Exhibit No.: 118

Issues: Depreciation
Witness: John J. Spanos
Exhibit Type: Direct
Sponsoring Party: Missouri-American Water Company
Case No.: WR-2010-XXXX
SR-2010-XXX
Date: October 30, 2009

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. WR-2010-XXXX
CASE NO. SR-2010-XXX

DIRECT TESTIMONY

OF

JOHN J. SPANOS

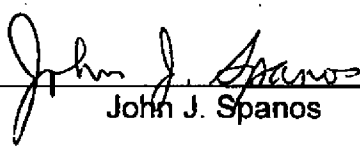## ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

JEFFERSON CITY, MISSOURI

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE	))))))	CASE NO. WR-2010-XXXX CASE NO. SR-2010-XXXX

AFFIDAVIT OF JOHN J. SPANOS

John J. Spanos being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of John J. Spanos" that said testimony and schedules were prepared by him and/or under his direction and supervision; that if inquires were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge.

_____
John J. Spanos

Commonwealth of Pennsylvania
County of Cumberland
SUBSCRIBED and sworn to
Before me this _22nd_ day of _October_ 2009.

_____
Notary Public

My commission expires: _February 20, 2011_

TABLE OF CONTENTS

1

2   1.   **Q.**   **Please state your name and address.**

3   **A.**   John J. Spanos. My business address is 207 Senate Avenue, Camp Hill,

4   Pennsylvania.

5   2.   **Q.**   **With what firm are you associated?**

6   **A.**   I am associated with the firm of Gannett Fleming, Inc.

7   3.   **Q.**   **How long have you been associated with Gannett Fleming?**

8   **A.**   I have been associated with the firm since college graduation in June 1986.

9   4.   **Q.**   **What is your position in the firm?**

10   **A.**   I am Vice President of the Valuation and Rate Division.

11   5.   **Q.**   **What is your educational background?**

12   **A.**   I have Bachelor of Science degrees in Industrial Management and

13   Mathematics from Carnegie-Mellon University and a Master of Business

14   Administration from York College of Pennsylvania.

15   6.   **Q.**   **Are you a member of any professional societies?**

16   **A.**   Yes. I am a member of the Society of Depreciation Professionals and the

17   American Gas Association/Edison Electric Institute Industry Accounting

18   Committee.

19   7.   **Q.**   **Have you taken the certification examination for depreciation**

20   **professionals?**

21   **A.**   Yes. I passed the certification examination of the Society of Depreciation

22   Professionals in September 1997 and was recertified in August 2003 and

23   February 2008.

24   8.   **Q.**   **Will you outline your experience in the field of depreciation?**

1 A. In June 1986, I was employed by Gannett Fleming Valuation and Rate

2 Consultants, Inc. as a Depreciation Analyst. During the period from June

3 1986 to December 1995, I took part in the preparation of numerous

4 depreciation and original cost studies for utility companies in various

5 industries.

6 Depreciation studies of telephone companies were performed for

7 United Telephone of Pennsylvania, United Telephone of New Jersey and

8 Anchorage Telephone Utility.

9 My work in the railroad industry included depreciation studies for

10 Union Pacific Railroad, Burlington Northern Railroad and Wisconsin Central

11 Transportation Corporation.

12 Assignments in the electric industry included depreciation studies for

13 Chugach Electric Association, The Cincinnati Gas and Electric Company, The

14 Union Light, Heat & Power Company, Northwest Territories Power

15 Corporation and the City of Calgary - Electric System.

16 Pipeline industry assignments included studies for TransCanada

17 Pipelines Limited, Trans Mountain Pipe Line Company Ltd., Interprovincial

18 Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline

19 Company.

20 My work for the gas industry included depreciation studies for

21 Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples

22 Natural Gas Company, T. W. Phillips Gas & Oil Company, The Cincinnati Gas

23 and Electric Company, The Union Light, Heat & Power Company,

24 Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

1   Assignments in the water industry included depreciation studies for

2 Indiana-American Water Company, Consumers Pennsylvania Water

3 Company and The York Water Company; and depreciation and original cost

4 studies for Philadelphia Suburban Water Company and Pennsylvania-

5 American Water Company.

6   My participation in each of the above studies included assembly and

7 analysis of historical and simulated data, field reviews, the development of

8 preliminary estimates of service life and net salvage, calculations of annual

9 depreciation, and the preparation of reports for submission to state or

10 provincial public utility commissions or federal regulatory agencies. I

11 performed these studies under the general direction of William M. Stout, P.E.,

12 the President of Gannett Fleming Valuation and Rate Consultants, Inc.

13   In January 1996, I was assigned to the position of Supervisor of

14 Depreciation Studies. In July 1999, I was promoted to the position of

15 Manager, Depreciation and Valuation Studies. In December 2000, I was

16 promoted to my current position as Vice President of Gannett Fleming

17 Valuation and Rate Consultants, Inc., now the Valuation and Rate Division of

18 Gannett Fleming, Inc. In this position, I am responsible for all depreciation,

19 valuation and original cost studies, including the preparation of final exhibits

20 and responses to data requests for submission to the appropriate regulatory

21 body.

22   Since January 1996, I have conducted depreciation studies similar to

23 those previously listed including assignments for Pennsylvania American

24 Water Company; Aqua Pennsylvania; Kentucky American Water Company;

1	Virginia American Water Company; Indiana American Water Company;
2	Hampton Water Works Company; Omaha Public Power District; Enbridge
3	Pipe Line Company; Inc.; Columbia Gas of Virginia, Inc.; Virginia Natural Gas
4	Company National Fuel Gas Distribution Corporation - New York and
5	Pennsylvania Divisions; The City of Bethlehem - Bureau of Water; The City of
6	Coatesville Authority; The City of Lancaster - Bureau of Water; Peoples
7	Energy Corporation; The York Water Company; Public Service Company of
8	Colorado; Enbridge Pipelines; Enbridge Gas Distribution, Inc.; Reliant
9	Energy-HLP; Massachusetts-American Water Company; St. Louis County
10	Water Company; Missouri-American Water Company; Chugach Electric
11	Association; Alliant Energy; Oklahoma Gas & Electric Company; Nevada
12	Power Company; Dominion Virginia Power; NUI-Virginia Gas Companies;
13	Pacific Gas & Electric Company; PSI Energy; NUI - Elizabethtown Gas
14	Company; Cinergy Corporation – CG&E; Cinergy Corporation – ULH&P;
15	Columbia Gas of Kentucky; SCANA, Inc.; Idaho Power Company; El Paso
16	Electric Company; Central Hudson Gas & Electric; Centennial Pipeline
17	Company; CenterPoint Energy-Arkansas; CenterPoint Energy – Oklahoma;
18	CenterPoint Energy – Entex; CenterPoint Energy - Louisiana; NSTAR –
19	Boston Edison Company; Westar Energy, Inc.; PPL Electric Utilities; PPL Gas
20	Utilities; Wisconsin Power & Light Company; TransAlaska Pipeline; Avista
21	Corporation; Northwest Natural Gas; Allegheny Energy Supply, Inc.; Public
22	Service Company of North Carolina; Artesian Water Company, Potomac
23	Electric Power Company, South Jersey Gas Company; Duquesne Light
24	Company; MidAmerican Energy Company; Laclede Gas; Duke Energy

1			Company; E.ON U.S. Services Inc.; Elkton Gas Services; Anchorage Water
2			and Wastewater Utility; Duke Energy Carolinas; Duke Energy Ohio Gas;
3			Duke Energy Kentucky; Duke Energy Indiana; Northern Indiana Public
4			Service Company; Tennessee American Water Company; Columbia Gas of
5			Maryland; Bonneville Power Administration; NSTAR Electric and Gas
6			Company; EPCOR Distribution, Inc. and B. C. Gas Utility, Ltd. My additional
7			duties include determining final life and salvage estimates, conducting field
8			reviews, presenting recommended depreciation rates to management for its
9			consideration and supporting such rates before regulatory bodies.
10	9.	Q.	**Have you submitted testimony to any utility commissions on the subject**
11			**of utility plant depreciation?**
12		A.	Yes. I have submitted testimony to the Pennsylvania Public Utility
13			Commission; the Commonwealth of Kentucky Public Service Commission;
14			the Public Utilities Commission of Ohio; the Nevada Public Utility
15			Commission; the Public Utilities Board of New Jersey; the Missouri Public
16			Service Commission; the Massachusetts Department of Telecommunications
17			and Energy; the Alberta Energy & Utility Board; the Idaho Public Utility
18			Commission; the Louisiana Public Service Commission; the State Corporation
19			Commission of Kansas; the Oklahoma Corporate Commission; the Public
20			Service Commission of South Carolina; Railroad Commission of Texas – Gas
21			Services Division; the New York Public Service Commission; Illinois
22			Commerce Commission; the Indiana Utility Regulatory Commission; the
23			California Public Utilities Commission; the Federal Energy Regulatory
24			Commission ("FERC"); the Arkansas Public Service Commission; the Public

1   Utility Commission of Texas; District of Columbia, Delaware Public Service

2   Commission, Maryland Public Service Commission; Washington Utilities and

3   Transportation Commission; the Tennessee Regulatory Commission; the

4   Regulatory Commission of Alaska; and the North Carolina Utilities

5   Commission.

6   **10. Q.   What is the extent of your formal instruction with respect to utility plant**

7   **depreciation?**

8   A.   I have completed the "Techniques of Life Analysis", "Techniques of Salvage

9   and Depreciation Analysis", "Forecasting Life and Salvage", "Modeling and

10 Life Analysis Using Simulation" and "Managing a Depreciation Study"

11 programs conducted by Depreciation Programs, Inc. Also, I have completed

12 the "Introduction to Public Utility Accounting" program conducted by the

13 American Gas Association.

14 **11. Q.   What is the purpose of your testimony?**

15 A.   My testimony is in support of the depreciation study conducted under my

16 direction and supervision for Missouri-American Water Company (the

17 "Company" or "MAWC"). Based upon that study, I am recommending that

18 new depreciation accrual rates be adopted by the Company for its water utility

19 assets and for all districts.

20   **OVERVIEW**

21 **12. Q.   Please describe what you mean by the term "depreciation".**

22 A.   "Depreciation" refers to the loss in service value not restored by current

23 maintenance, incurred in connection with the consumption or prospective

24 retirement of utility plant in the course of service from causes which can be

1   reasonably anticipated or contemplated, against which the Company is not

2   protected by insurance. Among the causes to be given consideration are

3   ·wear and tear, decay, action of the elements, inadequacy, obsolescence,

4   changes in the art, changes in demand, and the requirements of public

5   authorities. Depreciation accrual rates are used to allocate, for accounting

6   purposes, the cost of assets over their service lives.

7   In the study that I performed and that is the basis for my testimony, I

8   used the straight line whole life method of depreciation, with the average

9   service life procedure to develop recommended depreciation accrual rates. In

10   addition, I calculated the amount required to amortize the variance between

11   the book depreciation reserve and the calculated accrued depreciation. The

12   total annual depreciation is based on a system of depreciation accounting

13   which aims to distribute the cost of fixed capital assets over the estimated

14   useful life of the unit, or group of assets, in a systematic and rational manner.

15   For General Plant Accounts 340.1, 340.2, 340.3, 340.5, 342, 343, 344,

16   346.1, 346.2, 347 and 348; I used the straight line method of amortization.

17   The annual amortization is based on amortization accounting which

18   distributes the unrecovered cost of fixed capital assets over the remaining

19   amortization period selected for each account and vintage.

20   **13. Q.   Have you prepared an exhibit presenting the results of your study?**

21   A.   Yes. The report titled, "Depreciation Study – Calculated Annual Depreciation

22   Accruals Related to Utility Plant as of December 31, 2008" which has been

23   marked Schedule JJS-1 sets forth the results of my study.

24   **14. Q.   How did you determine the recommended annual depreciation accrual**

1   rates?

2   A. The determination of annual depreciation accrual rates consists of two

3   phases. In the first phase, service life and net salvage characteristics are

4   estimated for each depreciable group, that is, each plant account or

5   subaccount identified as having similar characteristics. In the second phase,

6   the annual depreciation accrual rates are calculated based on the service life

7   and net salvage estimates determined in the first phase.

8   **ESTIMATION OF SERVICE LIFE AND NET SALVAGE**

9 **15. Q.   Please describe the first phase of the study, that is, the manner in which**

10   **you estimated the service life and net salvage characteristics for each**

11   **depreciable group.**

12   A. The service life and net salvage study consisted of compiling historical data

13   from records related to the Company's plant; analyzing these data to obtain

14   historical trends of survivor and salvage characteristics; obtaining

15   supplementary information from management and operating personnel

16   concerning the Company's practices and plans as they relate to plant

17   operations; and interpreting the above data to form judgments of average

18   service life and net salvage characteristics.

19 **16. Q.   What historical data did you analyze for the purpose of estimating the**

20   **service life characteristics of the Company's plant?**

21   A. The data consisted of the entries made by the Company to record plant

22   transactions through 2008. The transactions included additions, retirements,

23   transfers and the related balances. The Company, in accordance with my

24   instructions, classified the data by depreciable group, type of transaction, the

1   year in which the transaction took place, and the year in which the plant was

2   installed.

3 **17. Q.** **What method did you use to analyze this service life data?**

4   **A.** I used the retirement rate method. That method is the most appropriate when

5   aged retirement data are available, because it develops the average rates of

6   retirement actually experienced during the period of study. Other methods of

7   life analysis infer the rates of retirement based on a selected type survivor

8   curve.

9 **18. Q.** **Please describe the results of your use of the retirement rate method.**

10   **A.** Each retirement rate analysis resulted in a life table which, when plotted,

11   formed an original survivor curve. Each original survivor curve as plotted

12   from the life table represents the average survivor pattern experienced by the

13   several vintage groups during the experience band studied. Inasmuch as this

14   survivor pattern does not necessarily describe the life characteristics of the

15   property group, interpretation of the original curves is required in order to use

16   them as valid considerations in service life estimation. Iowa type survivor

17   curves were used in these interpretations.

18 **19. Q.** **Please explain briefly what an "Iowa-type survivor curve" is and how**

19   **you use it in estimating service life characteristics for each depreciable**

20   **group.**

21   **A.** The range of survivor characteristics usually experienced by utility and

22   industrial properties is encompassed by a system of generalized survivor

23   curves known as the Iowa type curves. The Iowa curves were developed at

24   the Iowa State College Engineering Experiment Station through an extensive

1   process of observation and classification of the ages at which industrial

2   property had been retired.

3   Iowa type curves are used to smooth and extrapolate original

4   survivor curves determined by the retirement rate method. The Iowa curves

5   and truncated Iowa curves were used in this study to describe the forecasted

6   rates of retirement based on the observed rates of retirement and the outlook

7   for future retirements.

8   The estimated survivor curve designations for each depreciable

9   group indicate the average service life, the family within the Iowa system and

10   the relative height of the mode. For example, the Iowa 90-R2 indicates an

11   average service life of ninety years; a right-moded, or R, type curve (the

12   mode occurs after average life for right-moded curves); and a moderate

13   height, 2, for the mode (possible modes for R type curves range from 1 to 5).

14   **20. Q.   What historical data did you analyze for the purpose of estimating net**

15   **   salvage characteristics?**

16   A.   The data consisted of the entries made by the Company to record

17   retirements, cost of removal and gross salvage during the period 1974

18   through 2008.

19   **21. Q.   What method did you use to analyze this net salvage data?**

20   A.   The net salvage data were analyzed by expressing the net salvage and its

21   two components, cost of removal and gross salvage, as percents of the

22   original cost retired on annual, three-year moving average and most recent

23   five-year average bases. The use of averages smooths the annual

24   fluctuations and assists in identifying underlying trends.

1   22. Q.   **Please describe the manner in which you used the analyses of net**

2   **salvage to estimate net salvage percents.**

3   A.   The results of the net salvage analyses provided indications of historical net

4   salvage levels. The judgments of net salvage incorporated these historical

5   indications and consideration of estimates made for other water companies.

6

7   **CALCULATION OF DEPRECIATION**

8   23. Q.   **Please describe the second phase of the process that you used, that is,**

9   **the calculation of annual depreciation accrual rates.**

10   A.   After I estimated the service life and net salvage characteristics for each

11   depreciable group, I calculated annual depreciation accrual rates for each

12   group in accordance with the straight line remaining life method, using the

13   average service life procedure.

14   24. Q.   **What group procedure is being used in this proceeding for depreciable**

15   **accounts?**

16   A.   The average service life procedure is used in the current proceeding for all

17   depreciable accounts and installation years. The average service procedure

18   also was used in the Company's last rate proceeding.

19   25. Q.   **Please describe briefly the amortization of certain General Plant**

20   **accounts.**

21   A.   General Plant Accounts 340.1, 340.2, 340.3, 340.5, 342, 343, 344, 346.1,

22   346.2, 347 and 348 include a very large number of units, but represent less

23   than three percent of depreciable utility plant. Depreciation accounting is

24   difficult for these assets, inasmuch as periodic inventories are required to

1		properly reflect plant in service. In amortization accounting, units of property
2		are capitalized in the same manner as they are in depreciation accounting.
3		However, retirements are recorded when a vintage is fully amortized rather
4		than as the units are removed from service. That is, there is no dispersion of
5		retirement. All units are retired when the age of the vintage reaches the
6		amortization period.

7 **DESCRIPTION OF REPORT**

8 **26. Q.** **Please outline the contents of your report.**

9 A. My report is presented in three parts. "Introduction" includes statements

10 related to the scope and basis of the depreciation study. "Methods Used in

11 the Estimation of Depreciation" includes descriptions of the estimation of

12 survivor curves and net salvage and the calculation of annual depreciation

13 accrual rates.

14 "Results of Study" presents a description of the results, summaries of

15 the depreciation calculations, graphs and tables which relate to the service

16 life and net salvage studies, and the detailed depreciation calculations.

17 Table 1 on pages III-4 and III-5 presents the estimated survivor curve,

18 the net salvage percent, the original cost as of December 31, 2008, the

19 calculated annual depreciation accrual amount and rate, book reserve, future

20 accruals and the composite remaining life for each account or subaccount.

21 The section beginning on page III-7 presents the results of the retirement rate

22 analyses prepared as the historical bases for the service life estimates. The

23 section beginning on page III-179 presents the results of the analyses of

24 historical net salvage data. The section beginning on page III-212 presents

12

1		the depreciation calculations related to surviving original cost as of December
2		31, 2008.
3	27. Q.	**Please use an example to illustrate the manner in which the study is**
4		**presented in the report.**
5	A.	I will use Account 331, Mains - Transmission and Distribution, as my
6		example, inasmuch as it is a large depreciable group and is representative of
7		the presentation.

The retirement rate method was used to analyze the survivor characteristics of this group. The life tables for the 1939-2008 and 1974-2008 experience bands are presented on pages III-115 through III-122 of the report. The life tables, or original survivor curves, are plotted along with the estimated smooth survivor curve, the 90-R2 on page III-114. The net salvage analysis for the period 1974 through 2008 is presented on pages III-197 and III-198.

The calculation of the annual depreciation accrual rate related to the original cost at December 31, 2008, of utility plant is presented on pages III-258 through III-261. The calculation is based on the 90-R2 survivor curve, negative twenty-five percent net salvage and the attained age. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual amount. The totals are brought forward to the table on page III-4.

RECOMMENDATION

13

1 28. Q. **What is your recommendation regarding annual depreciation accrual**

2   **rates for the Company?**

3   A. I recommend that the Company use a composite annual depreciation accrual

4   rate for each account or subaccount. My recommended depreciation accrual

5   rates, based on the depreciation study, are set forth for each account in

6   column 6 of Table 1 on pages III-4 and III-5 of Schedule JJS-1. In my

7   opinion, these are reasonable and appropriate depreciation accrual rates for

8   the Company.

9 29. Q. **Are your recommended depreciation accrual rates reasonable for plant**

10   **added subsequent to December 31, 2008?**

11   A. Yes. The annual depreciation accrual rates calculated as of December 31,

12   2008, can reasonably be applied to the total balance including new plant

13   additions during the next several years.

14 30. Q. **Are there any additional depreciation rates to recommend?**

15   A. Yes, there are. I have set forth depreciation rates for new additions in

16   Accounts 339.1, 341.1, 341.2, 341.3, 341.4 and 345.

17 31. Q. **Why have you recommended these rates for new additions?**

18   A. The historical plant to reserve ratio is not a good indicator for developing

19   depreciation rates due to a change in asset base or company practices. In

20   the case of Account 339.1, Miscellaneous Intangible Plant – Other, the new

21   additions related to the Comprehensive Planning Study (CPS) which has an

22   anticipated life expectancy of 10 years. For the other accounts with a new

23   recommended rate, the company has switched from capitalizing these assets

24   to leasing these assets to once again capitalizing. Therefore, the level of

1   future recovery of the existing assets is not indicative of new assets, so I am

2   recommending a separate recovery to avoid an underrecovered situation in

3   the future.

4   32. Q.   **How are the proposed rates on page III-5 of the Depreciation Study**

5   **developed?**

6   A.   The rates are developed using the survivor curve and net salvage parameter

7   of each subaccount based on the theoretical percentage of recovery of these

8   parameters.

9   33. Q.   **Does this complete your direct testimony?**

10   A.   Yes, it does.

MISSOURI-AMERICAN WATER COMPANY

ST. LOUIS, MISSOURI

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO UTILITY PLANT
AT DECEMBER 31, 2008

MISSOURI-AMERICAN WATER COMPANY

St. Louis, Missouri

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO UTILITY PLANT

AT DECEMBER 31, 2008

GANNETT FLEMING, INC. - VALUATION AND RATE DIVISION

Harrisburg, Pennsylvania

Gannett Fleming

October 29, 2009

Missouri American Water Company
727 Craig Road
Creve Coeur, MO 63141

ii

Attention Frank Kartmann, President

Ladies and Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the utility plant of Missouri-American Water Company, Inc. as of December 31, 2008. The attached report presents a description of the methods used in the estimation of depreciation, the summary of annual and accrued depreciation, the statistical support for the life and net salvage estimates and the detailed tabulations of annual and accrued depreciation.

Respectfully submitted,

GANNETT FLEMING, INC.

JOHN J. SPANOS
Vice President
Valuation and Rate Division

JJS:krm

051791

A Tradition of Excellence

CONTENTS

PART I. INTRODUCTION

PART II. METHODS USED IN THE ESTIMATION OF DEPRECIATION

PART III. RESULTS OF STUDY

CONTENTS, cont.

PART III. RESULTS OF STUDY, cont.

PART I. INTRODUCTION

MISSOURI-AMERICAN WATER COMPANY

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO UTILITY PLANT
AT DECEMBER 31, 2008

PART I. INTRODUCTION

SCOPE

This report presents the results of the depreciation study prepared for the Missouri-American Water Company as applied to utility plant in service as of December 31, 2008. It relates to the concepts, methods, and basic judgments which underlie recommended annual depreciation accrual rates related to current utility plant in service.

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 2008; a review of Company practice and outlook as they relate to plant operation and retirement; and consideration of current practice in the water industry, including knowledge of service life and salvage estimates used for other water properties.

PLAN OF REPORT

Part I, Introduction, includes brief statements of the scope and basis of the study. Part II presents descriptions of the methods used in the service life and salvage studies and the methods and procedures used in the calculation of depreciation. Part III presents the results of the study, including summary tables, survivor curve charts and life tables resulting from the retirement rate method of analysis, tabular results of the historical net salvage analyses, and detailed tabulations of the calculated remaining lives and annual accruals.

BASIS OF STUDY

Depreciation

For most accounts, the annual depreciation was 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 was based on amortization accounting. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group.

Survivor Curve Estimates

The procedure for estimating survivor curves, which define service lives and remaining lives, consisted of compiling historical service life data for the plant accounts or other depreciable groups, analyzing the historical data base through the use of accepted techniques, and forecasting the survivor characteristics for each depreciable account or group. These forecasts were based on interpretations of the historical data analyses and the probable future. The combination of the historical data and the estimated future trend yields a complete pattern of life characteristics, i.e., a survivor curve, from which the average service life and remaining service life are derived.

The historical data analyzed for life estimation purposes were compiled through 2008 from the Company's plant accounting records. Such data included plant additions, retirements, transfers and other activity recorded by the Company for each of its plant accounts and subaccounts.

The estimates of net salvage incorporated a review of experienced costs of removal and salvage related to plant retirements, and considerations of trends exhibited by the historical data. Each component of net salvage, i.e., cost of removal and salvage was

stated in dollars and as a percent of retirement for purposes of estimating average future levels of the components, as well as of net salvage.

An understanding of the function of the plant and information with respect to the reasons for past retirements and the expected causes of future retirements was obtained through field trips and discussions with operating and management personnel. The supplemental information obtained in this manner was considered in the interpretation and extrapolation of the statistical analyses.

Calculation of Depreciation

The depreciation accrual rates were calculated using the straight line method, the remaining life basis, and the average service life depreciation procedure. The life span technique was used for major structures. In this technique, an average date of final retirement was estimated for each plant location, and the estimated survivor curves applied to each vintage were truncated at ages coinciding with the dates of final retirement.

The change to amortization accounting for certain accounts is recommended 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 on page II-29 of the report.

I-4

PART II. METHODS USED IN

THE ESTIMATION OF DEPRECIATION

PART II. METHODS USED IN
THE ESTIMATION OF DEPRECIATION

DEPRECIATION

Depreciation, in public utility regulation, is the loss in service value not restored by current repairs or covered by insurance.

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 utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service, that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the straight line method of depreciation.

The calculation of annual depreciation based on the straight line method requires the estimation of average life and salvage. These subjects are discussed in the sections which follow.

SERVICE LIFE AND NET SALVAGE ESTIMATION

Average Service Life

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. A discussion of the general concept of survivor curves is presented. Also, the Iowa type survivor curves are reviewed.

II-2

Survivor Curves

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 years 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 and is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

Iowa Type Curves. The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. There are four families in the Iowa system, labeled in accordance with the location of the modes of the retirements 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,
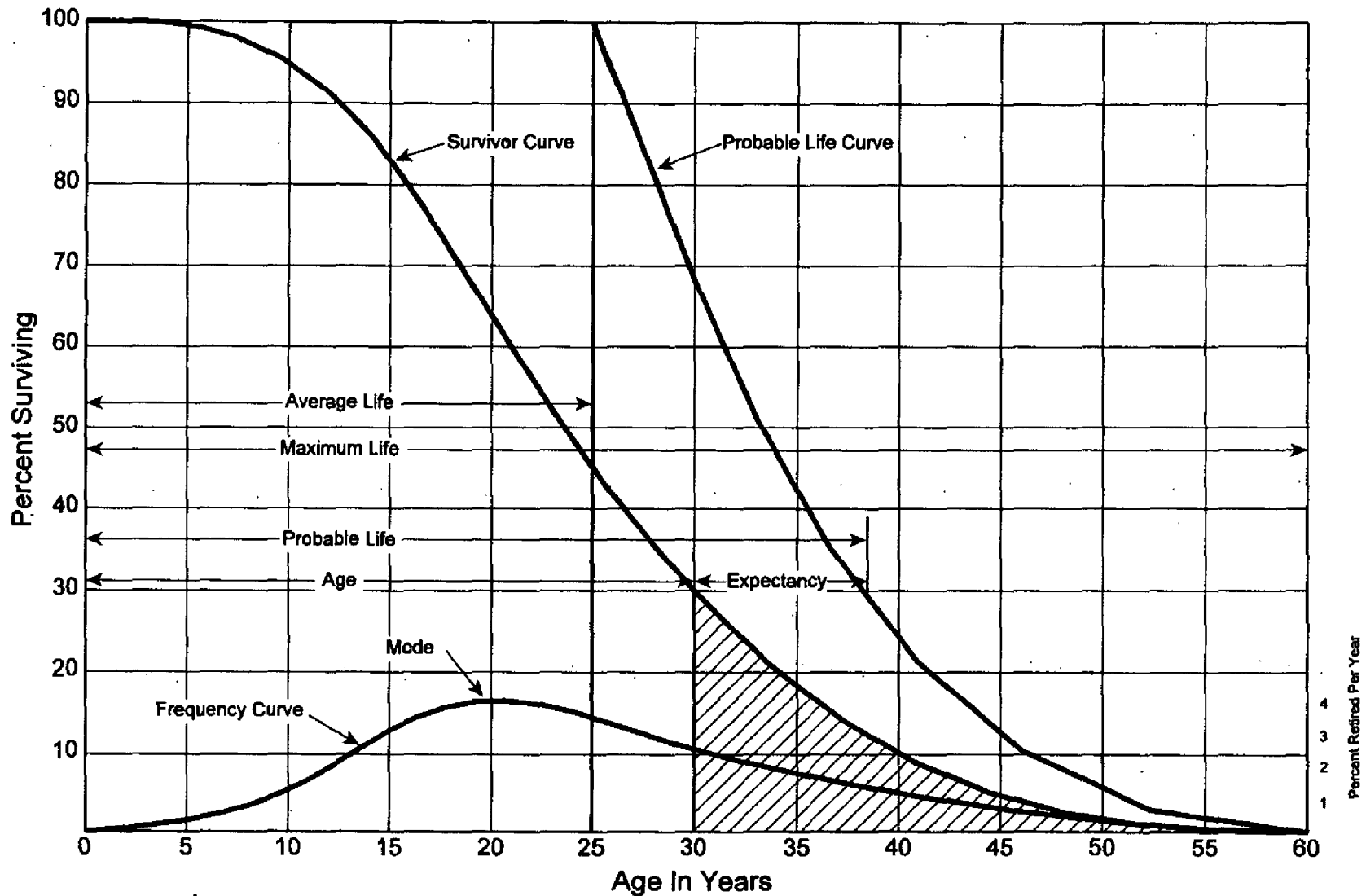
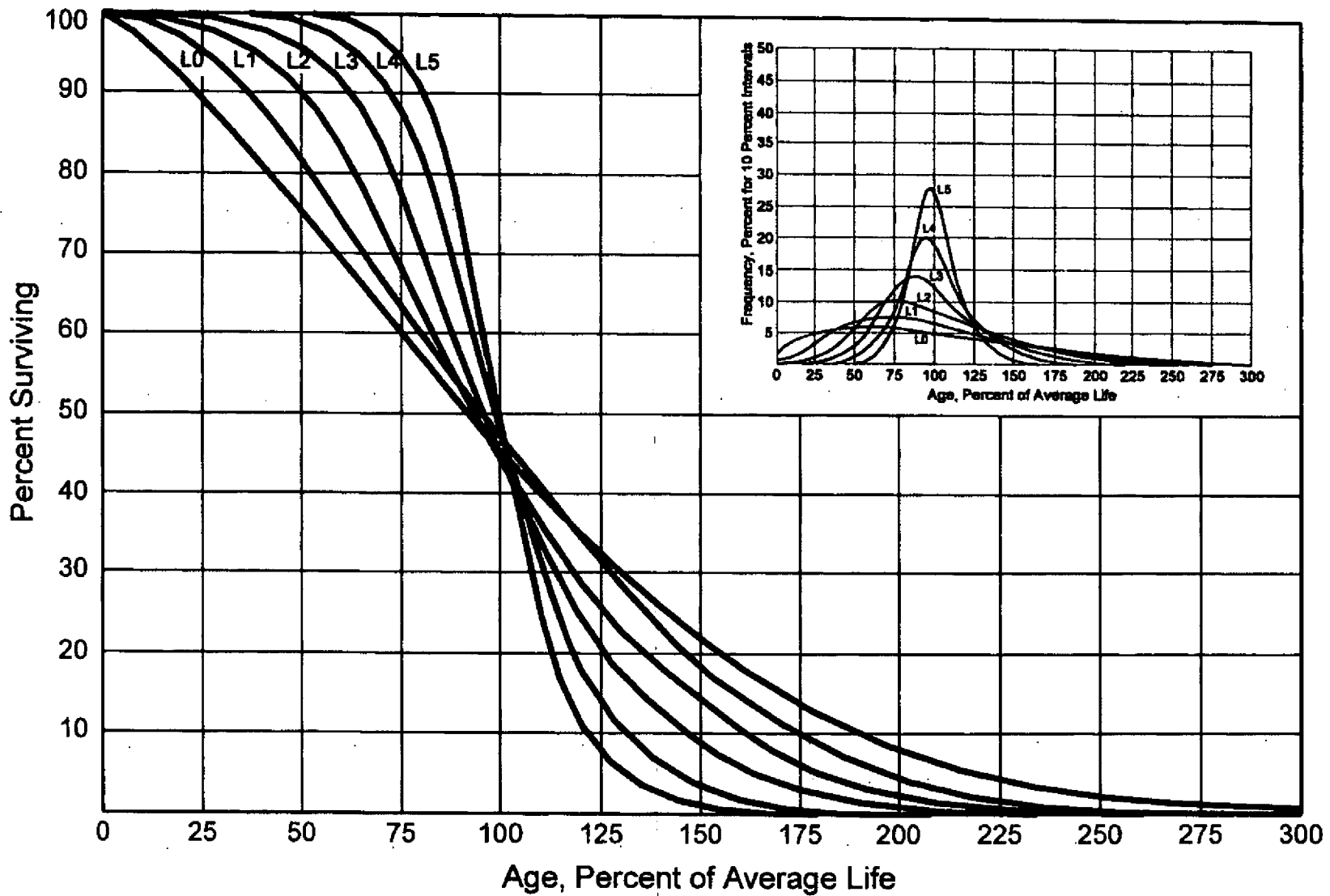Figure 1. A Typical Survivor Curve and Derived Curves
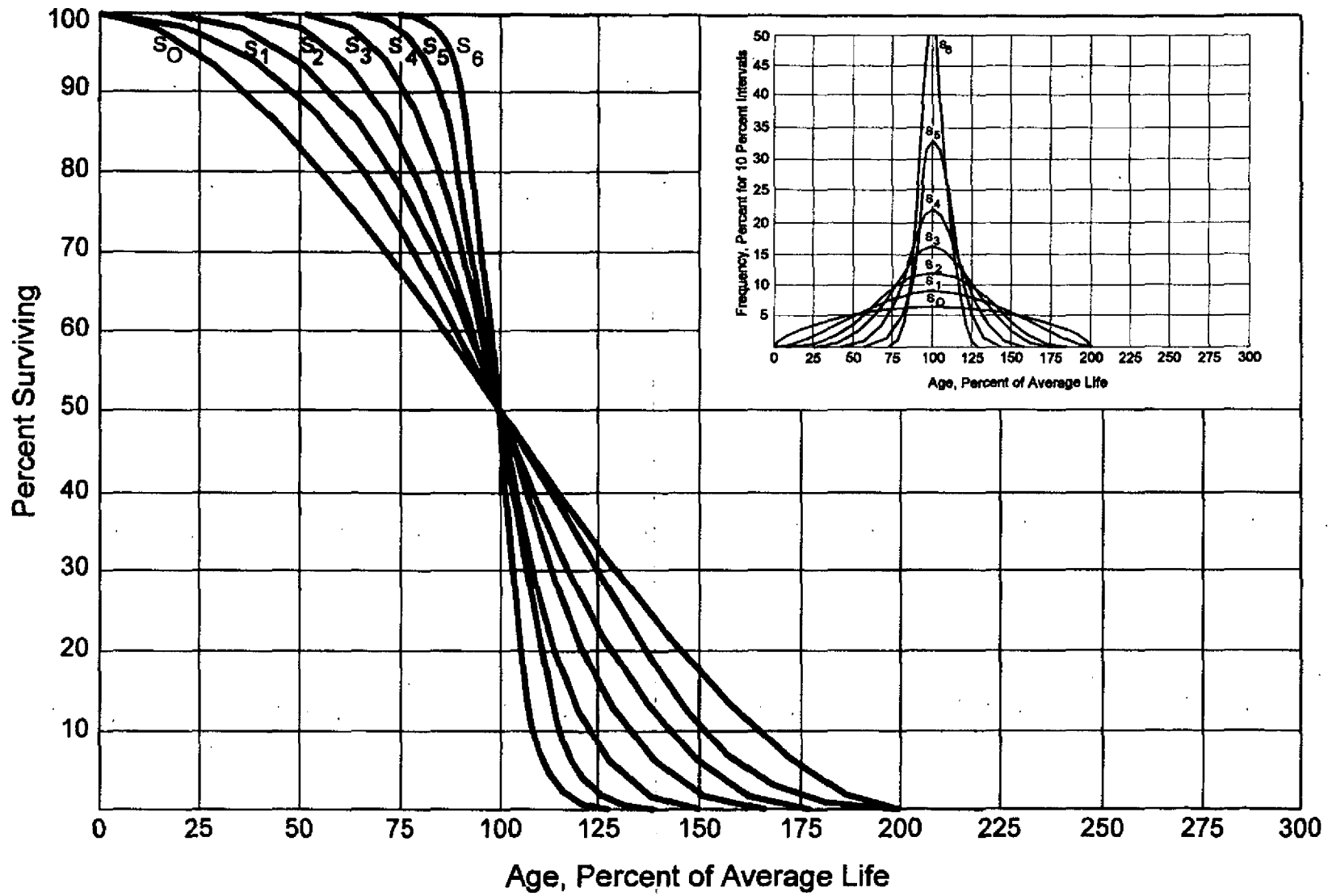
Figure 2. Left Modal or "L" Iowa Type Survivor Curves

Figure 3. Symmetrical or "S" Iowa Type Survivor 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 Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125.[1] These type curves have also been presented in subsequent Experiment Station bulletins and in the text, "Engineering Valuation and Depreciation."[2] In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis[3] 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

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

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

[3]Couch, Frank V. B., Jr. "Classification of Type O Retirement Characteristics of Industrial Property." Unpublished M.S. thesis (Engineering Valuation). Library, Iowa State College, Ames, Iowa. 1957.
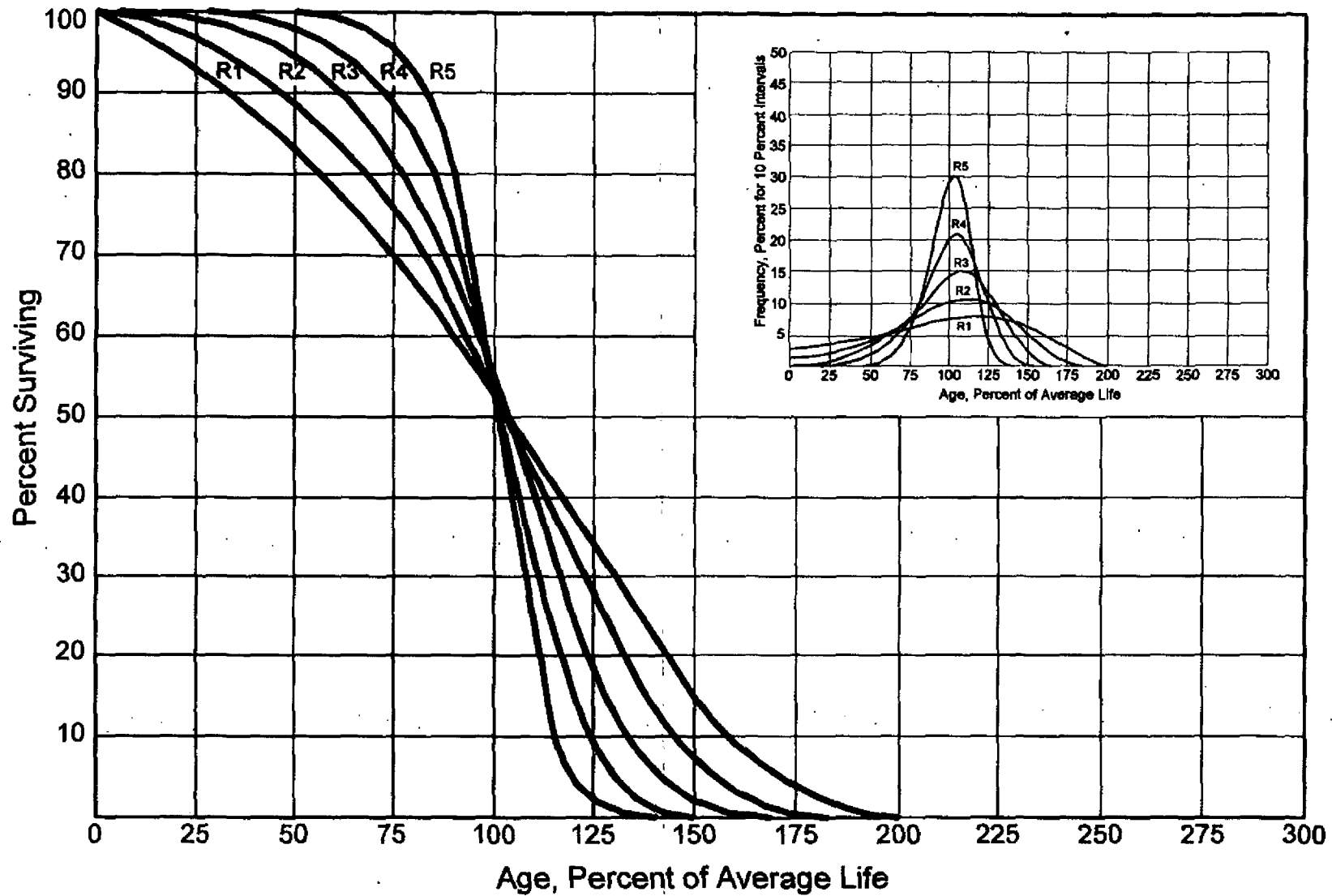
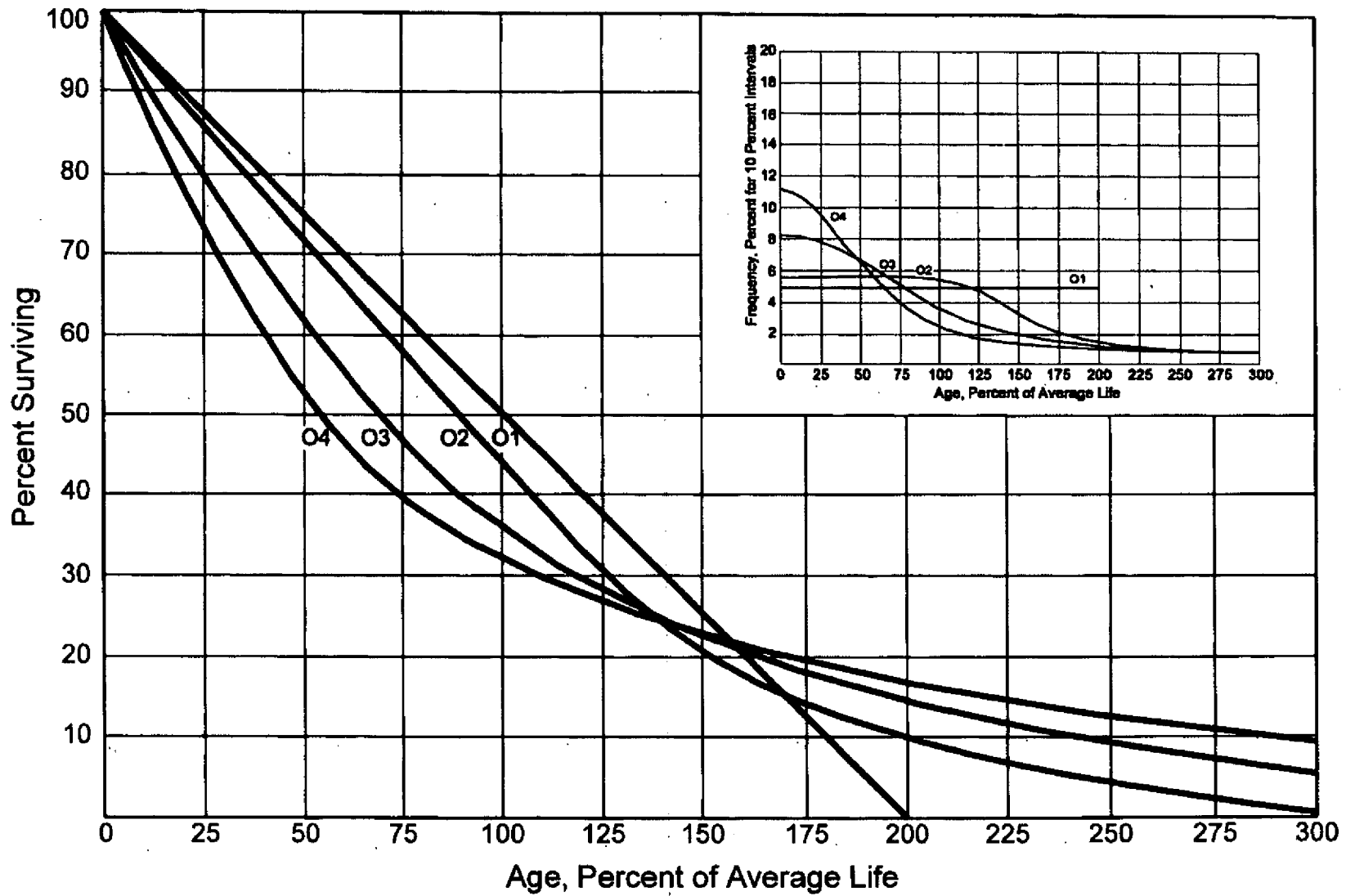Figure 4. Right Modal or "R" Iowa Type Survivor Curves

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

property groups for which aged accounting experience is available or for which aged accounting experience is developed by statistically aging unaged amounts 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,"[4] "Engineering Valuation and Depreciation,"[5] and "Depreciation Systems."[6]

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 beginnings of the age intervals during the same period. The period of observation is referred to as the experience band, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the placement band. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table, and illustrations of smoothing the stub survivor curve.

Schedules of Annual Transactions in Plant Records. The property group used to illustrate the retirement rate method is observed for the experience band 1999-2008 during which there were placements during the years 1994-2008. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner

---

[4]Winfrey, Robley, Supra Note 1.

[5]Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 2.

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

presented in Tables 1 and 2 on pages II-12 and II-13. In Table 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 1994 were retired in 1999. The $10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of $143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Table 1 immediately above the stairstep line drawn on the table beginning with the 1999 retirements of 1994 installations and ending with the 2008 retirements of the 2003 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

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

In Table 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

TABLE 1. RETIREMENTS FOR EACH YEAR 1999-2008
SUMMARIZED BY AGE INTERVAL

Experience Band 1999-2008

Placement Band 1994-2008

Year Placed (1)	Retirements, Thousands of Dollars During Year										Total During Age Interval (12)	Age Interval (13)
	1999 (2)	2000 (3)	2001 (4)	2002 (5)	2003 (6)	2004 (7)	2005 (8)	2006 (9)	2007 (10)	2008 (11)		
1994	10	11	12	13	14	16	23	24	25	26	26	13½-14½
1995	11	12	13	15	16	18	20	21	22	19	44	12½-13½
1996	11	12	13	14	16	17	19	21	22	18	64	11½-12½
1997	8	9	10	11	11	13	14	15	16	17	83	10½-11½
1998	9	10	11	12	13	14	16	17	19	20	93	9½-10½
1999	4	9	10	11	12	13	14	15	16	20	105	8½-9½
2000		5	11	12	13	14	15	16	18	20	113	7½-8½
2001			6	12	13	15	16	17	19	19	124	6½-7½
2002				6	13	15	16	17	19	19	131	5½-6½
2003					7	14	16	17	19	20	143	4½-5½
2004						8	18	20	22	23	146	3½-4½
2005							9	20	22	25	150	2½-3½
2006								11	23	25	151	1½-2½
2007									11	24	153	½-1½
2008	—	—	—	—	—	—	—	—	—	13	80	0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606	

II-12

TABLE 2. OTHER TRANSACTIONS FOR EACH YEAR 1999-2008
SUMMARIZED BY AGE INTERVAL

Experience Band 1999-2008   Placement Band 1994 -2008

Acquisitions, Transfers and Sales, Thousands of Dollars

Year Placed (1)	During Year										Total During Age Interval (12)	Age Interval (13)
	1999 (2)	2000 (3)	2001 (4)	2002 (5)	2003 (6)	2004 (7)	2005 (8)	2006 (9)	2007 (10)	2008 (11)		
1994	-	-	-	-	-	-	60^a	-	-	-	-	13½-14½
1995	-	-	-	-	-	-	-	-	-	-	-	12½-13½
1996	-	-	-	-	-	-	-	-	-	-	-	11½-12½
1997	-	-	-	-	-	-	-	$(5)^b$	-	-	60	10½-11½
1998	-	-	-	-	-	-	-	6^a	-	-	-	9½-10½
1999		-	-	-	-	-	-	-	-	-	(5)	8½-9½
2000		-	-	-	-	-	-	-	-	-	6	7½-8½
2001			-	-	-	-	-	-	-	-	-	6½-7½
2002				-	-	-	-	$(12)^b$	-	-	-	5½-6½
2003					-	-	-	-	22^a	-	-	4½-5½
2004						-	-	$(19)^b$	-	-	10	3½-4½
2005							-	-	-	-	-	2½-3½
2006								-	-	$(102)^c$	(121)	1½-2½
2007									-	-	-	½-1½
2008	—	—	—	—	—	—	—	—	—	—	—	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	

[a] Transfer Affecting Exposures at Beginning of Year
[b] Transfer Affecting Exposures at End of Year
[c] Sale with Continued Use
Parentheses denote Credit amount.

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 Table 3 on page II-15.

The surviving plant at the beginning of each year from 1999 through 2008 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 Table 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Tables 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 2004 are calculated in the following manner:

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

For the entire experience band 1999-2008, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing

II-14

TABLE 3. PLANT EXPOSED TO RETIREMENT
JANUARY 1 OF EACH YEAR 1999-2008
SUMMARIZED BY AGE INTERVAL

Experience Band 1999-2008   Placement Band 1994-2008

| | Exposures, Thousands of Dollars | | | | | | | | | | | |
| | Annual Survivors at the Beginning of the Year | | | | | | | | | | Total at | |
Year Placed (1)	1999 (2)	2000 (3)	2001 (4)	2002 (5)	2003 (6)	2004 (7)	2005 (8)	2006 (9)	2007 (10)	2008 (11)	Beginning of Age Interval (12)	Age Interval (13)
1994	255	245	234	222	209	195	239	216	192	167	167	13½-14½
1995	279	268	256	243	228	212	194	174	153	131	323	12½-13½
1996	307	296	284	271	257	241	224	205	184	162	531	11½-12½
1997	338	330	321	311	300	289	276	262	242	226	823	10½-11½
1998	376	367	357	346	334	321	307	297	280	261	1,097	9½-10½
1999	420[a]	416	407	397	386	374	361	347	332	316	1,503	8½-9½
2000		460[a]	455	444	432	419	405	390	374	356	1,952	7½-8½
2001			510[a]	504	492	479	464	448	431	412	2,463	6½-7½
2002				580[a]	574	561	546	530	501	482	3,057	5½-6½
2003					660[a]	653	639	623	628	609	3,789	4½-5½
2004						750[a]	742	724	685	663	4,332	3½-4½
2005							850[a]	841	821	799	4,955	2½-3½
2006								960[a]	949	926	5,719	1½-2½
2007									1,080[a]	1,069	6,579	½-1½
2008										1,220[a]	7,490	0-½
Total	1,975	2,382	2,824	3,318	3,872	4,494	5,247	6,017	6,852	7,799	44,780	

[a] Additions during the year.

of the retirements during an age interval (Table 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

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

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

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

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

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

Experience Band 1999-2008   Placement Band 1994-2008

(Exposure and Retirement Amounts are in Thousands of Dollars)

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

Column 2 from Table 3, Column 12, Plant Exposed to Retirement.
Column 3 from Table 1, Column 12, Retirements for Each Year.
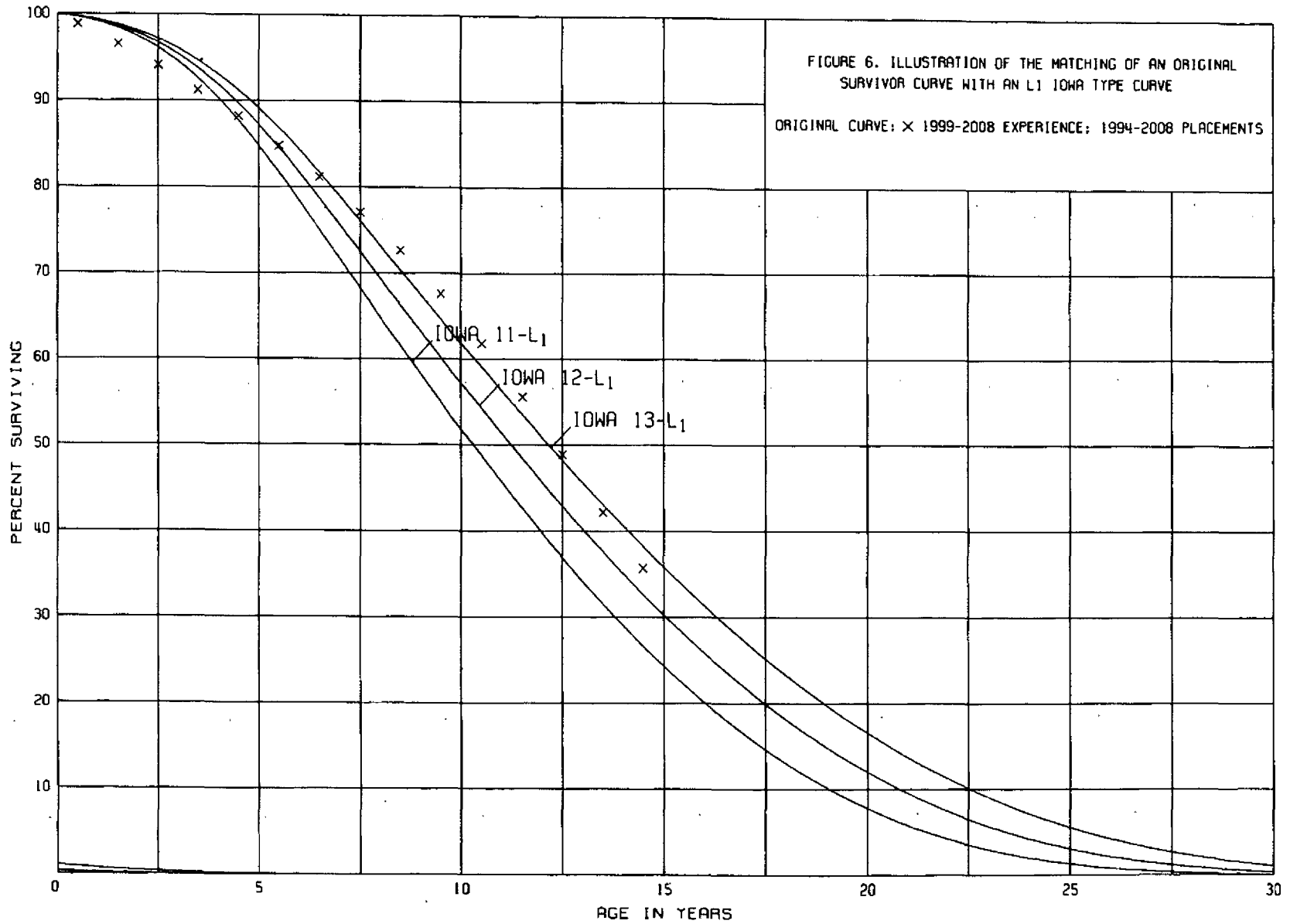Column 4 = Column 3 divided by Column 2.
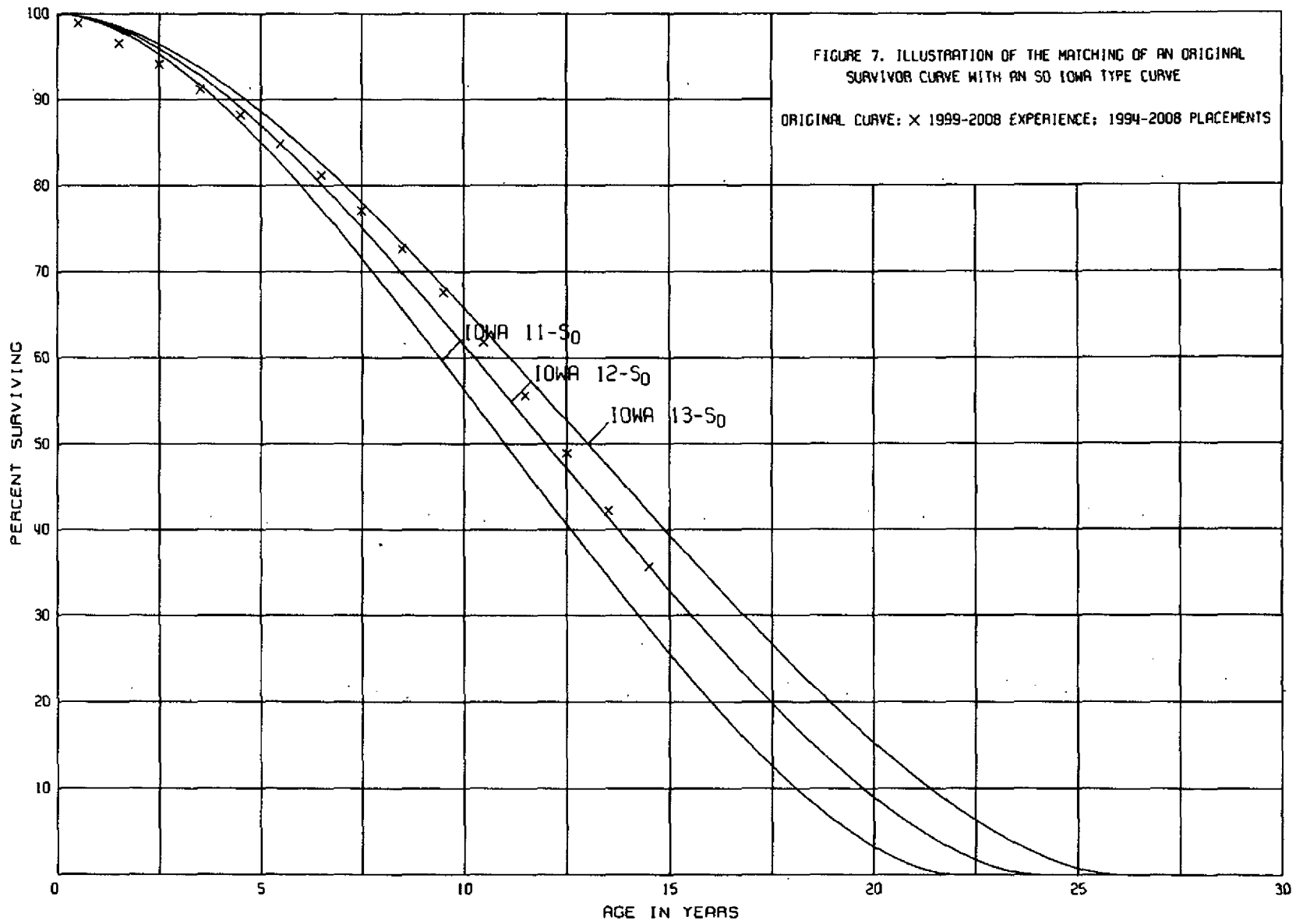Column 5 = 1.0000 minus Column 4.
Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval.
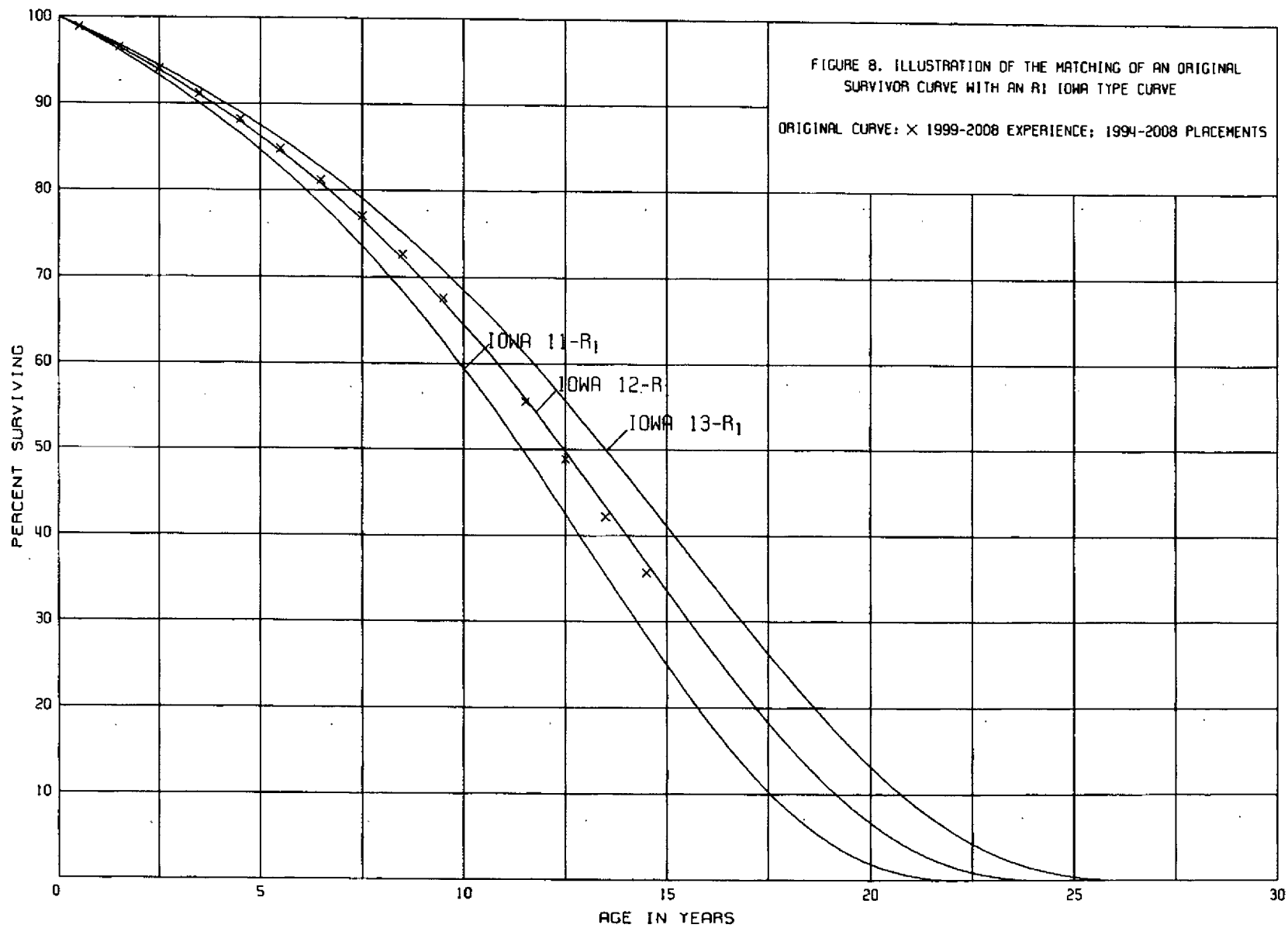
The original survivor curve is plotted from the original life table (column 6, Table 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.
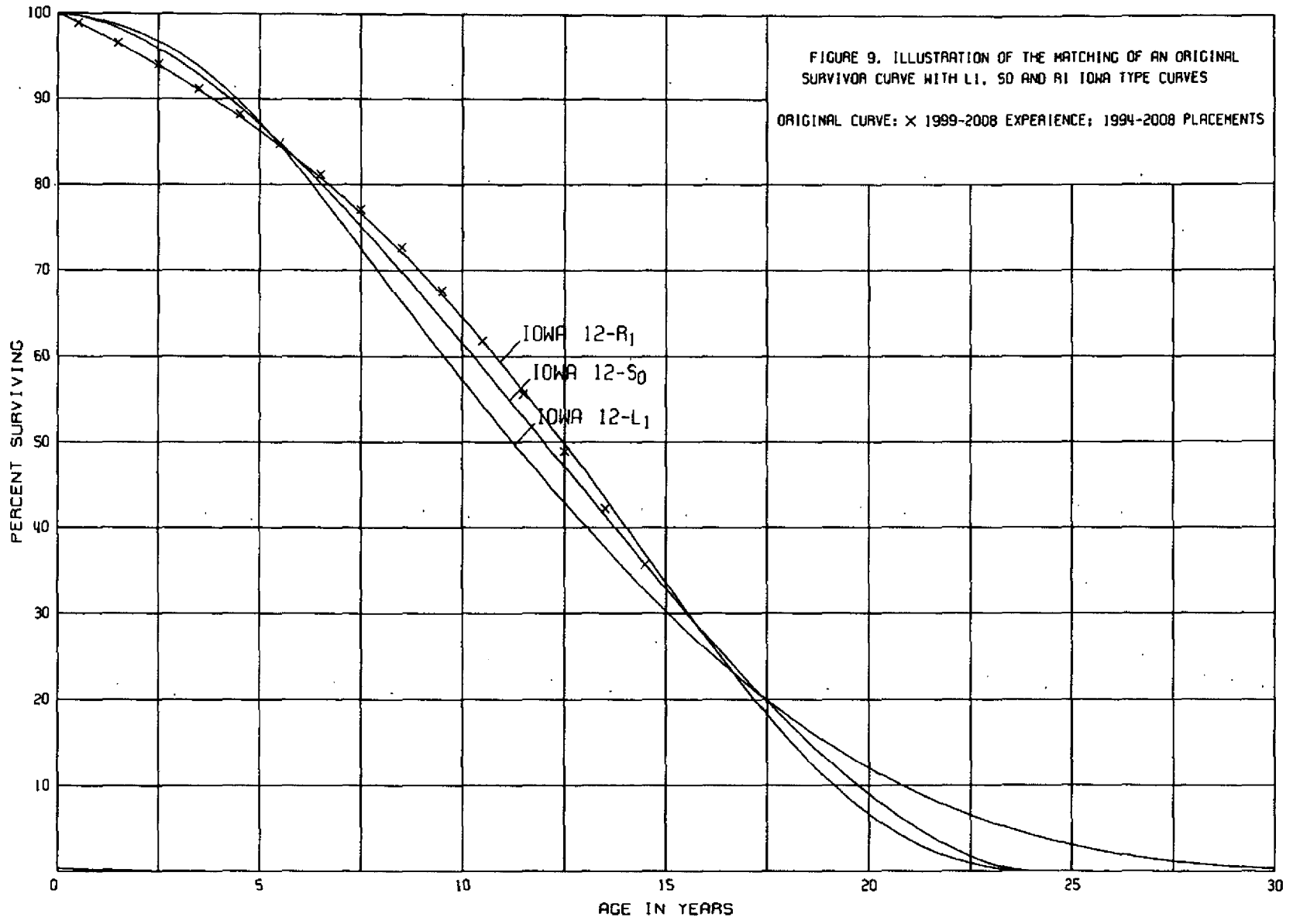
Smoothing the Original Survivor Curve. The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8 the original curve developed in Table 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6 the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7 the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8 the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0. In Figure 9 the three fittings, 12-L1, 12-S0, and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group, assuming no contrary relevant factors external to the analysis of historical data.

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

ORIGINAL CURVE: ✕ 1999-2008 EXPERIENCE; 1994-2008 PLACEMENTS

FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN SO IOWA TYPE CURVE

ORIGINAL CURVE: X 1999-2008 EXPERIENCE; 1994-2008 PLACEMENTS

IOWA 11-S_0

IOWA 12-S_0

IOWA 13-S_0

PERCENT SURVIVING

AGE IN YEARS

II-20

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

ORIGINAL CURVE: X 1999-2008 EXPERIENCE; 1994-2008 PLACEMENTS

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

ORIGINAL CURVE: X 1999-2008 EXPERIENCE; 1994-2008 PLACEMENTS

IOWA 12-R_1

IOWA 12-S_0

IOWA 12-L_1

PERCENT SURVIVING

AGE IN YEARS

Service Life Considerations

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 field reviews of the property and other conversations with management; and the survivor curve estimates from previous studies of this company and other water companies.

For most of the mass plant accounts and subaccounts, the statistical analyses resulted in good to excellent indications of significant survivor patterns. These accounts represent 85 percent of depreciable plant. Generally, the information external to the statistics led to no significant departure from the indicated survivor curves for the accounts listed below.

Account No.	Account Description
304.40	Structures and Improvements - Transmission & Distribution
304.61	Structures and Improvements - Office Building
309	Supply Mains
311	Electric Pumping Equipment
320	Water Treatment Equipment
331	Mains - Transmission and Distribution
333	Services
334	Meters and Meter Installations
335	Fire Hydrants
339.50	Miscellaneous Transmission & Distribution - Other
341.10	Transportation Equipment - Light Trucks
341.20	Transportation Equipment - Heavy Trucks
341.30	Transportation Equipment - Auto
345	Power Operated Equipment

Accounts 331, Mains - Transmission and Distribution, is 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 2008. 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 this account is the 90-R2 and is based on the statistical indication for the period 1939 through 2008. The 90-R2 is an excellent fit of the significant portion of the original survivor curve as set forth on page III-114, is consistent with management outlook for a continuation of the historical experience and is within the typical service life range of 75 to 100 years for water mains.

The life span estimates for structures and equipment in Accounts 304.20, 304.30, 305.00 and 306.00 which represent 8 percent of depreciable plant were based on the type construction, attained age, observed features and conditions at the time of the field visit, and the plans of management.

Amortization accounting is proposed for certain General Plant accounts that represent numerous units of property, but a small portion of the depreciable plant in service. These accounts represent less than 3 percent of total utility plant. A discussion of the basis for the amortization periods is presented in the section "Calculation of Annual and Accrued Amortization".

Generally, the estimates for the remaining accounts which comprise 4 percent of the total depreciable plant in service were based on judgments which considered the nature of the plant and equipment, the previous estimate for this company and a general knowledge of service lives for similar equipment in other utility companies.

Salvage Analysis

The estimates of net salvage were based in part on historical data compiled for the years 1974 through 2008. 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 water companies. The accounts for which the historical analyses were representative of expectations for future net salvage levels represent 95 percent of the depreciable plant balance and are presented below:

304.1	Structures and Improvements - Source of Supply
304.2 & 304.3	Structures and Improvements
304.4, 304.6, 304.7 & 304.8	Structures and Improvements - General
306	Lake, River and Other Intakes
307	Wells and Springs
309	Supply Mains
311	Electric Pumping Equipment
320	Water Treatment Equipment
331	Mains - Transmission and Distribution
333	Services
334	Meters and Meter Installations
335	Fire Hydrants
341.1, 341.2 & 341.3	Transportation Equipment - Vehicles
341.4	Transportation Equipment - Other
345	Power Operated Equipment

Account 335, Fire Hydrants, 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 1974 through 2008. These data include the retirements, cost of removal and gross salvage.

The net salvage estimate for this account is negative 20 percent and is based on the trends in cost of removal and salvage percents as shown in the tabulation on pages III-204 and III-205. Cost of removal as a percent of the original cost retired has fluctuated

during the experience and most recently decreased as a percentage of plant retired. The overall and most recent five-year bands averaged 29 and 2 percent removal cost, respectively. Gross salvage has been sporadic, averaging 7 percent for the 35-year period, but trending to 0 percent in recent years. The negative 20 percent net salvage estimate is based primarily on the overall cost of removal and gross salvage percent.

For this account, the experienced removal cost during seven of the last nine years is several times the typical level for similar assets in other utilities. These amounts were discounted in developing the net salvage estimates and future entries will be reviewed in order to determine the significance of recorded cost of removal in the future.

Amortization accounting is proposed for certain General Plant accounts which represent less than 3 percent of depreciable property. Future gross salvage and removal cost for these accounts will be recorded as revenue and expense, respectively. Inasmuch as there will be no depreciation reserve entries related to salvage, the estimate of net salvage for accounts subject to amortization is zero percent.

Generally, the net salvage estimates for the remaining accounts, which comprise 2 percent of the total depreciable plant in service, were based on judgments which considered the nature of the plant and equipment, reviews of available historical data, and a general knowledge of net salvage percents for similar equipment in other water companies.

CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

After the survivor curve and salvage are estimated, the annual depreciation accrual rate can be calculated. In the average service life procedure, the annual accrual rate is computed by the following equation:

$$\textit{Annual Accrual Rate, Percent} = \frac{(100\% - \textit{Net Salvage, Percent})}{\textit{Average Service Life}}$$

The calculated accrued depreciation for each depreciable property group represents that portion of the depreciable cost of the group which will not be allocated to expense through future depreciation accruals, if current forecasts of life characteristics are used as a basis for straight line depreciation accounting.

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 the estimated survivor curve. The accrued depreciation ratios are calculated as follows:

$$Ratio = (1 - \frac{Average\ Remaining\ Life\ Expectancy}{Average\ Service\ Life}) (1 - Net\ Salvage,\ Percent).$$

The application of these procedures is described for a single unit of property and a group of property units. Salvage is omitted from the description for ease of application.

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:

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

The accrued depreciation is:

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

Group Depreciation Procedures

When more than a single item of property is under consideration, a group procedure for depreciation is appropriate because normally all of the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, average service life and equal life group.

Remaining Life Annual Accruals. For the purpose of calculating remaining life accruals as of December 31, 2008, 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, 2008, 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:

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

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

Account		Amortization Period, Years
340.10	Office Furniture	20
340.20	Computer Hardware	6
340.30	Computer Software	5
340.50	Office Equipment	15

Account		Amortization Period, Years
342.00	Stores Equipment	25
343.00	Tools, Shop & Garage Equipment	20
344.00	Laboratory Equipment	15
346.10	Communication Equip. - Non-Telephone	15
346.20	Communication Equip. - Telephone	10
347.00	Miscellaneous Equipment	15
348.00	Other Tangible Property	20

The calculated accrued amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the original cost by the period of amortization for the account.

PART III. RESULTS OF STUDY

PART III. RESULTS OF STUDY

QUALIFICATION OF RESULTS

The calculated annual depreciation accrual rates 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 water plant in service as of December 31, 2008. For most plant accounts, the application of such rates to future balances that reflect additions subsequent to December 31, 2008, is reasonable for a period of three to five years.

DESCRIPTION OF STATISTICAL SUPPORT

The service life and salvage estimates were based on judgment which incorporated statistical analyses of retirement data, discussions with management and consideration of estimates made for other water utility companies. The results of the statistical analyses of service life are presented in the section titled "Service Life Statistics".

The estimated survivor curves for each account are presented in graphical form. The charts depict the estimated smooth survivor curve and original survivor curve(s), when

applicable, related to each specific group. For groups where the original survivor curve was plotted, the calculation of the original life table is also presented.

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.

DESCRIPTION OF DEPRECIATION TABULATIONS

A summary of the results of the study, as applied to the original cost of utility plant at December 31, 2008, is presented on pages III-4 and III-5 of this report. The schedule sets forth the original cost, the book depreciation reserve, future accruals, the calculated annual depreciation rate and amount, and the composite remaining life related to utility plant.

The tables of the calculated annual depreciation accruals are presented in account sequence in the section titled "Depreciation Calculations." The tables indicate the estimated survivor curve and 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.

MISSOURI-AMERICAN WATER COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVE, NET SALVAGE, ORIGINAL COST, BOOK RESERVE, AND
CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AT DECEMBER 31, 2008

DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE	ORIGINAL COST AT DECEMBER 31, 2008	BOOK RESERVE	FUTURE ACCRUALS	ANNUAL ACCRUAL AMOUNT	COMPOSITE REMAINING LIFE	ANNUAL ACCRUAL RATE PERCENT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(7)/(4)
DEPRECIABLE PLANT								
STRUCTURES & IMPROVEMENTS								
304.10 SOURCE OF SUPPLY	55-R4	(30)	14,278,610.32	3,601,001	14,961,195	349,874	42.8	2.45
304.20 POWER AND PUMPING	75-R2.5 *	(35)	19,213,262.12	4,499,052	21,438,856	1,239,003	17.3	6.45
304.30 WATER TREATMENT	80-R3 *	(35)	91,970,209.64	26,100,173	98,059,605	3,073,121	31.9	3.34
304.40 TRANSMISSION AND DISTRIBUTION	50-R2.5	(20)	10,443,883.25	3,473,145	9,059,513	223,743	40.5	2.14
304.53 LEASEHOLD IMPROVEMENTS	20-R4	0	54,149.02	1,943	52,206	7,421	7.0	13.70
304.61 OFFICE BUILDINGS	50-R1	(20)	7,497,054.19	602,749	8,393,716	173,965	48.2	2.32
304.70 SHOP AND GARAGE	50-R3	(20)	878,782.87	71,654	982,857	40,006	24.6	4.55
304.80 MISCELLANEOUS	50-R2.5	(20)	4,193,223.14	1,282,266	3,769,601	92,754	40.6	2.21
TOTAL STRUCTURES & IMPROVEMENTS			148,529,154.55	39,611,983	156,717,549	5,199,887	30.1	3.50
305.00 COLLECTING AND IMPOUNDING RESERVOIRS	80-R2.5 *	0	111,065.96	85,476	25,590	1,416	18.1	1.27
306.00 LAKE, RIVER AND OTHER INTAKES	65-R1.5 *	(15)	1,005,416.69	159,967	996,260	53,125	18.8	5.28
307.00 WELLS AND SPRINGS	55-R2	0	6,791,580.74	1,164,390	5,627,191	151,139	37.2	2.23
308.00 INFILTRATION GALLERIES AND TUNNELS	60-R2.5	0	1,803.84	30	1,774	32	55.4	1.77
309.00 SUPPLY MAINS	70-R3	(25)	20,763,915.70	5,089,082	20,865,817	356,696	58.5	1.72
310.10 POWER GENERATION EQUIPMENT	50-R3	0	3,520,282.48	125,461	3,394,821	70,703	48.0	2.01
310.20 BOILER PLANT EQUIPMENT	45-R4	0	347.69	7	341	103	3.3	29.62
311.00 ELECTRIC PUMPING EQUIPMENT	42-R1.5	(10)	56,521,284.59	19,996,259	42,177,154	1,296,100	32.5	2.29
320.00 WATER TREATMENT EQUIPMENT	45-R2	(30)	109,454,534.90	33,559,042	108,731,854	3,000,607	36.2	2.74
330.00 DISTRIBUTION RESERVOIRS & STANDPIPES	60-R3	(35)	27,040,871.75	9,607,210	26,897,969	682,503	39.4	2.52
331.00 MAINS - TRANSMISSION AND DISTRIBUTION	90-R2	(25)	776,888,401.18	159,917,512	811,192,980	10,484,174	77.4	1.35
332.00 MAINS - FIRE	80-S1	(25)	567,510.56	84,536	624,853	9,086	68.8	1.60
333.00 SERVICES	85-S0.5	(90)	27,503,883.23	5,671,030	46,586,349	861,961	54.0	3.13
334.00 METERS AND METER INSTALLATIONS	40-R1	4	78,807,612.17	17,976,419	57,676,889	1,676,089	34.4	2.13
335.00 FIRE HYDRANTS	65-R1.5	(20)	54,353,106.83	16,078,156	49,145,568	942,600	52.1	1.73
339.10 MISCELLANEOUS INTANGIBLE PLANT - OTHER	25-SQ	0	3,449.86	2,395	1,055	50	21.1	1.45 **
339.20 MISCELLANEOUS SOURCE OF SUPPLY - OTHER	25-SQ	0	1,729.62	69	1,661	81	20.5	4.68
339.40 MISCELLANEOUS WATER TREATMENT - OTHER	30-SQ	0	1,481,666.20	433,500	1,048,167	44,798	23.4	3.02
339.50 MISCELLANEOUS TRANS. & DISTR. - OTHER	50-R3	0	31,394.71	4,931	26,466	1,046	25.3	3.33
339.60 MISCELLANEOUS INTANGIBLE PLANT - SOFTWARE	30-SQ	0	1,417,442.01	341,659	1,075,782	37,519	28.7	2.65
TOTAL ACCOUNT 339			2,935,682.40	782,554	2,153,131	83,494	25.8	2.84
340.10 OFFICE FURNITURE	20-SQ	0	1,846,852.33	960,745	886,106	105,555	8.4	5.72
340.20 COMPUTER HARDWARE	5-SQ	0	6,740,039.72	1,006,898	5,733,140	1,854,173	3.1	27.51
340.30 COMPUTER SOFTWARE	5-SQ	0	9,326,823.48	5,556,935	3,769,888	2,333,894	1.6	25.02
340.50 OTHER EQUIPMENT	15-SQ	0	497,599.24	116,931	380,669	47,571	8.0	9.56
TOTAL ACCOUNT 340			18,411,314.77	7,641,509	10,769,803	4,341,193	2.5	23.58

III-4

MISSOURI-AMERICAN WATER COMPANY

TABLE 1. ESTIMATED SURVIVOR CURVE, NET SALVAGE, ORIGINAL COST, BOOK RESERVE, AND
CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AT DECEMBER 31, 2008

DEPRECIABLE GROUP	SURVIVOR CURVE	NET SALVAGE	ORIGINAL COST AT DECEMBER 31, 2008	BOOK RESERVE	FUTURE ACCRUALS	ANNUAL ACCRUAL AMOUNT	COMPOSITE REMAINING LIFE	ANNUAL ACCRUAL RATE PERCENT
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(7)/(4)
TRANSPORTATION EQUIPMENT								
341.10 LIGHT TRUCKS	8-L1.5	10	781,122.18	512,415	190,596	33,148	5.7	4.24 ***
341.20 HEAVY TRUCKS	9-L2*	10	4,268,777.67	3,995,900	(154,000)	0	-	- ***
341.30 AUTOS	5-L2	10	1,084,116.24	605,023	370,682	82,191	4.5	7.58 ***
341.40 OTHER	15-S2.5	15	399,439.31	306,463	33,060	2,280	14.5	0.57 ***
TOTAL ACCOUNT 341			6,533,455.40	5,419,801	440,338	117,619	3.7	1.80
342.00 STORES EQUIPMENT	25-SQ	0	408,442.36	140,661	267,784	15,198	17.6	3.72
343.00 TOOLS, SHOP AND GARAGE EQUIPMENT	20-SQ	0	7,896,462.09	3,164,669	4,731,792	458,219	10.3	5.80
344.00 LABORATORY EQUIPMENT	15-SQ	0	2,122,040.07	1,013,170	1,108,874	320,253	3.5	15.09
345.00 POWER OPERATED EQUIPMENT	11-L1	15	1,516,730.43	1,067,220	222,002	22,533	9.9	1.49 ***
346.10 COMMUNICATION EQUIPMENT - NON-TELEPHONE	15-SQ	0	2,753,614.89	788,831	1,964,784	184,683	10.6	6.71
346.20 COMMUNICATION EQUIPMENT - TELEPHONE	10-SQ	0	149,407.84	117,164	32,242	5,530	5.8	3.70
347.00 MISCELLANEOUS EQUIPMENT	15-SQ	0	1,860,152.60	398,117	1,462,036	156,305	9.4	8.40
348.00 OTHER TANGIBLE PROPERTY	20-SQ	0	910,958.73	315,549	595,410	169,498	3.5	18.61
TOTAL DEPRECIABLE PLANT			1,357,359,034.44	329,975,805	1,354,413,155	30,660,748	44.2	2.26
NONDEPRECIABLE PLANT								
301.00 ORGANIZATION			251,341.94	(25,007)				
302.00 FRANCHISES AND CONSENTS			39,501.07					
303.20 LAND AND LAND RIGHTS - SOURCE OF SUPPLY			1,707,253.12					
303.30 LAND AND LAND RIGHTS - PUMPING			367,016.00					
303.40 LAND AND LAND RIGHTS - WATER TREATMENT			2,294,146.11					
303.50 LAND AND LAND RIGHTS - TRANSMISSION & DISTRIBUTION			4,791,981.12	(741,642)				
303.60 LAND AND LAND RIGHTS - ADMINISTRATIVE			389,020.20					
TOTAL NONDEPRECIABLE PLANT			9,840,259.56	(766,649)				
TOTAL UTILITY PLANT			1,367,199,294.00	329,209,156	1,354,413,155	30,660,748		

* LIFE SPAN PROCEDURE IS USED. SURVIVOR CURVE SHOWN IS INTERIM CURVE.
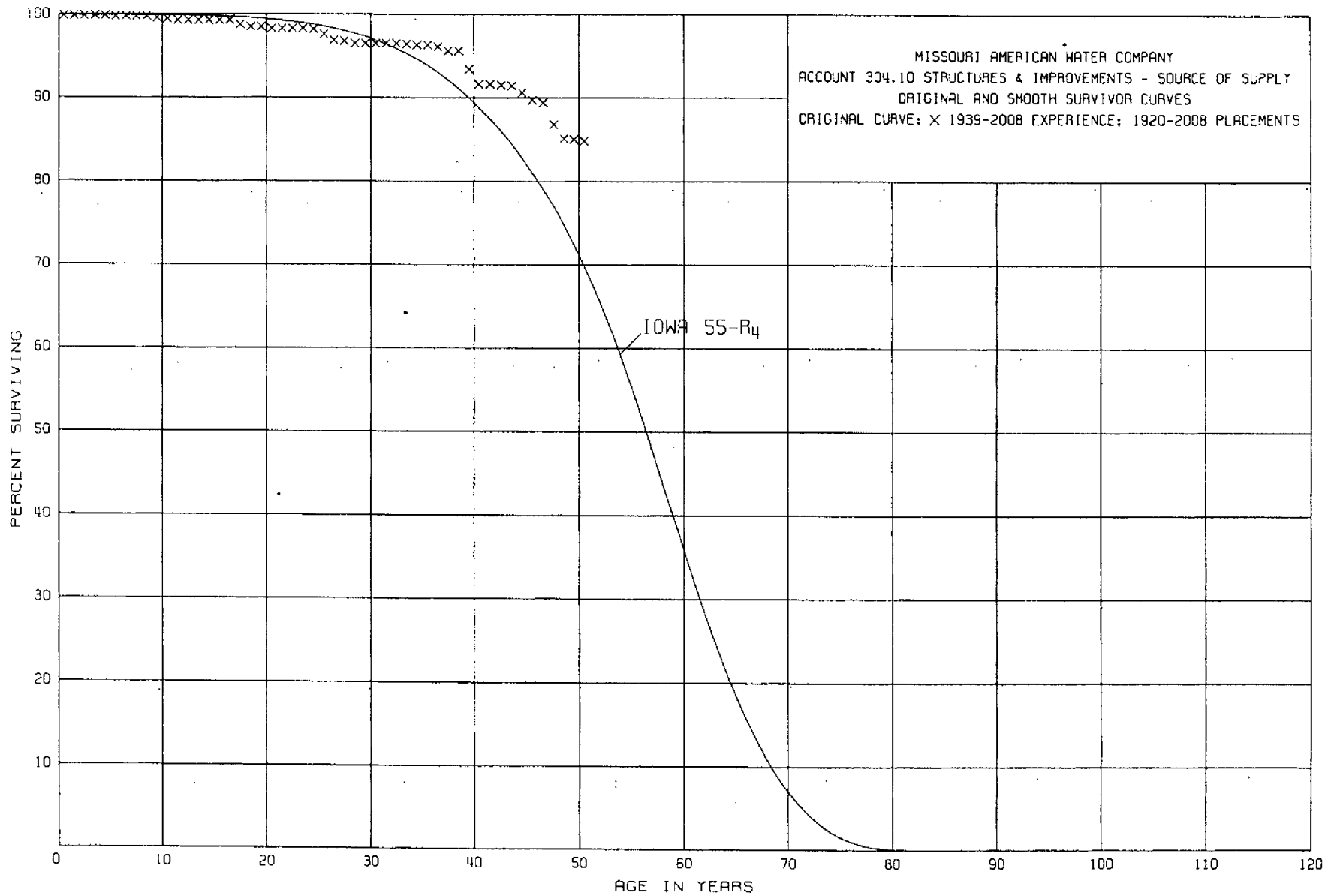** APPLY A 10% ACCRUAL RATE TO THE NEW ADDITIONS RELATED TO THE COMPREHENSIVE PLANNING STUDY
*** DUE TO CHANGES FROM LEASED ASSETS TO PURCHASED ASSETS PRIOR TO 2008, THE FOLLOWING RATES SHOULD BE UTILIZED FOR NEW ADDITIONS BEGINNING JANUARY 1, 2009

ACCOUNT	RATE
341.10	14.26
341.20	12.27
341.30	21.03
341.40	6.26
345.00	10.63

SERVICE LIFE STATISTICS

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.10 STRUCTURES & IMPROVEMENTS - SOURCE OF SUPPLY
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE; 1920-2008 PLACEMENTS

IOWA 55-R$_4$

PERCENT SURVIVING

AGE IN YEARS

III-7

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.10 STRUCTURES & IMPROVEMENTS - SOURCE OF SUPPLY

ORIGINAL LIFE TABLE

PLACEMENT BAND 1920-2008   EXPERIENCE BAND 1939-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	14,455,467		0.0000	1.0000	100.00
0.5	13,800,356		0.0000	1.0000	100.00
1.5	10,774,504		0.0000	1.0000	100.00
2.5	9,893,695	6,195	0.0006	0.9994	100.00
3.5	9,819,376	2,726	0.0003	0.9997	99.94
4.5	9,000,130	6,078	0.0007	0.9993	99.91
5.5	6,820,989		0.0000	1.0000	99.84
6.5	6,633,358	1,921	0.0003	0.9997	99.84
7.5	6,622,874	3,280	0.0005	0.9995	99.81
8.5	6,598,598	8,205	0.0012	0.9988	99.76
9.5	6,565,386	9,315	0.0014	0.9986	99.64
10.5	6,341,038	9,988	0.0016	0.9984	99.50
11.5	6,171,595	1,768	0.0003	0.9997	99.34
12.5	6,169,827	1,122	0.0002	0.9998	99.31
13.5	6,123,756	1,101	0.0002	0.9998	99.29
14.5	5,487,412		0.0000	1.0000	99.27
15.5	2,330,170		0.0000	1.0000	99.27
16.5	2,334,682	12,243	0.0052	0.9948	99.27
17.5	2,314,481	5,198	0.0022	0.9978	98.75
18.5	2,265,391	119	0.0001	0.9999	98.53
19.5	2,248,145	5,513	0.0025	0.9975	98.52
20.5	2,241,846		0.0000	1.0000	98.27
21.5	2,241,370		0.0000	1.0000	98.27
22.5	2,127,819	4	0.0000	1.0000	98.27
23.5	2,124,308	1,103	0.0005	0.9995	98.27
24.5	2,107,497	12,985	0.0062	0.9938	98.22
25.5	2,090,939	15,813	0.0076	0.9924	97.61
26.5	2,075,126	580	0.0003	0.9997	96.87
27.5	2,072,981	6,618	0.0032	0.9968	96.84
28.5	2,064,237	686	0.0003	0.9997	96.53
29.5	2,061,130		0.0000	1.0000	96.50
30.5	2,010,553		0.0000	1.0000	96.50
31.5	1,782,687	175	0.0001	0.9999	96.50
32.5	1,776,669	1,981	0.0011	0.9989	96.49
33.5	1,773,876	2,100	0.0012	0.9988	96.38
34.5	1,757,857		0.0000	1.0000	96.26
35.5	1,535,169	2,879	0.0019	0.9981	96.26
36.5	1,516,518	7,510	0.0050	0.9950	96.08
37.5	1,149,815	66	0.0001	0.9999	95.60
38.5	1,145,784	26,039	0.0227	0.9773	95.59

ACCOUNT 304.10 STRUCTURES & IMPROVEMENTS - SOURCE OF SUPPLY

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1920-2008   EXPERIENCE BAND 1939-2008

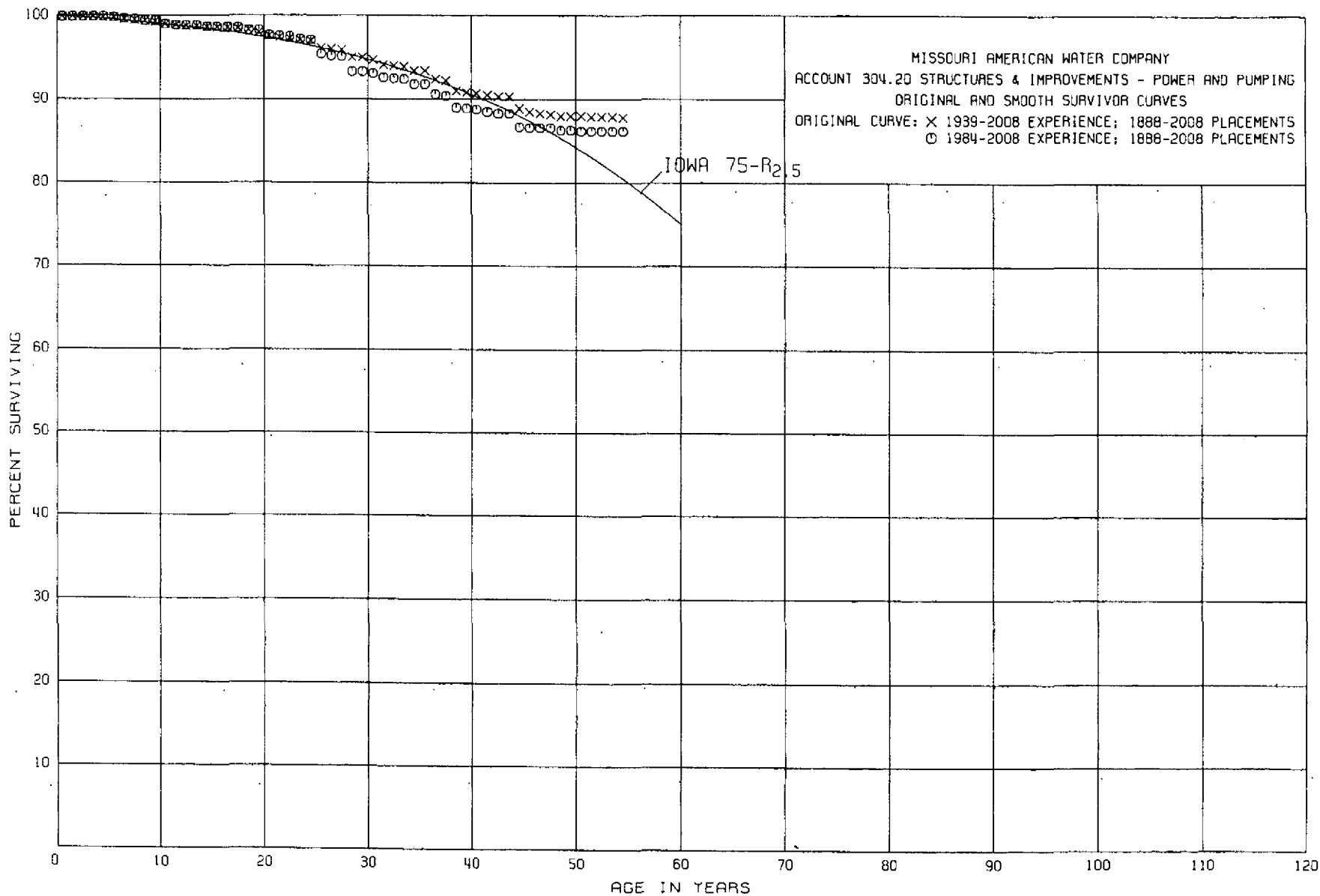| AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	1,109,617	21,444	0.0193	0.9807	93.42
40.5	520,395		0.0000	1.0000	91.62
41.5	520,395	632	0.0012	0.9988	91.62
42.5	519,763	533	0.0010	0.9990	91.51
43.5	516,813	4,389	0.0085	0.9915	91.42
44.5	379,852	4,000	0.0105	0.9895	90.64
45.5	373,673	1,157	0.0031	0.9969	89.69
46.5	372,516	10,724	0.0288	0.9712	89.41
47.5	361,792	7,394	0.0204	0.9796	86.83
48.5	350,750	355	0.0010	0.9990	85.06
49.5	345,496	655	0.0019	0.9981	84.97
50.5	67,821		0.0000	1.0000	84.81
51.5	67,821		0.0000	1.0000	84.81
52.5	62,898		0.0000	1.0000	84.81
53.5	61,086		0.0000	1.0000	84.81
54.5	51,907		0.0000	1.0000	84.81
55.5	51,907		0.0000	1.0000	84.81
56.5	51,742	585	0.0113	0.9887	84.81
57.5	48,986	355	0.0072	0.9928	83.85
58.5	47,658	110	0.0023	0.9977	83.25
59.5	47,548		0.0000	1.0000	83.06
60.5	47,546		0.0000	1.0000	83.06
61.5	46,622	856	0.0184	0.9816	83.06
62.5	42,058	687	0.0163	0.9837	81.53
63.5	28,186		0.0000	1.0000	80.20
64.5	24,377		0.0000	1.0000	80.20
65.5	23,054		0.0000	1.0000	80.20
66.5	23,054		0.0000	1.0000	80.20
67.5	23,054		0.0000	1.0000	80.20
68.5	23,054		0.0000	1.0000	80.20
69.5	23,054		0.0000	1.0000	80.20
70.5	23,054		0.0000	1.0000	80.20
71.5	23,054		0.0000	1.0000	80.20
72.5	22,058		0.0000	1.0000	80.20
73.5	21,729		0.0000	1.0000	80.20
74.5	21,729		0.0000	1.0000	80.20
75.5	21,729		0.0000	1.0000	80.20
76.5	21,729		0.0000	1.0000	80.20
77.5	21,729		0.0000	1.0000	80.20
78.5	21,729		0.0000	1.0000	80.20

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.10 STRUCTURES & IMPROVEMENTS - SOURCE OF SUPPLY

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1920-2008   EXPERIENCE BAND 1939-2008

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	21,729		0.0000	1.0000	80.20
80.5	21,729		0.0000	1.0000	80.20
81.5	21,022		0.0000	1.0000	80.20
82.5	21,022		0.0000	1.0000	80.20
83.5	21,022		0.0000	1.0000	80.20
84.5	21,022		0.0000	1.0000	80.20
85.5	21,022		0.0000	1.0000	80.20
86.5	16,509		0.0000	1.0000	80.20
87.5	16,509		0.0000	1.0000	80.20
88.5					80.20

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE; 1888-2008 PLACEMENTS
⊙ 1984-2008 EXPERIENCE; 1888-2008 PLACEMENTS

IOWA 75-R$_2$.5

PERCENT SURVIVING

AGE IN YEARS

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

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	19,900,545	409	0.0000	1.0000	100.00
0.5	16,840,714	7,661	0.0005	0.9995	100.00
1.5	15,929,458	1,913	0.0001	0.9999	99.95
2.5	15,446,719	916	0.0001	0.9999	99.94
3.5	15,404,395	14,436	0.0009	0.9991	99.93
4.5	15,371,063	8,550	0.0006	0.9994	99.84
5.5	15,317,993	23,743	0.0016	0.9984	99.78
6.5	14,473,866	12,569	0.0009	0.9991	99.62
7.5	14,493,639	22,164	0.0015	0.9985	99.53
8.5	9,859,300	13,175	0.0013	0.9987	99.38
9.5	9,431,862	26,805	0.0028	0.9972	99.25
10.5	8,690,963	9,134	0.0011	0.9989	98.97
11.5	7,367,228	1,767	0.0002	0.9998	98.86
12.5	7,338,724	2,970	0.0004	0.9996	98.84
13.5	7,292,916	8,723	0.0012	0.9988	98.80
14.5	7,157,858	5,467	0.0008	0.9992	98.68
15.5	6,168,695	859	0.0001	0.9999	98.60
16.5	6,104,879	3,726	0.0006	0.9994	98.59
17.5	5,009,195	13,987	0.0028	0.9972	98.53
18.5	4,774,038	12,788	0.0027	0.9973	98.25
19.5	4,066,095	17,495	0.0043	0.9957	97.98
20.5	3,862,281	5,327	0.0014	0.9986	97.56
21.5	3,714,146	5,666	0.0015	0.9985	97.42
22.5	3,138,489	5,492	0.0017	0.9983	97.27
23.5	2,991,703	3,341	0.0011	0.9989	97.10
24.5	2,922,049	28,359	0.0097	0.9903	96.99
25.5	2,874,241	1,566	0.0005	0.9995	96.05
26.5	2,751,351	2,782	0.0010	0.9990	96.00
27.5	2,691,127	25,813	0.0096	0.9904	95.90
28.5	2,554,536	871	0.0003	0.9997	94.98
29.5	2,386,624	5,349	0.0022	0.9978	94.95
30.5	2,338,374	16,864	0.0072	0.9928	94.74
31.5	2,326,125	2,107	0.0009	0.9991	94.06
32.5	2,315,298	1,150	0.0005	0.9995	93.98
33.5	2,271,583	11,849	0.0052	0.9948	93.93
34.5	2,224,183	954	0.0004	0.9996	93.44
35.5	2,191,380	24,603	0.0112	0.9888	93.40
36.5	2,157,913	3,354	0.0016	0.9984	92.35
37.5	2,133,766	28,700	0.0135	0.9865	92.20
38.5	2,016,971	2,655	0.0013	0.9987	90.96

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	1,985,499	2,119	0.0011	0.9989	90.84
40.5	1,961,933	6,371	0.0032	0.9968	90.74
41.5	1,925,250	3,292	0.0017	0.9983	90.45
42.5	1,885,134	115	0.0001	0.9999	90.30
43.5	1,858,093	29,631	0.0159	0.9841	90.29
44.5	1,815,907	6,828	0.0038	0.9962	88.85
45.5	1,777,652	3,611	0.0020	0.9980	88.51
46.5	1,748,415	1,860	0.0011	0.9989	88.33
47.5	1,720,193	3,695	0.0021	0.9979	88.23
48.5	1,630,106	845	0.0005	0.9995	88.04
49.5	1,625,215	732	0.0005	0.9995	88.00
50.5	1,624,834	911	0.0006	0.9994	87.96
51.5	1,590,445	300	0.0002	0.9998	87.91
52.5	1,378,041		0.0000	1.0000	87.89
53.5	547,422	590	0.0011	0.9989	87.89
54.5	470,618		0.0000	1.0000	87.79
55.5	466,412		0.0000	1.0000	87.79
56.5	466,582	217	0.0005	0.9995	87.79
57.5	461,993		0.0000	1.0000	87.75
58.5	437,886	242	0.0006	0.9994	87.75
59.5	368,150		0.0000	1.0000	87.70
60.5	321,228	1,125	0.0035	0.9965	87.70
61.5	296,610	160	0.0005	0.9995	87.39
62.5	293,869		0.0000	1.0000	87.35
63.5	286,151		0.0000	1.0000	87.35
64.5	275,963	163	0.0006	0.9994	87.35
65.5	271,847		0.0000	1.0000	87.30
66.5	270,890	89	0.0003	0.9997	87.30
67.5	268,336	42	0.0002	0.9998	87.27
68.5	267,850	1,090	0.0041	0.9959	87.25
69.5	266,067	394	0.0015	0.9985	86.89
70.5	261,662		0.0000	1.0000	86.76
71.5	261,511		0.0000	1.0000	86.76
72.5	261,138		0.0000	1.0000	86.76
73.5	260,956	298	0.0011	0.9989	86.76
74.5	259,088	326	0.0013	0.9987	86.66
75.5	221,211	3,446	0.0156	0.9844	86.55
76.5	216,253	5,100	0.0236	0.9764	85.20
77.5	77,515	125	0.0016	0.9984	83.19
78.5	77,390		0.0000	1.0000	83.06
79.5	74,006	155	0.0021	0.9979	83.06

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
80.5	73,851		0.0000	1.0000	82.89
81.5	73,790		0.0000	1.0000	82.89
82.5	68,011		0.0000	1.0000	82.89
83.5	68,011	302	0.0044	0.9956	82.89
84.5	67,709	300	0.0044	0.9956	82.53
85.5	67,409	76	0.0011	0.9989	82.17
86.5	67,333		0.0000	1.0000	82.08
87.5	62,537		0.0000	1.0000	82.08
88.5	62,537		0.0000	1.0000	82.08
89.5	62,537	1,005	0.0161	0.9839	82.08
90.5	61,532		0.0000	1.0000	80.76
91.5	61,532	232	0.0038	0.9962	80.76
92.5	53,778	508	0.0094	0.9906	80.45
93.5	52,950		0.0000	1.0000	79.69
94.5	50,075	1,667	0.0333	0.9667	79.69
95.5	48,408		0.0000	1.0000	77.04
96.5	48,408		0.0000	1.0000	77.04
97.5	47,287		0.0000	1.0000	77.04
98.5	40,331		0.0000	1.0000	77.04
99.5	39,714		0.0000	1.0000	77.04
100.5	39,714		0.0000	1.0000	77.04
101.5	39,714	5,036	0.1268	0.8732	77.04
102.5	32,891		0.0000	1.0000	67.27
103.5	32,891		0.0000	1.0000	67.27
104.5	32,891		0.0000	1.0000	67.27
105.5	23,016		0.0000	1.0000	67.27
106.5	23,016		0.0000	1.0000	67.27
107.5	23,016		0.0000	1.0000	67.27
108.5	16,980		0.0000	1.0000	67.27
109.5	10,478		0.0000	1.0000	67.27
110.5	6,726		0.0000	1.0000	67.27
111.5	6,726		0.0000	1.0000	67.27
112.5	6,726		0.0000	1.0000	67.27
113.5	6,726		0.0000	1.0000	67.27
114.5	6,726		0.0000	1.0000	67.27
115.5	6,726		0.0000	1.0000	67.27
116.5	2,100		0.0000	1.0000	67.27
117.5	2,100		0.0000	1.0000	67.27
118.5	2,100		0.0000	1.0000	67.27
119.5	2,100		0.0000	1.0000	67.27
120.5					67.27

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

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	17,029,057	111	0.0000	1.0000	100.00
0.5	13,998,241	6,499	0.0005	0.9995	100.00
1.5	13,210,334	817	0.0001	0.9999	99.95
2.5	12,778,927	916	0.0001	0.9999	99.94
3.5	12,910,292	6,711	0.0005	0.9995	99.93
4.5	13,051,069	7,814	0.0006	0.9994	99.88
5.5	13,065,276	18,490	0.0014	0.9986	99.82
6.5	12,224,260	11,862	0.0010	0.9990	99.68
7.5	12,117,705	19,586	0.0016	0.9984	99.58
8.5	7,528,517	1,790	0.0002	0.9998	99.42
9.5	7,144,584	26,723	0.0037	0.9963	99.40
10.5	6,475,043	6,677	0.0010	0.9990	99.03
11.5	5,162,937	141	0.0000	1.0000	98.93
12.5	5,171,937	2,320	0.0004	0.9996	98.93
13.5	5,102,231	8,086	0.0016	0.9984	98.89
14.5	5,005,371	3,502	0.0007	0.9993	98.73
15.5	4,063,327	54	0.0000	1.0000	98.66
16.5	4,031,403	3,726	0.0009	0.9991	98.66
17.5	2,969,607	6,713	0.0023	0.9977	98.57
18.5	2,772,267	2,359	0.0009	0.9991	98.34
19.5	2,087,651	11,353	0.0054	0.9946	98.25
20.5	1,925,072	1,913	0.0010	0.9990	97.72
21.5	1,887,750	1,884	0.0010	0.9990	97.62
22.5	1,339,122	4,410	0.0033	0.9967	97.52
23.5	1,288,824	1,439	0.0011	0.9989	97.20
24.5	1,224,117	21,872	0.0179	0.9821	97.09
25.5	1,190,521	1,516	0.0013	0.9987	95.35
26.5	1,103,649	1,482	0.0013	0.9987	95.23
27.5	1,300,212	25,028	0.0192	0.9808	95.11
28.5	2,038,874	312	0.0002	0.9998	93.28
29.5	1,949,422	4,490	0.0023	0.9977	93.26
30.5	1,902,854	10,361	0.0054	0.9946	93.05
31.5	1,892,024	1,807	0.0010	0.9990	92.55
32.5	1,886,022	1,000	0.0005	0.9995	92.46
33.5	1,868,442	11,602	0.0062	0.9938	92.41
34.5	1,894,345	854	0.0005	0.9995	91.84
35.5	1,887,689	24,502	0.0130	0.9870	91.79
36.5	1,877,924	3,354	0.0018	0.9982	90.60
37.5	1,856,425	28,700	0.0155	0.9845	90.44
38.5	1,741,016	2,655	0.0015	0.9985	89.04

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

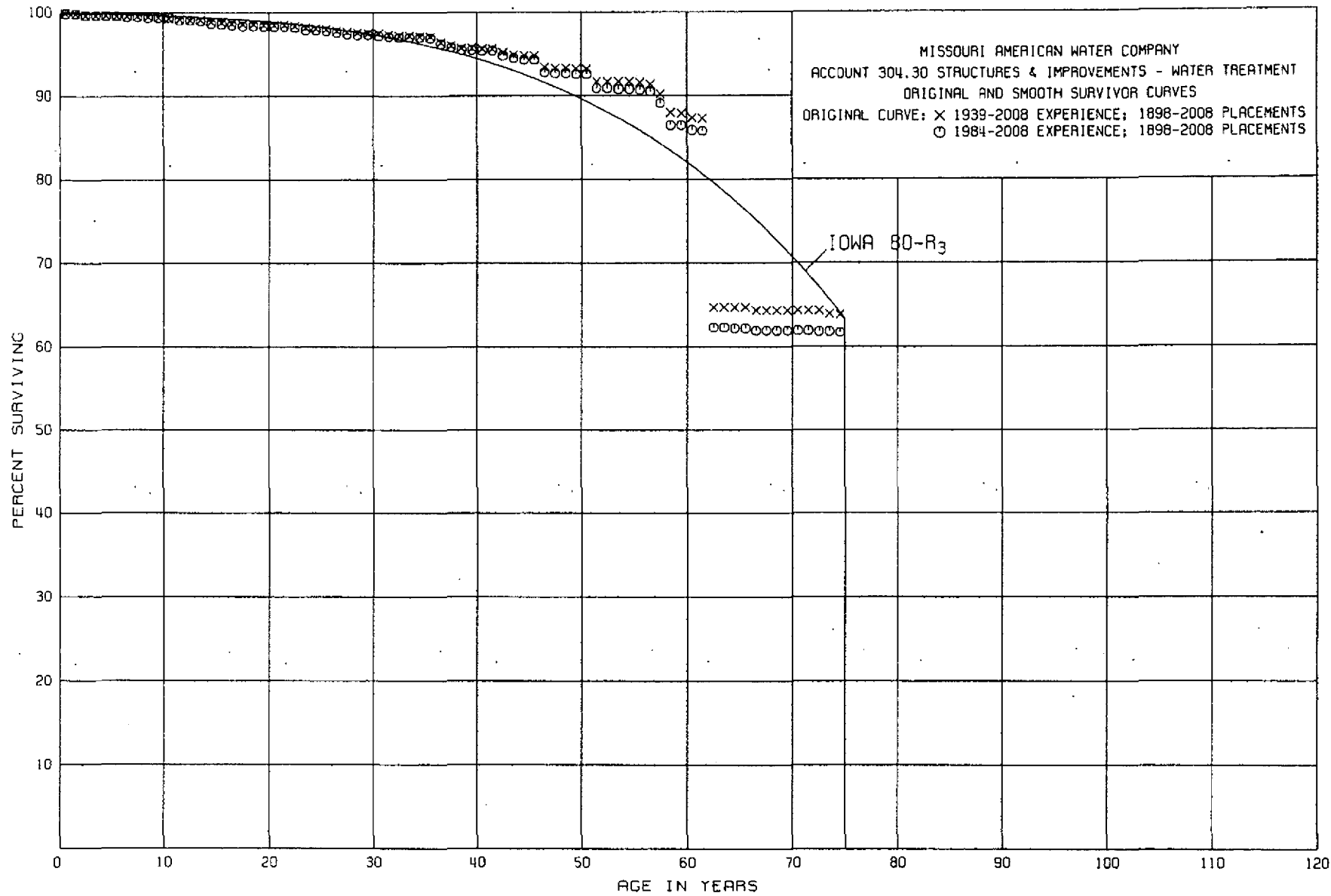| AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	1,719,835	2,119	0.0012	0.9988	88.91
40.5	1,694,606	6,331	0.0037	0.9963	88.80
41.5	1,658,920	3,292	0.0020	0.9980	88.47
42.5	1,621,963	115	0.0001	0.9999	88.29
43.5	1,595,446	29,512	0.0185	0.9815	88.28
44.5	1,554,505	85	0.0001	0.9999	86.65
45.5	1,527,004		0.0000	1.0000	86.64
46.5	1,496,671	1,500	0.0010	0.9990	86.64
47.5	1,462,681	3,695	0.0025	0.9975	86.55
48.5	1,372,776	845	0.0006	0.9994	86.33
49.5	1,369,696	732	0.0005	0.9995	86.28
50.5	1,364,155	911	0.0007	0.9993	86.24
51.5	1,332,317	300	0.0002	0.9998	86.18
52.5	1,254,531		0.0000	1.0000	86.16
53.5	423,913		0.0000	1.0000	86.16
54.5	351,131		0.0000	1.0000	86.16
55.5	346,924		0.0000	1.0000	86.16
56.5	347,372	217	0.0006	0.9994	86.16
57.5	348,562		0.0000	1.0000	86.11
58.5	360,031	242	0.0007	0.9993	86.11
59.5	290,296		0.0000	1.0000	86.05
60.5	243,374	1,125	0.0046	0.9954	86.05
61.5	218,755	160	0.0007	0.9993	85.65
62.5	221,136		0.0000	1.0000	85.59
63.5	213,418		0.0000	1.0000	85.59
64.5	203,230	163	0.0008	0.9992	85.59
65.5	199,114		0.0000	1.0000	85.52
66.5	198,158	89	0.0004	0.9996	85.52
67.5	195,603	42	0.0002	0.9998	85.49
68.5	195,436	1,090	0.0056	0.9944	85.47
69.5	198,791		0.0000	1.0000	84.99
70.5	194,780		0.0000	1.0000	84.99
71.5	194,630		0.0000	1.0000	84.99
72.5	195,377		0.0000	1.0000	84.99
73.5	202,729	298	0.0015	0.9985	84.99
74.5	201,479	326	0.0016	0.9984	84.86
75.5	171,124	2,263	0.0132	0.9868	84.72
76.5	172,449	5,100	0.0296	0.9704	83.60
77.5	33,711	125	0.0037	0.9963	81.13
78.5	33,886		0.0000	1.0000	80.83
79.5	30,502	155	0.0051	0.9949	80.83

ACCOUNT 304.20 STRUCTURES & IMPROVEMENTS - POWER AND PUMPING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
80.5	43,402		0.0000	1.0000	80.42
81.5	43,341		0.0000	1.0000	80.42
82.5	37,563		0.0000	1.0000	80.42
83.5	43,900	302	0.0069	0.9931	80.42
84.5	43,598	300	0.0069	0.9931	79.87
85.5	48,914	76	0.0016	0.9984	79.32
86.5	48,838		0.0000	1.0000	79.19
87.5	44,042		0.0000	1.0000	79.19
88.5	44,042		0.0000	1.0000	79.19
89.5	44,042	1,005	0.0228	0.9772	79.19
90.5	43,037		0.0000	1.0000	77.38
91.5	47,894	232	0.0048	0.9952	77.38
92.5	46,642	508	0.0109	0.9891	77.01
93.5	45,814		0.0000	1.0000	76.17
94.5	42,939	1,667	0.0388	0.9612	76.17
95.5	48,408		0.0000	1.0000	73.21
96.5	48,408		0.0000	1.0000	73.21
97.5	47,287		0.0000	1.0000	73.21
98.5	40,331		0.0000	1.0000	73.21
99.5	39,714		0.0000	1.0000	73.21
100.5	39,714		0.0000	1.0000	73.21
101.5	39,714	5,036	0.1268	0.8732	73.21
102.5	32,891		0.0000	1.0000	63.93
103.5	32,891		0.0000	1.0000	63.93
104.5	32,891		0.0000	1.0000	63.93
105.5	23,016		0.0000	1.0000	63.93
106.5	23,016		0.0000	1.0000	63.93
107.5	23,016		0.0000	1.0000	63.93
108.5	16,980		0.0000	1.0000	63.93
109.5	10,478		0.0000	1.0000	63.93
110.5	6,726		0.0000	1.0000	63.93
111.5	6,726		0.0000	1.0000	63.93
112.5	6,726		0.0000	1.0000	63.93
113.5	6,726		0.0000	1.0000	63.93
114.5	6,726		0.0000	1.0000	63.93
115.5	6,726		0.0000	1.0000	63.93
116.5	2,100		0.0000	1.0000	63.93
117.5	2,100		0.0000	1.0000	63.93
118.5	2,100		0.0000	1.0000	63.93
119.5	2,100		0.0000	1.0000	63.93
120.5					63.93

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE; 1898-2008 PLACEMENTS
⊙ 1984-2008 EXPERIENCE; 1898-2008 PLACEMENTS

IOWA 80-R_3

PERCENT SURVIVING

AGE IN YEARS

III-18

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1939-2008

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	93,343,921	303	0.0000	1.0000	100.00
0.5	82,067,723	1,789	0.0000	1.0000	100.00
1.5	76,392,141	216,414	0.0028	0.9972	100.00
2.5	74,816,208	9,016	0.0001	0.9999	99.72
3.5	74,593,702	26,239	0.0004	0.9996	99.71
4.5	73,816,993	26,800	0.0004	0.9996	99.67
5.5	73,372,852	23,411	0.0003	0.9997	99.63
6.5	67,150,162	14,461	0.0002	0.9998	99.60
7.5	65,420,143	39,528	0.0006	0.9994	99.58
8.5	38,714,751	58,517	0.0015	0.9985	99.52
9.5	38,437,952	13,056	0.0003	0.9997	99.37
10.5	35,626,984	62,790	0.0018	0.9982	99.34
11.5	34,191,037	19,165	0.0006	0.9994	99.16
12.5	33,168,279	17,088	0.0005	0.9995	99.10
13.5	31,156,963	57,186	0.0018	0.9982	99.05
14.5	29,633,382	29,453	0.0010	0.9990	98.87
15.5	21,905,986	19,600	0.0009	0.9991	98.77
16.5	21,461,152	12,072	0.0006	0.9994	98.68
17.5	20,984,967	14,539	0.0007	0.9993	98.62
18.5	20,710,620	7,043	0.0003	0.9997	98.55
19.5	17,828,463	4,146	0.0002	0.9998	98.52
20.5	17,308,130	3,920	0.0002	0.9998	98.50
21.5	17,047,051	20,756	0.0012	0.9988	98.48
22.5	16,235,815	33,876	0.0021	0.9979	98.36
23.5	14,053,064	10,910	0.0008	0.9992	98.15
24.5	14,021,777	16,947	0.0012	0.9988	98.07
25.5	14,006,482	17,355	0.0012	0.9988	97.95
26.5	13,976,198	24,926	0.0018	0.9982	97.83
27.5	13,932,913	13,119	0.0009	0.9991	97.65
28.5	13,864,548	8,435	0.0006	0.9994	97.56
29.5	13,801,159	3,500	0.0003	0.9997	97.50
30.5	13,725,579	23,287	0.0017	0.9983	97.47
31.5	12,516,982	17,691	0.0014	0.9986	97.30
32.5	12,496,842	436	0.0000	1.0000	97.16
33.5	12,485,597	5,013	0.0004	0.9996	97.16
34.5	12,424,905	6,500	0.0005	0.9995	97.12
35.5	11,470,465	82,277	0.0072	0.9928	97.07
36.5	11,382,899	39,517	0.0035	0.9965	96.37
37.5	8,281,732	25,215	0.0030	0.9970	96.03
38.5	8,229,185	3,191	0.0004	0.9996	95.74

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1939-2008

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	8,215,508	4,820	0.0006	0.9994	95.70
40.5	5,001,990	438	0.0001	0.9999	95.64
41.5	4,651,602	22,879	0.0049	0.9951	95.63
42.5	4,622,084	11,875	0.0026	0.9974	95.16
43.5	4,547,624	7,217	0.0016	0.9984	94.91
44.5	3,596,583	85	0.0000	1.0000	94.76
45.5	3,594,800	50,053	0.0139	0.9861	94.76
46.5	3,528,657	3,721	0.0011	0.9989	93.44
47.5	3,521,694	1,778	0.0005	0.9995	93.34
48.5	3,178,853	1,886	0.0006	0.9994	93.29
49.5	3,065,632	535	0.0002	0.9998	93.23
50.5	3,061,182	48,851	0.0160	0.9840	93.21
51.5	2,993,308	.	0.0000	1.0000	91.72
52.5	2,650,564	1,973	0.0007	0.9993	91.72
53.5	1,837,038	90	0.0000	1.0000	91.66
54.5	1,820,684	2,171	0.0012	0.9988	91.66
55.5	918,635	1,431	0.0016	0.9984	91.55
56.5	906,093	11,691	0.0129	0.9871	91.40
57.5	893,315	22,321	0.0250	0.9750	90.22
58.5	867,204	340	0.0004	0.9996	87.96
59.5	866,671	4,909	0.0057	0.9943	87.92
60.5	861,688	1,692	0.0020	0.9980	87.42
61.5	817,595	211,263	0.2584	0.7416	87.25
62.5	606,232		0.0000	1.0000	64.70
63.5	606,134	66	0.0001	0.9999	64.70
64.5	605,324		0.0000	1.0000	64.69
65.5	605,324	3,264	0.0054	0.9946	64.69
66.5	601,846	6	0.0000	1.0000	64.34
67.5	601,424		0.0000	1.0000	64.34
68.5	601,273	186	0.0003	0.9997	64.34
69.5	279,149	7	0.0000	1.0000	64.32
70.5	276,065		0.0000	1.0000	64.32
71.5	273,863	165	0.0006	0.9994	64.32
72.5	234,714	1,339	0.0057	0.9943	64.28
73.5	233,024	541	0.0023	0.9977	63.91
74.5	253,843		0.0000	1.0000	63.76
75.5	221,581		0.0000	1.0000	63.76
76.5	218,723	.	0.0000	1.0000	63.76
77.5	218,059		0.0000	1.0000	63.76
78.5	218,059		0.0000	1.0000	63.76

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1939-2008

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	196,065		0.0000	1.0000	63.76
80.5	196,027		0.0000	1.0000	63.76
81.5	121,243		0.0000	1.0000	63.76
82.5	102,247		0.0000	1.0000	63.76
83.5	74,606		0.0000	1.0000	63.76
84.5	74,606		0.0000	1.0000	63.76
85.5	45,225		0.0000	1.0000	63.76
86.5	45,225		0.0000	1.0000	63.76
87.5	45,225	184	0.0041	0.9959	63.76
88.5	41,260		0.0000	1.0000	63.50
89.5	41,260	342	0.0083	0.9917	63.50
90.5	40,918	395	0.0097	0.9903	62.97
91.5	40,523		0.0000	1.0000	62.36
92.5	40,438		0.0000	1.0000	62.36
93.5	40,438		0.0000	1.0000	62.36
94.5	40,438		0.0000	1.0000	62.36
95.5	33,068		0.0000	1.0000	62.36
96.5	33,068		0.0000	1.0000	62.36
97.5	33,068		0.0000	1.0000	62.36
98.5	33,068		0.0000	1.0000	62.36
99.5	33,068		0.0000	1.0000	62.36
100.5	33,068		0.0000	1.0000	62.36
101.5	33,068		0.0000	1.0000	62.36
102.5	31,024		0.0000	1.0000	62.36
103.5	31,024		0.0000	1.0000	62.36
104.5	31,024		0.0000	1.0000	62.36
105.5	1,856		0.0000	1.0000	62.36
106.5					62.36

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1984-2008

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	79,422,626		0.0000	1.0000	100.00
0.5	68,230,247	468	0.0000	1.0000	100.00
1.5	62,555,295	215,020	0.0034	0.9966	100.00
2.5	60,948,852	8,805	0.0001	0.9999	99.66
3.5	60,860,623	19,981	0.0003	0.9997	99.65
4.5	60,155,950	26,571	0.0004	0.9996	99.62
5.5	59,784,876	23,234	0.0004	0.9996	99.58
6.5	54,602,269	14,175	0.0003	0.9997	99.54
7.5	52,682,069	35,998	0.0007	0.9993	99.51
8.5	25,991,017	10,593	0.0004	0.9996	99.44
9.5	25,817,999	8,569	0.0003	0.9997	99.40
10.5	24,004,103	56,310	0.0023	0.9977	99.37
11.5	22,514,449	18,493	0.0008	0.9992	99.14
12.5	24,574,841	16,765	0.0007	0.9993	99.06
13.5	22,535,925	55,683	0.0025	0.9975	98.99
14.5	21,206,249	27,385	0.0013	0.9987	98.74
15.5	16,708,879	19,218	0.0012	0.9988	98.61
16.5	16,614,396	9,768	0.0006	0.9994	98.49
17.5	16,147,670	10,839	0.0007	0.9993	98.43
18.5	15,930,075	2,577	0.0002	0.9998	98.36
19.5	13,981,902	1,796	0.0001	0.9999	98.34
20.5	13,467,333	3,164	0.0002	0.9998	98.33
21.5	13,224,250	20,152	0.0015	0.9985	98.31
22.5	12,417,034	28,434	0.0023	0.9977	98.16
23.5	10,641,907	6,744	0.0006	0.9994	97.93
24.5	10,738,169	12,432	0.0012	0.9988	97.87
25.5	10,727,405	14,723	0.0014	0.9986	97.75
26.5	10,728,797	22,453	0.0021	0.9979	97.61
27.5	11,094,048	11,527	0.0010	0.9990	97.41
28.5	11,946,088	7,553	0.0006	0.9994	97.31
29.5	11,901,513	1,982	0.0002	0.9998	97.25
30.5	12,808,358	23,031	0.0018	0.9982	97.23
31.5	11,611,129	4,920	0.0004	0.9996	97.05
32.5	11,607,321	436	0.0000	1.0000	97.01
33.5	11,600,897	4,463	0.0004	0.9996	97.01
34.5	11,541,407	5,400	0.0005	0.9995	96.97
35.5	10,558,653	82,277	0.0078	0.9922	96.92
36.5	10,512,481	39,517	0.0038	0.9962	96.16
37.5	7,412,495	22,307	0.0030	0.9970	95.79
38.5	7,364,728	3,191	0.0004	0.9996	95.50

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1984-2008

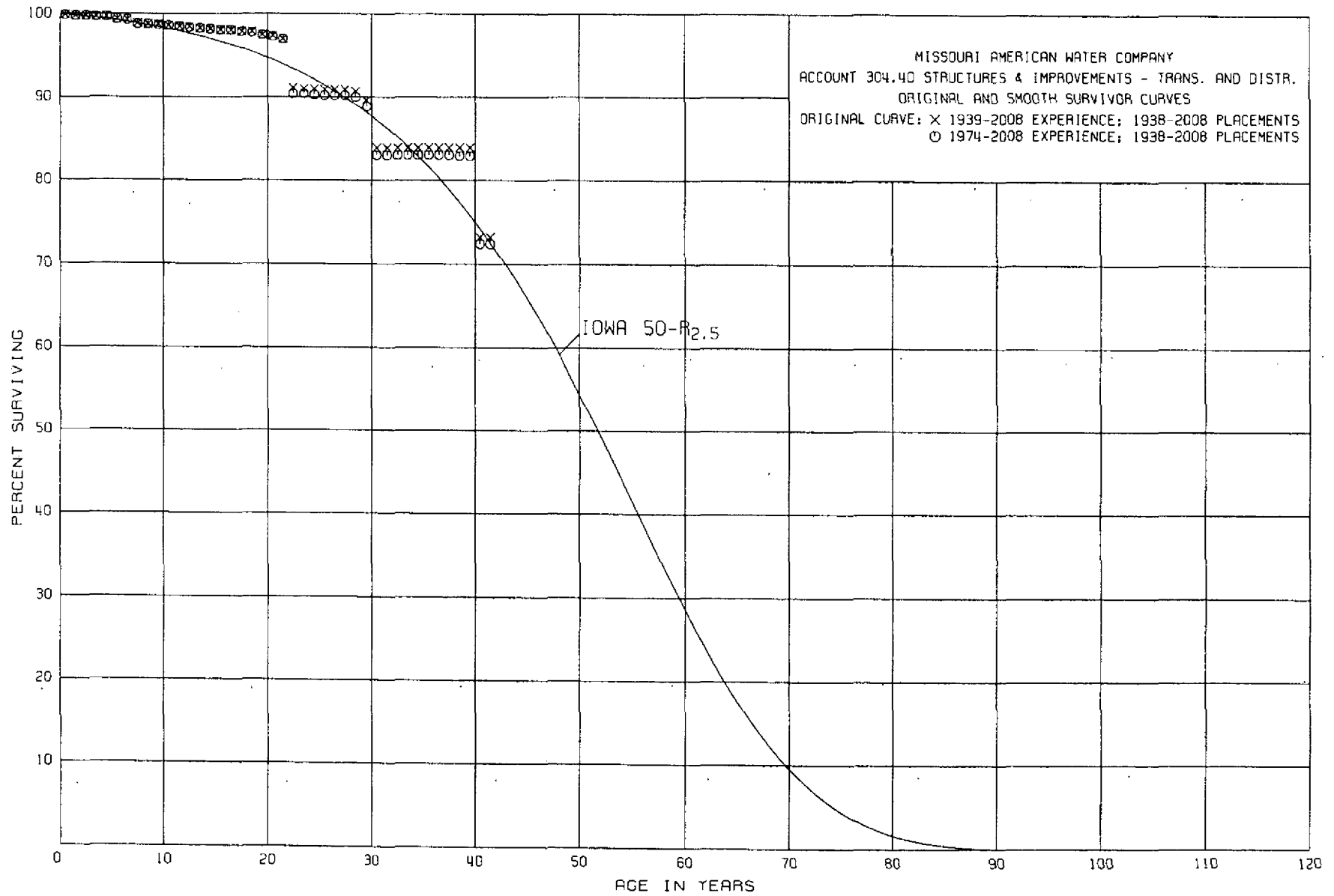| AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	7,351,794	4,820	0.0007	0.9993	95.46
40.5	4,135,526	407	0.0001	0.9999	95.39
41.5	3,785,733	22,879	0.0060	0.9940	95.38
42.5	3,757,932	11,875	0.0032	0.9968	94.81
43.5	3,683,944	7,091	0.0019	0.9981	94.51
44.5	3,070,347	85	0.0000	1.0000	94.33
45.5	3,071,876	50,053	0.0163	0.9837	94.33
46.5	3,025,511	1,428	0.0005	0.9995	92.79
47.5	3,070,534	1,778	0.0006	0.9994	92.74
48.5	2,728,396	1,886	0.0007	0.9993	92.68
49.5	2,615,810	535	0.0002	0.9998	92.62
50.5	2,611,890	48,851	0.0187	0.9813	92.60
51.5	2,548,565		0.0000	1.0000	90.87
52.5	2,417,051	1,687	0.0007	0.9993	90.87
53.5	1,603,811	90	0.0001	0.9999	90.81
54.5	1,587,457	2,171	0.0014	0.9986	90.80
55.5	685,447	931	0.0014	0.9986	90.67
56.5	750,588	11,691	0.0156	0.9844	90.54
57.5	756,806	22,321	0.0295	0.9705	89.13
58.5	790,919	340	0.0004	0.9996	86.50
59.5	790,386	4,909	0.0062	0.9938	86.47
60.5	814,783	1,692	0.0021	0.9979	85.93
61.5	770,690	211,263	0.2741	0.7259	85.75
62.5	559,327		0.0000	1.0000	62.25
63.5	559,230	66	0.0001	0.9999	62.25
64.5	558,420		0.0000	1.0000	62.24
65.5	558,420	3,264	0.0058	0.9942	62.24
66.5	554,942	6	0.0000	1.0000	61.88
67.5	554,605		0.0000	1.0000	61.88
68.5	554,454	186	0.0003	0.9997	61.88
69.5	232,330	7	0.0000	1.0000	61.86
70.5	236,616		0.0000	1.0000	61.86
71.5	238,534	165	0.0007	0.9993	61.86
72.5	199,386		0.0000	1.0000	61.82
73.5	199,034	541	0.0027	0.9973	61.82
74.5	219,854		0.0000	1.0000	61.65
75.5	187,591		0.0000	1.0000	61.65
76.5	184,734		0.0000	1.0000	61.65
77.5	184,070		0.0000	1.0000	61.65
78.5	184,070		0.0000	1.0000	61.65

ACCOUNT 304.30 STRUCTURES & IMPROVEMENTS - WATER TREATMENT

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1898-2008   EXPERIENCE BAND 1984-2008

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	162,076		0.0000	1.0000	61.65
80.5	191,205		0.0000	1.0000	61.65
81.5	118,277		0.0000	1.0000	61.65
82.5	99,281		0.0000	1.0000	61.65
83.5	71,640		0.0000	1.0000	61.65
84.5	71,640		0.0000	1.0000	61.65
85.5	45,225		0.0000	1.0000	61.65
86.5	45,225		0.0000	1.0000	61.65
87.5	45,225	184	0.0041	0.9959	61.65
88.5	41,260		0.0000	1.0000	61.40
89.5	41,260	342	0.0083	0.9917	61.40
90.5	40,918	395	0.0097	0.9903	60.89
91.5	40,523		0.0000	1.0000	60.30
92.5	40,438		0.0000	1.0000	60.30
93.5	40,438		0.0000	1.0000	60.30
94.5	40,438		0.0000	1.0000	60.30
95.5	33,068		0.0000	1.0000	60.30
96.5	33,068		0.0000	1.0000	60.30
97.5	33,068		0.0000	1.0000	60.30
98.5	33,068		0.0000	1.0000	60.30
99.5	33,068		0.0000	1.0000	60.30
100.5	33,068		0.0000	1.0000	60.30
101.5	33,068		0.0000	1.0000	60.30
102.5	31,024		0.0000	1.0000	60.30
103.5	31,024		0.0000	1.0000	60.30
104.5	31,024		0.0000	1.0000	60.30
105.5	1,856		0.0000	1.0000	60.30
106.5					60.30

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.40 STRUCTURES & IMPROVEMENTS - TRANS. AND DISTR.
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE; 1938-2008 PLACEMENTS
⊙ 1974-2008 EXPERIENCE; 1938-2008 PLACEMENTS

IOWA 50-R$_{2.5}$

PERCENT SURVIVING

AGE IN YEARS

III-25

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.40 STRUCTURES & IMPROVEMENTS - TRANS. AND DISTR.

ORIGINAL LIFE TABLE

PLACEMENT BAND 1938-2008   EXPERIENCE BAND 1939-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	10,880,646		0.0000	1.0000	100.00
0.5	8,616,355	15,488	0.0018	0.9982	100.00
1.5	7,748,704	1,321	0.0002	0.9998	99.82
2.5	7,721,625	7,594	0.0010	0.9990	99.80
3.5	7,713,472	1,219	0.0002	0.9998	99.70
4.5	7,712,253	22,529	0.0029	0.9971	99.68
5.5	7,178,105	3,843	0.0005	0.9995	99.39
6.5	5,333,537	23,245	0.0044	0.9956	99.34
7.5	5,298,962	4,009	0.0008	0.9992	98.90
8.5	5,255,664	3,383	0.0006	0.9994	98.82
9.5	5,191,428	7,003	0.0013	0.9987	98.76
10.5	5,127,551	4,839	0.0009	0.9991	98.63
11.5	5,092,297	4,200	0.0008	0.9992	98.54
12.5	5,071,688	6,687	0.0013	0.9987	98.46
13.5	4,196,316	4,327	0.0010	0.9990	98.33
14.5	3,513,831	3,139	0.0009	0.9991	98.23
15.5	3,467,784	1,214	0.0004	0.9996	98.14
16.5	3,453,483	6,408	0.0019	0.9981	98.10
17.5	3,097,286	1,869	0.0006	0.9994	97.91
18.5	3,074,435	10,316	0.0034	0.9966	97.85
19.5	3,050,720	4,709	0.0015	0.9985	97.52
20.5	2,979,993	10,214	0.0034	0.9966	97.37
21.5	2,971,779	183,359	0.0617	0.9383	97.04
22.5	2,752,277	355	0.0001	0.9999	91.05
23.5	2,751,922	997	0.0004	0.9996	91.04
24.5	2,749,929	2,535	0.0009	0.9991	91.00
25.5	2,742,819	148	0.0001	0.9999	90.92
26.5	2,733,961	1,982	0.0007	0.9993	90.91
27.5	2,680,559	4,300	0.0016	0.9984	90.85
28.5	2,675,202	31,804	0.0119	0.9881	90.70
29.5	2,611,846	166,439	0.0637	0.9363	89.62
30.5	316,957		0.0000	1.0000	83.91
31.5	316,957		0.0000	1.0000	83.91
32.5	316,957		0.0000	1.0000	83.91
33.5	316,957		0.0000	1.0000	83.91
34.5	312,446		0.0000	1.0000	83.91
35.5	171,272		0.0000	1.0000	83.91
36.5	111,272		0.0000	1.0000	83.91
37.5	111,272	70	0.0006	0.9994	83.91
38.5	104,717		0.0000	1.0000	83.86

ACCOUNT 304.40 STRUCTURES & IMPROVEMENTS - TRANS. AND DISTR.

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2008   EXPERIENCE BAND 1939-2008

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	104,717	13,306	0.1271	0.8729	83.86
40.5	91,411		0.0000	1.0000	73.20
41.5	91,411		0.0000	1.0000	73.20
42.5	91,411		0.0000	1.0000	73.20
43.5	91,411		0.0000	1.0000	73.20
44.5	91,411		0.0000	1.0000	73.20
45.5	91,411		0.0000	1.0000	73.20
46.5	91,411		0.0000	1.0000	73.20
47.5	91,411		0.0000	1.0000	73.20
48.5	91,411		0.0000	1.0000	73.20
49.5	91,411		0.0000	1.0000	73.20
50.5	91,411		0.0000	1.0000	73.20
51.5	91,411		0.0000	1.0000	73.20
52.5	91,411		0.0000	1.0000	73.20
53.5	91,411		0.0000	1.0000	73.20
54.5	91,411		0.0000	1.0000	73.20
55.5	91,411		0.0000	1.0000	73.20
56.5	91,411		0.0000	1.0000	73.20
57.5	91,411		0.0000	1.0000	73.20
58.5	91,411		0.0000	1.0000	73.20
59.5	91,411		0.0000	1.0000	73.20
60.5	91,411		0.0000	1.0000	73.20
61.5	91,411		0.0000	1.0000	73.20
62.5	91,411		0.0000	1.0000	73.20
63.5	91,411		0.0000	1.0000	73.20
64.5	91,411		0.0000	1.0000	73.20
65.5	91,411		0.0000	1.0000	73.20
66.5	91,411		0.0000	1.0000	73.20
67.5	91,411		0.0000	1.0000	73.20
68.5	91,411		0.0000	1.0000	73.20
69.5	91,411		0.0000	1.0000	73.20
70.5					73.20

ACCOUNT 304.40 STRUCTURES & IMPROVEMENTS - TRANS. AND DISTR.

ORIGINAL LIFE TABLE

PLACEMENT BAND 1938-2008   EXPERIENCE BAND 1974-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	10,274,133		0.0000	1.0000	100.00
0.5	8,046,694	15,000	0.0019	0.9981	100.00
1.5	7,241,503	1,321	0.0002	0.9998	99.81
2.5	7,217,849	7,594	0.0011	0.9989	99.79
3.5	7,219,731	819	0.0001	0.9999	99.68
4.5	7,222,265	22,529	0.0031	0.9969	99.67
5.5	6,689,106	2,745	0.0004	0.9996	99.36
6.5	4,848,451	23,165	0.0048	0.9952	99.32
7.5	4,813,957	3,549	0.0007	0.9993	98.84
8.5	4,771,118	2,554	0.0005	0.9995	98.77
9.5	4,710,448	6,446	0.0014	0.9986	98.72
10.5	4,648,017	4,732	0.0010	0.9990	98.58
11.5	4,613,130	4,023	0.0009	0.9991	98.48
12.5	4,597,509	5,757	0.0013	0.9987	98.39
13.5	3,723,937	3,727	0.0010	0.9990	98.26
14.5	3,050,372	1,989	0.0007	0.9993	98.16
15.5	3,008,030	260	0.0001	0.9999	98.09
16.5	2,996,849	6,408	0.0021	0.9979	98.08
17.5	2,818,384	1,719	0.0006	0.9994	97.87
18.5	2,796,038	10,316	0.0037	0.9963	97.81
19.5	2,773,320	4,684	0.0017	0.9983	97.45
20.5	2,702,618	8,982	0.0033	0.9967	97.28
21.5	2,695,784	183,359	0.0680	0.9320	96.96
22.5	2,477,636	355	0.0001	0.9999	90.37
23.5	2,477,657	997	0.0004	0.9996	90.36
24.5	2,478,207	2,535	0.0010	0.9990	90.32
25.5	2,638,033	148	0.0001	0.9999	90.23
26.5	2,629,174	1,982	0.0008	0.9992	90.22
27.5	2,575,773	4,300	0.0017	0.9983	90.15
28.5	2,570,415	31,804	0.0124	0.9876	90.00
29.5	2,507,059	166,439	0.0664	0.9336	88.88
30.5	212,170		0.0000	1.0000	82.98
31.5	212,170		0.0000	1.0000	82.98
32.5	212,170		0.0000	1.0000	82.98
33.5	212,240		0.0000	1.0000	82.98
34.5	207,730		0.0000	1.0000	82.98
35.5	171,272		0.0000	1.0000	82.98
36.5	111,272		0.0000	1.0000	82.98
37.5	111,272	70	0.0006	0.9994	82.98
38.5	104,717		0.0000	1.0000	82.93

ACCOUNT 304.40 STRUCTURES & IMPROVEMENTS - TRANS. AND DISTR.
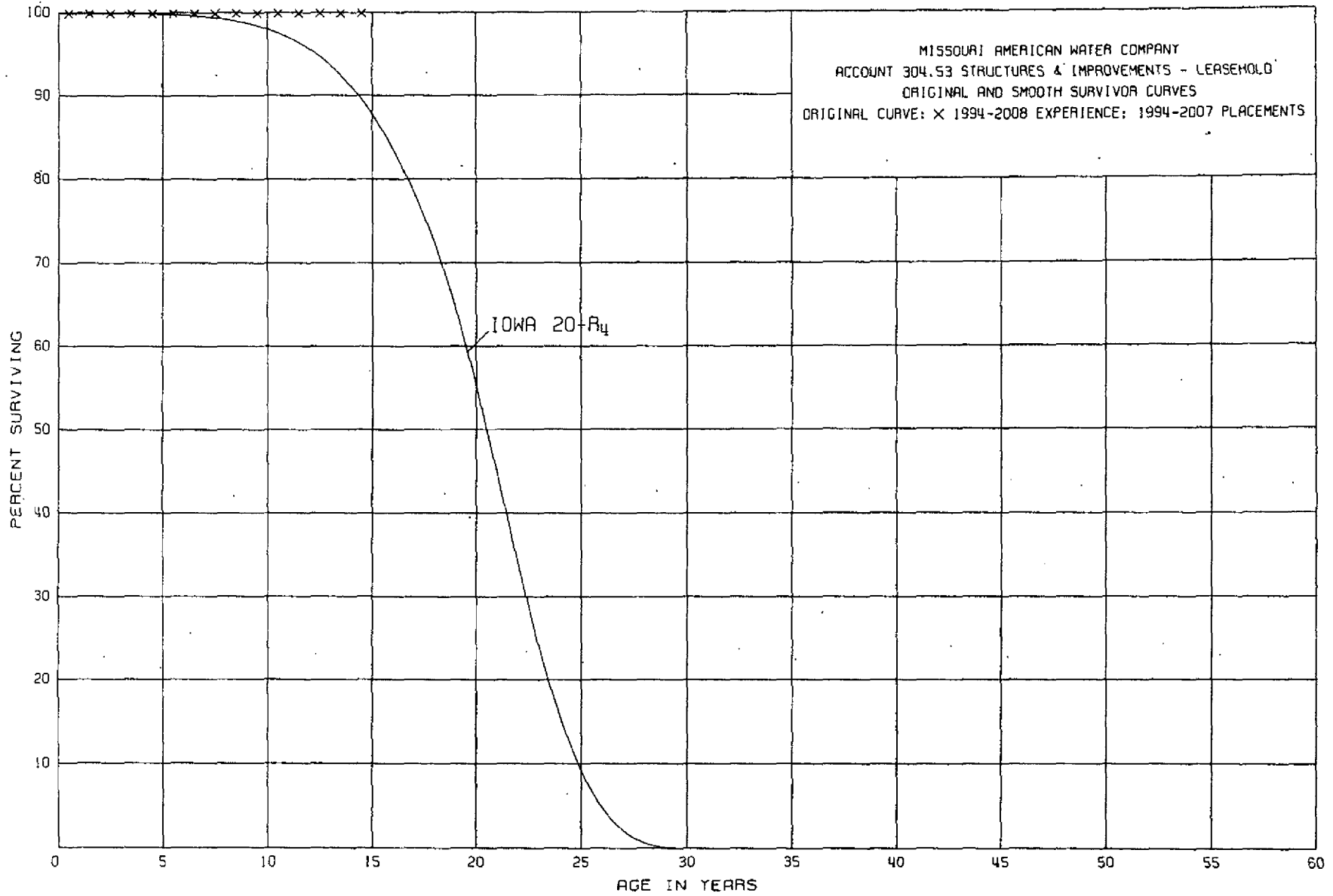
ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1938-2008   EXPERIENCE BAND 1974-2008

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	104,717	13,306	0.1271	0.8729	82.93
40.5	91,411		0.0000	1.0000	72.39
41.5	91,411		0.0000	1.0000	72.39
42.5	91,411		0.0000	1.0000	72.39
43.5	91,411		0.0000	1.0000	72.39
44.5	91,411		0.0000	1.0000	72.39
45.5	91,411		0.0000	1.0000	72.39
46.5	91,411		0.0000	1.0000	·72.39
47.5	91,411		0.0000	1.0000	72.39
48.5	91,411		0.0000	1.0000	72.39
49.5	91,411		0.0000	1.0000	72.39
50.5	91,411		0.0000	1.0000	72.39
51.5	91,411		0.0000	1.0000	72.39
52.5	91,411		0.0000	1.0000	72.39
53.5	91,411		0.0000	1.0000	72.39
54.5	91,411		0.0000	1.0000	·72.39
55.5	91,411		0.0000	1.0000	72.39
56.5	91,411		0.0000	1.0000	72.39
57.5	91,411		0.0000	1.0000	72.39
58.5	91,411		0.0000	1.0000	72.39
59.5	91,411		0.0000	1.0000	72.39
60.5	91,411		0.0000	1.0000	72.39
61.5	91,411		0.0000	1.0000	72.39
62.5	91,411		0.0000	1.0000	·72.39
63.5	91,411		0.0000	1.0000	72.39
64.5	91,411		0.0000	1.0000	72.39
65.5	91,411		0.0000	1.0000	72.39
66.5	91,411		0.0000	1.0000	72.39
67.5	91,411		0.0000	1.0000	72.39
68.5	91,411		0.0000	1.0000	72.39
69.5	91,411		0.0000	1.0000	72.39
70.5					.72.39

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.53 STRUCTURES & IMPROVEMENTS - LEASEHOLD
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1994-2008 EXPERIENCE: 1994-2007 PLACEMENTS

IOWA 20-R4

PERCENT SURVIVING

AGE IN YEARS

III-30

MISSOURI AMERICAN WATER COMPANY

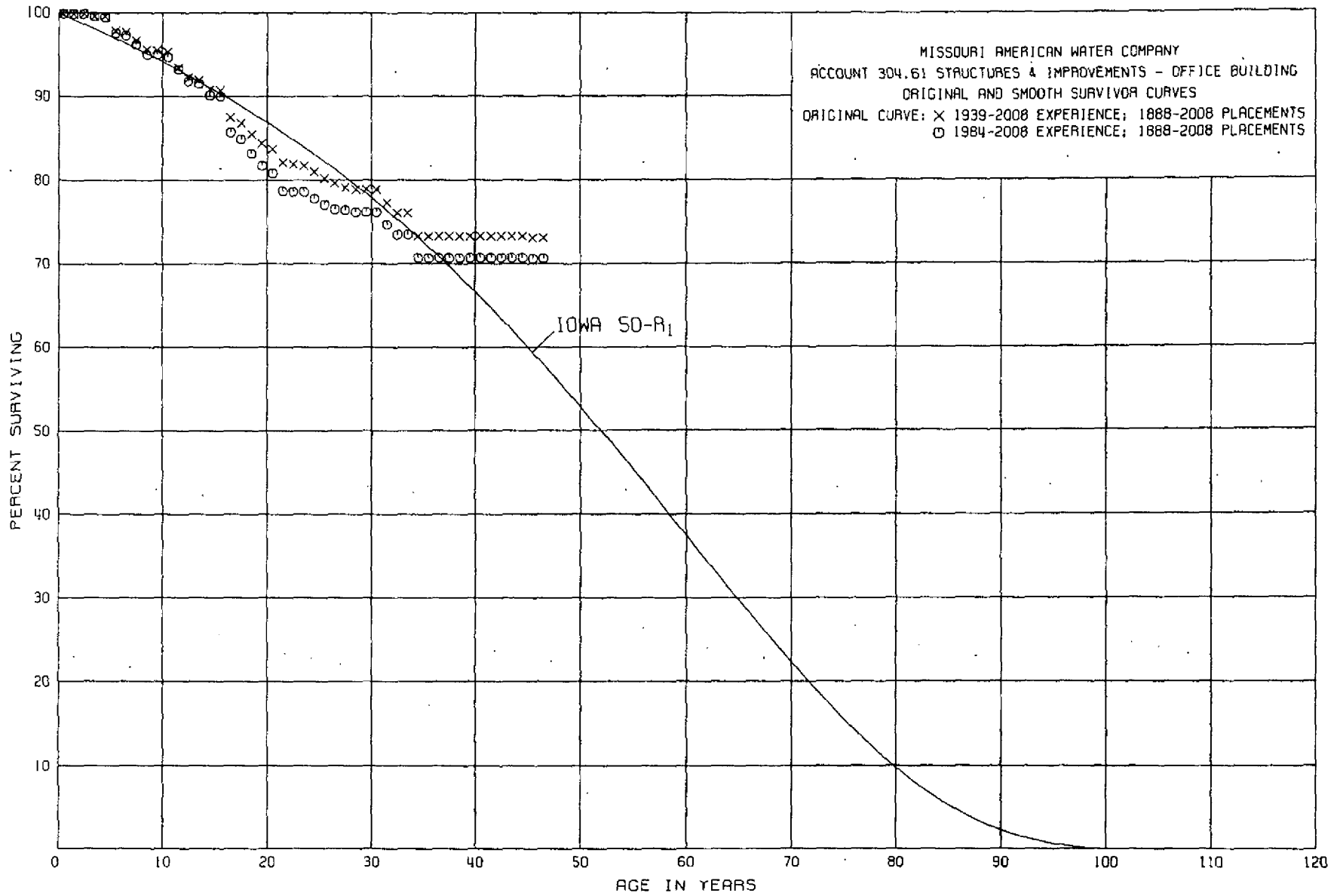ACCOUNT 304.53 STRUCTURES & IMPROVEMENTS - LEASEHOLD

ORIGINAL LIFE TABLE

PLACEMENT BAND 1994-2007   EXPERIENCE BAND 1994-2008

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	346,313		0.0000	1.0000	100.00
0.5	346,313		0.0000	1.0000	100.00
1.5	339,728		0.0000	1.0000	100.00
2.5	339,728		0.0000	1.0000	100.00
3.5	339,728		0.0000	1.0000	100.00
4.5	339,728		0.0000	1.0000	100.00
5.5	339,728		0.0000	1.0000	100.00
6.5	339,728		0.0000	1.0000	100.00
7.5	339,728		0.0000	1.0000	100.00
8.5	339,728		0.0000	1.0000	100.00
9.5	339,728		0.0000	1.0000	100.00
10.5	339,728		0.0000	1.0000	100.00
11.5	339,728		0.0000	1.0000	100.00
12.5	47,564		0.0000	1.0000	100.00
13.5	47,564		0.0000	1.0000	100.00
14.5					100.00

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE; 1888-2008 PLACEMENTS
○ 1984-2008 EXPERIENCE; 1888-2008 PLACEMENTS

IOWA 50-R₁

PERCENT SURVIVING

AGE IN YEARS

III-32

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

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	8,741,247		0.0000	1.0000	100.00
0.5	3,204,409		0.0000	1.0000	100.00
1.5	2,265,953	497	0.0002	0.9998	100.00
2.5	2,218,615	7,808	0.0035	0.9965	99.98
3.5	2,205,095	955	0.0004	0.9996	99.63
4.5	2,045,467	34,022	0.0166	0.9834	99.59
5.5	1,988,384	5,105	0.0026	0.9974	97.94
6.5	1,947,127	19,684	0.0101	0.9899	97.69
7.5	1,884,339	20,916	0.0111	0.9889	96.70
8.5	1,850,555	1,662	0.0009	0.9991	95.63
9.5	1,841,997	4,444	0.0024	0.9976	95.54
10.5	1,796,872	35,366	0.0197	0.9803	95.31
11.5	1,725,637	22,369	0.0130	0.9870	93.43
12.5	1,643,564	5,732	0.0035	0.9965	92.22
13.5	754,251	8,886	0.0118	0.9882	91.90
14.5	660,325	882	0.0013	0.9987	90.82
15.5	623,695	21,938	0.0352	0.9648	90.70
16.5	558,914	4,767	0.0085	0.9915	87.51
17.5	544,757	7,952	0.0146	0.9854	86.77
18.5	389,512	4,939	0.0127	0.9873	85.50
19.5	384,573	3,335	0.0087	0.9913	84.41
20.5	368,385	7,183	0.0195	0.9805	83.68
21.5	361,202	727	0.0020	0.9980	82.05
22.5	296,762	750	0.0025	0.9975	81.89
23.5	289,140	2,516	0.0087	0.9913	81.69
24.5	284,063	2,780	0.0098	0.9902	80.98
25.5	279,084	2,002	0.0072	0.9928	80.19
26.5	242,269	1,660	0.0069	0.9931	79.61
27.5	239,684	443	0.0018	0.9982	79.06
28.5	238,720		0.0000	1.0000	78.92
29.5	231,270		0.0000	1.0000	78.92
30.5	231,270	4,733	0.0205	0.9795	78.92
31.5	231,738	3,594	0.0155	0.9845	77.30
32.5	228,145		0.0000	1.0000	76.10
33.5	227,490	8,378	0.0368	0.9632	76.10
34.5	219,113		0.0000	1.0000	73.30
35.5	216,660	61	0.0003	0.9997	73.30
36.5	216,599		0.0000	1.0000	73.28
37.5	130,837		0.0000	1.0000	73.28
38.5	130,837		0.0000	1.0000	73.28

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

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	130,540		0.0000	1.0000	73.28
40.5	130,540		0.0000	1.0000	73.28
41.5	130,771		0.0000	1.0000	73.28
42.5	130,659		0.0000	1.0000	73.28
43.5	118,381		0.0000	1.0000	73.28
44.5	118,221	229	0.0019	0.9981	73.28
45.5	65,047		0.0000	1.0000	73.14
46.5	31,252		0.0000	1.0000	73.14
47.5	31,252		0.0000	1.0000	73.14
48.5	6,402		0.0000	1.0000	73.14
49.5	6,402		0.0000	1.0000	73.14
50.5	7,051		0.0000	1.0000	73.14
51.5	7,002		0.0000	1.0000	73.14
52.5	5,056		0.0000	1.0000	73.14
53.5	4,492		0.0000	1.0000	73.14
54.5	4,492		0.0000	1.0000	73.14
55.5	4,492		0.0000	1.0000	73.14
56.5	4,492		0.0000	1.0000	73.14
57.5	4,465		0.0000	1.0000	73.14
58.5	4,465		0.0000	1.0000	73.14
59.5	4,465		0.0000	1.0000	73.14
60.5	4,465		0.0000	1.0000	73.14
61.5	4,465	95	0.0213	0.9787	73.14
62.5	4,370		0.0000	1.0000	71.58
63.5	4,370		0.0000	1.0000	71.58
64.5	4,370		0.0000	1.0000	71.58
65.5	4,370		0.0000	1.0000	71.58
66.5	3,963		0.0000	1.0000	71.58
67.5	3,963		0.0000	1.0000	71.58
68.5	3,963		0.0000	1.0000	71.58
69.5	3,963		0.0000	1.0000	71.58
70.5	3,963		0.0000	1.0000	71.58
71.5	3,963		0.0000	1.0000	71.58
72.5	3,963		0.0000	1.0000	71.58
73.5	3,879		0.0000	1.0000	71.58
74.5	3,879		0.0000	1.0000	71.58
75.5	3,879		0.0000	1.0000	71.58
76.5	3,879		0.0000	1.0000	71.58
77.5	3,879		0.0000	1.0000	71.58
78.5	3,879		0.0000	1.0000	71.58
79.5	3,879		0.0000	1.0000	71.58

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1939-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
80.5	3,173		0.0000	1.0000	71.58
81.5	2,306		0.0000	1.0000	71.58
82.5	2,306		0.0000	1.0000	71.58
83.5	2,306		0.0000	1.0000	71.58
84.5	2,306		0.0000	1.0000	71.58
85.5	2,084		0.0000	1.0000	71.58
86.5	2,074		0.0000	1.0000	71.58
87.5	2,074		0.0000	1.0000	71.58
88.5	2,074		0.0000	1.0000	71.58
89.5	2,074		0.0000	1.0000	71.58
90.5	2,074		0.0000	1.0000	71.58
91.5	2,074		0.0000	1.0000	71.58
92.5	2,074		0.0000	1.0000	71.58
93.5	2,074		0.0000	1.0000	71.58
94.5	2,074		0.0000	1.0000	71.58
95.5	2,074		0.0000	1.0000	71.58
96.5	2,074		0.0000	1.0000	71.58
97.5	2,074		0.0000	1.0000	71.58
98.5	2,074		0.0000	1.0000	71.58
99.5	1,176		0.0000	1.0000	71.58
100.5	1,176		0.0000	1.0000	71.58
101.5	1,176		0.0000	1.0000	71.58
102.5	1,176		0.0000	1.0000	71.58
103.5	1,176		0.0000	1.0000	71.58
104.5	1,176		0.0000	1.0000	71.58
105.5	1,176		0.0000	1.0000	71.58
106.5	1,176		0.0000	1.0000	71.58
107.5	1,176		0.0000	1.0000	71.58
108.5	1,176		0.0000	1.0000	71.58
109.5	1,176		0.0000	1.0000	71.58
110.5	1,176		0.0000	1.0000	71.58
111.5	945		0.0000	1.0000	71.58
112.5	945		0.0000	1.0000	71.58
113.5	945		0.0000	1.0000	71.58
114.5	945		0.0000	1.0000	71.58
115.5	945		0.0000	1.0000	71.58
116.5	945		0.0000	1.0000	71.58
117.5	945		0.0000	1.0000	71.58
118.5	945		0.0000	1.0000	71.58
119.5	945		0.0000	1.0000	71.58
120.5					71.58

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

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	8,365,550		0.0000	1.0000	100.00
0.5	2,868,060		0.0000	1.0000	100.00
1.5	1,971,453	497	0.0003	0.9997	100.00
2.5	1,931,145	7,808	0.0040	0.9960	99.97
3.5	1,919,422	806	0.0004	0.9996	99.57
4.5	1,769,780	33,932	0.0192	0.9808	99.53
5.5	1,712,787	5,105	0.0030	0.9970	97.62
6.5	1,673,632	19,684	0.0118	0.9882	97.33
7.5	1,612,333	19,134	0.0119	0.9881	96.18
8.5	1,581,665	1,203	0.0008	0.9992	95.04
9.5	1,578,014	4,115	0.0026	0.9974	94.96
10.5	1,535,749	23,874	0.0155	0.9845	94.71
11.5	1,476,904	22,369	0.0151	0.9849	93.24
12.5	1,483,723	5,732	0.0039	0.9961	91.83
13.5	594,492	8,886	0.0149	0.9851	91.47
14.5	500,953	882	0.0018	0.9982	90.11
15.5	464,397	21,938	0.0472	0.9528	89.95
16.5	406,789	4,001	0.0098	0.9902	85.70
17.5	393,509	7,952	0.0202	0.9798	84.86
18.5	250,605	4,483	0.0179	0.9821	83.15
19.5	248,349	2,757	0.0111	0.9889	81.66
20.5	288,225	7,183	0.0249	0.9751	80.75
21.5	324,297	727	0.0022	0.9978	78.74
22.5	259,856	62	0.0002	0.9998	78.57
23.5	280,217	2,516	0.0090	0.9910	78.55
24.5	275,140	2,780	0.0101	0.9899	77.84
25.5	270,457	2,002	0.0074	0.9926	77.05
26.5	237,753	284	0.0012	0.9988	76.48
27.5	236,702	443	0.0019	0.9981	76.39
28.5	236,302		0.0000	1.0000	76.24
29.5	227,954		0.0000	1.0000	76.24
30.5	227,954	4,733	0.0208	0.9792	76.24
31.5	228,422	3,594	0.0157	0.9843	74.65
32.5	224,856		0.0000	1.0000	73.48
33.5	224,201	8,378	0.0374	0.9626	73.48
34.5	215,824		0.0000	1.0000	70.73
35.5	213,371	61	0.0003	0.9997	70.73
36.5	213,310		0.0000	1.0000	70.71
37.5	127,548		0.0000	1.0000	70.71
38.5	127,548		0.0000	1.0000	70.71

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE, CONT..

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

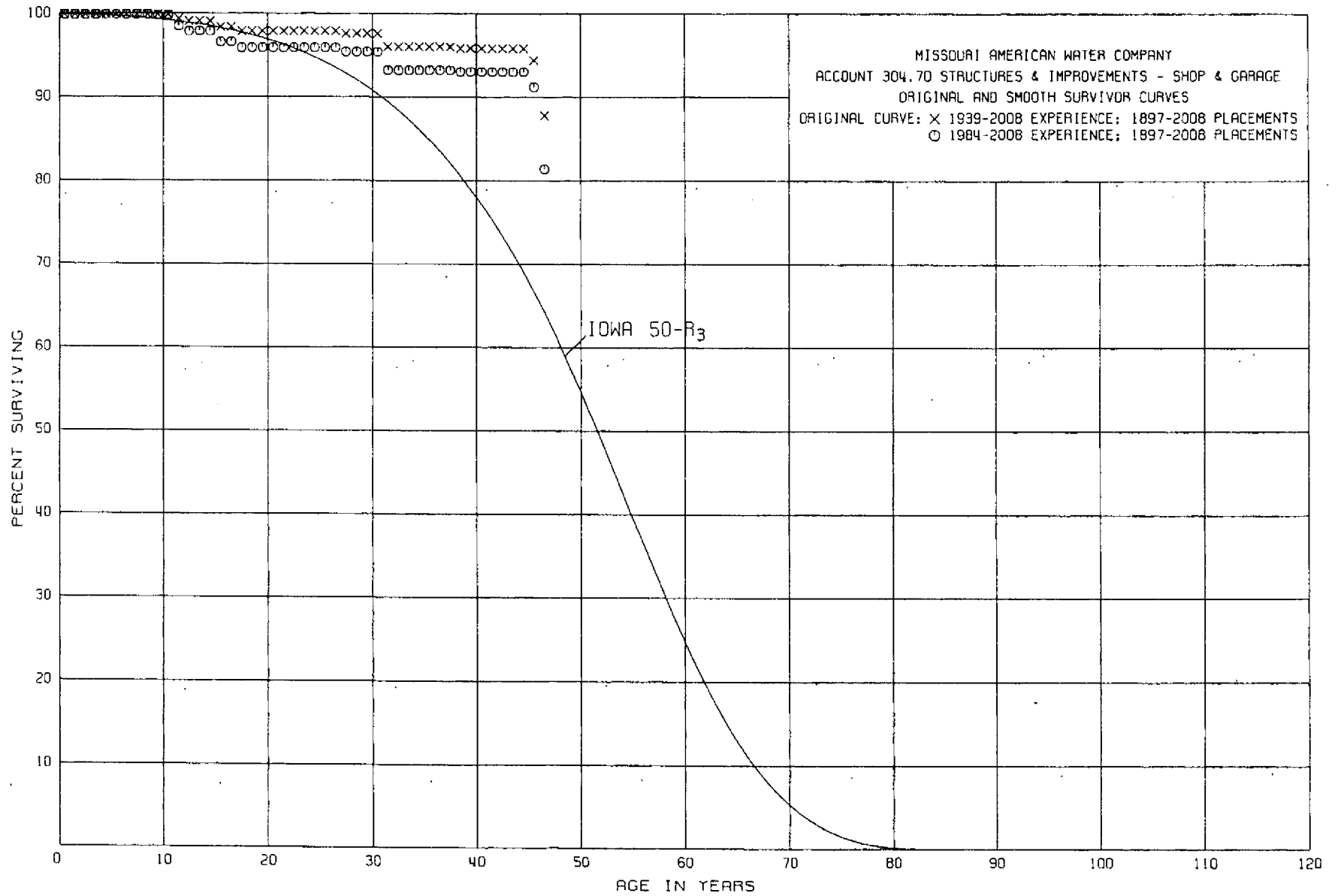| AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	127,251		0.0000	1.0000	70.71
40.5	127,251		0.0000	1.0000	70.71
41.5	127,658		0.0000	1.0000	70.71
42.5	127,546		0.0000	1.0000	70.71
43.5	115,268		0.0000	1.0000	70.71
44.5	115,108	229	0.0020	0.9980	70.71
45.5	61,934		0.0000	1.0000	70.57
46.5	28,139		0.0000	1.0000	70.57
47.5	28,139		0.0000	1.0000	70.57
48.5	3,373		0.0000	1.0000	70.57
49.5	3,373		0.0000	1.0000	70.57
50.5	3,077		0.0000	1.0000	70.57
51.5	3,028		0.0000	1.0000	70.57
52.5	1,082		0.0000	1.0000	70.57
53.5	518		0.0000	1.0000	70.57
54.5	518		0.0000	1.0000	70.57
55.5	1,319		0.0000	1.0000	70.57
56.5	2,186		0.0000	1.0000	70.57
57.5	2,159		0.0000	1.0000	70.57
58.5	2,159		0.0000	1.0000	70.57
59.5	2,159		0.0000	1.0000	70.57
60.5	2,381		0.0000	1.0000	70.57
61.5	2,391	95	0.0397	0.9603	70.57
62.5	2,296		0.0000	1.0000	67.77
63.5	2,296		0.0000	1.0000	67.77
64.5	2,296		0.0000	1.0000	67.77
65.5	2,296		0.0000	1.0000	67.77
66.5	1,889		0.0000	1.0000	67.77
67.5	1,889		0.0000	1.0000	67.77
68.5	1,889		0.0000	1.0000	67.77
69.5	1,889		0.0000	1.0000	67.77
70.5	1,889		0.0000	1.0000	67.77
71.5	1,889		0.0000	1.0000	67.77
72.5	1,889		0.0000	1.0000	67.77
73.5	1,805		0.0000	1.0000	67.77
74.5	2,703		0.0000	1.0000	67.77
75.5	2,703		0.0000	1.0000	67.77
76.5	2,703		0.0000	1.0000	67.77
77.5	2,703		0.0000	1.0000	67.77
78.5	2,703		0.0000	1.0000	67.77
79.5	2,703		0.0000	1.0000	67.77

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.61 STRUCTURES & IMPROVEMENTS - OFFICE BUILDING

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1888-2008   EXPERIENCE BAND 1984-2008

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	2,703		0.0000	1.0000	67.77
80.5	1,997		0.0000	1.0000	67.77
81.5	1,130		0.0000	1.0000	67.77
82.5	1,130		0.0000	1.0000	67.77
83.5	1,130		0.0000	1.0000	67.77
84.5	1,130		0.0000	1.0000	67.77
85.5	908		0.0000	1.0000	67.77
86.5	1,129		0.0000	1.0000	67.77
87.5	1,129		0.0000	1.0000	67.77
88.5	1,129		0.0000	1.0000	67.77
89.5	1,129		0.0000	1.0000	67.77
90.5	1,129		0.0000	1.0000	67.77
91.5	1,129		0.0000	1.0000	67.77
92.5	1,129		0.0000	1.0000	67.77
93.5	1,129		0.0000	1.0000	67.77
94.5	1,129		0.0000	1.0000	67.77
95.5	2,074		0.0000	1.0000	67.77
96.5	2,074		0.0000	1.0000	67.77
97.5	2,074		0.0000	1.0000	67.77
98.5	2,074		0.0000	1.0000	67.77
99.5	1,176		0.0000	1.0000	67.77
100.5	1,176		0.0000	1.0000	67.77
101.5	1,176		0.0000	1.0000	67.77
102.5	1,176		0.0000	1.0000	67.77
103.5	1,176		0.0000	1.0000	67.77
104.5	1,176		0.0000	1.0000	67.77
105.5	1,176		0.0000	1.0000	67.77
106.5	1,176		0.0000	1.0000	67.77
107.5	1,176		0.0000	1.0000	67.77
108.5	1,176		0.0000	1.0000	67.77
109.5	1,176		0.0000	1.0000	67.77
110.5	1,176		0.0000	1.0000	67.77
111.5	945		0.0000	1.0000	67.77
112.5	945		0.0000	1.0000	67.77
113.5	945		0.0000	1.0000	67.77
114.5	945		0.0000	1.0000	67.77
115.5	945		0.0000	1.0000	67.77
116.5	945		0.0000	1.0000	67.77
117.5	945		0.0000	1.0000	67.77
118.5	945		0.0000	1.0000	67.77
119.5	945		0.0000	1.0000	67.77
120.5					67.77

MISSOURI AMERICAN WATER COMPANY
ACCOUNT 304.70 STRUCTURES & IMPROVEMENTS - SHOP & GARAGE
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1939-2008 EXPERIENCE: 1897-2008 PLACEMENTS
⊙ 1984-2008 EXPERIENCE: 1897-2008 PLACEMENTS

IOWA 50-R₃

PERCENT SURVIVING

AGE IN YEARS

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.70 STRUCTURES & IMPROVEMENTS - SHOP & GARAGE

ORIGINAL LIFE TABLE

PLACEMENT BAND 1897-2008   EXPERIENCE BAND 1939-2008

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	873,597		0.0000	1.0000	100.00
0.5	376,362		0.0000	1.0000	100.00
1.5	375,414		0.0000	1.0000	100.00
2.5	359,064		0.0000	1.0000	100.00
3.5	359,064		0.0000	1.0000	100.00
4.5	320,247		0.0000	1.0000	100.00
5.5	293,927	164	0.0006	0.9994	100.00
6.5	256,240		0.0000	1.0000	99.94
7.5	256,240		0.0000	1.0000	99.94
8.5	228,584	112	0.0005	0.9995	99.94
9.5	228,472		0.0000	1.0000	99.89
10.5	221,463	1,188	0.0054	0.9946	99.89
11.5	217,556	564	0.0026	0.9974	99.35
12.5	165,915		0.0000	1.0000	99.09
13.5	178,193		0.0000	1.0000	99.09
14.5	172,143	1,290	0.0075	0.9925	99.09
15.5	170,510		0.0000	1.0000	98.35
16.5	161,002	693	0.0043	0.9957	98.35
17.5	157,047		0.0000	1.0000	97.93
18.5	157,047	34	0.0002	0.9998	97.93
19.5	157,014		0.0000	1.0000	97.91
20.5	156,890		0.0000	1.0000	97.91
21.5	156,642		0.0000	1.0000	97.91
22.5	152,989		0.0000	1.0000	97.91
23.5	152,644		0.0000	1.0000	97.91
24.5	146,867		0.0000	1.0000	97.91
25.5	145,831		0.0000	1.0000	97.91
26.5	145,831	456	0.0031	0.9969	97.91
27.5	145,254		0.0000	1.0000	97.61
28.5	145,254		0.0000	1.0000	97.61
29.5	145,254		0.0000	1.0000	97.61
30.5	145,254	2,396	0.0165	0.9835	97.61
31.5	142,857		0.0000	1.0000	96.00
32.5	142,857		0.0000	1.0000	96.00
33.5	142,857		0.0000	1.0000	96.00
34.5	142,857		0.0000	1.0000	96.00
35.5	138,680		0.0000	1.0000	96.00
36.5	137,357		0.0000	1.0000	96.00
37.5	137,357	227	0.0017	0.9983	96.00
38.5	137,130		0.0000	1.0000	95.84

ACCOUNT 304.70 STRUCTURES & IMPROVEMENTS - SHOP & GARAGE

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1897-2008   EXPERIENCE BAND 1939-2008

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	71,772		0.0000	1.0000	95.84
40.5	71,772		0.0000	1.0000	95.84
41.5	72,921		0.0000	1.0000	95.84
42.5	72,921		0.0000	1.0000	95.84
43.5	72,921		0.0000	1.0000	95.84
44.5	66,743	979	0.0147	0.9853	95.84
45.5	53,100	3,747	0.0706	0.9294	94.43
46.5	49,152		0.0000	1.0000	87.76
47.5	49,152		0.0000	1.0000	87.76
48.5	49,152		0.0000	1.0000	87.76
49.5	47,690		0.0000	1.0000	87.76
50.5	47,690		0.0000	1.0000	87.76
51.5	47,690	284	0.0060	0.9940	87.76
52.5	45,838		0.0000	1.0000	87.23
53.5	45,838		0.0000	1.0000	87.23
54.5	44,396		0.0000	1.0000	87.23
55.5	44,396		0.0000	1.0000	87.23
56.5	44,396	609	0.0137	0.9863	87.23
57.5	43,787		0.0000	1.0000	86.03
58.5	43,417		0.0000	1.0000	86.03
59.5	41,967		0.0000	1.0000	86.03
60.5	41,967	323	0.0077	0.9923	86.03
61.5	41,643		0.0000	1.0000	85.37
62.5	41,643		0.0000	1.0000	85.37
63.5	41,622		0.0000	1.0000	85.37
64.5	41,622		0.0000	1.0000	85.37
65.5	41,622		0.0000	1.0000	85.37
66.5	41,622		0.0000	1.0000	85.37
67.5	41,602		0.0000	1.0000	85.37
68.5	41,400		0.0000	1.0000	85.37
69.5	17,909		0.0000	1.0000	85.37
70.5	17,909		0.0000	1.0000	85.37
71.5	17,909		0.0000	1.0000	85.37
72.5	17,909		0.0000	1.0000	85.37
73.5	17,909		0.0000	1.0000	85.37
74.5	17,909		0.0000	1.0000	85.37
75.5	17,909		0.0000	1.0000	85.37
76.5	17,909		0.0000	1.0000	85.37
77.5	17,909		0.0000	1.0000	85.37
78.5	17,909		0.0000	1.0000	85.37

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.70 STRUCTURES & IMPROVEMENTS - SHOP & GARAGE

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1897-2008   EXPERIENCE BAND 1939-2008

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	17,909		0.0000	1.0000	85.37
80.5	17,909		0.0000	1.0000	85.37
81.5	17,909		0.0000	1.0000	85.37
82.5	16,650		0.0000	1.0000	85.37
83.5	4,695		0.0000	1.0000	85.37
84.5	4,695		0.0000	1.0000	85.37
85.5	4,695		0.0000	1.0000	85.37
86.5	4,695		0.0000	1.0000	85.37
87.5	4,695		0.0000	1.0000	85.37
88.5	4,695		0.0000	1.0000	85.37
89.5	4,695		0.0000	1.0000	85.37
90.5	4,695		0.0000	1.0000	85.37
91.5	4,695		0.0000	1.0000	85.37
92.5	4,695		0.0000	1.0000	85.37
93.5	4,695		0.0000	1.0000	85.37
94.5	4,695		0.0000	1.0000	85.37
95.5	4,695		0.0000	1.0000	85.37
96.5	4,695		0.0000	1.0000	85.37
97.5	4,695		0.0000	1.0000	85.37
98.5	4,695		0.0000	1.0000	85.37
99.5	4,695		0.0000	1.0000	85.37
100.5	4,695		0.0000	1.0000	85.37
101.5	4,695		0.0000	1.0000	85.37
102.5	4,695		0.0000	1.0000	85.37
103.5	4,695		0.0000	1.0000	85.37
104.5	4,695		0.0000	1.0000	85.37
105.5	4,695		0.0000	1.0000	85.37
106.5	4,695		0.0000	1.0000	85.37
107.5	4,695		0.0000	1.0000	85.37
108.5	4,695		0.0000	1.0000	85.37
109.5	4,695		0.0000	1.0000	85.37
110.5	4,695		0.0000	1.0000	85.37
111.5					85.37

MISSOURI AMERICAN WATER COMPANY

ACCOUNT 304.70 STRUCTURES & IMPROVEMENTS - SHOP & GARAGE

ORIGINAL LIFE TABLE

PLACEMENT BAND 1897-2008   EXPERIENCE BAND 1984-2008

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	737,574		0.0000	1.0000	100.00
0.5	241,375		0.0000	1.0000	100.00
1.5	240,426		0.0000	1.0000	100.00
2.5	224,763		0.0000	1.0000	100.00
3.5	226,053		0.0000	1.0000	100.00
4.5	187,235		0.0000	1.0000	100.00
5.5	160,915	164	0.0010	0.9990	100.00
6.5	123,340		0.0000	1.0000	99.90
7.5	123,340		0.0000	1.0000	99.90
8.5	95,685	112	0.0012	0.9988	99.90
9.5	95,572		0.0000	1.0000	99.78
10.5	92,741	1,188	0.0128	0.9872	99.78
11.5	90,157	564	0.0063	0.9937	98.50
12.5	37,257		0.0000	1.0000	97.88
13.5	37,714		0.0000	1.0000	97.88
14.5	100,371	1,290	0.0129	0.9871	97.88
15.5	98,738		0.0000	1.0000	96.62
16.5	92,776	693	0.0075	0.9925	96.62
17.5	88,821		0.0000	1.0000	95.90
18.5	88,821	34	0.0004	0.9996	95.90
19.5	94,966		0.0000	1.0000	95.86
20.5	107,507		0.0000	1.0000	95.86
21.5	111,206		0.0000	1.0000	95.86
22.5	107,553		0.0000	1.0000	95.86
23.5	107,209		0.0000	1.0000	95.86
24.5	102,894		0.0000	1.0000	95.86
25.5	101,858		0.0000	1.0000	95.86
26.5	101,858	456	0.0045	0.9955	95.86
27.5	102,849		0.0000	1.0000	95.43
28.5	102,849		0.0000	1.0000	95.43
29.5	104,290		0.0000	1.0000	95.43
30.5	104,290	2,396	0.0230	0.9770	95.43
31.5	101,894		0.0000	1.0000	93.24
32.5	101,894		0.0000	1.0000	93.24
33.5	102,264		0.0000	1.0000	93.24
34.5	103,815		0.0000	1.0000	93.24
35.5	99,638		0.0000	1.0000	93.24
36.5	98,315		0.0000	1.0000	93.24
37.5	98,315	227	0.0023	0.9977	93.24
38.5	98,110		0.0000	1.0000	93.03