Exhibit No.:	
Issues:	*Depreciation of Plant*
Witness:	*Jolie L. Mathis*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case Nos.:	*EC-2002-1*
Date Testimony Prepared:	*July 2, 2001*

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

JOLIE L. MATHIS

UNION ELECTRIC COMPANY
d/b/a AMERENUE

CASE NO. EC-2002-1

Jefferson City, Missouri
July 2001

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UNION ELECTRIC COMPANY,

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DIRECT TESTIMONY

OF

JOLIE L. MATHIS

UNION ELECTRIC COMPANY,

d/b/a AMERENUE

CASE NO. EC-2002-1

Q. Please state your name and business address.

A. Jolie L. Mathis, P.O. Box 360, Jefferson City, MO 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission (Commission) as an Engineer in the Engineering and Management Services Department.

Q. What are your duties as an Engineer in the Engineering and Management Services Department?

A. I am responsible for depreciation calculations and studies of companies regulated by the Commission.

Q. Would you please state briefly your qualifications, educational background and experience?

A. I graduated from Prairie View A&M University of Texas in August of 1993, with a Bachelor of Science degree in Electrical Engineering. During my college years I had internships with Allied Signal Aerospace Company, Missouri Public Service Company and Sprint United Telephone Co. – Midwest Division. In 1994 I accepted my current position. I have received four weeks of formal training from Depreciation

Programs, Inc., Kalamazoo, Michigan. Topics included actuarial and simulated service life analysis and techniques, forecasting life, forecasting salvage and cost of removal, and models for analyzing both aged and unaged data.

Q. Have you previously filed testimony with the Commission?

A. Yes, I have. Attached as Schedule 1 to my direct testimony is a list of cases in which I have previously filed testimony.

Q. What is the purpose of your testimony in this docket?

A. The purpose of my testimony is to present the Commission Staff's (Staff's) position and methods on: 1) supporting the depreciation rate schedule for AmerenUE (Company), attached as Schedule 2 to this testimony, which the Staff has developed for purposes of its earnings audit of AmerenUE; 2) to discuss the elimination of net salvage from depreciation calculations, which the Staff believes is appropriate for the determination of depreciation expense; and 3) to discuss the treatment of the theoretical reserve imbalance.

Q. When were depreciation rates for AmerenUE last ordered by the Commission?

A. Depreciation rates were last ordered in Case No. ER-83-163 on July 6, 1983, excluding Callaway Nuclear Power Plant and the coal cars account. On that date the Commission issued a Report And Order that, among other things, directed that "Union Electric shall implement and book new depreciation rates as of August 1, 1983 as specified in paragraph 4 of the stipulation and agreement."

Q. Has the Staff conducted a depreciation study of the electric utility property of AmerenUE?

A. Yes. I performed a depreciation study based on the Company's records reflecting data up to year-end 1995.

Q. Why didn't the Staff use more current data?

A. According to Commission Rule 4 CSR 240-20.030, the Company previously was due to submit its most current depreciation study, data base and property unit catalog by July 1, 1996, to include year-end 1995 data. The Company submitted such items to the Manager of the Energy Department on January 29, 1997. In Data Request No. 4702 in this case, the Staff requested more recent data through year-end 1998 and beyond. However, the Company declined to provide such data, citing Commission Rule 4 CSR 240-20.030. The Company would not provide data outside of a general rate case or before the due date of its next study, which would be July 1, 2001. A copy of the Company's response to the Staff's data request is attached as Schedule 4 to this testimony. On June 22, 2001, the Company filed a Notice of Intent to File Depreciation Study and Data Base and Property Study Unit Catalog prior to January 29, 2002.

Q. Did you tour the electric facilities of AmerenUE?

A. Yes. The Staff conducted a field inspection and discussed plant operations and plans for property retirement with local AmerenUE operators at several locations. Those locations included:

Coal Fired Plant	Hydroelectric Plant
Labadie (2,300 MW)	Osage (212 MW)
Rush Island (1,156 MW)	Taum Sauk (440 MW)
Meramec (876 MW)	

Sioux (950 MW)

The Sioux Plant was toured in November 2000; the remaining plants were toured in the Spring of 2001. The Callaway Plant was not toured and was not an issue in the Staff's audit.

Q. Why isn't the Callaway Plant an issue?

A. The Callaway Plant, which is a nuclear unit, is addressed under a different statute and Commission rule than other AmerenUE generating facilities. The Callaway Plant is covered by Section 393.292 RSMo (2000) and 4 CSR 240-20.070. The most recent case involving decommissioning of the Callaway Plant was Case No. EO-2000-205. The last decommissioning cost study that was submitted for the Callaway Plant was filed on September 1, 1999 and an Order Approving Stipulation And Agreement was issued by the Commission on January 4, 2000. Pursuant to 4 CSR 240.070(9), the next Callaway decommissioning cost study will be filed with the Commission on September 1, 2002.

Q. How much time did you spend analyzing AmerenUE's accounts for depreciation?

A. I spent six months analyzing all 50 accounts. Two months were devoted to the Production Accounts, another two months were spent on Transmission and Distribution Plant Accounts, and a final two months focused on General Plant Accounts. My analysis produced a survivor curve fit for 25 out of the 50 accounts, which represented 54% of electric plant in service.

Q. Why was there no curve fit on the other 25 accounts?

A. The accounts had so few retirements that a resulting curve fit was non-reliable.

Q. What is the balance of the accounts fitted to curves and the balance of the accounts not fitted to curves?

A. Accounts fitted to curves amount to $2,260,367,364, or 56% of electric plant-in-service in 1995. The remaining $3,010,678,513 of the accounts did not produce reliable curve fits.

DEPRECIATION CONCEPTS

Q. Would you please define depreciation?

A. Yes. The National Association of Railroad and Utilities Commissioners in 1958 approved this definition:

> "Depreciation," as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the cause to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirements of public authorities.
> [Source: Public Utility Depreciation Practices, August 1996, Published by the National Association of Regulatory Utility Commissioners]

Q. What does this definition mean to you?

A. This definition means that depreciation is a cost of providing service and that a public utility should recover the capital invested in equipment needed to provide the required service over the property's service life.

Q. How did you determine the annual accrual for the Company in this case?

A. I divided the original cost of property by its average service life (ASL).

Q. What is the ASL?

A. The ASL, in years, is the average expected life of all units of a group of property, regardless of the placement date. The ASL is determined by actuarial analysis of records of annual additions, retirements by vintage and balances, as well as information provided by engineering and operations personnel. Survivor curve estimates from other electric companies are also considered.

Q. How did you determine the ASLs used in your depreciation rate calculations?

A. I used the survivor curve method.

Q. Please discuss the application of the survivor curve method.

A. It is a statistical method in which the underlying assumption is that if history does tend to repeat itself, the service life of the new unit of property will be reflected in the history of the retired units of that property.

AmerenUE's historical mortality data for an account is plotted and the stub curve (curve representing dollars surviving that does not reach 0%) is compared to the known shape of a set of Iowa curves. Survivor curve models, such as the Iowa curves, are widely used to simplify life analysis and forecasting. These curves were developed at the Iowa State College's Iowa Engineering Experiment Station 65 years ago. Three of the four families of curves include a base group of 176 industrial property mortality curves, and 18 types, published in Bulletin 125 of Iowa State University's Engineering Research Institute, entitled "Statistical Analysis of Industrial Property Retirements."

The classification of the survivor curves was made according to whether the mode (highest point) of the frequency curves was to the left, to the right or comparable with

average service life. The result included six left modal (L0,L1,L2,L3,L4,L5); five right modal (R1,R2,R3,R4,R5); and seven symmetrical curves (S0,S1,S2,S3,S4, S5,S6). In 1957, a fourth family was presented consisting of the four "O" type survivor curves (O1,O2,O3,O4). Today, these survivor curve types are used extensively in public utility depreciation studies.

Q. How do you determine the ASL from these curves?

A. The area under the chosen Iowa curve represents the ASL for that unit of property. Please refer to Schedule 3, attached to this testimony, for examples.

Q. What is useful in evaluating which type curve, with its life parameter, most nearly matches the stub survivor curve?

A. The criterion used in determining a good fit is the residual measure shown on the printed curve fitting output. The residual measure is the square root of the average difference, squared, between the percents surviving on the fitted smooth curve and the stub curve. The lower the residual measure is, the better the degree of conformity. The range of fit shown opposite the residual measure indicates the age range used in the curve fitting process and computation of the residual measure. The survivor curve graph and residual measure table for Accounts 365, 364 and 362 are attached to my testimony as Schedule 3. These three accounts represent change in accrual dollars that total over $1 million each due to the extension of lives.

ACCOUNT 365

Q. Please describe what may be found in Account 365.

A. Account 365 contains capacitors, aerial cable, regulators, arresters and transformers.

Q. Please explain your approach to the determination of the average service life for Account 365.

A. The life ordered in 1983 was 36 years. I am recommending a longer life of 51 years. The survivor curve method was used against two sets of data, an experience band of 1908 to 1995, and a more recent experience band of 1956 to 1995. These bands were chosen to compare an overall technology to a more recent technology, resulting in two curves each with an ASL of 51 years, and an L0 Iowa curve shape.

ACCOUNT 364

Q. Please describe what may be found in Account 364.

A. Account 364 contains wooden and steel poles, and steel towers.

Q. Please explain your approach to the determination of the ASL for Account 364.

A. The life ordered in 1983 was 36 years. I am recommending a longer life of 41.7 years. The survivor curve method was used against two sets of data: an experience band of 1908 to 1995, and a more recent experience band of 1956 to 1995. These bands were chosen to compare an overall technology to a more recent technology resulting in two curves with an ASL of 41.7 years, and an R2 Iowa curve shape.

ACCOUNT 362

Q. Please describe what may be found in Account 362.

A. Account 362 consists of equipment at Missouri substations ranging in size from small, pole-mounted substations to large bulk substations. This includes circuit breakers, bank capacitors, transformers and switchgear.

Q. Please explain your approach to the determination of the average service life for Account 362.

A. The life ordered in 1983 was 44 years. I am recommending a longer life of 58 years. The survivor curve method was used against a placement and experience band of 1903 to 1995, resulting in an R2.5 Iowa curve shape with an ASL of 58 years.

Q. What parameters did you use to calculate your recommended depreciation rates?

A. Each life analysis is based on a method, procedure and technique.

Q. Please define those terms as they relate to depreciation.

A. The method is a pattern of depreciation in relation to an accounting period, such as straight-line or sum-of the years' digits, which charges an amount to each accounting period over the service life of a group of properties. The straight-line method charges an equal amount to each accounting period. The procedure is the grouping of assets, such as Broad Group, where all units of plant within a particular depreciation category, usually a plant account or subaccount, are considered as a single group. The technique refers to the portion of the average life used in the calculation of depreciation, such as whole life, which bases the depreciation rate on the estimated ASL of the plant category.

Q. What method, procedure and technique did you use in your depreciation study?

A. I used the straight-line method, the broad group procedure, and the whole life technique, excluding net salvage from the formula.

NET SALVAGE

Q. Would you please define net salvage?

A. Net salvage is the gross salvage for the property retired, less its cost of removal. Gross salvage is the amount recorded for the property retired due to the sale, reimbursement or reuse of the property. Cost of removal is the cost incurred in connection with the retirement of depreciable plant from service.

Q. What is the whole life depreciation rate formula?

A. The formula is:

[Depreciation Rate = (100% - Net Salvage%)/Average Service Life]

Q. What are you recommending for treatment of net salvage in this case?

A. Future net salvage cost (the marketable value of retired plant minus the plant's cost of removal), that will not occur in most cases for several decades, should not be collected from customers in the amount estimated by the whole life depreciation rate formula.

Q. What is your alternative to using the whole life formula to collect future net salvage?

A. My solution is to remove the net salvage factor from the whole life formula for depreciation rate determination. Rather, depreciation should be the determination of average service life and a subsequent depreciation rate that recovers the capital cost of the original investment. Net salvage cost will be based on a current expense determination made by the Staff auditors. See the direct testimony of Staff Accounting witness James D. Schwieterman. Future net salvage costs should not be collected from customers until they occur.

NET SALVAGE COST

Q. What is net salvage cost?

A. Net salvage cost is the collection of any scrap or resale value of the retired plant less the cost to remove plant at interim and/or final retirement dates. Currently, for most companies, the cost to remove plant exceeds the scrap value of the same plant when all accounts are combined; therefore, it is reasonable to consider net salvage a cost. It is the Staff's proposal that net salvage cost be separated into two types as has been historically recognized by the Commission.

Q. Can you explain the two types of net salvage cost recognized, in the past, by the Commission?

A. The Commission has historically recognized both "final net salvage cost" and "interim net salvage cost" of life span property. Examples of life span property subject to "interim net salvage cost" and "final net salvage cost" would be plant, such as buildings, gas holders and power plants. Interim retirements are the retirement of units of plant during the life of a life span type property. These interim retirements cause an "interim net salvage cost" as will be explained later. A final retirement occurs when all units of a life span property in a specific account are retired together, regardless of age. A final retirement causes a "final retirement cost."

There are final retirements of plant in mass property accounts, also (accounts with many units of plant that are not part of a larger unit, i.e., mains, services, poles, etc.). Mass property retirements are booked frequently and, usually, there are many units retired each year. These mass property retirements also cause a "final net salvage cost." Both the "interim retirement cost" of life span property accounts and the "final retirement

cost" of mass property accounts can be evaluated using the same methodology. The Staff auditors can evaluate and determine an aggregate net salvage cost for all of these retirements and include it as a recurring expense with other audit results. This will provide benefits to the regulated utility companies and their customers.

Q. How would the Staff make this separation of net salvage cost into two types?

A. The final retirement of a life span property frequently includes a major demolition project and a rehabilitation of the site where the plant was located (greenfielding). These projects do not occur frequently and are normally after a long "in service" period. For example, the Laclede Gas Company's gas holders in St. Louis are in the range of 100 years old and are still in use. Their removal will be the final retirement of a life span property. The responsibility to determine this type of net salvage cost (life span "final retirement cost") would remain with the depreciation engineers due to the need to evaluate demolition and "greenfielding" projects. This is one of the two types of net salvage cost. Ameren does not currently have a greenfielding project.

The other type of net salvage cost includes two separate values that will be determined by the Staff auditors as an expense item. One value is the "interim net salvage cost" of life span property and the other value is the "final net salvage cost" of mass property. Life span property's units of plant may be retired and replaced several times during the life of the life span property. For example, if the roof on a building is considered a unit of plant, it may need to be retired and replaced every 20 years while the building will remain in service for 100 years or more. Therefore, the roof may be replaced four or five times during the life span of the building. These retirements are

interim retirements and occur repeatedly, and with a reasonable frequency. Also, the final retirements of plant in the mass property accounts, like mains for gas and water or poles for electric, occur with a reasonable frequency. Retirements from mass property accounts such as mains, services and meters tend to be relatively constant from year to year with some trends due to growth of the account or other events such as regulatory requirements to replace old services. They are a type of net salvage cost that is best determined as an expense by the Staff auditors.

The first type of net salvage cost discussed, "final net salvage cost" of life span property, is different in frequency and requires technical evaluation of the demolition and "greenfielding." This type of net salvage cost is best determined by depreciation engineers and recovered as an amortization. The Accounting Staff and the Engineering and Management Services will identify the two types of net salvage cost, and the appropriate Staff members will address each type.

Q. Has the Commission ruled on the net salvage issue in any previous cases?

A. Yes. In Case No. GR-99-315, Laclede Gas Company, the Commission ruled that current depreciation rates should reflect a net salvage component of the depreciation rate that, when multiplied by the plant balance, gives an annual accrual consistent with the current net salvage amount experienced by the Company.

HANDLING OF NET SALVAGE COST BY OTHER STATES

Q. Have other states separated the net salvage cost, that will be determined by the auditors in the Staff's proposal, from the depreciation accrual calculation?

A. Yes. In 1962, the state of Pennsylvania removed the net salvage component from depreciation rates (*See* Penn Sheraton Hotel v. Pennsylvania Public Utility Commission, 198 P.Super. 618, 184 A.2d 324, 45 P.U.R.3d 353 (1962)).

Q. How will this treatment of net salvage cost benefit utility companies and their customers?

A. The customers of each Commission regulated utility company will be certain they are paying to the regulated utility company, funds that are currently needed for a specific purpose. The regulated utility will be certain that they are collecting, in customer rates, what the regulated utility company is currently spending for all net salvage cost and has spent for capital investment.

THEORETICAL RESERVE

Q. Would you please define theoretical reserve?

A. Theoretical reserve is the calculated balance that would be in the accumulated depreciation account if recommended depreciation parameters were used.

Q. Will you please discuss the theoretical reserve in this case?

A. Yes. The actual 1995 reserve is $1,016,854,188, representing 45% of actual plant-in-service in 1995. The Staff's theoretical reserve is $547,649,934 or 25% of actual plant-in-service in 1995. The Company is over-accrued by $469,204,254. On June 22, 2001, the Company filed a Notice of Intent to File Depreciation Study and Database and Property Unit Catalog on or before January 31, 2002. The Staff will review the theoretical reserve at that time.

Q. How do you recommend that this deficiency in theoretical reserve be recovered?

A. Recognizing the Company's desire to avoid rate shock, the reserve over-recovery should be reduced over a 20-year period, at $23,460,213 per year.

STAFF'S POSITION FOR THIS CASE

Q. What is the annual accrual amount for the Company based on December 31, 2000 plant balances in Schedule 2?

A. I have determined that the annual depreciation accrual based on December 31, 2000 plant balances should be $220,920,532.

Q. What is the combined total of net salvage cost and the annual depreciation accrual?

A. The combined total of the annual expense for net salvage cost is $9,043,332, plus the annual accrual of $220,920,532 equals $229,963,864. The Staff auditors determined the annual expense for net salvage cost.

Q. Is this amount greater, the same or less than the annual accrual using the currently ordered rate?

A. It is less. Using the currently ordered rates, the annual accrual would be $258,710,355, which is $28,746,491 more than the combined total.

Q. Why is the annual accrual using currently ordered rates higher than the combined total?

A. As has been discussed throughout this testimony, the currently ordered rates include a net salvage cost determination that estimates unknown future cost in the current annual accrual.

Q. What actions do you propose for this case based on your information and determinations?

A. It is my proposal that: 1) the depreciation rates given in Schedule 2 be ordered; 2) the net salvage cost as explained in my testimony, be ordered as an expense, in the amount presented by the Staff auditors; and 3) the Commission approves a 20 year amortization of the $469,204,254 over-recovery of the theoretical reserve from past utility customers at $23,460,213 per year.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

The Staff of the Missouri Public Service Commission,	)	
	)	Case No. EC-2002-1
Complainant,	)	
vs.	)	
	)	
Union Electric Company, d/b/a AmerenUE,	)	
	)	
Respondent.	)	

AFFIDAVIT OF JOLIE L. MATHIS

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

Jolie L. Mathis, is, of lawful age, and on her oath states: that she has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 16 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of her knowledge and belief.

Jolie L. Mathis

Subscribed and sworn to before me this 29th day of June, 2001.

Notary Public

TONI M. CHARLTON
NOTARY PUBLIC STATE OF MISSOURI
COUNTY OF COLE
My Commission Expires December 28, 2004

Jolie Mathis

Schedule of Testimony Filings

Case No.	Company
GA-96-130	Missouri Pipeline Company
TO-96-147	Alltel Missouri, Inc.
GA-97-11	Missouri Pipeline Co.
GM-97-70	Atmos Energy Corp. & United Cities Gas
GR-97-272	Associated Natural Gas
HR-99-245	St. Joseph Light & Power
WR-99-326	United Water Missouri
WR-2000-281	Missouri-American Water Company
WR-2000-282	Missouri-American Water Company

UNION ELECTRIC COMPANY d/b/a AMEREN UE (EC-2002-1)
DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Dec-00	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual	Actual 95 Accrued Reserve	Staff's 95 Theoretical Reserve	Ordered Accrual No Salvage	Increase/ Decrease Accrual
	Steam Production Plant														
311	Structures & Improvements	176,341,818	35	-1	2.89%	35.0	NF	2.86%	5,096,279	5,043,376	(52,903)	75,964,774		5,038,338	5,038
312	Boiler Plant Equipment	1,306,746,065	32	-2	3.19%	32.0	NF	3.12%	41,685,199	40,770,477	(914,722)	475,583,293		40,835,815	(65,337)
312.003	Aluminum Coal Cars	121,206,826	22	0	4.55%	22.0	NF	4.55%	5,514,911	5,514,911	0	8,591,370		5,509,401	5,509
314	Turbogenerator Units	345,308,723	35	2	2.80%	35.0	NF	2.86%	9,668,644	9,875,829	207,185	165,758,403		9,865,964	9,866
315	Acessory Electric Equipment	107,371,109	35	3	2.77%	35.0	NF	2.86%	2,974,180	3,070,814	96,634	52,898,813		3,067,746	3,068
316	Misc. Power Plant Equipment	40,313,558	29	6	3.24%	50.0	S0	2.00%	1,306,159	806,271	(499,888)	10,486,895	4,685,095	1,390,123	(583,852)
	Nuclear Production Plant														
321	Structures and Improvements	861,027,196	40	0	2.60%	40.0	NF	2.50%	22,386,707	21,525,680	(861,027)	224,444,756		21,525,680	0
322	Reactor Plant Equipment	844,170,129	40	4	2.60%	40.0	NF	2.50%	21,948,423	21,104,253	(844,170)	204,235,082		21,104,253	0
323	Turbogenerator Units	432,899,896	40	0	2.60%	40.0	NF	2.50%	11,255,397	10,822,497	(432,900)	120,136,792		10,822,497	0
324	Accessory Electric Equipment	229,190,440	40	1	2.60%	40.0	NF	2.50%	5,958,951	5,729,761	(229,190)	62,684,961		5,729,761	0
325	Misc. Power Plant Equipment	139,515,002	40	2	2.60%	40.0	NF	2.50%	3,627,390	3,487,875	(139,515)	16,536,126		3,487,875	0
	Hydraulic Production Plant														
331	Structures and Improvements	13,186,805	91	0	1.10%	91.0	NF	1.10%	145,055	145,055	0	1,117,508		144,910	145
332	Reservoirs, Dams, and Waterways	57,824,411	85	-1	1.19%	85.0	NF	1.18%	688,110	682,328	(5,782)	10,778,084		680,287	2,041
333	Water Wheels, Turbines, and Generators	66,063,693	96	0	1.04%	96.0	NF	1.04%	687,062	687,062	0	5,578,451		688,163	(1,101)
334	Accessory Electric Equipment	8,204,521	90	-2	1.13%	90.0	NF	1.11%	92,711	91,070	(1,641)	1,290,218		91,161	(91)
335	Misc. Power Plant Equipment	3,067,713	74	5	1.28%	74.0	NF	1.35%	39,267	41,414	2,147	474,131		41,456	(41)
336	Roads, Railroads, and Bridges	152,182	22	0	4.55%	22.0	NF	4.55%	6,924	6,924	0	79,825		6,917	7
	Other Production Plant														
341	Structures and Improvements	1,282,135	25	0	4.00%	25.0	NF	4.00%	51,285	51,285	0	631,865		51,285	0
342	Fuel Holders, Products, and Accessories	1,850,450	25	0	4.00%	25.0	NF	4.00%	74,018	74,018	0	835,368		74,018	0
344	Generators	53,080,337	25	0	4.00%	25.0	NF	4.00%	2,123,213	2,123,213	0	27,291,860		2,123,213	0
345	Accessory Electric Equipment	2,877,936	25	0	4.00%	25.0	NF	4.00%	115,117	115,117	0	1,907,986		115,117	0
346	Misc. Power Plant Equipment	89,263	25	0	4.00%	25.0	NF	4.00%	3,571	3,571	0	204,981		3,571	0
	Transmission Plant														
352	Structures and Improvements	6,813,216	79	-5	1.33%	79.0	NF	1.27%	90,616	86,528	(4,088)	1,719,164		86,243	285
353	Station Equipment	182,524,152	50	0	2.00%	50.0	NF	2.00%	3,650,483	3,650,483	0	43,847,943		3,650,483	0
354	Tower and Fixtures	82,381,871	50	7	1.86%	50.0	NF	2.00%	1,532,303	1,647,637	115,335	26,491,770		1,647,637	0
355	Poles and Fixtures	74,558,177	43	-20	2.79%	51.0	R4	1.96%	2,080,173	1,461,340	(618,833)	20,148,089	12,524,477	1,733,911	(272,571)
356	Overhead Conductors and Devices	110,843,848	60	13	1.45%	60.0	NF	1.67%	1,607,236	1,851,092	243,856	30,264,393		1,847,397	3,695
359	Roads and Trails	134,036	50	0	2.00%	50.0	NF	2.00%	2,681	2,681	0	61,749		2,681	0

Schedule 2-1

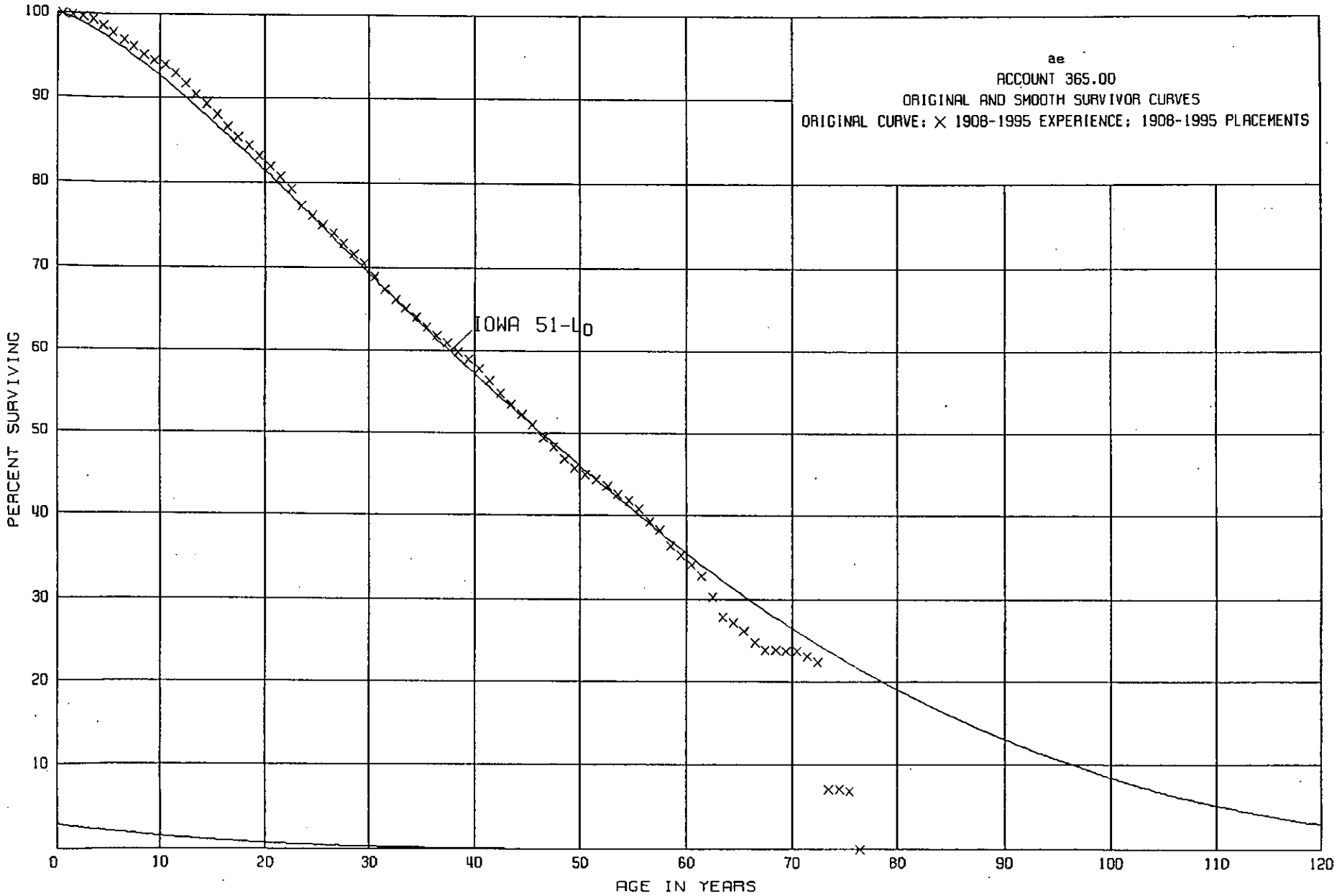
UNION ELECTRIC COMPANY d/b/a AMEREN UE (EC-2002-1)
DEPRECIATION DETERMINATION SPREADSHEET

Account No.	Title	Plant Original Cost Dec-00	Ordered Life (Yr.)	Ordered Net Salvage (%)	Ordered Deprec. Rate (%)	Staff's Proposal Life (Yr.)	Staff's Proposal Curve	Staff's Proposal Deprec. Rate (%)	Ordered Annual Accrual	Staff's Annual Accrual	Increase / Decrease Accrual	Actual 95 Accrued Reserve	Staff's 95 Theoretical Reserve	Ordered Accrual No Salvage	Increase/ Decrease Accrual
	Distribution Plant														
361	Structures and Improvements	14,765,283	61	10	1.48%	76.6	L3	1.31%	218,526	193,425	(25,101)	3,565,619	2,353,222	242,054	(48,629)
362	Station Equipment	431,244,404	44	-5	2.39%	58.0	R2.5	1.72%	10,306,741	7,417,404	(2,889,338)	142,424,233	79,776,702	9,801,009	(2,383,605)
364	Poles, Towers, and Fixtures	530,250,690	34	-127	6.68%	41.7	R2	2.40%	35,420,746	12,726,017	(22,694,730)	295,119,519	99,481,949	15,595,609	(2,869,592)
365	Overhead Conductors and Devices	583,065,821	36	-15	3.19%	51.0	L0	1.96%	18,599,800	11,428,090	(7,171,710)	145,318,916	61,069,203	16,196,273	(4,768,183)
366	Underground Conduit	123,410,320	84	-45	1.73%	84.0	NF	1.19%	2,134,999	1,468,583	(666,416)	23,595,595		1,469,170	(588)
367	Underground Conductors and Devices	374,475,248	45	22	1.73%	51.6	R1	1.94%	6,478,422	7,264,820	786,398	57,863,019	39,499,223	8,321,672	(1,056,852)
368	Line Transformers	299,981,982	40	17	2.08%	39.0	R2.5	2.56%	6,239,625	7,679,539	1,439,914	82,384,603	78,216,454	7,499,550	179,989
369.001	Overhead Services	107,054,986	36	-197	8.25%	45.4	S0.5	2.20%	8,832,036	2,355,210	(6,476,827)	80,052,871	16,942,986	2,973,750	(618,540)
369.002	Underground Services	100,157,010	45	-17	2.60%	45.0	L2	2.22%	2,604,082	2,223,486	(380,597)	4,830,792	16,971,944	2,225,711	(2,226)
370	Meters	94,281,528	36	1	2.75%	44.4	S0.5	2.25%	2,592,742	2,121,334	(471,408)	42,767,802	23,198,149	2,618,931	(497,597)
371	Installations on Customer Premises	164,871	46	-1	2.20%	31.0	R0.5	2.70%	3,627	4,452	824	128,125	148,740	3,584	867
373.00	Street Lighting and Signal Systems	85,759,467	23	-36	5.91%	28.0	L1	4.35%	5,068,384	2,053,482	(3,014,902)	37,669,364	15,394,127	3,728,672	(1,675,190)
	General Plant														
390.0	Structures and Improvements	149,848,523	41	6	2.29%	41.0	S0	2.44%	3,431,531	3,656,304	224,773	20,162,453	21,196,090	3,654,842	1,462
391.0	Office Furniture and Equipment	28,670,324	28	8	3.29%	12.4	R2	7.60%	943,254	2,178,945	1,235,691	-1,878,448	10,067,515	1,023,940	1,155,004
391.1	Mainframe Computers		*	*	3.29%	7.9	O2	12.65%	0	0	0		2,796,836		0
391.2	Personal Computers	14,682,179	*	*	3.29%	9.0	R4	11.11%	483,044	1,631,190	1,148,146		4,398,550		1,631,190
392.0	*Transportation Equipment*	72,399,585	11	12	8.00%	9.0	L1.5	9.09%	5,791,967	6,581,122	789,155	24,534,819	24,702,469	6,581,780	(658)
393.0	Stores Equipment	2,092,239	32	12	2.75%	36.0	O3	2.78%	57,537	58,164	628	1,187,990	59,697	65,382	(7,218)
394.00	Tools, Shop and Garage Equipment	8,957,121	45	18	1.82%	28.0	O1	3.56%	163,020	318,874	155,854	1,181,001	1,082,877	199,047	119,826
395.00	Laboratory Equipment	5,147,095	52	2	1.88%	35.0	O3	2.86%	96,765	147,207	50,442	641,205	135777	98,983	48,224
396.00	Power Operated Equipment	10,725,821	18	23	4.28%	14.0	L1.5	7.14%	459,065	765,824	306,758	5,194,429	4,195,812	595,879	169,945
397.00	Communication Equipment	124,283,261	30	-5	3.50%	15.2	L3	6.56%	4,349,914	8,152,982	3,803,068	19,178,375	28,651,355	4,142,775	4,010,207
398.00	Miscellaneous Equipment	472,867	20	5	4.75%	22.0	L0	4.55%	22,461	21,515	(946)	296,922	100,685	23,643	(2,128)
Column Totals		**8,430,916,133**							**258,710,355**	**220,920,532**	**(37,789,824)**	**1,016,854,188**	**547,649,934**	**226,428,163**	**(7,507,631)**

NF - Not Fitted

* Sub-account did not exist when the last electric depreciation study was performed in 1983

Schedule 2-2


ae
ACCOUNT 365.00
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1908-1995 EXPERIENCE: 1908-1995 PLACEMENTS
IOWA 51-L0
PERCENT SURVIVING
AGE IN YEARS
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120

Schedule 3-1

12/19/00

ae

ACCOUNT 365.00

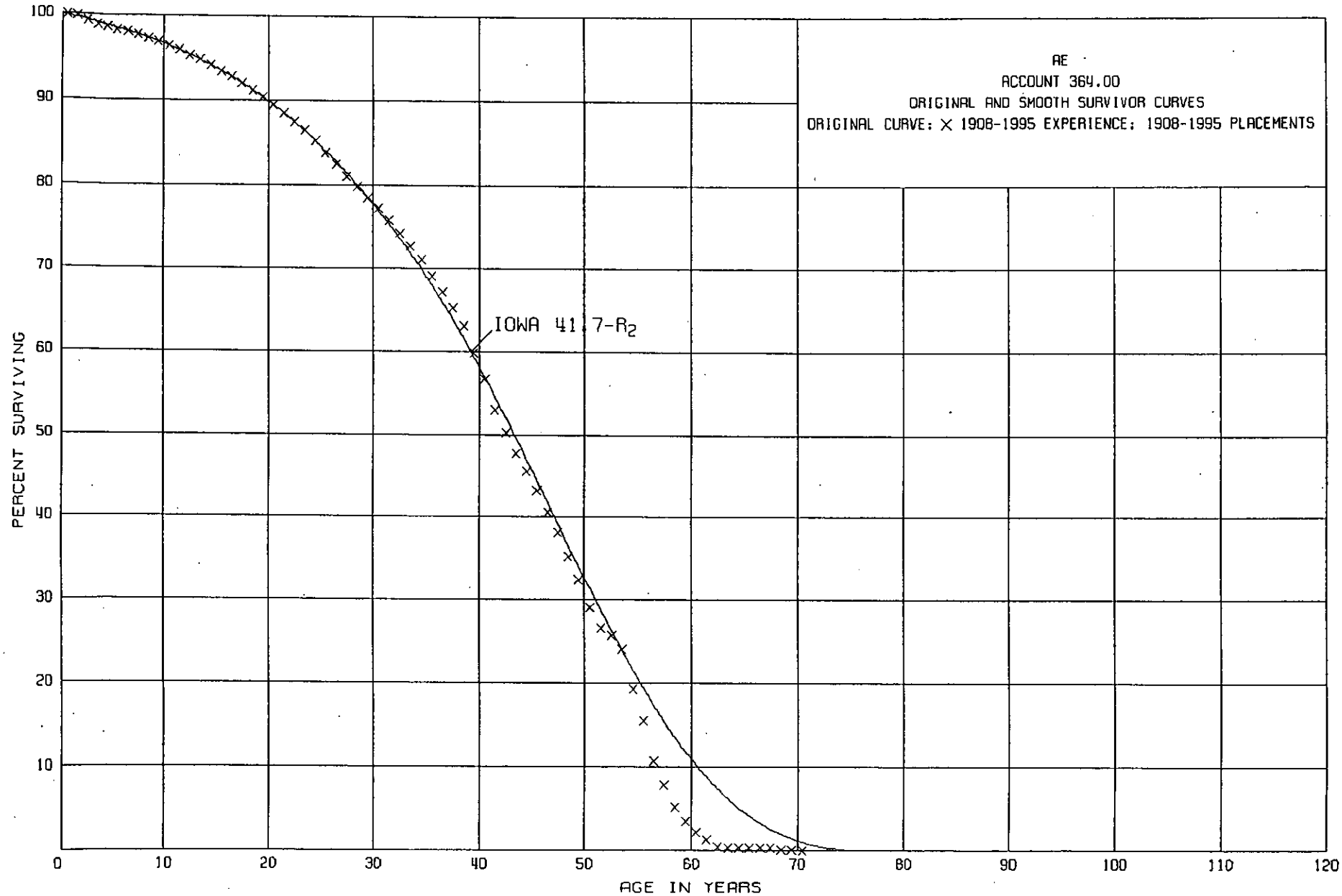
SUMMARY OF CURVE FITTING RESULTS - PCT SURV BALANCED AREAS

PLACEMENT BAND 1908-1995 1 EXPERIENCE BAND 1908-1995

SURVIVOR CURVE	RESID MEAS	RANGE OF FIT	SURVIVOR CURVE	RESID MEAS	RANGE OF FIT*
43.0-S0	2.19	0 - 47	43.5-S0	2.41	18 - 47
41.1-S0.5	4.17	0 - 47	42.0-S0.5	4.36	18 - 47
39.6-S1	6.35	0 - 47	40.9-S1	6.40	18 - 47
46.1-R0.5	1.80	0 - 47	44.7-R0.5	0.75	18 - 47
42.2-R1	1.92	0 - 47	41.8-R1	2.41	18 - 47
40.0-R1.5	3.97	0 - 47	40.3-R1.5	4.74	18 - 47
52.4-L0	0.85	0 - 47	51.6-L0	0.48	18 - 47
48.3-L0.5	1.19	0 - 47	48.6-L0.5	1.34	18 - 47
45.2-L1	2.99	0 - 47	46.2-L1	2.93	18 - 47
51.8-O1	2.92	0 - 47	48.9-O1	1.70	18 - 47
58.2-O2	2.91	0 - 47	55.0-O2	1.70	18 - 47
81.5-O3	3.48	0 - 47	75.9-O3	2.48	18 - 47

* SEGMENT BETWEEN 85.0 AND 15.0 PERCENT SURVIVING.

L0 51


AE
ACCOUNT 364.00
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1908-1995 EXPERIENCE: 1908-1995 PLACEMENTS
IOWA 41.7-R2
PERCENT SURVIVING
AGE IN YEARS
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120

Schedule 3-3

12/19/00

AE

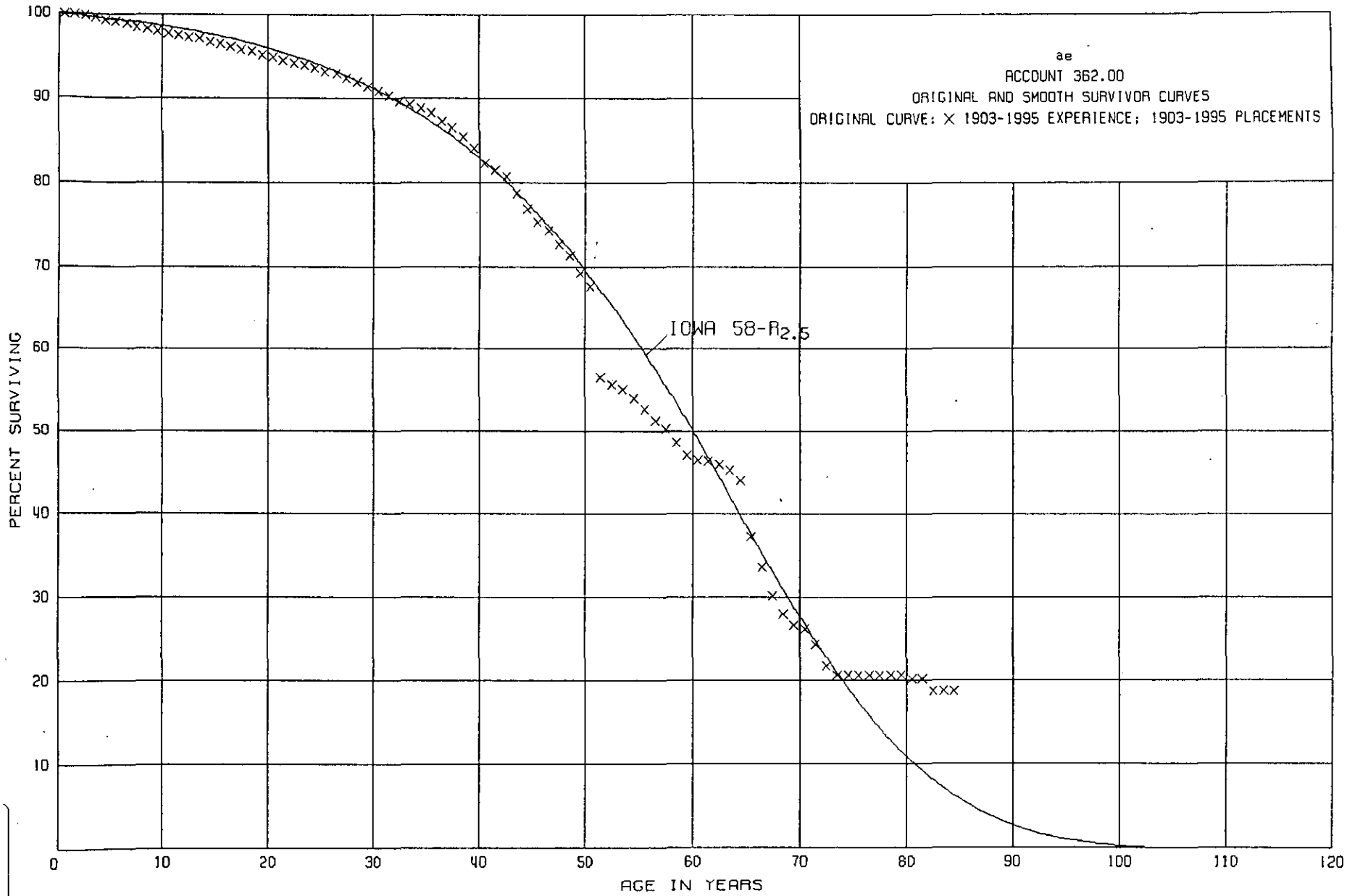
ACCOUNT 364.00

SUMMARY OF CURVE FITTING RESULTS - PCT SURV BALANCED AREAS

PLACEMENT BAND 1908-1995 1 EXPERIENCE BAND 1908-1995

SURVIVOR CURVE	RESID MEAS	RANGE OF FIT	SURVIVOR CURVE	RESID MEAS	RANGE OF FIT*
49.3-S0	3.00	0 - 44	47.9-S0	3.75	25 - 44
45.9-S0.5	1.81	0 - 44	45.8-S0.5	2.60	25 - 44
43.2-S1	1.74	0 - 44	44.2-S1	1.61	25 - 44
41.4-S1.5	2.78	0 - 44	42.8-S1.5	1.61	25 - 44
39.9-S2	4.61	0 - 44	41.8-S2	2.94	25 - 44
56.3-R0.5	5.60	0 - 44	49.6-R0.5	5.18	25 - 44
49.0-R1	4.19	0 - 44	45.6-R1	3.85	25 - 44
44.8-R1.5	2.49	0 - 44	43.4-R1.5	2.37	25 - 44
41.7-R2	0.66	0 - 44	41.8-R2	1.00	25 - 44
39.9-R2.5	2.13	0 - 44	40.6-R2.5	1.86	25 - 44
38.5-R3	4.73	0 - 44	39.8-R3	4.01	25 - 44
63.3-L0	4.73	0 - 44	NOT FITTED		
56.5-L0.5	3.52	0 - 44	54.0-L0.5	4.33	25 - 44
51.3-L1	2.37	0 - 44	51.1-L1	3.44	25 - 44
47.5-L1.5	1.67	0 - 44	48.3-L1.5	2.12	25 - 44
44.6-L2	2.94	0 - 44	46.4-L2	1.86	25 - 44
42.5-L2.5	4.21	0 - 44	44.4-L2.5	2.95	25 - 44
65.9-O1	6.36	0 - 44	NOT FITTED		
74.2-O2	6.37	0 - 44	NOT FITTED		

* SEGMENT BETWEEN 85.0 AND 15.0 PERCENT SURVIVING.


ae
ACCOUNT 362.00
ORIGINAL AND SMOOTH SURVIVOR CURVES
ORIGINAL CURVE: X 1903-1995 EXPERIENCE; 1903-1995 PLACEMENTS
IOWA 58-R2.5
PERCENT SURVIVING
AGE IN YEARS
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120

Schedule 3-5

12/20/00

ae

ACCOUNT 362.00

SUMMARY OF CURVE FITTING RESULTS - PCT SURV BALANCED AREAS

PLACEMENT BAND 1903-1995 1 EXPERIENCE BAND 1903-1995

SURVIVOR CURVE	RESID MEAS	RANGE OF FIT	SURVIVOR CURVE	RESID MEAS	RANGE OF FIT*
70.0-S0	5.70	0 - 61	NOT FITTED		
64.8-S0.5	4.42	0 - 61	62.0-S0.5	5.59	39 - 61
60.9-S1	3.22	0 - 61	60.4-S1	4.53	39 - 61
58.2-S1.5	2.47	0 - 61	58.9-S1.5	3.38	39 - 61
56.1-S2	2.90	0 - 61	57.8-S2	2.54	39 - 61
54.7-S2.5	3.85	0 - 61	56.8-S2.5	2.60	39 - 61
80.5-R0.5	8.13	0 - 61	NOT FITTED		
69.7-R1	6.86	0 - 61	NOT FITTED		
63.4-R1.5	5.28	0 - 61	58.7-R1.5	5.29	39 - 61
58.8-R2	3.33	0 - 61	57.1-R2	4.00	39 - 61
56.0-R2.5	1.92	0 - 61	55.9-R2.5	2.89	39 - 61
54.0-R3	2.64	0 - 61	55.1-R3	2.90	39 - 61
52.1-R4	6.74	0 - 61	54.1-R4	6.48	39 - 61
90.2-L0	7.30	0 - 61	NOT FITTED		
80.2-L0.5	6.15	0 - 61	NOT FITTED		
72.7-L1	4.91	0 - 61	NOT FITTED		
67.1-L1.5	3.57	0 - 61	65.9-L1.5	5.08	39 - 61
62.8-L2	2.69	0 - 61	63.8-L2	3.73	39 - 61
59.7-L2.5	2.60	0 - 61	61.4-L2.5	2.50	39 - 61
57.2-L3	3.92	0 - 61	59.6-L3	2.49	39 - 61
53.4-L4	7.37	0 - 61	56.0-L4	6.76	39 - 61
94.7-O1	8.82	0 - 61	NOT FITTED		
106.5-O2	8.82	0 - 61	NOT FITTED		
152.6-O3	9.05	0 - 61	NOT FITTED		

* SEGMENT BETWEEN 85.0 AND 15.0 PERCENT SURVIVING.

No. 4702

DATA INFORMATION REQUEST
Ameren UE
CASE NO. EM-96-149

Requested From: Ms. Eileen Bauman
Date Requested: 07/28/00
Information Requested:
Please provide the following data on the existing electric plant and facilities in Missouri:

a) Aged retirement data files in attached Gannett Fleming format, which document original cost of company plant facilities by vintage by plant account.

b) Depreciation rates in effect over the life of the above facilities and total accrued depreciation by account.

c) Retirements, gross salvage and cost of removal by plant account in attached Gannett Fleming format.

Requested By: Jolie Mathis

Information Provided: The company provided the requested information to the MPSC staff on January 29, 1997. No update has been prepared since that time, pursuant to the requirements of MPSC Rule 4 CSR 240-20.030.

The attached information provided to the Missouri Public Service Commission Staff in response to the above data information request is accurate and complete, and contains no material misrepresentations or omissions, based upon present facts of which the undersigned has knowledge, information or belief. The undersigned agrees to immediately inform the Missouri Public Service Commission Staff if, during the pendency of Case No. EM-96-149 before the Commission, any matters are discovered which would materially affect the accuracy or completeness of the attached information.

If these data are voluminous, please (1) identify the relevant documents and their location (2) make arrangements with requestor to have documents available for inspection in the Ameren UE office, or other location mutually agreeable. Where identification of a document is requested, briefly describe the document (e.g. book, letter, memorandum, report) and state the following information as applicable for the particular document: name, title, number, author, date of publication and publisher, addresses, date written, and the name and address of the person(s) having possession of the document. As used in this data request the term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies of data, recordings, transcriptions and printed, typed or written materials of every kind in your possession, custody or control within your knowledge. The pronoun "you" or "your" refers to Ameren UE and its employees, contractors, agents or others employed by or acting in its behalf.

Signed By: J. Cook

Date Response Received: _____

Prepared By: James J. Cook

Schedule 4