	747,428 713,340 381,215 180,476 71,888 63,104 52,449 43,747 30,918 13,567		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	83.11 83.11 83.11 83.11 83.11 83.11 83.11 83.11 83.11 83.11
39.5					83.11 Sche

<sup>83.11</sup> Schedule JFW-D1 Page 63 of 138

ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE SMOOTH SURVIVOR CURVE AMEREN MISSOURI GAS DIVISION



AMEREN MISSOURI GAS DIVISION ACCOUNT 380 SERVICES ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 380 SERVICES

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1929-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	134,616,971	6,061	0.0000	1.0000	100.00
0.5	131,158,597	106,886	0.0008	0.9992	100.00
1.5	127,219,914	232,497	0.0018	0.9982	99.91
2.5	123,751,711	297,241	0.0024	0.9976	99.73
3.5	119,649,218	352,348		0.9971	99.49
4.5	115,001,457	396,697	0.0034	0.9966	99.20
5.5	108,758,911	394,123	0.0036	0.9964	98.86
6.5	102,625,149	461,605	0.0045	0.9955	98.50
7.5	100,903,379	411,612	0.0041	0.9959	98.06
8.5	96,465,871	433,516	0.0045	0.9955	97.66
o.5 9.5	90,405,871	433,518	0.0045	0.9955	97.88
10.5	85,312,955	650,004	0.0076	0.9924	96.77
11.5	80,328,040	649,761	0.0081	0.9919	96.04
12.5	75,627,161	604,881	0.0080	0.9920	95.26
13.5	71,460,593	498,293	0.0070	0.9930	94.50
14.5	67,290,028	469,866	0.0070	0.9930	93.84
15.5	62,554,585	485,226	0.0078	0.9922	93.18
16.5 17.5	57,782,933 53,249,770	501,450 633,853	0.0087	0.9913	92.46 91.66
18.5	48,468,241	707,925	0.0146	0.9854	90.57
19.5	43,177,943	478,363	0.0111	0.9889	89.24
20.5	38,400,685	496,014	0.0129	0.9871	88.26
21.5	34,520,681	403,498	0.0117	0.9883	87.12
22.5	31,257,182	344,400	0.0110	0.9890	86.10
23.5	28,127,222	312,987	0.0111	0.9889	85.15
24.5	25,105,453	460,274	0.0183		84.20
25.5	22,375,325	450,594	0.0201	0.9799	82.66 80.99
26.5 27.5 28.5	19,555,000 17,018,368 15,017,338	318,012 252,119 229,250	0.0148	0.9852	79.68 78.50
29.5	13,319,293	263,100	0.0198	0.9802	77.30
30.5	11,844,907	222,447	0.0188	0.9812	75.77
31.5	10,612,283	201,745	0.0190	0.9810	74.35
32.5	9,289,722	239,210	0.0258	0.9742	72.93
33.5	8,169,557	229,571	0.0281	0.9719	71.06
34.5	7,133,278	264,812	0.0371	0.9629	69.06
35.5	6,164,377	304,770	0.0494	0.9506	66.50
36.5	5,385,320	470,827	0.0874	0.9126	63.21
37.5	4,633,459	373,573	0.0806	0.9194	57.68
38.5	3,932,364	342,088	0.0870	0.9130	53.03

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### ACCOUNT 380 SERVICES

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	3,308,066	107,697	0.0326	0.9674	48.42
40.5	3,020,307	107,801	0.0357	0.9582	46.84
41.5	2,753,868	115,175	0.0418	0.9582	45.17
42.5	2,366,133	67,775	0.0286	0.9714	43.28
43.5	1,948,290	34,718	0.0178	0.9822	42.04
44.5	1,589,022	22,471	0.0141	0.9859	41.29
45.5	1,267,731	16,677	0.0132	0.9868	40.71
46.5	968,436	27,621	0.0285	0.9715	40.17
47.5	385,731	9,126	0.0237	0.9763	39.03
48.5	316,815	11,221	0.0354	0.9646	38.10
49.5	266,926	9,674	0.0362	0.9638	36.75
50.5	252,642	9,047	0.0358	0.9642	35.42
51.5	220,316	3,745	0.0170	0.9830	34.15
52.5	210,286	3,982	0.0189	0.9811	33.57
53.5	199,281	2,502	0.0126	0.9874	32.94
54.5	191,473	4,911	0.0256	0.9744	32.52
55.5	171,527	5,410	0.0315	0.9685	31.69
56.5	154,457	2,811	0.0182	0.9818	30.69
57.5	144,975	1,799	0.0124	0.9876	30.13
58.5	138,554	4,961	0.0358	0.9642	29.76
59.5	127,910	742	0.0058	0.9942	28.69
60.5	125,456	2,079	0.0166	0.9834	28.53
61.5	122,852	1,525	0.0124	0.9876	28.05
62.5	120,092	867	0.0072	0.9928	27.70
63.5	118,664	738	0.0062	0.9938	27.50
64.5	115,984	4,843	0.0418	0.9582	27.33
65.5	110,675	4,490	0.0406	0.9594	26.19
66.5	105,180	1,506	0.0143	0.9857	25.13
67.5	103,127	786	0.0076	0.9924	24.77
68.5	101,848	164	0.0016	0.9984	24.58
69.5	101,549	6,069	0.0598	0.9402	24.54
70.5	95,024	2,621	0.0276	0.9724	23.07
71.5	92,403	2,906	0.0315	0.9685	22.44
72.5	89,497	2,079	0.0232	0.9768	21.73
73.5	87,417	748	0.0086	0.9914	21.23
74.5	86,565	2,525	0.0292	0.9708	21.05
75.5	83,160	6,409	0.0771	0.9229	20.43
76.5	76,154	4,622	0.0607	0.9393	18.86
77.5	56,655	13,130	0.2317	0.7683	17.71

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### ACCOUNT 380 SERVICES

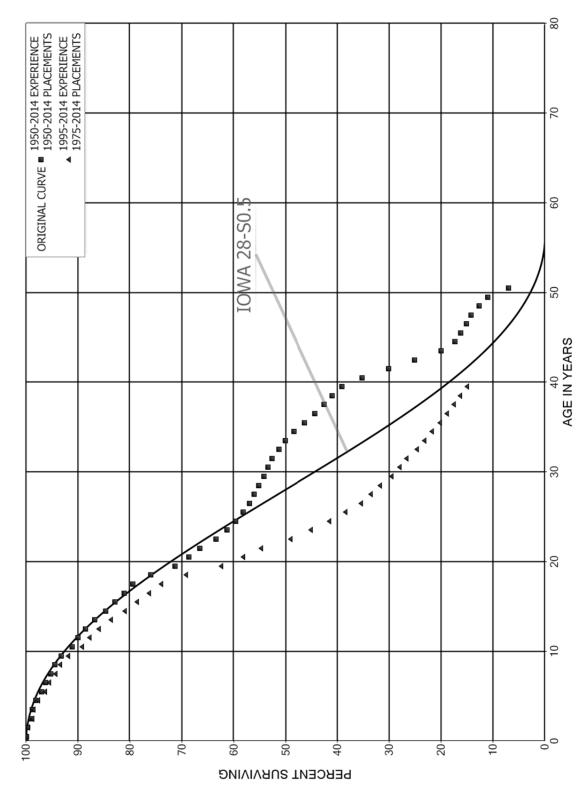
### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1929-2014

EXPERIENCE BAND 1931-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5 80.5 81.5 82.5 83.5 84.5	24,536 17,361 14,942 7,854 106 42	884 27 53 6	0.0360 0.0015 0.0035 0.0008 0.0000 0.0000	0.9640 0.9985 0.9965 0.9992 1.0000 1.0000	11.09 10.69 10.68 10.64 10.63 10.63
85.5	14			1.0000	10.63

Schedule JFW-D1 Page 68 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 381 METERS ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 381 METERS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1950-2014

EXPERIENCE BAND 1950-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	26,743,605	34,971	0.0013	0.9987	100.00
0.5	25,601,379	72,377	0.0028	0.9972	99.87
1.5	24,888,418	174,068	0.0070	0.9930	99.59
2.5	23,676,913	44,898	0.0019	0.9981	98.89
3.5	23,660,822	162,977	0.0069	0.9931	98.70
4.5	22,975,970	256,546	0.0112	0.9888	98.02
5.5	21,955,917	171,135	0.0078	0.9922	96.93
6.5	20,699,826	214,531	0.0104	0.9896	96.17
7.5	20,096,454	164,305	0.0082	0.9918	95.18
8.5	19,720,266	254,958	0.0129	0.9871	94.40
9.5	18,654,124	427,916	0.0229	0.9771	93.18
10.5	17,575,528	213,524	0.0121	0.9879	91.04
11.5	16,545,141	259,403	0.0157	0.9843	89.93
12.5	15,762,418	321,316	0.0204	0.9796	88.52
13.5	14,371,088	346,860	0.0241	0.9759	86.72
14.5	12,791,378	268,613	0.0210	0.9790	84.63
15.5	11,307,787	236,193	0.0209	0.9791	82.85
16.5	10,495,042	219,527	0.0209	0.9791	81.12
17.5	9,833,043	423,083	0.0209	0.9570	79.42
18.5	8,800,968	549,315	0.0624	0.9376	76.00
19.5	7,183,382	270,114	0.0376	0.9624	71.26
20.5	6,428,949	190,192	0.0296	0.9704	68.58
21.5	5,946,327	284,832	0.0479	0.9521	66.55
22.5	5,378,474	173,937	0.0323	0.9677	63.36
23.5	4,938,409	135,389	0.0274	0.9726	61.32
24.5	4,593,329	108,870	0.0237	0.9763	59.63
25.5	4,379,232	91,243	0.0208	0.9792	58.22
26.5	4,186,096	66,619	0.0159	0.9841	57.01
27.5	4,061,489	63,570	0.0157	0.9843	56.10
28.5	3,867,450	76,144	0.0197	0.9803	55.22
29.5	3,778,797	50,352	0.0133	0.9867	54.14
30.5	3,717,859	54,186	0.0146	0.9854	53.41
31.5	3,597,330	88,880	0.0247	0.9753	52.64
32.5	3,427,649	83,261	0.0243	0.9757	51.34
33.5	3,237,583	108,659	0.0336	0.9664	50.09
34.5	3,084,991	132,862	0.0431	0.9569	48.41
35.5	2,894,340	125,626	0.0434	0.9566	46.32
36.5	2,748,805	111,167	0.0404	0.9596	44.31
37.5	2,605,439	95,044	0.0365	0.9635	42.52
38.5	2,499,872	119,125	0.0477	0.9523	40.97

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### ACCOUNT 381 METERS

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1950-2014

EXPERIENCE BAND 1950-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5 47.5 48.5 49.5 50.5 51.5	2,371,283 2,130,303 1,790,811 1,428,721 1,047,176 836,994 695,867 537,194 473,108 409,405 349,918 223,524 115,885	235,086 307,310 296,856 295,455 137,676 54,338 46,217 32,962 52,707 54,761 126,433 94,538 13,328	0.0991 0.1443 0.1658 0.2068 0.1315 0.0649 0.0664 0.0614 0.1114 0.1338 0.3613 0.4229 0.1150	0.9009 0.8557 0.8342 0.7932 0.8685 0.9351 0.9336 0.9386 0.8886 0.8886 0.8662 0.6387 0.5771 0.8850	39.02 35.15 30.08 25.09 19.90 17.29 16.16 15.09 14.16 12.59 10.90 6.96 4.02
52.5 53.5 54.5 55.5 56.5 57.5 58.5	90,057 68,326 54,980 32,953 20,359 7,752 1,307	12,240 10,681 21,935 10,872 9,425 1,522 78	0.1359 0.1563 0.3990 0.3299 0.4629 0.1964 0.0600	0.8641 0.8437 0.6010 0.6701 0.5371 0.8036 0.9400	3.56 3.07 2.59 1.56 1.04 0.56 0.45
59.5					0.42

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### ACCOUNT 381 METERS

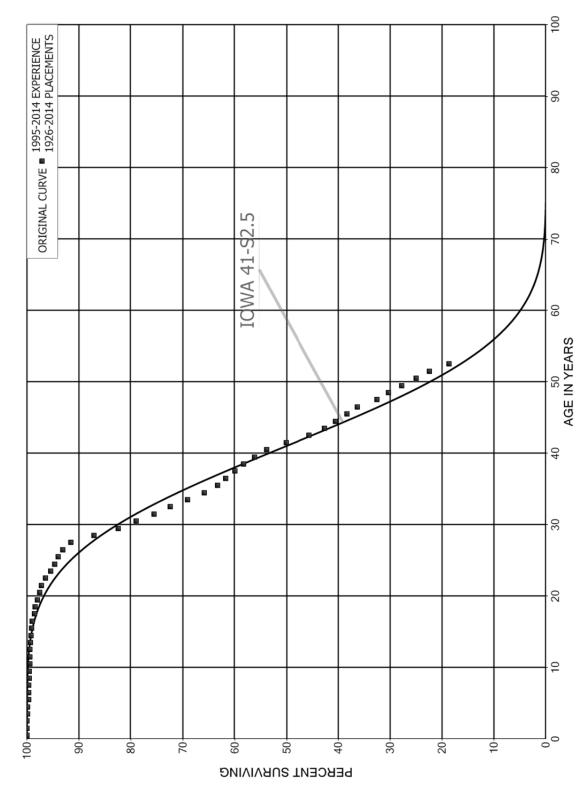
### ORIGINAL LIFE TABLE

PLACEMENT BAND 1975-2014

EXPERIENCE BAND 1995-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	18,623,043	22,919	0.0012	0.9988	100.00
0.5	18,163,589	59,046	0.0033	0.9967	99.88
1.5	17,907,799	168,758	0.0094	0.9906	99.55
2.5	17,137,497	35,425	0.0021	0.9979	98.61
3.5	17,573,534	152,138	0.0087	0.9913	98.41
4.5	17,236,951	242,791	0.0141	0.9859	97.56
5.5	16,614,272	142,171	0.0086	0.9914	96.18
6.5	15,814,223	188,312	0.0119	0.9881	95.36
7.5	15,421,154	156,847	0.0102	0.9898	94.23
8.5	15,271,421	252,210	0.0165	0.9835	93.27
9.5	14,424,951	426,515	0.0296	0.9704	91.73
10.5	13,389,023	207,858	0.0155	0.9845	89.01
11.5	12,510,517	258,865	0.0207	0.9793	87.63
12.5	11,874,994	319,786	0.0269	0.9731	85.82
13.5	10,705,661	343,940	0.0321	0.9679	83.51
14.5	9,221,509	266,523	0.0289	0.9711	80.83
15.5	7,839,954	230,596	0.0294	0.9706	78.49
16.5	7,067,866	216,222	0.0306	0.9694	76.18
17.5	6,466,211	417,326	0.0645	0.9355	73.85
18.5	5,465,709	538,581	0.0985	0.9015	69.08
19.5	3,887,650	261,508	0.0673	0.9327	62.28
20.5	3,141,823	186,664	0.0594	0.9406	58.09
21.5	2,662,728	279,588	0.1050	0.8950	54.64
22.5	2,100,120	168,442	0.0802	0.9198	48.90
23.5	1,665,549	132,053	0.0793	0.9207	44.98
24.5	1,323,806	99,428	0.0751	0.9249	41.41
25.5	1,119,150	88,321	0.0789	0.9211	38.30
26.5	928,937	49,822	0.0536	0.9464	35.28
27.5	821,126	43,145	0.0525	0.9475	33.39
28.5	647,512	45,289	0.0699	0.9301	31.63
29.5 30.5 31.5 32.5 33.5 34.5 35.5 36.5 37.5 38.5 39.5	589,714 547,571 453,854 340,047 213,053 155,092 86,242 60,809 22,703 10,345	31,555 27,375 32,657 20,018 14,029 11,061 5,524 4,352 1,588 882	0.0535 0.0500 0.0720 0.0589 0.0658 0.0713 0.0640 0.0716 0.0699 0.0852	0.9465 0.9500 0.9280 0.9411 0.9342 0.9287 0.9360 0.9284 0.9301 0.9148	29.42 27.85 26.45 24.55 23.10 21.58 20.04 18.76 17.42 16.20 14.82 Sche

<sup>14.82</sup> Schedule JFW-D1 Page 72 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 383 HOUSE REGULATORS ORIGINAL AND SMOOTH SURVIVOR CURVES



### ACCOUNT 383 HOUSE REGULATORS

### ORIGINAL LIFE TABLE

PLACEMENT BAND 1926-2014

EXPERIENCE BAND 1995-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	11,374,408 11,613,282 11,539,658 8,972,760 9,146,574 9,049,156 8,770,321 8,357,889 8,388,784 8,007,126	2,779 2,081 6,879 4,927 20,111 2,316 1,594 8,439 203	0.0000 0.0002 0.0002 0.0008 0.0005 0.0022 0.0003 0.0002 0.0010 0.0000	1.0000 0.9998 0.9998 0.9992 0.9995 0.9978 0.9997 0.9998 0.9990 1.0000	100.00 100.00 99.98 99.96 99.88 99.83 99.61 99.58 99.56 99.56 99.46
9.5	7,623,517	5,632	0.0007	0.9993	99.46
10.5	7,493,658	802	0.0001	0.9999	99.38
11.5	7,523,043	1,925	0.0003	0.9997	99.37
12.5	7,439,984	4,629	0.0006	0.9994	99.35
13.5	7,096,972	5,238	0.0007	0.9993	99.29
14.5	6,736,112	6,339	0.0009	0.9991	99.21
15.5	6,259,460	10,143	0.0016	0.9984	99.12
16.5	5,687,365	23,658	0.0042	0.9958	98.96
17.5	4,928,529	8,303	0.0017	0.9983	98.55
18.5	3,744,043	18,144	0.0048	0.9983	98.38
19.5	3,366,575	12,808	0.0038	0.9962	97.90
20.5	2,469,260	10,405	0.0042	0.9958	97.53
21.5	2,114,829	16,655	0.0079	0.9921	97.12
22.5	1,903,284	19,742	0.0104	0.9896	96.36
23.5	1,788,802	14,532	0.0081	0.9919	95.36
24.5	1,502,020	10,570	0.0070	0.9930	94.58
25.5	1,392,408	13,165	0.0095	0.9905	93.92
26.5	1,375,588	22,067	0.0160	0.9840	93.03
27.5	1,292,904	63,284	0.0489	0.9511	91.54
28.5	1,176,922	62,393	0.0530	0.9470	87.06
29.5	1,052,088	44,410	0.0422	0.9578	82.44
30.5	964,995	41,955	0.0435	0.9565	78.96
31.5	887,338	36,946	0.0416	0.9584	75.53
32.5	812,631	37,433	0.0461	0.9539	72.38
33.5	744,201	34,413	0.0462	0.9538	69.05
34.5	678,384	26,224	0.0387	0.9613	65.86
35.5	623,072	15,431	0.0248	0.9752	63.31
36.5	601,937	17,262	0.0287	0.9713	61.74
37.5	602,515	17,031	0.0283	0.9717	59.97
38.5	586,106	21,470	0.0366	0.9634	58.28

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### ACCOUNT 383 HOUSE REGULATORS

### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1926-2014

EXPERIENCE BAND 1995-2014

-				-	
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5 40.5 41.5 42.5 43.5 44.5 45.5 46.5 47.5 48.5	566,302 551,709 517,110 481,019 424,241 386,278 343,313 290,609 243,394 257,787	23,421 37,991 46,863 31,546 21,245 20,993 18,117 29,494 16,627 22,213	0.0414 0.0689 0.0906 0.0656 0.0501 0.0543 0.0528 0.1015 0.0683 0.0862	0.9586 0.9311 0.9094 0.9344 0.9499 0.9457 0.9472 0.8985 0.9317 0.9138	56.14 53.82 50.11 45.57 42.58 40.45 38.25 36.23 32.56 30.33
49.5 50.5 51.5 52.5 53.5 54.5 55.5 56.5 57.5 58.5	226,299 203,543 168,785 134,985 107,042 75,885 52,247 36,568 22,531 9,644	22,834 20,357 28,328 28,047 25,701 14,954 10,046 7,017 6,361 2,376	0.1009 0.1000 0.1678 0.2078 0.2401 0.1971 0.1923 0.1919 0.2823 0.2464	0.8991 0.9000 0.8322 0.7922 0.7599 0.8029 0.8077 0.8081 0.7177 0.7536	27.72 24.92 22.43 18.66 14.79 11.24 9.02 7.29 5.89 4.23
59.5 60.5 61.5 62.5 63.5 64.5 65.5 66.5 67.5 68.5	7,962 5,404 2,754 632 751 482 125 101 101 31	1,590 2,650 507 31 90 24 71	0.1998 0.4904 0.1841 0.0000 0.0413 0.1876 0.1914 0.0000 0.6991 0.0000	0.8002 0.5096 0.8159 1.0000 0.9587 0.8124 0.8086 1.0000 0.3009 1.0000	3.18 2.55 1.30 1.06 1.06 1.02 0.83 0.67 0.67 0.20
69.5 70.5 71.5 72.5 73.5 74.5 75.5 76.5 77.5 78.5	31 31 31 31 31 31 31 31 31 31		0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.20

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### Ameren Missouri - Gas December 31, 2014

### ACCOUNT 383 HOUSE REGULATORS

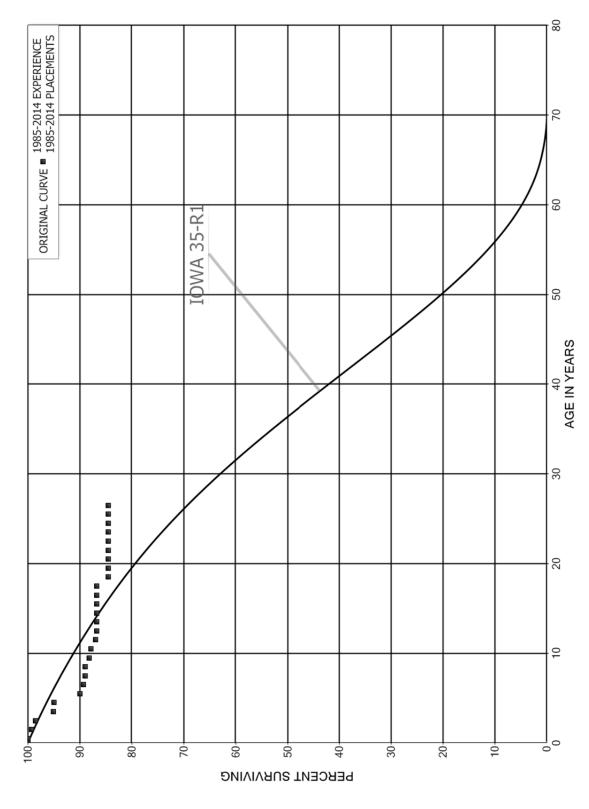
### ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1926-2014

EXPERIENCE BAND 1995-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
79.5	31		0.0000	1.0000	0.20
80.5	31		0.0000	1.0000	0.20
81.5	31		0.0000	1.0000	0.20
82.5					0.20

Schedule JFW-D1 Page 76 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT

### ORIGINAL LIFE TABLE

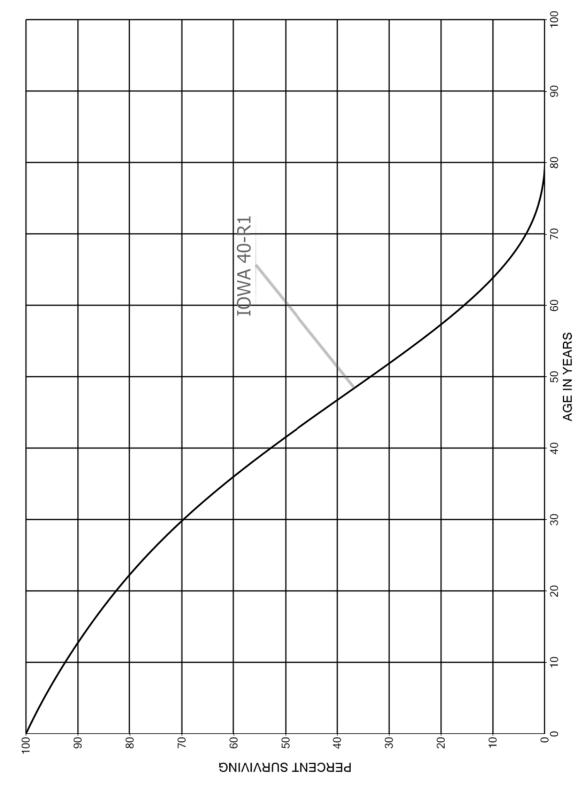
EXPERIENCE BAND 1985-2014

PLACEMENT BAND 1985-2014

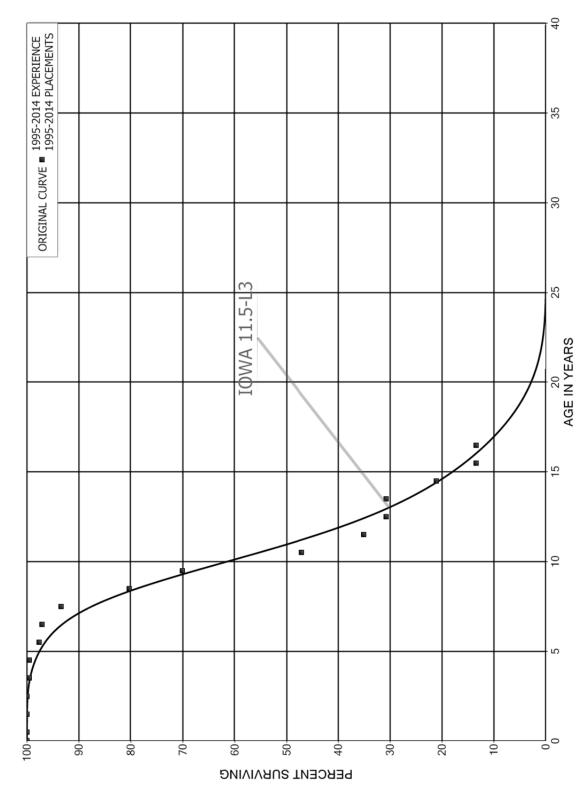
AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	1,786,557 1,756,491 1,714,887 1,480,347 1,350,510 1,309,093 1,202,713 1,173,258 1,163,756 1,063,844	12,647 14,163 51,492 585 69,344 8,515 4,559 10,186	0.0000 0.0072 0.0083 0.0348 0.0004 0.0530 0.0071 0.0039 0.0000 0.0096	1.0000 0.9928 0.9917 0.9652 0.9996 0.9470 0.9929 0.9961 1.0000 0.9904	100.00 100.00 99.28 98.46 95.04 94.99 89.96 89.33 88.98 88.98
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	989,281 938,791 893,284 857,917 755,734 748,941 742,164 619,890 374,580 166,278	3,565 8,553 2,694 649 2 9,480	0.0036 0.0091 0.0030 0.0008 0.0000 0.0000 0.0000 0.0000 0.0253 0.0000	0.9964 0.9909 0.9970 0.9992 1.0000 1.0000 1.0000 1.0000 0.9747 1.0000	88.13 87.81 87.01 86.75 86.68 86.68 86.68 86.68 86.68 86.68 86.68 86.68
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5 29.5	120,582 92,161 72,015 47,737 30,007 18,980 18,980 11,675 10,799 4,852		$\begin{array}{c} 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\\ 0.0000\end{array}$	1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000 1.0000	84.49 84.49 84.49 84.49 84.49 84.49 84.49 84.49 84.49 84.49 84.49 84.49

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# AMEREN MISSOURI GAS DIVISION ACCOUNT 390 STRUCTURES AND IMPROVEMENTS SMOOTH SURVIVOR CURVE



Schedule JFW-D1 Page 79 of 138 AMEREN MISSOURI GAS DIVISION ACCOUNT 392 TRANSPORTATION EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 392 TRANSPORTATION EQUIPMENT

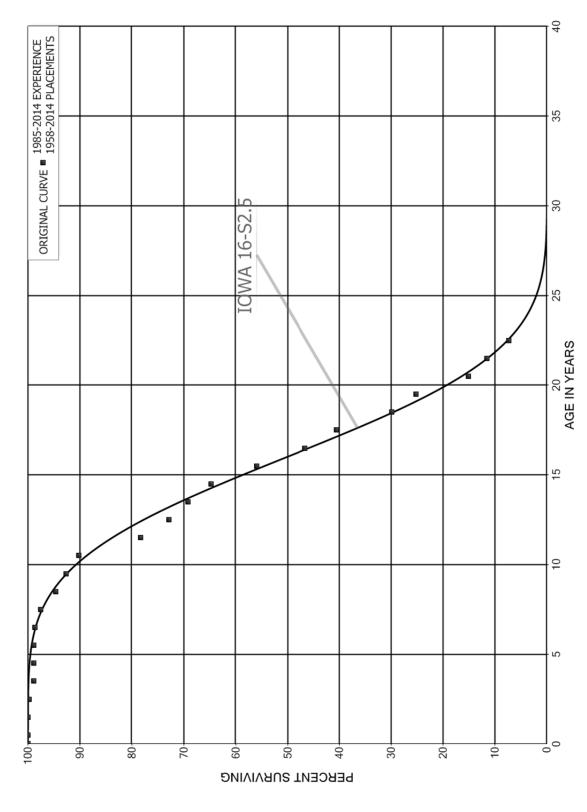
### ORIGINAL LIFE TABLE

EXPERIENCE BAND 1995-2014

PLACEMENT BAND 1995-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5	10,990,443 10,488,530 8,356,207 9,508,653 6,581,270 5,769,136 4,649,342 3,841,469	47,509 109,713 26,354 143,987	0.0000 0.0000 0.0050 0.0050 0.0190 0.0057 0.0375	1.0000 1.0000 0.9950 1.0000 0.9810 0.9943 0.9625	100.00 100.00 100.00 99.50 99.50 97.61 97.05
7.5 8.5	2,894,140 2,171,202	406,316 276,036	0.1404 0.1271	0.8596 0.8729	93.42 80.30
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	1,781,997 1,151,202 819,189 663,438 655,746 427,182 204,047 236,477 116,910 83,545	585,994 293,661 100,289 206,100 155,731 118,417 14,213 61,663	0.3288 0.2551 0.1224 0.0000 0.3143 0.3646 0.0000 0.5008 0.1216 0.7381	0.6712 0.7449 0.8776 1.0000 0.6857 0.6354 1.0000 0.4992 0.8784 0.2619	70.09 47.04 35.04 30.75 30.75 21.09 13.40 13.40 6.69 5.88
19.5	05,545	01,005	0.7301	0.2019	1.54

AMEREN MISSOURI GAS DIVISION ACCOUNT 396 POWER OPERATED EQUIPMENT ORIGINAL AND SMOOTH SURVIVOR CURVES



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### ACCOUNT 396 POWER OPERATED EQUIPMENT

### ORIGINAL LIFE TABLE

EXPERIENCE BAND 1985-2014

PLACEMENT BAND 1958-2014

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0 0.5 1.5 2.5 3.5 4.5 5.5 6.5 7.5 8.5	4,835,318 4,922,407 5,070,553 4,665,725 4,486,375 4,019,597 3,969,909 3,702,283 3,296,946 3,057,641	1,536 11,275 40,365 4,513 10 5,070 44,292 96,315 64,307	0.0000 0.0003 0.0022 0.0087 0.0010 0.0000 0.0013 0.0120 0.0292 0.0210	1.0000 0.9997 0.9978 0.9913 0.9990 1.0000 0.9987 0.9880 0.9708 0.9790	100.00 100.00 99.97 99.75 98.88 98.78 98.78 98.66 97.48 94.63
9.5 10.5 11.5 12.5 13.5 14.5 15.5 16.5 17.5 18.5	3,057,641 3,049,375 2,964,580 2,660,976 2,362,432 2,203,732 2,083,789 1,844,558 1,540,092 1,290,843 1,016,633	79,689 390,391 187,094 117,786 142,818 283,128 306,916 200,827 340,892 158,679	0.0210 0.0261 0.1317 0.0703 0.0499 0.0648 0.1359 0.1664 0.1304 0.2641 0.1561	0.9790 0.9739 0.8683 0.9297 0.9501 0.9352 0.8641 0.8336 0.8696 0.7359 0.8439	94.63 92.64 90.22 78.34 72.83 69.20 64.71 55.92 46.62 40.54 29.83
19.5 20.5 21.5 22.5 23.5 24.5 25.5 26.5 27.5 28.5	876,898 483,675 375,432 224,707 176,192 96,896 59,875 29,738 22,174 21,236	353,352 112,045 139,335 48,515 79,297 37,021 37,701 7,564 938 20,443	0.4030 0.2317 0.3711 0.2159 0.4501 0.3821 0.6297 0.2544 0.0423 0.9627	0.5970 0.7683 0.6289 0.7841 0.5499 0.6179 0.3703 0.7456 0.9577 0.0373	25.18 15.03 11.55 7.26 5.69 3.13 1.94 0.72 0.53 0.51
29.5 30.5	793	793	1.0000		0.02

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# PART VIII. NET SALVAGE STATISTICS

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### ACCOUNT 367 TRANSMISSION MAINS

### SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1984		278				278-	
1985							
1986	20,833		0		0		0
1987	28,273		0	41	0	41	0
1988	3,750	259	7		0	259-	7-
1989	25,415		0		0		0
1990	16,214		0		0		0
1991	11,563		0		0		0
1992	1,467		0	972	66	972	66
1993	1,940	887	46		0	887-	46-
1994							
1995							
1996	18,444		0		0		0
1997	7,393		0		0		0
1998							
1999							
2000							
2001				1,103		1,103	
2002				222,880		222,880	
2003	12,242		0	837	7	837	7
2004				37,996		37,996	
2005	195		0	3,406		3,406	
2006							
2007				2,977-		2,977-	
2008							
2009	166		0	9,038-		9,038-	
2010				14,730		14,730	
2011				4,726-		4,726-	
2012				6,394-		6,394-	
2013				2,522-		2,522-	
2014			0	1,087-		1,087-	
TOTAL	147,896	1,424	1	255,222	173	253,798	172
THREE-YE.	AR MOVING AVERAGE	S					
84-86	6,944	93	1		0	93-	1-
85-87	16,369		0	14	0	14	0
86-88	17,619	86	0	14	0	73-	0
87-89	19,146	86	0	14	0	73-	0
88-90	15,126	86	1		0		1- dule JFW-D1 age 85 of 138

#### ACCOUNT 367 TRANSMISSION MAINS

#### SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
		AMOONI	PCI	AMOUNT	PCI	AMOONI	PCI
THREE-YEA	AR MOVING AVERAGES						
89-91	17,731		0		0		0
90-92	9,748		0	324	3	324	3
91-93	4,990	296	6	324	6	28	1
92-94	1,136	296	26	324	29	28	2
93-95	647	296	46		0	296-	46-
94-96	6,148		0		0		0
95-97	8,612		0		0		0
96-98	8,612		0		0		0
97-99	2,464		0		0		0
98-00							
99-01				368		368	
00-02				74,661		74,661	
01-03	4,081		0	74,940		74,940	
02-04	4,081		0	87,238		87,238	
03-05	4,146		0	14,080	340	14,080	340
04-06	65		0	13,801		13,801	
05-07	65		0	143	221	143	221
06-08				992-		992-	
07-09	55		0	4,005-		4,005-	
08-10	55		0	1,897		1,897	
09-11	55		0	322	580	322	580
10-12				1,203		1,203	
11-13				4,547-		4,547-	
12-14			0	3,334-		3,334-	

FIVE-YEAR AVERAGE

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#### ACCOUNT 369 TRANSMISSION MEASURING & REGULATING STATION EQUIPMENT

37E J D	REGULAR	COST OF REMOVAL	DOM	GROSS SALVAGE	NET SALVAGE	DOM
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT PC		PCT
1985		394			394-	
1986		657			657-	
1987	4,401	66	1		0 66-	
1988	334	497	149		0 497-	149-
1989						
1990						
1991						
1992		3,098			3,098-	
1993					_	
1994	10,657		0		0	0
1995						
1996						
1997						
1998						
1999	3,270		0		0	0
2000						
2001						
2002				170	170	
2003	0 500					
2004	2,502		0		0	0
2005						
2006						
2007						
2008						
2009						
2010						
2011						
2012						
2013						
2014						
TOTAL	21,164	4,712	22	170	1 4,542-	21-
THREE-YE.	AR MOVING AVERAG	ES				
85-87	1,467	372	25		) 372-	25-
86-88	1,578	407	26		0 407-	
87-89	1,578	188	12		0 188-	
88-90	111	166	149			149-
89-91						
90-92		1,033				edule JFW-D1 age 87 of 138

# ACCOUNT 369 TRANSMISSION MEASURING & REGULATING STATION EQUIPMENT

#### SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
IEAK	KETTKEMEN 15	ANOUNT	FCI	AMOUNT	FCI	AMOUNT	FCI
THREE-YE	AR MOVING AVERAGE	S					
91-93		1,033				1,033-	
92-94	3,552	1,033	29		0	1,033-	29-
93-95	3,552		0		0		0
94-96	3,552		0		0		0
95-97							
96-98							
97-99	1,090		0		0		0
98-00	1,090		0		0		0
99-01	1,090		0		0		0
00-02				57		57	
01-03				57		57	
02 - 04	834		0	57	7	57	7
03-05	834		0		0		0
04-06	834		0		0		0
05-07							
06-08							
07-09							
08-10							
09-11							
10-12							
11-13							

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FIVE-YEAR AVERAGE

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#### ACCOUNT 375 STRUCTURES AND IMPROVEMENTS

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT PCT	GROSS SALVAGE AMOUNT PCT	NET SALVAGE AMOUNT PCT
1985	9,190	0	0	0
1986	-,			
1987				
1988				
1989				
1990				
1991				
1992				
1993	964	0	0	0
1994				
1995				
1996	248	0	0	0
1997				
1998				
1999				
2000				
2001	6,308	0	0	0
2002	3,358	0	0	0
2003				
2004	6,201	0	0	0
2005				
2006				
2007				
2008	1,535	0	0	0
2009				
2010				
2011				
2012				
2013				
2014				
TOTAL	27,803	0	0	0
THREE-YE	AR MOVING AVERAGE	S		
85-87 86-88 87-89 88-90	3,063	0	0	0
89-91				
90-92				Schedule .I

#### ACCOUNT 375 STRUCTURES AND IMPROVEMENTS

#### SUMMARY OF BOOK SALVAGE

	REGULAR	COST O REMOVA		GROSS SALVAG	E	NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGES						
91-93	321		0		0		0
92-94	321		0		0		0
93-95	321		0		0		0
94-96	83		0		0		0
95-97	83		0		0		0
96-98	83		0		0		0
97-99							
98-00							
99-01	2,103		0		0		0
00-02	3,222		0		0		0
01-03	3,222		0		0		0
02-04	3,186		0		0		0
03-05	2,067		0		0		0
04-06	2,067		0		0		0
05-07							
06-08	512		0		0		0
07-09	512		0		0		0
08-10	512		0		0		0
09-11							
10-12							
11-13							

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FIVE-YEAR AVERAGE

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#### ACCOUNT 376 MAINS

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1984	40,972	24,142	59	206	1	23,936-	58-
1985	238,037	32,908	14	280	0	32,628-	14-
1986	236,119	31,873	13	139	0	31,734-	13-
1987	404,690	34,272	8		0	34,272-	8-
1988	255,710	50,291	20	7	0	50,284-	20-
1989	278,047	58,001	21		0	58,001-	21-
1990	401,049	47,083	12		0	47,083-	12-
1991	327,184	52,269	16		0	52,269-	16-
1992	331,217	36,489	11	997-	0	37,486-	11-
1993	409,223	45,191	11		0	45,191-	11-
1994	649,681	31,046	5		0	31,046-	5-
1995	355,147	19,952	6	46	0	19,906-	6-
1996	331,435	312	0	440	0	128	0
1997	279,086	4,643	2	54,749	20	50,106	18
1998	276,474	3,025	1	31,618	11	28,593	10
1999	619,568	6,708	1	81,318	13	74,610	12
2000	410,818	4,026	1	419	0	3,606-	1-
2001	484,413	3,640	1	143,535	30	139,894	29
2002	915,096	23,210	3	314,758	34	291,548	32
2003	540,090	3,315	1	5,479	1	2,164	0
2004	442,179	5,397	1	54,278	12	48,881	11
2005	950,651	926	0	5,539	1	4,613	0
2006	852,204	1,914	0	170	0	1,744-	0
2007	976,197	10,372	1		0	10,372-	1-
2008	1,627,733	4,524	0	6,222	0	1,698	0
2009	601,378	13,490	2	19,686	3	6,196	1
2010	790,103	103	0	58,075	7	57,972	7
2011	790,924	9,905	1	4,451	1	5,454-	1-
2012	306,882	19,284	6	5,208-	2-	24,492-	8-
2013	310,335	4,091	1	10,365-	3-	14,456-	5-
2014	334,502	10,061	3	8,501-	3-	18,562-	б-
TOTAL	15,767,145	592,462	4	756,345	5	163,882	1
THREE-YE.	AR MOVING AVERAGI	ES					
84-86	171,709	29,641	17	208	0	29,433-	17-
85-87	292,949	33,018	11	140	0	32,878-	11-
86-88	298,840	38,812	13	49	0	38,763-	13-
87-89	312,816	47,521	15	2	0	47,519-	15-
88-90	311,602	51,792	17	2	0	51,789-	17-
	022,002	51,752	- '	2	0		dule JI

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#### ACCOUNT 376 MAINS

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
89-91	335,427	52,451	16		0	52,451-	16-
90-92	353,150	45,280	13	332-	0	45,613-	13-
91-93	355,875	44,650	13	332-	0	44,982-	13-
92-94	463,374	37,575	8	332-	0	37,908-	8 -
93-95	471,350	32,063	7	15	0	32,048-	7-
94-96	445,421	17,103	4	162	0	16,941-	4-
95-97	321,889	8,302	3	18,412	6	10,109	3
96-98	295,665	2,660	1	28,936	10	26,276	9
97-99	391,709	4,792	1	55,895	14	51,103	13
98-00	435,620	4,586	1	37,785	9	33,199	8
99-01	504,933	4,791	1	75,091	15	70,299	14
00-02	603,442	10,292	2	152,904	25	142,612	24
01-03	646,533	10,055	2	154,591	24	144,536	22
02-04	632,455	10,641	2	124,839	20	114,198	18
03-05	644,307	3,213	0	21,765	3	18,553	3
04-06	748,345	2,746	0	19,996	3	17,250	2
05-07	926,351	4,404	0	1,903	0	2,501-	0
06-08	1,152,045	5,603	0	2,131	0	3,473-	0
07-09	1,068,436	9,462	1	8,636	1	826-	0
08-10	1,006,405	6,039	1	27,994	3	21,955	2
09-11	727,468	7,833	1	27,404	4	19,571	3
10-12	629,303	9,764	2	19,106	3	9,342	1
11-13	469,380	11,093	2	3,707-	1-	14,801-	3-
12-14	317,240	11,145	4	8,025-	3-	19,170-	б-
FIVE-YEA	R AVERAGE						
10-14	506,549	8,689	2	7,690	2	999-	0

#### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

#### SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1984		5,083		350		4,733-	
1985		4,591		125		4,466-	
1986	1,731	3,548	205		0	3,548-	205-
1987	17,585	2,771	16		0	2,771-	16-
1988	969	4,373	451		0	4,373-	451-
1989	516	30	б		0	30-	б-
1990	3,203	8,316	260	700	22	7,616-	238-
1991		3,042				3,042-	
1992	595	589	99		0	589-	99-
1993	6,996	3,373	48	10	0	3,363-	48-
1994		6,761				6,761-	
1995	26,560	1,600	б	435	2	1,165-	4-
1996	25,618		0	475	2	475	2
1997							
1998	1,333		0	5	0	5	0
1999	202,742		0	403	0	403	0
2000	400,556		0		0		0
2001	16,508	1,082	7	8,918	54	7,836	47
2002				14,534		14,534	
2003	27,528	12,356	45	825-	3-	13,181-	48-
2004	112,107	3,624	3	310	0	3,314-	3 –
2005	10,712		0	127	1	127	1
2006	9,337	2,438	26		0	2,438-	26-
2007	26,254		0		0		0
2008	45,713	339	1		0	339-	1-
2009	3,501	7,570	216		0	7,570-	216-
2010	9,698		0		0		0
2011							
2012	8,006		0		0		0
2013				363-		363-	
2014	3,990		0	13-	0	13-	0
TOTAL	961,760	71,486	7	25,190	3	46,296-	5-
THREE-YE.	AR MOVING AVERAGE	IS					
84-86	577	4,407	764	158	27	4,249-	736-
85-87	6,439	3,637	56	42	1	3,595-	56-
86-88	6,762	3,564	53		0	3,564-	
87-89	6,357	2,391	38		0	2,391-	38-
88-90	1,563	4,240	271	233	15	4,006-	256-
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#### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	CAR MOVING AVERAGE	S					
89-91	1,240	3,796	306	233	19	3,563-	287-
90-92	1,266	3,982	315	233	18	3,749-	296-
91-93	2,530	2,335	92	3	0	2,331-	92-
92-94	2,530	3,574	141	3	0	3,571-	141-
93-95	11,185	3,911	35	148	1	3,763-	34-
94-96	17,393	2,787	16	303	2	2,484-	14-
95-97	17,393	533	3	303	2	230-	1-
96-98	8,984		0	160	2	160	2
97-99	68,025		0	136	0	136	0
98-00	201,544		0	136	0	136	0
99-01	206,602	361	0	3,107	2	2,746	1
00-02	139,021	361	0	7,818	б	7,457	5
01-03	14,679	4,479	31	7,542	51	3,063	21
02 - 04	46,545	5,327	11	4,673	10	654-	1-
03-05	50,116	5,327	11	129-	0	5,456-	11-
04-06	44,052	2,021	5	146	0	1,875-	4-
05-07	15,435	813	5	42	0	770-	5-
06-08	27,102	926	3		0	926-	3-
07-09	25,156	2,636	10		0	2,636-	10-
08-10	19,638	2,636	13		0	2,636-	13-
09-11	4,400	2,523	57		0	2,523-	57-
10-12	5,901		0		0		0
11-13	2,669		0	121-	5-	121-	5-
12-14	3,999		0	125-	3-	125-	3-
FIVE-YEA	AR AVERAGE						
10-14	4,339		0	75-	2-	75-	2-

#### ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1984		83				83-	
1985							
1986							
1987	802		0		0		0
1988	275		0		0		0
1989							
1990							
1991							
1992							
1993							
1994							
1995 1996	1 110		0		0		0
1996 1997	1,119		0		0		0
1997							
1999							
2000	21		0		0		0
2001	18		0		0		0
2002	16,979		0		0		0
2003							
2004	11,707		0		0		0
2005							
2006							
2007							
2008							
2009	2,129		0		0		0
2010							
2011	07 020		0		0		0
2012	27,832		0		0		0
2013 2014	1,986		0		0		0
2014	1,900		0		0		0
TOTAL	62,868	83	0		0	83-	0
THREE-YE.	AR MOVING AVERAGE						
84-86		28				28-	
85-87	267		0		0		0
86-88	359		0		0		0
87-89	359		0		0		0
88-90	92		0		0		0 edule JFW-D1 age 95 of 138

#### ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS		PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGES						
89-91							
90-92							
91-93							
92-94							
93-95							
94-96	373		0		0		0
95-97	373		0		0		0
96-98	373		0		0		0
97-99							
98-00	7		0		0		0
99-01	13		0		0		0
00-02	5,673		0		0		0
01-03	5,666		0		0		0
02-04	9,562		0		0		0
03-05	3,902		0		0		0
04-06	3,902		0		0		0
05-07							
06-08							
07-09	710		0		0		0
08-10	710		0		0		0
09-11	710		0		0		0
10-12	9,277		0		0		0
11-13	9,277		0		0		0
12-14	9,939		0		0		0
FIVE-YEA	R AVERAGE						
10-14	5,963		0		0		0

#### ACCOUNT 380 SERVICES

# SUMMARY OF BOOK SALVAGE

		COST OF		GROSS		NET	
YEAR	REGULAR RETIREMENTS	REMOVAL AMOUNT	PCT	SALVAGE AMOUNT	PCT	SALVAGE AMOUNT	PCT
1984	110,713	126,556	114	569	1	125,987-	114-
1985	301,002	131,217	44	799	0	130,418-	43-
1986	95,939	119,335	124	120	0	119,215-	124-
1987	253,417	150,214	59	27	0	150,187-	59-
1988	222,404	183,622	83	19	0	183,603-	83-
1989	145,705	150,079	103		0	150,079-	103-
1990	178,756	158,685	89		0	158,685-	89-
1991	183,823	164,437	89	35	0	164,402-	89-
1992	220,493	143,137	65	1,995-	1-	145,132-	66-
1993	201,563	184,553	92	5,481	3	179,072-	89-
1994	228,718	203,022	89		0	203,022-	89-
1995	188,256	87,319	46	404	0	86,915-	46-
1996	240,574	14,746	6	2,556	1	12,190-	5-
1997	227,023	9,932	4	741	0	9,191-	4 -
1998	234,645	48,878	21	2,833	1	46,045-	20-
1999	180,560	85,104	47	42,320	23	42,785-	24-
2000	308,793	4,398	1	2,742	1	1,656-	1-
2001	327,008	6,374	2	8,216-	3-	14,590-	4 -
2002	419,881	23,944	б	257	0	23,687-	6-
2003	248,447	7,568	3	7,808	3	240	0
2004	183,654	4,523	2	713-	0	5,236-	3-
2005	521,587	5,601	1	643	0	4,958-	1-
2006	743,709	9,400	1	3	0	9,397-	1-
2007	563,543	12,513	2	115-	0	12,628-	2-
2008	2,007,228	9,231	0	369-	0	9,600-	0
2009	1,417,207	23,583	2	1,042	0	22,541-	2-
2010	1,509,852	14,140	1	10,907	1	3,232-	0
2011	1,180,116	9,365	1	13,449	1	4,084	0
2012	623,826	22,027	4	13	0	22,014-	4-
2013	508,915	23,109	5	1-	0	23,110-	5-
2014	536,169	16,299	3	1,076	0	15,222-	3–
TOTAL	14,313,523	2,152,911	15	82,438	1	2,070,474-	14-
THREE-YE.	AR MOVING AVERAG	JES					
84-86	169,218	125,703	74	496	0	125,207-	74-
85-87	216,786	133,589	62	315	0	133,273-	61-
86-88	190,587	151,057	79	55	0	151,002-	79-
87-89	207,175	161,305	78	15	0	161,290-	78-
88-90	182,288	164,129	90	б	0	164,122-	90-
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#### ACCOUNT 380 SERVICES

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
	AR MOVING AVERAGE						
89-91			0.2	10	0	1	0.2
89-91 90-92	169,428	157,734	93 80	12 653-	0 0	157,722-	93- 80-
	194,357	155,420				156,073-	
91-93	201,960	164,042	81	1,174	1	162,869-	81-
92-94	216,925	176,904	82	1,162	1	175,742-	81-
93-95	206,179	158,298	77	1,962	1	156,336-	76-
94-96	219,183	101,696	46	987	0	100,709-	46-
95-97	218,618	37,332	17	1,234	1	36,098-	17-
96-98	234,081	24,519	10	2,044	1	22,475-	10-
97-99	214,076	47,971	22	15,298	7	32,673-	15-
98-00	241,333	46,127	19	15,965	7	30,162-	12-
99-01	272,120	31,959	12	12,282	5	19,677-	7-
00-02	351,894	11,572	3	1,739-	0	13,311-	4-
01-03	331,779	12,629	4	50-	0	12,679-	4 -
02-04	283,994	12,012	4	2,451	1	9,561-	3-
03-05	317,896	5,897	2	2,579	1	3,318-	1-
04-06	482,983	6,508	1	22-	0	б,530-	1-
05-07	609,613	9,171	2	177	0	8,994-	1-
06-08	1,104,827	10,381	1	160-	0	10,541-	1-
07-09	1,329,326	15,109	1	186	0	14,923-	1-
08-10	1,644,762	15,651	1	3,860	0	11,791-	1-
09-11	1,369,058	15,696	1	8,466	1	7,230-	1-
10-12	1,104,598	15,177	1	8,123	1	7,054-	1-
11-13	770,952	18,167	2	4,487	1	13,680-	2-
12-14	556,303	20,478	4	363	0	20,116-	4 -
FIVE-YEA	R AVERAGE						
10 14	071 775	16 000	n	E 000	1	11 000	1
10-14	871,775	16,988	2	5,089	T	11,899-	1-

#### ACCOUNT 381 METERS

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
1984				451		451	
1985				427		427	
1986	21,617	1,436	7	546	3	890-	4 -
1987	263,870		0	112	0	112	0
1988		2,434				2,434-	
1989	151,882	1,750	1		0	1,750-	1-
1990	8,368	422	5		0	422-	5-
1991	78,260		0	5	0	5	0
1992				1,667		1,667	
1993				200-		200-	
1994							
1995	26,256		0	934	4	934	4
1996	30,247		0	415	1	415	1
1997	9,112		0	5,481	60	5,481	60
1998	42,228		0	3,560	8	3,560	8
1999	106,496		0	22-	0	22-	0
2000	89,185		0		0		0
2001	338,570		0		0		0
2002	264,408		0		0		0
2003	225,621		0	8,616	4	8,616	4
2004	325,793		0	1,616	0	1,616	0
2005	151,951		0	6,478	4	6,478	4
2006	8,185		0	31,422	384	31,422	384
2007	2,708,322		0	27,223	1	27,223	1
2008	384,109		0	28,311	7	28,311	7
2009	451,829		0	9,616	2	9,616	2
2010	538,122		0	23,441	4	23,441	4
2011	564,346		0	31,124	6	31,124	6
2012	834,327		0	44,654	5	44,654	5
2013	619,553		0	63,376	10	63,376	10
2014	1,039,289		0	86,094	8	86,094	8
TOTAL	9,281,945	6,042	0	375,347	4	369,305	4
THREE-YE	AR MOVING AVERAGE	IS					
84-86	7,206	479	7	475	7	4-	0
85-87	95,162	479	1	362	0	117-	0
86-88	95,162	1,290	1	219	0	1,071-	1-
87-89	138,584	1,395	1	37	0	1,357-	1-
88-90	53,417	1,535	3	57	0	1,535-	- 3 -
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#### ACCOUNT 381 METERS

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
89-91	79,503	724	1	2	0	722-	1-
90-92	28,876	141	0	557	2	417	1
91-93	26,087		0	491	2	491	2
92-94				489		489	
93-95	8,752		0	245	3	245	3
94-96	18,834		0	450	2	450	2
95-97	21,872		0	2,276	10	2,276	10
96-98	27,196		0	3,152	12	3,152	12
97-99	52,612		0	3,006	б	3,006	6
98-00	79,303		0	1,179	1	1,179	1
99-01	178,084		0	7-	0	7-	0
00-02	230,721		0		0		0
01-03	276,200		0	2,872	1	2,872	1
02-04	271,941		0	3,411	1	3,411	1
03-05	234,455		0	5,570	2	5,570	2
04-06	161,977		0	13,172	8	13,172	8
05-07	956,153		0	21,708	2	21,708	2
06-08	1,033,539		0	28,985	3	28,985	3
07-09	1,181,420		0	21,716	2	21,716	2
08-10	458,020		0	20,456	4	20,456	4
09-11	518,099		0	21,393	4	21,393	4
10-12	645,598		0	33,073	5	33,073	5
11-13	672,742		0	46,385	7	46,385	7
12-14	831,056		0	64,708	8	64,708	8
FIVE-YEA	R AVERAGE						
10-14	719,127		0	49,738	7	49,738	7

#### ACCOUNT 383 HOUSE REGULATORS

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS		NET SALVAGE	
YEAR	REGULAR	AMOUNT	PCT	SALVAGE AMOUNT	PCT	AMOUNT	PCT
1984	149	22	15	87	58	65	44
1985				438		438	
1986		690		20		670-	
1987	4,733		0		0		0
1988	2,456	732	30		0	732-	30-
1989	1,470	939	64		0	939-	64-
1990	2,653		0		0		0
1991	334		0		0		0
1992	1,303		0	1,252	96	1,252	96
1993	4,677		0		0		0
1994	10,581		0		0		0
1995	267		0	556	208	556	208
1996	144,697	715	0	2,682	2	1,967	1
1997	32,995		0	725	2	725	2
1998	19,440	305	2	1,386	7	1,081	6
1999	24,505	238	1	268	1	30	0
2000	18,369		0	589	3	589	3
2001	16,189		0	1,671	10	1,671	10
2002	26,607		0	128-	0	128-	0
2003	25,820		0		0		0
2004	27,848	1,745	6	48	0	1,697-	6-
2005	30,352	2,753	9	2,021	7	732-	2-
2006	36,063	4,801	13	251	1	4,550-	13-
2007	43,129	16,187	38	1,720-	4 -	17,907-	42-
2008	43,778	9,990	23	2,332	5	7,658-	17-
2009	46,007	14,765	32	1,850	4	12,915-	28-
2010	54,124	34,296	63	18,373	34	15,923-	29-
2011	45,337	49,643	109	1,121	2	48,521-	107-
2012	45,925	61,706	134	2,286	5	59,420-	129-
2013	380,500	55,444	15	276	0	55,168-	14-
2014	30,494	84,361	277	122	0	84,239-	276-
TOTAL	1,120,801	339,332	30	36,507	3	302,825-	27-
THREE-YE.	AR MOVING AVERAGE	IS					
84-86	50	237	478	182	366	56-	112-
85-87	1,578	230	15	153	10	77-	5-
86-88	2,396	474	20	7	0	467-	20-
87-89	2,886	557	19		0	557-	19-
88-90	2,193	557	25		0	557-	25-
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#### ACCOUNT 383 HOUSE REGULATORS

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
89-91	1,486	313	21		0	313-	21-
90-92	1,430		0	417	29	417	29
91-93	2,105		0	417	20	417	20
92-94	5,520		0	417	8	417	8
93-95	5,175		0	185	4	185	4
94-96	51,848	238	0	1,080	2	841	2
95-97	59,320	238	0	1,321	2	1,083	2
96-98	65,711	340	1	1,598	2	1,258	2
97-99	25,647	181	1	793	3	612	2
98-00	20,771	181	1	748	4	567	3
99-01	19,688	79	0	843	4	763	4
00-02	20,388		0	710	3	710	3
01-03	22,872		0	514	2	514	2
02-04	26,758	582	2	27-	0	608-	2-
03-05	28,006	1,499	5	690	2	810-	3-
04-06	31,421	3,100	10	773	2	2,326-	7-
05-07	36,515	7,914	22	184	1	7,730-	21-
06-08	40,990	10,326	25	288	1	10,038-	24-
07-09	44,305	13,647	31	821	2	12,826-	29-
08-10	47,970	19,684	41	7,518	16	12,165-	25-
09-11	48,489	32,901	68	7,115	15	25,786-	53-
10-12	48,462	48,548	100	7,260	15	41,288-	85-
11-13	157,254	55,598	35	1,228	1	54,370-	35-
12-14	152,306	67,170	44	895	1	66,276-	44-
FIVE-YEA	R AVERAGE						
10-14	111,276	57,090	51	4,436	4	52,654-	47-

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#### ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT P	CT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1988	589		0		0		0
1989	507		Ũ		0		0
1990							
1991							
1992							
1993							
1994							
1995				4		4	
1996	7,293		0	374	5	374	5
1997							
1998							
1999				30		30	
2000							
2001							
2002				7,104		7,104	
2003	146,507		0		0		0
2004	21,831		0		0		0
2005							
2006				7,507		7,507	
2007							
2008							
2009	11,581	686	6		0	686-	б-
2010							
2011							
2012							
2013							
2014	9,223		0		0		0
TOTAL	197,023	686	0	15,020	8	14,334	7
THREE-YE	AR MOVING AVERAGE	IS					
88-90	196		0		0		0
89-91					-		
90-92							
91-93							
92-94							
93-95				1		1	
94-96	2,431		0	126	5	126	5
95-97	2,431		0	126	5	126	5
96-98	2,431		0	125	5	125 <b>Sche</b>	<sup>5</sup> edule JFW-D1 ge 103 of 138



### ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
97-99				10		10	
98-00				10		10	
99-01				10		10	
00-02				2,368		2,368	
01-03	48,836		0	2,368	5	2,368	5
02-04	56,113		0	2,368	4	2,368	4
03-05	56,113		0		0		0
04-06	7,277		0	2,502	34	2,502	34
05-07				2,502		2,502	
06-08				2,502		2,502	
07-09	3,860	229	6		0	229-	б-
08-10	3,860	229	6		0	229-	б-
09-11	3,860	229	6		0	229-	б-
10-12							
11-13							
12-14	3,074		0		0		0
FIVE-YEA	R AVERAGE						
10-14	1,845		0		0		0

#### ACCOUNT 390 STRUCTURES AND IMPROVEMENTS

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT	PCT	GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1998	1,740		0		0		0
1999	1,742		0		0		0
2000	3,602		0		0		0
2000	5,002		0		0		0
2001	5,369		0		0		0
2002	473		0		0		0
2005	175		0		0		0
2005	3,217-	7,921	246-		0	7,921-	246
2005	21,928	3,961-			0	3,961	18
2000	344	5,501	0		0	5,901	0
2007	511		0		0		0
2009							
2010							
2010							
2012	3,648	24,476	671		0	24,476-	671-
2012	15,638	1,024	7		0	1,024-	
2014	490,009	19,118	4		0	19,118-	
2011	1907009	197110	-		0	17,110	-
TOTAL	541,278	48,579	9		0	48,579-	9 -
THREE-YEA	AR MOVING AVERAGE	S					
98-00	2,361		0		0		0
99-01	1,781		0		0		0
00-02	2,990		0		0		0
01-03	1,947		0		0		0
02-04	1,947		0		0		0
03-05	915-	2,640	289-		0	2,640-	289
04-06	6,237	1,320	21		0	1,320-	21-
05-07	6,352	1,320	21		0	1,320-	21-
06-08	7,424	1,320-	18-		0	1,320	18
07-09	115		0		0		0
08-10							
09-11							
10-12	1,216	8,159	671		0	8,159-	671-
11-13	6,429	8,500	132		0	8,500-	132-
12-14	169,765	14,873	9		0	14,873-	9 -
FIVE-YEAF	R AVERAGE						
10-14	101,859	8,924	9		0		<sup>9_</sup> edule JFW-D1 ge 105 of 138

#### ACCOUNT 392 TRANSPORTATION EQUIPMENT

# SUMMARY OF BOOK SALVAGE

YEAR	REGULAR RETIREMENTS	COST OF REMOVAL AMOUNT		GROSS SALVAGE AMOUNT	PCT	NET SALVAGE AMOUNT	PCT
1984				4,912		4,912	
1985	24,558		0	<b>,</b> -	0	, -	0
1986	59,881		0	11,283	19	11,283	19
1987	82,357		0	25,960	32	25,960	32
1988	87,603		0	4,998	6	4,998	б
1989	74,574		0	3,769	5	3,769	5
1990	252,985		0	17,202	7	17,202	7
1991	183,412		0	20,670	11	20,670	11
1992	117,393		0	13,326	11	13,326	11
1993	86,868		0	7,884	9	7,884	9
1994	75,918		0	10,579	14	10,579	14
1995	183,241		0	7,864	4	7,864	4
1996	201,890		0	10,519	5	10,519	5
1997							
1998	127,193		0		0		0
1999	53,642		0		0		0
2000	5,222-		0	29	1-	29	1-
2001	14,830		0	12	0	12	0
2002	301,144		0		0		0
2003	103,199		0	3,435	3	3,435	3
2004	143,778		0	6,620	5	6,620	5
2005	121,270		0	10,838	9	10,838	9
2006	282,668		0	16,882	6	16,882	6
2007	388,569		0	72,312	19	72,312	19
2008	70,042		0	48,918	70	48,918	70
2009	743,600		0	27,342	4	27,342	4
2010	277,240		0	22,330	8	22,330	8
2011	409,384		0	63,296	15	63,296	15
2012	788,894		0	222,828	28	222,828	28
2013	432,391		0	78,397	18	78,397	18
2014	594,104		0	50,790	9	50,790	9
TOTAL	6,277,407		0	762,993	12	762,993	12
THREE-YE	AR MOVING AVERAG	ES					
84-86	28,146		0	5,398	19	5,398	19
85-87	55,599		0	12,414	22	12,414	22
86-88	76,614		0	14,080	18	14,080	18
87-89	81,511		0	11,576	14	11,576	14
88-90	138,387		0	8,656	6	8,656	6
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#### ACCOUNT 392 TRANSPORTATION EQUIPMENT

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAL		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	EAR MOVING AVERAGE	S					
89-91	170,324		0	13,880	8	13,880	8
90-92	184,597		0	17,066	9	17,066	9
91-93	129,224		0	13,960	11	13,960	11
92-94	93,393		0	10,596	11	10,596	11
93-95	115,342		0	8,776	8	8,776	8
94-96	153,683		0	9,654	6	9,654	6
95-97	128,377		0	6,128	5	6,128	5
96-98	109,694		0	3,506	3	3,506	3
97-99	60,278		0		0		0
98-00	58,538		0	10	0	10	0
99-01	21,084		0	14	0	14	0
00-02	103,584		0	14	0	14	0
01-03	139,724		0	1,149	1	1,149	1
02-04	182,707		0	3,352	2	3,352	2
03-05	122,749		0	6,964	6	6,964	6
04-06	182,572		0	11,446	6	11,446	6
05-07	264,169		0	33,344	13	33,344	13
06-08	247,093		0	46,037	19	46,037	19
07-09	400,737		0	49,524	12	49,524	12
08-10	363,628		0	32,863	9	32,863	9
09-11	476,741		0	37,656	8	37,656	8
10-12	491,839		0	102,818	21	102,818	21
11-13	543,557		0	121,507	22	121,507	22
12-14	605,130		0	117,338	19	117,338	19
FIVE-YEA	AR AVERAGE						
10-14	500,403		0	87,528	17	87,528	17

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#### ACCOUNT 396 POWER OPERATED EQUIPMENT

# SUMMARY OF BOOK SALVAGE

		COST O		GROSS		NET	
YEAR	REGULAR RETIREMENTS	REMOVA AMOUNT	L PCT	SALVAGE AMOUNT	PCT	SALVAGE AMOUNT	PCT
		11100111		11100111		711100111	
1984	3,256		0		0		0
1985	9,474		0		0		0
1986	37,200		0	7,567	20	7,567	20
1987	39,212		0	1,100	3	1,100	3
1988	163,774		0	43,289	26	43,289	26
1989	46,884		0	500	1	500	1
1990	140,137		0	11,097	8	11,097	8
1991	97,163		0	19,174	20	19,174	20
1992	73,934		0	5,870	8	5,870	8
1993	57,599		0	7,138	12	7,138	12
1994	77,094		0	4,467	6	4,467	6
1995	26,079		0	3,105	12	3,105	12
1996	20,388		0	8,613	42	8,613	42
1997	11,869		0		0		0
1998	3,781		0		0		0
1999	20,044		0		0		0
2000	23,310		0	20,701	89	20,701	89
2001	24,404		0	2,975	12	2,975	12
2002	159,499		0		0		0
2003	211,812		0	28,318	13	28,318	13
2004	231,567		0	4,637	2	4,637	2
2005							
2006	92,585		0	25,468	28	25,468	28
2007	314,388		0	15,345	5	15,345	5
2008	232,102		0	30,830	13	30,830	13
2009	179,185		0	10,245	б	10,245	6
2010	270,709		0	34,214	13	34,214	13
2011	140,238		0	47,613	34	47,613	34
2012	196,680		0	59,004	30	59,004	30
2013	275,080		0	42,920	16	42,920	16
2014	99,196		0	90,675	91	90,675	91
TOTAL	3,278,643		0	524,864	16	524,864	16
THREE-YE.	AR MOVING AVERAG	ES					
84-86	16,643		0	2,522	15	2,522	15
85-87	28,629		0	2,889	10	2,889	10
86-88	80,062		0	17,319	22	17,319	22
87-89	83,290		0	14,963	18	14,963	18
88-90	116,932		0	18,295	16	18,295	16
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#### ACCOUNT 396 POWER OPERATED EQUIPMENT

# SUMMARY OF BOOK SALVAGE

	REGULAR	COST OF REMOVAI		GROSS SALVAGE		NET SALVAGE	
YEAR	RETIREMENTS	AMOUNT	PCT	AMOUNT	PCT	AMOUNT	PCT
THREE-YE	AR MOVING AVERAGE	S					
89-91	94,728		0	10,257	11	10,257	11
90-92	103,745		0	12,047	12	12,047	12
91-93	76,232		0	10,727	14	10,727	14
92-94	69,542		0	5,825	8	5,825	8
93-95	53,591		0	4,903	9	4,903	9
94-96	41,187		0	5,395	13	5,395	13
95-97	19,446		0	3,906	20	3,906	20
96-98	12,013		0	2,871	24	2,871	24
97-99	11,898		0		0		0
98-00	15,711		0	6,900	44	6,900	44
99-01	22,586		0	7,892	35	7,892	35
00-02	69,071		0	7,892	11	7,892	11
01-03	131,905		0	10,431	8	10,431	8
02-04	200,959		0	10,985	5	10,985	5
03-05	147,793		0	10,985	7	10,985	7
04-06	108,051		0	10,035	9	10,035	9
05-07	135,658		0	13,604	10	13,604	10
06-08	213,025		0	23,881	11	23,881	11
07-09	241,892		0	18,806	8	18,806	8
08-10	227,332		0	25,096	11	25,096	11
09-11	196,711		0	30,691	16	30,691	16
10-12	202,542		0	46,944	23	46,944	23
11-13	203,999		0	49,846	24	49,846	24
12-14	190,319		0	64,200	34	64,200	34
FIVE-YEA	R AVERAGE						
10-14	196,381		0	54,885	28	54,885	28

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# PART IX. DETAILED DEPRECIATION CALCULATIONS

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#### ACCOUNT 367 TRANSMISSION MAINS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA CALVAGE PERCENT					
1967	898,891.44	730,152	914,972	28,864	11.32	2,550
1969	13,002.36	10,269	12,868	784	12.39	63
1995	232,045.52	89,662	112,358	131,290	31.60	4,155
1998	5,729.88	1,892	2,371	3,645	34.28	106
1999	322,447.49	100,284	125,668	212,902	35.19	6,050
2001	3,601,109.44	980,834	1,229,109	2,552,056	37.03	68,919
2005	44,914.39	8,696	10,897	36,263	40.78	889
2006	1,807.13	313	392	1,505	41.74	36
2008	106,031.30	14,117	17,690	93,642	43.66	2,145
	5,225,978.95	1,936,219	2,426,325	3,060,952		84,913
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	T 36.0	1.62

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#### ACCOUNT 369 TRANSMISSION MEASURING & REGULATING STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA ALVAGE PERCENT					
1967	15,138.53	11,187	15,895			
1968	2,504.54	1,825	2,630			
1982	7,781.39	4,316	6,670	1,500	21.23	71
1986	2,318.94	1,150	1,777	658	23.74	28
1998	4,540.20	1,368	2,114	2,653	32.09	83
2005	8,616.48	1,530	2,364	6,683	37.39	179
	40,900.08	21,376	31,450	11,495		361
	COMPOSITE REMAINI	NG LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	r 31.8	0.88

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#### ACCOUNT 375 STRUCTURES AND IMPROVEMENTS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL C COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA 4 ALVAGE PERCENT					
1939	438.71	461	461			
1949	1,602.48	1,584	623	1,060	2.35	451
1950	650.72	638	251	432	2.63	164
1959	2,602.83	2,374	933	1,800	5.26	342
1962	1,288.75	1,144	450	903	6.19	146
1971	742.05	594	234	545	9.49	57
1986	9,239.90	5,457	2,146	7,556	17.50	432
1993	11,514.18	5,356	2,106	9,984	22.28	448
1994	2,391.26	1,066	419	2,092	23.01	91
2004	3,148.16	755	297	3,009	30.86	98
2010	42,181.14	4,451	1,750	42,540	35.98	1,182
	75,800.18	23,880	9,670	69,920		3,411
	COMPOSITE REMAININ	G LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	т 20.5	4.50

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#### ACCOUNT 376 MAINS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	DR CURVE IOWA					
NET SAI	LVAGE PERCENT	-5				
1907	108.52	114	114			
1912	54.73	57	57			
1914	177.43	186	186			
1922	0.30					
1929	323.55	340	340			
1930	1,788.21	1,878	1,878			
1931	11,322.44	11,803	11,889			
1932	525.07	546	551			
1933	2,318.50	2,398	2,434			
1934	5.13	5	5			
1935	102.07	105	107			
1937	15.13	15	16			
1938	47.44	48	50			
1939	6,310.10	6,338	6,626			
1940	11,909.57	11,900	12,505			
1941	12,336.29	12,259	12,953			
1942	2,014.88	1,992	2,112	4	2.93	1
1943	1,852.41	1,821	1,930	15	3.19	5
1944	112.10	110	117	1	3.45	
1945	1,061.23	1,032	1,094	20	3.71	5
1946	12,879.91	12,453	13,202	322	3.96	81
1947	7,163.83	6,887	7,301	221	4.22	52
1948	6,289.99	6,013	6,375	229	4.48	51
1949	2,368.06	2,251	2,386	100	4.74	21
1950	28,403.01	26,841	28,455	1,368	5.00	274
1951	8,002.66	7,517	7,969	434	5.27	82
1952	79,572.79	74,277	78,743	4,808	5.55	866
1953	35,465.46	32,897	34,875	2,364	5.83	405
1954	96,250.29	88,673	94,005	7,058	6.13	1,151
1955	111,580.92	102,093	108,232	8,928	6.43	1,388
1956	48,361.53	43,924	46,565	4,215	6.75	624
1957	57,901.89	52,188	55,326	5,471	7.08	773
1958	88,507.54	79,142	83,901	9,032	7.42	1,217
1959	84,702.05	75,081	79,596	9,341	7.79	1,199
1960	64,149.41	56,364	59,753	7,604	8.16	932
1961	570,511.70	496,482	526,336	72,701	8.56	8,493
1962	238,651.50	205,629	217,994	32,590	8.97	3,633
1963	471,920.02	402,359	426,553	68,963	9.40	7,336
1964 1065	215,370.75	181,590	192,509	33,630	9.85	3,414
1965 1966	807,202.32	672,626	713,072	134,490	10.32	13,032
1966	1,117,985.74	920,091	975,418	198,467	10.81	18,360 Sebedule II
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#### ACCOUNT 376 MAINS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR	ORIGINAL COST	CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SURVII	VOR CURVE IOWA	50-R3				
	ALVAGE PERCENT					
		-				
1967	4,910,804.84	3,988,949	4,228,811	927,534	11.32	81,938
1968	1,129,697.51	905,057	959,479	226,703	11.85	19,131
1969	941,338.38	743,478	788,184	200,221	12.39	16,160
1970	446,058.56	346,962	367,825	100,536	12.96	7,757
1971	1,202,407.45	920,635	975,994	286,534	13.54	21,162
1972	385,847.51	290,566	308,038	97,102	14.14	6,867
1973	317,265.72	234,856	248,978	84,151	14.75	5,705
1974	449,962.58	327,037	346,702	125,759	15.39	8,171
1975	401,586.68	286,480	303,706	117,960	16.03	7,359
1976	353,072.99	246,904	261,751	108,976	16.70	6,526
1977	512,555.62 898,986.14	351,111 602,797	372,224 639,044	165,959	17.38	9,549 16,873
1978 1979	494,985.58	324,626	344,146	304,891 175,589	18.07 18.77	9,355
1980	962,306.34	616,559	653,634	356,788	19.49	18,306
1981	1,216,355.28	760,684	806,425	470,748	20.22	23,281
1982	1,183,050.14	721,223	764,591	477,612	20.97	22,776
1983	1,265,627.03	751,631	796,828	532,080	21.72	24,497
1984	1,587,126.43	916,899	972,034	694,449	22.49	30,878
1985	2,606,225.06	1,463,500	1,551,503	1,185,033	23.26	50,947
1986	3,508,846.43	1,912,146	2,027,126	1,657,163	24.05	68,905
1987	3,874,135.49	2,046,125	2,169,162	1,898,680	24.85	76,406
1988	3,174,887.14	1,622,812	1,720,394	1,613,237	25.66	62,870
1989	2,741,727.71	1,354,194	1,435,624	1,443,190	26.48	54,501
1990	4,157,636.52	1,981,072	2,100,197	2,265,321	27.31	82,948
1991	3,758,340.66	1,724,515	1,828,213	2,118,045	28.15	75,241
1992	3,910,519.31	1,724,539	1,828,238	2,277,807	29.00	78,545
1993	5,058,301.83	2,139,358	2,268,001	3,043,216	29.86	101,916
1994	5,955,179.45	2,409,882	2,554,792	3,698,146	30.73	120,343
1995	6,823,582.02	2,636,632	2,795,177	4,369,584	31.60	138,278
1996	8,236,698.18	3,028,716	3,210,838	5,437,695	32.49	167,365
1997	8,651,858.18	3,019,672	3,201,250	5,883,201	33.38	176,249
1998	5,163,561.14	1,704,595	1,807,095	3,614,644	34.28	105,445
1999 2000	7,239,829.10 7,206,600.94	2,251,659 2,102,093	2,387,055 2,228,495	5,214,766 5,338,436	35.19 36.11	148,189 147,838
2000	7,200,000.94	1,962,173	2,228,495	5,484,113	37.03	148,099
2001	7,982,338.37	2,018,254	2,139,615	6,241,840	37.96	164,432
2002	8,825,674.35	2,010,231	2,182,936	7,084,022	38.89	182,155
2005	8,358,703.75	1,783,413	1,890,652	6,885,987	39.84	172,841
2005	13,235,603.30	2,562,678	2,716,776	11,180,607	40.78	274,169
2006	11,321,224.97	1,963,780	2,081,865	9,805,421	41.74	234,917
2007	7,907,196.31	1,213,834	1,286,824	7,015,732	42.69	164,341
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#### ACCOUNT 376 MAINS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA ALVAGE PERCENT					
2008	15,776,414.34	2,100,472	2,226,776	14,338,459	43.66	328,412
2009	10,606,658.66	1,198,340	1,270,398	9,866,594	44.62	221,125
2010	8,663,633.47	802,339	850,585	8,246,230	45.59	180,878
2011	4,922,453.55	354,564	375,884	4,792,692	46.57	102,914
2012	4,411,987.88	227,923	241,628	4,390,959	47.54	92,363
2013	7,084,461.87	220,185	233,425	7,205,260	48.52	148,501
2014	15,337,860.33	157,827	167,318	15,937,435	49.51	321,903
	236,570,872.66	68,681,189	72,809,928	175,589,488		4,792,722
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	<b></b> 36.6	2.03

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#### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	CURVE IOWA AGE PERCENT					
1940	122.00	122	128			
1945	432.17	414	441	13	3.49	4
1946	393.01	374	399	14	3.79	4
1947	446.67	421	449	20	4.09	5
1948	866.80	810	863	47	4.40	11
1949	3,552.50	3,292	3,509	221	4.70	47
1950	4,246.22	3,899	4,156	303	5.02	60
1951	1,965.25	1,788	1,906	158	5.34	30
1952	5,269.05	4,750	5,063	470	5.66	83
1953	6,891.99	6,153	6,559	678	5.99	113
1954	1,846.34	1,632	1,740	199	6.33	31
1955	3,948.94	3,455	3,683	463	6.67	69
1956	8,112.84	7,023	7,486	1,032	7.02	147
1957	6,612.76	5,664	6,037	906	7.37	123
1958	3,086.03	2,614	2,786	454	7.73	59
1959	5,729.67	4,798	5,114	902	8.10	111
1960	10,052.66	8,320	8,868	1,687	8.47	199
1961	34,674.62	28,353	30,222	6,186	8.85	699
1962	21,046.99	16,994	18,114	3,985	9.24	431
1963	19,423.71	15,485	16,506	3,889	9.63	404
1964	10,661.50	8,388	8,941	2,254	10.03	225
1965	23,391.24	18,150	19,346	5,215	10.44	500
1966	25,395.66	19,432	20,713	5,952	10.85	549
1967	73,787.37	55,648	59,316	18,161	11.27	1,611
1968	43,316.17	32,178	34,299	11,183	11.70	956
1969 1970	21,277.59 19,093.34	15,561	16,587	5,754	12.14 12.59	474 429
1970 1971	44,198.75	13,738 31,279	14,644 33,341	5,404 13,068	12.59	1,002
1971	14,601.53	10,157	10,826	4,506	13.50	334
1973	28,227.65	19,288	20,559	9,080	13.97	650
1974	54,206.77	36,356	38,752	18,165	14.45	1,257
1975	13,566.75	8,928	9,516	4,729	14.93	317
1976	17,351.45	11,191	11,929	6,290		408
1977	12,828.96	8,106	8,640	4,830	15.93	303
1978	8,702.04	5,382	5,737	3,400	16.44	207
1979	10,655.14	6,444	6,869	4,319	16.96	255
1980	8,784.01	5,190	5,532	3,691	17.49	211
1981	108,587.25	62,624	66,752	47,265	18.03	2,621
1982	200,738.91	112,870	120,310	90,466	18.58	4,869
1983	332,125.19	181,951	193,944	154,787	19.13	8,091
1984	34,088.74	18,165	19,362	16,431	19.70	834
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#### ACCOUNT 378 MEASURING AND REGULATING STATION EQUIPMENT - GENERAL

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
		5				
1985	41,928.35	21,715	23,146	20,879	20.27	1,030
1986		66,533	70,919	68,053	20.85	3,264
1987		37,495	39,966	40,842	21.44	1,905
1988		32,959	35,132	38,274	22.04	1,737
1989	39,230.23	17,877	19,055	22,137	22.64	978
1990	77,104.73	33,882	36,115	44,845	23.26	1,928
1991	49,535.58	20,961	22,343	29,669	23.88	1,242
1992	53,239.34	21,648	23,075	32,826	24.51	1,339
1993	116,160.55	45,311	48,298	73,671	25.14	2,930
1994	66,821.42	24,943	26,587	43,575	25.78	1,690
1995	18,729.10	6,672	7,112	12,554	26.43	475
1996	31,720.01	10,750	11,459	21,847	27.09	806
1997	101,028.51	32,487	34,628	71,452	27.75	2,575
1998	99,755.46	30,349	32,349	72,394	28.41	2,548
1999	111,808.33	32,050	34,163	83,236	29.08	2,862
2000	248,425.86	66,842	71,248	189,599	29.75	6,373
2001	223,691.90	56,194	59,898	174,978	30.43	5,750
2003	-	35,232	37,554	134,311	31.80	4,224
2004	238,370.67	46,992	50,089	200,200	32.49	6,162
2005	256,989.75	46,008	49,041	220,798	33.18	6,655
2006	48,863.85	7,850	8,367	42,940	33.88	1,267
2007		15,436	16,454	97,462	34.58	2,818
2008	182,450.86	22,606	24,096	167,477	35.28	4,747
2009		11,401	12,152	101,854	36.00	2,829
2010	22,545.89	1,947	2,075	21,598	36.71	588
2011	•	4,938	5,264	71,595	37.43	1,913
2013	-	2,849	3,037	99,619	38.89	2,562
2014	244,494.26	2,375	2,532	254,187	39.63	6,414
	4,348,141.31	1,553,689	1,656,098	2,909,451		108,344
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	RATE, PERCEN	т 26.9	2.49

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#### ACCOUNT 379 MEASURING AND REGULATING STATION EQUIPMENT - CITY GATE

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
1963	9,271.81	7,392	7,649	2,086	9.63	217
1964	442.71	348	360	105	10.03	10
1965	17,273.64	13,403	13,870	4,267	10.44	409
1966	1,497.51	1,146	1,186	386	10.85	36
1967	1,958.28	1,477	1,528	528	11.27	47
1970	3,146.70	2,264	2,343	961	12.59	76
1971	14,847.13	10,507	10,873	4,716	13.04	362
1984	5,861.50	3,123	3,232	2,923	19.70	148
1985	33,568.31	17,385	17,990	17,257	20.27	851
1986	892.37	449	465	472	20.85	23
1987	696.09	339	351	380	21.44	18
1991	24,886.64	10,531	10,898	15,233	23.88	638
1994	21,558.65	8,047	8,327	14,310	25.78	555
1996	16,874.40	5,719	5,918	11,800	27.09	436
1997	3,799.98	1,222	1,265	2,725	27.75	98
1998	924.03	281	291	679	28.41	24
1999	25,997.39	7,452	7,711	19,586	29.08	674
2000	12,647.46	3,403	3,521	9,759	29.75	328
2001	25,341.14	6,366	6,588	20,020	30.43	658
2002	7,163.03	1,672	1,730	5,791	31.11	186
2003	63,694.61	13,710	14,187	52,692	31.80	1,657
2004	29,860.73	5,887	6,092	25,262	32.49	778
2005	63,586.25	11,384	11,781	54,985	33.18	1,657
2006	26,918.29	4,324	4,474	23,790	33.88	702
2010	29,166.50	2,519	2,607	28,018	36.71	763
2013	55,336.41	1,612	1,668	56,435	38.89	1,451
	497,211.56	141,962	146,905	375,167		12,802
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т 29.	3 2.57

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#### ACCOUNT 380 SERVICES

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR	(2)	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OR CURVE IOWA					
NET SAI	LVAGE PERCENT	-5				
1929	42.19	44	44			
1929	63.97	67	67			
1931	7,741.87	8,129	8,129			
1932	7,034.96	7,387	7,387			
1933	2,392.02	2,512	2,512			
1934	6,291.08	6,606	6,606			
1935	6,585.87	6,915	6,915			
1936	5,354.09	5,622	5,622			
1937	14,877.24	15,621	15,621			
1938	596.42	626	626			
1939	880.06	924	924			
1940	104.60	110	110			
1944	456.11	467	479			
1945	135.06	137	142			
1946	493.40	499	518			
1947	546.42	548	574			
1948	1,005.27	1,001	1,056			
1949	465.68	460	489			
1950 1951	1,942.41 560.57	1,905 546	2,040 589			
1951	1,234.51	1,192	1,296			
1952	525.72	504	552			
1954	1,712.00	1,627	1,798			
1955	5,682.74	5,358	5,967			
1956	4,621.49	4,322	4,853			
1957	6,671.47	6,187	7,005			
1958	11,660.37	10,725	12,243			
1959	15,033.94	13,710	15,786			
1960	5,305.89	4,797	5,571			
1961	7,023.06	6,292	7,374			
1962	6,284.68	5,578	6,599			
1963	23,278.35	20,464	24,442			
1964	4,610.32	4,013	4,841			
1965	38,667.03	33,302	40,600			
1966	59,790.62	50,946	62,780			
1967	555,083.37	467,727	582,838			
1968	282,618.18	235,322	296,749			
1969	298,819.64	245,753	313,761			
1970	324,550.65	263,507	340,778			
1971	350,067.67	280,365	367,571			
1972	272,560.48	215,214	286,189			Cabadu

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#### ACCOUNT 380 SERVICES

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	DR CURVE IOWA LVAGE PERCENT					
1973	158,637.98	123,387	166,570			
1974	180,062.07	137,876	189,065			
1975	282,209.65	212,536	296,320			
1976	327,521.47	242,448	343,898			
1977	281,033.73	204,347	295,085			
1978	474,287.24	338,392	498,002			
1979	704,088.94	492,369	739,293			
1980	806,708.23	552,484	847,044			
1981	880,954.40	590,383	925,002			
1982	1,120,815.74	734,064	1,151,982	24,875	15.05	1,653
1983	1,010,177.03	645,958	1,013,716	46,970	15.64	3,003
1984	1,211,286.38	755,161	1,185,090	86,761	16.25	5,339
1985	1,468,794.24	891,797	1,399,516	142,718	16.87	8,460
1986	1,748,911.27	1,032,951	1,621,032	215,325	17.50	12,304
1987	2,218,619.81	1,272,517	1,996,988	332,563	18.15	18,323
1988	2,369,730.27	1,318,133	2,068,574	419,643	18.81	22,310
1989	2,269,853.91	1,222,657	1,918,742	464,605	19.48	23,850
1990	2,708,781.96	1,410,734	2,213,895	630,326	20.16	31,266
1991	2,785,560.62	1,399,535	2,196,320	728,519	20.86	34,924
1992	2,860,000.97	1,384,383	2,172,542	830,459	21.56	38,519
1993	3,383,990.26	1,574,063	2,470,210	1,082,980	22.28	48,608
1994	4,298,894.32	1,917,253	3,008,786	1,505,053	23.01	65,409
1995	4,582,373.27	1,954,669	3,067,503	1,743,989	23.75	73,431
1996	4,147,675.69	1,687,586	2,648,364	1,706,695	24.50	69,661
1997	4,031,712.65	1,559,970	2,448,094	1,785,204	25.26	70,673
1998	4,286,426.06	1,571,886	2,466,794	2,033,953	26.03	78,139
1999	4,265,577.49	1,475,783	2,315,978	2,162,878	26.82	80,644
2000	3,672,270.91	1,194,360	1,874,334	1,981,550	27.61	71,769
2001	3,561,687.98	1,083,599	1,700,515	2,039,257	28.41	71,780
2002	4,051,117.05	1,147,428	1,800,683	2,452,990	29.21	83,978
2003	4,334,911.99	1,134,501	1,780,396	2,771,262	30.03	92,283
2004	4,602,322.39	1,104,212	1,732,863	3,099,576	30.86	100,440
2005	5,781,543.94	1,261,172	1,979,184	4,091,437	31.69	129,108
2006	4,384,557.65	858,606	1,347,429	3,256,357	32.54	100,072
2007	1,944,358.44	337,370	529,442	1,512,134	33.39	45,287
2008	6,438,409.18	973,487	1,527,714	5,232,616	34.24	152,822
2009	5,858,692.21	752,036	1,180,186	4,971,441	35.11	141,596
2010	4,292,046.36	452,918	710,774	3,795,875	35.98	105,500
2011	4,126,773.90	339,066	532,103	3,801,010	36.87	103,092

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#### ACCOUNT 380 SERVICES

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA ALVAGE PERCENT					
2012 2013 2014	3,444,255.03 2,890,161.68 3,250,306.54	203,426 102,420 38,394	319,241 160,730 60,253	3,297,227 2,873,940 3,352,569	37.75 38.65 39.55	87,344 74,358 84,768
	119,831,472.37	39,623,348	61,350,295	64,472,751		2,130,713
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCENT	2 30.3	1.78

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#### ACCOUNT 381 METERS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
		20 CO E				
	CURVE IOWA AGE PERCENT					
1942	311.51	312	312			
1946	77.88	78	78			
1955	1,228.64	1,229	1,229			
1956	4,922.78	4,923	4,923			
1957	3,181.84	3,182	3,182			
1958	1,721.00	1,721	1,721			
1959	92.50	92	92			
1960	2,665.70	2,614	753	1,913	0.54	1,913
1961	9,490.01	9,188	2,646	6,844	0.89	6,844
1962	12,529.62	11,979	3,450	9,080	1.23	7,382
1963	13,101.48	12,362	3,561	9,540	1.58	6,038
1964	2,373.09	2,211	637	1,736	1.91	909
1965	4,725.81	4,346	1,252	3,474	2.25	1,544
1966	12,094.57	10,980	3,163	8,932	2.58	3,462
1967	31,124.66	27,879	8,030	23,095	2.92	7,909
1968	112,455.42	99,403	28,631	83,824	3.25	25,792
1969	86,966.69	75,817	21,837	65,130	3.59	18,142
1970	79,031.30	67,938	19,568	59,463	3.93	15,131
1971	89,778.53	76,120	21,925	67,854	4.26	15,928
1972	65,395.06	54,628	15,734	49,661	4.61	10,772
1973	35,032.56	28,839	8,306	26,727	4.95	5,399
1974	5,894.85	4,779	1,376	4,519	5.30	853
1975	9,463.73	7,554	2,176	7,288	5.65	1,290
1976	10,769.89	8,462	2,437	8,333	6.00	1,389
1977	33,753.97	26,087	7,514	26,240	6.36	4,126
1978	19,909.48	15,131	4,358	15,551	6.72	2,314
1979	57,789.26	43,156	12,430	45,359	7.09	6,398
1980	43,931.96	32,211	9,278	34,654	7.47	4,639
1981	106,975.93	76,984	22,174	84,802	7.85	10,803
1982	81,150.82	57,298	16,503	64,648	8.23	7,855
1983	66,342.30	45,895	13,219	53,123	8.63	6,156
1984	10,587.08	7,173	2,066	8,521	9.03	944
1985	12,509.30	8,296	2,389	10,120	9.43	1,073
1986	130,469.14	84,571	24,359	106,110	9.85	10,773
1987	57,988.31	36,719	10,576	47,412	10.27	4,617
1988	102,134.38	63,068	18,165	83,969	10.71	7,840
1989	105,745.14	63,636	18,329	87,416	11.15	7,840
1990	209,690.33	122,818	35,375	174,315	11.60	15,027
1991	266,129.07	151,505	43,638	222,491	12.06	18,449
1992	287,561.69	158,774	45,732	241,830	12.54	19,285
1993	292,430.49	156,345	45,032	247,398	13.03	18,987
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#### ACCOUNT 381 METERS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
1994	492,552.67	254,719	73,366	419,187	13.52	31,005
1995	1,071,066.80	534,002	153,808	917,259	14.04	65,332
1996	610,417.03	293,000	84,393	526,024	14.56	36,128
1997	442,472.14	203,851	58,715	383,757	15.10	25,414
1998	664,793.61	292,981	84,387	580,407	15.66	37,063
1999	1,357,002.71	570,430	164,300	1,192,703	16.23	73,488
2000	1,306,789.98	521,788	150,290	1,156,500	16.82	68,757
2001	1,124,211.46	424,390	122,237	1,001,974	17.43	57,486
2002	571,789.26	202,985	58,466	513,323	18.06	28,423
2003	818,756.84	271,655	78,244	740,513	18.71	39,578
2004	706,986.99	217,653	62,690	644,297	19.38	33,245
2005	886,431.69	251,046	72,309	814,123	20.07	40,564
2006	1,092,163.96	281,232	81,003	1,011,161	20.79	48,637
2007	442,826.77	102,324	29,472	413,355	21.53	19,199
2008	1,099,630.25	224,248	64,590	1,035,040	22.29	46,435
2009	796,954.13	139,754	40,253	756,701	23.09	32,772
2010	507,872.00	74,185	21,368	486,504	23.91	20,347
2011	762,441.20	88,222	25,410	737,031	24.76	29,767
2012	1,086,824.35	91,608	26,386	1,060,438	25.64	41,359
2013	725,740.42	37,325	10,751	714,989	26.56	26,920
2014	1,057,742.36	18,510	5,331	1,052,411	27.51	38,256
	20,104,994.39	6,762,211	1,955,925	18,149,069		1,117,998
	COMPOSITE REMAIN	TNG LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т., 16.3	2 5.56

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 16.2 5.56

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#### ACCOUNT 383 HOUSE REGULATORS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	CURVE IOWA AGE PERCENT					
1932	30.51	38	38			
1949	266.01	308	216	117	3.06	38
1950	238.49	275	193	105	3.24	32
1952	1,676.09	1,910	1,341	754	3.63	208
1954	1,074.04	1,211	850	493	4.02	123
1955	2,212.65	2,481	1,742	1,024	4.22	243
1956	6,584.14	7,343	5,156	3,074	4.42	695
1957	8,085.24	8,965	6,294	3,813	4.63	824
1958	5,848.47	6,448	4,527	2,784	4.84	575
1959	8,863.24	9,712	6,819	4,260	5.06	842
1960	5,595.34	6,092	4,277	2,717	5.29	514
1961	9,077.99	9,820	6,895	4,452	5.52	807
1962	5,634.41	6,054	4,251	2,792	5.76	485
1963	14,454.41	15,419	10,826	7,242	6.01	1,205
1964	9,279.57	9,828	6,900	4,699	6.26	751
1965	9,500.24	9,984	7,010	4,865	6.53	745
1966	11,319.54	11,803	8,287	5,862	6.80	862
1967	19,428.04	20,085	14,102	10,183	7.09	1,436
1968	35,271.64	36,153	25,383	18,707	7.38	2,535
1969	38,903.53	39,508	27,739	20,890	7.69	2,717
1970	25,680.61	25,829	18,135	13,966	8.01	1,744
1971	31,422.20	31,278	21,961	17,317	8.35	2,074
1972	25,273.16	24,896	17,480	14,111	8.69	1,624
1973	13,292.74	12,944	9,088	7,528	9.06	831
1974	10,691.48	10,287	7,223	6,141	9.44	651
1975	22,166.06	21,064	14,789	12,919	9.83	1,314
1976 1977	21,590.86 17,372.42	20,241	14,211	12,778	10.25	1,247
1978	23,497.58	16,059 21,399	11,275 15,024	10,441 14,348	10.68 11.13	978 1,289
1979	42,428.18	38,030	26,701	26,334	11.60	2,270
1980	47,773.43	42,108	29,564	30,153	12.09	2,270
1981	57,058.94	49,404	34,687	36,637	12.60	2,494 2,908
1982	62,272.40	52,893	37,137	40,704	13.14	3,098
1983	68,378.46	56,912	39,958	45,515	13.70	3,322
1984	70,310.67	57,278	40,215	47,673	14.28	3,338
1985	105,522.71	84,032	58,999	72,904	14.88	4,899
1986	116,085.27	90,214	63,340	81,767	15.51	5,272
1987	128,678.02	97,449	68,420	92,428	16.16	5,720
1988	92,924.35	68,447	48,057	68,098	16.84	4,044
1989	179,039.80	128,058	89,910	133,890	17.54	7,633
1990	353,138.91	244,721	171,820	269,604	18.27	14,757
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#### ACCOUNT 383 HOUSE REGULATORS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
1991	176,082.73	117,997	82,847	137,256	19.02	7,216
1992		166,499	116,900	205,105	19.80	10,359
1993	370,724.90	230,684	161,965	301,441	20.59	14,640
1994	917,233.47	547,818	384,627	761,915	21.41	35,587
1995	404,000.80	230,821	162,061	342,940	22.26	15,406
1996	1,221,648.07	665,951	467,569	1,059,491	23.12	45,826
1997	787,914.51	408,366	286,717	698,176	24.00	29,091
1998	615,943.19	302,528	212,407	557,522	24.89	22,399
1999	555,310.23	257,171	180,562	513,576	25.81	19,898
2000	457,477.56	199,031	139,741	432,106	26.73	16,166
2001	435,833.69	176,992	124,268	420,524	27.68	15,192
2002	182,735.01	68,916	48,386	180,033	28.63	6,288
2003	49,493.52	17,217	12,088	49,779	29.59	1,682
2004	214,082.12	68,140	47,842	219,761	30.56	7,191
2005	750,753.82	216,527	152,025	786,417	31.54	24,934
2006	520,520.16	134,418	94,376	556,274	32.53	17,100
2007	169,642.86	38,687	27,162	184,892	33.52	5,516
2008	601,805.89	119,075	83,604	668,653	34.51	19,376
2009	573,241.60	96,125	67,490	649,062	35.50	18,283
2010	453,340.50	62,198	43,670	523,006	36.50	14,329
2012	2,804,040.72	213,738	150,067	3,354,984	38.50	87,142
2013	228,066.71	10,431	7,324	277,759	39.50	7,032
2014	434,276.67	6,623	4,650	538,196	40.50	13,289
	14,889,714.39	5,752,933	4,039,188	14,572,955		541,086
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAI	L RATE, PERCEN	т 26.9	3.63

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#### ACCOUNT 385 INDUSTRIAL MEASURING AND REGULATING STATION EQUIPMENT

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
		0				
1965	2,039.40	1,647	2,039			
1968	1,089.67	845	1,065	25	7.86	3
1969	3,190.55	2,439	3,073	118	8.25	14
1971	3,120.05	2,312	2,913	207	9.06	23
1982	120.93	72	91	30	14.10	2
1984	586.83	333	420	167	15.14	11
1985	4,851.80	2,678	3,374	1,478	15.68	94
1986	5,946.94	3,191	4,020	1,927	16.22	119
1987	876.19	456	575	301	16.78	18
1988	7,305.46	3,686	4,644	2,661	17.34	153
1990	11,026.90	5,198	6,549	4,478	18.50	242
1991	17,729.79	8,054	10,147	7,583	19.10	397
1992	24,277.89	10,613	13,371	10,907	19.70	554
1993	20,145.94	8,455	10,653	9,493	20.31	467
1994	20,493.55	8,238	10,379	10,115	20.93	483
1995	45,696.25	17,547	22,108	23,588	21.56	1,094
1996	198,821.74	72,711	91,610	107,212	22.20	4,829
1997	245,310.16	85,228	107,380	137,930	22.84	6,039
1998	122,273.55	40,175	50,617	71,657	23.50	3,049
1999	6,775.45	2,100	2,646	4,129	24.15	171
2000	6,792.57	1,976	2,490	4,303	24.82	173
2001	90,229.91	24,516	30,888	59,342	25.49	2,328
2002	18,700.94	4,723	5,951	12,750	26.16	487
2003	34,445.32	8,031	10,118	24,327	26.84	906
2004	15,481.84	3,309	4,169	11,313	27.52	411
2005	29,552.87	5,733	7,223	22,330	28.21	792
2006	71,277.64	12,423	15,652	55,626	28.90	1,925
2007	4,942.61	763	961	3,982	29.60	135
2008	20,939.71	2,812	3,543	17,397	30.30	574
2009	24,423.98	2,784	3,508	20,916	31.01	674
2010	11,923.33	1,117	1,407	10,516	31.72	332
2012	209,622.43	11,020	13,884	195,738	33.16	5,903
2013	42,583.89	1,350	1,701	40,883	33.89	1,206
2014	1,700.25	18	23	1,678	34.63	48
	1,324,296.33	356,553	449,192	875,105		33,656
	COMPOSITE REMAINI	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	т 26.0	0 2.54

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#### ACCOUNT 390 STRUCTURES AND IMPROVEMENTS

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
1967	6,942.56	5,236	1,815	5,475	11.27	486
1968	3,840.04	2,853	989	3,043	11.70	260
1972	3,470.00	2,414	837	2,806	13.50	208
1973	3,149.19	2,152	746	2,561	13.97	183
1977	57,426.65	36,284	12,578	47,720	15.93	2,996
1979	1,411.68	854	296	1,186	16.96	70
1980	19,510.75	11,529	3,996	16,490	17.49	943
1981	6,395.41	3,688	1,278	5,437	18.03	302
1982	2,848.31	1,602	555	2,436	18.58	131
1985	2,227.83	1,154	400	1,939	20.27	96
1986	491.47	247	86	430	20.85	21
1987	53,796.07	26,209	9,085	47,401	21.44	2,211
1988	207,793.18	97,964	33,959	184,224	22.04	8,359
1989	43,407.34	19,781	6,857	38,721	22.64	1,710
1990	1,515.61	666	231	1,360	23.26	58
1991	18,212.37	7,707	2,672	16,451	23.88	689
1992	3,642.75	1,481	513	3,312	24.51	135
1994	74,761.12	27,906	9,674	68,825	25.78	2,670
2005	19,961.49	3,574	1,239	19,721	33.18	594
2006	17,669.74	2,839	984	17,569	33.88	519
2012	31,454.26	1,519	527	32,500	38.16	852
2013	8,419,892.51	245,335	85,044	8,755,843	38.89	225,144
2014	29,821.01	290	100	31,212	39.63	788
	9,029,641.34	503,284	174,461	9,306,662		249,425
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т 37.	3 2.76

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#### ACCOUNT 391 OFFICE FURNITURE AND EQUIPMENT

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)		ALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	ACCRUED SALVAGE PERCENT 0					
1967	405.29	405	405			
1968	887.80	888	888			
1971	154.17	154	154			
1983	1,600.58	1,601	1,601			
1984	883.66	884	884			
1988	1,151.38	1,151	1,151			
1989	1,030.09	1,030	1,030			
1991	11,825.43	11,825	11,825			
1992	231.73	232	232			
1993	2,705.76	2,706	2,706			
1994	750.00	750	750			
1995	46,097.91	46,098	46,098			
	67,723.80	67,724	67,724			
AMORT	IZED					
SURVI	VOR CURVE 15-SQUA	RE				
	SALVAGE PERCENT 0					
2000	15,394.45	14,881	14,503	891	0.50	891
2001	4,029.25	3,626	3,534	495	1.50	330
2004		1,534	1,495	696	4.50	155
2005	775.99	491	479	297	5.50	54
2009	12,585.28	4,615	4,498	8,087	9.50	851
2013	325,218.31	32,522	31,696	293,522	13.50	21,742
2014	1,806.19	60	58	1,748	14.50	121
	362,000.65	57,729	56,263	305,738		24,144
	429,724.45	125,453	123,987	305,738		24,144
	COMPOSITE REMAINING	G LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	r 12.7	5.62

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#### ACCOUNT 391.2 OFFICE FURNITURE AND EQUIPMENT - COMPUTERS

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	ACCRUED GALVAGE PERCENT	0				
1998 2001 2002 2003 2005 2006 2007 2008 2009	11,757.91 20,017.17 1,296.34 10,103.22 18,652.37 9,290.95 69,231.23	43,392 11,758 20,017 1,296 10,103 18,652 9,291 69,231 39,546 223,286	43,392 11,758 20,017 1,296 10,103 18,652 9,291 69,231 39,546 223,288			
	TIZED IVOR CURVE 5-SQI SALVAGE PERCENT					
2010 2011 2012 2013 2014	41,772.70 18,481.83 38,517.39	13,801 29,241 9,241 11,555 1,177	13,279 28,135 8,891 11,118 1,132	2,055 13,638 9,590 27,399 10,636	1.50 2.50	2,055 9,092 3,836 7,828 2,364
	125,874.23 349,161.77	65,015 288,301	62,556 285,844	63,318 63,318		25,175 25,175
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCENT	r 2.5	7.21

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#### ACCOUNT 392 TRANSPORTATION EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA					
NET S	ALVAGE PERCENT	+12				
1985	2,672.06	2,351	2,351			
1991	16,316.53	13,397	14,359			
1995	21,881.74	16,543	17,825	1,431	1.62	883
1996	19,152.23	14,143	15,239	1,615	1.85	873
1997	12,467.71	8,968	9,663	1,309	2.10	623
1999	67,404.23	45,853	49,405	9,911	2.61	3,797
2001	8,625.02	5,551	5,981	1,609	3.09	521
2002	87,414.42	54,984	59,244	17,681	3.28	5,391
2003	38,924.13	23,977	25,834	8,419	3.45	2,440
2004	62,469.30	37,573	40,484	14,489	3.64	3,980
2005	95,383.72	55,545	59,848	24,090	3.89	6,193
2006	191,620.03	106,162	114,386	54,240	4.26	12,732
2007	810,565.80	416,195	448,438	264,860	4.79	55,294
2008	781,207.03	361,069	389,041	298,421	5.46	54,656
2009	874,681.59	350,723	377,894	391,826	6.26	62,592
2010	852,734.50	285,154	307,245	443,161	7.13	62,154
2011	1,609,319.38	424,860	457,774	958,427	8.05	119,059
2012	615,426.58	117,262	126,346	415,229	9.01	46,085
2013	534,313.01	61,328	66,079	404,116	10.00	40,412
2014	500,142.37	19,137	20,619	419,506	11.00	38,137
	7,202,721.38	2,420,775	2,608,055	3,730,339		515,822

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 7.2 7.16

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#### ACCOUNT 393 STORES EQUIPMENT

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
FULLY AC NET SALV	CRUED AGE PERCENT	0				
1985 1986	3,536.92 3,218.47	3,537 3,218	3,537 3,218			
	6,755.39	6,755	6,755			

COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PERCENT .. 0.0 0.00

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#### ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

	ORIGINAL	CALCULATED	ALLOC. BOOK	FUTURE BOOK	REM.	ANNUAL
YEAR	COST	ACCRUED	RESERVE	ACCRUALS	LIFE	ACCRUAL
(1)	(2)	(3)	(4)	(5)	(б)	(7)

#### FULLY ACCRUED NET SALVAGE PERCENT.. 0

1951	1,204.32	1,204	1,204
1957	414.31	414	414
1960	7,458.40	7,458	7,458
1966	3,873.37	3,873	3,873
1967	518.03	518	518
1971	3,985.23	3,985	3,985
1972	470.03	470	470
1973	391.38	391	391
1975	707.04	707	707
1977	4,725.96	4,726	4,726
1979	5,044.70	5,045	5,045
1980	3,230.94	3,231	3,231
1981	7,040.23	7,040	7,040
1982	9,497.00	9,497	9,497
1983	88,228.50	88,228	88,229
1984	6,403.56	6,404	6,404
1985	2,814.85	2,815	2,815
1986	82,570.01	82,570	82,570
1987	20,574.69	20,575	20,575
1988	7,374.89	7,375	7,375
1989	5,572.99	5,573	5,573
1990	36,556.69	36,557	36,557
1991	23,196.49	23,196	23,196
1992	739,621.50	739,622	739,622
1993	117,278.02	117,278	117,278
1994	98,346.97	98,347	98,347
	1,277,100.10	1,277,099	1,277,100

AMORTIZED SURVIVOR CURVE.. 20-SQUARE NET SALVAGE PERCENT.. 0

2001	63,347.14	42,759	42,398	20,949	6.50	Schedule JFW-D
2000	53,813.33	39,015	38,686	15,128	5.50	2,751
1999	42,982.30	33,311	33,030	9,952	4.50	2,212
1998	59,462.56	49,057	48,643	10,819	3.50	3,091
1997	35,002.49	30,627	30,369	4,634	2.50	1,854
1996	43,968.49	40,671	40,328	3,641	1.50	2,427
1995	62,438.94	60,878	60,364	2,075	0.50	2,075

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#### ACCOUNT 394 TOOLS, SHOP AND GARAGE EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
AMORTIZED SURVIVOR CURVE 20-SQUARE NET SALVAGE PERCENT 0						
2002	381,252.91	238,283	236,272	144,980	7.50	19,331
2003	15,775.20	9,071	8,994	6,781	8.50	798
2004	23,626.54	12,404	12,299	11,327	9.50	1,192
2005	48,122.37	22,858	22,665	25,457	10.50	2,424
2006	117,581.22	49,972	49,550	68,031	11.50	5,916
2008	86,424.76	28,088	27,851	58,574	13.50	4,339
2009	68,250.26	18,769	18,611	49,640	14.50	3,423
2010	214,116.91	48,176	47,770	166,347	15.50	10,732
2011	54,013.30	9,452	9,372	44,641	16.50	2,706
2012	139,628.46	17,454	17,307	122,322	17.50	6,990
2013	182,081.49	13,656	13,541	168,541	18.50	9,110
2014	154,250.11	3,856	3,823	150,427	19.50	7,714
	1,846,138.78	768,357	761,874	1,084,265		92,308
	3,123,238.88	2,045,456	2,038,974	1,084,265		92,308
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUAL	RATE, PERCEN	т 11.7	2.96

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#### ACCOUNT 395 LABORATORY EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR		CALCULATED ACCRUED	ALLOC. BOOK RESERVE	FUTURE BOOK ACCRUALS	REM. LIFE	ANNUAL ACCRUAL
(1)	(2)	(3)	(4)	(5)	(6)	(7)
FULLY	ACCRUED					
NET S	SALVAGE PERCENT	0				
1964	553.81	554	554			
1970		861	861			
1971		811	811			
1974		539	539			
1977		592	592			
1978		8,384	8,384			
1982		13,109	13,109			
1985		22,691	22,691			
1991		5,795	5,795			
1993	5,084.61	5,085	5,085			
1994		1,858	1,858			
	60,278.13	60,279	60,278			
AMORT						
	IVOR CURVE 20-S					
NET S	SALVAGE PERCENT	0				
1996	7,257.76	6,713	6,713	545	1.50	363
1997	1,347.48	1,179	1,179	168	2.50	67
2000	13,064.62	9,472	9,472	3,593	5.50	653
2008	•	6,269	6,269	13,021	13.50	965
2009	23,021.42	6,331	6,331	16,690	14.50	1,151
2010	4,007.12	902	902	3,105	15.50	200
2012	5,110.07	639	639	4,471	17.50	255
	73,098.56	31,505	31,505	41,594		3,654
	133,376.69	91,784	91,783	41,594		3,654
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т 11	4 2.74
				•		

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#### ACCOUNT 396 POWER OPERATED EQUIPMENT

## CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE IOWA SALVAGE PERCENT					
1991	20,512.90	15,518	15,147	2,084	1.59	1,311
1994		11,655	11,376	2,176	2.24	971
1997	15,121.98	10,257	10,012	2,690	3.08	873
1999	7,892.99	5,055	4,934	1,696	3.80	446
2001	49,597.56	29,424	28,720	12,942	4.70	2,754
2002	151,594.55	85,715	83,664	43,675	5.23	8,351
2005	16,255.87	7,527	7,347	6,308	7.18	879
2006	168,105.03	71,045	69,345	71,863	7.95	9,039
2007	442,050.75	167,559	163,550	207,773	8.78	23,664
2008	368,291.27	122,586	119,653	189,712	9.66	19,639
2009	281,383.76	80,068	78,152	158,210	10.58	14,954
2010	580,100.22	135,830	132,580	354,704	11.54	30,737
2011	204,077.46	37,391	36,496	134,929	12.51	10,786
2012	588,697.60	77,267	75,418	419,088	13.50	31,044
2013	216,170.99	17,023	16,615	164,969	14.50	11,377
2014	105,051.23	2,758	2,692	85,551	15.50	5,519
	3,231,037.24	876,678	855,701	1,858,370		172,344
	COMPOSITE REMAINI	NG LIFE AND	ANNUAL ACCRUAI	L RATE, PERCEN	т 10.8	5.33

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#### ACCOUNT 397 COMMUNICATIONS EQUIPMENT

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	ACCRUED	0				
NET S	SALVAGE PERCENT	0				
1991	111,359.79	111,360	111,360			
1997	,	96,413	96,413			
1998		318,210	318,210			
1999		2,395	2,395			
	528,378.18	528,378	528,378			
AMORI	TIZED					
SURVI	VOR CURVE 15-S	QUARE				
NET S	SALVAGE PERCENT	0				
2001	71,990.53	64,791	64,791	7,200	1.50	4,800
2003		12,894	12,894	3,925	3.50	1,121
2005		100,459	100,459	58,161	5.50	10,575
2006		36,615	36,615	28,000	6.50	4,308
2007		8,812	8,812	8,813		1,175
2009	20,301.37	7,444	7,444	12,857		1,353
2010		3,061	3,061	7,141	10.50	680
2012	90,130.67	15,022	15,022	75,109	12.50	6,009
2013	92,080.35	9,208	9,208	82,872	13.50	6,139
	542,383.71	258,306	258,306	284,078		36,160
	1,070,761.89	786,684	786,684	284,078		36,160
	COMPOSITE REMAIN	ING LIFE AND	ANNUAL ACCRUA	L RATE, PERCEN	т7.9	3.38

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#### ACCOUNT 398 MISCELLANEOUS EQUIPMENT

# CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL RELATED TO ORIGINAL COST AT DECEMBER 31, 2014

YEAR (1)		ALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUTURE BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
	VOR CURVE 15-SQUA ALVAGE PERCENT 0	RE				
2008	3,335.88	1,446	1,446	1,890	8.50	222
	3,335.88	1,446	1,446	1,890		222
	COMPOSITE REMAINING	LIFE AND A	ANNUAL ACCRUAL	RATE, PERCENT	8.5	6.67

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