



0000108946

**Direct Testimony in  
E-01345A-03-0437**

**PART 2 OF 2  
BAR CODE # 0000108946**

**To review Part 1 please see:**

**BAR CODE #0000000835**

BEFORE THE STATE OF ARIZONA  
ARIZONA CORPORATION COMMISSION

I/M/O THE APPLICATION OF )  
ARIZONA PUBLIC SERVICE COMPANY )  
FOR A HEARING TO DETERMINE THE FAIR )  
VALUE OF THE UTILITY PROPERTY OF THE )  
COMPANY FOR RATEMAKING PURPOSES, )  
TO FIX A JUST AND REASONABLE RATE OF ) DOCKET NO. E-01345A-03-0437  
RETURN THEREON, TO APPROVE RATE )  
SCHEDULES DESIGNED TO DEVELOP SUCH )  
RETURN, AND FOR APPROVAL OF )  
PURCHASED POWER CONTRACT )

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DIRECT TESTIMONY OF MICHAEL J. MAJOROS, JR.  
ON BEHALF OF THE  
ARIZONA CORPORATION COMMISSION

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VOLUME 1

DIRECT TESTIMONY  
AND  
EXHIBIT\_\_\_(MJM-1) THROUGH EXHIBIT\_\_\_(MJM-2)  
EXHIBIT\_\_\_(MJM-4) THROUGH EXHIBIT\_\_\_(MJM-8)

Date: FEBRUARY 3, 2004

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1 **Introduction**

2 **Q. Please state your name, position and business address.**

3 A. My name is Michael J. Majoros, Jr. I am Vice President of Snavely King Majoros  
4 O'Connor & Lee, Inc. ("Snavely King"), an economic consulting firm located at  
5 1220 L Street, N.W., Suite 410, Washington, D.C. 20005.

6 **Q. Please describe Snavely King.**

7 A. Snavely King was founded in 1970 to conduct research on a consulting basis into  
8 the rates, revenues, costs and economic performance of regulated firms and  
9 industries. The firm has a professional staff of 11 economists, accountants,  
10 engineers and cost analysts. Most of its work involves the development,  
11 preparation and presentation of expert witness testimony before federal and state  
12 regulatory agencies. Over the course of its 33-year history, members of the firm  
13 have participated in more than 500 proceedings before almost all of the state  
14 commissions and all Federal commissions that regulate utilities or transportation  
15 industries.

16 **Q. Have you prepared a summary of your qualifications and experience?**

17 A. Yes. Appendix A is a summary of my qualifications and experience. It also  
18 contains a tabulation of my appearances as an expert witness before state and  
19 Federal regulatory agencies.

20 **Q. For whom are you appearing in this proceeding?**

21 A. I am appearing on behalf of the staff ("Staff") of the Arizona Corporation  
22 Commission ("ACC").

23 **Q. What is the subject of your testimony?**

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1 A. Depreciation is the subject of my testimony.

2 **Q. Do you have any specific experience in the field of public utility**  
3 **depreciation?**

4 A. Yes. I and other members of my firm specialize in the field of public utility  
5 depreciation. We have appeared as expert witnesses on this subject before the  
6 regulatory commissions of almost every state in the country. I have testified in  
7 over 100 proceedings on the subject of public utility depreciation and represented  
8 various clients in several other proceedings in which depreciation was an issue  
9 but was settled. I have also negotiated on behalf of clients in fifteen of the  
10 Federal Communications Commissions' ("FCC") Triennial Depreciation  
11 Represcription conferences.

12 **Q. Does your experience specifically include electric company depreciation?**

13 A. Yes. I have testified in thirty-one proceedings on the subject of electric company  
14 depreciation, and I have prepared testimony in seven electric proceedings in  
15 which depreciation was ultimately settled.

16 **Purpose of Testimony**

17 **Q. What is the purpose of your testimony?**

18 A. I have been asked to review the depreciation-related testimony and exhibits of  
19 Arizona Public Service Company ("APS" or "the Company"). I was asked to  
20 express an opinion regarding the reasonableness of the Company's depreciation  
21 expense proposal and, if warranted, make alternative recommendations. I will  
22 also address the Company's implementation of the Financial Accounting

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1 Standards Board's ("FASB") Statement of Financial Accounting Standards No.  
2 143 ("SFAS No. 143").

3 **APS' Depreciation-Related Proposal**

4 **Q. Please summarize APS' proposal.**

5 A. Company witness Ms. Laura Rockenberger sponsors the Company's  
6 depreciation study and the resulting depreciation claim. The study was actually  
7 conducted by Mr. John F. Wiedmayer of Gannett Fleming and results in revised  
8 depreciation rates and amortization schedules producing a \$287.7 million  
9 depreciation and amortization expense based on APS' plant and accumulated  
10 depreciation balances as of December 31, 2002.<sup>1</sup> This, in turn, represents a  
11 \$3.0 million depreciation expense increase. Mr. Wiedmayer also prepared an  
12 addendum to the depreciation study setting forth depreciation rates for certain  
13 Pinnacle West Energy Corporation ("PWEC") production assets for which APS is  
14 seeking rate base treatment.<sup>2</sup>

15 In addition to the Company's depreciation proposal, Ms. Rockenberger  
16 sponsors the Company's implementation of the Financial Accounting Standards  
17 Board's Statement of Financial Accounting Standards No. 143. In its initial  
18 adoption of SFAS No. 143 "APS recorded a liability of \$219 million for its asset  
19 retirement obligations including accretion impacts; a \$67 million increase in the  
20 book value of the associated assets; and a net reduction of \$192 million in

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<sup>1</sup> Direct Testimony of Laura Rockenberger ("Rockenberger"), page 18, lines 13-14.

<sup>2</sup> Rockenberger, page 14, lines 23-24 and page 15, lines 1-2.

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1 accumulated depreciation related primarily to the reversal of previously recorded  
2 accumulated decommissioning and other removal costs relating to these  
3 obligations. Additionally, APS recorded a regulatory liability of \$40 million for its  
4 asset retirement obligations.<sup>3</sup> The \$40 million liability represents the cumulative  
5 timing differences between the amounts previously recovered in regulated rates  
6 in excess of the amount calculated under SFAS No. 143.<sup>4</sup> The Company is  
7 requesting specific language in the Commission's decision in this case approving  
8 APS' request that the application of SFAS No. 143 be revenue neutral in the rate  
9 making process and that cost of removal for assets without an asset retirement  
10 obligation continue to be reflected in the depreciation accrual and accumulated  
11 depreciation.<sup>5</sup>

12 **Current Rates**

13 **Q. When were the Company's present depreciation rates approved?**

14 A. APS' present depreciation rates were approved in a February 14, 1995 letter  
15 from the Arizona Corporation Commission, responding to APS' request for  
16 proposed depreciation changes.<sup>6</sup> The submission for a change in depreciation  
17 rates was based on an update of a 1992 study by Gannett Fleming, approved by  
18 the ACC in Decision No. 58664, dated June 1, 1994.<sup>7</sup>

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<sup>3</sup> Rockenberger, page 21, lines 18-24.

<sup>4</sup> Rockenberger, page 21, lines 18-24.

<sup>5</sup> Id., page 22, lines 10-17.

<sup>6</sup> Response to MJM 1-45. February 14, 1995 letter from Gary Yaquinto, Director, Utilities Division, Arizona Corporation Commission to William T. Post, Chief Operating Officer, Arizona Public Service Company.

<sup>7</sup> Id.

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1 **Q. How are the present rates calculated?**

2 A. The Company's present rates for the Production, Transmission and Distribution  
3 functions are straight-line remaining life rates.<sup>8</sup> They include a \$5.6 million  
4 additional depreciation provision for nuclear plant accounts, which was intended  
5 to offset the reduction in expense caused by switching from the average service  
6 life method (prior to the 1995 letter) to the remaining-life method (as approved in  
7 the 1995 letter).<sup>9</sup>

8 **Q. Is APS proposing to continue to collect the additional provision for nuclear  
9 plant depreciation in its proposal for this proceeding?**

10 A. No.<sup>10</sup>

11 **Summary and Conclusions**

12 **Q. What is your opinion regarding the Company's depreciation and SFAS No.  
13 143 proposals?**

14 A. In my opinion, the Company's depreciation proposal is unreasonable because  
15 the proposal produces an excessive depreciation expense which will, in turn, be  
16 charged to ratepayers. APS' SFAS No. 143 proposal is also unreasonable  
17 because it is inconsistent with the principles and fundamentals of SFAS No. 143  
18 as well as the related accounting order of the Federal Energy Regulatory  
19 Commission ("FERC") in Docket No. RM02-7, ("Order No. 631.")

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<sup>8</sup> The rates for Nuclear account 325 and the General plant accounts are calculated using the average service life method.

<sup>9</sup> Id.

<sup>10</sup> Response to MJM 2-77.

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1 **Q. What do you recommend?**

2 A. I recommend a \$240.3 million depreciation and amortization expense which  
3 results in a \$44.3 million decrease rather than APS' \$3.0 million proposed  
4 increase.<sup>11</sup>

5 **Q. Why do you disagree with the Company's depreciation proposal?**

6 A. I have the following disagreements.

- 7 • The Company has overstated its recovery of production plant  
8 decommissioning costs.
- 9 • The Company's proposed incorporation of future net salvage values in its  
10 transmission, distribution and general depreciation rate calculations is  
11 unreasonable because they increase the depreciation rates for inflated  
12 estimates of costs that probably will not be incurred.
- 13 • Several of the Company's proposed lives in the transmission, distribution  
14 and general plant functions are too short, thereby overstating the  
15 associated depreciation expense.

16 **Q. Why do you disagree with the Company's SFAS No. 143 proposal?**

17 A. I disagree with the Company's SFAS No. 143 proposal because it has not  
18 properly reflected the net salvage allowance it is proposing to charge to  
19 ratepayers.

20 **Q. Have you accepted any of the Company's parameters?**

21 A. Yes, I have accepted several of the Company's proposed parameters.

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<sup>11</sup> Exhibit \_\_\_(MJM-3), Statement D, p. 1 of 1.

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1 **Q. Was your decision to accept these parameters passive or did you conduct**  
2 **analysis to arrive at your decision?**

3 A. My decision to accept these parameters was not passive; I conducted substantial  
4 analysis as will be discussed in several later sections of my testimony. Where I  
5 have accepted the Company's proposals it was based on my own independent  
6 analysis.

7 **Additional Studies**

8 **Q. Did you conduct any additional analyses or studies which are useful for**  
9 **purposes of this proceeding?**

10 A. Yes. My firm prepared a nationwide study of the life spans of Steam Production  
11 units in excess of 50 MW. We also conducted a study of life spans relating to  
12 Other Production units. These studies, identified as Exhibit\_\_(MJM-1) and  
13 (MJM-2), can be used along with other information, to judge the reasonableness  
14 of estimated production plant life spans.

15 **Q. Do your testimony and the related exhibits constitute a depreciation study?**

16 A. Yes, they do. Exhibit\_\_(MJM-3) incorporates all of my analyses and calculations  
17 and recommendations. It is followed by several explanatory exhibits.

18 **Depreciation Concepts**

19 **Q. What is depreciation expense?**

20 A. In summary, depreciation expense is a charge to operating expense to reflect the  
21 recovery of a company's previously expended capital. Public utility depreciation  
22 expense is typically straight-line over service life which results in an equal share

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1 of the cost of assets being assigned to expense each year over the service life of  
2 the assets. A service life is the period of time during which depreciable plant  
3 [and equipment] is in service.<sup>12</sup> Annual depreciation expense is a cost included  
4 in a public utility's revenue requirement.

5 **Q. How is the annual depreciation expense calculated?**

6 A. Annual depreciation expense is calculated by applying a depreciation rate to  
7 plant balances. The resulting expense (also called accrual) is charged, just as  
8 any other expense, to the revenue requirement and from there it is charged to  
9 the utility's customers.

10 **Q. Is it true that depreciation is a non-cash expense?**

11 A. Yes. Depreciation is a non-cash expense in contrast to payroll expense, for  
12 example, which involves the current outlay of cash. That is, depreciation  
13 expense does not involve a specific payment during the test-year. Both  
14 depreciation and payroll are included as expenses in the income statement and  
15 revenue requirement, but no cash flows out of the company for depreciation  
16 expense. Instead of reducing the cash account, depreciation expense is  
17 recorded on the income statement as an expense and simultaneously recorded  
18 on the balance sheet in the accumulated depreciation account; which is shown  
19 as an offset to plant in service.

20 **Q. What is the accumulated depreciation account?**

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<sup>12</sup> Public Utility Depreciation Practices, August, 1996. National Association of Regulatory Utility Commissioners ("NARUC Manual"), p. 321.

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- 1 A. Accumulated depreciation (sometimes called reserve) is, in essence, a record of  
2 the previously recorded depreciation expense; at any point in time, the  
3 accumulated depreciation account represents the net accumulated amount of the  
4 original cost of assets and net salvage that has been recovered to date. It can  
5 be considered a measure of the depreciation recovered from ratepayers.
- 6 **Q. Does the fact that depreciation is a non-cash expense render it any less**  
7 **legitimate than any other expense?**
- 8 A. Depreciation is a legitimate expense. However, since it is based on a substantial  
9 amount of judgment and complex analytical procedures, the measurement of  
10 depreciation and the calculation of the expense warrant careful consideration.
- 11 **Q. What is the objective of depreciation expense?**
- 12 A. For public utilities, the objective of depreciation is straight-line capital recovery.  
13 As stated above, this is accomplished by allocating the original cost of assets to  
14 expense over the lives of those assets through the application of depreciation  
15 rates to plant balances.
- 16 **Q. How does APS determine its annual depreciation rates?**
- 17 A. APS' depreciation rates are founded upon three fundamental parameters: a  
18 service life, a dispersion pattern and a net salvage ratio. APS used the  
19 remaining life technique to compute its proposed rates.
- 20 **Q. Would you please explain how the rates were calculated?**
- 21 A. Yes. In order to understand remaining-life depreciation, it is useful to first  
22 address whole-life depreciation.

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1 **Q. Please explain the whole-life technique.**

2 A. The following calculation shows a straight-line whole-life depreciation rate  
3 assuming a 10-year average service life and zero ("0") percent net salvage.

4 **Table 1**

5  
6 **Straight-Line Whole-Life Depreciation Rate**  
7 **Assuming 10-Year Life and 0% Net Salvage**

8  
9 
$$\frac{100\%-(0\%)}{10 \text{ yrs.}} = 10.0\%$$

10  
11  
12 Each year the 10.0 percent depreciation rate would be applied to plant in service  
13 to produce an annual depreciation expense.

14 **Q. What happens if you include net salvage in the calculation?**

15 A. I will use negative net salvage as an example. Negative net salvage is the net  
16 cost of removal of the asset after completion of its service life. For the remainder  
17 of the testimony I use the terms negative net salvage and cost of removal  
18 interchangeably. Assume a negative 5 percent (-5%) net salvage ratio. The  
19 equation above with a value for negative net salvage is as follows:

20 **Table 2**

21 **Straight-Line Whole-Life Depreciation Rate**  
22 **Assuming 10-Year Life and -5% Net Salvage**

23  
24 
$$\frac{100\%-(-5\%)}{10 \text{ yrs.}} = 10.5\%$$

25  
26  
27 Negative net salvage increases the resulting whole-life depreciation rate from  
28 10.0% to 10.5%.

29 **Q. Why does negative net salvage increase the depreciation rate?**

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1 A. It increases the depreciation rate because negative salvage is, in effect, added to  
2 the original cost of the plant. Instead of 100% (which represents the original cost  
3 of assets), the numerator becomes 105%. This is equivalent to capitalizing or  
4 adding the estimated cost of removal to the original cost of the asset.

5 **Q. Please explain the remaining-life technique.**

6 A. The remaining-life technique is similar to the whole-life technique, but it  
7 incorporates accumulated depreciation into the numerator of the equation, and  
8 the denominator becomes the remaining life rather than the whole life of the  
9 asset.

10 If the hypothetical 10-year asset is 3 years old, its remaining life would be  
11 7 years ( $10 - 3 = 7$ ). The accumulated depreciation account would be 31.5  
12 percent of the original cost because the 10.5 percent depreciation rate from  
13 Table 2 would have been applied for three years ( $3 \times 10.5\% = 31.5\%$ ). The  
14 remaining life depreciation rate would then be calculated as follows:

**Table 3**

**Straight-Line Remaining Depreciation Life Rate  
Assuming 10-year Life, 7-year Remaining Life  
And -5% Net Salvage**

---

$$\frac{100\% - (-5\%) - 31.5\%}{7 \text{ years}} = 10.5\%$$

24 **Q. Please explain why the whole-life depreciation rate in Table 2 and the**  
25 **remaining life depreciation rate in Table 3 are both 10.5 percent?**

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1 A. In these examples the remaining life depreciation rate and the whole-life  
2 depreciation rates are the same (10.5 percent), because I have assumed that the  
3 accumulated depreciation account is in balance. In other words, exactly the right  
4 amount of depreciation (31.5 percent) has been collected in the past, based on a  
5 continuation of the fundamental parameters, i.e., the 10-year service life and the  
6 negative 5 percent net salvage ratio.

7 **Q. What would happen if either of these fundamental parameters were to**  
8 **change?**

9 A. If either the service life or net salvage parameter changes during the life of the  
10 plant, the accumulated depreciation account will be out of balance, and the  
11 remaining life rate will be either higher or lower than whole-life rate depending on  
12 the direction of the imbalance. That is because the Company will have collected  
13 either too much depreciation or not enough depreciation in the past, given the  
14 current estimates of lives or future net salvage.

15 **Q. Is there anything unique about public utility depreciation?**

16 A. Yes. There are three unique factors driving public utility depreciation rates.  
17 First, public utility depreciation is based on a "group life" as opposed to the lives  
18 of individual assets. Second, the cost of removing or disposing of an asset that  
19 is retired from service is charged to the accumulated depreciation reserve, as  
20 opposed to being recognized as an operating cost in the year incurred. Third,  
21 the original cost of a retired asset is also recorded in the accumulated  
22 depreciation reserve, as opposed to being written off in the year of the asset's

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1 retirement/disposal. Each of these factors affect the depreciation rates that are  
2 ultimately determined for the group of assets that are recorded in plant accounts  
3 designated by the FERC Uniform System of Accounts ("USOA").

4 **Q. Please explain the concept of group life depreciation.**

5 A. Depreciation expense is one of the primary cost drivers of public utility revenue  
6 requirement calculations because these companies are capital intensive. An  
7 excessive depreciation rate can unreasonably increase the utility's revenue  
8 requirement and resulting service rates; thereby unnecessarily charging millions  
9 of dollars to a utility's customers.

10 Given the capital intensity of the industry, it is impossible to track and  
11 depreciate every single asset that a utility owns. Utilities own millions of assets,  
12 represented by millions of dollars of investment. Public utility depreciation is,  
13 therefore, based on a group concept, which relies on averages of the service  
14 lives and remaining lives of the assets within a specific group.

15 These factors are necessarily estimates of the average service lives and  
16 average remaining lives of groups of assets. These estimates are in turn based  
17 on complex analytical procedures, which involve not only the age of existing and  
18 retired assets, but also retirement dispersion patterns called "Iowa curves."

19 I will discuss all of these in more detail later in my testimony. The  
20 important point to remember is that service life, average age and Iowa curves are  
21 all used in the estimation of an average service life and average remaining life of

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1 a group of assets and are ultimately used to calculate the depreciation rate for  
2 that group of assets.

3 **Q. Would you please relate these fundamentals to the issues in this**  
4 **proceeding?**

5 A. Yes. In depreciation analysis it is axiomatic that the shorter the life, the higher  
6 the resulting depreciation rate. Several of APS' proposed depreciation rates are  
7 too high because they are based on lives which are too short. The following  
8 table shows the impact of a shorter life.

9 **Table 4**

10 **Impact of Lives on Depreciation Rates**

11 30 year life =  $100\%/30 = 3.3\%$

12 10 year life =  $100\%/10 = 10.0\%$

13  
14 The shorter the life, the higher the rate. If the life is too short, the resulting rate is  
15 obviously excessive.

16 **Q. Is there any other reason that APS' depreciation rates are excessive?**

17 A. Yes, most of APS' proposed depreciation rates contain negative net salvage  
18 allowances which collect too much for future cost of removal and thus are far too  
19 negative. They result in excessive depreciation rates. The next table shows the  
20 impact on depreciation rates of increasing the cost of removal ratio:

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**Table 5**

**Impact of Increasing Cost of Removal Ratio**

-5% ratio =  $100 \% - (-5)/10 = 10.5 \%$

-50% ratio =  $100 \% - (-50)/10 = 15.0 \%$

Increasing a cost of removal ratio from -5% to -50% increases the depreciation rate from 10.5% to 15.0%. If the estimated -50% cost of removal ratio is not supportable; obviously, the resulting 15.0% depreciation rate is excessive. The combination of these two factors, i.e., understated lives and overstated cost of removal ratios, compounds the excessive depreciation rate problem.

**Excessive Depreciation**

**Q. What is an excessive depreciation rate?**

A. An excessive depreciation rate is one that produces depreciation expense which is more than necessary to return a company's capital investment over the life of the asset.

**Q. Have any courts addressed the concept of excessive depreciation?**

A. Yes, the concept of excessive depreciation was explained by the U.S. Supreme Court in a landmark 1934 decision, Lindheimer v. Illinois Bell Telephone Company, as follows:

If the predictions of service life were entirely accurate and retirements were made when and as these predictions were precisely fulfilled, the depreciation reserve would represent the consumption of capital, on a cost basis, according to the method which spreads that loss over the respective service periods. But if the amounts charged to operating

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1 expenses and credited to the account for  
2 depreciation reserve are excessive, to that  
3 extent subscribers for the telephone service  
4 are required to provide, in effect, capital  
5 contributions, not to make good losses incurred  
6 by the utility in the service rendered and thus to  
7 keep its investment unimpaired, but to secure  
8 additional plant and equipment upon which the  
9 utility expects a return.

10  
11 Confiscation being the issue, the  
12 company has the burden of making a  
13 convincing showing that the amounts it has  
14 charged to operating expenses for depreciation  
15 have not been excessive. That burden is not  
16 sustained by proof that its general accounting  
17 system has been correct. The calculations are  
18 mathematical, but the predictions underlying  
19 them are essentially matters of opinion. They  
20 proceed from studies of the behavior of large  
21 groups of items. These studies are beset  
22 with a host of perplexing problems. Their  
23 determination involves the examination of  
24 many variable elements and opportunities for  
25 excessive allowances, even under a correct  
26 system of accounting, [are] always present.  
27 The necessity of checking the results is not  
28 questioned. The predictions must meet the  
29 controlling test of experience.<sup>13</sup>

30  
31 **Q. Are you providing this as a legal opinion?**

32 **A.** No. I provide this to illustrate that the concept of an excessive depreciation rate  
33 is not new.

34 **Q. What is the effect of an excessive depreciation rate?**

35 **A.** Excessive depreciation rates produce excessive depreciation expense. In other

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<sup>13</sup> Lindheimer v. Illinois Bell Telephone Company, 292 U.S. 151, 168-170, 54 S.Ct. 658, 665-666 (1934).  
(Emphasis added; footnote deleted.)

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1 words if an excessive depreciation rate is applied to the plant balance, it results  
2 in excessive depreciation expense. Since depreciation expense flows dollar-for-  
3 dollar into the revenue requirement, excessive depreciation expense results in an  
4 excessive revenue requirement.

5 **Q. Who pays for excessive depreciation rates?**

6 A. Ratepayers pay for excessive depreciation rates.

7 **Q. Why are APS' depreciation rates excessive?**

8 A. As explained above, they are excessive for two fundamental reasons. First they  
9 are based on lives which are too short; and second, they have been increased to  
10 provide for an unsupportable allowance for future negative net salvage.

11 **Q. How will you address these issues?**

12 A. Ordinarily, I would discuss lives and life study approaches first. However, due to  
13 the magnitude of the negative net salvage difference between the Company and  
14 my analysis, I will discuss negative net salvage first.

15 **Net Salvage**

16 **Q. Did Mr. Wiedmayer include net salvage ratios in his depreciation rate**  
17 **calculations?**

18 A. Yes.

19 **Q. Is net salvage a significant issue in this proceeding?**

20 A. Yes, it is.

21 **Q. Please explain why.**

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1 A. It is significant because Mr. Wiedmayer has bundled inappropriate cost of  
2 removal factors in his proposed depreciation rates. If those rates are approved,  
3 the result will be that current ratepayers will pay for future inflation to costs that  
4 will not be incurred. In order to fully address this issue, I will approach it in the  
5 following manner. First I will address SFAS No. 143 and asset retirement  
6 obligations. This will be followed by a discussion of FERC Order No. 631. Next,  
7 I will discuss production plant dismantlement costs. Finally, I will discuss the net  
8 salvage ratios included in Mr. Wiedmayer's transmission, distribution and general  
9 plant depreciation rates.

10 **Financial Accounting Standards Board's Statement of Financial Accounting**  
11 **Standard No. 143**

12  
13 **Q. What is the Financial Accounting Standards Board?**

14 A. The Financial Accounting Standards Board ("FASB") is a standards-setting body  
15 for the public accounting profession.

16 **Q. What is SFAS No. 143?**

17 A. SFAS No. 143 is a recent FASB pronouncement concerning the appropriate  
18 accounting for long-lived assets. Pursuant to SFAS No. 143 all companies  
19 (including APS) must review all of their long-lived assets to determine whether or  
20 not they have actual legal obligations to remove retired assets. For some plant  
21 and equipment, public utilities have a legal obligation to remove the asset at the  
22 end of the service life. These legal obligations for future removal are called asset  
23 retirement obligations ("AROs"). For other assets, no such obligation exists.

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1           If a company does have an ARO, the net present value of the future  
2 retirement cost is considered to be part of the original cost of the asset. It is  
3 therefore capitalized (included in the original cost) and depreciated over the life  
4 of the asset. Hence, for assets with AROs, the accumulated depreciation  
5 account would equal the plant balance at the end of the asset's life. In other  
6 words, when AROs exist total depreciation expense would incorporate the cost of  
7 future removal. Total depreciation would equal the total recorded cost of the end  
8 of the asset's life.

9           If, however, a company does not have such legal obligations, the future  
10 cost of removal will not be capitalized and will not be included in depreciation  
11 expense. Therefore, for assets without AROs, at the end of the asset's life, the  
12 accumulated depreciation account will equal the plant balance because only the  
13 original cost of the asset will have been depreciated. In other words, there is  
14 symmetry between assets with and without AROs. In both cases, the  
15 accumulated depreciation will equal the original cost of the asset at the end of its  
16 life.

17 **Q. How are AROs measured?**

18 **A.** AROs are measured at their net present value, not their inflated future value.

19 **Q How are AROs recorded on the books?**

20 **A.** As stated above, AROs are capitalized as a cost of the related asset and  
21 concomitantly recorded as a liability for those companies with a legal obligation  
22 to remove a retired asset. Each year, as the liability increases due to inflation,

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1 the increase is charged to accretion expense and credited to the liability, but the  
2 asset value remains the same. In other words, just as the original cost of the  
3 asset does not increase, neither does the capitalized asset retirement cost.

4 **Q. What happens if a company does not have an asset retirement obligation**  
5 **pursuant to SFAS No. 143?**

6 A. As explained above, if a company does not have such obligations, the future cost  
7 of removal is not considered as a cost of the asset, and therefore it will not be  
8 included in the company's depreciation expense on its general purpose financial  
9 statements. SFAS No. 143, therefore, unbundles net salvage from depreciation  
10 rates. It does this in two ways. Either by incorporating the net present value of  
11 an ARO in the cost of the asset, or by excluding non-AROs from the depreciation  
12 rate calculations.

13 **Q. What is the accounting impact of SFAS No. 143 for electric utilities?**

14 A. Under Generally Accepted Accounting Principles ("GAAP"), electric utilities will  
15 be required to review all of their assets to determine if they have any AROs.  
16 They will also be required to determine the amount of any prior cost of removal  
17 collections relating to non-AROs that is now included in their accumulated  
18 depreciation accounts. These latter amounts and any such future charges to  
19 ratepayers will be recorded as a regulatory liability to ratepayers.

20 **Q. Has APS implemented SFAS No. 143?**

21 A. Yes. The Company implemented SFAS No. 143 on January 1, 2003.<sup>14</sup>

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<sup>14</sup> Rockenberger, page 19, line 4.

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1 **Q. Does the Company have any asset retirement obligations pursuant to SFAS**  
2 **No. 143?**

3 A. Yes. Upon review, the Company found that the Palo Verde (including the Palo  
4 Verde sale leaseback), Four Corners, Navajo and Childs Irving generating plants  
5 had retirement obligations generally relating to final plant decommissioning or  
6 removal costs based on regulatory or contractual requirements as estimated and  
7 recorded as of January 1, 2003.<sup>15</sup> APS also has some AROs related to  
8 transmission and distribution plant, but as the timing of these obligations cannot  
9 be determined, no ARO has been recorded.<sup>16</sup>

10 **Q. Has APS recorded any impacts related to SFAS No. 143 on its books?**

11 A. Yes. As discussed above, "APS recorded a liability of \$219 million for its asset  
12 retirement obligations including accretion impacts; a \$67 million increase in the  
13 book value of the associated assets; and a net reduction of \$192 million in  
14 accumulated depreciation related primarily to the reversal of previously recorded  
15 accumulated decommissioning and other removal costs relating to these  
16 obligations."<sup>17</sup>

17 APS also recorded a regulatory liability of \$40 million for its asset  
18 retirement obligations, representing the cumulative timing differences between

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<sup>15</sup> Rockenberger, page 19.

<sup>16</sup> Id., page 20.

<sup>17</sup> Id., page 21.

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1 the amounts previously recovered in regulated rates in excess of the amount  
2 calculated under SFAS No. 143.”<sup>18</sup>

3 **Q. Why did APS record the \$40 million regulatory liability?**

4 A. According to Ms. Rockenberger, the purpose of the regulatory liability is “to make  
5 the implementation of the new standard revenue neutral, so that the timing  
6 differences in the accounting would not increase or decrease APS’ overall  
7 revenue requirement.”<sup>19</sup>

8 **Q. Does the Company make any additional requests regarding the  
9 implementation of SFAS No. 143 for asset retirement obligations?**

10 A. The Company has requested that the Commission insert the following specific  
11 language in its decision in this proceeding:

12 The Commission approves APS’ request that the application  
13 of SFAS No. 143 be revenue neutral in the rate making  
14 process and authorizes APS to place all impacts to its  
15 income statement caused by the adoption of SFAS No. 143  
16 in regulatory accounts. Those impacts include the  
17 cumulative adjustment as of January 1, 2003 and ongoing  
18 expense recognition impacts.<sup>20</sup>  
19

20 **Q. Why would APS request such language?**

21 A. In my opinion, APS is requesting this language because it is aware that it does  
22 not have AROs for a majority of its assets but it has a substantial amount future  
23 inflated cost of removal included in its accumulated depreciation account and in

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<sup>18</sup> Rockenberger, page 21, lines 18–24.

<sup>19</sup> Rockenberger, page 22.

<sup>20</sup> Rockenberger, page 22.

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1 its current and proposed depreciation rates. The elimination of this recovery in  
2 accordance with the principle SFAS No. 143 will lead to a significant reduction in  
3 APS' depreciation expense. Consequently, it seeks a revenue neutral  
4 application of SFAS No. 143.

5 **Q. Do you agree with APS' request for revenue-neutral language?**

6 A. No.

7 **Q. Does the Company discuss its plans for the treatment of removal costs that  
8 are unrelated to asset retirement obligations?**

9 A. Yes. The Company plans to continue to include these costs "in the calculation of  
10 the depreciation accrual and accumulated depreciation in the same manner as it  
11 was prior to January 1, 2003, consistent with current ratemaking treatment."<sup>21</sup> In  
12 fact, APS requests the Commission include specific language in its decision  
13 related to this issue, as such:

14 The Commission also approves APS' request that removal  
15 costs for assets that do not have an asset retirement  
16 obligation continue to be reflected in the depreciation accrual  
17 and accumulated depreciation.<sup>22</sup>  
18

19 **Q. Do you agree with the Company's treatment of these types of  
20 removal costs?**

21 A. No. The Company's proposal violates the principles and fundamentals of current  
22 Generally Accepted Accounting Principles ("GAAP") regarding cost, capital

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<sup>21</sup> Id., page 21.

<sup>22</sup> Id., page 22.

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1 recovery, and cost of removal. APS' approach, which bundles future net salvage  
2 ratios in depreciation rates, results in the anomalous result of an accumulated  
3 depreciation account which exceeds the actual plant balance at the end of the  
4 plant life as I explained in the depreciation concepts section.

5 **FERC Reporting**

6 **Q. Does APS file depreciation studies with FERC?**

7 A. No. APS has not filed depreciation studies with FERC in the last ten years and  
8 [according to APS] there are no current FERC requirements to file depreciation  
9 studies with FERC.<sup>23</sup>

10 **Q. Are there any differences between the depreciation rates the Company  
11 uses for FERC reporting and those it uses for ratemaking purposes?**

12 A. No. According to the response to MJM 1-54, "the Company uses the same  
13 depreciation rates for FERC reporting and ratemaking purposes as it does for  
14 intrastate reporting and ratemaking purposes."<sup>24</sup>

15 **FERC Order No. 631**

16 **Q. What is the impact of SFAS No. 143 on electric regulatory accounting?**

17 A. The impact on regulatory accounting for electric utilities is that SFAS No. 143  
18 evolved into FERC Order No. 631 in Docket RM02-7-000. FERC Order No. 631  
19 resulted in changes to the USOA to incorporate the principle of SFAS No. 143.

20 **Q. How did SFAS No. 143 evolve into FERC Order No. 631?**

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<sup>23</sup> Response to MJM 1-53.

<sup>24</sup> Response to MJM 1-54.

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1 A. SFAS No. 143 was initiated in 1994 as a result of a request by the Edison  
2 Electric Institute. Subsequent to that initiation, the accounting community went  
3 through several iterations of proposals and comments to finally arrive at SFAS  
4 No. 143. FERC established Docket No. RM02-7-000 as a result of SFAS No.  
5 143. This docket has included a Technical Conference, Comments, a Notice of  
6 Proposed Rulemaking ("NOPR"), Additional Comments and ultimately, Order No.  
7 631, on April 9, 2003. Exhibit\_\_\_(MJM-4) is a document I wrote to track the  
8 progress of SFAS No. 143 into FERC Order No. 631. It primarily addresses net  
9 salvage as it relates to non-ARO assets, since that is the subject in dispute.

10 **Q. What is the thrust of Order No. 631?**

11 A. Order No. 631 essentially adopts SFAS No. 143 and then integrates it into the  
12 Uniform System of Accounts.

13 **Q. Does Order No. 631 require electric utilities to review their long-lived assets  
14 to determine whether they have any AROs?**

15 A. Yes. Order No. 631 adopts SFAS No. 143, which already obligates electric  
16 utilities, among others, to review their long-lived assets to determine if they have  
17 any AROs.

18 **Q. Is the Order No. 631 review the same as the review APS has already  
19 performed under SFAS No. 143 in which it determined that it has AROs for  
20 some of its production plant?**

21 A. Yes, it is.

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1 **Q. What are the implications of Order No. 631 in situations where electric**  
2 **utilities do not have AROs?**

3 **A. FERC Order No. 631 defines cost of removal allowances for which there is no**  
4 **legal asset retirement obligation, as "non-legal retirement obligations." Past and**  
5 **future "non-legal AROs" must be specifically identified and accounted for**  
6 **separately in the depreciation studies, depreciation expense and the**  
7 **accumulated depreciation account.**

8 In Order No. 631, FERC established new requirements for non-legal  
9 AROs, as follows:

10 Instead, we will require jurisdictional entities to  
11 maintain separate subsidiary records for cost of  
12 removal for non-legal retirement obligations that  
13 are included as specific identifiable allowances  
14 recorded in accumulated depreciation in order to  
15 separately identify such information to facilitate  
16 external reporting and for regulatory analysis,  
17 and rate setting purposes. Therefore, the  
18 Commission is amending the instructions of  
19 accounts 108 and 110 in Parts 101, 201 and  
20 account 31, Accrued depreciation - Carrier  
21 property, in Part 352 to require jurisdictional  
22 entities to maintain separate subsidiary records  
23 for the purpose of identifying the amount of  
24 specific allowances collected in rates for non-  
25 legal retirement obligations included in the  
26 depreciation accruals.<sup>25</sup>  
27

28 **Q. Does FERC provide any additional insight as to the interpretation of these**  
29 **new rules?**

30 **A. Yes, FERC also states:**

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<sup>25</sup> FERC Docket No. RM02-7-000, Order No. 631, Issued April 9, 2003, Paragraph 38.



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1 are not subject to a one size fits all approach and  
2 are better resolved on a case-by-case basis in  
3 rate proceedings. The Commission is of the  
4 view that utilities will have the opportunity to seek  
5 recovery of qualified costs for asset retirement  
6 obligations in individual rate proceedings. This  
7 rule should not be construed as pregranted  
8 authority for rate recovery in a rate  
9 proceeding."<sup>27</sup>

10  
11 **Q. Does FERC's Order require anything new or more with respect to its**  
12 **requirement for detailed depreciation studies?**

13 **A. No. FERC states:**

14  
15 "Finally this rule requires nothing new and  
16 nothing more with respect to the requirement for  
17 a detailed study. Complex depreciation and  
18 negative salvage studies are routinely filed or  
19 otherwise made available for review in rate  
20 proceedings. When utilities perform depreciation  
21 studies, a certain amount of detail is expected. It  
22 is incumbent upon the utility to provide sufficient  
23 detail to support depreciation rates, cost of  
24 removal, and salvage estimates in rates.<sup>45.</sup>"<sup>28</sup>

25  
26 And footnote 45 states:

27  
28 "When an electric utility files for a change in its  
29 jurisdictional rates, the Commission requires  
30 detailed studies in support of changes in annual  
31 depreciation rates if they are different from  
32 those supporting the utility's prior approved  
33 jurisdictional rate."<sup>29</sup>

34  
35 Thus, FERC recognizes distinctions between legal and non-legal AROs just as

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<sup>27</sup> Id., Paragraph 64. (Emphasis added.)

<sup>28</sup> Id., paragraph 65.

<sup>29</sup> Id., footnote 45.

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1 SFAS No. 143 recognizes those distinctions. In fact, the amount resulting from  
2 Order No. 631's requirement to identify previous amounts collected for non-legal  
3 AROs should result in the same amounts as the SFAS No. 143 requirement to  
4 establish a regulatory liability to ratepayers. It is also clear, that on a going-  
5 forward basis, jurisdictional entities must be prepared to specifically identify and  
6 justify any non-legal AROs that they propose to include in rates.

7 **Q. What is the most important aspect of Order No. 631?**

8 A. The most important aspect of Order No. 631 is its requirement to separate or  
9 unbundle non-legal cost of removal allowances from depreciation rates.

10 **Q. How much prior collections are included in APS' accumulated depreciation**  
11 **account?**

12 A. APS' response to MJM-82 indicates that it has already collected \$364.6 million  
13 from its customers for future cost of removal.

14 **Q. Is APS proposing to include any additional future removal costs in its**  
15 **depreciation rates?**

16 A. Yes. APS' depreciation rates are designed to collect an annual amount of about  
17 \$31.6 million for future removal costs.<sup>30</sup> It would do this by bundling net salvage  
18 ratios in depreciation rates. This amount would fluctuate based on changes in  
19 plant balances.

20 **Q. Does APS' proposal comply with FERC Order No. 631?**

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<sup>30</sup> Difference between APS' proposed depreciation expense with and without Gannett Fleming net salvage proposals.

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1 A. APS' proposal does not comply with FERC Order No. 631. APS has already  
2 implemented SFAS No. 143. The removal costs it proposes to recover through  
3 depreciation rates are "non-legal AROs". Order No. 631 requires that these be  
4 accounted for separately as a specifically identifiable allowance. I have  
5 estimated these amounts, but they are not set forth in specifically identifiable  
6 allowances. They are bundled into depreciation rates.

7 **Q. What is your reaction to APS' filing?**

8 A. My reaction is that even though APS has implemented SFAS No. 143 and  
9 apparently Order No. 631, it is proposing to charge much more to its ratepayers  
10 for non-legal AROs than it would if it actually had legal obligations to remove  
11 these assets.

12 **Q. Has APS been uniform in its approach to estimating these non-legal AROs?**

13 A. No. APS' removal costs for the production plant units were based on site-  
14 specific estimates which Gannett Fleming then inflated to the anticipated  
15 retirement date of each unit.<sup>31</sup> The estimated removal costs for the transmission,  
16 distribution and general functions were based on historical summaries. First, I  
17 will discuss the production plant decommissioning estimates. Then, I will  
18 address the transmission, distribution and general net salvage estimates.

19 **Production Dismantlement Costs**

20 **Q. Has APS built decommissioning costs for its production plant into its**  
21 **depreciation rates?**

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<sup>31</sup> Attachment LLR-4, page II-31.

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1 A. Yes. APS has included negative net salvage ratios in its steam, nuclear and  
2 other production plant depreciation rates. While the Company does not include a  
3 net salvage ratio in its depreciation rates for hydraulic plant, it does request  
4 specific decommissioning costs related to this plant.

5 **Q. Do you agree with APS' inclusion of these decommissioning costs in its**  
6 **depreciation rates?**

7 A. I disagree with the Company's production plant decommissioning proposals for  
8 its steam, nuclear and other plant. The Company has already implemented  
9 SFAS No. 143 and recorded the impacts on its books. Any remaining  
10 decommissioning should be related to non-legal AROs, and as will be discussed  
11 below, should not be included in depreciation rates. Furthermore, as shown on  
12 Schedule 1 of Attachment LLR-4, the Company has included a net salvage  
13 component in the depreciation rates for plants it has identified as having AROs.  
14 This could indicate a double count of decommissioning costs for these plants.

15 **Q. Please explain the Company's proposal for hydraulic plant.**

16 A. In 1999 the Company entered into an agreement to decommission the Childs-  
17 Irving hydro plant and to restore the waters to Fossil Creek by 2004. Previously,  
18 APS had intended to renew the plants' operating licenses for an additional 30  
19 years. As such, the Company did not include decommissioning costs in the  
20 previous depreciation study. APS took additional depreciation of over \$8 million  
21 related to the decommissioning of these plants over the years 2000-2002. In the  
22 current case, APS requests that the difference between the estimated

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1 decommissioning cost of \$13.2 million and the book reserve of \$7.9 million be  
2 amortized over the upcoming two year period.<sup>32</sup> The resulting annual amount of  
3 \$2.7 million is included in the depreciation study. No other depreciation expense  
4 is being collected for hydro plant.

5 **Q. Do you agree with the Company's handling of the hydro decommissioning**  
6 **costs?**

7 A. I do not agree with the Company's treatment of hydro decommissioning costs. It  
8 has AROs for the investment. I have, however, accepted the Company's  
9 amortization because I believe it approximates the amount that would result from  
10 the appropriate ARO treatment.

11 **Non-Production Plant Net Salvage Estimates**

12 **Q. What is net salvage?**

13 A. Plant and equipment is retired from service at the end of its useful life.  
14 Sometimes the retired plant and equipment may be physically removed and can  
15 be resold for value. This is called gross salvage. In more technical terms, gross  
16 salvage is the amount recorded for the property retired due to the sale,  
17 reimbursement, or reuse of the property. Cost of removal is the cost incurred in  
18 connection with the retirement from service and the disposition of depreciable  
19 plant.<sup>33</sup> Net salvage is the difference between gross salvage and cost of  
20 removal.

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<sup>32</sup> Response to MJM 1-3.

<sup>33</sup> NARUC Manual, pages 320 and 317.

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1 **Q. Does APS propose to charge net salvage to ratepayers for its non-**  
2 **production plant accounts?**

3 A. Yes. APS has included negative net salvage ratios in most of its proposed  
4 transmission and distribution plant depreciation rates, as well as the depreciation  
5 rate for one of its general plant accounts. As explained in the depreciation  
6 concepts sections of this testimony, negative future net salvage ratios increase  
7 depreciation rates.

8 **Q. How did APS estimate its proposed future net salvage ratios?**

9 A. Mr. Wiedmayer prepared summaries of annual retirements and net salvage,  
10 which he used as a basis for his future net salvage proposals. The following  
11 table is a hypothetical example of Mr. Wiedmayer's net salvage studies.

**Table 6**

**Hypothetical Net Salvage Study**

<u>Year</u>	<u>Original Cost Retired Asset</u>	<u>Cost of Removal</u>	
(a)	(b)	(\$) (c)	(%) (d)=(c)/(b)
1997	1,000	(500)	(50)%
1998	2,000	(1,500)	(75)
1999	2,500	(1,000)	(40)
2000	3,000	(2,500)	(83)
2001	<u>4,000</u>	<u>(5,000)</u>	<u>(125)</u>
Total	12,500	(10,500)	(84)%
3-year Avg.	3,167	(2,833)	(89)%
5-year Avg.	2,500	(2,100)	(84)%

28 **Q. Please explain this table.**

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1 A. The years in column (a) are the years in which the assets in column (b) were  
2 retired. These assets had originally been placed in service several years before  
3 they were retired. In other words they were added to plant in service several  
4 years ago, they lived their service life, and then they were retired or withdrawn  
5 from service. The cost of removal amounts in column (c) are the costs incurred  
6 in connection with the retirement from service and the disposition of the assets.  
7 In other words, an asset that originally cost \$4,000 several years earlier was  
8 retired from service in 2001. It cost \$5,000 to retire and dispose of that asset in  
9 2001. The ratios in column (d) are the cost of removal amount expressed as a  
10 percentage of the original cost of the assets.

11 **Q. How did Mr. Wiedmayer use these figures to estimate his future net salvage**  
12 **ratios?**

13 A. Mr. Wiedmayer considered rolling 3-year averages, the most recent 5-year  
14 average and overall average in making his decision. He also adjusted his net  
15 salvage estimates for some transmission and distribution plant accounts to  
16 account for reuse of materials.

17 **Q. Why did Mr. Wiedmayer adjust his net salvage analysis to account for**  
18 **reuse of materials?**

19 A. As described on page II-30 of Attachment LLR-4, "Many transmission and  
20 distribution plant accounts experience high levels of reuse salvage, i.e., materials  
21 returned to stores during the early portion of a group's life cycle." "However, as  
22 the group ages, the ability to reuse materials decreases and ultimately ceases."

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1 "As a result of inflation, most of the original cost retired relates to relatively young  
2 plant which can be reused. Thus, the analysis of gross salvage provides an  
3 indication that only would be correct if such plant was capable of being reused  
4 throughout its life cycle."<sup>34</sup>

5 **Q. How did Mr. Wiedmayer adjust his net salvage analysis for reuse salvage?**

6 A. Mr. Wiedmayer estimated the age beyond which plant will not be reused,  
7 determined the percent surviving at that age and weighted the experienced gross  
8 salvage indication by 100 percent less the percent surviving, the percent retired.

9 **Q. What was the effect of this adjustment?**

10 A. The overall effect of the adjustment was to change the net salvage percent for  
11 each account adjusted from a positive figure to, in most cases, a negative figure  
12 and thus increase the depreciation rate. Mr. Wiedmayer then used judgment to  
13 assign a future net salvage percent to each of these accounts.<sup>35</sup>

14 **Q. Do you agree with this adjustment?**

15 A. I do not agree with the adjustment. To be intellectually consistent, Mr.  
16 Wiedmayer should have correspondingly lengthened the lives in these accounts.  
17 However, my disagreement is a moot point as I do not agree with Mr.  
18 Wiedmayer's net salvage analysis as a whole. As will be discussed below, Mr.  
19 Wiedmayer's approach results in a mismatch of dollars, leading to unreasonable  
20 net salvage ratios. Mr. Wiedmayer recognizes this mismatch in one area in his

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<sup>34</sup> Attachment LLR-4, page II-30.

<sup>35</sup> Attachment LLR-4, page II-32.

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1 decision to adjust his salvage analysis. Furthermore, Mr. Wiedmayer's chosen  
2 net salvage ratios do not reflect the results of his adjustment, in most cases they  
3 are far too negative.

4 **Q. His reuse adjustment aside, does Mr. Wiedmayer's net salvage approach**  
5 **result in an increase to depreciation rates?**

6 A. Yes, it does. Net salvage ratios developed in this fashion depend on the  
7 relationship of the cost of removal as a percentage of the original cost of the  
8 assets retired, as shown above. This relationship results in a negative net  
9 salvage ratio which is bundled into the depreciation rate calculation as shown in  
10 the concepts section of this testimony. Since the ratio is negative, it increases  
11 the resulting depreciation rate. This is also demonstrated in the concepts  
12 section.

13 **Q. Is this approach problematic?**

14 A. Yes. The hypothetical retirements shown above are in very old original cost  
15 dollars. This approach is problematic due to the mismatch in the value of dollars  
16 between the years the assets were installed and the years they are retired. For  
17 example, assume that the \$4,000 of assets retired in 2001 were actually placed  
18 in service in 1951 or 50 years ago. The cost of removal in 2001 dollars is  
19 \$5,000, or 125 percent, of the 1951 addition.

20 **Q. Please explain what caused the result to be negative 125 percent.**

21 A. The result is negative 125 percent because the \$5,000 cost of removal has  
22 experienced 50 years of inflation. If we assume the inflation rate has been 5

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1       percent annually, the cost of removal in 50-year old dollars is only \$436 or 11  
2       percent of the original \$4,000 installation. Mr. Wiedmayer's approach, however,  
3       shows 125 percent as a result of this mismatch. The same disparity would be  
4       true for all other years in the example. There is a fundamental mismatch  
5       between the dollars associated with the installation dates of the assets and the  
6       dates they are removed from service.

7       **Q. How would Mr. Wiedmayer use this ratio?**

8       A. Mr. Wiedmayer would use a negative 125 percent ratio in the depreciation rate  
9       calculation. As I explained in the concepts section, this approach is equivalent to  
10      capitalizing 125 percent of the existing plant in service. The example above  
11      addresses only retirements. But at the same time, as explained in the concepts  
12      section, the actual plant balance has been growing for many reasons. The  
13      hypothetical company has been making additions every year due to growth, and  
14      these additions have also experienced inflation. Assume the current total plant  
15      balance in this account is \$100,000,000. Mr. Wiedmayer would calculate  
16      depreciation rates designed to collect \$225,000,000 from ratepayers, i.e.  
17      \$125,000,000 more than the company spent on the plant, and this would be  
18      based on a \$4,000 retirement.

19      **Q. Do APS' net salvage studies suffer from this mismatch?**

20      A. Yes, APS' net salvage studies suffer from a mismatch in the value of dollars  
21      between the installation and removal dates of their retired assets. This mismatch  
22      leads, and has lead in the past, to exorbitant current charges to current

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1 ratepayers for inflated future cost of removal. If such amounts are to be  
2 recovered, only the present value should be recovered from current ratepayers  
3 as is done for AROs.

4 **Q. Is there a simple explanation for the exorbitant current charges?**

5 A. Yes, APS' future net salvage ratios are inflated, but not reduced to their net  
6 present value. They result in excessive cost of removal charges because these  
7 inflated net salvage ratios are applied to current plant balances. Thus, current  
8 ratepayers pay for inflated removal costs that are not expected to occur.

9 **Q. Is there a way to visualize this?**

10 A. Yes, consider the examples in the depreciation concepts section of this  
11 testimony. If you recall, I showed the difference in depreciation rates resulting  
12 from a negative 5 percent net salvage ratio versus a negative 50 percent net  
13 salvage ratio. It increased the resulting rate substantially. If the actual cost of  
14 removal in today's dollars is only 5 percent, then the increased depreciation rate  
15 resulting from the inclusion of future inflation results in today's ratepayers being  
16 charged for inflation that has not even occurred. The proper approach is to use  
17 the negative 5 percent present value, not the negative 50 percent inflated value,  
18 of the cost of removal.

19 **Q. How much future net salvage is incorporated in the Company's  
20 depreciation request?**

21 A. Because the amount varies with changes in plant balances, it is difficult to  
22 determine the precise amount of net salvage. I estimate however, that there is a

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1 minimum of \$31.6 million of annual **negative** net salvage charges included in  
2 APS' overall depreciation request.

3 **Q. How much actual net salvage has the Company been experiencing?**

4 A. Over the five years ending 2002 the Company has experienced \$1.1 million in  
5 **positive** net salvage on average. This is shown in the net salvage section of  
6 Exhibit\_\_\_(MJM-3).

7 **Q. What do you make of the level of cost of removal in the Company's  
8 proposal?**

9 A. The Company is proposing to collect approximately \$31.6 million annually for a  
10 cost which averages to a **positive** \$1.1 million annually. That is a substantial  
11 mismatch.

12 **Q. Are you familiar with APS' approach?**

13 A. Yes. In the past, many utilities have used this approach. Furthermore, it seems  
14 to be the recommended approach in the NARUC's 1996 Public Utilities  
15 Depreciation Practices Manual. On the other hand, the manual also states:

16 "Some commissions have abandoned the  
17 above procedure [gross salvage and cost of  
18 removal reflected in depreciation rates] and  
19 moved to current-period accounting for gross  
20 salvage and/or cost of removal. In some  
21 jurisdictions gross salvage and cost of removal  
22 are accounted for as income and expense,  
23 respectively, when they are realized. Other  
24 jurisdictions consider only gross salvage in  
25 depreciation rates, with the cost of removal  
26 being expensed in the year incurred."<sup>36</sup>  
27

---

<sup>36</sup> NARUC Manual, page 157.

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1       The NARUC depreciation manual further opines on the underlying rationale for  
2       treating removal cost as a current-period expense, instead of incorporating it in  
3       depreciation rates:

4                    "It is frequently the case that net salvage for a  
5                    class of property is negative, that is, cost of  
6                    removal exceeds gross salvage. This  
7                    circumstance has increasingly become  
8                    dominant over the past 20 to 30 years; in some  
9                    cases negative net salvage even exceeds the  
10                   original cost of plant. Today few utility plant  
11                   categories experience positive net salvage; this  
12                   means that most depreciation rates must be  
13                   designed to recover more than the original cost  
14                   of plant. The predominance of this  
15                   circumstance is another reason why some  
16                   utility commissions have switched to current-  
17                   period accounting for gross salvage and,  
18                   particularly, cost of removal."<sup>37</sup>  
19

20       Setting aside ratemaking, one of the mechanical problems with this approach is  
21       that it can result in a depreciation reserve actually exceeding the gross plant  
22       balance. That is because, as I explained in the depreciation concepts section,  
23       the depreciation rate is more than necessary to fully depreciate the plant.  
24       Therefore, at the end of its life, the accumulated depreciation account exceeds  
25       the plant account balance. This is one of the reasons I believe that APS'  
26       approach is inconsistent with fundamentals and principles of current practices  
27       regarding cost, capital recovery, and cost of removal. The accumulated  
28       depreciation and depreciation expense should be designed to recover the

---

<sup>37</sup> Id., page 158.

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1 original costs, not something more.

2 **Separation**

3 **Q. What do you recommend?**

4 A. First, since these are "non-legal" AROs, they must be accounted for as  
5 specifically identified allowances within depreciation expense and accumulated  
6 depreciation. In other words, they must be separated from other depreciation  
7 expenses.

8 **Measurement**

9 **Q. How should these allowances be calculated?**

10 A. I recommend the Pennsylvania Public Utility Commission's normalized net  
11 salvage allowance approach to determine the annual amount of the allowance.  
12 This is based on the average of the most recent 5 years worth of actual net  
13 salvage activity shown in APS' depreciation study. Net salvage is treated just  
14 as any other normalized expense, except that it is charged to accumulated  
15 depreciation. The Company is ensured full recovery of its annual costs, and  
16 ratepayers are not required to pay for estimated future inflation.

17 This approach has the added benefit that it is simple, straight-forward and  
18 easy to implement. It conforms to FERC Order No. 631 in that the net salvage  
19 allowance is a specifically identifiable amount that can be separately accounted  
20 for in depreciation expense and the accumulated depreciation account.  
21 Furthermore, it does not treat non-legal AROs as if they were legal AROs. Using  
22 the Company's data as reported in their FERC Form 1 reports, the normalized

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1 net salvage allowance amount would be positive \$1.1 million. This is because  
2 APS actually experiences positive net salvage on average.

3 **Q. How did you arrive at the positive \$1.1 million annual net salvage**  
4 **allowance?**

5 A. That is the average of the most recent 5-years worth of actual net salvage activity  
6 reported by the Company in their 1998 through 2002 FERC Form 1 reports<sup>38</sup>, as  
7 shown in the Net Salvage Section of Exhibit\_\_\_(MJM-3). The positive \$1.1  
8 million allowance is actually a normalized allowance.

9 **Q. Do you recommend reducing the Company's depreciation expense by the**  
10 **\$1.1 million net salvage allowance**

11 A. No, I do not. While the Company has been experiencing positive net salvage on  
12 average for many years, it appears that a substantial portion of the positive net  
13 salvage is actually "reuse". For this reason, I am recommending a zero ("\$0") net  
14 salvage allowance in this proceeding.

15 **Q. Please summarize your net salvage recommendations.**

16 A. First , I recommend rejecting APS' request to include \$31.6 million of cost of  
17 removal in determining the depreciation rates for its plant accounts. The  
18 Company has already collected \$346.6 million for removal costs it has not

---

<sup>38</sup> FERC Form 1 reports were used to get the most up-to-date information. Mr. Wiedmayer's net salvage data only covered up to 2001. The amounts for 1998-2001 do not match Mr. Wiedmayer's amounts exactly, but they are close.

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1 incurred.<sup>39</sup> This resulted from the inclusion of inflated future net salvage ratios in  
2 prior depreciation rates.

3 Second, APS proposes to continue to collect \$31.6 million more each year  
4 even though actual average expense is a positive \$1.1 million. Again, this  
5 mismatch is caused by APS' request for additional inflated future net salvage  
6 ratios in its new proposed depreciation rates.

7 APS' net salvage request amount is not specifically identifiable; it can only  
8 be estimated, since it is bundled into APS' proposed depreciation rates, and it will  
9 change each year as plant balances change. Considering these numbers in light  
10 of SFAS No. 143 and FERC's Order No. 631, it is impossible to even rationalize  
11 APS' \$31.6 million request.

12 As an alternative, I am recommending an unbundled specific identifiable  
13 net salvage allowance that can be included as a component of depreciation  
14 expense and recorded in accumulated depreciation. Due to the Company's  
15 collection of positive net salvage on average, this allowance should be \$0. This  
16 approach will separately identify such information to facilitate external reporting,  
17 regulatory analysis, and for rate setting purposes. My recommendation is  
18 consistent with paragraphs 36 and 38 of the FERC's Order No. 631 in its Docket  
19 No. RM02-7-000, issued April 9, 2003.

20 **Q. What significant numbers are involved in the net salvage issue?**

---

<sup>39</sup> Response to MJM 2-82.

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1 A. In my opinion there are three very significant numbers. The first is the \$354.6  
2 million APS has already charged to customers. The second is the amount of  
3 inflated estimated future cost of removal bundled in Mr. Wiedmayer's  
4 depreciation rates for all functions, i.e., including production. The third is its  
5 actual recent experience. These amounts are listed below:

**Table 7**

<u>Net Salvage Amounts</u>	<u>Annual Amount</u>
Included in Depreciation Reserve	\$ 354.6 million
Bundled in Wiedmayer Rates	\$ 31.6 million
Actual Recent Experience	- \$ 1.1 million

6  
7  
8  
9  
10  
11  
12  
13 The Commission can use these three numbers to judge the  
14 reasonableness of the specific identifiable annual allowance it grants to the  
15 Company. In my opinion, the allowance should be \$0. To grant the \$31.6 million  
16 would be tantamount to providing APS with \$31.6 million of additional before-tax  
17 return on equity each year.

18 **Q. Does the 5-year average allowance approach you are recommending result**  
19 **in the abandonment of accrual accounting?**

20 A. No. Accrual accounting is the recognition of revenue when earned and expenses  
21 when incurred. SFAS No. 143 and Order No. 631 preclude recording AROs for  
22 non-legal retirements because there is no legal obligation to incur such costs.  
23 Mr. Wiedmayer is attempting to accrue an expense for which APS has no liability.  
24 Consider that GAAP is founded upon accrual accounting, and SFAS No. 143 is  
25 GAAP.

26 **Q. Have you made any similar recommendations in other proceedings?**

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1 A. Yes, in two recent cases the New Jersey Board of Public Utilities actually  
2 endorsed my testimony regarding SFAS No. 143. For example, in a recent case  
3 involving Rockland Electric Company the Administrative Law Judge accepted my  
4 position:

5 RECO calculates its test year depreciation  
6 expense to be \$5.194 million. RECO ib 128.  
7 RECO 30, Page 28-29. RECO 11A, Exhibit P-  
8 2, Page-11. The Ratepayer Advocate disputes  
9 the Company's figure and proposes a  
10 depreciation expense level of \$3,864,000. Rib-  
11 74. Ratepayer Advocate witness Majoros also  
12 recommended that the amortization of the  
13 Theoretical Reserve Difference should be  
14 \$1.103 million rather than the company's  
15 proposed amortization amount of \$588,000.  
16 Ratepayer Advocate would exclude  
17 depreciation of the enhanced service reliability  
18 program and depreciation of post-test year  
19 plant. R-51. RJH-17.

20  
21 Staff determined the depreciation  
22 expense to be \$3,971,000. Sib Exhibit P-2,  
23 Schedule 13-14. Staff added a 10-year  
24 average net salvage of \$150,000 to the total of  
25 \$3,821,100. Sib 74.

26  
27 The main controversy in the depreciation  
28 issue concerns net salvage and cost of removal  
29 and the interpretation of Statement of Financial  
30 Accounting Standards No. [143]. SFAS 143,  
31 paragraph B73. RECO rb Appendix 15.

32  
33 Ratepayer Advocate witness Michael J.  
34 Majoros expressed his opinion that the  
35 company's depreciation proposal was  
36 unreasonable. In his pre-filed testimony  
37 Witness Majoros claims the Company's  
38 proposal will produce excessive depreciation  
39 and increase the revenue requirement. He  
40 also states the company's proposal is

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1 inconsistent with current thinking regarding  
2 cost, capital recovery and net salvage,  
3 particularly the cost of removal component of  
4 net salvage. R-36, Page 3. He traces the  
5 alleged excessive depreciation to a request for  
6 negative net salvage, which he claims, is  
7 unreasonable. R36-4. This results in an  
8 excessive revenue requirement. R-36-4.  
9 Witness Majoros recommends a depreciation  
10 expense of \$3,863,900. R-36-20.  
11

12 RECO witness Hutcheson disagrees  
13 with Mr. Majoros proposal and alleges that  
14 Majoros approach is a results driven exercise  
15 designed to under state depreciation rates, that  
16 he has pushed the recovery of net salvage far  
17 out into the future thereby relieving rate payers  
18 who benefit from the plant serving them today  
19 from any cost responsibility for retirement and  
20 removal of such plant. It imposes a cost on  
21 customers who never benefited from the plant  
22 to pay for its removal.  
23

24 Staff concurs in part with the Ratepayer  
25 Advocate, supporting the intellectual  
26 foundation of FAS143, which supports  
27 "unbundled" depreciation rates, rates that  
28 exclude embedded cost of removal provisions.  
29 Staff would favor a cost of removal expense  
30 based upon a 10-year window of actual  
31 experience rather than the 5-year average  
32 used by the Ratepayer Advocate. Sib-74.  
33 Staff supports a \$150,000 annual negative net  
34 salvage provision. Staff recommends a test  
35 year depreciation expense of \$3,971,000.  
36

37 I **FIND** that the Staff's test-year depreciation  
38 expense of \$3,971,000 to be reasonable.<sup>40</sup>  
39

---

<sup>40</sup> I/M/O Rockland Electric Company, OAL Docket Nos. PUC 07892-02 and PUC 09366-02, BPU Docket Nos. ER02080614 and ER02100724, (Initial Decision, June 10, 2003), p. 47-49.

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1           The Board of Public Utilities further endorsed the position, modifying only the  
2           amortization period for the reserve excess:

3  
4                       Based on our review of the extensive  
5           record in this consolidated proceeding, the  
6           Board has determined that the Initial Decision,  
7           subject to certain modifications, which will be  
8           set forth herein, represents an appropriate  
9           resolution of this proceeding. Accordingly,  
10          except as specifically noted below, and as will  
11          be further explained in a detailed Final  
12          Decision and Order which shall be issued, the  
13          Board HEREBY ADOPTS and incorporates by  
14          reference as if completely set forth herein, as a  
15          fair resolution of the issues in this consolidated  
16          proceeding, the Initial Decision.<sup>41</sup>

17  
18                      All the parties in the base rate case  
19          agree that there is a significant excess  
20          depreciation reserve. The Company proposed  
21          a 20-year amortization of its calculated reserve  
22          excess of \$11.8 million. The RPA claimed the  
23          proper reserve excess was \$22.1 million,  
24          based upon the Company's asset lives, but  
25          excluding the Company's future net salvage  
26          assumptions from the depreciation rates. The  
27          RPA accepted the Company's proposal of a  
28          20-year amortization. Both Staff and the ALJ  
29          adopted the RPA's recommendation. The  
30          Board HEREBY MODIFIES the Initial Decision  
31          so that the RPA's recommended level of  
32          excess reserve is amortized back to ratepayers  
33          over 10 years. The Board finds this to be an  
34          appropriate action in order to offset the  
35          increase associated with the deferred balances  
36          that were incurred over the 4-year transition  
37          period, as well as the increase in BGS charges  
38          for current service.<sup>42</sup>

---

<sup>41</sup> I/M/O Rockland Electric Company, BPU Docket Nos. ER02080614 and ER02100724, Summary Order, July 31, 2003, p. 2.

<sup>42</sup> Id., page 3, item 3.

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1  
2 In a separate proceeding involving Jersey Central Power & Light Company, the  
3 Board agreed with my position:

4 Depreciation Expense. The Company is  
5 requesting a net depreciation expense  
6 annualization adjustment of \$1,515,000 and  
7 total annualized depreciation expenses of  
8 \$114,547,000. The Company maintains that it  
9 is complying with the terms of a June 27, 1996  
10 stipulation ("Final Stipulation") approved by the  
11 Board, by updating the book depreciation rate  
12 computations annually for plant additions,  
13 retirement, transfers and adjustments and  
14 keeping the negative net salvage rate  
15 percentages and depreciation service lives  
16 consistent with the separate Stipulation of  
17 Settlement of Depreciation Rates, also dated  
18 June 27, 1996, which was also approved by  
19 the Board as part of the Final Stipulation.  
20 *I/M/O the Petitions of Jersey Central Power &*  
21 *Light Company for Approval of an Increase in*  
22 *its Levelized Energy Adjustment Charge,*  
23 *Demand Side Factor, Implementation of a*  
24 *Remediation Adjustment Clause (RAC) Other*  
25 *Tariff Changes, Recovery of Crown/Vista and*  
26 *Freehold Buyout Costs, Changes in*  
27 *Depreciation Rates, Settlement of Phase 1 of*  
28 *the Board's Generic Proceeding on the*  
29 *Recovery of NUG Capacity Payments, Docket*  
30 *Nos. ER95120633, ER95120634,*  
31 *EM95110532, EX93060255 and EO95030398,*  
32 *(March 24, 1997). The Board HEREBY*  
33 *FINDS, consistent with the recommendations*  
34 *of the RPA and Staff, that the Company's*  
35 *inclusion of net negative salvage value in*  
36 *depreciation rates is inappropriate and instead,*  
37 *HEREBY ADOPTS utilization of a net salvage*  
38 *allowance of \$4.8 million which is the cost of*  
39 *removal reflected in the Company's test-year*  
40 *budget for transmission, distribution and*  
41 *general plant. Accordingly, the Board*  
42 *HEREBY ADOPTS a deprecation expense*

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1                                   in the amount of \$77,146,000.<sup>43</sup>  
2

3 **Q. Have any other states adopted a 5-year net salvage allowance approach?**

4 A. Yes. As I stated earlier the 5-year rolling net salvage allowance approach is used  
5 by the Pennsylvania Public Utility Commission.<sup>44</sup> This procedure was also  
6 recently adopted by the Missouri PSC in at least two cases in that state<sup>45</sup>, and on  
7 a trial basis by the Kentucky PSC in two recent cases.<sup>46</sup> The net salvage  
8 allowance approach ensures that the Company recovers the net present value of  
9 its actual cost, but eliminates the inclusion of future inflation in depreciation rates.

10 **Q. Does this conclude your discussion of net salvage?**

11 A. Yes, I will now discuss life studies.

12 **Life Study Methods**

13 **Q. Please describe life analysis and life estimation.**

14 A. Life analysis is the process of estimating how long plant has lived in the past.  
15 Life estimation is the process of estimating how long the existing plant will live in  
16 the future. Mr. Wiedmayer used two basic methods: the life span method and  
17 the retirement-rate actuarial method. The life span method was used for the  
18 Production Plant functions and the retirement-rate method was used for the

---

<sup>43</sup> I/M/O Jersey Central Power & Light Company, BPU Docket Nos. ER0208056, ER0208057, EO02070417 and ER02030173, Summary Order, August 1, 2003, p. 6.

<sup>44</sup> See Penn Sheraton et. al. v. Pennsylvania Public Utility Commission, 198 Pa. Super. 618, 184 A. 2d. 234 (1962).

<sup>45</sup> I/M/O Laclede Gas Company's Tariff to Revise Natural Gas Rate Schedules, Case No. GR-99-315, Second Report and Order, Issued June 28, 2001; I/M/O Empire District Electric Company's Tariff Sheets etc., Case No ER-2001-299, Report and Order, Issued September 20, 2001.

<sup>46</sup> I/M/O The Application of Jackson Energy Cooperative for an Adjustment of Rates, Case No. 2000-373, Order Issued May 21, 2001; and I/M/O Adjustment of Rates of Fleming-Mason Cooperative, Case No. 2001-00244, Order Issued August 7, 2002.

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1           Transmission, Distribution and General functions.

2   **Q.    What is the life span method?**

3   **A.**    The life span method is based on the premise that all plant within a property  
4           group will retire concurrently a specific number of years after the initial  
5           placement. There may be interim additions and retirements; however, all plant is  
6           assumed to be subject to a "final retirement."

7                   Chapter X of the NARUC Manual addresses the life span method. It  
8           stresses that the final retirement date is the most important factor in the  
9           determination of a depreciation rate using the life span method.<sup>47</sup> The NARUC  
10          Manual requires consideration of several factors, including economic studies,  
11          retirement plans, forecasts, technological obsolescence, adequacy of capacity  
12          and competitive pressure in order to develop an informed estimate of the final  
13          retirement date.<sup>48</sup> The NARUC Manual elaborates on the need for the  
14          consideration of these factors as follows:

**Economic Studies and Retirement Plans**

15                   Retirement plans for utility properties are  
16                   supported by various kinds of studies, including  
17                   economic analyses. It is critical that this vital  
18                   information be considered; otherwise the [life  
19                   span] study is analogous to a building which is  
20                   structurally well built from the ground up but  
21                   lacking a sound and proper foundation.  
22                   Retirement decisions should be based on sound  
23                   engineering and economic principles and  
24                   practices so that management may be confident  
25  
26  
27

---

<sup>47</sup> NARUC Manual, p. 146.

<sup>48</sup> Id.

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1                   that the planned retirement of existing plant and  
2                   approval of new investment are the most  
3                   economical actions.<sup>49</sup>  
4

5           The relevance of this quotation will become evident in my discussion of the  
6           Company's steam production plant depreciation rates.

7   **Q.    What is the retirement rate method?**

8    A.    The retirement rate method is an actuarial technique used to study plant lives,  
9           much like the actuarial techniques used in the insurance industry to study human  
10           lives. It requires a record of the dates of placement (birth) and retirement (death)  
11           for each asset unit studied. It is the most sophisticated and reliable of the  
12           statistical life analysis methods in that it relies on the most refined level of data.  
13           Aged retirements and exposures data from a company's records are used to  
14           construct observed life tables ("OLT"). These are then smoothed and extended  
15           by fitting, using least-squares analysis, to a family of 31 predefined survivor  
16           curves ("Iowa Curves") using varying life assumptions. The process continues  
17           until a best fit life is found for each curve. Numerous interactive calculations are  
18           required for a retirement rate analysis.

19   **Production Plant Life Span Depreciation Rate Calculations**  
20

21   **Q.    How did Mr. Wiedmayer calculate production plant depreciation rates?**

22    A.    Mr. Wiedmayer used the life span method.

23   **Q.    Please explain the life span method.**

---

<sup>49</sup> Id. (Emphasis added).

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1 A. The life span method is actually a procedure to calculate an average service life  
2 and average remaining life for a property group. It is based on the assumption  
3 that a property group is comprised of a small number of large units subject to  
4 concurrent terminal (final) retirement. The period between the original installation  
5 and the terminal retirement date is the life span. The period between the study  
6 date and the terminal retirement date is the remaining life span. The life span  
7 method also recognizes "interim" additions and retirements prior to the terminal  
8 date. Importantly, however, interim additions are not considered in the  
9 depreciation base or depreciation rate until they occur.<sup>50</sup> The life span method  
10 has obvious intuitive appeal. The method also has limitations and strenuous  
11 rules for its application.

12 **Q. Do you agree with the Company's use of the life span method?**

13 A. Not necessarily. However, I am not opposing the use of it in this proceeding.

14 **Q. What terminal retirement years is the Company proposing for its  
15 production plant investment?**

16 A. The Company's proposed terminal retirement years are shown on Statement E of  
17 Exhibit\_\_\_(MJM-3), which is my depreciation study.

18 **Q. Are these terminal retirement years important?**

19 A. Yes. The terminal (final) retirement year is the most important factor in the  
20 determination of a depreciation rate using the life span method.

---

<sup>50</sup> Id., p. 142.

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1 **Q. Do you disagree with the terminal retirement years that Mr. Wiedmayer is**  
2 **proposing?**

3 A. No. I have accepted Mr. Wiedmayer's terminal retirement years based on my  
4 own independent analysis. I am including this detailed discussion so that the  
5 Commission can understand my reasoning for accepting APS' proposal.

6 **Q. What is the viewpoint of NARUC on the subject of terminal retirement**  
7 **years?**

8 A. In August 1996, NARUC issued an updated version of its Public Utility  
9 Depreciation Practices Manual ("NARUC Depreciation Practices Manual").  
10 Chapter X of the manual addresses the life span method. It stresses that the  
11 final retirement date is the most important factor in the determination of  
12 depreciation rate using the life span method. The NARUC Depreciation  
13 Practices Manual requires consideration of several factors, including: economic  
14 studies, retirement plans, forecasts, technological obsolescence, adequacy of  
15 capacity and competitive pressures, in order to develop an informed estimate of  
16 the final retirement date.<sup>51</sup> The NARUC Depreciation Practices Manual  
17 elaborates on the need for the consideration of these factors as follows:

**Selecting Retirement Dates**

18 As indicated in the above discussion, the final retirement date is  
19 the most important factor in the determination of a depreciation  
20 rate for life span properties. Therefore, an informed estimate of  
21 the final retirement date is essential to ensure adequate  
22 recognition of depreciation over the life of the property. Several  
23 factors are considered in selecting retirement dates, e.g.  
24

---

<sup>51</sup> NARUC Depreciation Practices Manual, page 146.

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1 economic studies, retirement plans, forecasts, technological  
2 obsolescence, adequacy of capacity and competitive pressure.<sup>52</sup>  
3  
4

5 **Q. What life spans is Mr. Wiedmayer proposing for his depreciation study?**

6 A. The Terminal Retirement Years table in Exhibit\_\_\_(MJM-3) also shows Mr.  
7 Wiedmayer's proposed life spans and remaining life spans. Mr. Wiedmayer  
8 proposed life spans range from 51 to 62 years for Steam Production units, 40  
9 years for Nuclear Production units, 88 to 95 years for Hydraulic Production units  
10 and 45 to 55 for Other Production units. On average Mr. Wiedmayer proposes  
11 56.5 years for the Steam Production plant.

12 **Q. Does the Company have any of the studies, plans, or forecasts specified in**  
13 **the NARUC depreciation practices manual to support any of its terminal**  
14 **retirement year and life span estimates?**

15 A. Data request MJM 1-11, attached as Exhibit\_\_\_(MJM-5) addressed this issue.  
16 According to the Company, "APS does not maintain the information requested in  
17 the question in the form outlined in NARUC Public Utility Depreciation  
18 Practices."<sup>53</sup> The response goes on to note that the lives for Four Corners 1-3  
19 and Navajo were tied to the underlying lease terms. The lives for Four Corners  
20 4-5 were tied to the ARO probability for retirement of these units. Other steam  
21 production lives were extended based on engineers' estimates, or remained the  
22 same as the currently approved life. The life of the nuclear plant reflects the

---

<sup>52</sup> Id.

<sup>53</sup> Response to MJM 1-11.

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1 license period and the lives of the hydraulic plants reflect the scheduled  
2 decommissioning date of 2004.

3 **Q. Did you independently test the reasonableness of the Company's life**  
4 **spans?**

5 A. Yes. I relied on a National Study of U.S. Steam Generating Unit Lives – 50 MW  
6 and Greater ("National Study") conducted by my firm. This study, included as  
7 Exhibit\_\_\_(MJM-1) uses analytical techniques generally accepted in the utility  
8 industry and a database maintained by the U.S. Department of Energy.<sup>54</sup> The  
9 study concludes that U.S. Steam Generating Units 50 MW or greater are  
10 experiencing average life spans of approximately 60 years and that these spans  
11 are lengthening almost on a year-to-year basis.

12 **Q. Has your firm also conducted National Studies of other production unit**  
13 **retirements?**

14 A. Yes. We have also studied national retirements of Other Production units. We  
15 employed Energy Information Administration Form 860 for all units designated as  
16 Jet Engine (JE), Combustion Turbine (CT), Gas Turbine (GT) and Internal  
17 Combustion (IC). The following table shows the composition of the database.

---

<sup>54</sup>The study is an actuarial retirement rate analysis, using the Energy Information Agency's Form 860 data base of aged generating unit retirements and exposures. A full band (1900-2000) and both rolling band and shrinking band analyses were conducted.

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**Table 8**

	<b><u>Type of Peaking Unit</u></b>				
	<u>JE</u>	<u>GT</u>	<u>IC</u>	<u>CT</u>	<u>TOTAL</u>
Operable	129	1,354	2,814	107	4,407
Retired	<u>1</u>	<u>,116</u>	<u>1,443</u>	<u>0</u>	<u>1,559</u>
TOTAL	130	1,470	4,257	107	5,963

These technologies are in various stages of introduction as evidenced by the virtual lack of unit retirements in the JE and CT classifications. What they have in common, however, is the way that they are used. All are used primarily to meet short-term peaks in demand. Our study is included as Exhibit\_\_\_(MJM-2). It indicates lives of approximately 46 years at a minimum which have lengthened in recent years to as long as 56 years.

**Q. What are your conclusions based on your National Life Studies?**

A. I conclude that Mr. Wiedmayer's proposed life spans for the Steam and Other Production functions are reasonable. This, combined with the Company's response to MJM 1-11 leads me to accept them, even though Mr. Wiedmayer states, "the estimated retirement dates should not be interpreted as commitments to retire these plants on these dates, but rather, as reasonable estimates subject to modification in the future as circumstances dictate."<sup>55</sup> Otherwise I would have recommended that the life span method not be used for APS. Had I done so, the resulting depreciation rates would have been substantially lower since there would not have been an assumed finite retirement date for each unit.

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<sup>55</sup> Attachment LLR-4, page II-29.

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1 **Q. Have you addressed APS' nuclear depreciation rates?**

2 A. No. Only to the extent of interim net salvage.

3 **Transmission, Distribution and General Functions**

4 **Q. How did Mr. Wiedmayer determine his estimated service lives for these**  
5 **functions?**

6 A. Typically, service life estimates start with actuarial or semi-actuarial studies of  
7 historical plant information. These studies provide a statistical expression of the  
8 average service lives and retirement patterns (dispersion) that have actually  
9 been experienced in the past.

10 Mr. Wiedmayer used the actuarial retirement rate approach to study plant  
11 history. This approach related aged retirement data to the amount of plant  
12 exposed to retirement during historical age intervals to calculate "retirement  
13 ratios." These retirement ratios are then used in a chain calculation to calculate  
14 an "observed life table" ("OLT"). The OLT is a series of percents surviving, by  
15 age, reflecting the actual [retirement] experience recorded in a band of mortality  
16 data.<sup>56</sup> The OLT can be smoothed and extended to zero using mathematical  
17 extrapolation or by fitting to a preexisting standardized survival pattern. Mr.  
18 Wiedmayer used lowa curves, each with varying life assumptions to compare or  
19 fit to the OLT.

20 **Q. What is an lowa curve?**

21 A. An lowa curve is a surrogate or standardized OLT based on a specific pattern of

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1 retirements around an average service life. The Iowa curves were devised over  
2 60 years ago at what is now Iowa State University. They provide a set of  
3 standard patterns of retirement dispersion. Retirement dispersion merely  
4 recognizes that accounts are comprised of individual assets or units having  
5 different lives. Retirement dispersion is the scattering of retirements by age for  
6 the individual assets around the average service life for the entire group assets.  
7 If one thinks in terms of a "bell shaped" curve, dispersion represents the  
8 scattering of events around the average.

9 There are left-skewed, symmetrical and right-skewed curves known,  
10 respectively, as the "L curves," "S curves" and "R curves."<sup>57</sup> A number identifies  
11 the range of dispersion. A low number represents a wide pattern and high  
12 number a narrow pattern. The combination of one letter and one number defines  
13 a dispersion pattern. The combination of an average service life with an Iowa  
14 curve provides a survivor curve depicting how a group of assets will survive, or  
15 conversely be retired, over the average service life.

16 **Q. Can you provide an example of an Iowa curve?**

17 **A.** Yes. The following table contains a 5 S0 and 10 S0 life and curve. I have  
18 included two combinations to demonstrate that these curves can be calculated  
19 with various alternative life assumptions. The percent surviving represents the

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<sup>56</sup> National Association of Regulatory Utility Commissioners, Public Utility Depreciation Practices, August 1996 ("NARUC Manual"), p. 322.

<sup>57</sup> There is also a set of Origin Modal ("O") curves which are essentially negative exponential curves.

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1 amount surviving at each age interval shown in the first column. Notice that the 5  
2 S0 life and curve sums to the 5 year average service life which would be used in  
3 the depreciation calculations and the 10 S0 life and curve sums to a 10 year  
4 average service life.

**Table 9**

<b><u>Survivor Curves</u></b>		
<b><u>Age</u></b>	<b>5 S0</b>	<b>10 S0</b>
	<b><u>Percent</u></b>	<b><u>Percent</u></b>
	<b><u>Surviving</u></b>	<b><u>Surviving</u></b>
0.5	0.99	1.00
1.5	0.92	0.98
2.5	0.83	0.94
3.5	0.70	0.90
4.5	0.57	0.85
5.5	0.43	0.80
6.5	0.30	0.74
7.5	0.17	0.67
8.5	0.08	0.60
9.5	0.01	0.53
10.5		0.47
11.5		0.40
12.5		0.33
13.5		0.26
14.5		0.20
15.5		0.15
16.5		0.10
17.5		0.06
18.5		0.02
19.5		<u>0.00</u>
<b>Total</b>	<b>5.00</b>	<b>10.00</b>

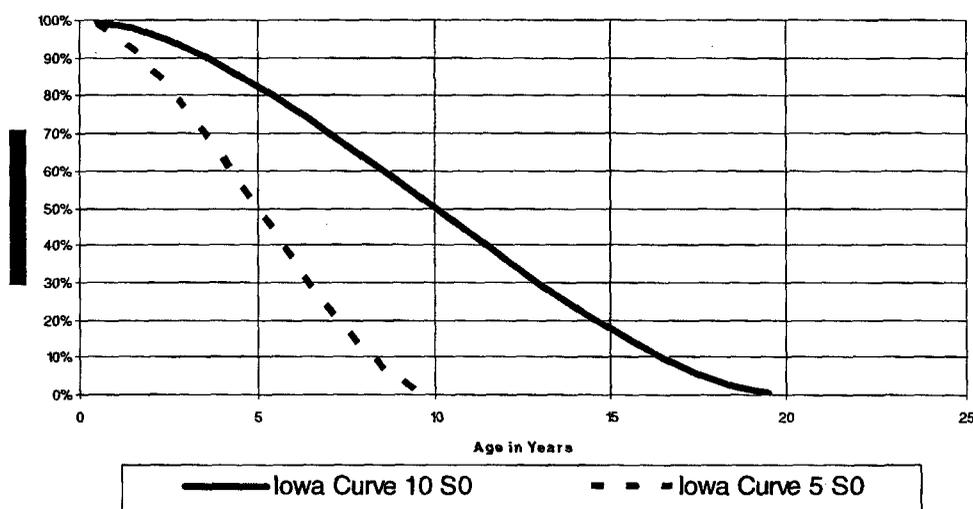
6  
7 **Q. Why do you call tables of numbers, such as the ones above, curves?**

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1 A. Because when they are plotted on charts with the x-axis representing "age" and  
2 the y-axis representing "percent surviving" they appear as curves as shown  
3 below:

4 Table 10

**Example of Same Curve With Different Lives**



5  
6  
7 **Q. Can you provide an example of how Mr. Wiedmayer used the actuarial**  
8 **retirement rate approach?**

9 A. I will use account 355 – Poles and Fixtures, Wood as an example to explain Mr.  
10 Wiedmayer's approach and also to explain why I disagree with Mr. Wiedmayer's  
11 approach.

12 **Q. What band of retirement experience did Mr. Wiedmayer use to analyze this**  
13 **account?**

14 A. Mr. Wiedmayer used the 1973-2001 experience band to analyze the account. Mr.  
15 Wiedmayer's resulting OLT is attached as Exhibit\_\_\_(MJM-6). This was

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1           obtained from Mr. Wiedmayer's study.

2   **Q.   Is there anything that the reader should make note of regarding this OLT?**

3   A.   Yes, note that on page 2 of Exhibit\_\_\_\_(MJM-6), the OLT in the far right column  
4       goes to eight (8) percent surviving at the 78.5 age interval. The significance of  
5       this fact will become apparent later in my testimony.

6   **Q.   Please explain how to interpret Mr. Wiedmayer's chart**

7   A.   The series of "Xs" represents the OLT, and the smooth curve represents Mr.  
8       Wiedmayer's 48 R1.5 life and curve recommendation for this account.

9   **Q.   How did Mr. Wiedmayer arrive at his 48 R1.5 recommendation?**

10  A.   Mr. Wiedmayer states that for this account "The survivor curve estimate is based  
11       on the statistical indication for the period 1973 through 2001. The Iowa 48 R1.5  
12       is an excellent fit of the significant portion of the original survivor curve."<sup>58</sup>

13  **Q.   How did Mr. Wiedmayer select a 48 R1.5 life and curve?**

14  A.   Mr. Wiedmayer selected a 48 R1.5 life and curve by fitting various Iowa curves to  
15       the OLT. Then he selected a 48 R1.5 and plotted it on the graph.

16  **Q.   How did Mr. Wiedmayer fit Iowa curves to the OLTs?**

17  A.   "The original survivor curves [OLTs] shown in the Depreciation Study and  
18       Addendum are fit to the Iowa curves visually using a proprietary screen matching  
19       program."<sup>59</sup> In other words, Mr. Wiedmayer used an "eyeball" approach.

20  **Q.   Was Mr. Wiedmayer able to determine the statistical "best fit" to the OLTs  
21       using the visual approach?**

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<sup>58</sup> Attachment LLR-4, page II-25.

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1 A. No.

2 **Q. Is Mr. Wiedmayer's software capable of providing a statistical best fit?**

3 A. Yes. "Gannett Fleming's software does produce statistical best fit lowa curves  
4 for each plant account,"<sup>60</sup> however, Mr. Wiedmayer apparently did not refer to or  
5 rely upon this feature of his in-house software.

6 **Q. Were you able to determine a best fit?**

7 A. Yes. My software statistically fits lowa curves to OLTs using least squared  
8 differences as the fit criteria. This is a fairly standard approach.

9 **Q. Is Mr. Wiedmayer's 48 R1.5 recommendation the best fit to the OLT he  
10 shows on his chart?**

11 A. No. The statistical best fit to the OLT shown on Mr. Wiedmayer's chart is a 70 L0  
12 life and curve.

13 **Q. How did Mr. Wiedmayer make such an error?**

14 A. This error resulted from Mr. Wiedmayer's use of the visual method.

15 **Q. What is your opinion of Mr. Wiedmayer's presentation from an analytical  
16 standpoint?**

17 A. Mr. Wiedmayer's partial presentation is misleading from an analytical standpoint,  
18 particularly if a visual fitting approach is used. It is appropriate to see all of the  
19 data, before making any decisions concerning visual fits.

20 **Q. How much of the complete OLT did Mr. Wiedmayer exclude from his chart?**

21 A. Exhibit \_\_\_(MJM-8) demonstrates the portion of the OLT from account 355 that

---

<sup>59</sup> Response to MJM 1-18 (emphasis added).

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1 Mr. Wiedmayer excluded.

2 **Q. If Mr. Wiedmayer had not excluded a portion of the OLT for account 355**  
3 **and also had obtained the best fit to all of the data, what would be the**  
4 **result?**

5 A. The result is a 46 R2 life and curve, which is actually shorter than Mr.  
6 Wiedmayer's recommendation.

7 **Q. Did Mr. Wiedmayer exclude substantial portions of the OLTs for other**  
8 **accounts?**

9 A. Yes, Mr. Wiedmayer excluded substantial portions of the OLTs for several other  
10 accounts; for example, accounts 353, 362, 367, 371 and 397. Many of these are  
11 significant accounts in terms of dollars.

12 **Q. What would have been the result if Mr. Wiedmayer had obtained a best fit to**  
13 **the complete OLTs for these accounts?**

14 In general, the best fits to the complete OLTs for these accounts yield longer, not  
15 shorter, lives.

16 **Q. Is that why you believe that Mr. Wiedmayer's approach is misleading?**

17 A. Yes, in general Mr. Wiedmayer's approach excluded portions of the OLT which, if  
18 not excluded, would have resulted in longer life indications.

19 **Alternative Recommendations**

20 **Q. Mr. Majoros, based on your identification of this problem in Mr.**  
21 **Wiedmayer's study, have you determined an alternative set of service lives**

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<sup>60</sup> Response to MJM 2-71.

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1           **and lowa curve recommendations?**

2    A.    Yes, I have.

3    **Q.    Did you conduct any independent analyses?**

4    A.    Yes. I conducted independent retirement rate analyses as described above. I  
5        used industry life data to set the upper and lower fitting parameters in my  
6        analyses. In other words, I obtained industry statistics to determine the shortest  
7        and longest life reported by the industry for each account. I set the parameters in  
8        my software to determine the best life fit for each lowa curve within those upper  
9        and lower life boundaries. Therefore, even if the data would support a much  
10       longer life, the curve fitting process ends at the upper limit of the industry range.

11   **Q.    Is the industry data included in your study?**

12   A.    Yes, the industry data is included in the study, but the individual company names  
13        are not shown because the study, which is prepared by the Edison Electric  
14        Institute, is labeled as confidential.

15   **Q.    Did you consider any other information?**

16   A.    Yes. I propounded, and APS responded to, several data requests designed to  
17        learn more about the Company's life extension programs and other plans. These  
18        data requests were MJM 1-4, 1-5, 1-6, 1-7, 1-11, 1-12, 1-39, 1-40, 1-57, 1-58, 2-  
19        68, 2-69, and 2-76.

20   **Q.    How did you arrive at your alternative recommendations?**

21   A.    First, I grouped the accounts and subaccounts into the same study groups  
22        identified by Mr. Wiedmayer. The groups are:

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**Wiedmayer Study Groups**

- 1
- 2           1. Mass accounts for which statistical analysis was primary basis for  
3           estimates.<sup>61</sup>  
4
- 5           2. Life Span Accounts.<sup>62</sup>  
6
- 7           3. Amortization accounts.<sup>63</sup>  
8
- 9           4. Mass accounts based on judgments incorporating the nature of the  
10          plant and equipment, reviews of historical retirement data and general  
11          knowledge of service lives for similar equipment in other electric  
12          companies.<sup>64</sup>  
13

14 **Q. What was your next step?**

15 A. Based on my acceptance of the Company's life spans, I eliminated the Life Span  
16 Account group from my study.

17 **Q. Would you please list, by group, the remaining accounts you are  
18 addressing?**

19 A. Yes, I will summarize and discuss each group individually. The first group is  
20 mass accounts for which statistical analysis was the primary basis for  
21 estimates.<sup>65</sup> This group contains the following accounts:  
22

---

<sup>61</sup> Attachment LLR-4, page II-24.

<sup>62</sup> Id., page II-25.

<sup>63</sup> Id., page II-29.

<sup>64</sup> Id.

<sup>65</sup> Id., page II-24.

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**Mass Accounts for Which Statistical Analysis  
Was the Primary Basis for Mr. Wiedmayer's Estimates**

Transmission Plant

353 – Station Equipment

355 – Poles and Fixtures – Wood

Distribution Plant

362 – Station Equipment

364 – Poles, Towers and Fixtures – Wood

365 – Overhead Conductors and Devices

366 – Underground Conduit

367 – Underground Conductors and Devices

368 – Line Transformers

370 – Meters

371 – Installations on Customers Premises

373 – Street Lighting and Signal Systems

General Plant

390 – Structures and Improvements

397 – Communication Equipment

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22
- 23 **Q. Do you have any general comments regarding these accounts?**
- 24 A. Yes. In most cases, Mr. Wiedmayer excluded a substantial portion of the OLT
- 25 for the accounts on his charts, and also, in most cases his recommended life and
- 26 curve is inaccurate as result of his visual method.
- 27 **Q. Did you conduct actuarial retirement rate studies for these accounts?**
- 28 A. Yes, I did. These studies and the related charts are included in Exhibit\_\_\_\_(MJM-
- 29 3) which contains all of my actuarial analyses in chronological order by account
- 30 number.
- 31 **Q. Have you compared your results to Mr. Wiedmayer's proposals?**
- 32 A. Yes. They are compared on Statement B of Exhibit\_\_\_\_(MJM-3).
- 33 **Q. What do you recommend?**

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1 A. I recommend the statistical best fit results based on full OLT data. These are the  
2 accounts that Mr. Wiedmayer designated as being most appropriate for statistical  
3 analysis, thus, I recommend the statistical best fit. Please refer to the individual  
4 account discussions in Exhibit\_\_\_\_(MJM-3) for a more detailed description of my  
5 disagreements with Mr. Wiedmayer.

6 **Q. What is the next group that you studied?**

7 A. The next group consists of the accounts for which Mr. Wiedmayer exercised  
8 judgment. They are:

**Mass Accounts for Which Mr. Wiedmayer  
Considered Statistical Analysis to be Inconclusive**

Transmission Plant

- 352 - Structures and Improvements
- 352.5 - Structures and Improvements - SCE 500 KV Line
- 353.5 - Station Equipment - SCE 500 KV Line
- 354 - Towers and Fixtures
- 354.5 - Towers and Fixtures - SCE 500 KV Line
- 355.1 - Poles and Fixtures - Steel
- 355.5 - Poles and Fixtures - SCE 500 KV Line
- 356 - Overhead Conductors and Devices
- 356.5 - Overhead Conductors and Devices - SCE 500 KV Line
- 357 - Underground Conduit
- 358 - Underground Conductors and Devices

Distribution Plant

- 361 - Structures and Improvements
- 364.1 - Poles and Fixtures - Steel
- 369 - Services
- 370.1 - Electronic Meters

25  
26  
27  
28  
29  
30  
31  
32 **Q. Did you review Mr. Wiedmayer's actuarial retirement rate studies for this**  
33 **group of accounts?**

34 A. Yes.

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1 **Q. What did you find?**

2 A. Again, Mr. Wiedmayer excluded substantial portions of the OLT for several  
3 accounts.

4 **Q. Did you conduct actuarial retirement rate studies based on the full OLT  
5 data?**

6 A. Yes, I did.

7 **Q. What were your results?**

8 A. Exhibit\_\_\_\_(MJM-3) also shows the results of my actuarial analyses for these  
9 accounts.

10 **Q. Do you also recommend that the best fit result be adopted for all of these  
11 accounts?**

12 A. No. In fact, I accepted all of Mr. Wiedmayer's proposals for these accounts  
13 except for electronic meters. Mr. Wiedmayer proposed to reduce the life from 26  
14 to 12 with no support for that account. I recommend retention of the existing 26  
15 years.

16 **Q. Does this conclude your discussion of your survivor curve  
17 recommendations?**

18 A. Yes.

19 **Q. What is the overall result?**

20 A. I calculated remaining lives using my recommended survivor curves. These  
21 calculations were made using the same procedures as Mr. Wiedmayer and are  
22 included in Exhibit\_\_\_\_(MJM-3).

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1 **Depreciation Rate Calculations**

2 **Q. Does APS maintain its book depreciation reserve by plant account?**

3 A. No.<sup>66</sup>

4 **Q. How did Mr. Wiedmayer calculate his estimated reserve for each plant  
5 account for purposes of calculating his proposed depreciation rate?**

6 A. I am not sure how Mr. Wiedmayer estimated the reserve for each plant account.  
7 In Data Requests MJM 1-2 and MJM 3-85 I requested an electronic version of all  
8 of Mr. Wiedmayer's tabulations, with all formulae intact. While I was provided  
9 with an electronic version of Mr. Wiedmayer's rate calculations, the actual  
10 amounts are shown as hard coded amounts. Hence, I do not know how Mr.  
11 Wiedmayer estimated his reserve amounts.

12 **Q. Have you reallocated the reserve amounts between plant accounts?**

13 A. Yes. I allocated the reserves by function to plant accounts based on theoretical  
14 reserves developed using my recommended parameters. These amounts were  
15 then used to calculate my recommended remaining life depreciation rates.

16 **Q. Have you calculated recommended depreciation rates for APS?**

17 A. Yes. My depreciation rate calculations are shown on Statement A of  
18 Exhibit\_\_\_(MJM-3).

19 **PWEC Depreciation Rates**

20 **Q. Have you reviewed the Company's requested depreciation rates for the  
21 Pinnacle West assets?**

---

<sup>66</sup> Response to MJM 1-30.

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1 A. Yes I have. The Company's proposed rates for the PWEC assets are developed  
2 in the Depreciation Study Addendum portion of Attachment LLR-4. The plant in  
3 question consists of both Other Production and Transmission related plant. The  
4 proposed depreciation rates are straight-line remaining life rates.

5 **Q. How did Mr. Wiedmayer analyze the PWEC Other Production plant**  
6 **accounts?**

7 A. As with the APS production plant , Mr. Wiedmayer used the life span method.

8 **Q. What life spans does Mr. Wiedmayer propose for these accounts?**

9 A. Mr. Wiedmayer proposes a 32-year life span for Redhawk Combined Cycle Units  
10 1 and 2, and 30-year life spans for West Phoenix Combined Cycle Unit 4 and  
11 Saguaro Combustion Turbine Unit 3.

12 **Q. Do you agree with Mr. Wiedmayer's proposed life spans for this plant?**

13 A. I do not agree with the life spans used by Mr. Wiedmayer for these units. They  
14 are too short. As discussed above, my National Study supports life spans of  
15 around 46 years for Other Production plant. Mr. Wiedmayer is proposing life  
16 spans of 30 and 32 years. The Company does not support these life spans. In  
17 fact, the Depreciation Study Addendum states, "The estimated retirement dates  
18 should not be interpreted as commitments to retire these plants on these dates,  
19 but rather, as reasonable estimates subject to modification in the future as  
20 circumstances dictate."<sup>67</sup>

21 **Q. What life spans do you recommend?**

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<sup>67</sup> Attachment LLR-4, Depreciation Study Addendum, page II-4.

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1 A. Mr. Wiedmayer used a 55-year life span for combined cycle equipment in his  
2 study of APS, and a 45-year life span for combustion turbine equipment. To  
3 maintain consistency I recommend the same for the PWEC plant. My  
4 recommendations are compared to Mr. Wiedmayer's in Table 11 below.

**Table 11**

<b><u>Other Production</u></b>	<b><u>Company Proposed Life Span</u></b>	<b><u>Snavelly King Recommended Life Span</u></b>
Redhawk CC Units 1 & 2	32 years	55 Years
West Phoenix CC Unit 4	30 years	45 Years
Saguaro CT Unit 3	30 years	55 Years

6

7 **Q. Do the depreciation rates for the PWEC assets include a provision for net**  
8 **salvage?**

9 A. No, they do not. As explained on page II-5 of the Depreciation Study Addendum  
10 portion of Attachment LLR-4, "PWEC will treat all removal costs as a current  
11 period expense as incurred consistent with SFAS 143. The treatment of cost of  
12 removal as an expense is a departure from the typical accounting treatment used  
13 for regulatory purposes. However, since these facilities are owned by PWEC, a  
14 company whose assets are not regulated by the Arizona Corporation  
15 Commission, the Company is compelled to adhere to SFAS 143."<sup>68</sup>

16 **Q. What is the basis for Mr. Wiedmayer's proposed lives for the transmission**

---

<sup>68</sup> Attachment LLR-4, Depreciation Study Addendum, page II-5.



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1 A. I have agreed with Mr. Wiedmayer's selected life and curve for accounts 355 and  
2 356. However, I have recommended a 57-R1.5 life and curve for APS' account  
3 353.

4 **Q. What do you recommend for the PWEC transmission assets?**

5 A. Consistent with my recommendations for APS plant, I recommend a 57-R1.5 life  
6 and curve for account 353. I accept Mr. Wiedmayer's 55-R3 life and curve for  
7 accounts 355 and 356 as I did in the APS study.

8 **SUMMARY**

9 **Q. Please summarize your recommendations.**

10 A. My recommendations are individually discussed in my testimony above and in  
11 my exhibits. In general:

- 12 • I have addressed the Company's SFAS No. 143 proposal, and found that  
13 its depreciation study results in higher charges to ratepayers than would  
14 result if APS had actual legal obligations for a majority of its plant.
- 15 • APS proposal is inconsistent with the principles of SFAS No. 143 and  
16 FERC Order No. 631.
- 17 • I have removed net salvage as a component of the Company's  
18 depreciation rates.
- 19 • I have identified and recommended a specifically identifiable net salvage  
20 allowance in conformance with FERC Order No. 631, based on a five-year  
21 average of actual experience. Due to the Company's experience, on  
22 average, of positive net salvage, I recommend this allowance to be \$0.

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1           •    I have accepted the Company's life spans for its production plant  
2                    functions.

3           •    I have performed actuarial analysis of APS' transmission, distribution and  
4                    general plant and have calculated new depreciation rates based on my  
5                    findings.

6           •    I have reviewed the Company's proposal regarding the PWEC assets and  
7                    conformed the life proposals to the APS proposals.

8           My recommendations result in a \$240.3 million depreciation expense accrual.

9           This is \$47.4 million less than the Company's proposal. My recommendations

10          also result in a \$27.8 million expense for the PWEC which is \$13.7 million less

11          than the Company's request.

12   **Q.    Does this conclude your testimony?**

13   **A.    Yes, it does.**

## Experience

### **Snavely King Majoros O'Connor & Lee, Inc.**

*Vice President and Treasurer (1988 to Present)*  
*Senior Consultant (1981-1987)*

Mr. Majoros provides consultation specializing in accounting, financial, and management issues. He has testified as an expert witness or negotiated on behalf of clients in more than one hundred thirty regulatory proceedings involving telephone, electric, gas, water, and sewerage companies. Mr. Majoros has appeared before Federal and state agencies. His testimony has encompassed a wide variety of complex issues including taxation, divestiture accounting, revenue requirements, rate base, nuclear decommissioning, plant lives, and capital recovery. Mr. Majoros has also provided consultation to the U.S. Department of Justice.

Mr. Majoros has been responsible for developing the firm's consulting services on depreciation and other capital recovery issues into a major area of practice. He has also developed the firm's capabilities in the management audit area.

### **Van Scoyoc & Wiskup, Inc., Consultant (1978-1981)**

Mr. Majoros performed various management and regulatory consulting projects in the public utility field, including preparation of electric system load projections for a group of municipally and cooperatively owned electric systems; preparation of a system of accounts and reporting of gas and oil pipelines to be used by a state regulatory commission; accounting system analysis and design for rate proceedings involving electric, gas, and telephone utilities. Mr. Majoros also assisted in an antitrust proceeding involving a major electric utility. He submitted expert testimony in FERC Docket No. RP79-12 (El Paso Natural Gas Company). In addition, he co-authored a study entitled Analysis of Staff Study on Comprehensive Tax Normalization that was submitted to FERC in Docket No. RM 80-42.

### **Handling Equipment Sales Company, Inc.** *Treasurer (1976-1978)*

Mr. Majoros' responsibilities included financial management, general accounting and reporting, and income taxes.

### **Ernst & Ernst, Auditor (1973-1976)**

Mr. Majoros was a member of the audit staff where his responsibilities included auditing, supervision, business

systems analysis, report preparation, and corporate income taxes.

### **University of Baltimore - (1971-1973)**

Mr. Majoros was a full-time student in the School of Business.

During this period Mr. Majoros worked consistently on a part-time basis in the following positions: Assistant Legislative Auditor – State of Maryland, Staff Accountant – Robert M. Carney & Co., CPA's, Staff Accountant – Naron & Wegad, CPA's, Credit Clerk – Montgomery Wards.

### **Central Savings Bank, (1969-1971)**

Mr. Majoros was an Assistant Branch Manager at the time he left the bank to attend college as a full-time student. During his tenure at the bank, Mr. Majoros gained experience in each department of the bank. In addition, he attended night school at the University of Baltimore.

## Education

University of Baltimore, School of Business, B.S. –  
Concentration in Accounting

## Professional Affiliations

American Institute of Certified Public Accountants  
Maryland Association of C.P.A.s  
Society of Depreciation Professionals

## Publications, Papers, and Panels

*"Analysis of Staff Study on Comprehensive Tax Normalization," FERC Docket No. RM 80-42, 1980.*

*"Telephone Company Deferred Taxes and Investment Tax Credits – A Capital Loss for Ratepayers," Public Utility Fortnightly, September 27, 1984.*

*"The Use of Customer Discount Rates in Revenue Requirement Comparisons," Proceedings of the 25th Annual Iowa State Regulatory Conference, 1986*

*"The Regulatory Dilemma Created By Emerging Revenue Streams of Independent Telephone Companies," Proceedings of NARUC 101st Annual Convention and Regulatory Symposium, 1989.*

*"BOC Depreciation Issues in the States," National Association of State Utility Consumer Advocates, 1990 Mid-Year Meeting, 1990.*

*"Current Issues in Capital Recovery" 30<sup>th</sup> Annual Iowa State Regulatory Conference, 1991.*

*"Impaired Assets Under SFAS No. 121," National Association of State Utility consumer Advocates, 1996 Mid-Year Meeting, 1996.*

*"What's 'Sunk' Ain't Stranded: Why Excessive Utility Depreciation is Avoidable," with James Campbell, Public Utilities Fortnightly, April 1, 1999.*

*"Local Exchange Carrier Depreciation Reserve Percents," with Richard B. Lee, Journal of the Society of Depreciation Professionals, Volume 10, Number 1, 2000-2001*

**Michael J. Majoros, Jr.**

Federal Regulatory Agencies

<u>Date</u>	<u>Agency</u>	<u>Docket</u>	<u>Utility</u>
1979	FERC-US <u>19/</u>	RR79-12	El Paso Natural Gas Co.
1980	FERC-US <u>19/</u>	RM80-42	Generic Tax Normalization
1996	CRTC-Canada <u>30/</u>	97-9	All Canadian Telecoms
1997	CRTC-Canada <u>31/</u>	97-11	All Canadian Telecoms
1999	FCC <u>32/</u>	98-137 (Ex Parte)	All LECs
1999	FCC <u>32/</u>	98-91 (Ex Parte)	All LECs
1999	FCC <u>32/</u>	98-177 (Ex Parte)	All LECs
1999	FCC <u>32/</u>	98-45 (Ex Parte)	All LECs
2000	EPA <u>35/</u>	CAA-00-6	Tennessee Valley Authority
2003	FERC <u>48/</u>	RM02-7	All Utilities
2003	FCC <u>52/</u>	03-173	All LECs

State Regulatory Agencies

1982	Massachusetts <u>17/</u>	DPU 557/558	Western Mass Elec. Co.
1982	Illinois <u>16/</u>	ICC81-8115	Illinois Bell Telephone Co.
1983	Maryland <u>8/</u>	7574-Direct	Baltimore Gas & Electric Co.
1983	Maryland <u>8/</u>	7574-Surrebuttal	Baltimore Gas & Electric Co.
1983	Connecticut <u>15/</u>	810911	Woodlake Water Co.
1983	New Jersey <u>1/</u>	815-458	New Jersey Bell Tel. Co.
1983	New Jersey <u>14/</u>	8011-827	Atlantic City Sewerage Co.
1984	Dist. Of Columbia <u>7/</u>	785	Potomac Electric Power Co.
1984	Maryland <u>8/</u>	7689	Washington Gas Light Co.
1984	Dist. Of Columbia <u>7/</u>	798	C&P Tel. Co.
1984	Pennsylvania <u>13/</u>	R-832316	Bell Telephone Co. of PA
1984	New Mexico <u>12/</u>	1032	Mt. States Tel. & Telegraph
1984	Idaho <u>18/</u>	U-1000-70	Mt. States Tel. & Telegraph
1984	Colorado <u>11/</u>	1655	Mt. States Tel. & Telegraph
1984	Dist. Of Columbia <u>7/</u>	813	Potomac Electric Power Co.
1984	Pennsylvania <u>3/</u>	R842621-R842625	Western Pa. Water Co.
1985	Maryland <u>8/</u>	7743	Potomac Electric Power Co.
1985	New Jersey <u>1/</u>	848-856	New Jersey Bell Tel. Co.
1985	Maryland <u>8/</u>	7851	C&P Tel. Co.
1985	California <u>10/</u>	I-85-03-78	Pacific Bell Telephone Co.
1985	Pennsylvania <u>3/</u>	R-850174	Phila. Suburban Water Co.
1985	Pennsylvania <u>3/</u>	R850178	Pennsylvania Gas & Water Co.
1985	Pennsylvania <u>3/</u>	R-850299	General Tel. Co. of PA
1986	Maryland <u>8/</u>	7899	Delmarva Power & Light Co.
1986	Maryland <u>8/</u>	7754	Chesapeake Utilities Corp.
1986	Pennsylvania <u>3/</u>	R-850268	York Water Co.
1986	Maryland <u>8/</u>	7953	Southern Md. Electric Corp.

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1986	Idaho <u>9/</u>	U-1002-59	General Tel. Of the Northwest
1986	Maryland <u>8/</u>	7973	Baltimore Gas & Electric Co.
1987	Pennsylvania <u>3/</u>	R-860350	Dauphin Cons. Water Supply
1987	Pennsylvania <u>3/</u>	C-860923	Bell Telephone Co. of PA
1987	Iowa <u>6/</u>	DPU-86-2	Northwestern Bell Tel. Co.
1987	Dist. Of Columbia <u>7/</u>	842	Washington Gas Light Co.
1988	Florida <u>4/</u>	880069-TL	Southern Bell Telephone
1988	Iowa <u>6/</u>	RPU-87-3	Iowa Public Service Company
1988	Iowa <u>6/</u>	RPU-87-6	Northwestern Bell Tel. Co.
1988	Dist. Of Columbia <u>7/</u>	869	Potomac Electric Power Co.
1989	Iowa <u>6/</u>	RPU-88-6	Northwestern Bell Tel. Co.
1990	New Jersey <u>1/</u>	1487-88	Morris City Transfer Station
1990	New Jersey <u>5/</u>	WR 88-80967	Toms River Water Company
1990	Florida <u>4/</u>	890256-TL	Southern Bell Company
1990	New Jersey <u>1/</u>	ER89110912J	Jersey Central Power & Light
1990	New Jersey <u>1/</u>	WR90050497J	Elizabethtown Water Co.
1991	Pennsylvania <u>3/</u>	P900465	United Tel. Co. of Pa.
1991	West Virginia <u>2/</u>	90-564-T-D	C&P Telephone Co.
1991	New Jersey <u>1/</u>	90080792J	Hackensack Water Co.
1991	New Jersey <u>1/</u>	WR90080884J	Middlesex Water Co.
1991	Pennsylvania <u>3/</u>	R-911892	Phil. Suburban Water Co.
1991	Kansas <u>20/</u>	176, 716-U	Kansas Power & Light Co.
1991	Indiana <u>29/</u>	39017	Indiana Bell Telephone
1991	Nevada <u>21/</u>	91-5054	Central Tele. Co. – Nevada
1992	New Jersey <u>1/</u>	EE91081428	Public Service Electric & Gas
1992	Maryland <u>8/</u>	8462	C&P Telephone Co.
1992	West Virginia <u>2/</u>	91-1037-E-D	Appalachian Power Co.
1993	Maryland <u>8/</u>	8464	Potomac Electric Power Co.
1993	South Carolina <u>22/</u>	92-227-C	Southern Bell Telephone
1993	Maryland <u>8/</u>	8485	Baltimore Gas & Electric Co.
1993	Georgia <u>23/</u>	4451-U	Atlanta Gas Light Co.
1993	New Jersey <u>1/</u>	GR93040114	New Jersey Natural Gas. Co.
1994	Iowa <u>6/</u>	RPU-93-9	U.S. West – Iowa
1994	Iowa <u>6/</u>	RPU-94-3	Midwest Gas
1995	Delaware <u>24/</u>	94-149	Wilm. Suburban Water Corp.
1995	Connecticut <u>25/</u>	94-10-03	So. New England Telephone
1995	Connecticut <u>25/</u>	95-03-01	So. New England Telephone
1995	Pennsylvania <u>3/</u>	R-00953300	Citizens Utilities Company
1995	Georgia <u>23/</u>	5503-0	Southern Bell
1996	Maryland <u>8/</u>	8715	Bell Atlantic
1996	Arizona <u>26/</u>	E-1032-95-417	Citizens Utilities Company
1996	New Hampshire <u>27/</u>	DE 96-252	New England Telephone
1997	Iowa <u>6/</u>	DPU-96-1	U S West – Iowa
1997	Ohio <u>28/</u>	96-922-TP-UNC	Ameritech – Ohio
1997	Michigan <u>28/</u>	U-11280	Ameritech – Michigan

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1997	Michigan <u>28/</u>	U-112 81	GTE North
1997	Wyoming <u>27/</u>	7000-ztr-96-323	US West – Wyoming
1997	Iowa <u>6/</u>	RPU-96-9	US West – Iowa
1997	Illinois <u>28/</u>	96-0486-0569	Ameritech – Illinois
1997	Indiana <u>28/</u>	40611	Ameritech – Indiana
1997	Indiana <u>27/</u>	40734	GTE North
1997	Utah <u>27/</u>	97-049-08	US West – Utah
1997	Georgia <u>28/</u>	7061-U	BellSouth – Georgia
1997	Connecticut <u>25/</u>	96-04-07	So. New England Telephone
1998	Florida <u>28/</u>	960833-TP et. al.	BellSouth – Florida
1998	Illinois <u>27/</u>	97-0355	GTE North/South
1998	Michigan <u>33/</u>	U-11726	Detroit Edison
1999	Maryland <u>8/</u>	8794	Baltimore Gas & Electric Co.
1999	Maryland <u>8/</u>	8795	Delmarva Power & Light Co.
1999	Maryland <u>8/</u>	8797	Potomac Edison Company
1999	West Virginia <u>2/</u>	98-0452-E-GI	Electric Restructuring
1999	Delaware <u>24/</u>	98-98	United Water Company
1999	Pennsylvania <u>3/</u>	R-00994638	Pennsylvania American Water
1999	West Virginia <u>2/</u>	98-0985-W-D	West Virginia American Water
1999	Michigan <u>33/</u>	U-11495	Detroit Edison
2000	Delaware <u>24/</u>	99-466	Tidewater Utilities
2000	New Mexico <u>34/</u>	3008	US WEST Communications, Inc.
2000	Florida <u>28/</u>	990649-TP	BellSouth -Florida
2000	New Jersey <u>1/</u>	WR30174	Consumer New Jersey Water
2000	Pennsylvania <u>3/</u>	R-00994868	Philadelphia Suburban Water
2000	Pennsylvania <u>3/</u>	R-0005212	Pennsylvania American Sewerage
2000	Connecticut <u>25/</u>	00-07-17	Southern New England Telephone
2001	Kentucky <u>36/</u>	2000-373	Jackson Energy Cooperative
2001	Kansas <u>38/39/40/</u>	01-WSRE-436-RTS	Western Resources
2001	South Carolina <u>22/</u>	2001-93-E	Carolina Power & Light Co.
2001	North Dakota <u>37/</u>	PU-400-00-521	Northern States Power/Xcel Energy
2001	Indiana <u>29/41/</u>	41746	Northern Indiana Power Company
2001	New Jersey <u>1/</u>	GR01050328	Public Service Electric and Gas
2001	Pennsylvania <u>3/</u>	R-00016236	York Water Company
2001	Pennsylvania <u>3/</u>	R-00016339	Pennsylvania America Water
2001	Pennsylvania <u>3/</u>	R-00016356	Wellsboro Electric Coop.
2001	Florida <u>4/</u>	010949-EL	Gulf Power Company
2001	Hawaii <u>42/</u>	00-309	The Gas Company
2002	Pennsylvania <u>3/</u>	R-00016750	Philadelphia Suburban
2002	Nevada <u>43/</u>	01-10001 &10002	Nevada Power Company
2002	Kentucky <u>36/</u>	2001-244	Fleming Mason Electric Coop.
2002	Nevada <u>43/</u>	01-11031	Sierra Pacific Power Company
2002	Georgia <u>27/</u>	14361-U	BellSouth-Georgia
2002	Alaska <u>44/</u>	U-01-34,82-87,66	Alaska Communications Systems
2002	Wisconsin <u>45/</u>	2055-TR-102	CenturyTel

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2002	Wisconsin 45/	5846-TR-102	TelUSA
2002	Vermont 46/	6596	Citizen's Energy Services
2002	North Dakota 37/	PU-399-02-183	Montana Dakota Utilities
2002	Kansas 38/	02-MDWG-922-RTS	Midwest Energy
2002	Kentucky 36/	2002-00145	Columbia Gas
2002	Oklahoma 47/	200200166	Reliant Energy ARKLA
2002	New Jersey 1/	GR02040245	Elizabethtown Gas Company
2003	New Jersey 1/	ER02050303	Public Service Electric and Gas Co.
2003	Hawaii 42/	01-0255	Young Brothers Tug & Barge
2003	New Jersey 1/	ER02080506	Jersey Central Power & Light
2003	New Jersey 1/	ER02100724	Rockland Electric Co.
2003	Pennsylvania 3/	R-00027975	The York Water Co.
2003	Pennsylvania /3	R-00038304	Pennsylvania-American Water Co.
2003	Kansas 20/ 40/	03-KGSG-602-RTS	Kansas Gas Service
2003	Nova Scotia, CN 49/	EMO NSPI	Nova Scotia Power, Inc.
2003	Kentucky 36/	2003-00252	Union Light Heat & Power
2003	Alaska 44/	U-96-89	ACS Communications, Inc.
2003	Indiana 29/	42359	PSI Energy, Inc.
2003	Kansas 20/ 40/	03-ATMG-1036-RTS	Atmos Energy
2003	Florida 50/	030001-E1	Tampa Electric Company
2003	Maryland 51/	8960	Washington Gas Light

**Michael J. Majoros, Jr.**

**PARTICIPATION AS NEGOTIATOR IN FCC TELEPHONE DEPRECIATION  
RATE REPRESRIPTION CONFERENCES**

<u>COMPANY</u>	<u>YEARS</u>	<u>CLIENT</u>
Diamond State Telephone Co. <u>24/</u>	1985 + 1988	Delaware Public Service Comm
Bell Telephone of Pennsylvania <u>3/</u>	1986 + 1989	PA Consumer Advocate
Chesapeake & Potomac Telephone Co. - Md. <u>8/</u>	1986	Maryland People's Counsel
Southwestern Bell Telephone - Kansas <u>20/</u>	1986	Kansas Corp. Commission
Southern Bell - Florida <u>4/</u>	1986	Florida Consumer Advocate
Chesapeake & Potomac Telephone Co.-W.Va. <u>2/</u>	1987 + 1990	West VA Consumer Advocate
New Jersey Bell Telephone Co. <u>1/</u>	1985 + 1988	New Jersey Rate Counsel
Southern Bell - South Carolina <u>22/</u>	1986 + 1989 + 1992	S. Carolina Consumer Advocate
GTE-North - Pennsylvania <u>3/</u>	1989	PA Consumer Advocate

**Michael J. Majoros, Jr.**

**PARTICIPATION IN PROCEEDINGS WHICH WERE  
SETTLED BEFORE TESTIMONY WAS SUBMITTED**

<u>STATE</u>	<u>DOCKET NO.</u>	<u>UTILITY</u>
Maryland <u>8/</u>	7878	Potomac Edison
Nevada <u>21/</u>	88-728	Southwest Gas
New Jersey <u>1/</u>	WR90090950J	New Jersey American Water
New Jersey <u>1/</u>	WR900050497J	Elizabethtown Water
New Jersey <u>1/</u>	WR91091483	Garden State Water
West Virginia <u>2/</u>	91-1037-E	Appalachian Power Co.
Nevada <u>21/</u>	92-7002	Central Telephone - Nevada
Pennsylvania <u>3/</u>	R-00932873	Blue Mountain Water
West Virginia <u>2/</u>	93-1165-E-D	Potomac Edison
West Virginia <u>2/</u>	94-0013-E-D	Monongahela Power
New Jersey <u>1/</u>	WR94030059	New Jersey American Water
New Jersey <u>1/</u>	WR95080346	Elizabethtown Water
New Jersey <u>1/</u>	WR95050219	Toms River Water Co.
Maryland <u>8/</u>	8796	Potomac Electric Power Co.
South Carolina <u>22/</u>	1999-077-E	Carolina Power & Light Co.
South Carolina <u>22/</u>	1999-072-E	Carolina Power & Light Co.
Kentucky <u>36/</u>	2001-104 & 141	Kentucky Utilities, Louisville Gas and Electric
Kentucky <u>36/</u>	2002-485	Jackson Purchase Energy Corporation

**Michael J. Majoros, Jr.**

Clients

1/ New Jersey Rate Counsel/Advocate	22/ SC Dept. of Consumer Affairs
2/ West Virginia Consumer Advocate	23/ Georgia Public Service Comm.
3/ Pennsylvania OCA	24/ Delaware Public Service Comm.
4/ Florida Office of Public Advocate	25/ Conn. Ofc. Of Consumer Counsel
5/ Toms River Fire Commissioner's	26/ Arizona Corp. Commission
6/ Iowa Office of Consumer Advocate	27/ AT&T
7/ D.C. People's Counsel	28/ AT&T/MCI
8/ Maryland's People's Counsel	29/ IN Office of Utility Consumer Counselor
9/ Idaho Public Service Commission	30/ Unitel (AT&T – Canada)
10/ Western Burglar and Fire Alarm	31/ Public Interest Advocacy Centre
11/ U.S. Dept. of Defense	32/ U.S. General Services Administration
12/ N.M. State Corporation Comm.	33/ Michigan Attorney General
13/ City of Philadelphia	34/ New Mexico Attorney General
14/ Resorts International	35/ Environmental Protection Agency Enforcement Staff
15/ Woodlake Condominium Association	36/ Kentucky Attorney General
16/ Illinois Attorney General	37/ North Dakota Public Service Commission
17/ Mass Coalition of Municipalities	38/ Kansas Industrial Group
18/ U.S. Department of Energy	39/ City of Wichita
19/ Arizona Electric Power Corp.	40/ Kansas Citizens' Utility Rate Board
20/ Kansas Corporation Commission	41/ NIPSCO Industrial Group
21/ Public Service Comm. – Nevada	42/ Hawaii Division of Consumer Advocacy
	43/ Nevada Bureau of Consumer Protection
	44/ GCI
	45/ Wisc. Citizens' Utility Rate Board
	46/ Vermont Department of Public Service
	47/ Oklahoma Corporation Commission
	48/ National Association of Utility Consumer Advocates ("NASUCA")
	49/ Nova Scotia Utility and Review Board
	50/ Florida Office of Public Counsel
	51/ Maryland Public Service Commission
	52/ MCI

**Snavely King Majoros O'Connor & Lee, Inc.  
National Study of U.S. Steam Generating Unit Lives  
50 MW and Greater**

Snavely King Majoros O'Connor & Lee, Inc. ("Snavely King") performed a study of U.S. Steam Generating Units Lives, 50 MW and Greater using analytical techniques generally accepted in the utility industry and a database maintained by the U.S. Department of Energy ("DOE"). Snavely King concludes that the lives of the U.S. Steam Generating Units (50 MW and Greater) are experiencing average life spans of approximately 60 years and these spans are lengthening almost on a year-to-year basis.

**Database**

The DOE's Energy Information Administration ("EIA") requires every owner of an electric utility generating plant to file a Form 860 describing the status of its generating facilities. From these reports, EIA maintains data on the installation and retirements of generating units around the country.

The data utilized in this study is available on the EIA's web site. The primary data used in Snavely King's study is located in the Form 860-A database files. The Form 860-B data is also used to check the current status of units that have been sold to Non-Utility Generators ("NUG's"). The data was downloaded in several steps into a single Microsoft Access file and developed into inputs for Snavely King's actuarial analysis program.

Various sorts were made to refine the data and to remove bad data. For instance, some units listed as retired had no retirement dates indicated, etc.

**Analysis**

Snavely King initially performed an analysis of the full band (1900-2000) and the most recent ten-year band (1991-2000) of data. The full band analysis had a best fit result of 60.5 L3, which indicates a 60 year life. The ten-year band best fit was a 59.5 R4, which indicates a 59 year life. Additional analyses were performed: an expanded full band analysis, rolling band analysis and a shrinking band analysis. The results are discussed and set forth in tabular form below.

### Expanded Full Band Analysis

The expanded full band analysis held the initial year constant but used cut-off dates of 1999, 1998, 1997 and 1996. The actuarial analyses yielded the following results.

Expanded Full Band Analysis		
Band	Life	Curve Type
1900-00	60.5	L3
1900-99	58.5	L3
1900-98	58	L3
1900-97	57	L3
1900-96	56	L3

The results indicate that large generating units are being kept operational longer.

### Rolling Band Analysis

The ten-year band analyses for these data sets provided a "rolling band" analysis. The results are summarized in the table below.

Band	Life	Curve Type
1991-2000	59.5	R4
1990-1999	56	R4
1989-1998	57.5	L4
1988-1997	54	S4
1987-1996	54.5	L4

This indicates an increase in lives of generating units probably coincident with the wide spread introduction of life extension programs and the reduction in investment by utilities in new base load generating units.

### Shrinking Band Analysis

Finally, Snavelly King did a “shrinking band” analysis, in which the final 2000 year was held constant and the bands were continually shrunk.

Band	Width	Life	Curve Type
1996-99	5 years	77.5	R2
1995-00	6 years	74.5	R2.5
1994-00	7 years	66.5	R3
1993-00	8 years	69.5	L3
1992-00	9 years	67.5	L3
1991-00	10 years	59.5	R4
1986-00	15 years	58	R4
1981-00	20 years	56	L4
1976-00	25 years	55	L4

The shrinking band analysis corroborated earlier results and conclusions. The average life span of steam units 50 MW and Greater is currently in the 60-year range and is getting longer.

**Snavely King Majoros O'Connor & Lee, Inc.  
National Study of U.S. Other Production Unit Lives**

Snavely King Majoros O'Connor & Lee, Inc. ("Snavely King") performed a study of U.S. Other Production Units Lives using analytical techniques generally accepted in the utility industry and a database maintained by the U.S. Department of Energy ("DOE"). Snavely King concludes that U.S. Other Production Units are experiencing average life spans of approximately 46.5 years at a minimum, and that these spans have lengthened in recent years to as long as 56.5 years.

**Database**

The DOE's Energy Information Administration ("EIA") requires every owner of an electric utility generating plant to file a Form 860 describing the status of its generating facilities. From these reports, EIA maintains data on the installation and retirements of generating units around the country.

The data utilized in this study is available on the EIA's web site. The primary data used in Snavely King's study is located in the Form 860-A database files. The Form 860-B data is also used to check the current status of units that have been sold to Non-Utility Generators ("NUG's"). The data was downloaded in several steps into a single Microsoft Access file and developed into inputs for Snavely King's actuarial analysis program.

Various sorts were made to refine the data and to remove bad data. For example, plant with in-service dates of 1900 apparently had a Y2K problem. Some units listed as retired had no retirement dates indicated, etc.

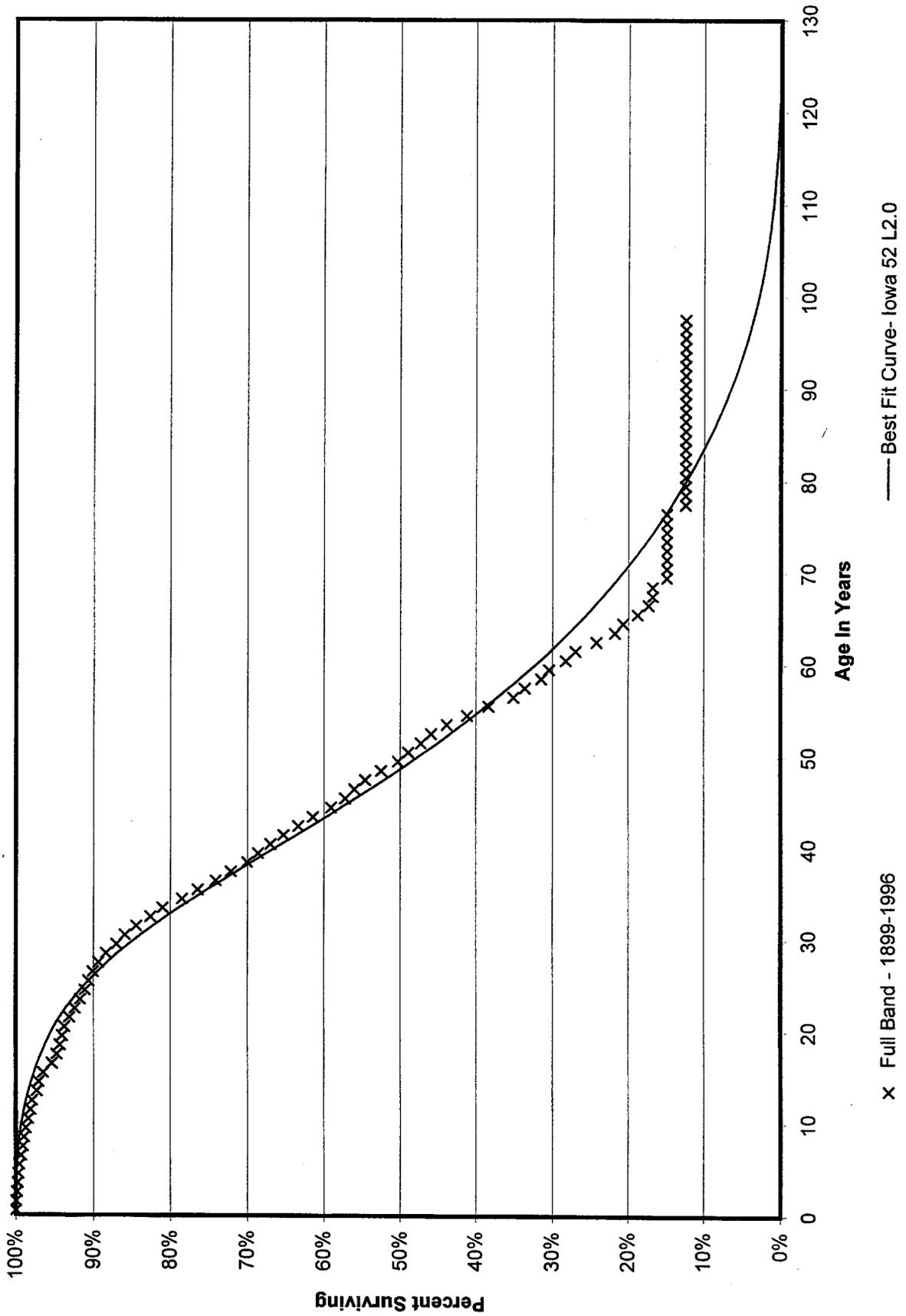
**Analysis**

Snavely King performed an analysis of the full band (1899-1996) and a "shrinking band" analysis, in which the final year (1996) was held constant and the bands were continually shrunk. The results are discussed and set forth in tabular form below.

<b>Band</b>	<b>Width</b>	<b>Life</b>	<b>Curve Type</b>
1899-96	Full	52.0	L2.0
1977-96	20 years	46.5	L1.5
1982-96	15 years	47.5	L1.5
1987-96	10 years	52.5	L1.5
1992-96	5 years	56.5	L2.0

As the analysis indicates, the average life span for Other Production Units has lengthened in recent years.

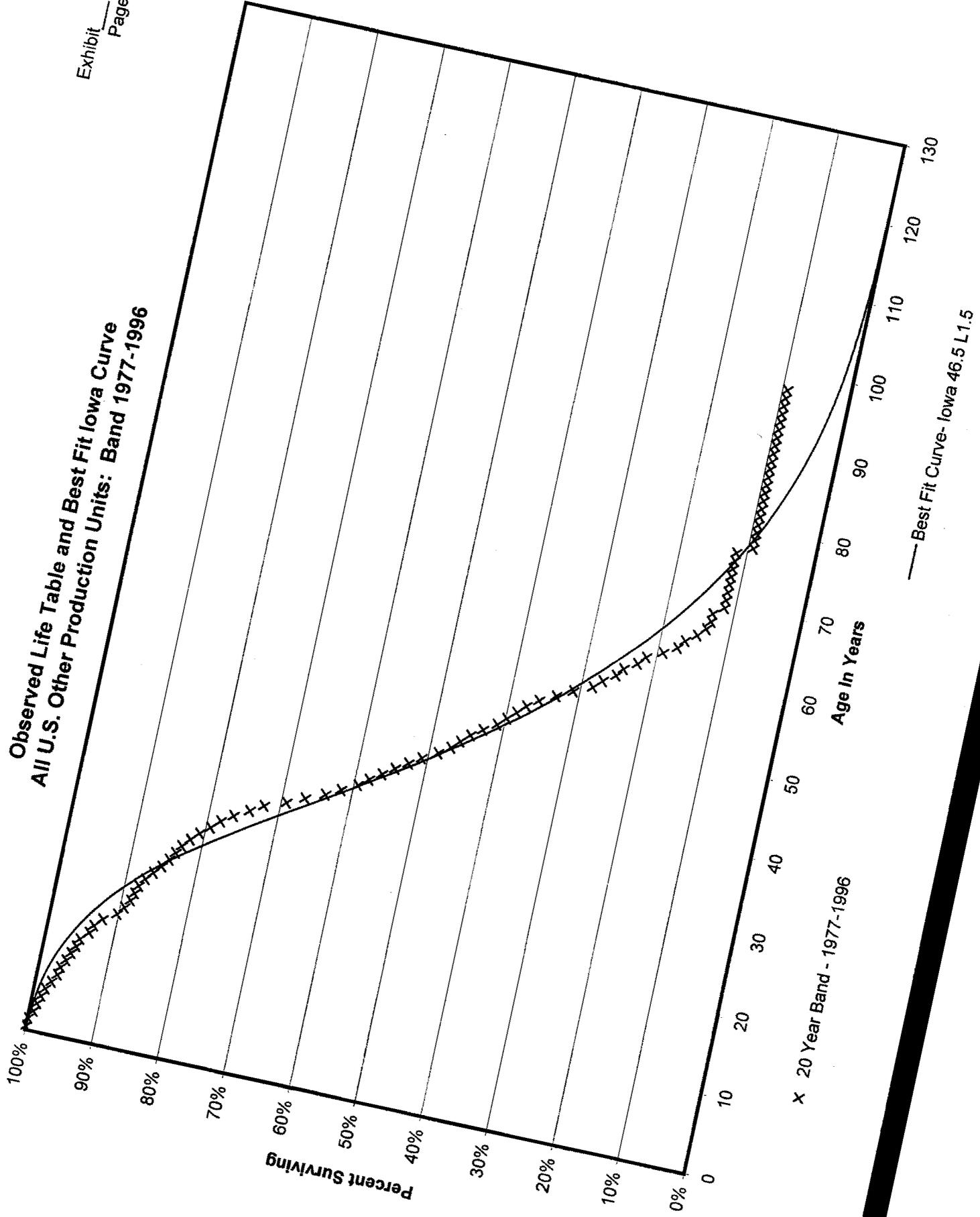
### Observed Life Table and Best Fit Iowa Curve All U.S. Other Production Units: Band 1899-1996



qqvqa1 ACTUARIAL ANALYSIS  
CURVE FITTING RESULTS  
ACCOUNT: 888000  
BAND: 1899,1996

RANK	IOWA CURVE	AVERAGE SERVICE LIFE	SUM OF SQUARED DEVIATIONS
1	L2	52.00	1121.66
2	L1.5	52.00	1749.96
3	S1	50.50	2419.96
4	S0.5	50.50	2669.22
5	S1.5	50.50	2698.74
6	L3	52.00	2749.26
7	R1.5	49.50	3195.03
8	L1	51.50	3379.00
9	R2	49.50	3507.07
10	S2	50.50	3825.60
11	S0	50.00	3863.70
12	R1	49.00	4179.53
13	R2.5	50.00	4402.90
14	L0.5	51.50	5336.07
15	R0.5	49.00	6092.86
16	S-0.5	49.50	6182.28
17	R3	50.00	6439.15
18	S3	50.50	7381.55
19	L0	52.00	8110.19
20	L4	51.00	8858.58
21	O1	49.00	10014.22
22	O2	52.50	10310.85
23	R4	50.50	11604.03
24	S4	50.50	14100.69
25	L5	51.00	16336.66
26	O3	64.50	19846.15
27	R5	50.50	19875.93
28	S5	50.50	22178.08
29	O4	84.50	24972.86
30	S6	50.50	30361.29
31	SQ	49.50	49189.21

Observed Life Table and Best Fit Iowa Curve  
All U.S. Other Production Units: Band 1977-1996



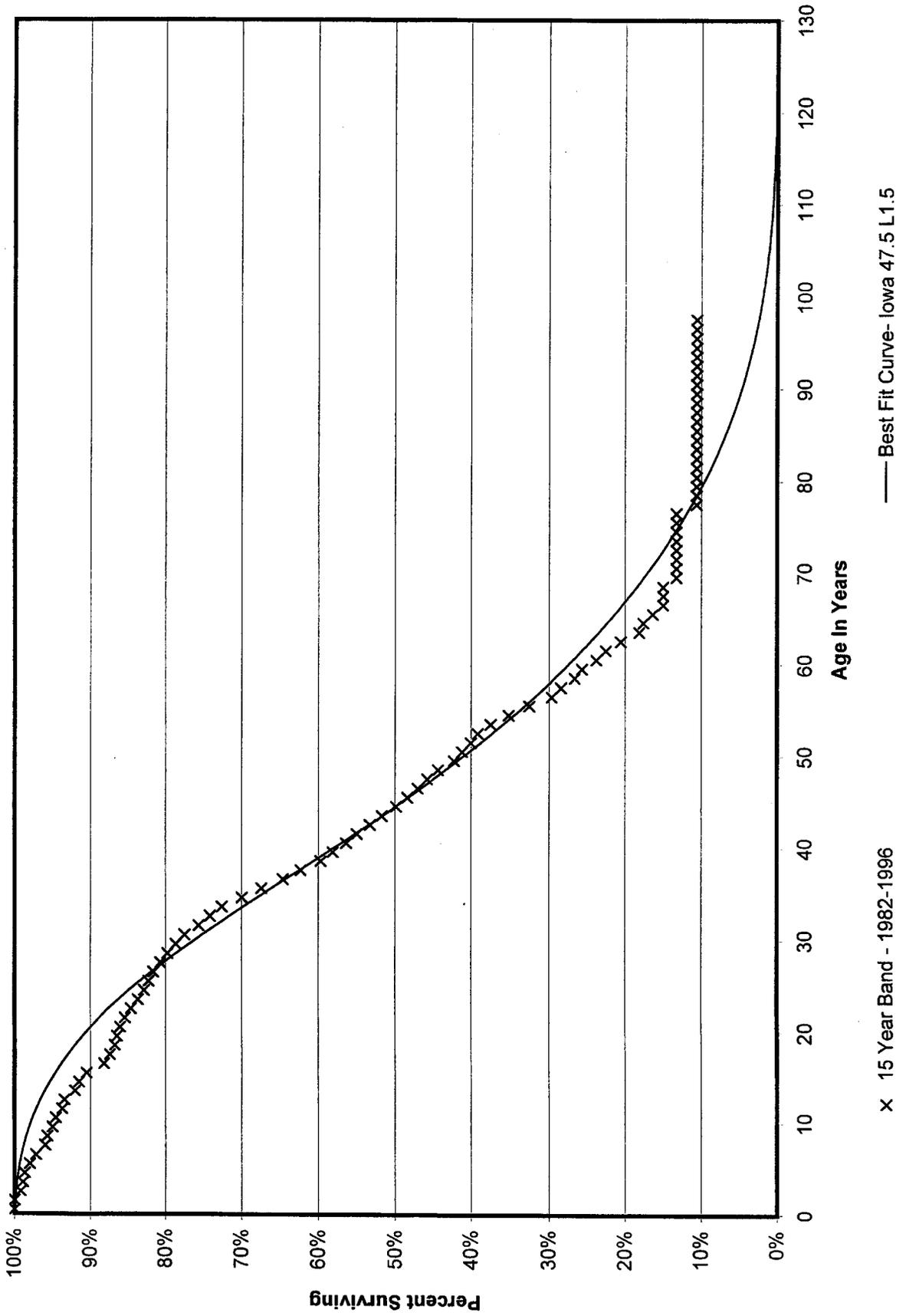
x 20 Year Band - 1977-1996

— Best Fit Curve- Iowa 46.5 L1.5

qqvqa1 ACTUARIAL ANALYSIS  
CURVE FITTING RESULTS  
ACCOUNT: 888000  
BAND: 1977,1996

	IOWA RANK CURVE	AVERAGE SERVICE LIFE	SUM OF SQUARED DEVIATIONS
1	L1.5	46.50	890.79
2	L2	47.00	1214.63
3	L1	46.50	1486.82
4	S0.5	45.50	1738.92
5	S0	45.00	2068.88
6	S1	45.50	2241.00
7	R1	44.50	2310.87
8	R1.5	45.00	2352.97
9	L0.5	46.50	2528.51
10	R0.5	44.00	3224.10
11	S1.5	46.00	3260.10
12	S-0.5	44.50	3341.13
13	R2	45.00	3538.36
14	L3	46.50	4347.48
15	L0	46.00	4364.76
16	S2	46.00	5031.07
17	R2.5	45.50	5342.66
18	O1	43.50	5904.40
19	O2	47.00	5941.92
20	R3	45.50	8187.31
21	S3	46.00	9683.67
22	L4	46.00	11527.50
23	R4	46.00	14611.97
24	O3	55.50	15077.92
25	S4	46.00	17390.95
26	L5	46.00	19723.73
27	O4	71.00	20738.40
28	R5	45.50	23700.81
29	S5	45.50	25950.52
30	S6	45.00	34082.54
31	SQ	43.50	51072.33

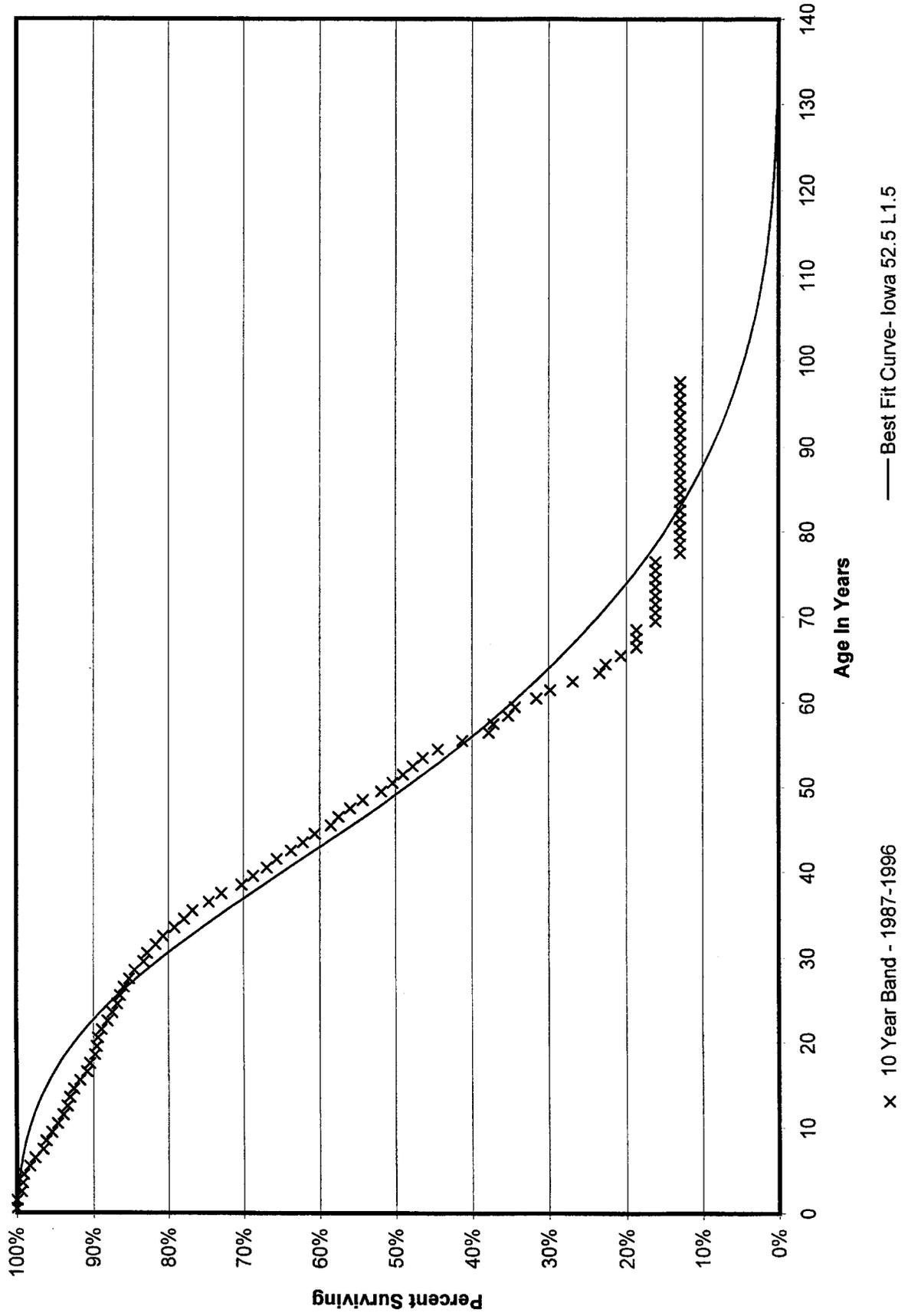
### Observed Life Table and Best Fit Iowa Curve All U.S. Other Production Units: Band 1982-1996



qqvqal ACTUARIAL ANALYSIS  
CURVE FITTING RESULTS  
ACCOUNT: 888000  
BAND: 1982,1996

RANK	IOWA CURVE	AVERAGE SERVICE LIFE	SUM OF SQUARED DEVIATIONS
1	L1.5	47.50	1118.69
2	L1	47.00	1318.91
3	L2	47.50	1853.33
4	L0.5	47.00	1966.71
5	S0	45.50	2208.91
6	S0.5	46.00	2224.03
7	R1	45.00	2547.78
8	R0.5	45.00	2945.64
9	R1.5	45.50	2965.67
10	S-0.5	45.00	3009.49
11	S1	46.50	3108.92
12	L0	47.00	3414.09
13	S1.5	46.50	4424.84
14	R2	45.50	4572.63
15	O2	48.00	4679.77
16	O1	44.50	5155.09
17	L3	47.50	5743.41
18	S2	46.50	6521.74
19	R2.5	46.00	6682.54
20	R3	46.00	9867.68
21	S3	46.50	11638.85
22	O3	56.50	12805.77
23	L4	47.00	13606.64
24	R4	46.50	16728.92
25	O4	72.00	17949.21
26	S4	46.50	19745.52
27	L5	46.50	22185.46
28	R5	46.50	26233.52
29	S5	46.50	28609.65
30	S6	46.00	36996.22
31	SQ	43.50	54451.44

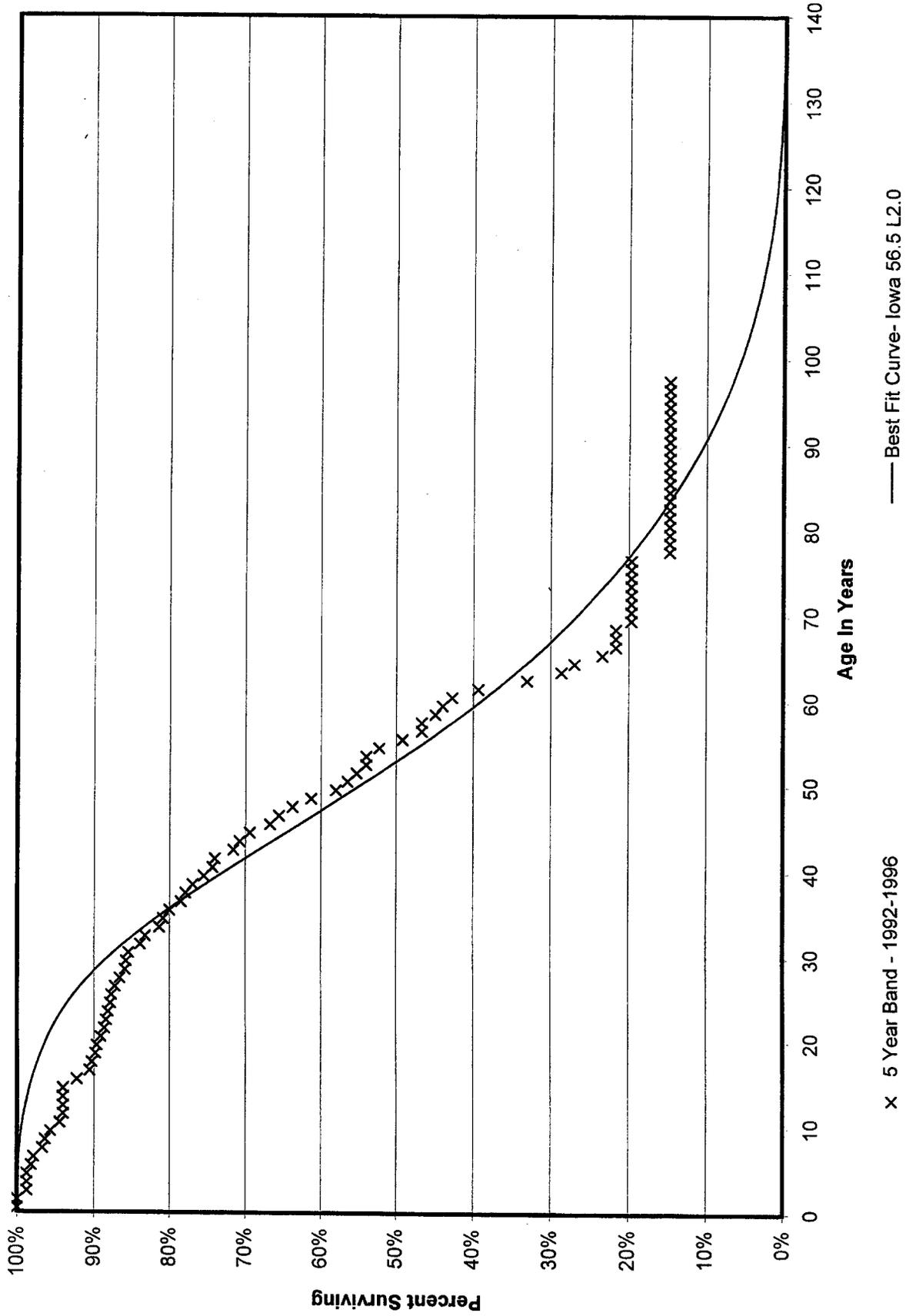
### Observed Life Table and Best Fit Iowa Curve All U.S. Other Production Units: Band 1987-1996



qqvqal ACTUARIAL ANALYSIS  
CURVE FITTING RESULTS  
ACCOUNT: 888000  
BAND: 1987,1996

RANK	IOWA CURVE	AVERAGE SERVICE LIFE	SUM OF SQUARED DEVIATIONS
1	L1.5	52.50	1425.50
2	L2	53.00	1586.31
3	S0.5	51.00	2147.43
4	L1	52.00	2278.64
5	S0	51.00	2621.18
6	S1	51.50	2637.51
7	R1.5	50.00	2640.16
8	R1	50.00	2825.25
9	L0.5	52.00	3495.25
10	S1.5	51.50	3519.27
11	R2	50.50	3766.24
12	R0.5	50.00	3818.13
13	S-0.5	50.00	3976.92
14	L3	52.50	4389.92
15	S2	51.50	5265.97
16	R2.5	50.50	5346.45
17	L0	52.50	5528.59
18	O1	49.50	6832.53
19	O2	53.50	7079.00
20	R3	51.00	8082.98
21	S3	51.50	9724.13
22	L4	52.00	11469.84
23	R4	51.50	14229.10
24	O3	65.00	15496.68
25	S4	51.50	17216.77
26	L5	52.00	19617.66
27	O4	84.50	20112.98
28	R5	51.50	23315.78
29	S5	51.50	25784.65
30	S6	51.50	34306.98
31	SQ	51.00	53468.24

Observed Life Table and Best Fit Iowa Curve  
All U.S. Other Production Units: Band 1992-1996



qqvqal ACTUARIAL ANALYSIS  
CURVE FITTING RESULTS  
ACCOUNT: 888000  
BAND: 1992,1996

RANK	IOWA CURVE	AVERAGE SERVICE LIFE	SUM OF SQUARED DEVIATIONS
1	L2	56.50	1969.77
2	L1.5	56.50	2071.53
3	S0.5	54.50	2306.61
4	R1.5	54.00	2576.68
5	S1	55.00	2598.77
6	R1	53.50	2994.95
7	S0	54.50	2997.49
8	L1	56.00	3221.35
9	S1.5	55.50	3327.10
10	R2	54.00	3563.95
11	L3	56.50	4092.86
12	R0.5	53.00	4401.13
13	L0.5	56.50	4661.40
14	S-0.5	53.50	4690.56
15	R2.5	54.50	4934.77
16	S2	55.50	4969.21
17	L0	56.50	6913.56
18	R3	54.50	7577.41
19	O1	52.50	7870.18
20	O2	57.50	8545.85
21	S3	55.50	9191.79
22	L4	56.00	10671.21
23	R4	55.00	13409.13
24	S4	55.50	16328.33
25	O3	72.00	16639.12
26	L5	56.00	18620.55
27	O4	94.50	20709.27
28	R5	55.50	22110.83
29	S5	55.50	24596.04
30	S6	56.00	33193.13
31	SQ	55.00	52932.29

**Summary and Analysis of SFAS No. 143 and FERC Order No. 631  
As They Relate to Non-Legal Asset Retirement Obligations  
By Michael J. Majoros, Jr.  
June 9, 2003**

## **Introduction**

This summary and analysis provides the background required to understand the accounting and ratemaking implications of FERC Order No. 631 Accounting, Financial Reporting and Rate Filing Requirements for Asset Retirement Obligations as it relates to assets for which asset retirement obligations *do not* exist. It was prepared by Michael J. Majoros, Jr. who has closely followed and testified about the issue. Mr. Majoros attended the FERC Commission staff's May 7, 2002 Technical Conference on the subject and in conjunction with his partner Charles W. King prepared the Comments of the National Association of State Utility Consumer Advocates ("NASUCA") in FERC Docket No. RM02-7-000 which is manifested in FERC Order No. 631.

## **Background**

In June 1994, at the request of the Edison Electric Institute ("EEI"), the Financial Accounting Standards Board ("FASB" or "Board") added an agenda project to focus on accounting for decommissioning costs of nuclear power plants. The original scope of the project related to the legal costs of decommissioning a nuclear power plant imposed by the Nuclear Regulatory Commission. Subsequently, the scope was expanded to include (a) similar legal obligations in other industries and (b) constructive obligations. In February 1996, the Board issued an Exposure Draft, *Accounting for Certain Liabilities Related to Closure or Removal of Long-Lived Assets*.<sup>1</sup>

## **SFAS No. 143**

After two Exposure Drafts and several rounds of comments, FASB issued, in June 2001, its resulting Statement of Financial Accounting Standards No. 143, *Accounting for Asset Retirement Obligations* ("SFAS No. 143"). This statement addresses financial accounting and reporting for obligations associated with the retirement of tangible long-lived assets and the associated asset retirement costs. SFAS No. 143 applies to all entities [including public utilities] and "components of transmission and distribution systems (utility poles) etc," are specifically not excluded. (SFAS No. 143, paragraph B17, footnote 22.)

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<sup>1</sup> FASB Accounting for Obligations Associated with the Retirement of Long-Lived Assets. Staff summary of Board decisions, <http://www.rutgers.edu/Accounting/raw/fasb/project/aro>

It applies to *unambiguous* legal obligations associated with the retirement of long-lived assets that result from the acquisition, construction, development and (or) the normal operation of a long-lived asset, except for certain obligations of lessees. As used in SFAS No. 143, a legal obligation is an obligation that a party is required to settle as a result of an existing or enacted law, statute, ordinance, or written or oral contract or by legal construction of a contract under the doctrine of promissory estoppel.<sup>2</sup> SFAS No. 143 is effective for all financial statements issued for fiscal years beginning after June 15, 2002.

As indicated, SFAS No. 143 establishes accounting standards for recognition and measurement of a liability for an *asset retirement obligation* ("ARO") and the associated *asset retirement cost* ("ARC"). An asset retirement obligation refers to an obligation associated with the retirement of a tangible long-lived asset. The term asset retirement cost refers to the amount capitalized that increases the carrying amount of the long-lived asset when a liability for an asset retirement obligation is recognized.<sup>3</sup>

In general, SFAS No. 143 requires all entities to conduct reviews of their long-lived assets to determine whether they have AROs based on the legal standards summarized above. If an ARO exists, the entity must measure the ARC and record a liability for the amount and capitalize it as part of the original cost of the asset.

In explaining why it adopted this approach, the FASB stated that "paragraph 37 of [its] Statement 19 states that 'estimated dismantlement, restoration, and abandonment costs [future cost of removal]...shall be taken into account in determining amortization and depreciation rates.' Application of that paragraph has the effect of accruing an expense irrespective of the requirements for liability recognition in FASB Concepts Statements. In doing so, it results in [the anomalous] recognition of accumulated depreciation that can exceed the historical cost of a long-lived asset. The Board concluded that an entity should be precluded from including an amount for an asset retirement obligation in the depreciation base of a long-lived asset unless that amount also meets the recognition criteria in this Statement [SFAS No. 143]. When an entity recognizes a liability for an asset retirement obligation, it also will recognize an increase in the carrying amount of the related long-lived asset. Consequently, depreciation of that asset will not result in the recognition of accumulated depreciation in excess of the historical cost of a long-lived asset."<sup>4</sup>

Paragraph 37 eliminates any doubt as to the FASB's intent regarding the application of SFAS No. 143. All companies must review their long-lived assets to determine whether they have unambiguous legal asset retirement obligations associated with those assets. If they do have such obligations, then the estimated ARC (which is based on its estimated present value and updated annually following the rules in the Statement) is capitalized as part off the cost of the asset. Thus, at the end of the asset's

<sup>2</sup> SFAS No. 143, Summary, and Paragraph 2, and Appendix A, Paragraph A3.

<sup>3</sup> Id., Paragraph 1 and Footnote 1.

<sup>4</sup> Id., Paragraph B22. Emphasis added.

life, the accumulated depreciation account will be equal to the historical plant balance. In no case, may entities in general, include estimated future cost of removal in depreciation rates. Although SFAS No. 143 does not specifically state what to do with removal costs for assets which are not AROs, it is intuitively well accepted that concepts in the AICPA's SOP on Property, Plant and Equipment will eventually be adopted, and at least will not be objectionable. Those concepts would support expensing as incurred, or capitalization as a cost of the replacement.

Regardless of these overall principles and concepts, SFAS No. 143 recognizes that historically, many public utility depreciation rates contained a component for future cost of removal in the rate calculation. It deals with this issue as follows. "Many rate-regulated entities currently provide for the costs related to asset retirement obligations in their financial statements and recover those amounts in rates charged to their customers. Some of those costs relate to asset retirement obligations within the scope of this Statement; others are not within the scope of this Statement and, therefore, cannot be recognized as liabilities under its provisions. The objective of including those amounts in rates currently charged to customers is to allocate costs to customers over the lives of those assets. The amount charged to customers is adjusted periodically to reflect the excess or deficiency of the amounts charged over the amounts incurred for the retirement of long-lived assets. The Board concluded that if asset retirement costs are charged to customers of rate-regulated entities but no liability is recognized, a regulatory liability should be recognized if the requirements of SFAS No. 71 are met."<sup>5</sup>

Thus if the utility has included future net salvage in the past for which it has no ARO, then it will recognize and record a Regulatory Liability to ratepayers for that amount on its financial books and records. Presumably, if the utility continues to include future cost of removal in its depreciation rates, the Regulatory Liability to Ratepayers will also continue to grow.

In summary, SFAS No. 143 precludes the inclusion of future net salvage in depreciation rates for all entities in general, based on the principles and concepts included therein. However, recognizing the unique aspects of rate-regulated entities, SFAS No. 143 requires that those unique aspects be accounted for in a Regulatory Liability to Ratepayers.

#### **FERC Docket No. RM02-7-000**

On March 29, 2002, the FERC Commission staff announced that it would hold a technical conference to discuss the financial accounting, reporting and ratemaking implications related to asset retirement obligations associated with the retirement of tangible long-lived assets.<sup>6</sup> "The main purpose for convening this technical conference is to afford an opportunity for the electric, natural gas and oil pipeline industries and other

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<sup>5</sup> Id., Paragraph B72.

<sup>6</sup> Federal Energy Regulatory Commission, Docket No. RM02-7-000, Notice of Informal Technical Conference, Agenda and Request for Comments, (March 29, 2002). ("Notice".)

interested parties to discuss with the Commission staff issues related to the implementation of accounting requirements for asset retirement obligations. The goal of the conference is to identify how recognition of asset retirement obligations may affect the Commission's existing accounting and rate regulations."<sup>7</sup> The FERC Notice also requested comments on the subject.

Several comments were received and the Technical Conference was held at the FERC in Washington, D.C. on May 7, 2002. Several parties attended, and several panels were heard, followed by a question and answer session. The subjects of ARO's and SFAS No. 143 were intertwined through virtually all comments. Subsequently, on October 30, 2002, the FERC Issued a Notice of Proposed Rulemaking ("NOPR") in Docket RM02-7-000. The FERC proposed to revise its regulations to update the accounting and reporting requirements for liabilities for asset retirement obligations under its Uniform Systems of Accounts for public utilities, licensees, natural gas companies, and oil pipeline companies.<sup>8</sup>

The NOPR stated that "the proposed accounting for asset retirement obligations is consistent with the accounting and reporting requirement that jurisdictional entities will use [SFAS No. 143] in their general purpose financial statements provided to shareholders and the Securities and Exchange Commission. (e.g., companies will separately account and report the liability for asset retirement obligations, capitalize the asset costs, and charge earnings for depreciation of the asset and operating expense for the accretion of the liability)."<sup>9</sup>

The NOPR went on to say "the recognition and measurement of legal liabilities associated with the retirement and decommissioning of long-lived assets by various entities, including Commission jurisdictional entities, has been inconsistent over the years. The usefulness of consistently recognizing and measuring asset retirement obligations in the financial statements resulted in Financial Accounting Standards Board (FASB) issuing a new accounting pronouncement affecting the manner in which legal obligations are measured and reported in the financial statements applicable to entities in general.<sup>6</sup>" The NOPR's footnotes 6 to 12 then cited to various paragraphs and concepts contained in SFAS No. 143. The NOPR generally proposed to adopt and integrate SFAS No. 143 into its Uniform System of Accounts, and Reporting Requirements and then established certain ratemaking standards.

Regarding non-legal retirement obligations the NOPR stated "the Commission is aware that a number of natural gas companies are currently collecting an allowance in jurisdictional rates to cover the future cost of retiring and removing facilities. This allowance is referred to as a negative salvage allowance. The Commission believes that these negative salvage allowances do not necessarily reflect the existence of a legal asset

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<sup>7</sup> Notice page 3.

<sup>8</sup> FERC Docket No. RM02-7-000, Notice of Proposed Rulemaking, Issued October 30, 2002, ("NOPR"), page 1.

<sup>9</sup> Id., Paragraph I.2.

retirement obligation. Therefore, the Commission will require that negative net salvage allowances that are not established due to an asset retirement obligation be identified for ratemaking purposes separately from asset retirement obligation allowances. The current rate change filing requirements for natural gas companies at 154.312(d), Statement D, requires that any authorized negative salvage must be maintained in a separate subaccount of account 108, Accumulated provision for depreciation of gas utility plant. The Commission proposes to amend this section to ensure that this subaccount must not include any amounts related to asset retirement obligations."<sup>10</sup> The NOPR did not specifically identify electric utilities in this regard. Again, comments were requested and received, and on April 9, 2003 the FERC issued its Final Rule, i.e. Docket No. RM02-7-000, Order No. 631.

### **Order No. 631**

Order No. 631 states "instead, we will require jurisdictional entities to maintain separate subsidiary records for cost of removal for non-legal retirement obligations that are included as specific identifiable allowances recorded in accumulated depreciation in order to separately identify such information to facilitate external reporting and for regulatory analysis, and rate setting purposes. Therefore, the Commission is amending the instructions of accounts 108 and 110 in parts 101, 201 and account 31, Accrued depreciation-carrier property, in Part 352 to require jurisdictional entities to maintain separate subsidiary records for the purpose of identifying the amount of specific allowances collected in rates for non-legal retirement obligations included in the depreciation accruals."<sup>11</sup>

"Jurisdictional entities must identify and quantify in separate subsidiary records the amounts, if any, of previous and current accumulated removal costs for other than legal retirement obligations as part of the depreciation accrual in accounts 108 and 110 for public utilities and licensees, account 108 for natural gas companies, and account 31 for oil pipeline companies. If jurisdictional entities do not have the required records to separately identify such prior accruals for specific identifiable allowances collected in rates for non-legal asset retirement obligations recorded in accumulated depreciation, the Commission will require that the jurisdictional entities separately identify and quantify prospectively the amount of current accruals for specific allowances collected in rates for non-legal retirement obligations."<sup>12</sup>

Order No. 631 also states "the Commission will decline to make policy calls concerning regulatory certainty for disposition of transition costs, external funds for amounts collected in rates for asset retirement obligations, adjustments to book depreciation rates, and the exclusion of accumulated depreciation and accretion for asset retirement obligations from rate base; these are matters that are not subject to a one size fits all approach and are better resolved on a case-by-case basis in rate proceedings. The

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<sup>10</sup> Id., Paragraph III 45.

<sup>11</sup> FERC Docket No. RM02-7-000, Order No. 631, Issued April 9, 2003, Paragraph 39.

<sup>12</sup> Id., Paragraph 39.

Commission is of the view that utilities will have the opportunity to seek recovery of qualified costs for asset retirement obligations in individual rate proceedings. This rule should not be construed as pregranted authority for rate recovery in a rate proceeding."<sup>13</sup>

Order No. 631 goes on to say "finally this rule requires nothing new and nothing more with respect to the requirement for a detailed study. Complex depreciation and negative salvage studies are routinely filed or otherwise made available for review in rate proceedings. When utilities perform depreciation studies, a certain amount of detail is expected. It is incumbent upon the utility to provide sufficient detail to support depreciation rates, cost of removal, and salvage estimates in rates.<sup>45</sup>"<sup>14</sup> And footnote 45 states "when an electric utility files for a change in its jurisdictional rates, the Commission requires detailed studies in support of changes in annual depreciation rates if they are different from those supporting the utility's prior approved jurisdictional rate."<sup>15</sup>

Thus, it seems clear that the FERC recognizes distinctions between legal and non-legal AROs just as SFAS No. 143 recognizes those distinctions. In fact, the amount resulting from Order No. 631's requirement to identify previous amounts collected for non-legal ARO's should result in the same amount as the SFAS NO. 143 requirement to establish a regulatory liability to ratepayers for the same amounts. It is also clear, that on a going-forward basis, jurisdictional entities must be prepared to specifically identify and justify any non-legal AROs that they propose to be included in their rates.

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<sup>13</sup> Id., Paragraph 64. (Emphasis added.)

<sup>14</sup> Id., Paragraph 65.

<sup>15</sup> Id., footnote 45.

**SNAVELY MAJOROS O'CONNOR & LEE, INC.'S FIRST SET OF DATA REQUESTS  
TO ARIZONA PUBLIC SERVICE COMPANY  
IN THE MATTER OF THE APPLICATION OF ARIZONA PUBLIC SERVICE COMPANY FOR  
A HEARING TO DETERMINE THE FAIR VALUE OF THE UTILITY PROPERTY OF THE  
COMPANY FOR RATEMAKING PURPOSES, TO FIX A JUST AND REASONABLE RATE OF  
RETURN THEREON, TO APPROVE RATE SCHEDULES DESIGNED TO DEVELOP SUCH  
RETURN, AND FOR APPROVAL OF PURCHASED POWER CONTRACT  
E-01345A-03-0437**

- MJM 1-11 For all accounts and locations for which Mr. Wiedmayer is proposing the life span method, provide the following information to support the final retirement dates. Please respond to each item.
- a. Economic studies. (NARUC, p. 146)
  - b. Retirement plans. (NARUC, p. 146)
  - c. Forecasts. (NARUC, p. 146)
  - d. Studies of technological obsolescence. (NARUC, p. 146)
  - e. Studies of adequacy of capacity. (NARUC, p. 146)
  - f. Studies of competitive pressure. (NARUC, p. 146)
  - g. Relationship of type of construction to remaining life span.
  - h. Relationship of attained age to remaining life span.
  - i. Relationship of observed features and conditions at the time of field visits to remaining life span.
  - j. Relationship of specific plans of management to remaining life span.

**RESPONSE:**

The life-span method is proposed for Production Accounts 311 through 346. APS does not maintain the information requested in the question in the form outlined in NARUC Public Utility Depreciation Practices. For these accounts in the current depreciation study, the changes to the prior approved retirement dates either increases the expected lives or reflect actual retirements or planned retirements. These changes were based primarily on engineers' estimates of remaining life for the specific assets in question.

For steam production plants, the lives were generally increased from the prior approved lives. Four Corners 1-3 and Navajo were tied to the underlying lease terms. Four Corners 4-5 was tied to the ARO probability for retirement of such units, and lives of such units were extended from 50 to 62 years. The lives for the Cholla units were increased by five years from the prior approved lives, based on engineers' estimates. The lives for Octollo and Saguaro are the same as in the prior approved study. The West Phoenix steam units were retired.

For Palo Verde, the retirement dates are unchanged from the prior approved depreciation study, and reflects the license period. The retirement dates for the Childs-Irving hydro units reflect the scheduled decommissioning date of 2004. The retirement dates for the combustion turbines are based on a 45 year life, which APS believes is a very conservative estimate of plant life from a depreciation standpoint.

APS evaluated the proposed retirement dates for each of its units and determined that they were at the high end of industry averages, and thus believes that they are reasonable for purposes of the depreciation study. See the response to MJM 1-44, RC01212 (Estimated Remaining Life of Generating Plants).

Witness: Laura Rockenberger

ARIZONA PUBLIC SERVICE COMPANY

ACCOUNT 355 POLES AND FIXTURES

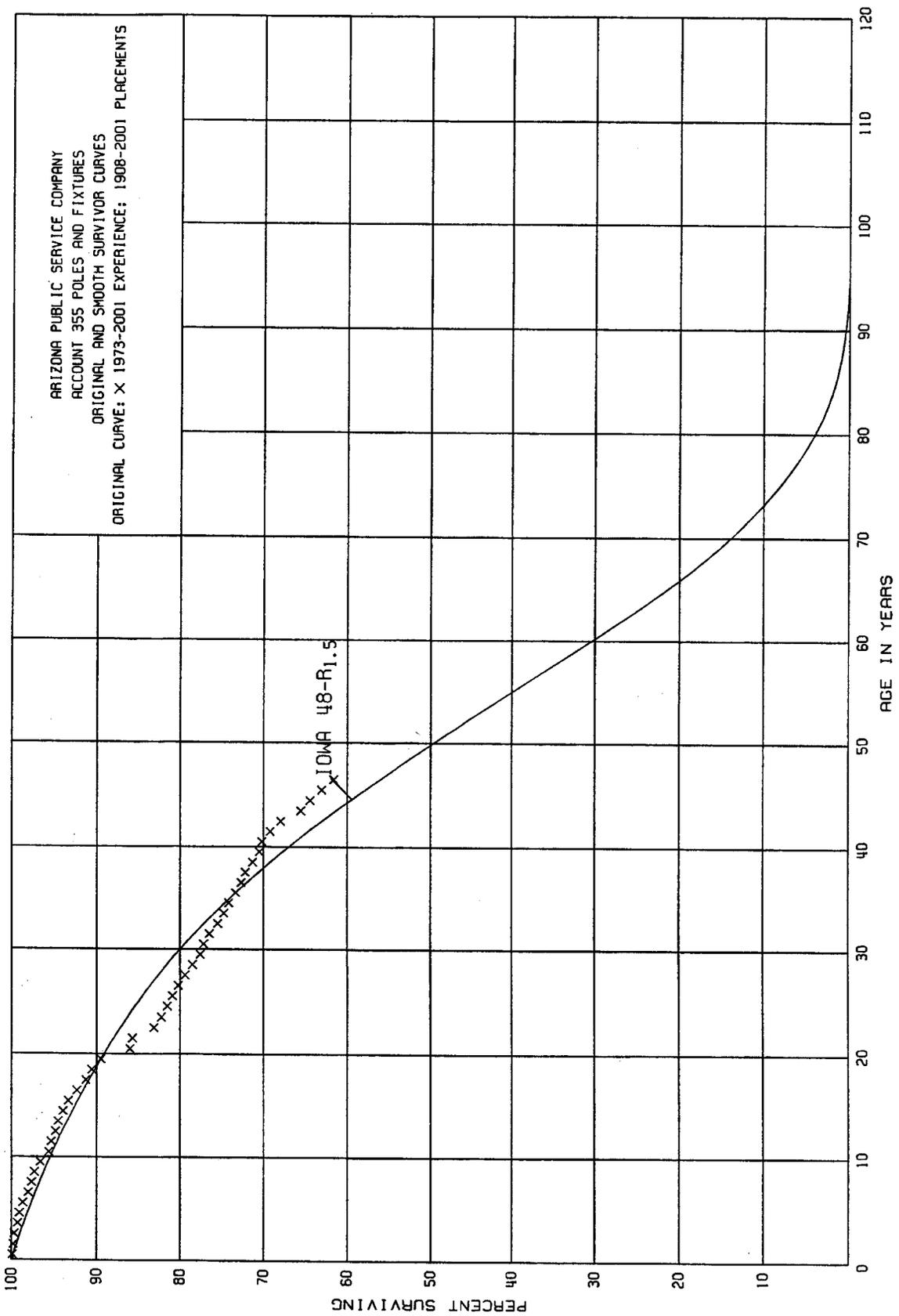
ORIGINAL LIFE TABLE

PLACEMENT BAND 1908-2001			EXPERIENCE BAND 1973-2001		
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	164,144,540	72,225	0.0004	0.9996	100.00
0.5	144,644,782	232,894	0.0016	0.9984	99.96
1.5	138,212,981	135,623	0.0010	0.9990	99.80
2.5	126,925,913	566,143	0.0045	0.9955	99.70
3.5	121,289,304	179,349	0.0015	0.9985	99.25
4.5	118,257,352	423,955	0.0036	0.9964	99.10
5.5	111,116,631	733,488	0.0066	0.9934	98.74
6.5	103,873,355	391,905	0.0038	0.9962	98.09
7.5	103,190,689	375,260	0.0036	0.9964	97.72
8.5	98,795,154	727,875	0.0074	0.9926	97.37
9.5	93,284,501	926,023	0.0099	0.9901	96.65
10.5	88,484,348	301,393	0.0034	0.9966	95.69
11.5	83,762,665	375,454	0.0045	0.9955	95.36
12.5	70,956,713	239,637	0.0034	0.9966	94.93
13.5	61,276,994	423,298	0.0069	0.9931	94.61
14.5	53,894,621	300,091	0.0056	0.9944	93.96
15.5	35,846,557	383,474	0.0107	0.9893	93.43
16.5	33,410,021	405,775	0.0121	0.9879	92.43
17.5	31,151,992	259,907	0.0083	0.9917	91.31
18.5	29,918,742	340,405	0.0114	0.9886	90.55
19.5	24,578,628	956,734	0.0389	0.9611	89.52
20.5	22,937,606	101,462	0.0044	0.9956	86.04
21.5	20,959,452	628,733	0.0300	0.9700	85.66
22.5	19,361,241	201,739	0.0104	0.9896	83.09
23.5	18,187,504	165,740	0.0091	0.9909	82.23
24.5	17,021,507	128,025	0.0075	0.9925	81.48
25.5	16,384,336	145,652	0.0089	0.9911	80.87
26.5	16,159,138	150,341	0.0093	0.9907	80.15
27.5	15,820,483	173,327	0.0110	0.9890	79.40
28.5	14,774,755	172,932	0.0117	0.9883	78.53
29.5	14,142,799	78,693	0.0056	0.9944	77.61
30.5	12,492,043	116,246	0.0093	0.9907	77.18
31.5	12,941,075	158,676	0.0123	0.9877	76.46
32.5	11,719,099	120,094	0.0102	0.9898	75.52
33.5	11,129,314	86,059	0.0077	0.9923	74.75
34.5	10,974,824	120,950	0.0110	0.9890	74.17
35.5	10,742,451	100,214	0.0093	0.9907	73.35
36.5	9,406,763	64,275	0.0068	0.9932	72.67
37.5	8,986,755	106,205	0.0118	0.9882	72.18
38.5	8,852,247	105,849	0.0120	0.9880	71.33

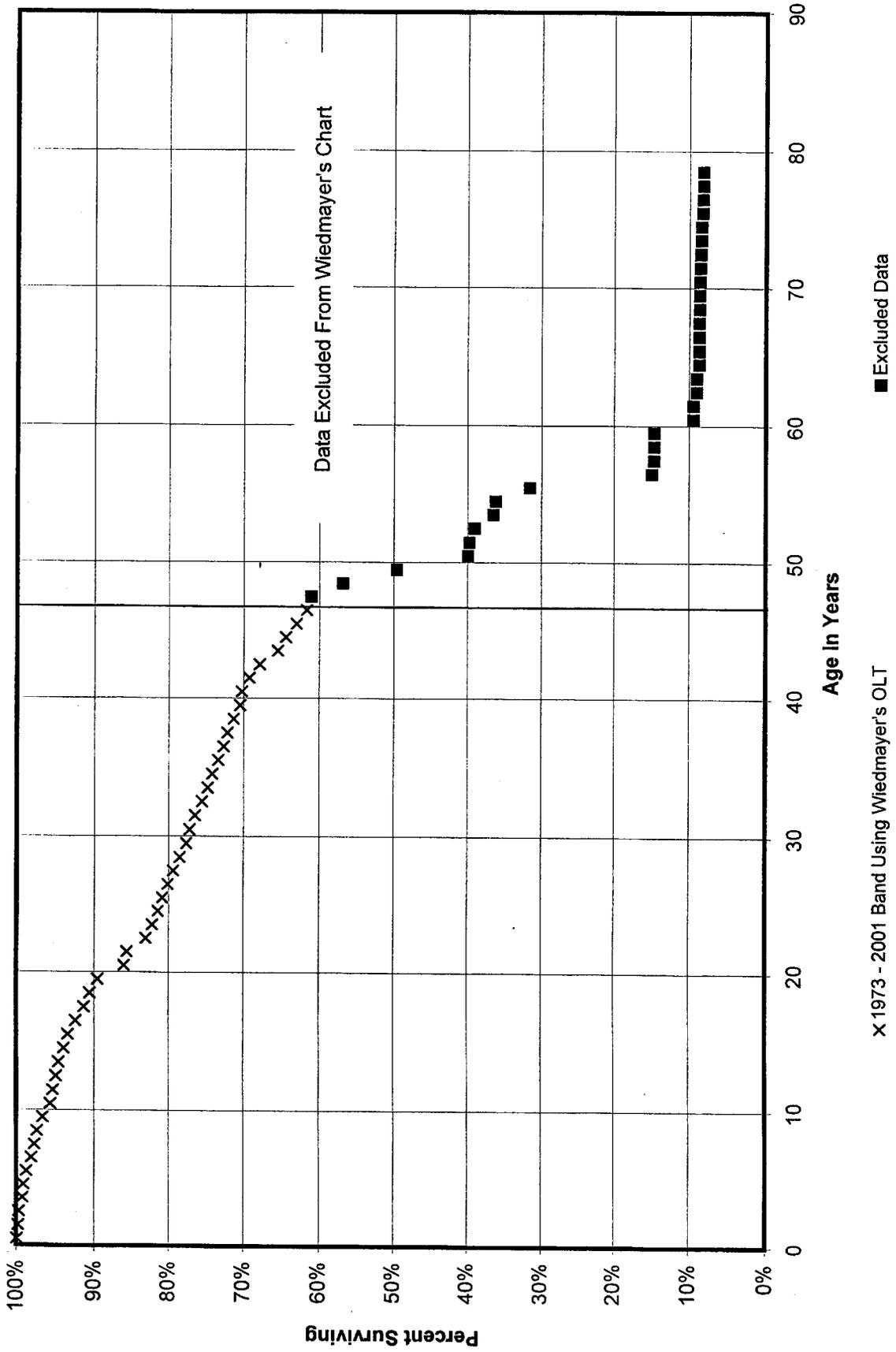
ARIZONA PUBLIC SERVICE COMPANY  
ACCOUNT 355 POLES AND FIXTURES

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1908-2001			EXPERIENCE BAND 1973-2001			
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	8,608,626	29,539	0.0034	0.9966	70.47	
40.5	5,523,642	78,333	0.0142	0.9858	70.23	
41.5	5,380,260	104,272	0.0194	0.9806	69.23	
42.5	5,062,293	180,505	0.0357	0.9643	67.89	
43.5	2,555,869	41,059	0.0161	0.9839	65.47	
44.5	2,346,574	52,793	0.0225	0.9775	64.42	
45.5	2,134,195	45,287	0.0212	0.9788	62.97	
46.5	1,481,506	15,216	0.0103	0.9897	61.64	
47.5	1,408,839	96,415	0.0684	0.9316	61.01	
48.5	544,385	69,920	0.1284	0.8716	56.84	
49.5	415,478	80,678	0.1942	0.8058	49.54	
50.5	334,800	1,432	0.0043	0.9957	39.92	
51.5	333,368	6,158	0.0185	0.9815	39.75	
52.5	315,819	20,390	0.0646	0.9354	39.01	
53.5	97,778	810	0.0083	0.9917	36.49	
54.5	96,968	12,433	0.1282	0.8718	36.19	
55.5	4,734	2,496	0.5272	0.4728	31.55	
56.5	2,382	48	0.0202	0.9798	14.92	
57.5	2,334		0.0000	1.0000	14.62	
58.5	2,334		0.0000	1.0000	14.62	
59.5	2,334	830	0.3556	0.6444	14.62	
60.5	1,504		0.0000	1.0000	9.42	
61.5	1,504	68	0.0452	0.9548	9.42	
62.5	1,669		0.0000	1.0000	8.99	
63.5	34,899	1,292	0.0370	0.9630	8.99	
64.5	34,444		0.0000	1.0000	8.66	
65.5	34,444		0.0000	1.0000	8.66	
66.5	34,444	25	0.0007	0.9993	8.66	
67.5	34,419	148	0.0043	0.9957	8.65	
68.5	34,271		0.0000	1.0000	8.61	
69.5	34,271	208	0.0061	0.9939	8.61	
70.5	34,063	110	0.0032	0.9968	8.56	
71.5	33,953	144	0.0042	0.9958	8.53	
72.5	33,809	406	0.0120	0.9880	8.49	
73.5	33,403		0.0000	1.0000	8.39	
74.5	33,403	553	0.0166	0.9834	8.39	
75.5	32,850	127	0.0039	0.9961	8.25	
76.5	32,723	284	0.0087	0.9913	8.22	
77.5	32,439		0.0000	1.0000	8.15	
78.5	32,439		0.0000	1.0000	8.15	



### Arizona Public Service Company Account 355 - Poles and Fixtures



BEFORE THE STATE OF ARIZONA  
ARIZONA CORPORATION COMMISSION

I/M/O THE APPLICATION OF )  
ARIZONA PUBLIC SERVICE COMPANY )  
FOR A HEARING TO DETERMINE THE FAIR )  
VALUE OF THE UTILITY PROPERTY OF THE )  
COMPANY FOR RATEMAKING PURPOSES, )  
TO FIX A JUST AND REASONABLE RATE OF ) DOCKET NO. E-01345A-03-0437  
RETURN THEREON, TO APPROVE RATE )  
SCHEDULES DESIGNED TO DEVELOP SUCH )  
RETURN, AND FOR APPROVAL OF )  
PURCHASED POWER CONTRACT )

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DIRECT TESTIMONY OF MICHAEL J. MAJOROS, JR.  
ON BEHALF OF THE  
ARIZONA CORPORATION COMMISSION

---

VOLUME 2

EXHIBIT \_\_\_ (MJM-3)

Date: FEBRUARY 3, 2004

**Exhibit\_\_(MJM-3)**

**Snavely King Majoros O'Connor & Lee, Inc.**

**Depreciation Study  
of  
Arizona Public Service Company**

**Analyses, Calculations & Quantifications**

**Arizona Public Service Company**

**Exhibit\_\_\_(MJM-3)**

**Index**

<b><u>Description</u></b>	<b><u>Section</u></b>
Snavely King Recommendations	Statement A
Comparison of Existing, Company Proposed & Snavely King Recommended	Statement B
Theoretical Reserve Calculation and Allocation of Book Reserves	Statement C
Annualized Comparison of Company Proposed & Snavely King Recommended	Statement D
Production Plant Life Spans	Statement E
Steam Production Plant	Section SP
Nuclear Production Plant	Section NP
Hydro Production Plant	Section HP
Other Production Plant	Section OP
Transmission Plant	Section T
Distribution Plant	Section D
General Plant	Section G
Net Salvage Analysis	Section NS
PWEC Calculations	Section PWEC

Arizona Public Service Company  
Estimated Survivor Curve, Net Salvage, Original Cost, Book Reserve and  
Calculated Annual Depreciation Accruals Related to Electric Plant in Service as of December 31, 2002  
SNAVELY KING RECOMMENDATION

Depreciable Group (1)	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2002 (5)	SK Allocated Book Reserve at 12/31/2002 (6)	Future Book Accruals (7)=(5)-(6)	Average Remaining Life (8)	Annual Amount (9)=(7)/(8)	Accrual Rate (10)=(9)/(5)
<b>PLANT IN SERVICE</b>									
<b>STEAM PRODUCTION PLANT</b>									
<b>311 Structure and Improvements</b>									
Cholla Unit 1	06-2017	75-S1.5	0	2,144,789	1,841,738	303,051	14.0	21,646	1.01%
Cholla Unit 2	06-2033	75-S1.5	0	5,022,179	2,101,615	2,920,564	29.0	100,709	2.01%
Cholla Unit 3	06-2035	75-S1.5	0	4,583,277	5,184,966	4,398,311	29.9	147,101	1.53%
Cholla Common	06-2035	75-S1.5	0	36,234,550	19,318,431	16,916,119	28.9	585,756	1.56%
Four Corners Units 1-3	06-2016	75-S1.5	0	15,972,927	10,628,079	5,344,848	13.3	401,868	2.52%
Four Corners Units 4-5	06-2031	75-S1.5	0	9,195,585	5,124,992	4,070,593	26.8	151,888	1.65%
Four Corners Common	06-2031	75-S1.5	0	3,946,871	2,227,796	1,719,075	26.8	64,145	1.63%
Navajo Units 1-3	06-2026	75-S1.5	0	27,152,517	12,197,389	14,955,128	22.8	655,927	2.42%
Ocotillo Units 1-2	06-2020	75-S1.5	0	3,787,972	2,084,288	1,703,684	17.1	99,631	2.63%
Saguaro Units 1-2	06-2014	75-S1.5	0	2,446,832	1,989,759	457,073	11.3	40,449	1.65%
Yucca Unit 1	06-2016	75-S1.5	0	462,567	452,608	9,959	13.1	760	0.16%
<b>Total Account 311</b>				<b>115,950,066</b>	<b>63,151,660</b>	<b>52,798,406</b>		<b>2,249,880</b>	<b>1.94%</b>
<b>312 Boiler Plant Equipment</b>									
Cholla Unit 1	06-2017	48-L2	0	28,431,681	17,605,653	8,826,028	13.4	658,659	2.49%
Cholla Unit 2	06-2033	48-L2	0	140,612,492	86,692,363	53,920,129	22.0	2,450,915	1.74%
Cholla Unit 3	06-2035	48-L2	0	100,448,965	60,203,467	40,245,488	22.9	1,757,445	1.75%
Cholla Common	06-2035	48-L2	0	22,626,051	11,328,185	11,287,866	24.8	455,559	2.01%
Four Corners Units 1-3	06-2016	48-L2	0	187,139,757	115,304,816	81,834,941	12.7	6,443,696	3.27%
Four Corners Units 4-5	06-2031	48-L2	0	111,591,873	64,306,071	47,285,802	22.1	2,139,829	1.92%
Four Corners Common	06-2031	48-L2	0	3,280,391	2,152,160	1,128,231	22.8	49,922	1.52%
Navajo Units 1-3	06-2026	48-L2	0	149,350,243	89,950,378	79,399,865	20.6	3,854,362	2.58%
Ocotillo Units 1-2	06-2020	48-L2	0	24,152,351	17,905,382	6,246,969	15.2	410,985	1.70%
Saguaro Units 1-2	06-2014	48-L2	0	24,387,712	16,566,160	7,821,552	11.1	704,644	2.89%
<b>Total Account 312</b>				<b>800,031,516</b>	<b>462,014,635</b>	<b>338,016,881</b>		<b>18,925,817</b>	<b>2.37%</b>
<b>314 Turbogenerator Units</b>									
Cholla Unit 1	06-2017	65-R2	0	10,417,373	7,459,687	2,957,686	14.0	211,263	2.03%
Cholla Unit 2	06-2033	65-R2	0	28,551,889	15,518,951	13,032,938	27.5	473,925	1.66%
Cholla Unit 3	06-2035	65-R2	0	39,626,197	16,959,280	22,666,917	29.7	763,196	1.93%
Cholla Common	06-2035	65-R2	0	631,278	335,591	295,687	29.0	10,196	1.62%
Four Corners Units 1-3	06-2016	65-R2	0	36,412,926	24,829,283	11,583,643	13.1	884,248	2.43%
Four Corners Units 4-5	06-2031	65-R2	0	14,488,238	7,086,302	7,401,936	26.3	281,442	1.94%
Four Corners Common	06-2031	65-R2	0	1,726,164	1,349,968	376,196	23.3	16,146	0.94%
Navajo Units 1-3	06-2026	65-R2	0	24,387,110	14,479,672	9,907,438	22.0	450,338	1.85%
Ocotillo Units 1-2	06-2020	65-R2	0	15,517,601	11,437,238	4,080,363	16.8	242,879	1.57%
Saguaro Units 1-2	06-2014	65-R2	0	16,259,688	13,244,927	3,014,771	11.2	269,176	1.66%
<b>Total Accounts 314</b>				<b>188,018,474</b>	<b>112,700,899</b>	<b>75,317,575</b>		<b>3,602,809</b>	<b>1.92%</b>

Arizona Public Service Company  
 Estimated Survivor Curve, Net Salvage, Original Cost, Book Reserve and  
 Calculated Annual Depreciation Accruals Related to Electric Plant in Service as of December 31, 2002  
 SNAVELY KING RECOMMENDATION

Exhibit (MJM - 3)  
 Statement A  
 Page 3 of 6

Depreciable Group	Probable Retirement Date	Estimated Survivor Curve	Net Salvage Percent	Original Cost at 12/31/2002	SK Allocated Book Reserve at 12/31/2002	Future Book Accruals (7)=(5)-(6)	Average Remaining Life	Annual Amount (9)=(7)/(8)	Accrual Rate (10)=(9)/(5)
<b>323 Turbogenerator Units</b>									
Palo Verde Unit 1	12-2024	60-SO	0	117,808,078	51,570,896	66,237,182	19.9	3,328,502	2.83%
Palo Verde Unit 2	12-2025	60-SO	0	76,754,224	32,432,468	44,321,756	20.8	2,130,854	2.78%
Palo Verde Unit 3	03-2027	60-SO	0	142,895,088	55,838,987	87,056,101	21.8	3,993,399	2.79%
Palo Verde Water Reclamation	03-2027	60-SO	0	217,707	76,585	141,122	22.0	6,415	2.95%
Palo Verde Common	03-2027	60-SO	0	1,223,879	346,554	877,325	22.2	39,519	3.23%
<b>Total Account 323</b>				<b>338,898,976</b>	<b>140,285,491</b>	<b>198,613,485</b>		<b>9,498,688</b>	<b>2.80%</b>
<b>324 Accessory Electric Equipment</b>									
Palo Verde Unit 1	12-2024	45-R3	0	115,495,170	53,444,066	62,051,104	20.0	3,102,555	2.69%
Palo Verde Unit 2	12-2025	45-R3	0	50,119,388	21,982,186	28,137,202	20.9	1,346,278	2.69%
Palo Verde Unit 3	03-2027	45-R3	0	89,143,623	36,343,481	52,800,142	22.1	2,389,147	2.68%
Palo Verde Common	03-2027	45-R3	0	17,918,193	7,299,463	10,618,730	22.0	482,670	2.69%
<b>Total Account 324</b>				<b>272,676,374</b>	<b>119,069,196</b>	<b>153,607,178</b>		<b>7,320,649</b>	<b>2.68%</b>
<b>325 Miscellaneous Power Plant Equipment</b>									
Palo Verde Unit 1	12-2024	35-R0.5	0	29,671,405	11,770,905	17,900,500	17.7	1,011,328	3.41%
Palo Verde Unit 2	12-2025	35-R0.5	0	26,389,406	8,702,844	17,686,562	18.7	945,805	3.58%
Palo Verde Unit 3	03-2027	35-R0.5	0	27,284,046	9,445,478	17,838,568	19.2	929,092	3.41%
Palo Verde Water Reclamation	03-2027	35-R0.5	0	88,819	27,706	61,113	19.5	3,134	3.53%
Palo Verde Common	03-2027	35-R0.5	0	48,459,510	15,382,218	33,077,292	19.4	1,705,015	3.52%
<b>Total Account 325</b>				<b>131,893,186</b>	<b>45,329,152</b>	<b>86,564,034</b>		<b>4,594,374</b>	<b>3.48%</b>
<b>TOTAL NUCLEAR PRODUCTION PLANT</b>				<b>2,333,472,616</b>	<b>987,139,997</b>	<b>1,346,332,619</b>		<b>64,485,507</b>	<b>2.76%</b>
<b>HYDRO PRODUCTION PLANT</b>									
331 Structures and Improvements	12-2024	200-SQ	0	100,878	100,878	0	0	0	0.00%
332 Reservoirs, Dams, and Waterways	12-2004	200-SQ	0	991,936	1,105,086	(113,150)	0	0	0.00%
333 Water Wheels, Turbines, and Generators	12-2004	200-SQ	0	157,196	157,196	0	0	0	0.00%
334 Accessory Electric Equipment	12-2004	200-SQ	0	627,611	627,611	0	0	0	0.00%
335 Miscellaneous Power Plant Equipment	12-2004	200-SQ	0	126,018	126,018	0	0	0	0.00%
336 Roads, Railroads, and Bridges	12-2004	200-SQ	0	77,427	77,427	0	0	0	0.00%
Hydro Decommissioning Costs				7,864,531	7,864,531	5,335,469	2.0	2,667,735	1/
<b>TOTAL HYDRO PRODUCTION PLANT</b>				<b>2,081,066</b>	<b>10,058,747</b>	<b>5,222,319</b>		<b>2,667,735</b>	

Arizona Public Service Company  
 Estimated Survivor Curve, Net Salvage, Original Cost, Book Reserve and  
 Calculated Annual Depreciation Accruals Related to Electric Plant in Service as of December 31, 2002  
 SNAVELY KING RECOMMENDATION

Depreciable Group	(1)	Probable Retirement Date	Estimated Survivor Curve	Net Salvage Percent	Original Cost at 12/31/2002	SK Allocated Book Reserve at 12/31/2002	Future Book Accruals	Average Remaining Life	Annual Amount	Accrual Rate
<b>OTHER PRODUCTION</b>										
<b>341 Structures and Improvements</b>										
Douglas CT		06-2017	80-S1	0	4,562	4,148	414	13.9	30	0.65%
Ocotillo CT 1-2		06-2017	80-S1	0	328,749	230,819	97,930	14.5	6,754	2.05%
Saguano CT		06-2017	80-S1	0	1,288,525	486,971	821,554	14.4	57,052	4.43%
Solar Unit 1		06-2017	12-SQ	0	375,512	383,809	(8,297)	3.6	-2,305	-0.61%
West Phoenix CT 1-2		06-2017	80-S1	0	510,951	419,492	91,459	14.2	6,441	1.26%
West Phoenix Combined Cycle 1-3		06-2031	80-S1	0	6,706,722	2,438,522	4,268,200	28.1	151,893	2.26%
Yucca CT 1-4		06-2016	80-S1	0	452,751	222,815	229,936	13.4	17,159	3.79%
<b>Total Account 341</b>					<b>9,667,772</b>	<b>4,166,575</b>	<b>5,501,197</b>		<b>237,025</b>	<b>2.45%</b>
<b>342 Fuel Holders, Products and Accessories</b>										
Douglas CT		06-2017	70-S1	0	137,759	100,065	37,694	14.0	2,692	1.95%
Ocotillo CT 1-2		06-2017	70-S1	0	719,959	517,984	201,975	14.0	14,420	2.00%
Saguano CT		06-2017	70-S1	0	1,304,970	1,019,500	285,477	14.0	20,391	1.56%
West Phoenix CT 1-2		06-2017	70-S1	0	1,437,533	1,123,270	314,263	14.0	22,447	1.56%
West Phoenix Combined Cycle 1-3		06-2031	70-S1	0	19,343,993	2,649,135	16,694,858	27.7	602,702	3.12%
Yucca CT 1-4		06-2016	70-S1	0	3,232,217	2,859,228	372,989	12.9	28,914	0.89%
<b>Total Account 342</b>					<b>26,176,338</b>	<b>8,269,181</b>	<b>17,907,157</b>		<b>691,567</b>	<b>2.64%</b>
<b>343 Prime Movers</b>										
Douglas CT		06-2017	70-L1.5	0	1,101,449	999,227	102,222	14.1	0	0.00%
Ocotillo CT 1-2		06-2017	70-L1.5	0	6,679,324	5,679,469	999,855	13.8	70,912	1.06%
Saguano CT		06-2017	70-L1.5	0	8,102,851	6,657,234	1,445,617	14.2	104,740	1.29%
West Phoenix CT 1-2		06-2017	70-L1.5	0	8,802,636	6,220,272	2,582,364	14.2	181,857	2.07%
Yucca CT 1-4		06-2016	70-L1.5	0	7,920,584	7,302,457	618,127	0	0	0.00%
<b>Total Account 343</b>					<b>32,806,844</b>	<b>26,858,659</b>	<b>5,747,985</b>		<b>357,509</b>	<b>1.10%</b>
<b>344 Generators and Devices</b>										
Douglas CT		06-2017	37-R3	0	551,765	542,840	8,925	9.7	920	0.17%
Ocotillo CT 1-2		06-2017	37-R3	0	6,402,044	3,500,409	2,901,635	13.6	213,356	3.33%
Saguano CT		06-2017	37-R3	0	4,185,247	2,504,957	1,680,290	13.0	128,233	3.09%
Solar Unit 1		06-2017	12-SQ	0	6,933,081	3,289,918	3,643,163	7.8	467,072	6.74%
West Phoenix CT 1-2		06-2017	37-R3	0	4,115,901	3,202,560	913,341	12.3	74,255	1.80%
West Phoenix Combined Cycle 1-3		06-2031	37-R3	0	81,920,222	11,983,119	69,937,103	26.2	2,669,355	3.26%
Yucca CT 1-4		06-2016	37-R3	0	5,395,818	4,370,148	1,025,670	11.6	88,420	1.64%
<b>Total Account 344</b>					<b>109,504,078</b>	<b>29,393,951</b>	<b>80,110,127</b>		<b>3,642,631</b>	<b>3.33%</b>

Arizona Public Service Company  
**Estimated Survivor Curve, Net Salvage, Original Cost, Book Reserve and  
 Calculated Annual Depreciation Accruals Related to Electric Plant in Service as of December 31, 2002**  
 SNAVELY KING RECOMMENDATION

Depreciable Group	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2002 (5)	SK Allocated Book Reserve at 12/31/2002 (6)	Future Book Accruals (7)=(5)-(6)	Average Remaining Life (8)	Annual Amount (9)=(7)/(8)	Accrual Rate (10)=(9)/(5)
<b>345 Accessory Electric Equipment</b>									
Douglas CT	06-2017	50-S2	0	363,277	313,549	39,728	13.1	3,033	0.86%
Ocotillo CT 1-2	06-2017	50-S2	0	1,494,636	1,281,843	212,793	13.2	16,121	1.08%
Saguano CT	06-2017	50-S2	0	1,715,774	1,389,500	326,274	13.4	24,349	1.42%
Solar Unit 1		12-SQ	0	169,527	40,179	129,348	9.9	13,065	7.71%
West Phoenix CT 1-2	06-2017	50-S2	0	1,557,744	1,315,426	242,318	13.2	18,357	1.18%
West Phoenix Combined Cycle 1-3	06-2031	50-S2	0	11,925,645	2,562,942	9,362,703	27.8	336,788	2.82%
Yuca CT 1-4	06-2016	50-S2	0	2,166,526	1,817,989	348,537	13.0	26,812	1.24%
<b>Total Account 345</b>				<b>19,383,129</b>	<b>8,721,408</b>	<b>10,661,721</b>		<b>438,525</b>	<b>2.26%</b>
<b>346 Miscellaneous Power Plant Equipment</b>									
Douglas CT	06-2017	70-L1	0	40,913	30,160	10,753	13.8	779	1.90%
Ocotillo CT 1-2	06-2017	70-L1	0	553,173	418,686	134,477	14.0	9,605	1.74%
Saguano CT	06-2017	70-L1	0	790,906	410,357	380,549	14.1	26,989	3.41%
West Phoenix CT 1-2	06-2031	70-L1	0	957,431	508,533	448,898	14.1	31,837	3.33%
West Phoenix Combined Cycle 1-3	06-2031	70-L1	0	2,608,877	895,856	1,713,021	26.6	64,399	2.47%
Yuca CT 1-4	06-2016	70-L1	0	427,175	357,633	69,542	13.2	5,268	1.23%
<b>Total Account 346</b>				<b>5,378,475</b>	<b>2,621,236</b>	<b>2,757,239</b>		<b>138,878</b>	<b>2.58%</b>
<b>TOTAL OTHER PRODUCTION PLANT</b>				<b>202,716,436</b>	<b>80,031,011</b>	<b>122,685,425</b>		<b>5,506,195</b>	<b>2.72%</b>
<b>TRANSMISSION PLANT</b>									
352 Structures and Improvements		50-R4	0	27,618,289	12,484,016	15,134,283	35.2	429,951	1.56%
352.5 Structures and Improvements - SCE 500 KV Line			0	409,725	424,987	(15,172)		13,316	3.25%
353 Station Equipment		57-R1.5	0	428,736,305	130,140,054	298,596,251	45.7	6,538,127	1.52%
353.5 Station Equipment - SCE 500 KV Line			0	7,747,282	7,349,363	397,919		251,787	3.25%
354 Towers and Fixtures		60-R3	0	83,464,531	46,097,366	37,367,165	38.3	975,644	1.17%
354.5 Towers and Fixtures - SCE 500 KV Line			0	13,752,584	17,477,965	(3,725,381)		446,959	3.25%
355 Poles and Fixtures - Wood		48-R1.5	0	91,126,939	27,541,958	63,584,981	38.5	1,651,558	1.81%
355.1 Poles and Fixtures - Steel		55-R3	0	83,067,888	22,833,440	60,234,448	45.1	1,335,575	1.61%
355.5 Poles and Fixtures - SCE 500 KV Line			0	930,308	692,575	237,733		30,235	3.25%
356 Overhead Conductors and Devices		55-R3	0	205,771,417	94,269,666	111,501,751	38.5	2,896,149	1.41%
356.5 Overhead Conductors and Devices - SCE 500 KV Line			0	22,653,515	28,947,611	(6,294,096)		736,239	3.25%
357 Underground Conduit		48-S1.5	0	10,444,362	4,087,064	6,357,298	35.7	178,076	1.70%
358 Underground Conductors and Devices		40-R3	0	18,551,254	9,702,854	8,848,400	26.3	336,441	1.81%
<b>TOTAL TRANSMISSION PLANT</b>				<b>994,274,409</b>	<b>402,048,830</b>	<b>592,225,579</b>		<b>15,820,057</b>	<b>1.59%</b>

**Arizona Public Service Company**  
**Estimated Survivor Curve, Net Salvage, Original Cost, Book Reserve and**  
**Calculated Annual Depreciation Accruals Related to Electric Plant in Service as of December 31, 2002**  
**SNAVELLY KING RECOMMENDATION**

Depreciable Group	(1)	Probable Retirement Date	(2)	Estimated Survivor Curve	(3)	Net Salvage Percent	(4)	Original Cost at 12/31/2002	(5)	SK Allocated Book Reserve at 12/31/2002	(6)	Future Book Accruals	(7)=(5)-(6)	Average Remaining Life	(8)	Annual Amount	(9)=(7)/(8)	Accrual Rate	(10)=(9)/(5)	
<b>DISTRIBUTION PLANT</b>																				
361 Structures and Improvements				45-R2.5	0	0	25,815,042	212,357,577	10,429,908	52,722,295	15,385,134	33.1	464,808	1.80%						
362 Station Equipment				44-L0.5	0	0	284,200,711	81,128,434	203,072,277	159,635,282	36.9	4,332,029	2.04%							
364 Poles and Fittings - Wood				38-R0.5	0	0	53,919,651	5,601,820	48,317,831	48,317,831	46.6	1,036,863	1.92%							
364.1 Poles and Fittings - Steel				50-R3	0	0	218,856,780	33,437,453	185,419,327	185,419,327	47.7	3,887,198	1.78%							
365 Overhead Conductors and Devices				53-O1	0	0	425,723,116	26,924,767	398,798,349	398,798,349	82.4	4,837,438	1.14%							
366 Underground Conduit				86-O1	0	0	805,505,753	258,865,205	546,640,578	22.9	23,870,768	2.96%								
367 Underground Conductors and Devices				29-L1	0	0	486,837,053	235,537,009	251,300,044	24.6	10,215,449	2.10%								
368 Line Transformers				37-S2	0	0	242,404,812	91,086,515	151,318,297	27.9	5,423,595	2.24%								
369 Services				28-L0	0	0	91,330,710	34,836,184	56,494,526	21.8	2,596,256	2.84%								
370.1 Electronic Meters				26 R1.5	0	0	54,691,249	8,612,961	46,078,288	23.3	1,975,913	3.61%								
371 Installations On Customer Premises				50-O2	0	0	25,335,831	3,883,126	21,472,705	45.0	477,085	1.89%								
373 Street Lighting and Signal Systems				35-R2	0	0	57,185,737	22,716,125	34,469,612	25.9	1,330,873	2.33%								
<b>TOTAL DISTRIBUTION PLANT</b>							<b>2,984,164,052</b>	<b>885,761,801</b>	<b>2,118,402,251</b>			<b>67,020,172</b>	<b>2.25%</b>							
<b>GENERAL PLANT</b>																				
390 Structures and Improvements				39-R1	0	0	98,667,435	24,085,116	72,582,319	30.7	2,384,245	2.45%								
391 Office Furniture and Equipment - Furniture				20-SQ	0	0	19,919,640	11,543,613	8,376,027	10.1	829,310	4.16%								
Reserve Variance Amortization																				
391.1 Office Furniture and Equipment - Pc Equip				8-R3	0	0	38,654,946	15,103,632	23,551,314	5.3	4,418,633	11.43%								
Reserve Variance Amortization																				
391.2 Office Furniture and Equipment - Equipment				22-R4	0	0	7,652,923	2,932,191	4,720,732	14.8	318,968	4.17%								
Reserve Variance Amortization																				
393 Stores Equipment				20-SQ	0	0	1,227,371	1,235,746	(8,375)	2.8	-2,991	-0.24%								
Reserve Variance Amortization																				
394 Tools, Shop and Garage Equipment				20-SQ	0	0	12,673,031	4,673,542	7,999,489	13.7	583,904	4.61%								
Reserve Variance Amortization																				
395 Laboratory Equipment				20-L1	0	0	1,350,583	531,270	819,313	12.0	68,504	5.07%								
Reserve Variance Amortization																				
397 Communication Equipment				19-S1.5	0	0	94,309,691	40,677,647	53,632,044	12.0	4,468,337	4.74%								
398 Miscellaneous Equipment				24-S1	0	0	1,336,404	481,755	854,649	16.6	51,454	3.85%								
Reserve Variance Amortization																				
<b>TOTAL GENERAL PLANT</b>							<b>273,792,024</b>	<b>101,264,511</b>	<b>172,527,513</b>			<b>13,101,384</b>	<b>4.79%</b>							
<b>TOTAL DEPRECIABLE PLANT STUDIED</b>							<b>8,082,632,804</b>	<b>3,186,573,980</b>	<b>4,909,258,824</b>			<b>197,441,008</b>	<b>2.44%</b>							
<b>NET SALVAGE ALLOWANCE</b>																				
<b>TOTAL DEPRECIATION</b>																				
1b																				
1/																				
2/																				

Assets Related to the 500 KV SCE Transmission Line are Depreciated at a 3.25 rate

Change from Company proposed in SK analysis

SK accepts Company proposal because amount approximates the ARO expense per response to R000759\_ARO Childs Irving, Childs Irving Summary

Reserve Variances Related to General Plant Amortization Accounts are not used in SK Recommendation

Arizona Public Service Company  
Comparison of Parameters, Rates and Accruals  
Related to Electric Plant In Service as of December 31, 2002

PLANT IN SERVICE	Existing Rates							Company Proposed							Snaveley King Recommended						
	Original Cost at 12/31/2001	Probable Retirement Date	Estimated Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$	Probable Retirement Date	Estimated Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$	Probable Retirement Date	Estimated Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$					
<b>311 STEAM PRODUCTION PLANT</b>																					
Structure and Improvements																					
Cholla Unit 1	2,144,799	06-2012	80-S1	(20)			06-2017	75-S1.5	(20)	2.03%	43,523	06-2017	75-S1.5	0	1.01%	21,646					
Cholla Unit 2	5,022,179	06-2028	80-S1	(20)			06-2033	75-S1.5	(20)	2.52%	126,743	06-2033	75-S1.5	0	2.01%	100,709					
Cholla Unit 3	9,583,277	06-2028	80-S1	(20)			06-2035	75-S1.5	(20)	1.88%	180,314	06-2035	75-S1.5	0	1.53%	147,101					
Cholla Common	36,234,550	06-2029	80-S1	(20)			06-2035	75-S1.5	(20)	1.89%	685,672	06-2035	75-S1.5	0	1.56%	565,756					
Four Corners Units 1-3	15,972,927	06-2013	80-S1	(20)			06-2016	75-S1.5	(20)	5.55%	885,732	06-2016	75-S1.5	0	2.52%	401,868					
Four Corners Units 4-5	9,195,585	06-2019	80-S1	(20)			06-2031	75-S1.5	(20)	2.36%	216,098	06-2031	75-S1.5	0	1.65%	151,888					
Four Corners Common	3,946,871	06-2019	80-S1	(20)			06-2031	75-S1.5	(20)	1.84%	72,563	06-2031	75-S1.5	0	1.63%	64,145					
Navajo Units 1-3	27,152,517	06-2025	80-S1	(20)			06-2026	75-S1.5	(20)	3.42%	929,321	06-2026	75-S1.5	0	2.42%	655,927					
Ocotillo Units 1-2	3,787,972	06-2020	80-S1	(20)			06-2020	75-S1.5	(20)	4.11%	155,535	06-2020	75-S1.5	0	2.63%	99,631					
Sequano Units 1-2	2,446,932	06-2019	80-S1	(20)			06-2014	75-S1.5	(20)	3.34%	81,704	06-2014	75-S1.5	0	1.65%	40,449					
Yucca Unit 1	462,567	06-2014	80-S1	(20)			06-2016	75-S1.5	(20)	1.98%	6,405	06-2016	75-S1.5	0	0.16%	760					
<b>Total Account 311</b>	<b>115,960,066</b>					<b>2.80</b>				<b>2.92%</b>	<b>3,383,810</b>				<b>1.94%</b>	<b>2,249,880</b>					
<b>312 Boiler Plant Equipment</b>																					
Cholla Unit 1	26,431,681	06-2012	70-L1	(20)			06-2017	48-L2	(20)	4.06%	1,074,426	06-2017	48-L2	0	2.49%	658,659					
Cholla Unit 2	140,612,492	06-2028	70-L1	(20)			06-2033	48-L2	(20)	2.41%	3,393,069	06-2033	48-L2	0	1.74%	2,450,915					
Cholla Unit 3	100,448,965	06-2028	70-L1	(20)			06-2035	48-L2	(20)	2.49%	2,500,521	06-2035	48-L2	0	1.75%	1,757,445					
Cholla Common	22,626,051	06-2029	70-L1	(20)			06-2035	48-L2	(20)	2.71%	613,196	06-2035	48-L2	0	2.01%	455,559					
Four Corners Units 1-3	197,139,757	06-2013	70-L1	(20)			06-2016	48-L2	(20)	5.95%	11,533,490	06-2016	48-L2	0	3.27%	6,443,656					
Four Corners Units 4-5	111,591,873	06-2019	70-L1	(20)			06-2031	48-L2	(20)	2.96%	3,320,980	06-2031	48-L2	0	1.92%	2,139,629					
Four Corners Common	3,290,391	06-2019	70-L1	(20)			06-2031	48-L2	(20)	1.55%	50,863	06-2031	48-L2	0	1.52%	49,922					
Navajo Units 1-3	149,350,243	06-2025	70-L1	(20)			06-2026	48-L2	(20)	3.70%	5,528,022	06-2026	48-L2	0	2.58%	3,854,362					
Ocotillo Units 1-2	24,152,351	06-2020	70-L1	(20)			06-2020	48-L2	(20)	2.75%	665,415	06-2020	48-L2	0	1.70%	410,995					
Sequano Units 1-2	24,397,712	06-2014	70-L1	(20)			06-2014	48-L2	(20)	4.36%	1,062,280	06-2014	48-L2	0	2.89%	704,644					
<b>Total Account 312</b>	<b>800,031,516</b>					<b>2.88</b>				<b>3.72%</b>	<b>29,742,262</b>				<b>2.37%</b>	<b>18,925,817</b>					
<b>314 Turbogenerator Units</b>																					
Cholla Unit 1	10,417,373	06-2012	65-R2	(20)			06-2017	65-R2	(20)	2.95%	307,127	06-2017	65-R2	0	2.03%	211,263					
Cholla Unit 2	28,551,889	06-2028	65-R2	(20)			06-2033	65-R2	(20)	2.01%	574,578	06-2033	65-R2	0	1.68%	473,925					
Cholla Unit 3	39,626,197	06-2028	65-R2	(20)			06-2035	65-R2	(20)	2.34%	929,156	06-2035	65-R2	0	1.83%	763,196					
Cholla Common	631,278	06-2029	65-R2	(20)			06-2035	65-R2	(20)	2.01%	12,687	06-2035	65-R2	0	1.62%	10,196					
Four Corners Units 1-3	36,412,926	06-2013	65-R2	(20)			06-2016	65-R2	(20)	3.92%	1,427,354	06-2016	65-R2	0	2.43%	884,248					
Four Corners Units 4-5	14,488,238	06-2019	65-R2	(20)			06-2031	65-R2	(20)	2.45%	355,319	06-2031	65-R2	0	1.94%	281,442					
Four Corners Common	1,726,164	06-2019	65-R2	(20)			06-2031	65-R2	(20)	0.26%	4,559	06-2031	65-R2	0	0.94%	16,146					
Navajo Units 1-3	24,387,110	06-2025	65-R2	(20)			06-2026	65-R2	(20)	2.80%	632,931	06-2026	65-R2	0	1.95%	450,339					
Ocotillo Units 1-2	15,517,601	06-2020	65-R2	(20)			06-2020	65-R2	(20)	1.94%	300,851	06-2020	65-R2	0	1.57%	242,879					
Sequano Units 1-2	16,259,698	06-2014	65-R2	(20)			06-2014	65-R2	(20)	3.62%	688,198	06-2014	65-R2	0	1.66%	299,176					
<b>Total Accounts 314</b>	<b>188,016,474</b>					<b>2.34</b>				<b>2.73%</b>	<b>5,132,750</b>				<b>1.92%</b>	<b>3,602,809</b>					
<b>315 Accessory Electric Equipment</b>																					
Cholla Unit 1	4,756,906	06-2012	45-R3	(20)			06-2017	60-R2.5	(20)	3.29%	156,073	06-2017	60-R2.5	0	1.76%	83,755					
Cholla Unit 2	42,235,618	06-2028	45-R3	(20)			06-2033	60-R2.5	(20)	1.84%	776,409	06-2033	60-R2.5	0	1.52%	640,485					
Cholla Unit 3	29,917,206	06-2028	45-R3	(20)			06-2035	60-R2.5	(20)	1.98%	591,676	06-2035	60-R2.5	0	1.60%	478,926					
Cholla Common	4,476,001	06-2029	45-R3	(20)			06-2035	60-R2.5	(20)	2.00%	89,341	06-2035	60-R2.5	0	1.63%	73,004					
Four Corners Units 1-3	16,353,282	06-2013	45-R3	(20)			06-2016	60-R2.5	(20)	5.99%	978,802	06-2016	60-R2.5	0	3.16%	517,249					
Four Corners Units 4-5	9,183,206	06-2019	45-R3	(20)			06-2031	60-R2.5	(20)	2.42%	222,550	06-2031	60-R2.5	0	1.74%	159,978					
Four Corners Common	2,566,719	06-2019	45-R3	(20)			06-2031	60-R2.5	(20)	0.17%	4,503	06-2031	60-R2.5	0	0.90%	23,433					
Navajo Units 1-3	20,226,194	06-2025	45-R3	(20)			06-2026	60-R2.5	(20)	2.58%	521,434	06-2026	60-R2.5	0	1.91%	386,283					
Ocotillo Units 1-2	2,407,622	06-2020	45-R3	(20)			06-2020	60-R2.5	(20)	1.38%	33,220	06-2020	60-R2.5	0	0.98%	23,546					
Sequano Units 1-2	2,654,661	06-2014	45-R3	(20)			06-2014	60-R2.5	(20)	1.97%	52,354	06-2014	60-R2.5	0	1.01%	26,754					
<b>Total Account 315</b>	<b>134,807,416</b>					<b>2.73</b>				<b>2.54%</b>	<b>3,428,362</b>				<b>1.79%</b>	<b>2,413,411</b>					

Arizona Public Service Company  
Comparison of Parameters, Rates and Accruals  
Related to Electric Plant In Service as of December 31, 2002

Depreciable Group	Existing Rates							Company Proposed							Snaveley King Recommended						
	Original Cost/12/31/2001	Probable Retirement Date	Estimated Survivor Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$	Probable Retirement Date	Estimated Survivor Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$	Probable Retirement Date	Estimated Survivor Curve	Net Salvage Percent	Accrual Rate	Annual Amount \$					
<b>316 Miscellaneous Power Plant</b>																					
Cholla Unit 1	2,315,189	06-2012	34-R4	(20)			06-2017	40-R2	(20)	6.17%	142,907	06-2017	40-R2	0	3.60%	83,397					
Cholla Unit 2	4,846,431	06-2028	34-R4	(20)			06-2033	40-R2	(20)	2.69%	129,898	06-2033	40-R2	0	2.07%	100,223					
Cholla Unit 3	4,138,531	06-2028	34-R4	(20)			06-2035	40-R2	(20)	2.79%	115,595	06-2035	40-R2	0	2.18%	90,266					
Four Corners Common	7,096,069	06-2029	34-R4	(20)			06-2035	40-R2	(20)	3.27%	232,179	06-2035	40-R2	0	2.54%	180,478					
Four Corners Units 1-3	4,330,612	06-2013	34-R4	(20)			06-2016	40-R2	(20)	8.20%	354,982	06-2016	40-R2	0	6.00%	259,932					
Four Corners Units 4-5	3,304,340	06-2019	34-R4	(20)			06-2031	40-R2	(20)	3.24%	107,103	06-2031	40-R2	0	2.50%	82,686					
Four Corners Common	8,133,224	06-2019	34-R4	(20)			06-2031	40-R2	(20)	3.31%	269,374	06-2031	40-R2	0	2.50%	200,412					
Navajo Units 1-3	11,805,250	06-2025	34-R4	(20)			06-2026	40-R2	(20)	3.76%	444,171	06-2026	40-R2	0	2.75%	324,575					
Ocotillo Units 1-2	3,711,192	06-2020	34-R4	(20)			06-2014	40-R2	(20)	5.66%	210,098	06-2020	40-R2	0	4.01%	148,740					
Saguaro Units 1-2	3,191,024	06-2014	34-R4	(20)			06-2014	40-R2	(20)	8.08%	257,730	06-2014	40-R2	0	5.32%	169,783					
Yucca Unit 1	452,868	06-2019	34-R4	(20)			06-2016	40-R2	(20)	3.46%	15,667	06-2016	40-R2	0	1.69%	7,628					
<b>Total Account 316</b>	<b>63,324,730</b>				<b>3.94</b>	<b>2,100,994</b>				<b>4.28%</b>	<b>2,279,704</b>				<b>3.09%</b>	<b>1,648,121</b>					
<b>TOTAL STEAM PRODUCTION</b>	<b>1,292,132,201</b>				<b>2.82</b>	<b>36,486,379</b>				<b>3.40%</b>	<b>43,966,888</b>				<b>2.23%</b>	<b>28,540,038</b>					
<b>NUCLEAR PRODUCTION PLANT</b>																					
<b>321 Structures and Improvements</b>																					
Palo Verde Unit 1	161,039,432	12-2024	65-R3	0			12-2024	65-R2.5	0	2.72%	4,384,691	12-2024	65-R2.5	0	2.68%	4,315,165					
Palo Verde Unit 2	88,415,270	12-2025	65-R3	0			12-2025	65-R2.5	0	2.64%	2,331,149	12-2025	65-R2.5	0	2.55%	2,252,555					
Palo Verde Unit 3	159,591,077	03-2027	65-R3	0			03-2027	65-R2.5	0	2.63%	4,185,723	03-2027	65-R2.5	0	2.59%	4,139,822					
Palo Verde Water Reclamation	125,593,913	03-2027	65-R3	0			03-2027	65-R2.5	0	2.57%	3,225,203	03-2027	65-R2.5	0	2.56%	3,209,961					
Palo Verde Common	99,127,309	03-2027	65-R3	0			03-2027	65-R2.5	0	2.64%	2,596,995	03-2027	65-R2.5	0	2.59%	2,534,931					
<b>Total Account 321</b>	<b>632,767,001</b>				<b>2.57</b>	<b>16,282,112</b>				<b>2.64%</b>	<b>16,723,721</b>				<b>2.60%</b>	<b>16,452,433</b>					
<b>322 Reactor Plant Equipment</b>																					
Palo Verde Unit 1	359,545,213	12-2024	100-O1	(1)			12-2024	70-R1	(2)	2.99%	10,760,567	12-2024	70-R1	0	2.76%	9,966,524					
Palo Verde Unit 2	176,382,235	12-2025	100-O1	(1)			12-2025	70-R1	(2)	3.05%	5,377,429	12-2025	70-R1	0	2.74%	4,826,962					
Palo Verde Unit 3	322,750,700	03-2027	100-O1	(1)			03-2027	70-R1	(2)	2.89%	9,331,561	03-2027	70-R1	0	2.76%	8,917,355					
Palo Verde Water Reclamation	123,313	03-2027	100-O1	(1)			03-2027	70-R1	(2)	4.26%	5,251	03-2027	70-R1	0	4.09%	5,049					
Palo Verde Common	26,449,873	03-2027	100-O1	(1)			03-2027	70-R1	(2)	2.88%	760,177	03-2027	70-R1	0	2.82%	746,303					
<b>Total Account 322</b>	<b>885,231,334</b>				<b>3.03</b>	<b>26,822,509</b>				<b>2.96%</b>	<b>26,235,525</b>				<b>2.77%</b>	<b>24,492,192</b>					
<b>322.1 Reactor Plant Equipment - Steam</b>																					
Palo Verde Unit 1	30,722,375	06-2006	100-O1	(68)			12-2005	Square	(17)	4.33%	1,393,021	12-2005	Square	0	3.42%	1,051,075					
Palo Verde Unit 2	15,870,053	06-2006	100-O1	(68)			12-2003	Square	(17)	4.10%	690,638	12-2003	Square	0	0.01%	1,418					
Palo Verde Unit 3	25,413,317	06-2006	100-O1	(68)			12-2007	Square	(17)	4.83%	1,227,246	12-2007	Square	0	4.23%	1,074,676					
<b>Total Account 322.1</b>	<b>72,005,745</b>				<b>3.03</b>	<b>2,181,774</b>				<b>4.54%</b>	<b>3,271,105</b>				<b>2.95%</b>	<b>2,127,170</b>					
<b>323 Turbogenerator Units</b>																					
Palo Verde Unit 1	117,808,078	12-2024	65-R2	(1)			12-2024	60-S0	(2)	2.95%	3,471,147	12-2024	60-S0	0	2.83%	3,328,502					
Palo Verde Unit 2	76,754,224	12-2025	65-R2	(1)			12-2025	60-S0	(2)	3.01%	2,307,463	12-2025	60-S0	0	2.78%	2,130,854					
Palo Verde Unit 3	142,895,088	03-2027	65-R2	(1)			03-2027	60-S0	(2)	2.89%	4,123,870	03-2027	60-S0	0	2.79%	3,993,989					
Palo Verde Water Reclamation	217,707	03-2027	65-R2	(1)			03-2027	60-S0	(2)	3.50%	7,629	03-2027	60-S0	0	2.95%	6,415					
Palo Verde Common	1,223,879	03-2027	65-R2	(1)			03-2027	60-S0	(2)	5.08%	62,190	03-2027	60-S0	0	3.23%	39,519					
<b>Total Account 323</b>	<b>338,898,976</b>				<b>2.78</b>	<b>9,421,392</b>				<b>2.94%</b>	<b>9,972,299</b>				<b>2.80%</b>	<b>9,488,688</b>					

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	Original Cost at 12/31/2001 (2)	Probable Retirement Date (3)	Estimated Survivor Curve (4)	Net Salvage Percent (5)	Accrual Rate (6)	Annual Amount \$ (7)	Probable Retirement Date (8)	Estimated Survivor Curve (9)	Net Salvage Percent (10)	Accrual Rate (11)	Annual Amount \$ (12)	Probable Retirement Date (13)	Estimated Survivor Curve (14)	Net Salvage Percent (15)	Accrual Rate (16)	Annual Amount \$ (17)					
<b>324 Accessory Electric Equipment</b>																					
Palo Verde Unit 1	115,495,170	12-2024	45-R3	(1)			12-2024	45-R3	(2)	3,292,508	12-2024	45-R3	0	2.69%	3,102,555						
Palo Verde Unit 2	50,119,388	12-2025	45-R3	(1)			12-2025	45-R3	(2)	1,470,132	12-2025	45-R3	0	2.69%	1,346,278						
Palo Verde Unit 3	89,143,623	03-2027	45-R3	(1)			03-2027	45-R3	(2)	2,475,838	03-2027	45-R3	0	2.68%	2,389,147						
Palo Verde Common	17,918,193	03-2027	45-R3	(1)			03-2027	45-R3	(2)	495,395	03-2027	45-R3	0	2.69%	482,670						
<b>Total Account 324</b>	<b>272,676,374</b>				2.87%	<b>7,825,812</b>				<b>7,733,874</b>				<b>2.68%</b>	<b>7,320,849</b>						
<b>325 Miscellaneous Power Plant</b>																					
Palo Verde Unit 1	29,671,405	12-2024	34-R4	(2)			12-2024	35-R0.5	(2)	716,211	12-2024	35-R0.5	0	3.41%	1,011,328						
Palo Verde Unit 2	26,399,406	12-2025	34-R4	(2)			12-2025	35-R0.5	(2)	722,783	12-2025	35-R0.5	0	3.58%	945,805						
Palo Verde Unit 3	27,284,046	03-2027	34-R4	(2)			03-2027	35-R0.5	(2)	663,998	03-2027	35-R0.5	0	3.41%	929,092						
Palo Verde Water Reclamation	88,819	03-2027	34-R4	(2)			03-2027	35-R0.5	(2)	2,261	03-2027	35-R0.5	0	3.53%	3,134						
Palo Verde Common	48,459,510	03-2027	34-R4	(2)			03-2027	35-R0.5	(2)	1,453,085	03-2027	35-R0.5	0	3.52%	1,705,016						
<b>Total Account 325</b>	<b>131,893,186</b>				5.56%	<b>7,333,281</b>				<b>3,558,278</b>				<b>3.48%</b>	<b>4,894,374</b>						
<b>TOTAL NUCLEAR PRODUCTION</b>	<b>2,333,472,616</b>				2.99%	<b>69,846,860</b>				<b>67,494,800</b>				<b>2.76%</b>	<b>64,468,507</b>						
<b>HYDRO PRODUCTION PLANT</b>																					
331 Structures and Improvements	100,878	06-2024	120-R2	(10)	0.28%	282	12-2004	Square	0	0	12-2004	200-SQ	0	0.00%	0						
332 Reservoirs, Dams, and Waterways	991,936	06-2024	200-SQ	(10)	0.90%	8,927	12-2004	Square	0	0.00%	12-2004	200-SQ	0	0.00%	0						
333 Water Wheels, Turbines, and	157,196	06-2024	200-SQ	(10)	0.73%	1,148	12-2004	Square	0	0.00%	12-2004	200-SQ	0	0.00%	0						
334 Accessory Electric Equipment	627,611	06-2024	200-SQ	(10)	2.67%	16,757	12-2004	Square	0	0.00%	12-2004	200-SQ	0	0.00%	0						
335 Miscellaneous Power Plant	126,018	06-2024	200-SQ	(10)	2.48%	3,125	12-2004	Square	0	0.00%	12-2004	200-SQ	0	0.00%	0						
336 Roads, Railroads, and Bridges	77,427	06-2024	200-SQ	(10)	0.28%	217	12-2004	Square	0	0.00%	12-2004	200-SQ	0	0.00%	0						
<b>Hydro Decommissioning Costs</b>						<b>2,667,735</b>				<b>2,667,735</b>					<b>2,667,735</b>						
<b>TOTAL HYDRO PRODUCTION</b>	<b>2,081,066</b>					<b>2,667,735</b>				<b>2,667,735</b>					<b>2,667,735</b>						
<b>OTHER PRODUCTION</b>																					
341 Structures and Improvements																					
Douglas CT	4,562	06-2012	80-S1	(5)			06-2017	80-S1	(5)	99	06-2017	80-S1	0	0.65%	30						
Ocoille CT 1-2	328,749	06-2012	80-S1	(5)			06-2017	80-S1	(5)	2,439	06-2017	80-S1	0	2.05%	6,754						
Saguaro CT	1,298,625	06-2012	80-S1	(5)			06-2017	80-S1	(5)	69,056	06-2017	80-S1	0	4.43%	57,082						
Solar Unit 1	375,612	06-2012	(a)				12-SQ	0		38,056	12-SQ	0	-0.61%	-2,305							
West Phoenix CT 1-2	510,951	06-2012	80-S1	(5)			06-2017	80-S1	(5)	4,328	06-2017	80-S1	0	1.26%	6,441						
West Phoenix Combined Cycle 1-3	6,706,722	06-2011	80-S1	(5)			06-2031	80-S1	(5)	110,243	06-2031	80-S1	0	2.26%	151,893						
Yuca CT 1-4	452,751	06-2011	80-S1	(5)			06-2016	80-S1	(5)	23,962	06-2016	80-S1	0	3.79%	17,159						
<b>Total Account 341</b>	<b>9,667,772</b>				2.94%	<b>274,565</b>				<b>248,183</b>				<b>2.46%</b>	<b>237,025</b>						
<b>342 Fuel Holders, Products and</b>																					
Douglas CT	137,759	06-2012	80-S1	(5)			06-2017	70-S1	(5)	5,063	06-2017	70-S1	0	1.95%	2,692						
Ocoille CT 1-2	719,859	06-2012	80-S1	(5)			06-2017	70-S1	(5)	28,225	06-2017	70-S1	0	2.00%	14,420						
Saguaro CT	1,304,977	06-2012	80-S1	(5)			06-2017	70-S1	(5)	40,547	06-2017	70-S1	0	1.56%	20,391						
West Phoenix CT 1-2	1,437,533	06-2012	80-S1	(5)			06-2017	70-S1	(5)	47,921	06-2017	70-S1	0	1.56%	22,447						
West Phoenix Combined Cycle 1-3	19,343,993	06-2001	80-S1	(5)			06-2031	70-S1	(5)	624,716	06-2031	70-S1	0	3.12%	602,702						
Yuca CT 1-4	3,232,217	06-2011	80-S1	(5)			06-2016	70-S1	(5)	52,931	06-2016	70-S1	0	0.89%	28,914						
<b>Total Account 342</b>	<b>26,176,338</b>				2.81%	<b>735,655</b>				<b>799,403</b>				<b>2.64%</b>	<b>691,567</b>						

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	Original Cost at 12/31/2001 (2)	Probable Retirement Date (3)	Estimated Survivor Curve (4)	Net Salvage Percent (5)	Accrual Rate (6)	Annual Amount \$ (7)	Probable Retirement Date (8)	Estimated Survivor Curve (9)	Net Salvage Percent (10)	Accrual Rate (11)	Annual Amount \$ (12)	Probable Retirement Date (13)	Estimated Survivor Curve (14)	Net Salvage Percent (15)	Accrual Rate (16)	Annual Amount \$ (17)					
<b>343 Prime Movers</b>																					
Douglas CT	1,101,449	06-2012	70-L1.5	0	0.00%	0	06-2017	70-L1.5	0	0.00%	0	06-2017	70-L1.5	0	0.00%	0					
Ocoillo CT 1-2	6,679,324	06-2012	70-L1.5	0	0.59%	39,156	06-2017	70-L1.5	0	1.06%	70,912	06-2017	70-L1.5	0	1.06%	70,912					
Saguaro CT	8,102,651	06-2012	70-L1.5	0	1.48%	120,086	06-2017	70-L1.5	0	1.48%	120,086	06-2017	70-L1.5	0	1.28%	104,740					
West Phoenix CT 1-2	8,802,636	06-2012	70-L1.5	0	1.90%	167,290	06-2017	70-L1.5	0	2.07%	181,857	06-2017	70-L1.5	0	2.07%	181,857					
Yuca CT 1-4	7,920,584	06-2011	70-L1.5	0	0.00%	0	06-2016	70-L1.5	0	0.00%	0	06-2016	70-L1.5	0	0.00%	0					
<b>Total Account 343</b>	<b>32,606,644</b>				<b>1.51</b>	<b>492,960</b>				<b>1.00%</b>	<b>326,534</b>				<b>1.10%</b>	<b>357,509</b>					
<b>344 Generators and Devices</b>																					
Douglas CT	551,785	06-2012	40-S2	0	0.10%	549	06-2017	37-R3	0	0.10%	549	06-2017	37-R3	0	0.17%	920					
Ocoillo CT 1-2	6,402,044	06-2012	40-S2	0	4.63%	296,448	06-2017	37-R3	0	4.63%	296,448	06-2017	37-R3	0	3.33%	213,356					
Saguaro CT	4,185,247	06-2012	40-S2	0	4.10%	171,743	06-2017	37-R3	0	4.10%	171,743	06-2017	37-R3	0	3.08%	129,253					
Solar Unit 1	6,933,081	06-2012	(a)	0	7.18%	498,118	06-2017	12-SQ	0	7.18%	498,118	06-2017	12-SQ	0	6.74%	467,072					
West Phoenix CT 1-2	4,115,901	06-2012	40-S2	0	3.38%	136,912	06-2017	37-R3	0	3.38%	136,912	06-2017	37-R3	0	1.80%	74,255					
West Phoenix Combined Cycle 1-3	81,920,222	06-2001	40-S2	0	2.63%	2,765,872	06-2031	37-R3	(2)	2.63%	2,765,872	06-2031	37-R3	0	3.26%	2,669,355					
Yuca CT 1-4	5,395,818	06-2011	40-S2	0	2.63%	141,655	06-2016	37-R3	0	2.63%	141,655	06-2016	37-R3	0	1.64%	88,420					
<b>Total Account 344</b>	<b>109,504,078</b>				<b>2.27</b>	<b>2,485,743</b>				<b>3.66%</b>	<b>4,013,297</b>				<b>3.33%</b>	<b>3,642,631</b>					
<b>345 Accessory Electric Equipment</b>																					
Douglas CT	353,277	06-2012	40-S2	0	1.23%	4,339	06-2017	50-S2	0	1.23%	4,339	06-2017	50-S2	0	0.86%	3,033					
Ocoillo CT 1-2	1,484,636	06-2012	40-S2	0	1.70%	26,401	06-2017	50-S2	0	1.70%	26,401	06-2017	50-S2	0	1.08%	16,121					
Saguaro CT	1,715,774	06-2012	40-S2	0	2.54%	43,562	06-2017	50-S2	0	2.54%	43,562	06-2017	50-S2	0	1.42%	24,349					
Solar Unit 1	1,691,527	06-2012	(a)	0	9.36%	15,865	06-2017	12-SQ	0	9.36%	15,865	06-2017	12-SQ	0	7.71%	13,065					
West Phoenix CT 1-2	1,557,744	06-2012	40-S2	0	2.32%	36,163	06-2017	50-S2	0	2.32%	36,163	06-2017	50-S2	0	1.18%	18,357					
West Phoenix Combined Cycle 1-3	11,925,645	06-2001	40-S2	0	2.47%	293,998	06-2031	50-S2	0	2.47%	293,998	06-2031	50-S2	0	2.82%	336,788					
Yuca CT 1-4	2,166,526	06-2011	40-S2	0	1.24%	28,820	06-2016	50-S2	0	1.24%	28,820	06-2016	50-S2	0	1.23%	26,812					
<b>Total Account 345</b>	<b>19,383,129</b>				<b>2.28</b>	<b>441,935</b>				<b>2.30%</b>	<b>446,148</b>				<b>2.26%</b>	<b>438,525</b>					
<b>346 Miscellaneous Power Plant</b>																					
Douglas CT	40,913	06-2012	50-L1	0	1.95%	796	06-2017	70-L1	0	1.95%	796	06-2017	70-L1	0	1.90%	779					
Ocoillo CT 1-2	553,173	06-2012	50-L1	0	1.20%	6,650	06-2017	70-L1	0	1.20%	6,650	06-2017	70-L1	0	1.74%	9,605					
Saguaro CT	790,806	06-2012	50-L1	0	3.60%	28,508	06-2017	70-L1	0	3.60%	28,508	06-2017	70-L1	0	3.41%	26,989					
West Phoenix CT 1-2	967,431	06-2012	50-L1	0	3.54%	33,908	06-2017	70-L1	0	3.54%	33,908	06-2017	70-L1	0	3.33%	31,837					
West Phoenix Combined Cycle 1-3	2,608,877	06-2001	50-L1	0	1.29%	33,618	06-2031	70-L1	0	1.29%	33,618	06-2031	70-L1	0	2.47%	64,399					
Yuca CT 1-4	427,175	06-2011	50-L1	0	0.27%	1,166	06-2016	70-L1	0	0.27%	1,166	06-2016	70-L1	0	1.23%	5,268					
<b>Total Account 346</b>	<b>5,378,475</b>				<b>3.48</b>	<b>187,171</b>				<b>1.95%</b>	<b>104,648</b>				<b>2.56%</b>	<b>138,878</b>					
<b>TOTAL OTHER PRODUCTION</b>	<b>202,716,436</b>				<b>2.28</b>	<b>4,617,329</b>				<b>2.93%</b>	<b>5,938,213</b>				<b>2.72%</b>	<b>5,506,135</b>					

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<b>TRANSMISSION PLANT</b>																					
352 Structures and Improvements - SCE	27,618,299		50-R4	(5)	2.07	571,699 J		50-R4	(5)	2.15%	592,619		50-R4	0	1.56%	429,951					
353 Station Equipment - SCE 500 KV Line	409,725		35-S1	7	2.09	13,316 Jc		42-R3	0	1.91%	13,316		57-R1.5	0	1.92%	13,316					
354 Towers and Fixtures - SCE 500 KV	428,736,305		60-R3	(30)	3.25	8,960,599 \$		60-R3	(35)	3.25%	8,167,649 *		60-R3	0	3.25%	6,338,127					
354.5 Towers and Fixtures - SCE 500 KV	7,747,282		43-R1	(30)	3.25	251,787 Jc		48-R1.5	(35)	2.28%	251,787		55-R3	0	1.77%	251,787					
355 Poles and Fixtures - Steel	83,464,531		(a)	(30)	1.99	1,650,944 J		55-R3	(15)	1.96%	1,890,472		55-R3	0	1.81%	975,644					
355.1 Poles and Fixtures - Steel	13,752,584		(a)	(30)	2.73	446,959 Jc		55-R3	(15)	2.55%	446,959		55-R3	0	1.81%	446,959					
355.5 Poles and Fixtures - SCE 500 KV	91,126,939		55-R3	(30)	2.73	2,487,765 Jb		55-R3	(15)	1.96%	2,321,504		55-R3	0	1.81%	1,651,556					
356 Overhead Conductors and Devices - SCE 500 KV	83,067,888		55-R3	(30)	3.25	30,235 Jc		55-R3	(35)	3.25%	1,625,822		55-R3	0	3.25%	1,335,575					
356.5 Overhead Conductors and Devices - SCE 500 KV Line	205,771,417		55-R3	(30)	2.16	4,444,663 J		55-R3	(35)	2.62%	30,235		55-R3	0	1.41%	30,235					
357 Underground Conduit	22,653,515		50-R3	(5)	3.25	736,239 J		48-S1.5	(10)	3.25%	736,239		48-S1.5	0	3.25%	736,239					
358 Underground Conductors and	10,444,362		50-R3	(5)	2.20	228,776 J		40-R3	(10)	2.88%	237,777		40-R3	0	1.70%	178,076					
	18,551,254			(5)	1.85	343,198 J					534,608					336,441					
<b>TOTAL TRANSMISSION PLANT</b>	<b>994,274,409</b>				<b>2.26</b>	<b>22,444,923</b>				<b>2.24%</b>	<b>22,249,839</b>				<b>1.59%</b>	<b>15,820,057</b>					
<b>DISTRIBUTION PLANT</b>																					
361 Structures and Improvements	25,815,042		40-R2.5	(15)	3.00	774,451 J		45-R2.5	(10)	2.41%	623,356		45-R2.5	0	1.80%	464,808					
362 Station Equipment	212,357,577		26-R0.5	0	3.49	7,411,279 \$		38-S0	0	2.10%	4,456,837		44-L0.5	0	2.04%	4,332,029					
364 Poles and Fixtures - Wood	284,200,711		37-R0.5	(10)	2.68	7,616,579 \$		38-R0.5	(10)	2.49%	7,076,374		38-R0.5	0	2.31%	6,571,916					
364.1 Poles and Fixtures - Steel	53,919,651		(a)	(10)	2.68	1,446,047 J		50-R3	(5)	2.05%	1,105,404		50-R3	0	1.92%	1,036,863					
365 Overhead Conductors and Devices	218,856,790		53-R1	(10)	1.77	3,873,765 \$		53-O1	(10)	1.74%	3,810,605		53-O1	0	1.78%	3,827,198					
366 Underground Conduit	425,723,116		60-R2	(10)	4.42	7,535,299 \$		55-R1.5	(5)	1.88%	8,009,076		86-O1	0	1.14%	4,837,438					
367 Underground Conductors and	805,505,793		27-R2	(10)	4.42	35,603,356 \$		29-L1	(5)	3.36%	27,036,316		29-L1	0	2.96%	23,876,768					
368 Line Transformers	486,837,053		Various	(10)	3.39	16,503,776 \$		36-R3	(5)	2.70%	13,147,552		36-R3	0	2.10%	10,215,449					
369 Services	242,404,812		30-R2	(3)	4.60	11,150,621 J		37-S2	(10)	2.67%	6,483,178		37-S2	0	2.24%	5,423,595					
370 Meters	91,330,710		26-R1.5	0	4.54	4,146,414 \$		23-R1	0	4.47%	4,086,660		29-L0	0	2.84%	2,596,256					
370.1 Electronic Meters	54,691,249		26-R1.5	0	4.54	2,482,983 J		12-S2	0	9.12%	4,987,610		26-R1.5	0	3.61%	1,975,913					
371 Installations On Customer Premises	25,335,831		30-R0.5	(30)	3.49	884,221 \$		30-R1	(20)	3.73%	945,981		50-O2	0	1.88%	477,065					
373 Street Lighting and Signal Systems	57,185,737		32-R1.5	(20)	3.92	2,241,681 \$		35-R2	(20)	3.31%	1,890,534		35-R2	0	2.33%	1,330,873					
<b>TOTAL DISTRIBUTION PLANT</b>	<b>2,984,164,052</b>				<b>3.41</b>	<b>101,669,472</b>				<b>2.80%</b>	<b>83,639,483</b>				<b>2.25%</b>	<b>67,020,172</b>					

Arizona Public Service Company  
Comparison of Parameters, Rates and Accruals  
Related to Electric Plant in Service as of December 31, 2002

Depreciable Group (1)	Existing Rates							Company Proposed					Snavey King Recommended				
	Original Cost at 12/31/2001 (2)	Probable Retirement Date (3)	Estimated Survivor Curve (4)	Net Salvage Percent (5)	Accrual Rate (6)	Annual Amount \$ (7)	Probable Retirement Date (8)	Estimated Survivor Curve (9)	Net Salvage Percent (10)	Accrual Rate (11)	Annual Amount \$ (12)	Probable Retirement Date (13)	Estimated Survivor Curve (14)	Net Salvage Percent (15)	Accrual Rate (16)	Annual Amount \$ (17)	
<b>GENERAL PLANT</b>																	
390 Structures and Improvements	96,667,435		30-R1	0	3.50	3,383,360		39-R1	0	2.71%	2,624,392		39-R1	0	2.45%	2,364,245	
391 Office Furniture and Equipment - Reserve Variance Amortization	19,919,640		25-C1	1	3.96	789,818		20-SQ	0	2.71%	994,570		20-SQ	0	4.16%	829,310	
391.1 Office Furniture and Equipment - Pc Reserve Variance Amortization	38,654,946		8-R3	0	12.50	4,831,868		5-SQ	0	22.82%	994,570		8-R3	0	11.43%	4,418,633	
391.2 Office Furniture and Equipment - Reserve Variance Amortization	7,652,923		14-S2	1	7.07	541,062		10-SQ	0	6.04%	8,819,368		22-R4	0	4.17%	318,968	
393 Stores Equipment Reserve Variance Amortization	1,227,371		40-R3	0	2.50	30,684		20-SQ	0	10.69%	461,909		20-SQ	0	-0.24%	-2,991	
394 Tools, Shop and Garage Equipment Reserve Variance Amortization	12,673,031		25-R3	0	4.00	506,921		20-SQ	0	6.82%	29,921		20-SQ	0	4.61%	583,904	
395 Laboratory Equipment Reserve Variance Amortization	1,350,583		15-R3	0	6.67	90,084		15-SQ	0	6.51%	101,325		20-L1	0	5.07%	68,504	
397 Communication Equipment	94,309,691		21-R3	0	4.76	4,489,141		19-S1.5	0	5.10%	131,246		19-S1.5	0	4.74%	4,469,337	
398 Miscellaneous Equipment Reserve Variance Amortization	1,396,404		20-R3	0	5.00	66,820		20-SQ	0	3.32%	87,980		24-S1	0	3.85%	51,454	
<b>TOTAL GENERAL PLANT</b>	<b>273,782,024</b>					<b>14,728,759</b>					<b>18,839,402</b>				<b>4.79%</b>	<b>13,101,364</b>	
<b>TOTAL PLANT STUDIED</b>	<b>8,082,632,804</b>					<b>252,473,913</b>					<b>244,796,360</b>				<b>2.44%</b>	<b>197,441,008</b>	
<b>5-YEAR AVERAGE NET SALVAGE ALLOWANCE</b>																	
<b>TOTAL DEPRECIATION</b>																	
(a)	No Existing Service Life Parameters. Composite rate applied to this Account/Subaccount																
(b)	Composite Rate Applied to one or More Accounts/Subaccounts																
(c)	Assets Related to the 500 KV SCE Transmission Line are Depreciated at a 3.25 rate																
A/	Amortization																
L/	Life Span																
S/	Statistical Analysis																
J/	Judgment Analysis																
D/	Reserve Variances Related to General Plant Amortization Accounts are not used in SK Recommendation																

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

PLANT IN SERVICE	Depreciable Group (1)	Original Cost at 12/31/2002 (2)	Probable Retirement Date (3)	Average Service Life (4)	Iowa Curve Type (5)	Net Salvage Percent (6)	Average Remaining Life (7)	SK Theoretical Reserve (8)	SK Allocated Book Reserve (9)	Company Adjusted Book Reserve at 12/31/2002 (10)
<b>PLANT IN SERVICE</b>										
<b>STEAM PRODUCTION PLANT</b>										
<b>311 Structure and Improvements</b>										
Cholla Unit 1		2,144,789	06-2017	75	S1.5	0	14.0	1,389,907	1,841,738	1,964,146
Cholla Unit 2		5,022,179	06-2033	75	S1.5	0	29.0	1,586,028	2,101,615	2,346,306
Cholla Unit 3		9,583,277	06-2035	75	S1.5	0	29.9	3,912,944	5,184,966	6,113,726
Cholla Common		36,234,550	06-2035	75	S1.5	0	29.9	14,579,063	19,318,431	22,949,841
Four Corners Units 1-3		15,972,927	06-2016	75	S1.5	0	13.3	8,020,704	10,628,079	7,395,910
Four Corners Units 4-5		9,195,585	06-2031	75	S1.5	0	26.8	3,867,683	5,124,992	5,253,259
Navajo Units 1-3		3,946,871	06-2031	75	S1.5	0	26.8	1,681,253	2,227,796	2,790,814
Four Corners Common		27,152,517	06-2026	75	S1.5	0	22.8	9,205,018	12,197,389	11,359,467
Ocotillo Units 1-2		3,787,972	06-2020	75	S1.5	0	17.1	1,572,952	2,084,288	1,882,068
Saguaro Units 1-2		2,446,832	06-2014	75	S1.5	0	11.3	1,501,613	1,989,759	2,011,977
Yuca Unit 1		462,567	06-2016	75	S1.5	0	13.1	341,570	452,608	471,080
<b>Total Account 311</b>		<b>115,950,066</b>						<b>47,658,735</b>	<b>63,151,660</b>	<b>64,537,994</b>
<b>312 Boiler Plant Equipment</b>										
Cholla Unit 1		26,431,681	06-2017	48	L2	0	13.4	13,286,478	17,605,653	17,353,280
Cholla Unit 2		140,612,492	06-2033	48	L2	0	22.0	65,424,224	86,692,363	93,979,314
Cholla Unit 3		100,448,965	06-2035	48	L2	0	22.9	45,433,819	60,203,467	63,309,215
Cholla Common		22,626,051	06-2035	48	L2	0	24.8	8,549,054	11,328,185	11,951,401
Four Corners Units 1-3		197,139,757	06-2016	48	L2	0	12.7	87,017,217	115,304,816	90,637,620
Four Corners Units 4-5		111,591,873	06-2031	48	L2	0	22.1	48,529,936	64,306,071	60,671,520
Four Corners Common		3,290,391	06-2031	48	L2	0	22.8	1,624,173	2,152,160	2,787,122
Navajo Units 1-3		149,350,243	06-2026	48	L2	0	20.6	52,789,532	69,950,378	65,220,188
Ocotillo Units 1-2		24,152,351	06-2020	48	L2	0	15.2	13,512,675	17,905,382	18,891,592
Saguaro Units 1-2		24,387,712	06-2014	48	L2	0	11.1	12,502,003	16,566,160	17,510,312
<b>Total Account 312</b>		<b>800,031,516</b>						<b>348,569,111</b>	<b>462,014,635</b>	<b>442,311,564</b>
<b>314 Turbogenerator Units</b>										
Cholla Unit 1		10,417,373	06-2017	65	R2	0	14.0	5,629,611	7,459,687	8,187,222
Cholla Unit 2		28,551,889	06-2033	65	R2	0	27.5	11,711,704	15,518,951	18,457,272
Cholla Unit 3		39,626,197	06-2035	65	R2	0	29.7	12,798,679	16,959,280	19,942,381
Cholla Common		631,278	06-2035	65	R2	0	29.0	253,261	335,591	389,822
Four Corners Units 1-3		36,412,926	06-2016	65	R2	0	13.1	18,737,943	24,829,283	24,997,649
Four Corners Units 4-5		14,488,238	06-2031	65	R2	0	26.3	5,347,828	7,086,302	8,049,950
Four Corners Common		1,726,164	06-2031	65	R2	0	23.3	1,018,782	1,349,968	1,965,225
Navajo Units 1-3		24,387,110	06-2026	65	R2	0	22.0	10,927,391	14,479,672	15,363,242
Ocotillo Units 1-2		15,517,601	06-2020	65	R2	0	16.8	8,631,353	11,437,238	13,579,702
Saguaro Units 1-2		16,259,698	06-2014	65	R2	0	11.2	9,985,564	13,244,927	12,946,682
<b>Total Accounts 314</b>		<b>188,018,474</b>						<b>85,052,116</b>	<b>112,700,899</b>	<b>123,879,147</b>

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

	Original Cost at 12/31/2002 (2)	Probable Retirement Date (3)	Average Service Life (4)	Lower Curve Type (5)	Net Salvage Percent (6)	Average Remaining Life (7)	SK Theoretical Reserve (8)	SK Allocated Book Reserve (9)	Company Adjusted Book Reserve at 12/31/2002 (10)
<b>315 Accessory Electric Equipment</b>									
Cholla Unit 1	4,756,906	06-2017	60	R2.5	0	13.9	2,711,320	3,592,717	3,537,479
Cholla Unit 2	42,235,618	06-2033	60	R2.5	0	26.8	18,920,082	28,070,631	28,787,215
Cholla Unit 3	29,917,206	06-2035	60	R2.5	0	28.5	12,276,854	16,267,820	18,952,154
Cholla Common	4,476,001	06-2035	60	R2.5	0	28.7	1,796,712	2,380,788	2,804,488
Four Corners Units 1-3	16,353,282	06-2016	60	R2.5	0	13.2	7,188,695	9,525,599	6,735,295
Four Corners Units 4-5	9,183,206	06-2031	60	R2.5	0	25.9	3,803,375	5,039,778	5,249,818
Four Corners Common	2,596,719	06-2031	60	R2.5	0	21.0	1,588,304	2,104,631	3,017,438
Navajo Units 1-2	20,226,194	06-2026	60	R2.5	0	22.0	8,850,761	11,727,970	12,812,227
Ocotillo Units 1-2	2,407,622	06-2020	60	R2.5	0	16.3	1,527,319	2,023,821	2,349,290
Saguaro Units 1-2	2,654,661	06-2014	60	R2.5	0	11.2	1,777,267	2,355,021	2,598,693
<b>Total Account 315</b>	<b>134,807,415</b>						<b>60,440,688</b>	<b>80,088,777</b>	<b>87,844,097</b>
<b>316 Miscellaneous Power Plant Equipment</b>									
Cholla Unit 1	2,315,189	06-2017	40	R2	0	13.5	897,555	1,189,333	849,777
Cholla Unit 2	4,846,431	06-2033	40	R2	0	22.1	1,985,911	2,631,492	2,942,292
Cholla Unit 3	4,138,531	06-2035	40	R2	0	23.8	1,501,946	1,990,199	2,218,283
Cholla Common	7,096,069	06-2035	40	R2	0	25.8	1,841,207	2,439,747	2,519,563
Four Corners Units 1-3	4,330,612	06-2016	40	R2	0	13.1	698,450	925,502	557,644
Four Corners Units 4-5	3,304,340	06-2031	40	R2	0	23.0	1,058,473	1,402,561	1,499,998
Four Corners Common	8,133,224	06-2031	40	R2	0	23.2	2,629,017	3,483,659	3,516,915
Navajo Units 1-3	11,805,250	06-2026	40	R2	0	20.2	3,961,141	5,248,830	5,178,470
Ocotillo Units 1-2	3,711,192	06-2020	40	R2	0	16.2	982,283	1,301,603	1,047,634
Saguaro Units 1-2	3,191,024	06-2014	40	R2	0	10.9	1,011,550	1,340,385	1,012,665
Yuca Unit 1	452,868	06-2016	40	R2	0	12.2	271,532	359,801	353,040
<b>Total Account 316</b>	<b>53,324,730</b>						<b>16,839,063</b>	<b>22,313,113</b>	<b>21,696,281</b>
<b>TOTAL STEAM PRODUCTION PLANT</b>	<b>1,292,132,201</b>						<b>558,659,713</b>	<b>740,269,083</b>	<b>740,269,083</b>
<b>NUCLEAR PRODUCTION PLANT</b>									
<b>321 Structures and Improvements</b>									
Palo Verde Unit 1	161,039,432	12-2204	65	R2.5	0	21.2	65,592,046	69,557,944	68,224,238
Palo Verde Unit 2	88,415,270	12-2025	65	R2.5	0	22.0	36,843,483	38,859,061	37,056,726
Palo Verde Unit 3	159,591,077	03-2027	65	R2.5	0	23.3	59,533,635	63,133,223	62,020,995
Palo Verde Water Reclamation	125,593,913	03-2027	65	R2.5	0	23.2	48,208,021	51,122,827	50,775,392
Palo Verde Common	98,127,309	03-2027	65	R2.5	0	23.2	37,075,223	39,316,906	38,045,036
<b>Total Account 321</b>	<b>632,767,001</b>						<b>247,052,408</b>	<b>261,989,962</b>	<b>256,123,987</b>
<b>322 Reactor Plant Equipment</b>									
Palo Verde Unit 1	359,545,213	12-2204	70	R1	0	20.6	144,858,250	153,616,828	144,992,453
Palo Verde Unit 2	178,362,235	12-2025	70	R1	0	21.5	68,444,210	72,582,559	64,407,419
Palo Verde Unit 3	322,750,700	03-2027	70	R1	0	22.6	114,307,117	121,218,479	118,393,045
Palo Verde Water Reclamation	123,313,313	03-2027	70	R1	0	23.0	6,767	7,176	5,190
Palo Verde Common	26,449,873	03-2027	70	R1	0	22.8	9,037,029	9,583,436	9,772,755
<b>Total Account 322</b>	<b>885,231,334</b>						<b>336,653,373</b>	<b>357,008,478</b>	<b>337,570,862</b>

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

Depreciable Group	Original Cost at 12/31/2002	Probable Retirement Date	Average Service Life	Lower Curve Type	Net Salvage Percent	Average Remaining Life	SK Theoretical Reserve	SK Allocated Book Reserve	Company Adjusted Book Reserve at 12/31/2002
<b>322.1 Reactor Plant Equipment - Steam Generators</b>									
Palo Verde Unit 1	30,722,375	12-2005	60	Square	0	3.0	25,997,274	27,569,149	31,766,117
Palo Verde Unit 2	15,870,053	12-2003	60	Square	0	1.0	14,963,873	15,868,635	17,917,124
Palo Verde Unit 3	25,413,317	12-2007	60	Square	0	5.0	18,897,343	20,039,935	23,597,351
<b>Total Account 322.1</b>	<b>72,005,745</b>						<b>59,858,489</b>	<b>63,477,719</b>	<b>73,280,592</b>
<b>323 Turbogenerator Units</b>									
Palo Verde Unit 1	117,808,078	12-2024	60	SO	0	19.9	48,630,543	51,570,896	50,929,473
Palo Verde Unit 2	76,754,224	12-2025	60	SO	0	20.8	30,583,307	32,432,468	30,390,795
Palo Verde Unit 3	142,895,088	03-2027	60	SO	0	21.8	52,655,285	55,838,987	55,717,208
Palo Verde Water Reclamation	217,707	03-2027	60	SO	0	22.0	72,219	76,585	54,310
Palo Verde Common	1,223,879	03-2027	60	SO	0	22.2	326,795	346,554	(131,408)
<b>Total Account 323</b>	<b>338,898,976</b>						<b>132,268,149</b>	<b>140,265,491</b>	<b>136,960,348</b>
<b>324 Accessory Electric Equipment</b>									
Palo Verde Unit 1	115,495,170	12-2024	45	R3	0	20.0	50,396,913	53,444,066	51,830,648
Palo Verde Unit 2	50,119,388	12-2025	45	R3	0	20.9	20,728,855	21,982,186	20,346,865
Palo Verde Unit 3	89,143,623	03-2027	45	R3	0	22.1	34,271,330	36,343,481	36,276,331
Palo Verde Common	17,918,193	03-2027	45	R3	0	22.0	6,883,278	7,299,483	7,373,717
<b>Total Account 324</b>	<b>272,676,374</b>						<b>112,280,376</b>	<b>119,069,196</b>	<b>115,827,561</b>
<b>325 Miscellaneous Power Plant Equipment</b>									
Palo Verde Unit 1	29,671,405	12-2024	35	RO.5	0	17.7	11,099,778	11,770,905	17,609,436
Palo Verde Unit 2	26,389,406	12-2025	35	RO.5	0	18.7	8,206,645	8,702,844	13,408,579
Palo Verde Unit 3	27,284,046	03-2027	35	RO.5	0	19.2	8,906,937	9,445,478	15,083,087
Palo Verde Water Reclamation	88,819	03-2027	35	RO.5	0	19.5	26,126	27,706	46,552
Palo Verde Common	48,459,510	03-2027	35	RO.5	0	19.4	14,505,189	15,382,218	21,228,993
<b>Total Account 325</b>	<b>131,893,186</b>						<b>42,744,676</b>	<b>45,329,152</b>	<b>67,376,647</b>
<b>TOTAL NUCLEAR PRODUCTION PLANT</b>	<b>2,333,472,616</b>						<b>930,857,471</b>	<b>987,139,997</b>	<b>987,139,997</b>
<b>HYDRO PRODUCTION PLANT</b>									
331 Structures and Improvements	100,878	12-2024	200	SQ	0			100,878	100,878
332 Reservoirs, Dams, and Waterways	991,936	12-2004	200	SQ	0			1,105,086	1,105,086
333 Water Wheels, Turbines, and Generators	157,196	12-2004	200	SQ	0			157,196	157,196
334 Accessory Electric Equipment	627,611	12-2004	200	SQ	0			627,611	627,611
335 Miscellaneous Power Plant Equipment	126,018	12-2004	200	SQ	0			126,018	126,018
336 Roads, Railroads, and Bridges	77,427	12-2004	200	SQ	0			77,427	77,427
Hydro Decommissioning Costs						2.0		7,864,531	7,864,531
<b>TOTAL HYDRO PRODUCTION PLANT</b>	<b>2,081,066</b>							<b>10,058,747</b>	<b>10,058,747</b>

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

Depreciable Group	Original Cost at 12/31/2002	Probable Retirement Date	Average Service Life	Loma Curve Type	Net Salvage Percent	Average Remaining Life	SK Theoretical Reserve	SK Allocated Book Reserve	Company Adjusted Book Reserve at 12/31/2002
<b>OTHER PRODUCTION</b>									
<b>341 Structures and Improvements</b>									
Douglas CT	4,562	06-2017	80	S1	0	13.9	3,077	4,148	3,417
Ocotillo CT 1-2	328,749	06-2017	80	S1	0	14.5	171,245	230,819	309,919
Saguaro CT	1,288,525	06-2017	80	S1	0	14.4	346,446	469,971	360,293
Solar Unit 1	375,512	06-2017	12	SQ	0	3.6	284,748	383,809	237,890
West Phoenix CT 1-2	510,951	06-2017	80	S1	0	14.2	311,221	419,492	475,096
West Phoenix Combined Cycle 1-3	6,708,722	06-2031	80	S1	0	28.1	1,809,141	2,438,522	3,949,614
Yucca CT 1-4	452,751	06-2016	80	S1	0	13.4	165,307	222,815	155,293
<b>Total Account 341</b>	<b>9,667,772</b>						<b>3,091,184</b>	<b>4,166,575</b>	<b>5,491,522</b>
<b>342 Fuel Holders, Products and Accessories</b>									
Douglas CT	137,759	06-2017	70	S1	0	14.0	74,238	100,065	73,586
Ocotillo CT 1-2	719,859	06-2017	70	S1	0	14.0	384,292	517,984	359,329
Saguaro CT	1,304,977	06-2017	70	S1	0	14.0	756,368	1,019,600	804,476
West Phoenix CT 1-2	1,437,533	06-2017	70	S1	0	14.0	833,354	1,123,270	840,769
West Phoenix Combined Cycle 1-3	19,343,993	06-2031	70	S1	0	27.7	1,965,394	2,649,135	2,978,088
Yucca CT 1-4	3,232,217	06-2016	70	S1	0	12.9	2,121,263	2,859,228	2,710,284
<b>Total Account 342</b>	<b>26,176,338</b>						<b>6,134,910</b>	<b>8,269,181</b>	<b>7,766,512</b>
<b>343 Prime Movers</b>									
Douglas CT	1,101,449	06-2017	70	L1.5	0	14.1	741,327	999,227	1,102,406
Ocotillo CT 1-2	6,679,324	06-2017	70	L1.5	0	13.8	4,213,601	5,679,469	6,127,017
Saguaro CT	8,102,651	06-2017	70	L1.5	0	14.2	4,939,005	6,657,234	6,441,288
West Phoenix CT 1-2	8,802,636	06-2017	70	L1.5	0	14.2	4,614,823	6,220,272	6,428,654
Yucca CT 1-4	7,920,584	06-2016	70	L1.5	0	11.6	5,417,695	7,302,857	8,796,851
<b>Total Account 343</b>	<b>32,506,644</b>						<b>19,926,452</b>	<b>26,858,659</b>	<b>28,896,416</b>
<b>344 Generators and Devices</b>									
Douglas CT	551,765	06-2017	37	R3	0	9.7	402,733	542,840	546,431
Ocotillo CT 1-2	6,402,044	06-2017	37	R3	0	13.6	2,586,955	3,500,409	2,389,080
Saguaro CT	4,185,247	06-2017	37	R3	0	13.0	1,858,429	2,504,957	1,954,137
Solar Unit 1	6,933,081	06-2017	12	S4	0	7.8	2,440,792	3,289,918	3,041,951
West Phoenix CT 1-2	4,115,901	06-2017	37	R3	0	12.3	2,375,981	3,202,560	2,407,953
West Phoenix Combined Cycle 1-3	81,920,222	06-2031	37	R3	0	26.2	8,890,281	11,983,119	11,064,493
Yucca CT 1-4	5,395,818	06-2016	37	R3	0	11.6	3,242,215	4,370,148	3,751,109
<b>Total Account 344</b>	<b>109,504,078</b>						<b>21,807,386</b>	<b>29,393,951</b>	<b>25,135,154</b>
<b>345 Accessory Electric Equipment</b>									
Douglas CT	353,277	06-2017	50	S2	0	13.1	232,622	313,549	296,417
Ocotillo CT 1-2	1,494,636	06-2017	50	S2	0	13.2	851,000	1,281,843	1,158,282
Saguaro CT	1,715,774	06-2017	50	S2	0	13.4	1,030,871	1,389,500	1,133,530
Solar Unit 1	169,527	06-2017	12	SQ	0	9.9	29,809	40,179	12,853
West Phoenix CT 1-2	1,557,744	06-2017	50	S2	0	13.2	975,915	1,315,426	1,079,614
West Phoenix Combined Cycle 1-3	11,925,645	06-2031	50	S2	0	27.8	1,901,448	2,582,942	3,758,130
Yucca CT 1-4	2,166,526	06-2016	50	S2	0	13.0	1,348,752	1,817,969	1,818,547
<b>Total Account 345</b>	<b>19,383,129</b>						<b>6,470,417</b>	<b>8,721,408</b>	<b>9,257,373</b>

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

Depreciable Group (1)	Original	Probable Retirement Date (3)	Average Service Life (4)	Lower Curve Type (5)	Net Salvage Percent (6)	Average Remaining Life (7)	SK Theoretical Reserve (8)	SK Allocated Book Reserve (9)	Company Adjusted Book Reserve at 12/31/2002 (10)
	Cost at 12/31/2002 (2)								
<b>346 Miscellaneous Power Plant Equipment</b>									
Douglas CT	40,913	06-2017	70	L1	0	13.8	22,376	30,160	29,882
Ocoillo CT 1-2	553,173	06-2017	70	L1	0	14.0	310,631	418,696	460,255
Saguaro CT	790,906	06-2017	70	L1	0	14.1	304,444	410,357	388,367
West Phoenix CT 1-2	957,431	06-2017	70	L1	0	14.1	377,281	508,533	479,217
West Phoenix Combined Cycle 1-3	2,608,877	06-2031	70	L1	0	26.6	664,636	895,856	1,714,480
Yucca CT 1-4	427,175	06-2016	70	L1	0	13.2	265,328	357,633	411,833
<b>Total Account 346</b>	<b>5,378,475</b>						<b>1,944,696</b>	<b>2,621,236</b>	<b>3,484,034</b>
<b>TOTAL OTHER PRODUCTION PLANT</b>									
	<b>202,716,436</b>						<b>59,375,045</b>	<b>80,031,011</b>	<b>80,031,011</b>
<b>TRANSMISSION PLANT</b>									
352 Structures and Improvements	27,618,299		50	R4	0	35.2	8,175,017	12,484,016	8,135,201
352.5 Structures and Improvements - SCE 500 KV Line	409,725				0		278,239	424,897	296,885
353 Station Equipment	428,736,305		57	R1.5	0	45.7	85,220,743	130,140,064	173,966,733
353.5 Station Equipment - SCE 500 KV Line	7,747,282				0		4,812,647	7,349,363	6,464,972
354 Towers and Fixtures	83,464,531		60	R3	0	38.3	30,186,339	46,097,366	39,991,439
354.5 Towers and Fixtures - SCE 500 KV Line	13,752,584				0		11,445,248	17,477,965	13,542,259
355 Poles and Fixtures - Wood	91,126,939		48	R1.5	0	38.5	18,035,540	27,541,958	33,590,493
355.1 Poles and Fixtures - Steel	83,067,888		55	R3	0	45.1	14,952,220	22,833,440	22,282,935
355.5 Poles and Fixtures - SCE 500 KV Line	930,308				0		453,525	692,575	341,908
356 Overhead Conductors and Devices	205,771,417		55	R3	0	38.5	61,731,425	94,269,666	70,439,236
356.5 Overhead Conductors and Devices - SCE 500 KV Line	22,653,515				0		18,956,016	28,947,611	23,670,862
357 Underground Conduit	10,444,362		48	S1.5	0	35.7	2,676,368	4,087,064	2,989,523
358 Underground Conductors and Devices	18,551,254		40	R3	0	26.3	6,353,804	9,702,854	6,336,374
<b>TOTAL TRANSMISSION PLANT</b>	<b>994,274,409</b>						<b>263,277,130</b>	<b>402,048,830</b>	<b>402,048,830</b>
<b>DISTRIBUTION PLANT</b>									
361 Structures and Improvements	25,815,042		45	R2.5	0	33.1	6,826,644	10,429,908	7,749,290
362 Station Equipment	212,357,577		44	L0.5	0	36.9	34,508,106	52,722,295	70,802,963
364 Poles and Fixtures - Wood	284,200,711		38	R0.5	0	30.9	53,100,659	81,128,434	94,139,326
364.1 Poles and Fixtures - Steel	53,919,651		50	R3	0	46.6	3,666,536	5,601,820	5,138,171
365 Overhead Conductors and Devices	218,856,780		53	O1	0	47.7	21,885,678	33,437,453	58,922,434
366 Underground Conduit	425,723,116		86	O1	0	82.4	17,622,957	26,924,767	51,496,065
367 Underground Conductors and Devices	805,505,783		29	L1	0	22.9	169,433,975	258,865,205	227,200,974
368 Line Transformers	486,837,053		36	R3	0	24.8	154,165,067	235,537,009	188,298,226
369 Services	242,404,812		37	S2	0	27.9	59,618,481	91,086,515	86,204,425
370 Meters	91,330,710		29	L0	0	21.8	22,801,184	34,836,184	36,185,262
370.1 Electronic Meters	54,691,249		26	R1.5	0	23.3	5,637,406	8,612,961	11,298,055
371 Installations On Customer Premises	25,335,831		50	O2	0	45.0	2,528,516	3,863,126	8,708,344
373 Street Lighting and Signal Systems	57,185,737		35	R2.5	0	25.9	14,868,292	22,716,125	19,618,266
<b>TOTAL DISTRIBUTION PLANT</b>	<b>2,984,164,052</b>						<b>566,663,501</b>	<b>865,761,801</b>	<b>865,761,801</b>

Arizona Public Service Company  
Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant in Service at December 31, 2002

Depreciable Group	Original Cost at 12/31/2002	Probable Retirement Date	Average Service Life	Lower Curve Type	Net Salvage Percent	Average Remaining Life	SK Theoretical Reserve	SK Allocated Book Reserve	Company Adjusted Book Reserve at 12/31/2002
<b>GENERAL PLANT</b>									
390 Structures and Improvements	96,667,435		39	R1	0	30.7	20,572,813	24,085,116	30,654,079
391 Office Furniture and Equipment - Furniture Reserve Variance Amortization	19,919,640		20	SQ	0	10.1	9,860,222	11,543,613	9,897,448
391.1 Office Furniture and Equipment - Pc Equip Reserve Variance Amortization	38,654,946		8	R3	0	5.3	12,901,088	15,103,632	14,227,354
391.2 Office Furniture and Equipment - Equipment Reserve Variance Amortization	7,652,923		22	R4	0	14.8	2,504,593	2,932,191	4,070,284
393 Stores Equipment Reserve Variance Amortization	1,227,371		20	SQ	0	2.8	1,055,539	1,235,746	838,588
394 Tools, Shop and Garage Equipment Reserve Variance Amortization	12,673,031		20	SQ	0	13.7	3,992,005	4,673,542	3,298,597
395 Laboratory Equipment Reserve Variance Amortization	1,350,563		20	L1	0	13.3	453,796	531,270	1,043,823
397 Communication Equipment	94,309,691		19	S1.5	0	12.0	34,745,676	40,677,647	36,587,109
398 Miscellaneous Equipment Reserve Variance Amortization	1,336,404		24	S1.5	0	16.6	411,501	481,755	647,229
<b>TOTAL GENERAL PLANT</b>	<b>273,792,024</b>						<b>86,497,233</b>	<b>101,264,511</b>	<b>101,264,511</b>
<b>TOTAL DEPRECIABLE PLANT STUDIED</b>	<b>8,082,632,804</b>						<b>2,465,330,093</b>	<b>3,186,573,980</b>	<b>3,186,573,980</b>
<b>5-YEAR AVERAGE NET SALVAGE ALLOWANCE</b>									
<b>TOTAL DEPRECIATION</b>									

Note: SK Theoretical Reserve for Production plant is Company Theoretical Reserve from Attachment LLR-4, less the net salvage component.

**ARIZONA PUBLIC SERVICE COMPANY**  
 Depreciation and Amortization Expense  
 Comparison of Company Proposal and Snavey King Recommendation  
 For the Year Ended December 31, 2002  
 (Thousands of Dollars)

Line No		Company Proposal			Snavey King Recommendation		
		Actual YTD 2002	Projected 2003	Difference	Projected 2003	Difference	
1	<b>PRODUCTION DEPRECIATION/AMORTIZATION</b>						
2	Production						
3	Steam	\$ 36,510	\$ 43,967	\$ 7,457	28,840	1/ (7,670)	
4	Steam - Navajo Depreciation adjustment (a)	(378)	(378)	-	(378)	2/ -	
5	Nuclear	74,657	67,495	(7,162)	64,486	1/ (10,171)	
6	Nuclear - Leased Property Amortized	562	562	-	562	2/ -	
7	Nuclear - Decommissioning	11,443	11,443	-	11,443	2/ -	
7	Hydro (b)	3,262	2,668	(594)	2,668	2/ (594)	
9	Hydro - Limited Term Land Rights	13	13	-	13	2/ -	
10	Other	7,550	5,938	(1,612)	5,506	1/ (2,044)	
11	<b>TOTAL PRODUCTION DEPRECIATION</b>						
		[Total Lines 3 - 11]	133,619	131,708	(1,911)	113,139	(20,480)
12	<b>TRANSMISSION DEPRECIATION/AMORTIZATION</b>						
13	Transmission Depreciation SCE 500 kV Line - Limited Term Land Rights	129	129	-	129	2/ -	
14	Transmission Depreciation SCE 500 kV Line	1,413	1,479	66	1,479	2/ 66	
15	Transmission Depreciation All Other - Limited Term Land Rights	914	914	-	914	2/ -	
16	Transmission Depreciation All Other	19,000	20,771	1,771	14,342	1/ (4,659)	
17	<b>TOTAL TRANSMISSION</b>						
		[Total Lines 14-17]	21,456	23,293	1,837	16,863	(4,593)
18	<b>DISTRIBUTION DEPRECIATION/AMORTIZATION</b>						
19	Distribution Depreciation	98,904	83,639	(15,265)	67,020	1/ (31,884)	
20	Distribution Depreciation All Other - Limited Term Land Rights	38	38	-	38	2/ -	
21	Distribution - Leased Property Amortized	9	9	-	9	2/ -	
22	<b>TOTAL DISTRIBUTION</b>						
		[Total Lines 20-22]	98,951	83,686	(15,265)	67,067	(31,884)
23	<b>GENERAL AND INTANGIBLE DEPRECIATION/AMORTIZATION</b>						
24	Intangible Amortization	17,935	21,620	3,685	21,620	2/ 3,685	
25	Intangible - Leased Property Amortization	17	17	-	17	2/ -	
26	<b>TOTAL INTANGIBLE AMORTIZATION</b>						
		[Total Lines 24-25]	17,952	21,637	3,685	21,637	3,685
27	General Depreciation and Amortization						
28	390 Structures and Improvements	2,085	2,624	539	2,364	1/ 279	
29	390 Structures and Improvements - Leased Property Amortized	1,253	1,253	-	1,253	2/ -	
30	391 Office Furniture	675	995	320	829	1/ 154	
31	3911 Office Furniture and Equipment-PC Equipment	2,870	6,467	3,597	4,419	1/ 1,549	
32	C391 Office Furniture and Equip-PC Equipment Capital Leases	752	1,978	1,226	1,978	2/ 1,227	
33	3911A Office Furniture and Equip-Reserve Variance Amortization	-	2,352	2,352	-	1/ -	
34	3912 Office Equipment	378	462	84	319	1/ (59)	
35	392 Transportation Equipment	515	777	262	777	2/ 262	
36	C392 Transportation Equipment - Capital Leases	-	3,315	3,315	3,315	2/ 3,315	
37	392.1 Transportation Equipment- Leased Vehicles Purchased	63	405	342	405	2/ 341	
38	393 Stores Equipment	32	30	(2)	(3)	1/ (35)	
39	3931A Stores Equipment-Reserve Variance Amortization	-	101	101	-	1/ -	
40	394 Tools, Shop and Garage Equipment	468	634	166	584	1/ 116	
41	3941A Tools, Shop & Garage Equip-Reserve Variance Amortization	-	230	230	-	1/ -	
42	395 Laboratory Equipment	90	75	(15)	69	1/ (21)	
43	3951A Laboratory Equipment-Reserve Variance Amortization	-	13	13	-	1/ -	
44	396 Power Operated Equipment	596	787	191	787	2/ 191	
45	397 Communication Equipment	2,837	4,812	1,975	4,469	1/ 1,632	
46	397 Communication Equipment - Leased Property Amortized	9	9	-	9	2/ -	
47	398 Miscellaneous Equipment	59	65	6	51	1/ (8)	
48	3981A Misc. Equipment-Reserve Variance Amortization	-	(21)	(21)	-	1/ -	
49	<b>TOTAL GEN AND INTANG DEPR. AND AMORT.</b>						
		[Total Lines 28 - 48]	12,682	27,363	14,681	21,625	8,942
50	5-Year Average Net Salvage Allowance						
51	<b>TOTAL DEPRECIATION AND AMORTIZATION EXPENSE (Accounts 403 &amp; 404)</b>	\$ 284,660	\$ 287,687	\$ 3,027	\$ 240,331	(44,329)	
52	Amortization of Electric Plant Acquisition Adjustment (Account 406)	15,443	(c)				
53	Amortization of Property losses, Unrecovered Plant, and regulatory study costs (Account 404)	99,537	(c)				
54	<b>Total</b>						
			\$ 399,640				

NOTE: 1/ From Snavey King Depreciation Study.

2/ No Snavey King challenge to Company proposal.

(a) - Navajo Railroad Depreciation expense reclassified to Fuel inventory (Account 151).

(b) - Includes Hydro Decommissioning only.

(c) - Refer to Pro-Forma adjustment on regulatory asset amortization schedule C2, Page 8 for Projected amount.

Arizona Public Service Company

Production Plant as of 12/31/2002

Company Proposed Terminal Retirement Years and Life Spans

<u>Depreciable Group</u>	<u>Year In Service</u>	<u>Probable Retirement Year</u>	<u>Life Span</u>	<u>Remaining Life Span</u>
<b><u>Steam Production Plant</u></b>				
Chollo Unit 1	1962	2017	55	15
Chollo Unit 2	1978	2033	55	31
Chollo Unit 3	1980	2035	55	33
Chollo Common	1978	2035	57	33
Four Corners Units 1-3	1963	2016	53	14
Four Corners Units 4-5	1969	2031	62	29
Navajo Units 1-3	1975	2026	51	24
Ocotillo Units 1-2	1960	2020	60	18
Saguaro Units 1-3	1954	2014	60	12
Yucca Unit 1	1959	2016	57	14
<b><u>Nuclear Production Plant</u></b>				
Palo Verde Unit 1	1986	2024	40	22
Palo Verde Unit 2	1986	2025	40	23
Palo Verde Unit 3	1988	2027	40	25
Palo Verde Water Reclamation	1986	2027	40	25
Palo Verde Common	1986	2027	40	25
<b><u>Hydraulic Production Plant</u></b>				
Childs	1909	2004	95	2
Irving	1916	2004	88	2
<b><u>Other Production Plant</u></b>				
Douglas	1972	2017	45	15
Ocotillo Turbines 1-2	1972	2017	45	15
Saguaro Turbines 1-2	1972	2017	45	15
West Phoenix Turbines 1-2	1972	2017	45	15
West Phoenix Combined Cycle 1-2	1976	2031	55	29
Yucca Turbines 1-4	1971	2016	45	14

Source: Attachment LLR-4, page II-28.

Note: Nuclear lifespan based on license period.

**Arizona Public Service Company**

**Section SP**

**Production Plant**

**Arizona Public Service Company**

**Steam Production Plant**

**311.00 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Steam Production Plant - Structures and Improvements

Account 311 - Structures and Improvements

Depreciable Balance \$115,950,066

	APS	Snavelly King
Depreciable Reserve	<u>\$64,537,994</u>	<u>\$63,151,660</u>

Reserve Percent	<u>55.7%</u>	<u>54.5%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>80-S1</u>	<u>75-S1.5</u>	<u>75-S1.5</u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>3,246,602</u>	<u>3,383,810</u>	<u>2,249,880</u>
Rate (%)	<u>2.80%</u>	<u>2.92%</u>	<u>1.94%</u>

.....  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 311 - Structures and Improvements**

Age	Cumulative Survivors
1948-2010	
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	0.9986
5.5	0.9986
6.5	0.9983
7.5	0.9980
8.5	0.9969
9.5	0.9961
10.5	0.9948
11.5	0.9948
12.5	0.9946
13.5	0.9939
14.5	0.9938
15.5	0.9937
16.5	0.9932
17.5	0.9920
18.5	0.9905
19.5	0.9901
20.5	0.9852
21.5	0.9846
22.5	0.9846
23.5	0.9799
24.5	0.9797
25.5	0.9789
26.5	0.9767
27.5	0.9723
28.5	0.9617
29.5	0.9603
30.5	0.9603
31.5	0.9596
32.5	0.9231
33.5	0.9231
34.5	0.9227
35.5	0.9221
36.5	0.9213
37.5	0.9213
38.5	0.9213
39.5	0.8847
40.5	0.7501
41.5	0.5607
42.5	0.5475
43.5	0.5475
44.5	0.5475

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 311 - Structures and Improvements**

Age	Cumulative Survivors
45.5	0.4936
46.5	0.3482
47.5	0.3482
48.5	0.3087
49.5	0.3087
50.5	0.3087
51.5	0.3087
52.5	0.3087
53.5	0.3087
54.5	0.3087
55.5	0.3087
56.5	0.3087
57.5	0.3087
58.5	0.3087
59.5	0.3087
60.5	0.3087
61.5	0.3087
	<b>1973 - 2010</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	0.9985
5.5	0.9985
6.5	0.9983
7.5	0.9979
8.5	0.9967
9.5	0.9963
10.5	0.9951
11.5	0.9950
12.5	0.9949
13.5	0.9941
14.5	0.9941
15.5	0.9939
16.5	0.9934
17.5	0.9922
18.5	0.9907
19.5	0.9903
20.5	0.9853
21.5	0.9848
22.5	0.9848
23.5	0.9801
24.5	0.9799
25.5	0.9790
26.5	0.9768
27.5	0.9725

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 311 - Structures and Improvements**

<b>Age</b>	<b>Cumulative Survivors</b>
28.5	0.9619
29.5	0.9604
30.5	0.9604
31.5	0.9597
32.5	0.9233
33.5	0.9233
34.5	0.9228
35.5	0.9222
36.5	0.9214
37.5	0.9214
38.5	0.9214
39.5	0.8848
40.5	0.7502
41.5	0.5608
42.5	0.5476
43.5	0.5476
44.5	0.5476
45.5	0.4937
46.5	0.3483
47.5	0.3483
48.5	0.3087
49.5	0.3087
50.5	0.3087
51.5	0.3087
52.5	0.3087
53.5	0.3087
54.5	0.3087
55.5	0.3087
56.5	0.3087
57.5	0.3087
58.5	0.3087
59.5	0.3087
60.5	0.3087
61.5	0.3087

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 311 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2010</b>	
L3	49.0	3,116.966
L4	47.0	3,208.758
S3	47.0	3,721.212
S2	48.0	4,396.967
R3	47.0	4,890.446
R2.5	47.0	5,454.272
S1.5	48.0	5,497.234
S4	47.0	5,512.058
L5	47.0	5,954.329
R4	47.0	6,035.324
L2	51.0	6,053.772
R2	47.0	6,790.014
S1	49.0	7,114.635
L1.5	52.0	8,278.239
R1.5	47.0	8,874.673
S0.5	49.0	9,072.909
R5	46.0	9,288.876
S5	46.0	9,524.832
L1	54.0	11,058.666
S0	50.0	11,508.013
R1	47.0	11,672.793
L0.5	56.0	13,387.113
S6	45.0	13,903.523
S-0.5	51.0	14,887.096
R0.5	49.0	15,216.336
L0	58.0	16,028.491
O1	54.0	18,827.055
O2	61.0	18,847.029
O3	86.0	21,113.142
O4	100.0	23,497.563
SQ	45.0	27,554.624

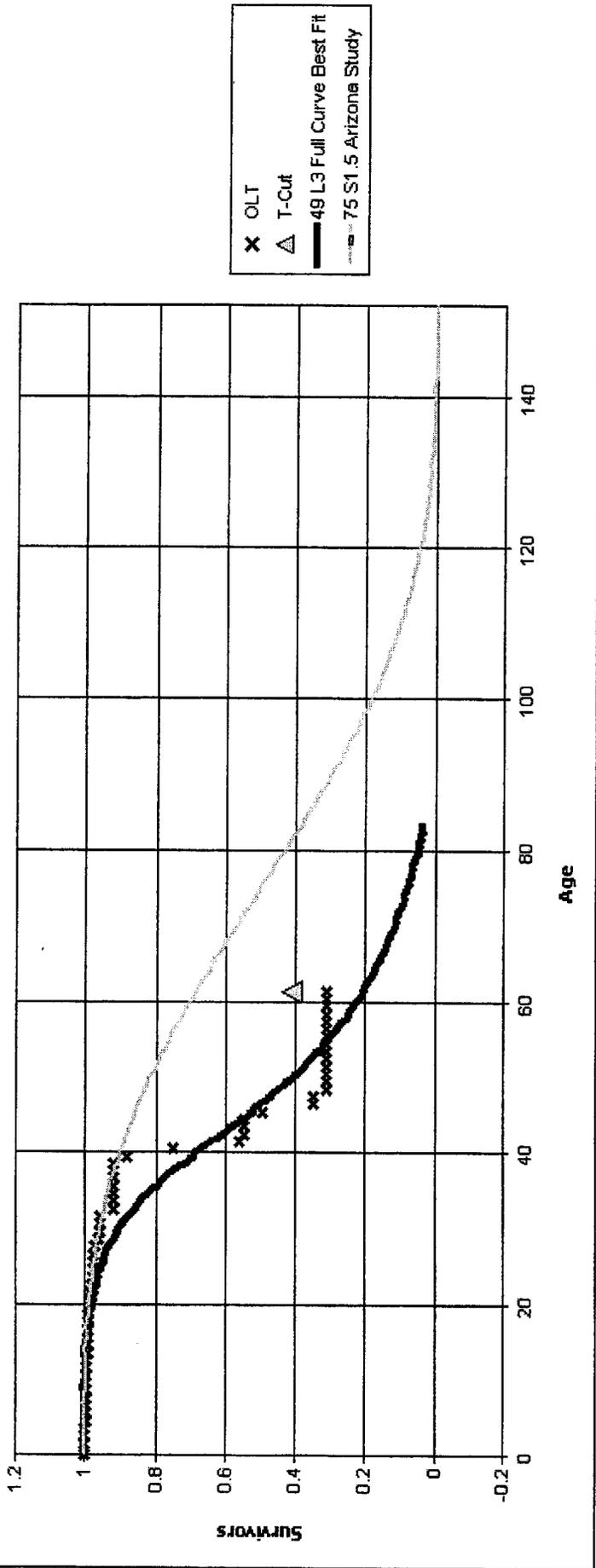
**Analytical Parameters**

OLT Placement Band: 1948 - 2010  
 OLT Experience Band: 1973 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 61.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company Structures and Improvements

Account: 311



Analytical Parameters

OLT Placement Band:	1948 - 2010
OLT Experience Band:	1973 - 2010
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Maximum Age (T-Cut):	61.5

**Arizona Public Service Company**

**Steam Production Plant**

**312.00 - Boiler Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Steam Production Plant - Boiler Plant Equipment

Account 312 - Boiler Plant Equipment

Depreciable Balance \$800,031,516

	APS	Snavelly King
Depreciable Reserve	<u>\$442,311,564</u>	<u>\$462,014,635</u>

Reserve Percent	<u>55.3%</u>	<u>57.7%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>2012</u>	<u>2017</u>	<u>2017</u>
Iowa Curve	<u>70-L1</u>	<u>48-L2</u>	<u>48-L2</u>
Remaining Life (Yrs.)	<u></u>	<u>17.4</u>	<u>18.9</u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>23,040,908</u>	<u>29,742,262</u>	<u>18,925,817</u>
Rate (%)	<u>2.88%</u>	<u>3.72%</u>	<u>2.37%</u>

\*\*\*\*\*

Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 312 - Boiler Plant Equipment**

Age	Cumulative Survivors
BAND	1948-2010
0	1.0000
0.5	1.0000
1.5	0.9997
2.5	0.9988
3.5	0.9980
4.5	0.9926
5.5	0.9919
6.5	0.9908
7.5	0.9897
8.5	0.9859
9.5	0.9841
10.5	0.9818
11.5	0.9784
12.5	0.9750
13.5	0.9740
14.5	0.9731
15.5	0.9715
16.5	0.9692
17.5	0.9663
18.5	0.9649
19.5	0.9557
20.5	0.9528
21.5	0.9417
22.5	0.9397
23.5	0.9348
24.5	0.9257
25.5	0.9231
26.5	0.8938
27.5	0.8572
28.5	0.8425
29.5	0.7989
30.5	0.7661
31.5	0.7360
32.5	0.7182
33.5	0.7018
34.5	0.6903
35.5	0.6747
36.5	0.6730
37.5	0.6496
38.5	0.6380
39.5	0.5807
40.5	0.5702
41.5	0.5437
42.5	0.4544
43.5	0.3912
44.5	0.3050

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 312 - Boiler Plant Equipment**

Age	Cumulative Survivors
45.5	0.2866
46.5	0.2369
47.5	0.2100
48.5	0.1960
49.5	0.1883
50.5	0.1859
51.5	0.1859
52.5	0.1859
53.5	0.1835
54.5	0.1815
55.5	0.1815
56.5	0.1815
57.5	0.1815
58.5	0.1815
59.5	0.1815
60.5	0.1815
61.5	0.1815
<b>BAND</b>	<b>1973 - 2010</b>
0	1.0000
0.5	1.0000
1.5	0.9997
2.5	0.9987
3.5	0.9979
4.5	0.9921
5.5	0.9913
6.5	0.9902
7.5	0.9890
8.5	0.9848
9.5	0.9833
10.5	0.9810
11.5	0.9775
12.5	0.9740
13.5	0.9729
14.5	0.9721
15.5	0.9705
16.5	0.9681
17.5	0.9652
18.5	0.9638
19.5	0.9546
20.5	0.9517
21.5	0.9406
22.5	0.9386
23.5	0.9337
24.5	0.9246
25.5	0.9220
26.5	0.8927
27.5	0.8562

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 312 - Boiler Plant Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
28.5	0.8415
29.5	0.7979
30.5	0.7652
31.5	0.7352
32.5	0.7173
33.5	0.7010
34.5	0.6894
35.5	0.6739
36.5	0.6722
37.5	0.6489
38.5	0.6372
39.5	0.5800
40.5	0.5695
41.5	0.5431
42.5	0.4538
43.5	0.3907
44.5	0.3046
45.5	0.2863
46.5	0.2366
47.5	0.2098
48.5	0.1958
49.5	0.1880
50.5	0.1857
51.5	0.1857
52.5	0.1857
53.5	0.1833
54.5	0.1813
55.5	0.1813
56.5	0.1813
57.5	0.1813
58.5	0.1813
59.5	0.1813
60.5	0.1813
61.5	0.1813

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 312 - Boiler Plant Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2010</b>	
L3	42.0	1,076.038
S2	41.0	1,456.100
S1.5	41.0	1,732.614
R2.5	40.0	1,838.285
R3	40.0	2,281.798
S3	41.0	2,284.511
R2	40.0	2,314.769
L2	43.0	2,561.788
S1	41.0	2,628.036
L4	42.0	2,647.777
R1.5	40.0	3,473.918
S0.5	41.0	4,006.420
L1.5	43.0	4,127.384
R4	41.0	4,234.110
S4	41.0	5,349.328
R1	39.0	5,506.529
S0	40.0	5,969.379
L5	42.0	6,320.393
L1	43.0	6,399.368
R5	41.0	8,194.846
L0.5	43.0	8,548.834
R0.5	39.0	8,648.869
S-0.5	40.0	8,948.648
S5	41.0	9,595.672
L0	44.0	11,147.996
O1	40.0	12,863.222
O2	45.0	13,230.810
S6	42.0	14,235.060
O3	61.0	18,100.057
O4	82.0	20,069.940
SQ	42.0	26,717.483

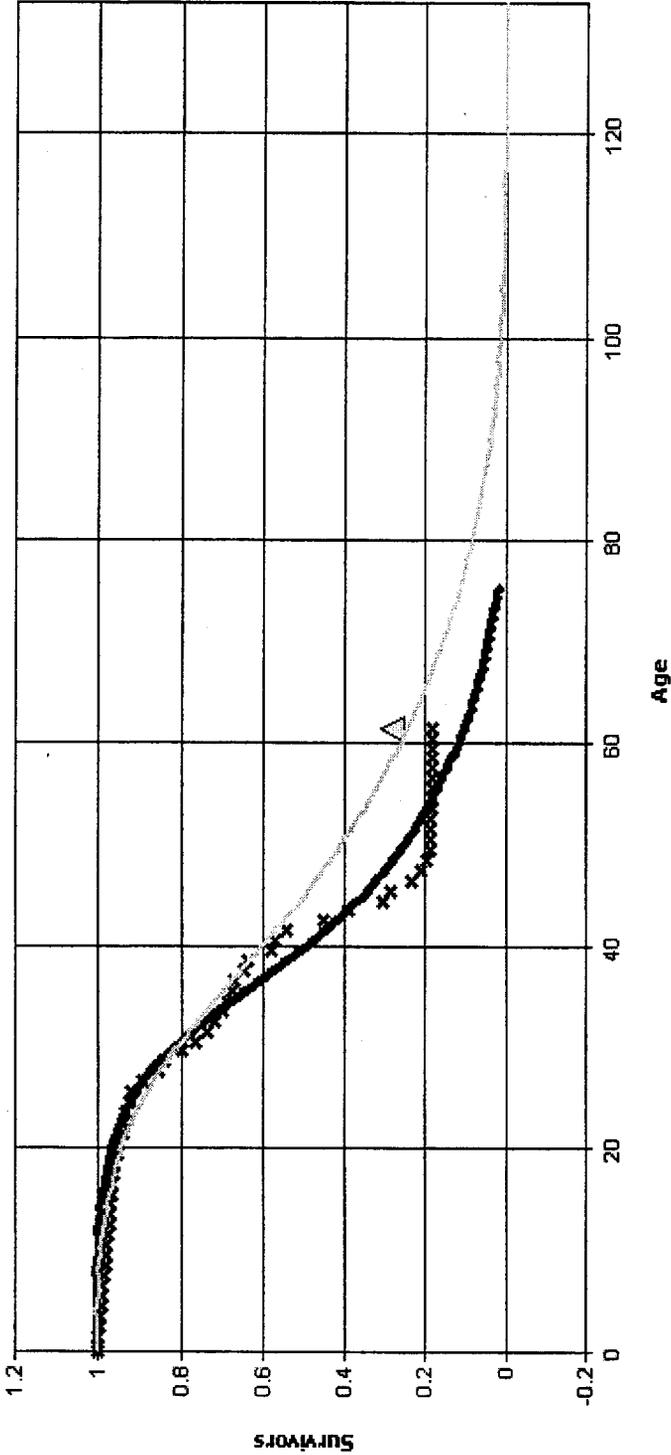
**Analytical Parameters**

OLT Placement Band: 1948 - 2010  
 OLT Experience Band: 1973 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 61.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company Boiler Plant Equipment**

Account: 312



**Analytical Parameters**

OLT Placement Band:	1948 - 2010
OLT Experience Band:	1973 - 2010
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Maximum Age (T-Cut):	61.5

**Arizona Public Service Company**

**Steam Production Plant**

**314.00 - Turbogenerator Units**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Steam Production Plant - Turbogenerator Units

Account 314 - Turbogenerator Units

Depreciable Balance \$188,018,474

	APS	Snavelly King
Depreciable Reserve	<u>\$123,879,147</u>	<u>\$112,700,899</u>

Reserve Percent	<u>65.9%</u>	<u>59.9%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>        </u>	<u>        </u>	<u>        </u>
lowa Curve	<u>65-R2</u>	<u>65-R2</u>	<u>65-R2</u>
Remaining Life (Yrs.)	<u>        </u>	<u>        </u>	<u>        </u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>4,399,632</u>	<u>5,132,750</u>	<u>3,602,809</u>
Rate (%)	<u>2.34%</u>	<u>2.73%</u>	<u>1.92%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 314 - Turbogenerator Units**

Age	Cumulative Survivors
	<b>1948-2010</b>
0	1.0000
0.5	0.9998
1.5	0.9986
2.5	0.9986
3.5	0.9957
4.5	0.9957
5.5	0.9957
6.5	0.9894
7.5	0.9888
8.5	0.9888
9.5	0.9834
10.5	0.9826
11.5	0.9823
12.5	0.9823
13.5	0.9795
14.5	0.9786
15.5	0.9786
16.5	0.9763
17.5	0.9737
18.5	0.9714
19.5	0.9713
20.5	0.9708
21.5	0.9473
22.5	0.9468
23.5	0.9448
24.5	0.9365
25.5	0.9347
26.5	0.9270
27.5	0.9098
28.5	0.9053
29.5	0.9003
30.5	0.8964
31.5	0.8958
32.5	0.8933
33.5	0.8863
34.5	0.8859
35.5	0.8855
36.5	0.8842
37.5	0.8800
38.5	0.8522
39.5	0.8301
40.5	0.8234
41.5	0.8015
42.5	0.7877
43.5	0.7811
44.5	0.7525

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 314 - Turbogenerator Units**

Age	Cumulative Survivors
45.5	0.7084
46.5	0.7046
47.5	0.6992
48.5	0.6814
49.5	0.6814
50.5	0.6814
51.5	0.6814
52.5	0.6814
53.5	0.6814
54.5	0.6814
55.5	0.6814
56.5	0.6814
57.5	0.6814
58.5	0.6814
59.5	0.6814
60.5	0.6814
61.5	0.6814
<b>1973 - 2010</b>	
0	1.0000
0.5	0.9997
1.5	0.9983
2.5	0.9983
3.5	0.9945
4.5	0.9945
5.5	0.9945
6.5	0.9863
7.5	0.9855
8.5	0.9855
9.5	0.9782
10.5	0.9774
11.5	0.9770
12.5	0.9770
13.5	0.9740
14.5	0.9730
15.5	0.9730
16.5	0.9706
17.5	0.9679
18.5	0.9655
19.5	0.9654
20.5	0.9649
21.5	0.9416
22.5	0.9410
23.5	0.9390
24.5	0.9308
25.5	0.9290
26.5	0.9214
27.5	0.9042

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 314 - Turbogenerator Units**

<b>Age</b>	<b>Cumulative Survivors</b>
28.5	0.8998
29.5	0.8948
30.5	0.8909
31.5	0.8904
32.5	0.8879
33.5	0.8809
34.5	0.8805
35.5	0.8802
36.5	0.8789
37.5	0.8747
38.5	0.8471
39.5	0.8250
40.5	0.8184
41.5	0.7966
42.5	0.7829
43.5	0.7763
44.5	0.7480
45.5	0.7041
46.5	0.7003
47.5	0.6950
48.5	0.6773
49.5	0.6773
50.5	0.6773
51.5	0.6773
52.5	0.6773
53.5	0.6773
54.5	0.6773
55.5	0.6773
56.5	0.6773
57.5	0.6773
58.5	0.6773
59.5	0.6773
60.5	0.6773
61.5	0.6773

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 314 - Turbogenerator Units**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2010</b>	
L1	79.0	351.768
S0.5	71.0	424.530
S0	76.0	431.005
L0.5	86.0	452.274
L1.5	74.0	534.731
R1.5	68.0	560.321
R2	64.0	635.991
S1	67.0	642.710
L0	96.0	690.982
R1	73.0	731.767
S-0.5	84.0	784.137
L2	70.0	1,052.774
R0.5	83.0	1,057.320
S1.5	65.0	1,059.290
R2.5	62.0	1,065.435
O1	98.0	1,307.194
O2	100.0	1,524.200
S2	63.0	1,767.799
R3	61.0	1,888.693
L3	65.0	2,823.283
S3	61.0	3,687.200
R4	59.0	4,175.310
L4	62.0	5,415.623
S4	60.0	7,088.422
O3	100.0	7,216.441
R5	60.0	8,802.536
L5	61.0	8,897.391
S5	60.0	11,088.729
S6	61.0	14,900.344
O4	100.0	20,433.347
SQ	62.0	21,942.338

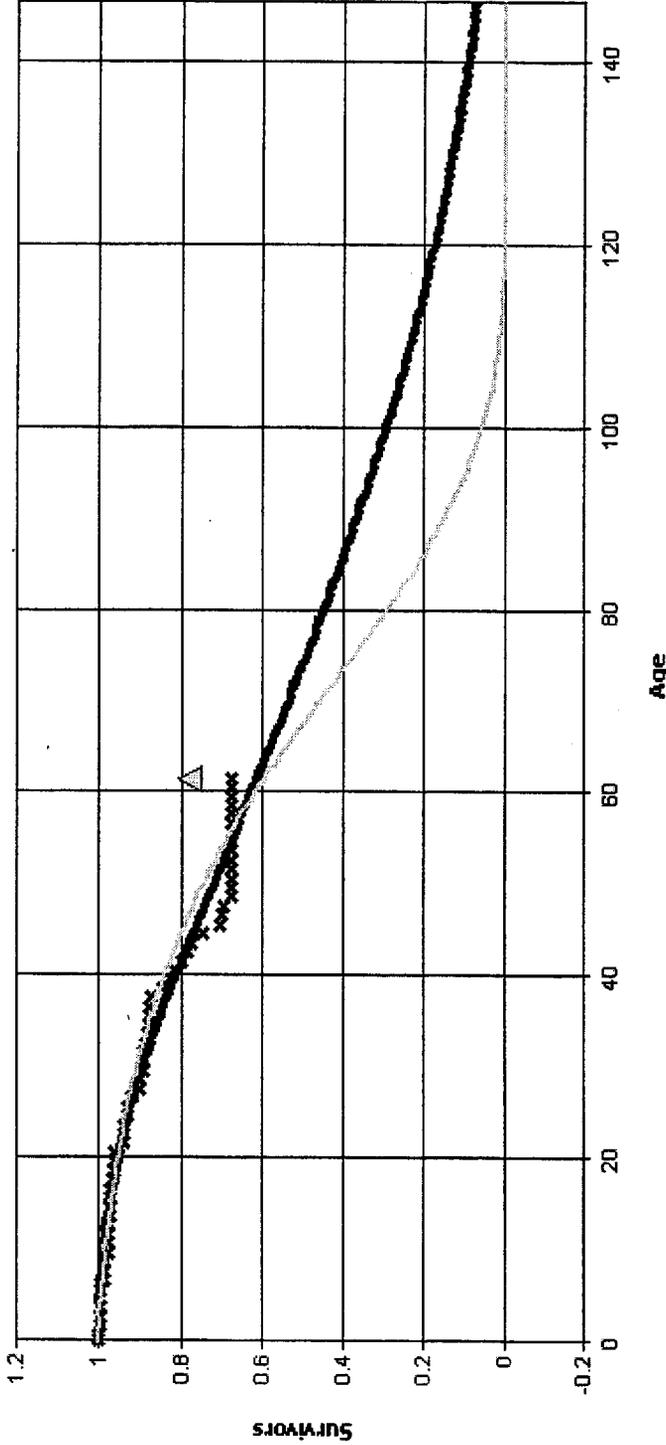
**Analytical Parameters**

OLT Placement Band: 1948 - 2010  
 OLT Experience Band: 1973 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 61.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 314 - Turbogenerator Units



X OLT  
 Δ T-Cut  
 — 79 L1 Full Curve Best Fit  
 - - - 65 R2 Arizona Study

Analytical Parameters

OLT Placement Band: 1948 - 2010  
 OLT Experience Band: 1973 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 61.5

**Arizona Public Service Company**  
**Steam Production Plant**  
**315.00 - Accessory Electric Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Steam Production Plant - Accessory Electric Equipment

Account 315 - Accessory Electric Equipment

Depreciable Balance \$134,807,415

	APS	Snavelly King
Depreciable Reserve	<u>\$87,844,097</u>	<u>\$80,088,777</u>

Reserve Percent	<u>65.2%</u>	<u>59.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>45-R3</u>	<u>60-R2.5</u>	<u>60-R2.5</u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>3,680,242</u>	<u>3,428,362</u>	<u>2,413,411</u>
Rate (%)	<u>2.73%</u>	<u>2.54%</u>	<u>1.79%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 315 - Accessory Electric Equipment**

Age BAND	Cumulative Survivors 1973 - 2001
0	1.0000
0.5	1.0000
1.5	0.9999
2.5	0.9999
3.5	0.9999
4.5	0.9999
5.5	0.9986
6.5	0.9986
7.5	0.9985
8.5	0.9866
9.5	0.9866
10.5	0.9841
11.5	0.9752
12.5	0.9744
13.5	0.9740
14.5	0.9740
15.5	0.9739
16.5	0.9723
17.5	0.9708
18.5	0.9667
19.5	0.9620
20.5	0.9574
21.5	0.9492
22.5	0.9465
23.5	0.9429
24.5	0.9385
25.5	0.9364
26.5	0.9364
27.5	0.9333
28.5	0.9318
29.5	0.9314
30.5	0.9228
31.5	0.9043
32.5	0.9043
33.5	0.9018
34.5	0.8967
35.5	0.8935
36.5	0.8935
37.5	0.8935
38.5	0.8924
39.5	0.8873
40.5	0.8873
41.5	0.8873
42.5	0.8873
43.5	0.8873
44.5	0.8873

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 315 - Accessory Electric Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.8873
46.5	0.8873
47.5	0.8873

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 315 - Accessory Electric Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R1.5	99.0	10,036.043
R2	82.0	10,057.670
S0.5	93.0	10,083.079
S0	100.0	10,089.188
R2.5	72.0	10,111.259
L1	100.0	10,115.095
L1.5	91.0	10,136.762
S1	81.0	10,184.055
R1	100.0	10,219.771
R3	65.0	10,248.726
S1.5	74.0	10,263.707
L2	80.0	10,279.512
S2	68.0	10,437.765
L0.5	100.0	10,509.839
L3	67.0	10,542.621
R4	58.0	10,614.319
S-0.5	100.0	10,751.273
S3	61.0	10,753.195
L4	59.0	10,816.652
R0.5	100.0	10,988.289
S4	56.0	11,186.426
R5	53.0	11,223.756
L5	55.0	11,260.199
S5	53.0	11,565.321
L0	100.0	11,578.870
S6	51.0	11,857.508
O1	100.0	12,352.752
SQ	48.0	12,360.967
O2	100.0	13,636.815
O3	100.0	20,944.684
O4	100.0	33,190.213

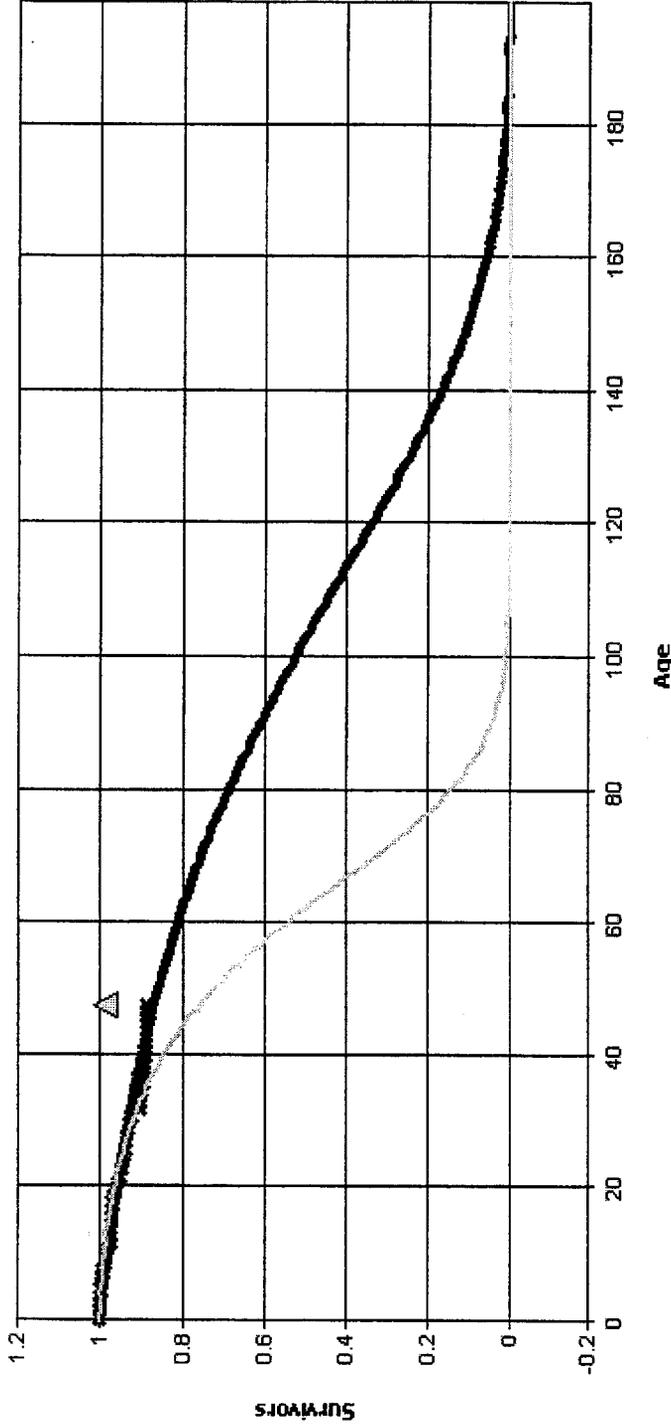
**Analytical Parameters**

OLT Placement Band: 1948 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 47.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 315 - Accessory Electric Equipment



**Analytical Parameters**

OLT Placement Band:	1948 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	47.5

**Arizona Public Service Company**

**Steam Production Plant**

**316.00 - Miscellaneous Power Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Steam Production Plant

Account 316 - Miscellaneous Power Plant Equipment

Depreciable Balance \$53,324,730

	APS	Snavelly King
Depreciable Reserve	<u>\$21,696,281</u>	<u>\$22,313,113</u>

Reserve Percent	<u>40.7%</u>	<u>41.8%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>34-R4</u>	<u>40-R2</u>	<u>40-R2</u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>2,100,994</u>	<u>2,279,704</u>	<u>1,648,121</u>
Rate (%)	<u>3.94%</u>	<u>4.28%</u>	<u>3.09%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 316 - Power Plant Equipment**

Age	Cumulative Survivors
0	1.0000
0.5	0.9996
1.5	0.9995
2.5	0.9994
3.5	0.9987
4.5	0.9962
5.5	0.9920
6.5	0.9896
7.5	0.9808
8.5	0.9695
9.5	0.9659
10.5	0.9616
11.5	0.9578
12.5	0.9540
13.5	0.9469
14.5	0.9463
15.5	0.9107
16.5	0.9056
17.5	0.9002
18.5	0.8977
19.5	0.8934
20.5	0.8929
21.5	0.8883
22.5	0.8821
23.5	0.8725
24.5	0.8723
25.5	0.8425
26.5	0.8300
27.5	0.7806
28.5	0.7404
29.5	0.7385
30.5	0.7336
31.5	0.7288
32.5	0.7288
33.5	0.6818
34.5	0.6818
35.5	0.6818
36.5	0.6818
37.5	0.6818
38.5	0.6818
39.5	0.6774
40.5	0.6774
41.5	0.6774
42.5	0.6774
43.5	0.6774
44.5	0.6774
45.5	0.6774
46.5	0.6774
47.5	0.6774

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 316 - Power Plant Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
L0.5	62.0	10,413.651
L0	69.0	10,415.937
S0	55.0	10,473.608
S-0.5	60.0	10,486.870
R1	53.0	10,563.560
L1	58.0	10,570.930
R0.5	60.0	10,617.739
R1.5	50.0	10,707.711
S0.5	52.0	10,724.905
O2	77.0	10,725.977
O1	69.0	10,727.158
O3	100.0	10,948.876
L1.5	55.0	11,030.021
R2	48.0	11,132.352
S1	50.0	11,205.571
L2	52.0	11,845.342
R2.5	47.0	11,849.506
S1.5	49.0	11,858.145
S2	48.0	12,786.040
R3	46.0	12,920.478
L3	49.0	14,022.289
O4	100.0	14,588.613
S3	47.0	15,004.161
R4	46.0	15,464.760
L4	47.0	16,691.583
S4	46.0	18,388.010
R5	46.0	19,835.744
L5	47.0	19,955.272
S5	46.0	21,873.053
S6	47.0	24,787.631
SQ	48.0	30,285.698

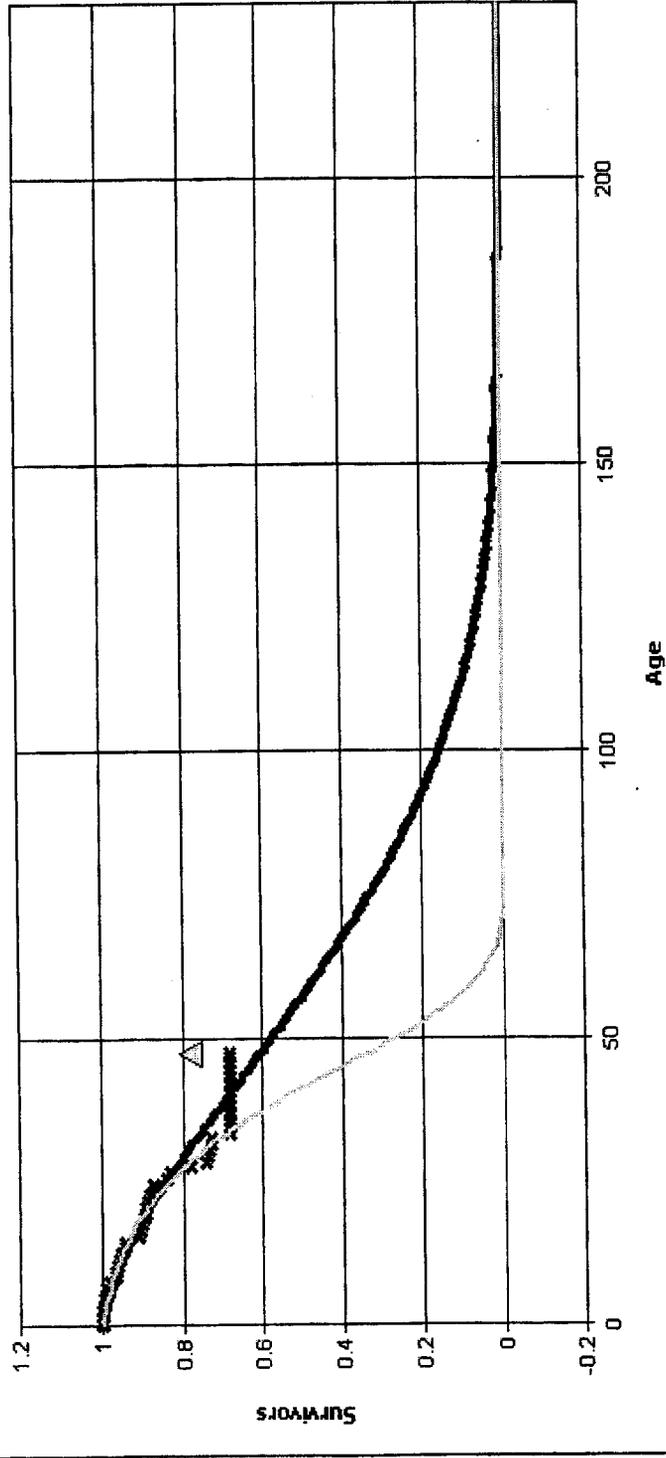
**Analytical Parameters**

OLT Placement Band: 1948 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 47.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 316 - Power Plant Equipment**



**Analytical Parameters**

OLT Placement Band:	1948 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	47.5

**Arizona Public Service Company**  
**Nuclear Production Plant**  
**321.00 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 321 - Structures and Improvements

Depreciable Balance \$632,767,001

	APS	Snavely King
Depreciable Reserve	<u>\$256,123,987</u>	<u>\$261,989,962</u>

Reserve Percent	<u>40.5%</u>	<u>41.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>65-R3</u>	<u>65-R2.5</u>	<u>65-R2.5</u>
Remaining Life (Yrs.)	<u>          </u>	<u>22.5</u>	<u>22.9</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>16,262,112</u>	<u>16,723,721</u>	<u>16,452,433</u>
Rate (%)	<u>2.57%</u>	<u>2.64%</u>	<u>2.60%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 321 - Structures and Improvements**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	0.9997
3.5	0.9945
4.5	0.9939
5.5	0.9932
6.5	0.9923
7.5	0.9908
8.5	0.9897
9.5	0.9894
10.5	0.9888
11.5	0.9881
12.5	0.9814
13.5	0.9808
14.5	0.9805
15.5	0.9803
16.5	0.9803
17.5	0.9795
18.5	0.9788
19.5	0.9776
20.5	0.9719
21.5	0.9678
22.5	0.9528
23.5	0.9472

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 321 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1986 - 2010</b>	
L1	97.0	4.084
R2.5	66.0	4.118
L1.5	78.0	4.508
S0.5	86.0	4.749
R3	50.0	4.754
R2	88.0	5.135
S1	66.0	7.108
L2	60.0	7.275
S1.5	56.0	7.914
S0	100.0	8.574
L3	44.0	12.922
S2	47.0	13.169
R4	37.0	13.573
S3	38.0	21.423
R1.5	100.0	22.462
L4	36.0	24.150
R5	30.0	33.810
S4	32.0	34.300
L5	31.0	37.794
S5	29.0	50.539
L0.5	100.0	52.276
S6	27.0	68.404
R1	100.0	97.541
SQ	24.0	108.302
S-0.5	100.0	170.961
L0	100.0	211.042
R0.5	100.0	286.750
O1	100.0	578.733
O2	100.0	796.958
O3	100.0	2,068.629
O4	100.0	4,352.348

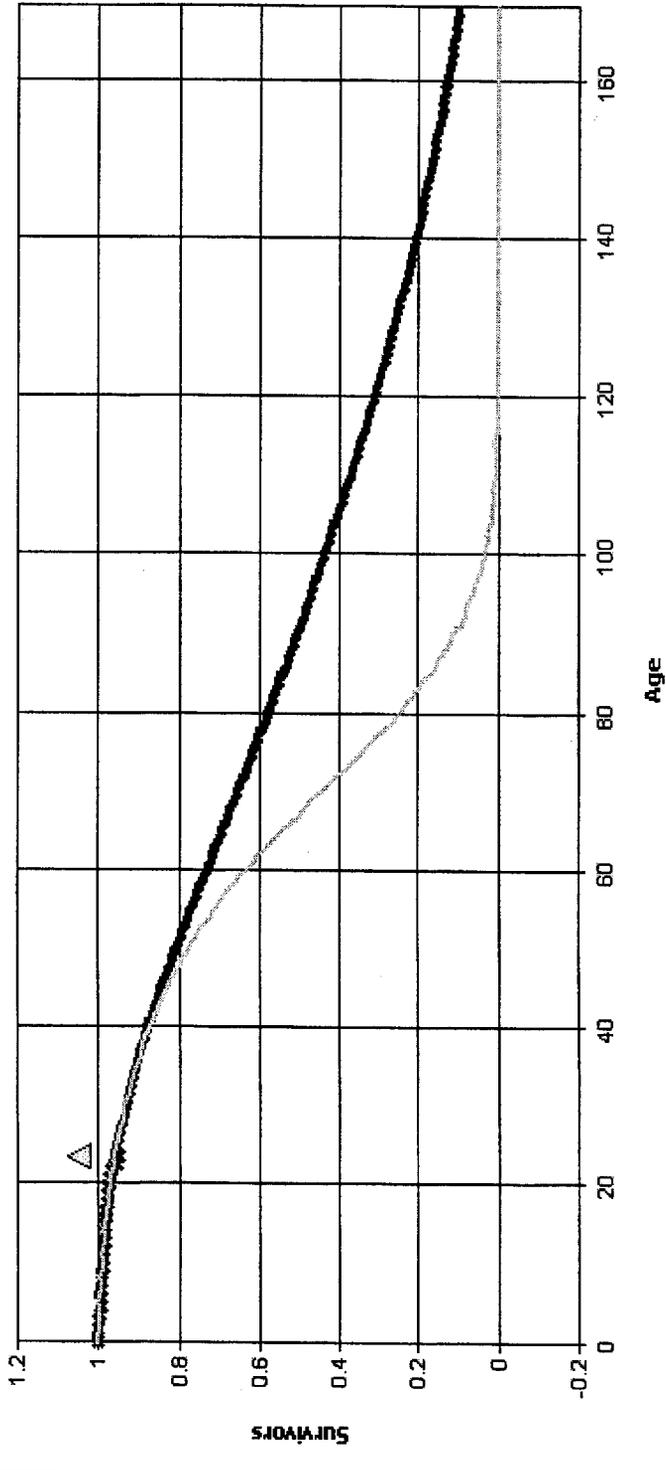
**Analytical Parameters**

OLT Placement Band: 1986 - 2010  
 OLT Experience Band: 1986 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 23.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 321 - Structures and Improvements**



X OLT  
 Δ T-Cut  
 — 97 L1 Full Curve Best Fit  
 - - - 65 R2.5 Arizona Study

**Analytical Parameters**

OLT Placement Band:	1986 - 2010
OLT Experience Band:	1986 - 2010
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	23.5

**Arizona Public Service Company**

**Nuclear Production Plant**

**322.00 - Reactor Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 322 - Reactor Plant Equipment

Depreciable Balance \$885,231,334

	APS	Snavelly King
Depreciable Reserve	<u>\$337,570,862</u>	<u>\$357,008,478</u>

Reserve Percent	<u>38.1%</u>	<u>40.3%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>                    </u>	<u>                    </u>	<u>                    </u>
Iowa Curve	<u>100-O1</u>	<u>70-R1</u>	<u>70-R1</u>
Remaining Life (Yrs.)	<u>                    </u>	<u>21.5</u>	<u>22.4</u>
Net Salvage (%)	<u>(1)</u>	<u>(2)</u>	<u>0</u>
Accrual (\$)	<u>26,822,509</u>	<u>26,235,525</u>	<u>24,492,192</u>
Rate (%)	<u>3.03%</u>	<u>2.96%</u>	<u>2.77%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 322 - Reactor Life Table**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	0.9978
1.5	0.9973
2.5	0.9914
3.5	0.9893
4.5	0.9818
5.5	0.9744
6.5	0.9684
7.5	0.9620
8.5	0.9566
9.5	0.9516
10.5	0.9510
11.5	0.9496
12.5	0.9478
13.5	0.9465
14.5	0.9462
15.5	0.9428
16.5	0.9411
17.5	0.9325
18.5	0.9199
19.5	0.9097
20.5	0.9052
21.5	0.9024
22.5	0.9000
23.5	0.8957

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 322 - Reactor Life Table**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1986 - 2010</b>	
R0.5	92.0	7.138
R1	70.0	7.685
S-0.5	82.0	8.879
R1.5	56.0	10.238
L0	88.0	16.187
L0.5	71.0	22.037
R2	45.0	24.384
O1	100.0	28.828
S0	60.0	33.290
R2.5	39.0	46.825
L1	57.0	48.927
S0.5	51.0	49.907
L1.5	49.0	67.738
O2	100.0	85.406
S1	44.0	95.661
R3	34.0	103.737
L2	42.0	120.366
S1.5	39.0	122.240
S2	36.0	184.682
L3	35.0	209.342
R4	30.0	231.503
S3	32.0	285.918
L4	30.0	302.258
S4	29.0	426.374
R5	27.0	427.870
L5	28.0	443.625
S5	27.0	551.983
S6	26.0	671.767
O3	100.0	690.354
SQ	24.0	865.354
O4	100.0	2,182.882

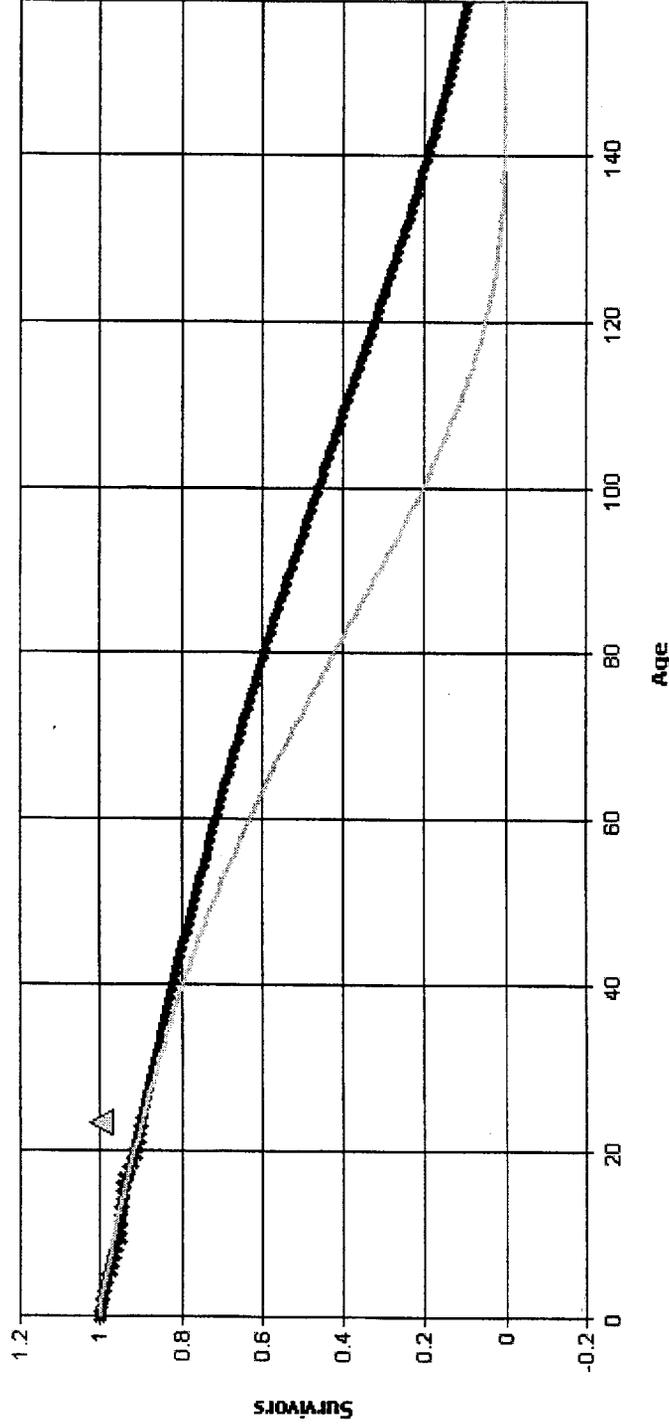
**Analytical Parameters**

OLT Placement Band: 1986 - 2010  
 OLT Experience Band: 1986 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 23.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 322 - Reactor Life Table



**x** OLT  
**△** T-Cut  
**—** 92 R0.5 Full Curve Best Fit  
**- - -** 70 R1 Arizona Study

**Analytical Parameters**

OLT Placement Band:	1986 - 2010
OLT Experience Band:	1986 - 2010
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	23.5

**Arizona Public Service Company**

**Nuclear Production Plant**

**322.10 - Reactor Plant Equipment - Steam Generators**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 322.1 - Reactor Plant Equipment - Steam Generators

Depreciable Balance \$72,005,745

	APS	Snavelly King
Depreciable Reserve	<u>\$73,280,592</u>	<u>\$63,477,719</u>

Reserve Percent	<u>101.8%</u>	<u>88.2%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>100-01</u>	<u>Square</u>	<u>Square</u>
Remaining Life (Yrs.)	<u>          </u>	<u>3.4</u>	<u>          </u>
Net Salvage (%)	<u>(68)</u>	<u>(17)</u>	<u>0</u>
Accrual (\$)	<u>2,181,774</u>	<u>3,271,105</u>	<u>2,127,170</u>
Rate (%)	<u>3.03%</u>	<u>4.54%</u>	<u>2.95%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**

**Nuclear Production Plant**

**323.00 - Turbogenerator Units**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 323 - Turbogenerator Units

Depreciable Balance \$338,898,976

	APS	Snavelly King
Depreciable Reserve	<u>\$136,960,348</u>	<u>\$140,265,491</u>

Reserve Percent	<u>40.4%</u>	<u>41.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>        </u>	<u>        </u>	<u>        </u>
Iowa Curve	<u>65-R2</u>	<u>60-S0</u>	<u>60-S0</u>
Remaining Life (Yrs.)	<u>        </u>	<u>        </u>	<u>        </u>
Net Salvage (%)	<u>(1)</u>	<u>(2)</u>	<u>0</u>
Accrual (\$)	<u>9,421,392</u>	<u>9,972,299</u>	<u>9,498,688</u>
Rate (%)	<u>2.78%</u>	<u>2.94%</u>	<u>2.80%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 323 - Turbogenerator Units**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	0.9989
3.5	0.9976
4.5	0.9963
5.5	0.9948
6.5	0.9865
7.5	0.9854
8.5	0.9842
9.5	0.9799
10.5	0.9781
11.5	0.9779
12.5	0.9672
13.5	0.9656
14.5	0.9636
15.5	0.9582
16.5	0.9550
17.5	0.9269
18.5	0.9126
19.5	0.8745
20.5	0.8732
21.5	0.8724
22.5	0.8712
23.5	0.8698

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 323 - Turbogenerator Units**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1986 - 2010</b>	
S1	41.0	25.280
L1.5	46.0	26.806
S1.5	37.0	30.505
L1	54.0	31.537
R3	33.0	31.949
R2.5	37.0	32.883
S0.5	48.0	32.958
L2	40.0	33.223
S0	57.0	46.575
R2	42.0	50.073
S2	34.0	55.919
L0.5	67.0	58.063
L0	84.0	73.136
R1.5	53.0	84.740
L3	33.0	86.354
S-0.5	78.0	96.769
R4	29.0	104.017
R1	67.0	104.989
R0.5	88.0	121.110
S3	30.0	139.226
O1	100.0	142.112
L4	29.0	161.273
O2	100.0	190.872
S4	28.0	311.393
R5	26.0	336.960
L5	27.0	338.374
S5	26.0	505.416
S6	25.0	694.875
O3	100.0	769.821
SQ	24.0	1,040.598
O4	100.0	2,237.777

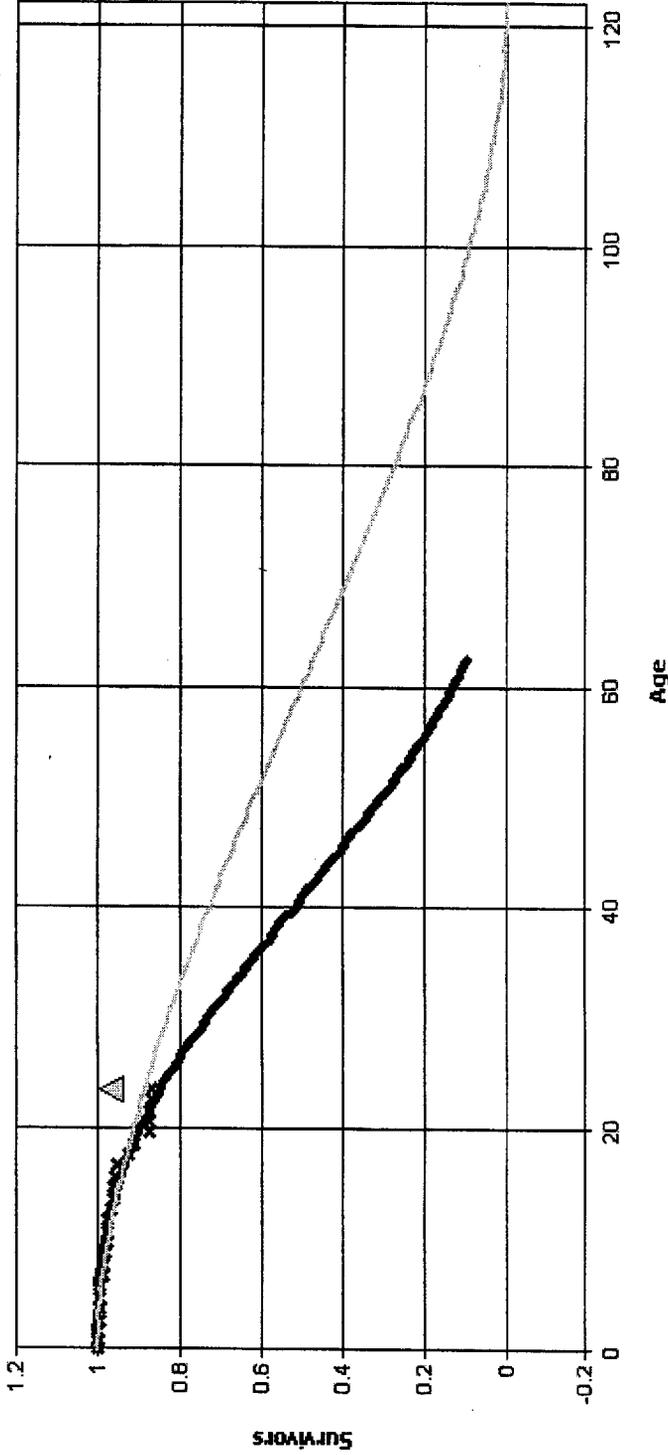
**Analytical Parameters**

OLT Placement Band: 1986 - 2010  
 OLT Experience Band: 1986 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 23.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 323 - Turbogenerator Units



X OLT  
 Δ T-Cut  
 — 41 S1 Full Curve Best Fit  
 - - - 60 S0 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1986 - 2010  
 OLT Experience Band: 1986 - 2010  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 23.5

**Arizona Public Service Company**  
**Nuclear Production Plant**  
**324.00 - Accessory Electric Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 324 - Accessory Electric Equipment

Depreciable Balance	<u>\$272,676,374</u>	
Depreciable Reserve	<u>APS</u> \$115,827,561	<u>Snavely King</u> \$119,069,196
Reserve Percent	<u>42.5%</u>	<u>43.7%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>                    </u>	<u>                    </u>	<u>                    </u>
Iowa Curve	<u>45-R3</u>	<u>45-R3</u>	<u>45-R3</u>
Remaining Life (Yrs.)	<u>                    </u>	<u>                    </u>	<u>                    </u>
Net Salvage (%)	<u>(1)</u>	<u>(2)</u>	<u>0</u>
Accrual (\$)	<u>7,825,812</u>	<u>7,733,874</u>	<u>7,320,649</u>
Rate (%)	<u>2.87%</u>	<u>2.84%</u>	<u>2.68%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 324 - Accessory Electric Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	0.9990
3.5	0.9976
4.5	0.9956
5.5	0.9951
6.5	0.9931
7.5	0.9927
8.5	0.9925
9.5	0.9914
10.5	0.9912
11.5	0.9912
12.5	0.9884
13.5	0.9884
14.5	0.9884
15.5	0.9884

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 324 - Accessory Electric Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1986 - 2001</b>	
R2.5	92.0	10,000.149
L1.5	89.0	10,000.373
S0.5	100.0	10,000.436
R3	54.0	10,000.442
S1	67.0	10,001.108
L2	60.0	10,001.177
S1.5	55.0	10,001.244
L1	100.0	10,001.411
R4	32.0	10,001.985
R2	100.0	10,002.006
S2	42.0	10,002.256
L3	39.0	10,002.308
S3	31.0	10,003.479
L4	29.0	10,004.090
S0	100.0	10,004.800
R5	23.0	10,004.986
S4	24.0	10,005.079
L5	23.0	10,005.640
S5	21.0	10,006.126
S6	19.0	10,007.110
SQ	16.0	10,008.398
R1.5	100.0	10,019.329
L0.5	100.0	10,023.406
R1	100.0	10,054.863
L0	100.0	10,073.589
S-0.5	100.0	10,077.507
R0.5	100.0	10,132.256
O1	100.0	10,243.248
O2	100.0	10,319.500
O3	100.0	10,755.442
O4	100.0	11,529.349

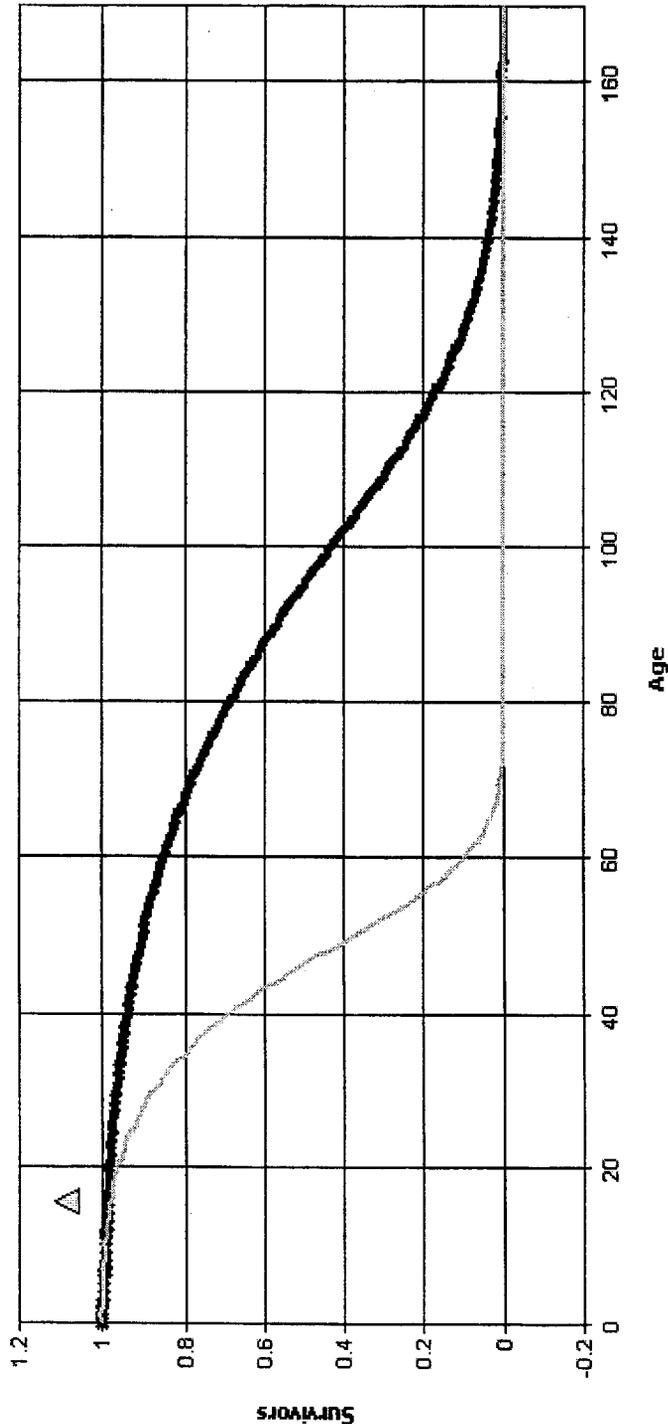
**Analytical Parameters**

OLT Placement Band: 1986 - 2001  
 OLT Experience Band: 1986 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 15.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 324 - Accessory Electric Equipment



**Analytical Parameters**

OLT Placement Band: 1986 - 2001  
 OLT Experience Band: 1986 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 15.5

**Arizona Public Service Company**

**Nuclear Production Plant**

**325.00 - Miscellaneous Power Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Nuclear Production Plant

Account 325 - Miscellaneous Power Plant Equipment

Depreciable Balance \$131,893,186

	APS	Snavelly King
Depreciable Reserve	<u>\$67,376,647</u>	<u>\$45,329,152</u>

Reserve Percent	<u>51.1%</u>	<u>34.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>34-R4</u>	<u>35-R0.5</u>	<u>35-R0.5</u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>(2)</u>	<u>(2)</u>	<u>0</u>
Accrual (\$)	<u>7,333,261</u>	<u>3,558,276</u>	<u>4,594,374</u>
Rate (%)	<u>5.56%</u>	<u>2.70%</u>	<u>3.48%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**  
**Hydro Production Plant**  
**331 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 331 - Structures and Improvements

Depreciable Balance \$100,878

	APS	Snavelly King
Depreciable Reserve	<u>\$100,878</u>	<u>\$100,878</u>
Reserve Percent	<u>100.0%</u>	<u>100.0%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>120-R2</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)		<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>282</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>0.28%</u>	<u>0.00%</u>	<u>0.00%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**  
**Hydro Production Plant**  
**332 - Reservoirs, Dams, and Waterways**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 332 - Reservoirs, Dams, and Waterways

Depreciable Balance \$991,936

	APS	Snavelly King
Depreciable Reserve	<u>\$1,105,086</u>	<u>\$1,105,086</u>
Reserve Percent	<u>111.4%</u>	<u>111.4%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>200-SQ</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)		<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>8,927</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**  
**Hydro Production Plant**  
**333 - Water Wheels, Turbines, and Generators**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 333 - Water Wheels, Turbines, and Generators

Depreciable Balance \$157,196

	APS	Snavelly King
Depreciable Reserve	<u>\$157,196</u>	<u>\$157,196</u>
Reserve Percent	<u>100.0%</u>	<u>100.0%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>200-SQ</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)		<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>1,148</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>0.73%</u>	<u>0.00%</u>	<u>0.00%</u>

\*\*\*\*\*:  
Comment:

**Arizona Public Service Company**  
**Hydro Production Plant**  
**334 - Accessory Electric Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 334 - Accessory Electric Equipment

Depreciable Balance \$627,611

	APS	Snavely King
Depreciable Reserve	<u>\$627,611</u>	<u>\$627,611</u>
Reserve Percent	<u>100.0%</u>	<u>100.0%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>200-SQ</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)		<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>16,757</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>2.67%</u>	<u>0.00%</u>	<u>0.00%</u>

.....  
Comment:

**Arizona Public Service Company**  
**Hydro Production Plant**  
**335 - Miscellaneous Power Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 335 - Miscellaneous Power Plant Equipment

Depreciable Balance \$126,018

	APS	Snavely King
Depreciable Reserve	<u>\$126,018</u>	<u>\$126,018</u>
Reserve Percent	<u>100.0%</u>	<u>100.0%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>200-SQ</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)		<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>3,125</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>2.48%</u>	<u>0.00%</u>	<u>0.00%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**

**Hydro Production Plant**

**336 - Roads, Railroads, and Bridges**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Hydro Production Plant

Account 336 - Roads, Railroads, and Bridges

Depreciable Balance \$77,427

	APS	Snavelly King
Depreciable Reserve	<u>\$77,427</u>	<u>\$77,427</u>
Reserve Percent	<u>100.0%</u>	<u>100.0%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>2024</u>	<u>2004</u>	<u>2004</u>
Iowa Curve	<u>200-SQ</u>	<u>200-SQ</u>	<u>200-SQ</u>
Remaining Life (Yrs.)	<u></u>	<u>0.0</u>	<u>0.0</u>
Net Salvage (%)	<u>-10</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>217</u>	<u>0</u>	<u>0</u>
Rate (%)	<u>0.28%</u>	<u>0.00%</u>	<u>0.00%</u>

\*\*\*\*\*  
Comment:

**Arizona Public Service Company**

**Other Production Plant**

**341.00 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Structures and Improvements

Account 341 - Structures and Improvements

Depreciable Balance	\$9,667,772	
Depreciable Reserve	APS <u>\$5,491,522</u>	Snavely King <u>\$8,269,181</u>
Reserve Percent	<u>56.8%</u>	<u>85.5%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	<u>(5)</u>	<u>(5)</u>	<u>0</u>
Accrual (\$)	<u>274,565</u>	<u>248,183</u>	<u>237,025</u>
Rate (%)	<u>2.84%</u>	<u>2.57%</u>	<u>2.45%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 341 - Structures and Improvements**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	0.9953
4.5	0.9953
5.5	0.9902
6.5	0.9902
7.5	0.9901
8.5	0.9881
9.5	0.9881
10.5	0.9881
11.5	0.9881
12.5	0.9863
13.5	0.9863
14.5	0.9863
15.5	0.9863
16.5	0.9863
17.5	0.9863
18.5	0.9863
19.5	0.9852
20.5	0.9852
21.5	0.9852
22.5	0.9852
23.5	0.9852
24.5	0.9852
25.5	0.9825
26.5	0.9825
27.5	0.9825
28.5	0.9825
29.5	0.9825
30.5	0.9825
31.5	0.9825
32.5	0.9825
33.5	0.9825
34.5	0.9825
35.5	0.9825
36.5	0.9825
37.5	0.9825
38.5	0.9825

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 341 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R3	100.0	10,016.838
S1.5	100.0	10,032.421
R4	70.0	10,033.828
L3	84.0	10,034.626
S2	90.0	10,034.802
S3	71.0	10,044.716
L2	100.0	10,046.085
L4	66.0	10,048.380
R5	54.0	10,055.244
S4	57.0	10,055.419
R2.5	100.0	10,057.466
L5	55.0	10,058.723
S5	50.0	10,062.755
S6	45.0	10,067.381
SQ	39.0	10,075.100
S1	100.0	10,085.364
R2	100.0	10,200.588
L1.5	100.0	10,211.486
S0.5	100.0	10,313.125
L1	100.0	10,567.927
R1.5	100.0	10,604.181
S0	100.0	10,747.052
R1	100.0	11,242.424
L0.5	100.0	11,424.898
S-0.5	100.0	11,958.740
R0.5	100.0	12,358.042
L0	100.0	12,718.431
O1	100.0	13,836.493
O2	100.0	14,991.687
O3	100.0	20,933.150
O4	100.0	30,321.055

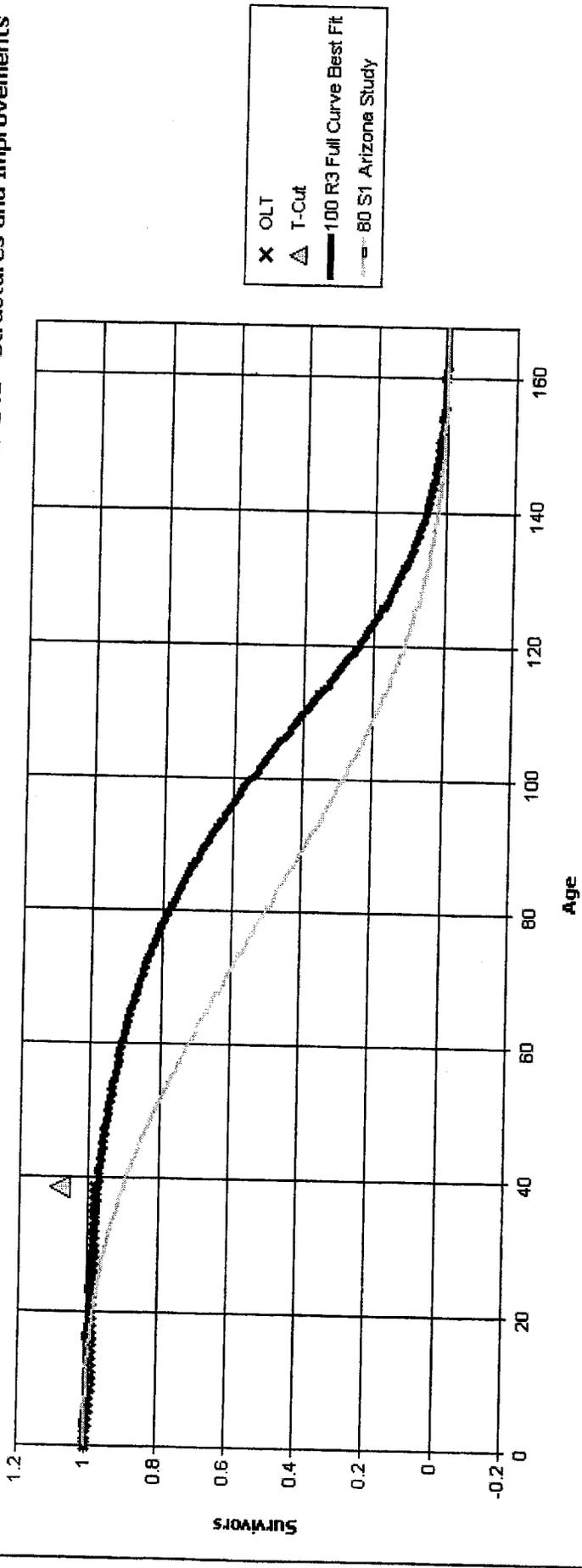
**Analytical Parameters**

OLT Placement Band: 1912 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 38.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 341 - Structures and Improvements



Analytical Parameters

OLT Placement Band: 1912 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 38.5

**Arizona Public Service Company**

**Other Production Plant**

**342.00 - Fuel Holders, Products and Accessories**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Fuel Holders, Products and Accessories

Account 342 - Fuel Holders, Products and Accessories

Depreciable Balance \$26,176,338

	APS	Snavelly King
Depreciable Reserve	<u>\$7,766,512</u>	<u>\$8,269,189</u>

Reserve Percent	<u>29.7%</u>	<u>31.6%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>                    </u>	<u>                    </u>	<u>                    </u>
Iowa Curve	<u>80-S1</u>	<u>70-S1</u>	<u>70-S1</u>
Remaining Life (Yrs.)	<u>                    </u>	<u>                    </u>	<u>                    </u>
Net Salvage (%)	<u>(5)</u>	<u>(5)</u>	<u>0</u>
Accrual (\$)	<u>735,555</u>	<u>799,403</u>	<u>691,567</u>
Rate (%)	<u>2.81%</u>	<u>3.05%</u>	<u>2.64%</u>

\*\*\*\*\*

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 342 - Fuel Holders, Products and Accessories**

Age	Cumulative Survivors
0	1.0000
0.5	0.9997
1.5	0.9995
2.5	0.9995
3.5	0.9995
4.5	0.9995
5.5	0.9995
6.5	0.9995
7.5	0.9979
8.5	0.9979
9.5	0.9979
10.5	0.9979
11.5	0.9979
12.5	0.9979
13.5	0.9979
14.5	0.9970
15.5	0.9970
16.5	0.9970
17.5	0.9907
18.5	0.9907
19.5	0.9578
20.5	0.9512
21.5	0.9396
22.5	0.9361
23.5	0.9361
24.5	0.9361
25.5	0.9361
26.5	0.9361
27.5	0.9361
28.5	0.9361
29.5	0.9361
30.5	0.9361

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 342 - Fuel Holders, Products and Accessories**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S1	69.0	10,035.753
S1.5	60.0	10,038.370
L2	64.0	10,039.461
L1.5	79.0	10,040.516
R3	53.0	10,041.001
S0.5	86.0	10,043.103
L1	96.0	10,046.090
R2.5	65.0	10,051.339
S2	53.0	10,051.588
S0	100.0	10,054.310
L3	50.0	10,058.006
R2	81.0	10,062.472
R4	43.0	10,070.129
R1.5	100.0	10,088.646
S3	45.0	10,095.324
L4	42.0	10,100.183
L0.5	100.0	10,154.398
R5	37.0	10,174.840
S4	39.0	10,176.448
L5	38.0	10,190.040
R1	100.0	10,215.923
S5	36.0	10,253.441
S6	34.0	10,310.367
S-0.5	100.0	10,369.943
SQ	31.0	10,407.086
L0	100.0	10,500.623
R0.5	100.0	10,563.091
O1	100.0	11,112.813
O2	100.0	11,545.556
O3	100.0	14,064.844
O4	100.0	18,534.087

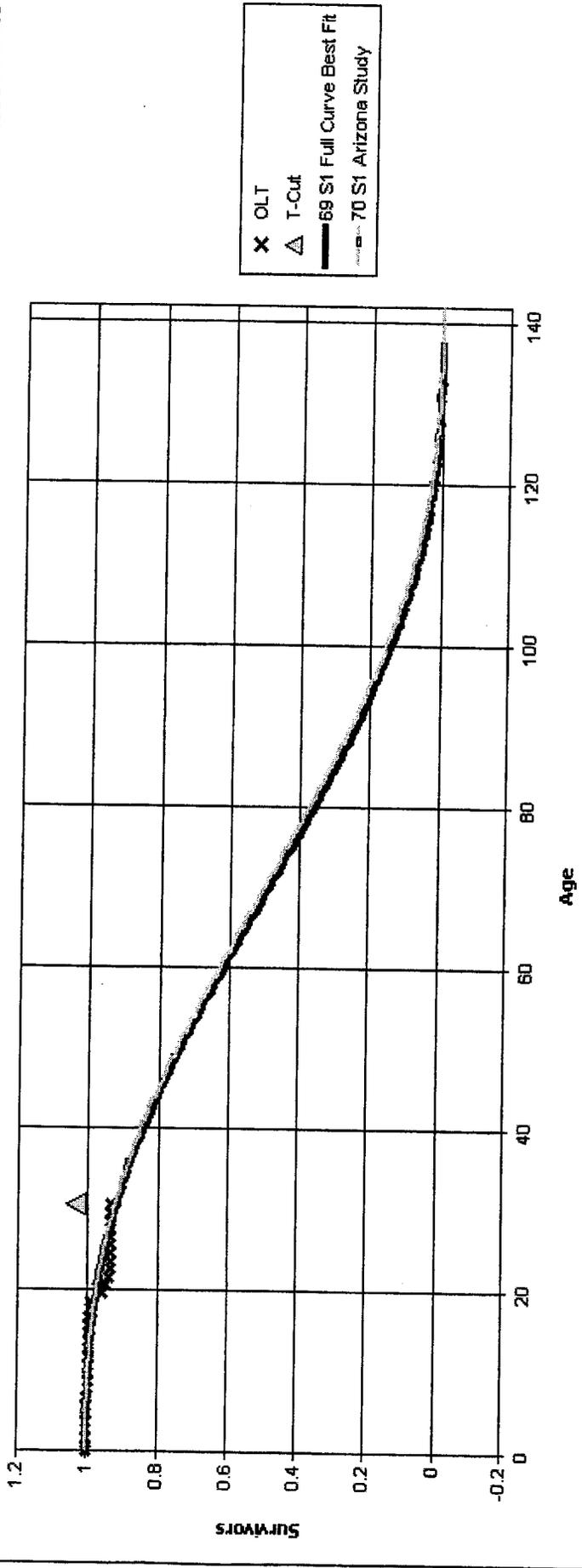
**Analytical Parameters**

OLT Placement Band: 1948 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 342 - Fuel Holders, Products and Accessories**



**Analytical Parameters**

OLT Placement Band:	1948 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	30.5

**Arizona Public Service Company**

**Other Production Plant**

**343.0 - Prime Movers**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Prime Movers

Account 343 - Prime Movers

Depreciable Balance \$32,606,644

	APS	Snavelly King
Depreciable Reserve	<u>\$28,896,416</u>	<u>\$26,858,659</u>

Reserve Percent	<u>88.6%</u>	<u>82.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>70-L1.5</u>	<u>70-L1.5</u>	<u>70-L1.5</u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>492,360</u>	<u>326,534</u>	<u>357,509</u>
Rate (%)	<u>1.51%</u>	<u>1.00%</u>	<u>1.10%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 343 - Prime Movers**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	0.9977
4.5	0.9869
5.5	0.9756
6.5	0.9729
7.5	0.9729
8.5	0.9729
9.5	0.9729
10.5	0.9729
11.5	0.9729
12.5	0.9729
13.5	0.9729
14.5	0.9729
15.5	0.9729
16.5	0.9729
17.5	0.9729
18.5	0.9729
19.5	0.9431
20.5	0.9431
21.5	0.9431
22.5	0.9431
23.5	0.9431
24.5	0.9431
25.5	0.9431
26.5	0.9414
27.5	0.9397
28.5	0.9324
29.5	0.9172
30.5	0.9172
32.5	0.9100
33.5	0.9100
34.5	0.9100
35.5	0.9100
36.5	0.9100
37.5	0.9100
38.5	0.9100
<b>BAND</b>	
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	0.9973

4.5	0.9846
5.5	0.9713
6.5	0.9681
7.5	0.9681
8.5	0.9681
9.5	0.9681
10.5	0.9681
11.5	0.9681
12.5	0.9681
13.5	0.9681
14.5	0.9681
15.5	0.9681
16.5	0.9681
17.5	0.9681
18.5	0.9681
19.5	0.9293
20.5	0.9293
21.5	0.9293
22.5	0.9293
23.5	0.9293
24.5	0.9293
25.5	0.9293
26.5	0.9273
27.5	0.9254
28.5	0.9177
29.5	0.9100
30.5	0.9100
31.5	0.9100
32.5	0.9100
33.5	0.9100
34.5	0.9100
35.5	0.9100
36.5	0.9100
37.5	0.9100
38.5	0.9100

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 343 - Prime Movers**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R1.5	98.0	10,017.403
R2	73.0	10,021.041
S0	98.0	10,029.220
R2.5	61.0	10,029.477
L1	90.0	10,033.628
S0.5	80.0	10,036.647
L1.5	75.0	10,043.570
R3	51.0	10,058.752
S1	66.0	10,063.005
L0.5	100.0	10,063.497
L2	62.0	10,071.156
R1	100.0	10,072.616
S1.5	58.0	10,075.968
S2	52.0	10,114.287
L3	49.0	10,120.729
R4	42.0	10,135.002
S3	44.0	10,174.224
L4	42.0	10,183.386
S-0.5	100.0	10,189.338
R5	37.0	10,255.287
S4	39.0	10,255.790
L5	37.0	10,270.926
L0	100.0	10,317.156
R0.5	100.0	10,323.055
S5	36.0	10,326.914
S6	34.0	10,384.148
SQ	31.0	10,514.785
O1	100.0	10,776.048
O2	100.0	11,153.892
O3	100.0	13,443.861
O4	100.0	17,638.070

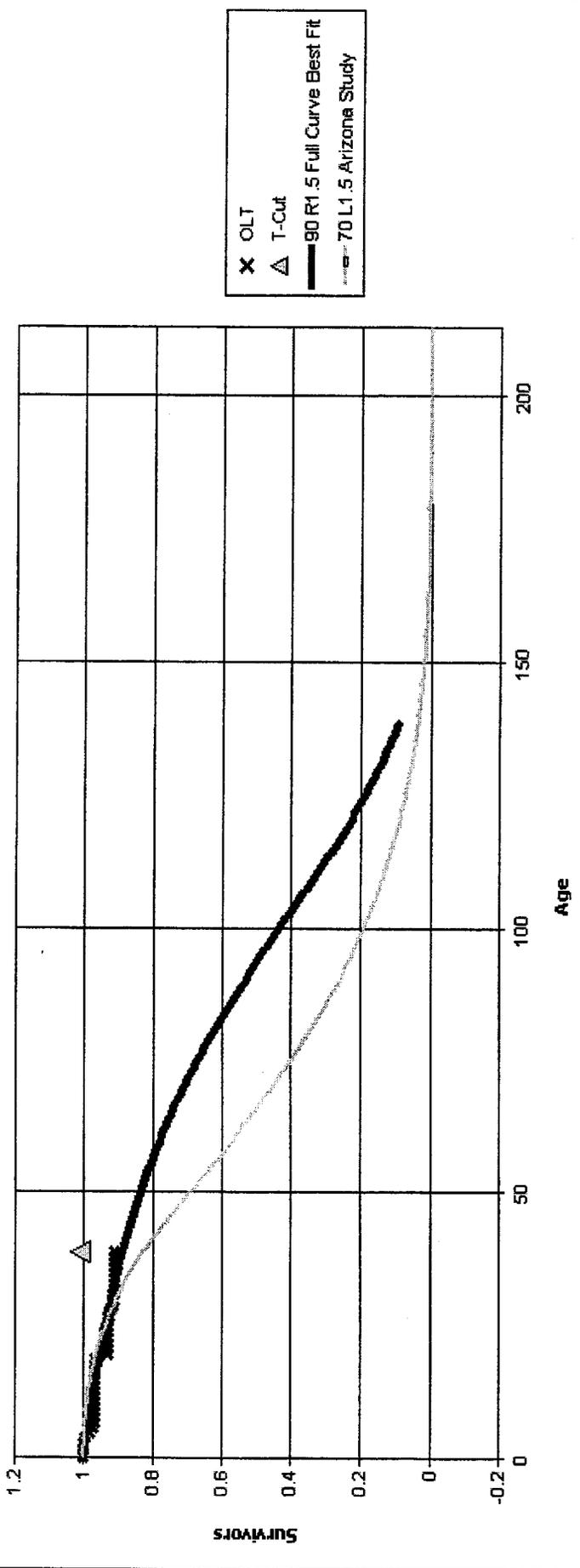
**Analytical Parameters**

OLT Placement Band: 1971 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 343 - Prime Movers



Analytical Parameters

OLT Placement Band: 1971 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

**Arizona Public Service Company**

**Other Production Plant**

**344.00 - Generators and Devices**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Generators and Devices

Account 344 - Generators and Devices

Depreciable Balance \$109,504,078

	APS	Snavely King
Depreciable Reserve	<u>\$25,135,154</u>	<u>\$29,393,951</u>

Reserve Percent	<u>23.0%</u>	<u>26.8%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>2,485,743</u>	<u>4,013,297</u>	<u>3,642,631</u>
Rate (%)	<u>2.27%</u>	<u>3.66%</u>	<u>3.33%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 344 - Generators and Devices**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	1.0000
1.5	0.9984
2.5	0.9984
3.5	0.9984
4.5	0.9983
5.5	0.9929
6.5	0.9899
7.5	0.9885
8.5	0.9853
9.5	0.9834
10.5	0.9829
11.5	0.9819
12.5	0.9712
13.5	0.9712
14.5	0.9688
15.5	0.9642
16.5	0.9642
17.5	0.9605
18.5	0.9605
19.5	0.9540
20.5	0.9465
21.5	0.8933
22.5	0.8595
23.5	0.8595
24.5	0.8595
25.5	0.8366
26.5	0.8366
27.5	0.8366
28.5	0.8366
29.5	0.8366
30.5	0.7140

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 344 - Generators and Devices**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S1	48.0	10,073.486
S1.5	44.0	10,079.329
L1.5	54.0	10,080.331
L2	48.0	10,087.699
R3	39.0	10,090.291
L1	62.0	10,093.566
R2.5	43.0	10,093.603
S0.5	55.0	10,098.757
S2	41.0	10,120.473
R2	48.0	10,128.547
S0	63.0	10,133.672
L0.5	74.0	10,155.603
L0	91.0	10,196.206
L3	40.0	10,198.975
R1.5	57.0	10,205.056
R4	35.0	10,227.936
S-0.5	83.0	10,242.292
R1	71.0	10,257.316
S3	37.0	10,277.602
R0.5	92.0	10,298.117
L4	36.0	10,352.580
O1	100.0	10,360.375
O2	100.0	10,479.167
S4	34.0	10,629.770
R5	33.0	10,693.605
L5	34.0	10,720.500
S5	33.0	11,044.672
S6	32.0	11,442.235
O3	100.0	11,746.994
SQ	31.0	12,188.047
O4	100.0	14,780.278

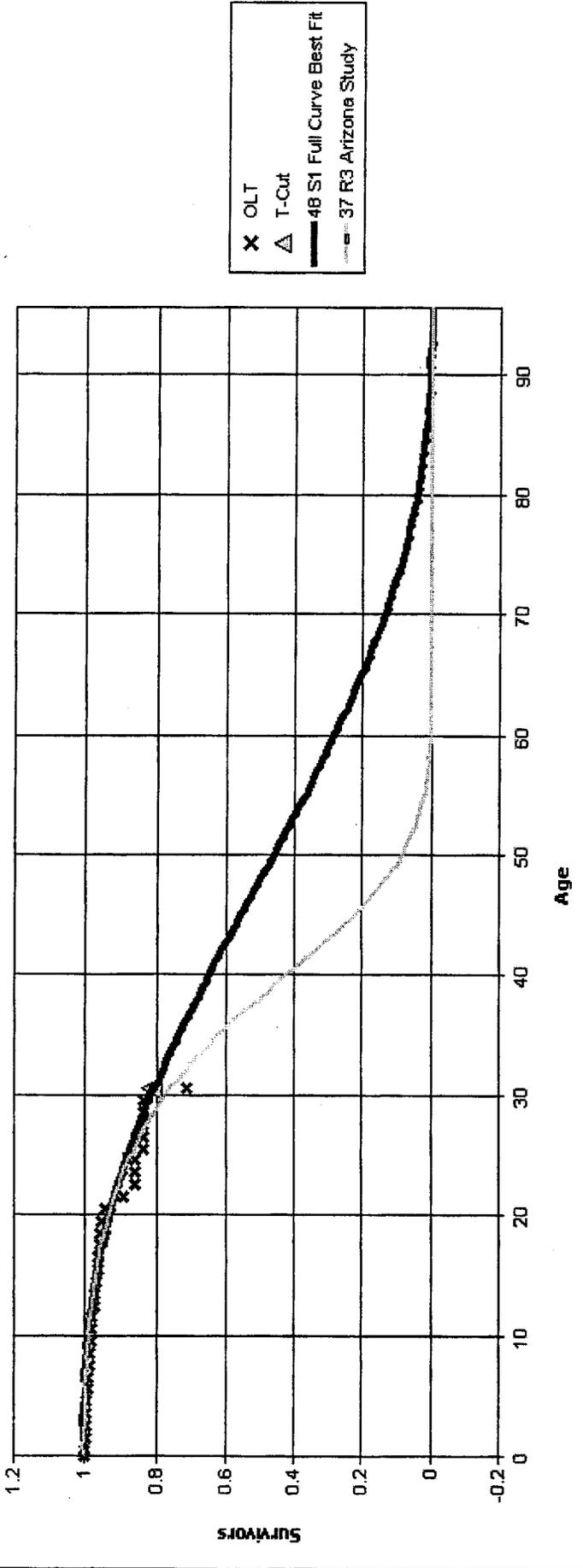
**Analytical Parameters**

OLT Placement Band: 1948 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 344 - Generators and Devices



Analytical Parameters

OLT Placement Band:	1948 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	30.5

**Arizona Public Service Company**

**Other Production Plant**

**345.00 - Accessory Electric Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Accessory Electric Equipment

Account 345 - Accessory Electric Equipment

Depreciable Balance \$19,383,129

	APS	Snavelly King
Depreciable Reserve	<u>\$9,257,373</u>	<u>\$8,721,408</u>

Reserve Percent	<u>47.8%</u>	<u>45.0%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	<u>          </u>	<u>          </u>	<u>          </u>
Iowa Curve	<u>          </u>	<u>          </u>	<u>          </u>
Remaining Life (Yrs.)	<u>          </u>	<u>          </u>	<u>          </u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>441,935</u>	<u>446,148</u>	<u>438,525</u>
Rate (%)	<u>2.28%</u>	<u>2.30%</u>	<u>2.26%</u>

\*\*\*\*\*  
Comment:

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 345 - Accessory Electric Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	0.9935
6.5	0.9935
7.5	0.9935
8.5	0.9924
9.5	0.9924
10.5	0.9924
11.5	0.9924
12.5	0.9836
13.5	0.9836
14.5	0.9824
15.5	0.9824
16.5	0.9824
17.5	0.9824
18.5	0.9713
19.5	0.9694
20.5	0.9694
21.5	0.9675
22.5	0.9570
23.5	0.9570
24.5	0.9570
25.5	0.9505
26.5	0.9505
27.5	0.9505
28.5	0.9505
29.5	0.9505
30.5	0.9505

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 345 - Accessory Electric Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S0.5	97.0	10,003.481
R2.5	73.0	10,003.986
L1.5	88.0	10,004.752
R2	94.0	10,005.547
R3	58.0	10,008.380
S1	76.0	10,009.715
L1	100.0	10,009.735
L2	70.0	10,011.528
S1.5	66.0	10,014.061
S2	57.0	10,030.735
L3	53.0	10,031.811
S0	100.0	10,038.339
R4	45.0	10,039.511
R1.5	100.0	10,053.225
S3	47.0	10,060.900
L4	44.0	10,067.063
R5	38.0	10,105.473
S4	40.0	10,108.335
L5	39.0	10,115.079
S5	37.0	10,149.853
L0.5	100.0	10,180.534
S6	34.0	10,183.249
R1	100.0	10,224.297
SQ	31.0	10,236.857
S-0.5	100.0	10,418.599
L0	100.0	10,591.328
R0.5	100.0	10,623.919
O1	100.0	11,226.094
O2	100.0	11,694.048
O3	100.0	14,349.111
O4	100.0	18,968.905

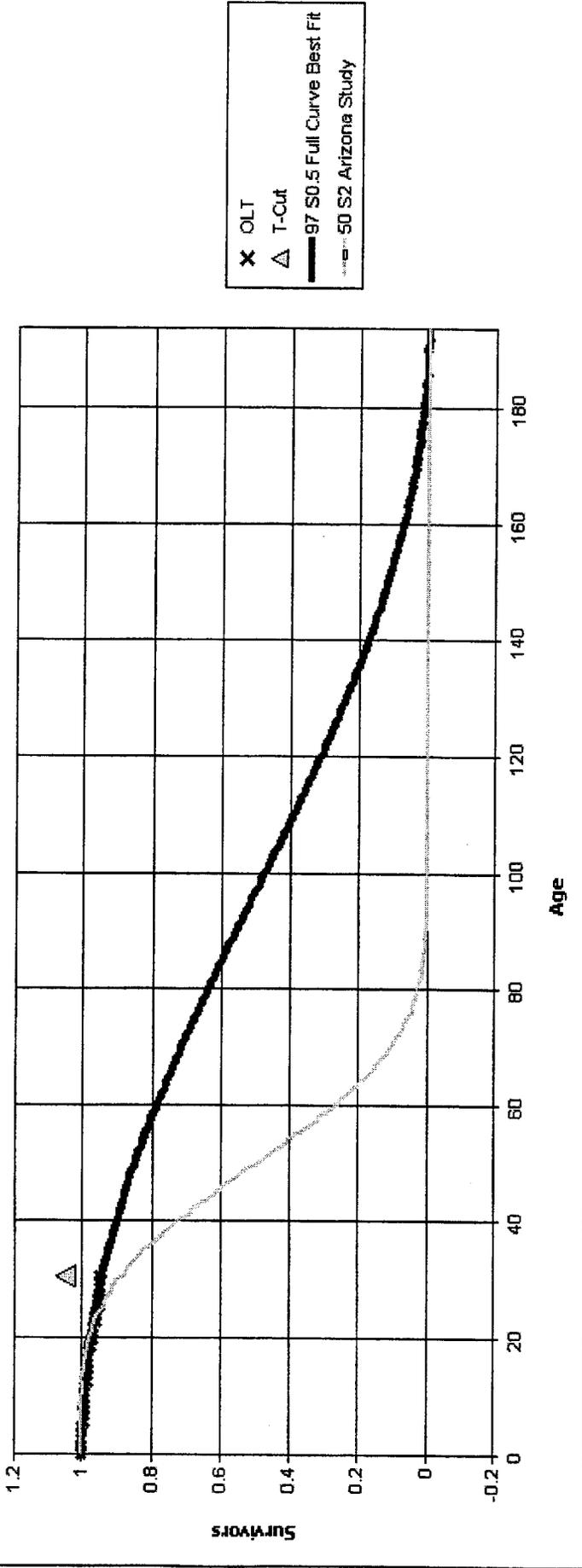
**Analytical Parameters**

OLT Placement Band: 1953 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 345 - Accessory Electric Equipment**



x OLT  
 Δ T-Cut  
 — 97 S0.5 Full Curve Best Fit  
 - - - 50 S2 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1953 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

**Arizona Public Service Company**

**Other Production Plant**

**346.00 - Miscellaneous Power Plant Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Other Production Plant - Miscellaneous Power Plant Equipment

Account 346 - Miscellaneous Power Plant Equipment

Depreciable Balance \$5,378,475

	APS	Snavelly King
Depreciable Reserve	<u>\$3,484,034</u>	<u>\$2,621,236</u>

Reserve Percent	<u>64.8%</u>	<u>48.7%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Probable Retirement Year	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>187,171</u>	<u>104,648</u>	<u>138,878</u>
Rate (%)	<u>3.48%</u>	<u>1.95%</u>	<u>2.58%</u>

\*\*\*\*\*  
Comment:



**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 346 - Miscellaneous Power Plant Equipment**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	0.9957
6.5	0.9957
7.5	0.9905
8.5	0.9905
9.5	0.9905
10.5	0.9493
11.5	0.9493
12.5	0.9493
13.5	0.9493
14.5	0.9493
15.5	0.9449
16.5	0.9420
17.5	0.9376
18.5	0.9376
19.5	0.9376
20.5	0.9323
21.5	0.9323
22.5	0.9323
23.5	0.9323
24.5	0.9323
25.5	0.9203
26.5	0.9203
27.5	0.9203
28.5	0.9203
29.5	0.9203
30.5	0.9203

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 346 - Miscellaneous Power Plant Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R1	100.0	10,034.968
R1.5	81.0	10,037.228
L0.5	100.0	10,047.232
R2	63.0	10,053.360
S0	84.0	10,057.911
S0.5	71.0	10,078.518
R2.5	54.0	10,078.920
S-0.5	100.0	10,079.177
L1	80.0	10,080.501
L1.5	68.0	10,101.277
S1	60.0	10,133.922
R3	47.0	10,143.724
R0.5	100.0	10,154.781
L0	100.0	10,155.045
L2	58.0	10,161.148
S1.5	54.0	10,166.359
S2	49.0	10,245.298
L3	47.0	10,265.664
R4	40.0	10,296.979
S3	43.0	10,363.502
L4	40.0	10,381.812
O1	100.0	10,477.146
S4	38.0	10,503.302
R5	36.0	10,504.623
L5	37.0	10,522.869
S5	35.0	10,618.716
S6	34.0	10,715.320
O2	100.0	10,775.292
SQ	31.0	10,859.184
O3	100.0	12,743.247
O4	100.0	16,562.434

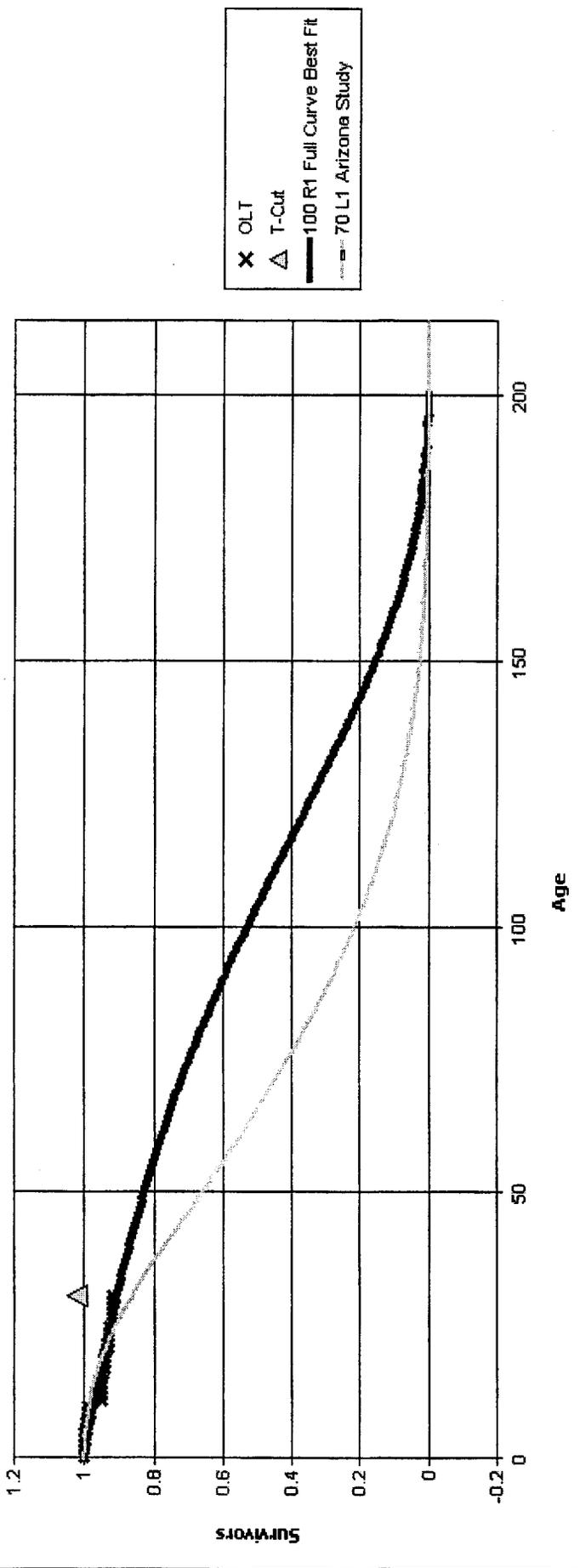
**Analytical Parameters**

OLT Placement Band: 1943 - 2000  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 30.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 346 - Miscellaneous Power Plant Equipment



Analytical Parameters

OLT Placement Band:	1943 - 2000
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Maximum Age (T-Cut):	30.5

**Arizona Public Service Company**

**Section T**

**Transmission Plant**

**Arizona Public Service Company**  
**Transmission Plant**  
**352 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 352.0 - Structures and Improvements

Depreciable Balance \$27,618,299

	APS	Snavely King
Depreciable Reserve	<u>\$8,135,201</u>	<u>\$12,484,016</u>
Reserve Percent	<u>29.5%</u>	<u>45.2%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>50.0</u>	<u>50.0</u>	<u>50.0</u>
Iowa Curve	<u>R4</u>	<u>R4</u>	<u>R4</u>
Remaining Life (Yrs.)		<u>35.2</u>	<u>35.2</u>
Net Salvage (%)	<u>-5</u>	<u>-5</u>	<u>0</u>
Accrual (\$)	<u>571,699</u>	<u>592,619</u>	<u>429,951</u>
Rate (%)	<u>2.07%</u>	<u>2.15%</u>	<u>1.56%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment because there is no change to the current parameter and there is insufficient data to conduct a meaningful statistical analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 352 - Structures and Improvements**

Age	Cumulative Survivors
BAND	1973 - 2001
0	1.0000
0.5	1.0000
1.5	0.9997
2.5	0.9997
3.5	0.9997
4.5	0.9997
5.5	0.9997
6.5	0.9992
7.5	0.9992
8.5	0.9992
9.5	0.9986
10.5	0.9986
11.5	0.9971
12.5	0.9971
13.5	0.9951
14.5	0.9948
15.5	0.9947
16.5	0.9942
17.5	0.9929
18.5	0.9827
19.5	0.9815
20.5	0.9764
21.5	0.9744
22.5	0.9744
23.5	0.9743
24.5	0.9737
25.5	0.9736
26.5	0.9718
27.5	0.9718
28.5	0.9615
29.5	0.9615
30.5	0.9615
31.5	0.9614
32.5	0.9613
33.5	0.9613
34.5	0.9613
35.5	0.9628
36.5	0.9628
37.5	0.9628
38.5	0.9297
39.5	0.9297
40.5	0.9293
41.5	0.9293
42.5	0.9293
43.5	0.8830
44.5	0.8830

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 352 - Structures and Improvements**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.8830
46.5	0.8830
47.5	0.8830
48.5	0.8830
49.5	0.8830
50.5	0.8830
51.5	0.8830
52.5	0.8830
53.5	0.8830
54.5	0.8830
55.5	0.8830
56.5	0.8830
57.5	0.8830
58.5	0.8830
59.5	0.8830
60.5	0.8830
61.5	0.8830
62.5	0.8830
63.5	0.8830
64.5	0.8830
65.5	0.8830
66.5	0.8830
67.5	0.8830
68.5	0.8830
69.5	0.8830
70.5	0.8830
71.5	0.8830
72.5	0.8830

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 352 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R4	79.0	12,164.508
R5	79.0	12,578.253
L5	79.0	12,946.181
S5	79.0	13,158.403
S4	79.0	13,185.073
R3	79.0	13,215.696
S6	77.0	13,609.194
L4	79.0	13,660.056
S3	79.0	14,160.194
SQ	73.0	14,427.771
R2.5	79.0	14,566.251
S2	79.0	16,160.740
R2	79.0	16,667.800
S1.5	79.0	17,722.573
L3	79.0	18,115.626
R1.5	79.0	19,618.248
S1	79.0	19,943.315
S0.5	79.0	22,580.824
R1	79.0	23,497.371
L2	79.0	23,875.401
S0	79.0	25,968.860
L1.5	79.0	26,887.460
R0.5	79.0	29,523.132
S-0.5	79.0	30,813.957
L1	79.0	30,948.370
L0.5	79.0	35,536.664
O1	79.0	36,915.592
L0	79.0	41,068.474
O2	79.0	46,949.951
O3	79.0	80,609.628
O4	79.0	118,780.464

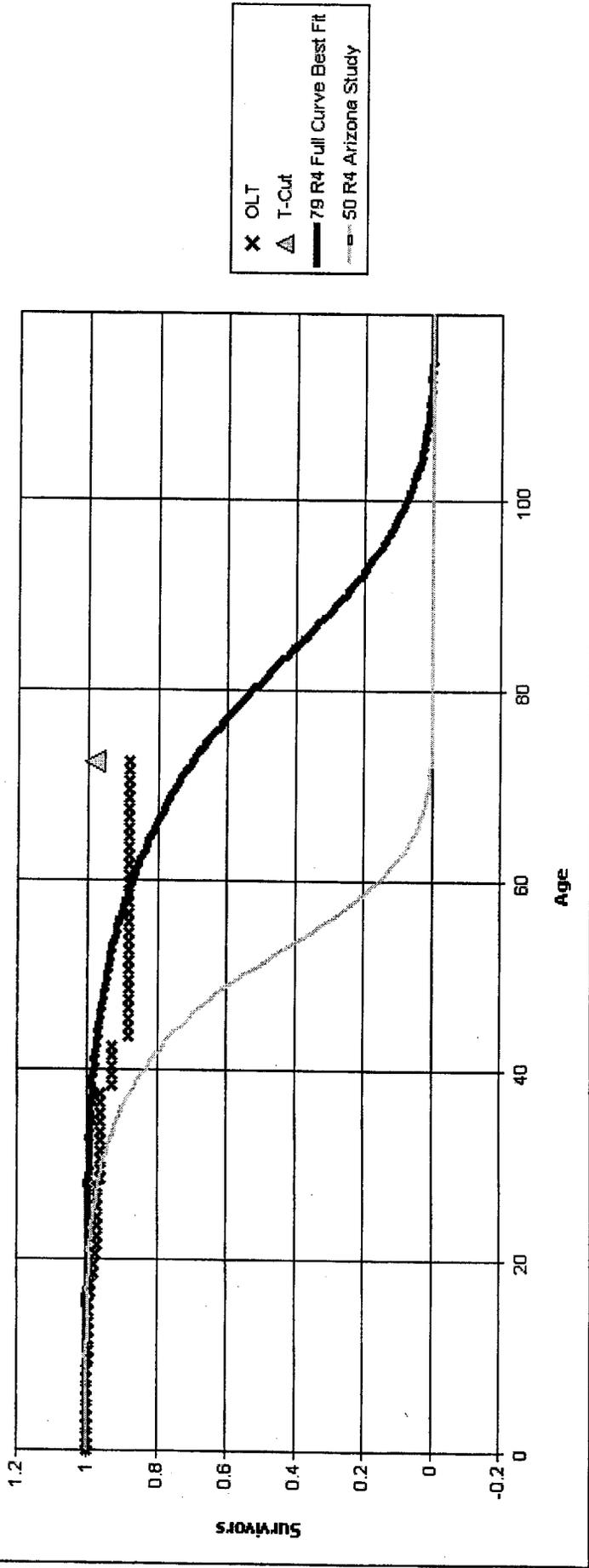
**Analytical Parameters**

OLT Placement Band:	1929 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	79
Life Increment Parameter:	1
Max Age (T-Cut):	72.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 352 - Structures and Improvements



**Analytical Parameters**

OLT Placement Band:	1929 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	79
Life Increment Parameter:	1
Max Age (T-Cut):	72.5

**Arizona Public Service Company**

**Transmission Plant**

**352.5 - Structures and Improvements - SCE 500 KV Line**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 352.5- Structures and Improvements - SCE 500 KV Line

Depreciable Balance \$409,725

	APS	Snavelly King
Depreciable Reserve	<u>\$296,895</u>	<u>\$424,897</u>

Reserve Percent	<u>72.5%</u>	<u>103.7%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	_____	_____	_____
Accrual (\$)	<u>13,316</u>	<u>13,316</u>	<u>13,316</u>
Rate (%)	<u>3.25%</u>	<u>3.25%</u>	<u>3.25%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
 We accept the proposal to retain the existing depreciation rates.

**Arizona Public Service Company**

**Transmission Plant**

**353.00 - Station Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 353 - Station Equipment

Depreciable Balance \$428,736,305

	APS	Snavelly King
Depreciable Reserve	<u>\$173,966,733</u>	<u>\$130,140,054</u>

Reserve Percent	<u>40.6%</u>	<u>30.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>35.0</u>	<u>42.0</u>	<u>57.0</u>
Iowa Curve	<u>S1</u>	<u>R3</u>	<u>R1.5</u>
Remaining Life (Yrs.)		<u>31.2</u>	<u>45.7</u>
Net Salvage (%)	<u>7</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>8,960,589</u>	<u>8,167,649</u>	<u>6,538,127</u>
Rate (%)	<u>2.09%</u>	<u>1.91%</u>	<u>1.52%</u>

\*\*\*\*\*  
 Comment: Mr. Wiedmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Wiedmayer's statistical study was deficient and incomplete because he excluded a substantial portion of the OLT. The complete statistical analysis results is a 57 R1.5 life and curve.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 353 - Station Equipment**

Age	Cumulative Survivors
BAND	1973 - 2001
0	1.0000
0.5	1.0000
1.5	0.9996
2.5	0.9981
3.5	0.9935
4.5	0.9929
5.5	0.9919
6.5	0.9908
7.5	0.9887
8.5	0.9867
9.5	0.9830
10.5	0.9789
11.5	0.9766
12.5	0.9743
13.5	0.9718
14.5	0.9675
15.5	0.9631
16.5	0.9604
17.5	0.9590
18.5	0.9465
19.5	0.9437
20.5	0.9381
21.5	0.9339
22.5	0.9293
23.5	0.9183
24.5	0.9098
25.5	0.9011
26.5	0.8923
27.5	0.8819
28.5	0.8707
29.5	0.8546
30.5	0.8133
31.5	0.7926
32.5	0.7871
33.5	0.7766
34.5	0.7757
35.5	0.7726
36.5	0.7683
37.5	0.7598
38.5	0.7561
39.5	0.7524
40.5	0.7486
41.5	0.7389
42.5	0.7362
43.5	0.7332
44.5	0.7332

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 353 - Station Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.7326
46.5	0.7288
47.5	0.7287
48.5	0.7232
49.5	0.7216
50.5	0.7060
51.5	0.7048
52.5	0.7048
53.5	0.7047
54.5	0.7046
55.5	0.5175
56.5	0.4430
57.5	0.4154
58.5	0.4154
59.5	0.4154
60.5	0.4154
61.5	0.4154
62.5	0.4154
63.5	0.4154
64.5	0.4154
65.5	0.3907
66.5	0.3907
67.5	0.3907
68.5	0.3907
69.5	0.3907
70.5	0.3907
71.5	0.3907
72.5	0.3907

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 353 - Station Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R1.5	57.0	11,861.187
R2	57.0	11,951.137
S1	57.0	12,480.539
S0.5	57.0	12,538.842
R1	57.0	12,576.435
R2.5	57.0	12,958.691
S1.5	57.0	12,990.393
S0	57.0	13,220.725
S2	57.0	14,103.033
R0.5	57.0	14,528.483
L1.5	57.0	14,711.569
R3	57.0	14,806.067
L2	57.0	14,818.095
S-0.5	57.0	14,891.179
L1	57.0	15,452.300
L3	57.0	16,480.181
L0.5	57.0	17,174.965
O1	57.0	17,543.437
S3	57.0	17,667.058
L0	57.0	19,591.199
L4	57.0	20,352.594
R4	57.0	20,409.292
O2	57.0	22,771.487
S4	57.0	24,432.585
L5	57.0	27,005.888
R5	57.0	30,117.175
S5	57.0	32,607.259
S6	57.0	40,287.065
O3	57.0	42,478.185
SQ	57.0	55,590.951
O4	57.0	67,201.270

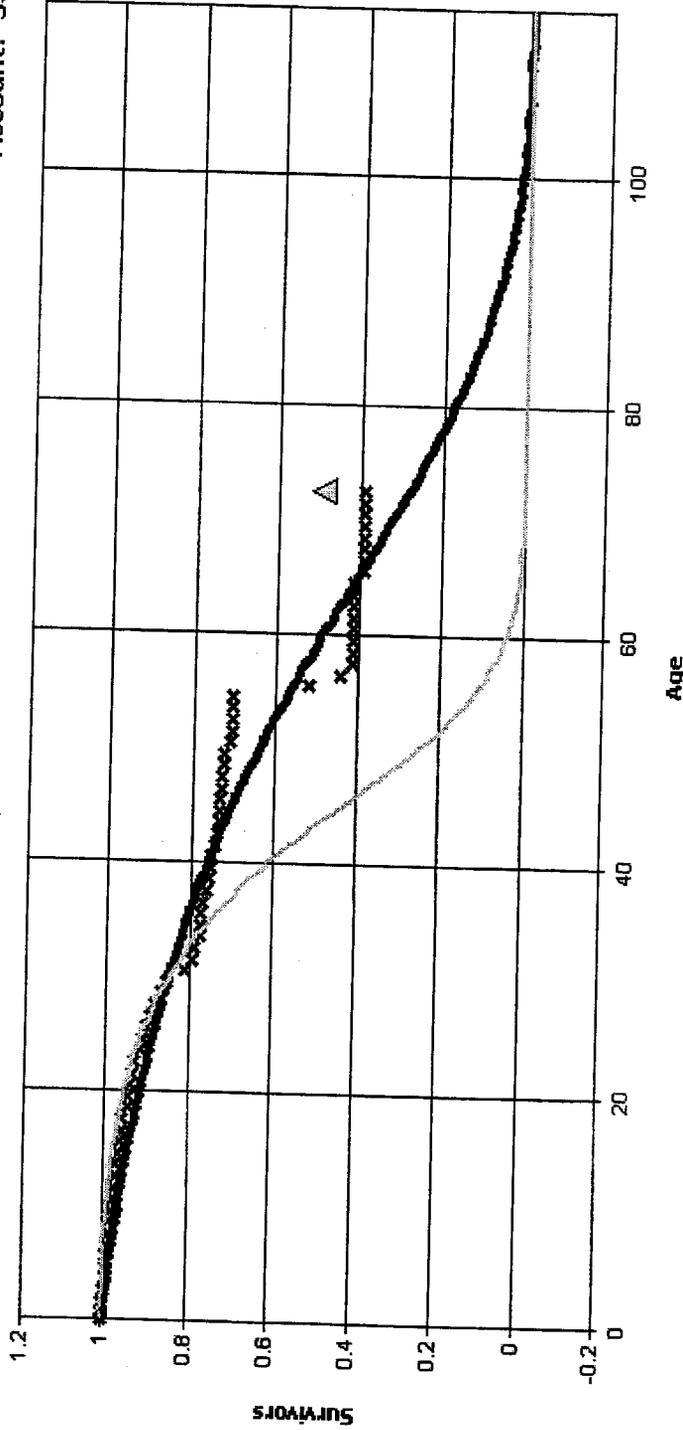
**Analytical Parameters**

OLT Placement Band: 1919 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 57  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 72.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 353 - Station Equipment



x OLT  
 Δ T-Cut  
 — 57 R1 .5 Full Curve Best Fit  
 - - - 42 R3 Arizona Study

Analytical Parameters

OLT Placement Band:	1919 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	57
Life Increment Parameter:	1
Maximum Age (T-Cut):	72.5

12/22/2003

Snavelly King Majoros O'Connor & Lee, Inc.

Arizona Public Service Company

353 - Station Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

57 R1.5

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5	45,622,655	57.00	56.59	800,397	45,291,769
2001	1.5	25,075,008	57.00	55.77	439,912	24,531,921
2000	2.5	12,254,988	57.00	54.95	215,000	11,813,867
1999	3.5	15,636,588	57.00	54.13	274,326	14,850,638
1998	4.5	17,354,374	57.00	53.33	304,463	16,235,707
1997	5.5	-	57.00	52.52	-	-
1996	6.5	46,591,401	57.00	51.72	817,393	42,275,445
1995	7.5	4,052,181	57.00	50.92	71,091	3,620,147
1994	8.5	2,768,114	57.00	50.13	48,563	2,434,479
1993	9.5	992,039	57.00	49.34	17,404	858,747
1992	10.5	2,814,458	57.00	48.56	49,376	2,397,562
1991	11.5	7,395,784	57.00	47.78	129,751	6,198,998
1990	12.5	11,517,106	57.00	47.00	202,054	9,496,534
1989	13.5	11,845,846	57.00	46.23	207,822	9,607,165
1988	14.5	19,545,737	57.00	45.46	342,908	15,588,582
1987	15.5	9,235,173	57.00	44.70	162,021	7,241,695
1986	16.5	38,589,436	57.00	43.94	677,008	29,745,324
1985	17.5	3,012,910	57.00	43.18	52,858	2,282,482
1984	18.5	11,051,702	57.00	42.43	193,890	8,226,809
1983	19.5	4,034,244	57.00	41.68	70,776	2,950,216
1982	20.5	7,393,573	57.00	40.94	129,712	5,310,598
1981	21.5	14,426,831	57.00	40.20	253,102	10,175,811
1980	22.5	19,059,867	57.00	39.47	334,384	13,198,736
1979	23.5	7,842,832	57.00	38.74	137,594	5,330,941
1978	24.5	27,968,778	57.00	38.02	490,680	18,656,363
1977	25.5	2,966,492	57.00	37.30	52,044	1,941,462
1976	26.5	4,388,156	57.00	36.59	76,985	2,817,101
1975	27.5	13,534,989	57.00	35.89	237,456	8,521,468
1974	28.5	3,810,669	57.00	35.19	66,854	2,352,310
1973	29.5	4,212,069	57.00	34.49	73,896	2,548,802
1972	30.5	2,651,631	57.00	33.80	46,520	1,572,538
1971	31.5	5,919,728	57.00	33.12	103,855	3,439,836
1970	32.5	2,289,745	57.00	32.45	40,171	1,303,380
1969	33.5	1,821,456	57.00	31.78	31,955	1,015,453
1968	34.5	481,896	57.00	31.12	8,454	263,058

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	45,622,655	57.00	56.59	800,397	45,291,769
2001	1.5	25,075,008	57.00	55.77	439,912	24,531,921
2000	2.5	12,254,988	57.00	54.95	215,000	11,813,867
1967	35.5	388,653	57.00	30.46	6,818	207,692
1966	36.5	506,829	57.00	29.81	8,892	265,080
1965	37.5	553,908	57.00	29.17	9,718	283,479
1964	38.5	266,708	57.00	28.54	4,679	133,534
1963	39.5	6,062,058	57.00	27.91	106,352	2,968,565
1962	40.5	3,149,040	57.00	27.29	55,246	1,507,919
1961	41.5	192,338	57.00	26.68	3,374	90,043
1960	42.5	1,940,121	57.00	26.08	34,037	887,786
1959	43.5	1,165,484	57.00	25.49	20,447	521,173
1958	44.5	1,052,541	57.00	24.90	18,466	459,850
1957	45.5	615,610	57.00	24.33	10,800	262,725
1956	46.5	241,417	57.00	23.76	4,235	100,622
1955	47.5	1,488,882	57.00	23.20	26,121	605,934
1954	48.5	1,535,823	57.00	22.65	26,944	610,177
1953	49.5	308,467	57.00	22.10	5,412	119,618
1952	50.5	371,456	57.00	21.57	6,517	140,568
1951	51.5	-	57.00	21.05	-	-
1950	52.5	224,911	57.00	20.53	3,946	81,008
1949	53.5	259,509	57.00	20.02	4,553	91,164
1948	54.5	62,397	57.00	19.53	1,095	21,376
1947	55.5	-	57.00	19.04	-	-
1946	56.5	8,672	57.00	18.56	152	2,824
1945	57.5	88,531	57.00	18.09	1,553	28,098
1944	58.5	-	57.00	17.63	-	-
1943	59.5	-	57.00	17.18	-	-
1942	60.5	-	57.00	16.74	-	-
1941	61.5	-	57.00	16.30	-	-
1940	62.5	1,302	57.00	15.88	23	363
1939	63.5	58,601	57.00	15.47	1,028	15,900
1938	64.5	3,775	57.00	15.06	66	997
1937	65.5	4,788	57.00	14.66	84	1,232
1936	66.5	3,198	57.00	14.27	56	801
1935	67.5	-	57.00	13.89	-	-
1934	68.5	-	57.00	13.52	-	-
1933	69.5	-	57.00	13.15	-	-
1932	70.5	-	57.00	12.79	-	-
1931	71.5	-	57.00	12.44	-	-
1930	72.5	-	57.00	12.10	-	-
1929	73.5	22,830	57.00	11.76	401	4,710

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	45,622,655	57.00	56.59	800,397	45,291,769
2001	1.5	25,075,008	57.00	55.77	439,912	24,531,921
2000	2.5	12,254,988	57.00	54.95	215,000	11,813,867
		428,736,305			7,521,690	343,509,176
AVERAGE SERVICE LIFE						57.00
AVERAGE REMAINING LIFE						45.67

**Arizona Public Service Company**

**Transmission Plant**

**353.5 - Station Equipment - SCE 500 KV Line**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 353.5 - Station Equipment - SCE 500 KV Line

Depreciable Balance \$7,747,282

	APS	Snavely King
Depreciable Reserve	<u>\$6,464,972</u>	<u>\$7,349,363</u>

Reserve Percent	<u>83.4%</u>	<u>94.9%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	_____	_____	_____
Accrual (\$)	<u>251,787</u>	<u>251,787</u>	<u>251,787</u>
Rate (%)	<u>3.25%</u>	<u>3.25%</u>	<u>3.25%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept the proposal to retain the existing depreciation rates.

**Arizona Public Service Company**

**Transmission Plant**

**354 - Towers & Fixtures**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 354 - Towers & Fixtures

Depreciable Balance \$83,464,531

	APS	Snavelly King
Depreciable Reserve	<u>\$39,991,439</u>	<u>\$46,097,366</u>

Reserve Percent	<u>47.9%</u>	<u>55.2%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>60.0</u>	<u>60.0</u>	<u>60.0</u>
lowa Curve	<u>R3</u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)		<u>38.3</u>	<u>38.3</u>
Net Salvage (%)	<u>-30</u>	<u>-35</u>	<u>0</u>
Accrual (\$)	<u>1,660,944</u>	<u>1,899,472</u>	<u>975,644</u>
Rate (%)	<u>1.99%</u>	<u>2.28%</u>	<u>1.17%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment because there is no change to the current parameter and there is insufficient data to conduct a meaningful statistical analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 354 - Towers and Fixtures**

Age	Cumulative Survivors
<b>BAND</b>	<b>1973 - 2001</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	1.0000
6.5	1.0000
7.5	1.0000
8.5	1.0000
9.5	1.0000
10.5	1.0000
11.5	0.9997
12.5	0.9997
13.5	0.9997
14.5	0.9997
15.5	0.9997
16.5	0.9997
17.5	0.9987
18.5	0.9987
19.5	0.9987
20.5	0.9835
21.5	0.9835
22.5	0.9781
23.5	0.9745
24.5	0.9745
25.5	0.9745
26.5	0.9655
27.5	0.9564
28.5	0.9564
29.5	0.9564
30.5	0.9564
31.5	0.9558
32.5	0.9558
33.5	0.9557
34.5	0.9556
35.5	0.9555
36.5	0.9555
37.5	0.9555
38.5	0.9555

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 354 - Towers and Fixtures**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R3	75.0	10,019.681
S1.5	85.0	10,020.145
L2	86.0	10,025.261
S2	73.0	10,033.953
L3	68.0	10,034.690
R2.5	86.0	10,040.102
R4	58.0	10,044.144
S1	86.0	10,061.705
S3	60.0	10,066.834
L4	57.0	10,073.627
R5	49.0	10,119.322
S4	51.0	10,121.453
L5	49.0	10,131.945
S5	47.0	10,168.429
R2	86.0	10,185.653
S6	43.0	10,203.309
L1.5	86.0	10,230.008
SQ	39.0	10,255.564
S0.5	86.0	10,341.863
R1.5	86.0	10,650.831
L1	86.0	10,736.270
S0	86.0	10,895.883
R1	86.0	11,413.866
L0.5	86.0	11,826.002
S-0.5	86.0	12,354.907
R0.5	86.0	12,759.378
L0	86.0	13,436.709
O1	86.0	14,554.053
O2	86.0	16,019.013
O3	86.0	23,433.520
O4	86.0	34,846.681

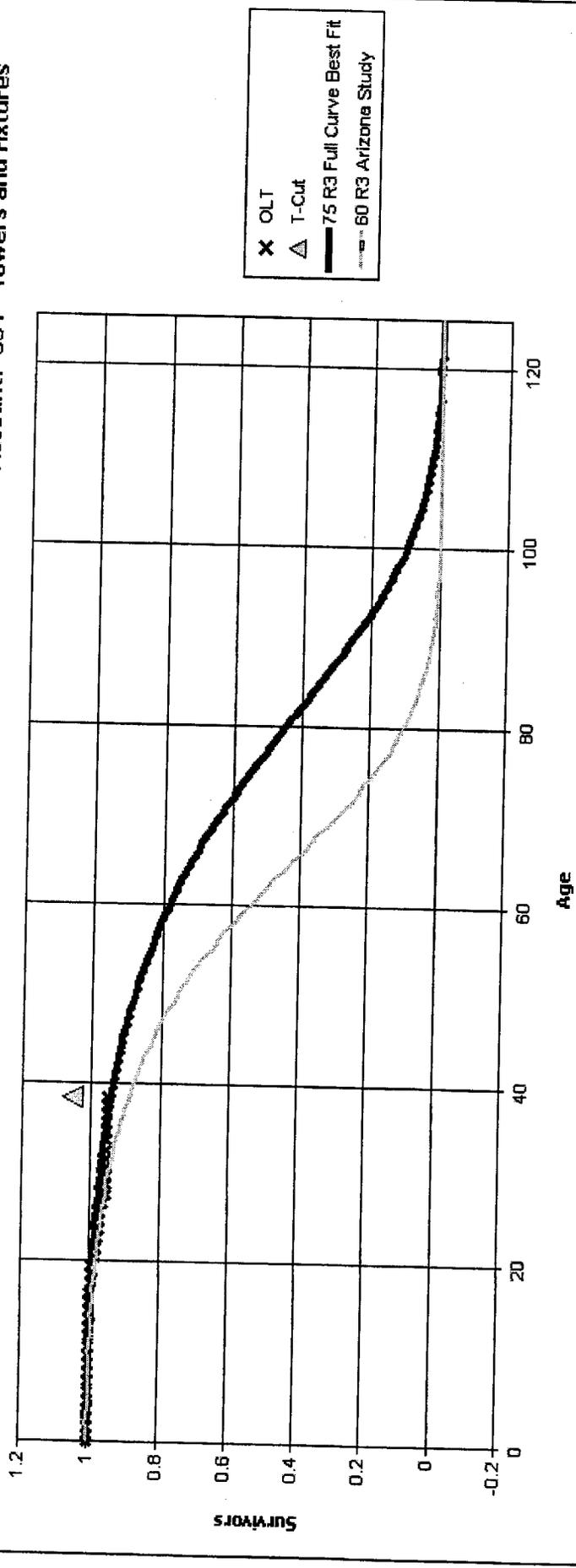
**Analytical Parameters**

OLT Placement Band: 1909 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 86  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 38.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 354 - Towers and Fixtures



**Analytical Parameters**

OLT Placement Band:	1909 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	86
Life Increment Parameter:	1
Maximum Age (T-Cut):	38.5

**Arizona Public Service Company**

**Transmission Plant**

**354.5 - Towers & Fixtures -SCE 500 KV Line**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 354.5 - Towers & Fixtures -SCE- 500 KV Line

Depreciable Balance \$13,752,584

	APS	Snavelly King
Depreciable Reserve	<u>\$13,542,259</u>	<u>\$17,477,965</u>

Reserve Percent	<u>98.5%</u>	<u>127.1%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	_____	_____	_____
Accrual (\$)	<u>446,959</u>	<u>446,959</u>	<u>446,959</u>
Rate (%)	<u>3.25%</u>	<u>3.25%</u>	<u>3.25%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
 We accept the proposal to retain the existing depreciation rates.

**Arizona Public Service Company**

**Transmission Plant**

**355.00 - Poles and Fixtures - Wood**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 355 - Poles & Fixtures Wood

Depreciable Balance \$91,126,939

	APS	Snavelly King
Depreciable Reserve	<u>\$33,590,493</u>	<u>\$27,541,958</u>

Reserve Percent	<u>36.9%</u>	<u>30.2%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>43.0</u>	<u>48.0</u>	<u>48.0</u>
Iowa Curve	<u>R1</u>	<u>R1.5</u>	<u>R1.5</u>
Remaining Life (Yrs.)	<u></u>	<u>38.5</u>	<u>38.5</u>
Net Salvage (%)	<u>-30</u>	<u>-35</u>	<u>0</u>
Accrual (\$)	<u>2,487,765</u>	<u>2,321,504</u>	<u>1,651,558</u>
Rate (%)	<u>2.73%</u>	<u>2.55%</u>	<u>1.81%</u>

\*\*\*\*\*  
 Comment: Mr. Wiedmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.)  
 Mr. Wiedmayer's statistical study approximates the best fit results determined by SK (46-R2).

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 355 - Poles and Fixtures**

Age	Cumulative Survivors
BAND	1973 - 2001
0	1.0000
0.5	0.9996
1.5	0.9980
2.5	0.9970
3.5	0.9925
4.5	0.9910
5.5	0.9874
6.5	0.9809
7.5	0.9772
8.5	0.9737
9.5	0.9665
10.5	0.9569
11.5	0.9536
12.5	0.9493
13.5	0.9461
14.5	0.9396
15.5	0.9343
16.5	0.9243
17.5	0.9131
18.5	0.9055
19.5	0.8952
20.5	0.8604
21.5	0.8566
22.5	0.8309
23.5	0.8223
24.5	0.8148
25.5	0.8087
26.5	0.8015
27.5	0.7940
28.5	0.7853
29.5	0.7761
30.5	0.7718
31.5	0.7646
32.5	0.7552
33.5	0.7475
34.5	0.7417
35.5	0.7335
36.5	0.7267
37.5	0.7218
38.5	0.7133
39.5	0.7047
40.5	0.7023
41.5	0.6923
42.5	0.6789
43.5	0.6547
44.5	0.6442

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 355 - Poles and Fixtures**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.6297
46.5	0.6164
47.5	0.6101
48.5	0.5684
49.5	0.4954
50.5	0.3992
51.5	0.3975
52.5	0.3901
53.5	0.3649
54.5	0.3619
55.5	0.3155
56.5	0.1492
57.5	0.1462
58.5	0.1462
59.5	0.1462
60.5	0.0942
61.5	0.0942
62.5	0.0899
63.5	0.0899
64.5	0.0866
65.5	0.0866
66.5	0.0866
67.5	0.0865
68.5	0.0861
69.5	0.0861
70.5	0.0856
71.5	0.0853
72.5	0.0849
73.5	0.0839
74.5	0.0839
75.5	0.0825
76.5	0.0822
77.5	0.0815
78.5	0.0815

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 355 - Poles and Fixtures**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
R2	46.0	12,097.705
R2.5	47.0	12,181.842
R1.5	46.0	12,622.792
S1.5	47.0	12,988.802
S1	47.0	13,257.341
R3	48.0	13,276.153
S2	48.0	13,383.747
S0.5	46.0	14,043.617
R1	45.0	14,201.306
L3	49.0	14,851.291
L2	49.0	15,106.378
S3	49.0	15,338.537
S0	46.0	15,565.400
L1.5	48.0	15,811.066
R4	49.0	16,543.786
L4	50.0	16,801.095
R0.5	44.0	17,294.515
L1	48.0	17,364.829
S-0.5	45.0	18,181.100
L0.5	48.0	19,304.016
S4	49.0	19,389.723
L5	50.0	21,033.693
O1	44.0	21,895.995
L0	48.0	21,913.997
R5	50.0	22,447.399
O2	49.0	23,530.974
S5	50.0	24,422.205
S6	51.0	30,112.224
O3	63.0	31,939.444
O4	70.0	37,890.088
SQ	51.0	45,418.026

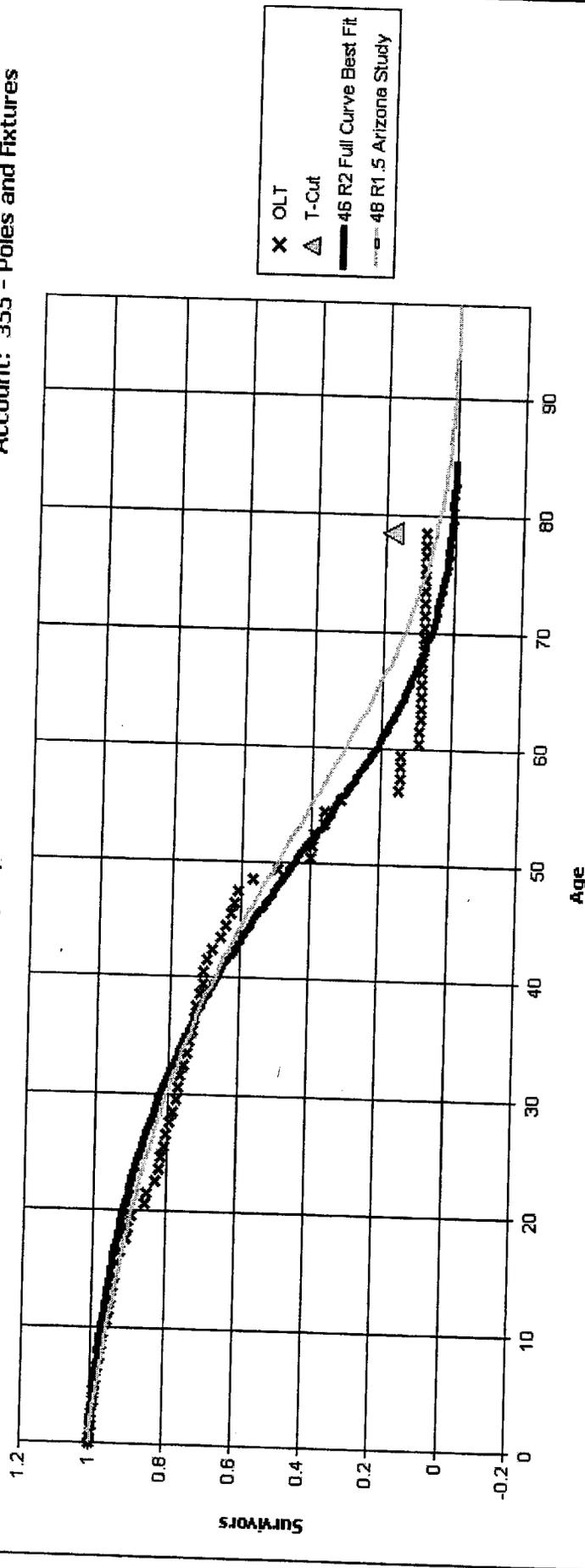
**Analytical Parameters**

OLT Placement Band: 1908 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 3  
 Maximum Life Parameter: 70  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 78.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 355 - Poles and Fixtures



**Analytical Parameters**

OLT Placement Band:	1908 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	3
Maximum Life Parameter:	70
Life Increment Parameter:	1
Maximum Age (T-Cut):	78.5

**Arizona Public Service Company**

**Transmission Plant**

**355.1 - Poles and Fixtures - Steel**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 355.1 - Poles & Fixtures Steel

Depreciable Balance \$83,067,888

	APS	Snavelly King
Depreciable Reserve	<u>\$22,282,935</u>	<u>\$22,833,440</u>

Reserve Percent	<u>26.8%</u>	<u>27.5%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>          </u>	<u>55.0</u>	<u>55.0</u>
lowa Curve	<u>          </u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)	<u>          </u>	<u>45.1</u>	<u>45.1</u>
Net Salvage (%)	<u>          </u>	<u>-15</u>	<u>0</u>
Accrual (\$)	<u>2,267,753</u>	<u>1,625,822</u>	<u>1,335,575</u>
Rate (%)	<u>2.73%</u>	<u>1.96%</u>	<u>1.61%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment based on Mr. Wiedmayer's study and that there is no data to conduct a meaningful statistical analysis.

**Arizona Public Service Company**

**Transmission Plant**

**355.5 - Poles and Fixtures - SCE 500 KV Line**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 355.5- Poles & Fixtures - SCE 500 KV Line

Depreciable Balance \$930,308

	APS	Snavelly King
Depreciable Reserve	<u>\$341,908</u>	<u>\$692,575</u>

Reserve Percent	<u>36.8%</u>	<u>74.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	_____	_____	_____
Accrual (\$)	<u>30,235</u>	<u>30,235</u>	<u>30,235</u>
Rate (%)	<u>3.25%</u>	<u>3.25%</u>	<u>3.25%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
We accept the proposal to retain the existing depreciation rates.

**Arizona Public Service Company**

**Transmission Plant**

**356.00 - Overhead Conductors and Devices**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 356 - Overhead Conductors & Devices

Depreciable Balance \$205,771,417

	APS	Snavelly King
Depreciable Reserve	<u>\$70,439,236</u>	<u>\$94,269,666</u>
Reserve Percent	<u>34.2%</u>	<u>45.8%</u>

	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>55.0</u>	<u>55.0</u>	<u>55.0</u>
Iowa Curve	<u>R3</u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)		<u>38.5</u>	<u>38.5</u>
Net Salvage (%)	<u>-30</u>	<u>-35</u>	<u>0</u>
Accrual (\$)	<u>4,444,663</u>	<u>5,391,852</u>	<u>2,896,149</u>
Rate (%)	<u>2.16%</u>	<u>2.62%</u>	<u>1.41%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
 We accept the proposal to retain the existing depreciation rates.  
 See Response to MJM1-4 for information obtained by Company for this account.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 356 - Overhead Conductors and Devices**

Age	Cumulative Survivors
0	1.0000
0.5	0.9994
1.5	0.9964
2.5	0.9952
3.5	0.9938
4.5	0.9923
5.5	0.9919
6.5	0.9908
7.5	0.9886
8.5	0.9882
9.5	0.9878
10.5	0.9856
11.5	0.9843
12.5	0.9833
13.5	0.9828
14.5	0.9807
15.5	0.9797
16.5	0.9776
17.5	0.9754
18.5	0.9731
19.5	0.9571
20.5	0.9540
21.5	0.9490
22.5	0.9481
23.5	0.9460
24.5	0.9417
25.5	0.9393
26.5	0.9367
27.5	0.9331
28.5	0.9324
29.5	0.9283
30.5	0.9230
31.5	0.9216
32.5	0.9206
33.5	0.9184
34.5	0.9054
35.5	0.9037
36.5	0.9032
37.5	0.9027
38.5	0.9014
39.5	0.9008
40.5	0.8804
41.5	0.8572
42.5	0.8516
43.5	0.8489
44.5	0.8472

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 356 - Overhead Conductors and Devices**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.8460
46.5	0.8341
47.5	0.8221
48.5	0.7174
49.5	0.7174
50.5	0.7172
51.5	0.7151
52.5	0.7151
53.5	0.7151
54.5	0.7151
55.5	0.7151
56.5	0.7151
57.5	0.7151
58.5	0.7151
59.5	0.7151
60.5	0.7151
61.5	0.7151
62.5	0.7151
63.5	0.7151
64.5	0.7151
65.5	0.7100
66.5	0.7100
67.5	0.7100
68.5	0.7087
69.5	0.7087
70.5	0.7087
71.5	0.7086
72.5	0.7034
73.5	0.7034
74.5	0.7034
75.5	0.6816
76.5	0.6816
77.5	0.6816
78.5	0.6816

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 356 - Overhead Conductors and Devices**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S0	96.0	10,857.956
L1	100.0	10,987.756
R1	93.0	11,032.732
S-0.5	100.0	11,120.795
R1.5	86.0	11,141.004
S0.5	90.0	11,154.990
L0.5	100.0	11,275.748
R0.5	100.0	11,292.948
L1.5	94.0	11,590.634
R2	82.0	11,633.591
S1	86.0	11,786.882
R2.5	80.0	12,547.641
S1.5	83.0	12,667.253
L0	100.0	12,710.958
L2	90.0	12,741.725
O1	100.0	12,810.616
S2	81.0	13,962.897
R3	78.0	13,986.645
O2	100.0	15,361.872
L3	83.0	15,787.890
S3	78.0	17,092.122
R4	76.0	17,470.942
L4	79.0	19,355.360
S4	77.0	21,896.643
R5	77.0	23,706.057
L5	78.0	23,916.890
S5	77.0	26,624.589
S6	78.0	30,538.472
O3	100.0	30,983.207
SQ	79.0	38,451.208
O4	100.0	55,774.924

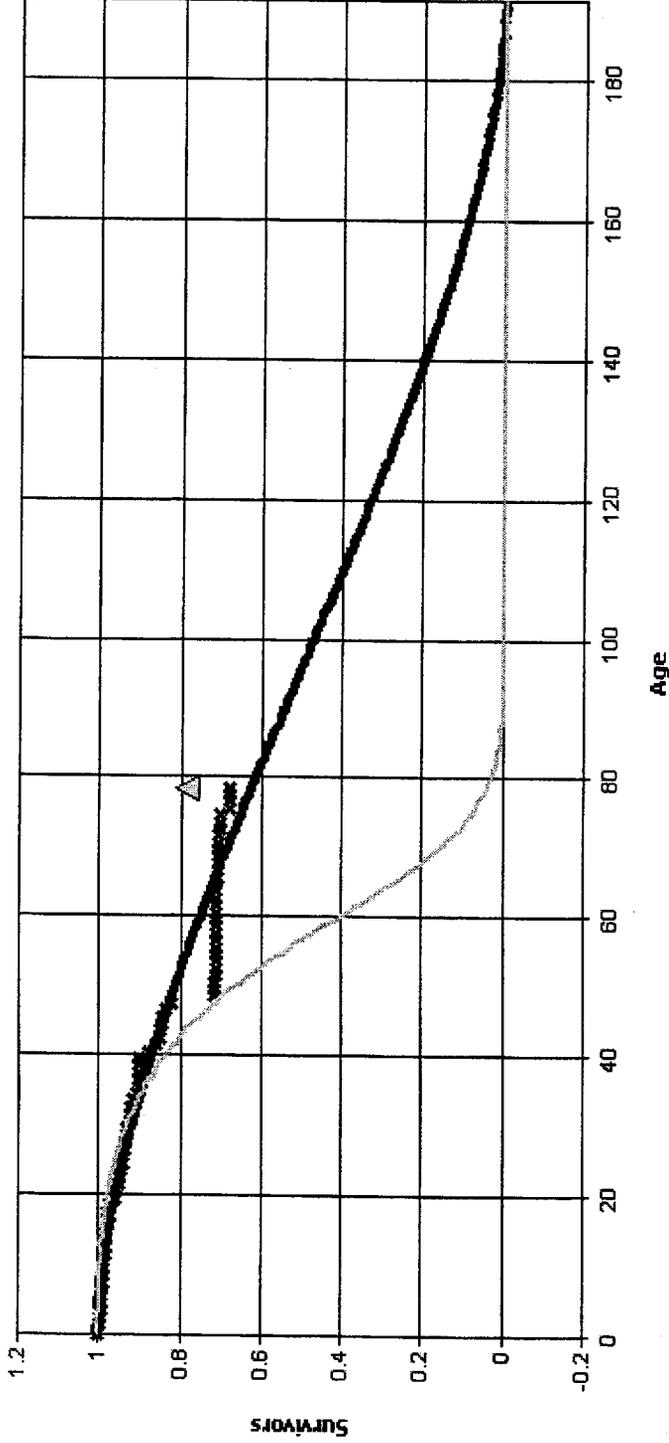
**Analytical Parameters**

OLT Placement Band: 1908 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 78.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 356 - Overhead Conductors and Devices



x OLT  
 Δ T-Cut  
 — 96 S0 Full Curve Best Fit  
 - - - 55 R3 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1908 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 78.5

**Arizona Public Service Company**

**Transmission Plant**

**356.5 - Overhead Conductors & Devices - SCE 500 KV Line**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 356.5 Overhead Conductors & Devices - SCE 500 KV Line

Depreciable Balance \$22,653,515

	APS	Snavely King
Depreciable Reserve	<u>\$23,670,862</u>	<u>\$28,947,611</u>

Reserve Percent	<u>104.5%</u>	<u>127.8%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	_____	_____	_____
Iowa Curve	_____	_____	_____
Remaining Life (Yrs.)	_____	_____	_____
Net Salvage (%)	_____	_____	_____
Accrual (\$)	<u>736,239</u>	<u>736,239</u>	<u>736,239</u>
Rate (%)	<u>3.25%</u>	<u>3.25%</u>	<u>3.25%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
We accept the proposal to retain the existing depreciation rates.

**Arizona Public Service Company**

**Transmission Plant**

**357 - Underground Conduit**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 357 - Underground Conduit

Depreciable Balance \$10,444,362

	APS	Snavelly King
Depreciable Reserve	<u>\$2,989,523</u>	<u>\$4,087,064</u>

Reserve Percent	<u>28.6%</u>	<u>39.1%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>50.0</u>	<u>48.0</u>	<u>48.0</u>
Iowa Curve	<u>R3</u>	<u>S1.5</u>	<u>S1.5</u>
Remaining Life (Yrs.)	<u></u>	<u>35.7</u>	<u>35.7</u>
Net Salvage (%)	<u>-5</u>	<u>-10</u>	<u>0</u>
Accrual (\$)	<u>229,776</u>	<u>237,777</u>	<u>178,076</u>
Rate (%)	<u>2.20%</u>	<u>2.28%</u>	<u>1.70%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment based on Mr. Wiedmayer's study and that there is insufficient data to conduct a meaningful statistical analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 357 - Underground Conduit**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	0.9987
6.5	0.9987
7.5	0.9987
8.5	0.9987
9.5	0.9987
10.5	0.9987
11.5	0.9987
12.5	0.9987
13.5	0.9827
14.5	0.9827
15.5	0.9827
16.5	0.9827
17.5	0.9827
18.5	0.9827
19.5	0.9608
20.5	0.9511
21.5	0.9511
22.5	0.9511
23.5	0.8860
24.5	0.8209
25.5	0.8209
26.5	0.8209
27.5	0.8209
28.5	0.8209
29.5	0.8209
30.5	0.8209
31.5	0.8209
32.5	0.8209
33.5	0.8209
34.5	0.8209
35.5	0.8209
36.5	0.8209
37.5	0.8209

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 357 - Underground Conduit**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S1	54.0	10,347.325
L1	67.0	10,350.190
S0.5	60.0	10,353.842
L1.5	60.0	10,365.575
S0	67.0	10,392.221
R2.5	48.0	10,415.091
S1.5	50.0	10,415.345
R2	52.0	10,417.168
L0.5	78.0	10,429.032
L2	54.0	10,463.682
R3	45.0	10,503.483
R1.5	60.0	10,509.765
S2	47.0	10,565.270
S-0.5	80.0	10,587.742
R1	71.0	10,597.672
L0	80.0	10,712.446
R0.5	80.0	10,741.057
L3	47.0	10,822.560
R4	41.0	10,931.014
S3	44.0	11,028.570
L4	43.0	11,247.607
O1	80.0	11,285.270
S4	41.0	11,836.354
O2	80.0	11,893.873
R5	40.0	12,008.092
L5	41.0	12,069.536
S5	40.0	12,649.615
S6	39.0	13,287.605
SQ	38.0	14,405.141
O3	80.0	16,199.746
O4	80.0	24,365.412

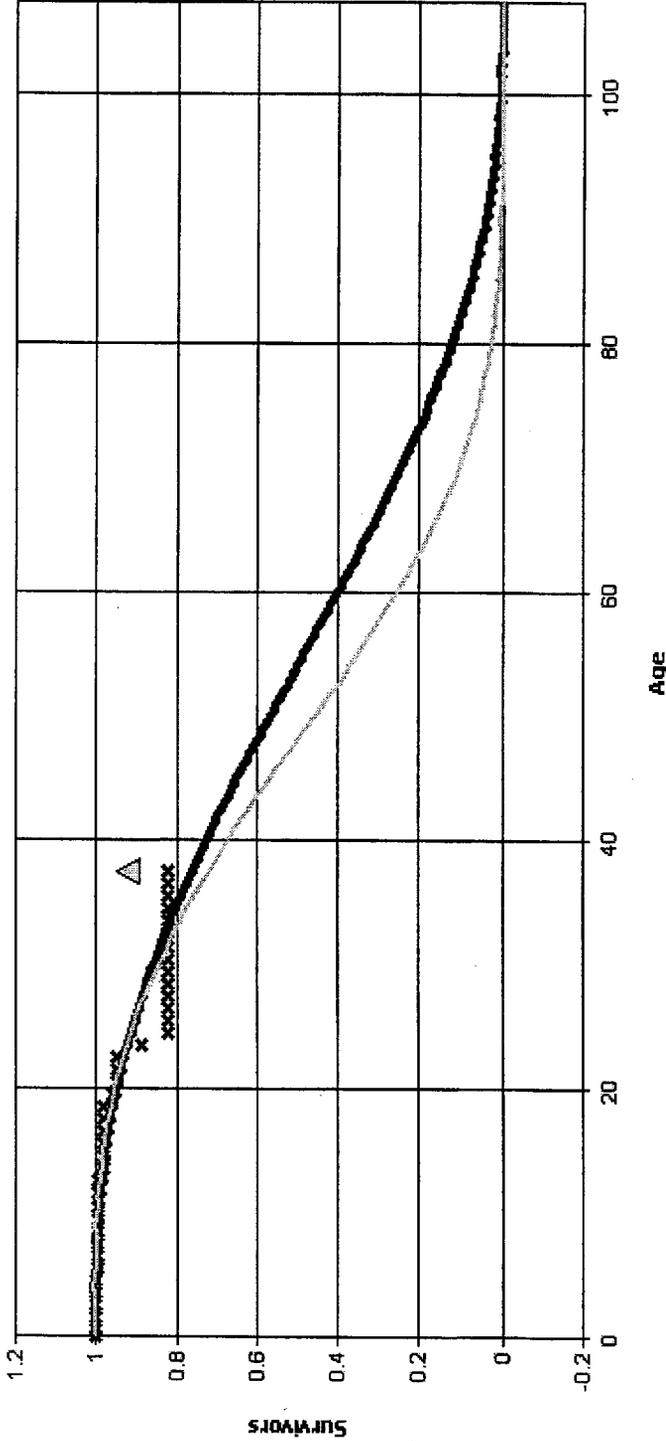
**Analytical Parameters**

OLT Placement Band: 1964 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 6  
 Maximum Life Parameter: 80  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 37.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 357 - Underground Conduit**



x OLT  
 Δ T-Cut  
 — 54 S1 Full Curve Best Fit  
 - - - 48 S1.5 Arizona Study

**Analytical Parameters**

OLT Placement Band:	1964 - 2001
OLT Experience Band:	1973 - 2001
Minimum Life Parameter:	6
Maximum Life Parameter:	80
Life Increment Parameter:	1
Maximum Age (T-Cut):	37.5

**Arizona Public Service Company**  
**Transmission Plant**  
**358 - Underground Conductors & Devices**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Transmission Plant

Account 358 - Underground Conductors & Devices

Depreciable Balance \$18,551,254

	APS	Snavelly King
Depreciable Reserve	<u>\$6,336,374</u>	<u>\$9,702,854</u>

Reserve Percent	<u>34.2%</u>	<u>52.3%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>50.0</u>	<u>40.0</u>	<u>40.0</u>
Iowa Curve	<u>R3</u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)		<u>26.3</u>	<u>26.3</u>
Net Salvage (%)	<u>-5</u>	<u>-10</u>	<u>0</u>
Accrual (\$)	<u>343,198</u>	<u>534,608</u>	<u>336,441</u>
Rate (%)	<u>1.85%</u>	<u>2.88%</u>	<u>1.81%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment based on Mr. Wiedmayer's study and that there is insufficient data to conduct a meaningful statistical analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 358 - Underground Conductors**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	0.9998
1.5	0.9998
2.5	0.9998
3.5	0.9998
4.5	0.9998
5.5	0.9977
6.5	0.9977
7.5	0.9898
8.5	0.9898
9.5	0.9895
10.5	0.9895
11.5	0.9877
12.5	0.9798
13.5	0.9759
14.5	0.9759
15.5	0.9759
16.5	0.9759
17.5	0.9759
18.5	0.9759
19.5	0.9664
20.5	0.9278
21.5	0.9278
22.5	0.9278
23.5	0.8963
24.5	0.8648
25.5	0.8395
26.5	0.8395
27.5	0.8395
28.5	0.8395
29.5	0.8395
30.5	0.8395
31.5	0.8395
32.5	0.8395
33.5	0.8395
34.5	0.8395
35.5	0.8395
36.5	0.8395
37.5	0.8395

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 358 - Underground Conductors**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1973 - 2001</b>	
S0.5	60.0	10,205.399
R2	55.0	10,223.501
S1	56.0	10,224.474
L1.5	60.0	10,247.866
R2.5	50.0	10,248.564
R1.5	60.0	10,288.943
S1.5	52.0	10,304.153
L2	56.0	10,348.504
R3	46.0	10,357.529
S2	49.0	10,470.623
S0	60.0	10,516.640
L1	60.0	10,632.711
L3	49.0	10,684.304
R1	60.0	10,705.936
R4	42.0	10,773.159
S3	45.0	10,888.298
L4	44.0	11,051.833
L0.5	60.0	11,566.868
S4	42.0	11,567.568
S-0.5	60.0	11,631.558
R5	40.0	11,693.356
L5	41.0	11,738.366
R0.5	60.0	11,803.470
S5	40.0	12,231.906
S6	39.0	12,751.390
L0	60.0	13,093.804
O1	60.0	13,540.804
SQ	38.0	13,594.068
O2	60.0	15,306.616
O3	60.0	24,331.113
O4	60.0	37,808.448

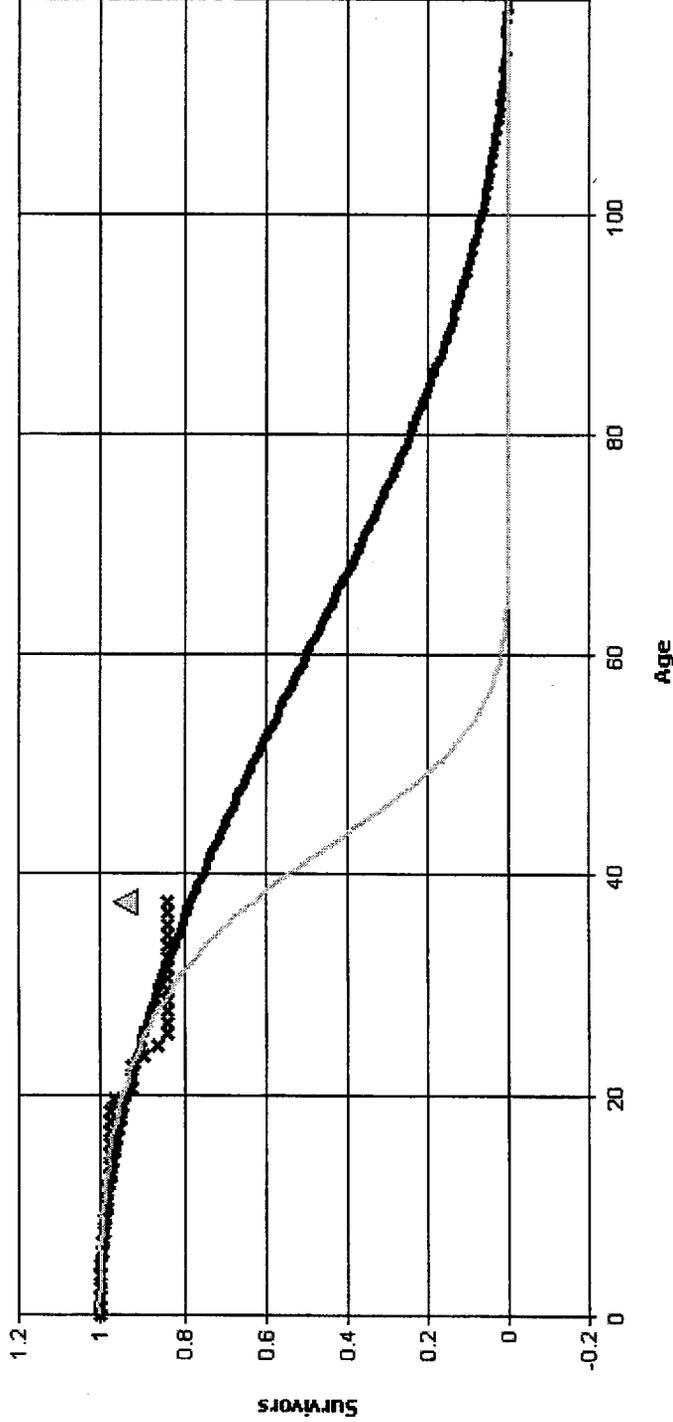
**Analytical Parameters**

OLT Placement Band: 1964 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 37.5

Fitted Curve Results

Fitted Curve Results - Arizona Public Service Company

Account: 358 - Underground Conductors



Survivors

Age

X OLT  
 Δ T-Cut  
 — 60 SO.5 Full Curve Best Fit  
 - - - 40 R3 Arizona Study

Analytical Parameters

OLT Placement Band: 1964 - 2001  
 OLT Experience Band: 1973 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 37.5

12/22/2003

Snavelly King Majoros O'Connor & Lee, Inc.

**Arizona Public Service Company**

**Section D**

**Distribution Plant**

**Arizona Public Service Company**

**Distribution Plant**

**361.00 - Structures and Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 361 - Structures & Improvements

Depreciable Balance \$25,815,042

	APS	Snavelly King
Depreciable Reserve	<u>\$7,749,290</u>	<u>\$10,429,908</u>

Reserve Percent	<u>30.0%</u>	<u>40.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>40.0</u>	<u>45.0</u>	<u>45.0</u>
Iowa Curve	<u>R2.5</u>	<u>R2.5</u>	<u>R2.5</u>
Remaining Life (Yrs.)		<u>33.1</u>	<u>33.1</u>
Net Salvage (%)	<u>(15.00)</u>	<u>(10.00)</u>	<u>0</u>
Accrual (\$)	<u>774,451</u>	<u>623,356</u>	<u>464,808</u>
Rate (%)	<u>3.00%</u>	<u>2.41%</u>	<u>1.80%</u>

\*\*\*\*\*

Comment: Accept Company proposal based on SK analysis

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 361 - Structures and Improvements**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	0.9997
2.5	0.9972
3.5	0.9968
4.5	0.9958
5.5	0.9956
6.5	0.9889
7.5	0.9883
8.5	0.9876
9.5	0.9853
10.5	0.9833
11.5	0.9830
12.5	0.9824
13.5	0.9816
14.5	0.9762
15.5	0.9739
16.5	0.9667
17.5	0.9606
18.5	0.9582
19.5	0.9572
20.5	0.9515
21.5	0.9502
22.5	0.9468
23.5	0.9410
24.5	0.9250
25.5	0.9218
26.5	0.9103
27.5	0.8925
28.5	0.8874
29.5	0.7367
30.5	0.7531
31.5	0.7925
32.5	0.6968
33.5	0.6695
34.5	0.6573
35.5	0.6294
36.5	0.6279
37.5	0.6277
38.5	0.6260
39.5	0.6206
40.5	0.6201
41.5	0.6198
42.5	0.6133
43.5	0.5163
44.5	0.5038

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 361 - Structures and Improvements**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.4931
46.5	0.4728
47.5	1.0000
48.5	0.9807
49.5	0.9157
50.5	0.9212
51.5	0.9212
52.5	0.9969
53.5	0.9969
54.5	0.9969
55.5	0.9969
56.5	0.9969
57.5	0.9969
58.5	0.9969
59.5	1.0000
60.5	1.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 361 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1940 - 2001</b>	
L2	48.0	478.546
S1.5	44.0	554.546
S1	46.0	640.663
L1.5	50.0	678.440
S2	43.0	683.841
R2.5	42.0	766.379
R2	43.0	846.511
S0.5	47.0	978.157
R3	42.0	998.407
L1	53.0	1,074.550
L3	45.0	1,111.968
R1.5	45.0	1,321.989
S0	50.0	1,462.908
S3	42.0	1,649.009
L0.5	57.0	1,671.782
R1	48.0	1,999.858
L0	63.0	2,348.553
S-0.5	54.0	2,391.808
R4	42.0	2,450.954
R0.5	53.0	2,813.332
L4	43.0	2,987.995
O2	70.0	3,402.996
O1	62.0	3,405.152
S4	42.0	4,195.060
O3	75.0	5,670.531
L5	42.0	5,948.273
R5	42.0	6,073.464
S5	42.0	7,932.792
S6	43.0	11,957.767
O4	75.0	13,708.121
SQ	45.0	24,166.332

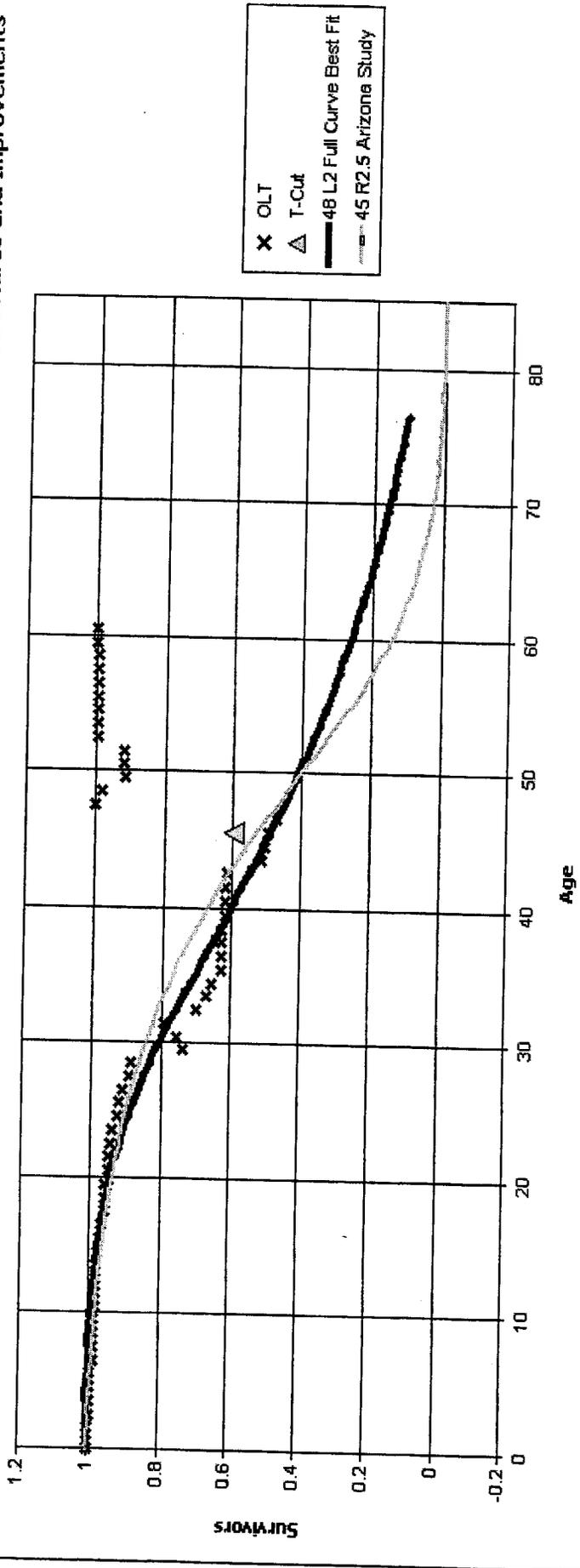
**Analytical Parameters**

OLT Placement Band:	1940 - 2001
OLT Experience Band:	1940 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	75
Life Increment Parameter:	1
Max Age (T-Cut):	45.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 361 - Structures and Improvements**



**Analytical Parameters**

OLT Placement Band:	1940 - 2001
OLT Experience Band:	1940 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	75
Life Increment Parameter:	1
Maximum Age (T-Cut):	45.5

**Arizona Public Service Company**

**Distribution Plant**

**362.00 - Station Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 362 - Station Equipment - Distribution Plant

Depreciable Balance \$212,357,577

	APS	Snavelly King
Depreciable Reserve	<u>\$70,802,963</u>	<u>\$52,722,295</u>

Reserve Percent	<u>33.3%</u>	<u>24.8%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>26.0</u>	<u>38.0</u>	<u>44.0</u>
Iowa Curve	<u>R0.5</u>	<u>S0</u>	<u>L0.5</u>
Remaining Life (Yrs.)		<u>31.8</u>	<u>36.9</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>7,411,279</u>	<u>4,456,837</u>	<u>4,332,029</u>
Rate (%)	<u>3.49%</u>	<u>2.10%</u>	<u>2.04%</u>

\*\*\*\*\*  
 Comment: Mr. Weidmeyer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Weidmeyer's statistical study was deficient and incomplete because he excluded a substantial portion of the OLT. The complete statistical analysis results is a 44-L0.5 life and curve.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 362 - Station Equipment**

Age	Cumulative Survivors
0	1.0000
0.5	0.9991
1.5	0.9983
2.5	0.9953
3.5	0.9872
4.5	0.9786
5.5	0.9716
6.5	0.9624
7.5	0.9533
8.5	0.9474
9.5	0.9403
10.5	0.9338
11.5	0.9292
12.5	0.9187
13.5	0.9055
14.5	0.8945
15.5	0.8724
16.5	0.8625
17.5	0.8335
18.5	0.8245
19.5	0.8059
20.5	0.7865
21.5	0.7702
22.5	0.7541
23.5	0.7411
24.5	0.7295
25.5	0.7185
26.5	0.7064
27.5	0.6952
28.5	0.6844
29.5	0.6695
30.5	0.6489
31.5	0.6283
32.5	0.6054
33.5	0.5881
34.5	0.5710
35.5	0.5414
36.5	0.5188
37.5	0.4906
38.5	0.4800
39.5	0.4754
40.5	0.4709
41.5	0.4677
42.5	0.4580
43.5	0.4451
44.5	0.4206

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 362 - Station Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.4058
46.5	0.3954
47.5	0.3706
48.5	0.3550
49.5	0.2987
50.5	0.2982
51.5	0.2963
52.5	0.2963
53.5	0.2963
54.5	0.2963
55.5	0.2963
56.5	0.2909
57.5	0.2909
58.5	0.2900
59.5	0.2337
60.5	0.2337
61.5	0.2337
62.5	0.2337
63.5	0.2337
64.5	0.2337
65.5	0.2337
66.5	0.2337
67.5	0.2337
68.5	0.2337
69.5	0.2337
70.5	0.2337
71.5	0.2337
72.5	0.2337

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 362 - Station Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
L0.5	44.0	10,556.909
L0	45.0	10,778.145
L1	44.0	10,938.226
S-0.5	42.0	11,332.406
O2	46.0	11,475.512
O1	42.0	11,748.923
R0.5	42.0	11,836.442
S0	43.0	12,014.581
L1.5	44.0	12,016.868
R1	43.0	13,405.027
S0.5	43.0	13,406.554
L2	44.0	13,901.031
O3	53.0	13,945.649
R1.5	43.0	15,463.846
S1	43.0	15,579.692
S1.5	43.0	18,217.489
R2	43.0	18,639.714
L3	43.0	20,170.796
S2	43.0	21,570.828
O4	53.0	21,888.844
R2.5	43.0	22,119.845
R3	43.0	26,611.378
S3	43.0	28,665.492
L4	43.0	30,596.605
R4	42.0	34,725.805
S4	42.0	38,007.768
L5	42.0	40,333.960
R5	42.0	44,595.399
S5	41.0	46,930.223
S6	41.0	54,921.108
SQ	38.0	70,449.911

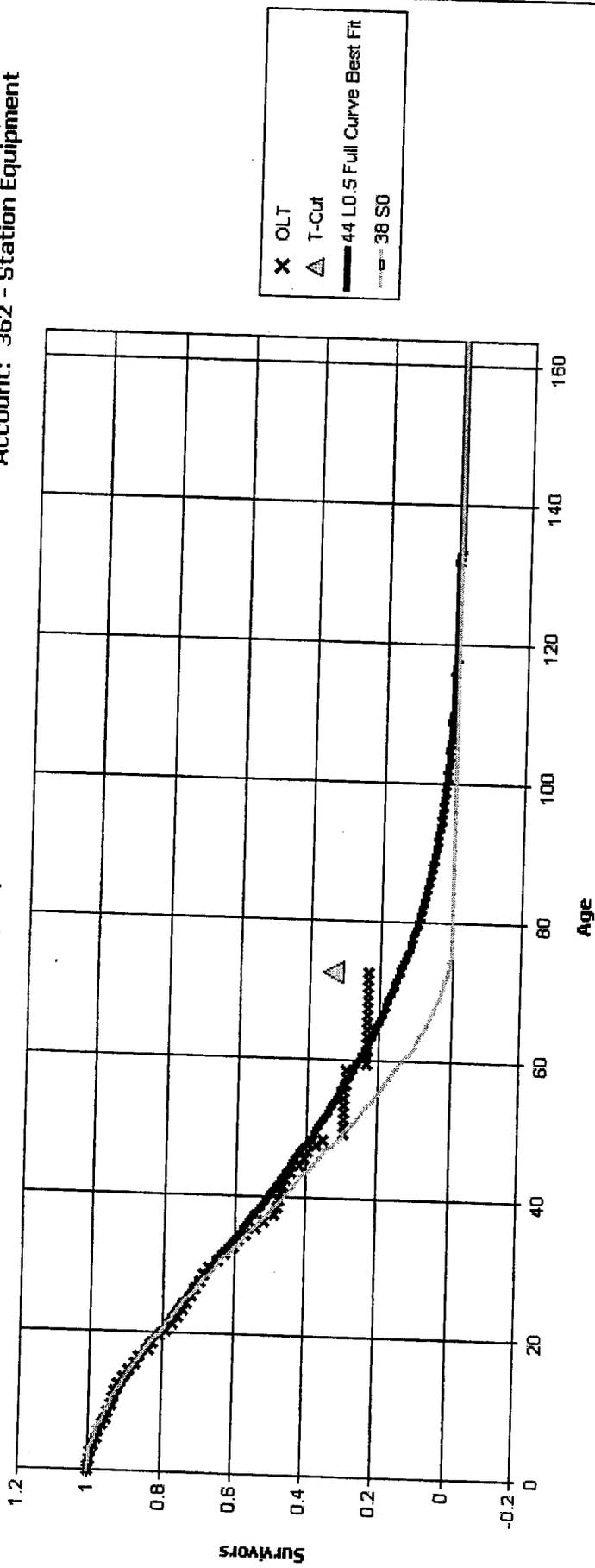
**Analytical Parameters**

OLT Placement Band: 1929 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 53  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 72.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 362 - Station Equipment**



**Analytical Parameters**

OLT Placement Band:	1929 - 2001
OLT Experience Band:	1972 - 2001
Minimum Life Parameter:	4
Maximum Life Parameter:	53
Life Increment Parameter:	1
Maximum Age (T-Cut):	72.5

Arizona Public Service Company

362 - Station Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

44 L0.5

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5	19,710,942	44.00	43.54	447,976	19,503,213
2001	1.5	22,738,273	44.00	42.68	516,779	22,056,101
2000	2.5	14,769,021	44.00	41.86	335,660	14,052,309
1999	3.5	19,247,683	44.00	41.08	437,447	17,970,909
1998	4.5	11,457,184	44.00	40.33	260,391	10,500,635
1997	5.5	7,553,299	44.00	39.60	171,666	6,797,392
1996	6.5	7,972,575	44.00	38.89	181,195	7,046,674
1995	7.5	5,307,172	44.00	38.21	120,618	4,608,302
1994	8.5	3,635,828	44.00	37.54	82,632	3,102,390
1993	9.5	5,268,282	44.00	36.90	119,734	4,418,655
1992	10.5	4,505,211	44.00	36.28	102,391	3,715,198
1991	11.5	4,965,704	44.00	35.69	112,857	4,027,366
1990	12.5	4,463,240	44.00	35.11	101,437	3,561,204
1989	13.5	4,563,279	44.00	34.55	103,711	3,583,100
1988	14.5	10,600,431	44.00	34.01	240,919	8,193,562
1987	15.5	5,938,319	44.00	33.49	134,962	4,519,858
1986	16.5	6,657,430	44.00	32.99	151,305	4,991,326
1985	17.5	7,125,197	44.00	32.50	161,936	5,263,644
1984	18.5	4,897,949	44.00	32.04	111,317	3,566,278
1983	19.5	3,627,985	44.00	31.59	82,454	2,604,409
1982	20.5	4,693,455	44.00	31.15	106,669	3,322,720
1981	21.5	2,560,854	44.00	30.73	58,201	1,788,326
1980	22.5	2,239,337	44.00	30.32	50,894	1,542,888
1979	23.5	4,222,966	44.00	29.92	95,977	2,871,206
1978	24.5	2,657,712	44.00	29.53	60,403	1,783,390
1977	25.5	1,779,374	44.00	29.14	40,440	1,178,527
1976	26.5	929,351	44.00	28.77	21,122	607,586
1975	27.5	1,021,052	44.00	28.39	23,206	658,921
1974	28.5	2,211,380	44.00	28.03	50,259	1,408,661
1973	29.5	1,681,722	44.00	27.67	38,221	1,057,433
1972	30.5	2,062,235	44.00	27.31	46,869	1,279,941
1971	31.5	826,357	44.00	26.96	18,781	506,257
1970	32.5	2,170,475	44.00	26.61	49,329	1,312,532
1969	33.5	984,204	44.00	26.26	22,368	587,474
1968	34.5	570,239	44.00	25.92	12,960	335,974

Arizona Public Service Company

362 - Station Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

44 L0.5

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
1967	35.5	455,823	44.00	25.59	10,360	265,088
1966	36.5	544,078	44.00	25.26	12,365	312,319
1965	37.5	266,554	44.00	24.93	6,058	151,029
1964	38.5	269,185	44.00	24.61	6,118	150,544
1963	39.5	454,572	44.00	24.29	10,331	250,929
1962	40.5	959,099	44.00	23.97	21,798	522,570
1961	41.5	175,577	44.00	23.66	3,990	94,422
1960	42.5	479,854	44.00	23.36	10,906	254,708
1959	43.5	226,691	44.00	23.05	5,152	118,766
1958	44.5	337,056	44.00	22.75	7,660	174,293
1957	45.5	254,786	44.00	22.46	5,791	130,037
1956	46.5	339,426	44.00	22.16	7,714	170,982
1955	47.5	424,231	44.00	21.88	9,642	210,921
1954	48.5	262,735	44.00	21.59	5,971	128,926
1953	49.5	126,409	44.00	21.31	2,873	61,221
1952	50.5	225,561	44.00	21.03	5,126	107,817
1951	51.5	54,517	44.00	20.76	1,239	25,719
1950	52.5	137,358	44.00	20.49	3,122	63,953
1949	53.5	188,317	44.00	20.22	4,280	86,534
1948	54.5	259,920	44.00	19.95	5,907	117,876
1947	55.5	36,496	44.00	19.69	829	16,335
1946	56.5	10,283	44.00	19.44	234	4,542
1945	57.5	80,545	44.00	19.18	1,831	35,111
1944	58.5	-	44.00	18.93	-	-
1943	59.5	3,397	44.00	18.68	77	1,442
1942	60.5	104,403	44.00	18.44	2,373	43,744
1941	61.5	5,369	44.00	18.19	122	2,220
1940	62.5	1,053	44.00	17.96	24	430
1939	63.5	12,143	44.00	17.72	276	4,890
1938	64.5	1,270	44.00	17.49	29	505
1937	65.5	-	44.00	17.26	-	-
1936	66.5	-	44.00	17.03	-	-
1935	67.5	35,712	44.00	16.81	812	13,640
1934	68.5	-	44.00	16.58	-	-
1933	69.5	-	44.00	16.37	-	-
1932	70.5	-	44.00	16.15	-	-

Arizona Public Service Company

362 - Station Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

44 L0.5

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
1931	71.5	-	44.00	15.94	-	-
1930	72.5	-	44.00	15.73	-	-
1930	73.5	9,640	44.00	15.73	219	3,446
		212,357,777			4,826,313	177,849,321
AVERAGE SERVICE LIFE						44.00
AVERAGE REMAINING LIFE						36.85

**Arizona Public Service Company**

**Distribution Plant**

**364.00 - Poles and Fixtures - Wood**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 364 - Poles and Fixtures- Wood - Distribution Plant

Depreciable Balance \$284,200,711

	APS	Snavelly King
Depreciable Reserve	<u>\$94,139,326</u>	<u>\$81,128,434</u>

Reserve Percent	<u>33.1%</u>	<u>28.5%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>37.0</u>	<u>38.0</u>	<u>38.0</u>
Iowa Curve	<u>R0.5</u>	<u>R0.5</u>	<u>R0.5</u>
Remaining Life (Yrs.)		<u>30.9</u>	<u>30.9</u>
Net Salvage (%)	<u>-10</u>	<u>-10</u>	<u>0</u>
Accrual (\$)	<u>7,616,579</u>	<u>7,076,374</u>	<u>6,571,918</u>
Rate (%)	<u>2.68%</u>	<u>2.49%</u>	<u>2.31%</u>

\*\*\*\*\*  
 Comment: According to Mr. Weidmayer study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgements which considered the nature of the the paint and equipment, reviews of available historical retirement data and general knowledge of service lives for similar similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
 We accept Company proposal based on SK analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 364 - Poles, Towers, and Fixtures**

Age	Cumulative Survivors
0	1.0000
0.5	0.9976
1.5	0.9764
2.5	0.9622
3.5	0.9511
4.5	0.9443
5.5	0.9369
6.5	0.9302
7.5	0.9227
8.5	0.9136
9.5	0.9033
10.5	0.8929
11.5	0.8802
12.5	0.8641
13.5	0.8494
14.5	0.8333
15.5	0.8181
16.5	0.8053
17.5	0.7943
18.5	0.7823
19.5	0.7710
20.5	0.7597
21.5	0.7464
22.5	0.7346
23.5	0.7209
24.5	0.7085
25.5	0.6957
26.5	0.6807
27.5	0.6675
28.5	0.6544
29.5	0.6420
30.5	0.6273
31.5	0.6138
32.5	0.6011
33.5	0.5878
34.5	0.5721
35.5	0.5566
36.5	0.5462
37.5	0.5384
38.5	0.5285
39.5	0.5186
40.5	0.5089
41.5	0.4990
42.5	0.4894
43.5	0.4807
44.5	0.4725

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 364 - Poles, Towers, and Fixtures**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.4555
46.5	0.4305
47.5	0.3901
48.5	0.3402
49.5	0.3167
50.5	0.3012
51.5	0.2850
52.5	0.2698
53.5	0.1801
54.5	0.0580
55.5	0.0079
56.5	0.0038
57.5	0.0010
58.5	0.0004
59.5	0.0002
60.5	0.0001
61.5	0.0001
62.5	0.0000
63.5	0.0000
64.5	0.0000
65.5	0.0000
66.5	0.0000
67.5	0.0000
68.5	0.0000
69.5	0.0000
70.5	0.0000
71.5	0.0000
72.5	0.0000
73.5	0.0000
74.5	0.0000
75.5	0.0000
76.5	0.0000
77.5	0.0000
78.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 364 - Poles, Towers, and Fixtures**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
R1	38.0	12,152.450
R1.5	38.0	12,758.687
R0.5	37.0	12,958.987
S0	37.0	13,005.511
S0.5	38.0	13,253.701
S-0.5	37.0	13,536.020
R2	39.0	14,025.137
S1	39.0	14,053.990
O1	35.0	14,753.878
L1	38.0	15,135.882
L1.5	39.0	15,288.480
S1.5	40.0	15,474.582
L0.5	38.0	15,924.732
L2	39.0	16,141.925
R2.5	40.0	16,222.347
S2	40.0	17,329.400
L0	38.0	17,358.820
O2	39.0	18,763.092
R3	41.0	19,106.424
L3	40.0	19,344.645
S3	41.0	22,162.450
L4	41.0	25,238.492
R4	42.0	25,808.016
O3	45.0	28,246.473
S4	42.0	29,823.155
L5	42.0	32,816.175
O4	55.0	33,681.763
R5	43.0	35,528.846
S5	43.0	38,239.512
S6	43.0	46,373.198
SQ	42.0	63,506.232

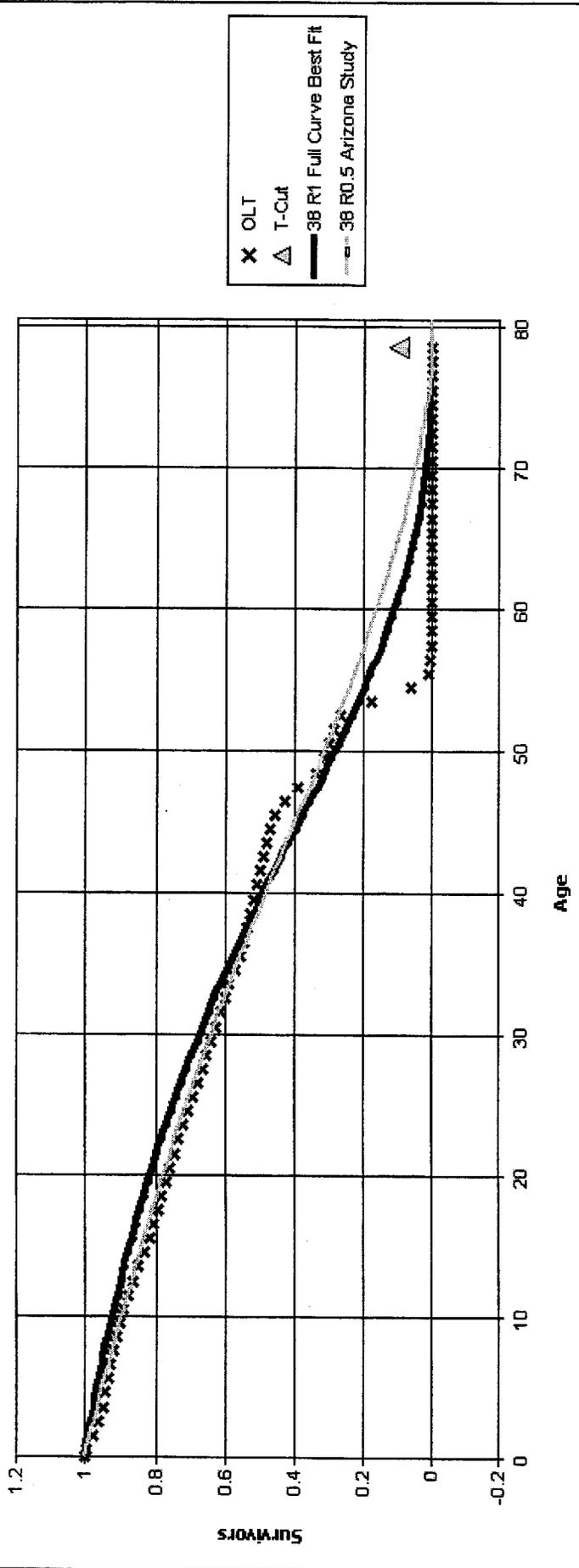
**Analytical Parameters**

OLT Placement Band: 1901 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 3  
 Maximum Life Parameter: 55  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 78.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 364 - Poles, Towers, and Fixtures**



x OLT  
 Δ T-Cut  
 — 38 R1 Full Curve Best Fit  
 - - - 38 R0.5 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1915 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 78.5

**Arizona Public Service Company**

**Distribution Plant**

**364.1 - Poles and Fixtures - Steel**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 364.1 - Poles and Fixtures - Steel - Distribution Plant

Depreciable Balance \$53,919,651

	APS	Snavelly King
Depreciable Reserve	<u>\$5,138,171</u>	<u>\$5,601,820</u>

Reserve Percent	<u>9.5%</u>	<u>10.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>          </u>	<u>50.0</u>	<u>50.0</u>
Iowa Curve	<u>          </u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)	<u>          </u>	<u>46.6</u>	<u>46.6</u>
Net Salvage (%)	<u>          </u>	<u>(5)</u>	<u>0</u>
Accrual (\$)	<u>1,445,047</u>	<u>1,105,404</u>	<u>1,036,863</u>
Rate (%)	<u>2.68%</u>	<u>2.05%</u>	<u>1.92%</u>

\*\*\*\*\*  
 Comment: According to Mr. Weidmayer study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgements which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.)  
 We accept Company proposal.

**Arizona Public Service Company**

**Distribution Plant**

**365.00 - Overhead Conductors and Devices**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 365 - Overhead Conductors & Devices - Distribution Plant

Depreciable Balance \$218,856,780

	APS	Snavelly King
Depreciable Reserve	<u>\$58,922,434</u>	<u>\$33,437,453</u>

Reserve Percent	<u>26.9%</u>	<u>15.3%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>53.0</u>	<u>53.0</u>	<u>53.0</u>
Iowa Curve	<u>R1</u>	<u>O1</u>	<u>O1</u>
Remaining Life (Yrs.)		<u>47.7</u>	<u>47.7</u>
Net Salvage (%)	<u>(10)</u>	<u>(10)</u>	<u>0</u>
Accrual (\$)	<u>3,873,765</u>	<u>3,810,605</u>	<u>3,887,198</u>
Rate (%)	<u>1.77%</u>	<u>1.74%</u>	<u>1.78%</u>

\*\*\*\*\*  
 Comment: Mr. Weidmeyer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.)  
 We accept Company proposal based on a SK analysis.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 365 - Overhead Condcutors and Devices**

Age	Cumulative Survivors
0	1.0000
0.5	0.9988
1.5	0.9878
2.5	0.9755
3.5	0.9528
4.5	0.9448
5.5	0.9339
6.5	0.9275
7.5	0.9203
8.5	0.9108
9.5	0.8999
10.5	0.8885
11.5	0.8791
12.5	0.8688
13.5	0.8604
14.5	0.8481
15.5	0.8367
16.5	0.8269
17.5	0.8158
18.5	0.8046
19.5	0.7959
20.5	0.7881
21.5	0.7785
22.5	0.7689
23.5	0.7606
24.5	0.7532
25.5	0.7469
26.5	0.7387
27.5	0.7315
28.5	0.7234
29.5	0.7172
30.5	0.7102
31.5	0.7032
32.5	0.6963
33.5	0.6877
34.5	0.6799
35.5	0.6727
36.5	0.6664
37.5	0.6603
38.5	0.6542
39.5	0.6457
40.5	0.6356
41.5	0.6254
42.5	0.6178
43.5	0.6108
44.5	0.6003

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 365 - Overhead Condcutors and Devices**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.5922
46.5	0.5821
47.5	0.5725
48.5	0.5559
49.5	0.5484
50.5	0.5442
51.5	0.5425
52.5	0.5370
53.5	0.5021
54.5	0.4487
55.5	0.2511
56.5	0.0000
57.5	0.0000
58.5	0.0000
59.5	0.0000
60.5	0.0000
61.5	0.0000
62.5	0.0000
63.5	0.0000
64.5	0.0000
65.5	0.0000
66.5	0.0000
67.5	0.0000
68.5	0.0000
69.5	0.0000
70.5	0.0000
71.5	0.0000
72.5	0.0000
73.5	0.0000
74.5	0.0000
75.5	0.0000
76.5	0.0000
77.5	0.0000
78.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 365 - Overhead Condcutors and Devices**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
O1	54.0	10,628.111
O2	61.0	10,631.922
R0.5	51.0	10,732.699
O3	83.0	10,746.764
S-0.5	52.0	10,900.979
L0	57.0	10,909.812
O4	100.0	11,282.159
R1	49.0	11,329.647
L0.5	55.0	11,418.404
S0	50.0	11,783.442
L1	53.0	12,319.641
R1.5	48.0	12,402.869
S0.5	49.0	12,837.588
L1.5	52.0	13,644.374
R2	48.0	14,065.163
S1	49.0	14,325.619
L2	51.0	15,598.356
S1.5	49.0	15,970.244
R2.5	48.0	16,104.946
S2	48.0	18,048.829
R3	48.0	18,689.101
L3	50.0	20,007.657
S3	49.0	22,367.475
R4	49.0	24,108.903
L4	50.0	25,347.675
S4	49.0	28,443.633
L5	50.0	31,316.639
R5	50.0	31,866.381
S5	51.0	34,757.474
S6	52.0	40,932.583
SQ	55.0	56,926.182

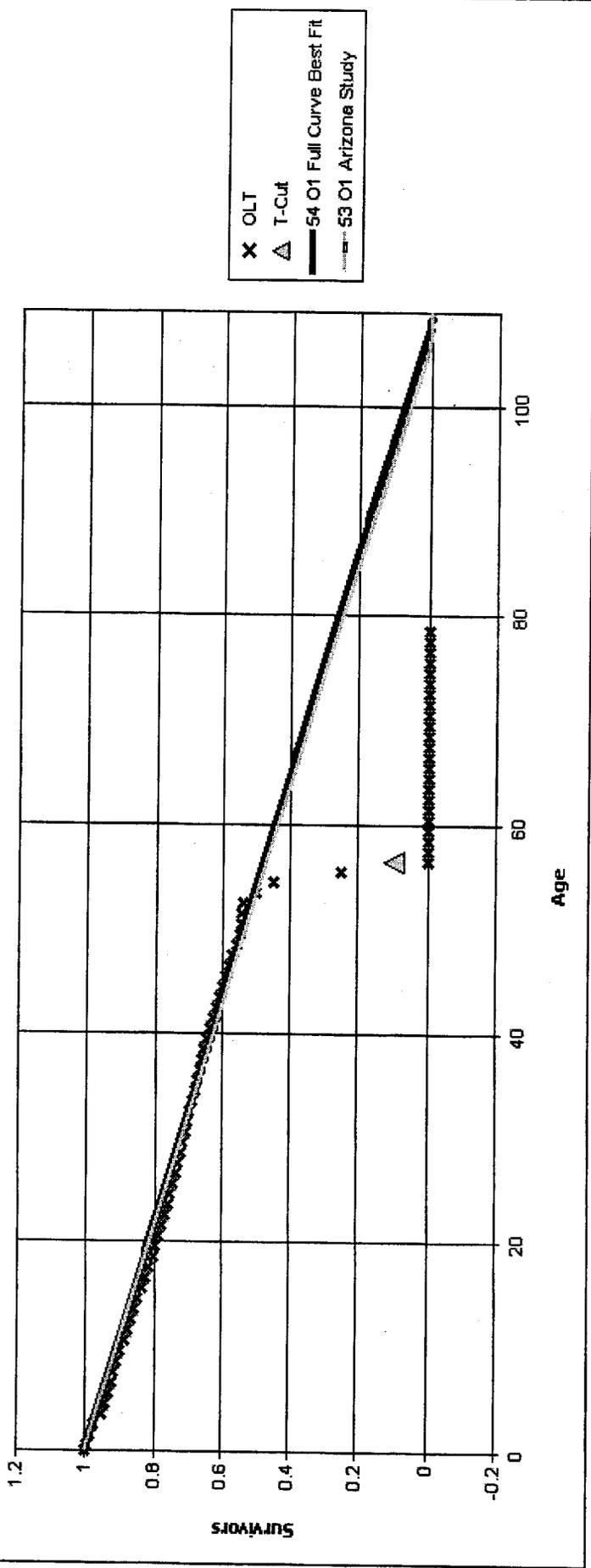
**Analytical Parameters**

OLT Placement Band: 1915 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 56.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 365 - Overhead Conductors and Devices



x OLT  
 Δ T-Cut  
 — 54 O1 Full Curve Best Fit  
 - - - 53 O1 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1915 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 56.5

**Arizona Public Service Company**

**Distribution Plant**

**366.00 - Underground Conduit**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 366 - Underground Conduit

Depreciable Balance \$425,723,116

	APS	Snavelly King
Depreciable Reserve	<u>\$51,496,065</u>	<u>\$26,924,767</u>
Reserve Percent	<u>12.1%</u>	<u>6.3%</u>

	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>60.0</u>	<u>55.0</u>	<u>86.0</u>
Iowa Curve	<u>R2</u>	<u>R1.5</u>	<u>O1</u>
Remaining Life (Yrs.)	<u>          </u>	<u>49.4</u>	<u>82.4</u>
Net Salvage (%)	<u>(10)</u>	<u>(5)</u>	<u>0</u>
Accrual (\$)	<u>7,535,299</u>	<u>8,009,076</u>	<u>4,837,438</u>
Rate (%)	<u>1.77%</u>	<u>1.88%</u>	<u>1.14%</u>

\*\*\*\*\*  
 Comment: Mr. Weidmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Wiedmayer's statistical study was deficient and incomplete because he excluded a substantial portion of the OLT. The complete statistical analysis results is a 86-O1 life and curve. Based on SK analysis and MJM 1-4 response, the 86-O1 is a reasonable selection.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 366 - Underground Conduit**

Age	Cumulative Survivors
0	1.0000
0.5	0.9989
1.5	0.9956
2.5	0.9927
3.5	0.9879
4.5	0.9863
5.5	0.9843
6.5	0.9821
7.5	0.9797
8.5	0.9761
9.5	0.9716
10.5	0.9658
11.5	0.9597
12.5	0.9492
13.5	0.9329
14.5	0.9122
15.5	0.8908
16.5	0.8836
17.5	0.8769
18.5	0.8706
19.5	0.8634
20.5	0.8551
21.5	0.8443
22.5	0.8377
23.5	0.8302
24.5	0.8236
25.5	0.8151
26.5	0.8088
27.5	0.8041
28.5	0.7997
29.5	0.7970
30.5	0.7942
31.5	0.7910
32.5	0.7889
33.5	0.7858
34.5	0.7836
35.5	0.7791
36.5	0.7774
37.5	0.7750
38.5	0.7736
39.5	0.7686
40.5	0.7678
41.5	0.7672
42.5	0.7672
43.5	0.7654
44.5	0.7642

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 366 - Underground Conduit**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.7577
46.5	0.7485
47.5	0.7284
48.5	0.7217
49.5	0.7166
50.5	0.7077
51.5	0.7017
52.5	0.6734

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 366 - Underground Conduit**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
O1	86.0	10,223.238
O2	97.0	10,223.314
R0.5	74.0	10,286.235
S-0.5	74.0	10,388.656
L0	85.0	10,418.043
R1	65.0	10,488.128
L0.5	76.0	10,749.622
S0	67.0	10,865.567
R1.5	61.0	10,874.729
L1	71.0	11,344.874
S0.5	63.0	11,379.584
R2	58.0	11,574.757
L1.5	66.0	11,977.959
S1	60.0	12,177.480
O3	100.0	12,298.004
R2.5	55.0	12,381.223
S1.5	58.0	12,933.548
L2	63.0	13,089.738
R3	54.0	13,538.034
S2	57.0	14,010.828
L3	58.0	15,101.879
R4	53.0	15,831.131
S3	55.0	15,992.994
L4	55.0	17,009.239
S4	53.0	18,476.847
R5	52.0	19,202.566
L5	54.0	19,347.617
O4	100.0	19,799.605
S5	53.0	20,656.035
S6	53.0	22,587.887
SQ	53.0	26,963.096

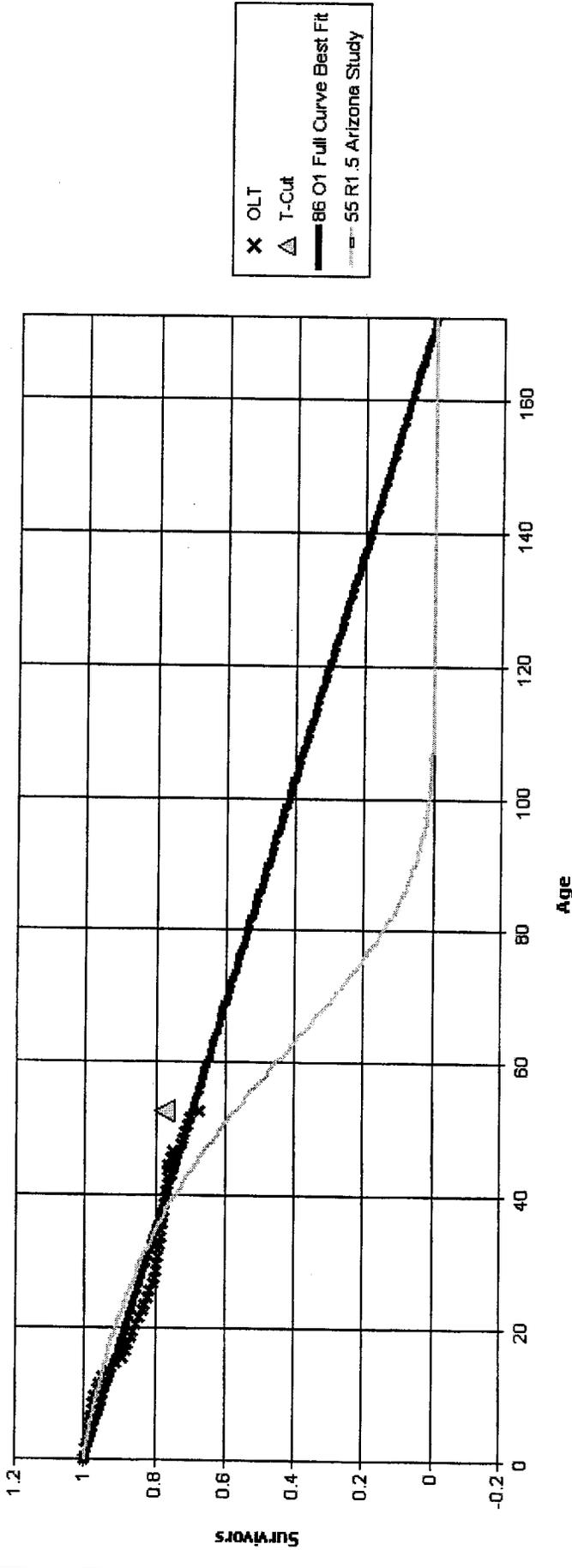
**Analytical Parameters**

OLT Placement Band: 0 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 6  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 52.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 366 - Underground Conduit**



**Analytical Parameters**

OLT Placement Band:	0 - 2001
OLT Experience Band:	1972 - 2001
Minimum Life Parameter:	6
Maximum Life Parameter:	100
Life Increment Parameter:	1
Maximum Age (T-Cut):	52.5

Arizona Public Service Company

366 - Underground Conduit

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

86 O1

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5	41,614,847	86.00	85.75	483,894	41,495,010
2001	1.5	29,420,538	86.00	85.25	342,099	29,164,772
2000	2.5	32,987,032	86.00	84.75	383,570	32,508,481
1999	3.5	34,476,600	86.00	84.25	400,891	33,776,000
1998	4.5	34,572,458	86.00	83.75	402,005	33,668,913
1997	5.5	32,635,859	86.00	83.25	379,487	31,593,188
1996	6.5	33,588,584	86.00	82.75	390,565	32,320,198
1995	7.5	25,028,025	86.00	82.25	291,024	23,937,399
1994	8.5	31,173,609	86.00	81.75	362,484	29,633,946
1993	9.5	57,372,387	86.00	81.25	667,121	54,205,217
1992	10.5	6,821,566	86.00	80.75	79,321	6,405,331
1991	11.5	12,390,708	86.00	80.25	144,078	11,562,621
1990	12.5	14,180,385	86.00	79.75	164,888	13,150,250
1989	13.5	5,049,619	86.00	79.25	58,717	4,653,432
1988	14.5	8,270,510	86.00	78.75	96,169	7,573,533
1987	15.5	3,502,542	86.00	78.25	40,727	3,187,011
1986	16.5	2,068,865	86.00	77.75	24,057	1,870,461
1985	17.5	807,659	86.00	77.25	9,391	725,509
1984	18.5	2,305,965	86.00	76.75	26,814	2,058,010
1983	19.5	1,938,483	86.00	76.25	22,541	1,718,773
1982	20.5	1,551,508	86.00	75.75	18,041	1,366,638
1981	21.5	1,645,882	86.00	75.25	19,138	1,440,198
1980	22.5	1,387,862	86.00	74.75	16,138	1,206,354
1979	23.5	806,133	86.00	74.25	9,374	696,018
1978	24.5	914,914	86.00	73.75	10,639	784,621
1977	25.5	566,902	86.00	73.25	6,592	482,874
1976	26.5	375,510	86.00	72.75	4,366	317,667
1975	27.5	721,226	86.00	72.25	8,386	605,937
1974	28.5	529,817	86.00	71.75	6,161	442,045
1973	29.5	426,546	86.00	71.25	4,960	353,402
1972	30.5	626,048	86.00	70.75	7,280	515,054
1971	31.5	802,661	86.00	70.25	9,333	655,689
1970	32.5	865,918	86.00	69.75	10,069	702,329
1969	33.5	256,328	86.00	69.25	2,981	206,412
1968	34.5	734,600	86.00	68.75	8,542	587,278

Arizona Public Service Company

366 - Underground Conduit

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

86 01

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)	
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)			
1967	35.5	811,950	86.00	68.25	9,441	644,395	
1966	36.5	111,690	86.00	67.75	1,299	87,992	
1965	37.5	129,504	86.00	67.25	1,506	101,274	
1964	38.5	422,425	86.00	66.75	4,912	327,885	
1963	39.5	121,575	86.00	66.25	1,414	93,659	
1962	40.5	45,785	86.00	65.75	532	35,006	
1961	41.5	943,757	86.00	65.25	10,974	716,082	
1960	42.5	16,994	86.00	64.75	198	12,796	
1959	43.5	-	86.00	64.25	-	-	
1958	44.5	13,047	86.00	63.75	152	9,672	
1957	45.5	17,412	86.00	63.25	202	12,807	
1956	46.5	670,881	86.00	62.75	7,801	489,534	
		425,723,116			4,950,269	408,101,671	
AVERAGE SERVICE LIFE						86.00	
AVERAGE REMAINING LIFE						82.44	

**Arizona Public Service Company**  
**Distribution Plant**  
**367.00 - Underground Conductors and Devices**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 367 - Underground Conductors and Devices

Depreciable Balance \$805,505,783

	APS	Snavelly King
Depreciable Reserve	<u>\$227,200,974</u>	<u>\$258,865,205</u>

Reserve Percent	<u>28.2%</u>	<u>32.1%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>27.0</u>	<u>29.0</u>	<u>29.0</u>
Iowa Curve	<u>R2</u>	<u>L1</u>	<u>L1</u>
Remaining Life (Yrs.)		<u>22.9</u>	<u>22.9</u>
Net Salvage (%)	<u>(10)</u>	<u>-5.0</u>	<u>0</u>
Accrual (\$)	<u>35,603,356</u>	<u>27,036,316</u>	<u>23,870,768</u>
Rate (%)	<u>4.42%</u>	<u>3.36%</u>	<u>2.96%</u>

\*\*\*\*\*  
Comment: We accept Company proposal based on SK analysis

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 367 - Underground Conductors and Devices**

Age	Cumulative Survivors
0	1.0000
0.5	0.9992
1.5	0.9949
2.5	0.9885
3.5	0.9797
4.5	0.9733
5.5	0.9655
6.5	0.9587
7.5	0.9534
8.5	0.9431
9.5	0.9333
10.5	0.9178
11.5	0.8994
12.5	0.8719
13.5	0.8508
14.5	0.8216
15.5	0.7942
16.5	0.7631
17.5	0.7349
18.5	0.6972
19.5	0.6658
20.5	0.6414
21.5	0.6120
22.5	0.5835
23.5	0.5669
24.5	0.5504
25.5	0.5329
26.5	0.5169
27.5	0.4973
28.5	0.4741
29.5	0.4646
30.5	0.4504
31.5	0.4369
32.5	0.4293
33.5	0.4086
34.5	0.3697
35.5	0.3565
36.5	0.3186
37.5	0.2433
38.5	0.2412
39.5	0.2379
40.5	0.2357
41.5	0.1981
42.5	0.1049
43.5	0.1033
44.5	0.1019

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 367 - Underground Conductors and Devices**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.1001
46.5	0.0872
47.5	0.0840
48.5	0.0063
49.5	0.0055
50.5	0.0007
51.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 367 - Underground Conductors and Devices**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
S0	29.0	18,543.204
S0.5	29.0	18,661.993
R1	29.0	18,720.641
L1	29.0	18,901.455
L1.5	29.0	18,908.846
R0.5	28.0	18,963.542
S-0.5	28.0	19,011.993
R1.5	29.0	19,207.217
S1	29.0	19,327.234
L2	30.0	19,433.151
L0.5	29.0	19,504.182
O1	27.0	20,221.567
R2	29.0	20,464.106
S1.5	30.0	20,515.441
L0	29.0	20,544.278
O2	30.0	21,415.669
S2	30.0	22,113.579
R2.5	30.0	22,295.321
L3	30.0	22,327.633
R3	30.0	24,771.635
O3	37.0	25,709.645
S3	30.0	26,314.953
O4	48.0	27,954.098
L4	30.0	28,152.779
R4	30.0	30,276.022
S4	30.0	32,831.496
L5	30.0	34,752.540
R5	30.0	37,694.340
S5	30.0	39,542.788
S6	30.0	45,560.865
SQ	28.0	57,012.140

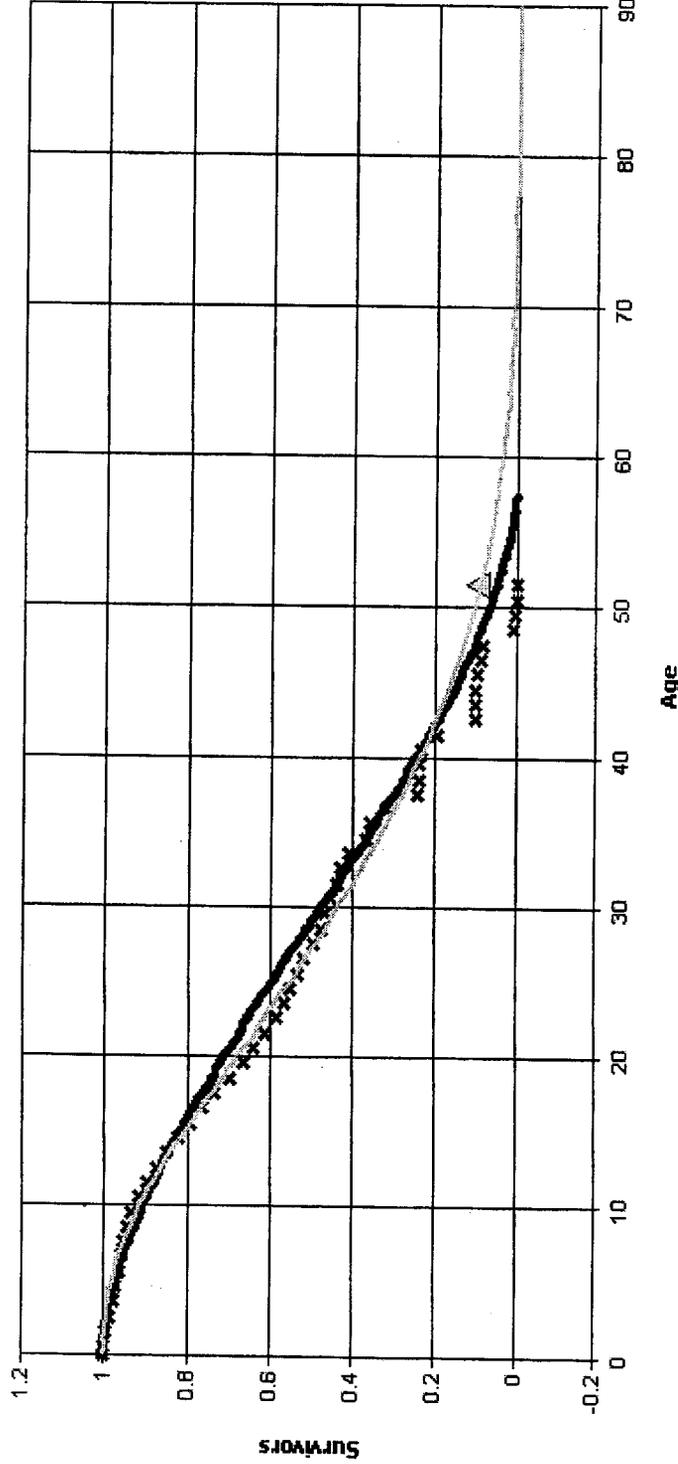
**Analytical Parameters**

OLT Placement Band: 1940 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 65  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 51.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 367 - Underground Conductors and Devices**



**x** OLT  
**△** T-Cut  
**—** 29 S0 Full Curve Best Fit  
**- - -** 29 L1 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1940 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 4  
 Maximum Life Parameter: 65  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 51.5

**Arizona Public Service Company**

**Distribution Plant**

**368.00 - Line Transformers**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 368 - Line Transformers

Depreciable Balance \$486,837,053

	APS	Snavely King
Depreciable Reserve	<u>\$188,298,226</u>	<u>\$235,537,009</u>

Reserve Percent	<u>38.7%</u>	<u>48.4%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>          </u>	<u>36.0</u>	<u>36.0</u>
Iowa Curve	<u>          </u>	<u>R3</u>	<u>R3</u>
Remaining Life (Yrs.)	<u>          </u>	<u>24.6</u>	<u>24.6</u>
Net Salvage (%)	<u>          </u>	<u>(5)</u>	<u>0</u>
Accrual (\$)	<u>16,503,776</u>	<u>13,147,552</u>	<u>10,215,449</u>
Rate (%)	<u>3.39%</u>	<u>2.70%</u>	<u>2.10%</u>

\*\*\*\*\*

Comment: Mr. Weidmayer relied on statistical analysis for his account. (6F Depreciation Study, p. 11-24.) SK analysis shows the statistics to be marginal for a complete statistical analysis. While the complete results show a 42 R2.5, the information provided in MJM 1-4 provides a reasonable analysis of this account. SK accepts the company proposed assessment. Workpapers from the response to Data Request MJM 1-1 do not agree with Depreciation Study, Attachment LLR-4. This SK analysis uses the Depreciation Study.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 368 - Line Transformers**

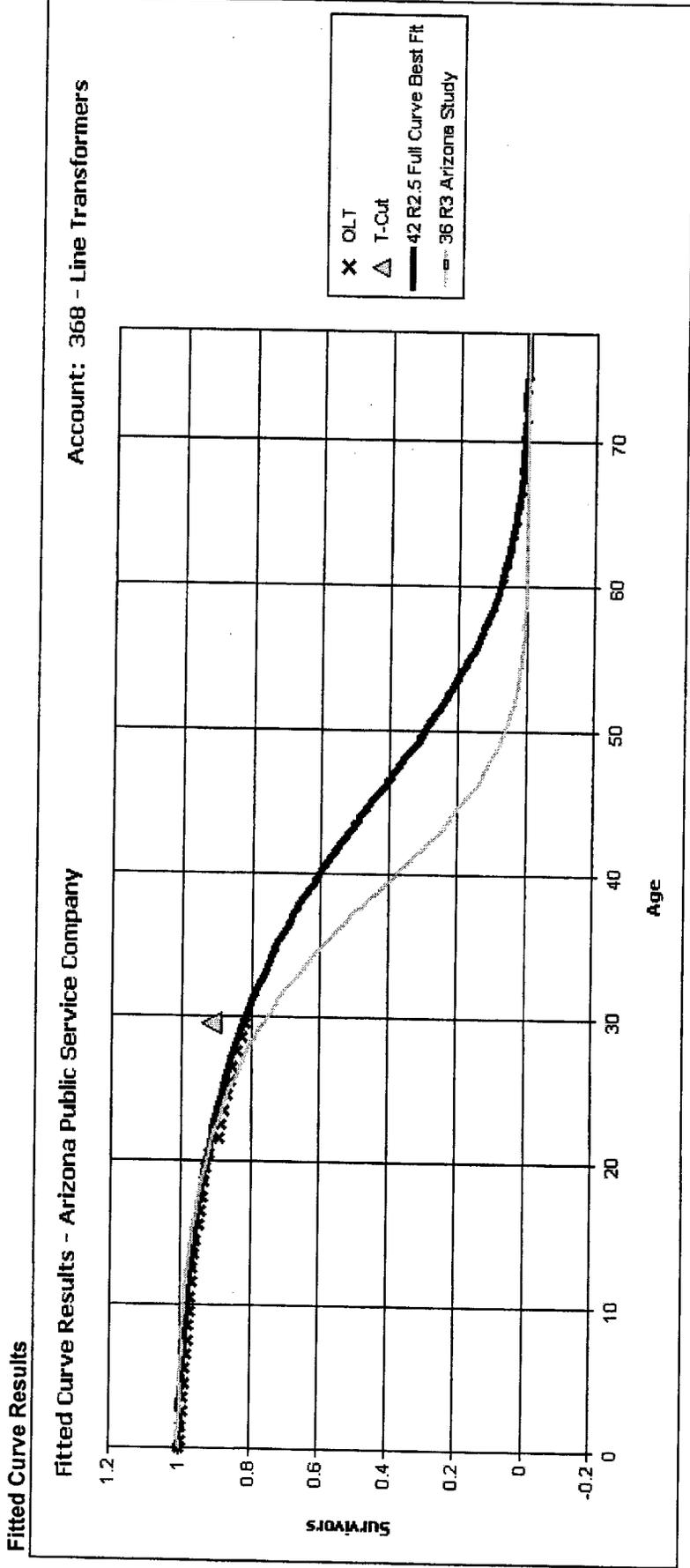
<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	0.9988
1.5	0.9957
2.5	0.9934
3.5	0.9912
4.5	0.9887
5.5	0.9866
6.5	0.9824
7.5	0.9800
8.5	0.9775
9.5	0.9752
10.5	0.9727
11.5	0.9699
12.5	0.9663
13.5	0.9619
14.5	0.9576
15.5	0.9514
16.5	0.9454
17.5	0.9393
18.5	0.9333
19.5	0.9284
20.5	0.9220
21.5	0.8945
22.5	0.8859
23.5	0.8785
24.5	0.8687
25.5	0.8607
26.5	0.8549
27.5	0.8416
28.5	0.8264
29.5	0.8148

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 368 - Line Transformers**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
R2.5	42.0	10,005.524
L1.5	53.0	10,008.609
S0.5	54.0	10,008.990
R2	47.0	10,016.162
S1	48.0	10,017.249
R3	38.0	10,035.407
S1.5	44.0	10,037.108
L2	47.0	10,042.454
R1.5	54.0	10,066.694
S2	41.0	10,100.532
L3	40.0	10,154.724
L1	54.0	10,160.041
S0	54.0	10,169.935
R4	35.0	10,192.791
S3	37.0	10,254.454
L4	35.0	10,300.567
R1	54.0	10,341.450
S4	34.0	10,527.666
R5	32.0	10,570.522
L5	33.0	10,587.419
L0.5	54.0	10,737.532
S5	32.0	10,830.510
S-0.5	54.0	10,910.143
R0.5	54.0	11,083.689
S6	31.0	11,128.134
L0	54.0	11,773.808
SQ	30.0	11,848.397
O1	54.0	12,269.979
O2	54.0	13,398.521
O3	54.0	19,432.914
O4	54.0	28,891.428

**Analytical Parameters**

OLT Placement Band: 1972 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 3  
 Maximum Life Parameter: 54  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 29.5



**Arizona Public Service Company**

**Distribution Plant**

**369.00 - Services**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 369 - Services

Depreciable Balance \$242,404,812

Depreciable Reserve	APS 86,204,425	Snavely King <u>\$91,086,515</u>
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Reserve Percent	<u>35.6%</u>	<u>37.6%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>30.0</u>	<u>37.0</u>	<u>37.0</u>
Iowa Curve	<u>R2</u>	<u>S2</u>	<u>S2</u>
Remaining Life (Yrs.)	<u></u>	<u>27.9</u>	<u>27.9</u>
Net Salvage (%)	<u>(3)</u>	<u>(10)</u>	<u>0</u>
Accrual (\$)	<u>11,150,621</u>	<u>6,463,178</u>	<u>5,423,595</u>
Rate (%)	<u>4.60%</u>	<u>2.67%</u>	<u>2.24%</u>

\*\*\*\*\*  
 Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We accept this judgment based on SK analysis and the already proposed increase in service life and because there is insufficient data to conduct a meaningful statistical analysis. Workpapers from the response to Data Request MJM 1-1 do not agree with Depreciation Study, Attachment LLR-4. This SK analysis uses the Depreciation Study.

**Arizona Public Service Company**

**Distribution Plant**

**370.00 - Meters**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 370 - Meters - Distribution Plant

Depreciable Balance \$91,330,710

	APS	Snavely King
Depreciable Reserve	<u>\$36,185,262</u>	<u>\$34,836,184</u>
Reserve Percent	<u>39.6%</u>	<u>38.1%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>26.0</u>	<u>23.0</u>	<u>29.0</u>
Iowa Curve	<u>R1.5</u>	<u>R1</u>	<u>L0</u>
Remaining Life (Yrs.)		<u>13.5</u>	<u>21.8</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>4,146,414</u>	<u>4,086,660</u>	<u>2,596,256</u>
Rate (%)	<u>4.54%</u>	<u>4.47%</u>	<u>2.84%</u>

\*\*\*\*\*  
 Comment: Mr. Weidmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Wiedmayer's statistical study was deficient and incomplete because he excluded a substantial portion of the OLT. The complete statistical analysis results is a 29-L0 life and curve.  
 Workpapers from the response to Data Request MJM 1-1 do not agree with Depreciation Study, Attachment LLR-4. This SK analysis uses the Depreciation Study.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 370 - Meters**

Age	Cumulative Survivors
0	1.0000
0.5	0.9983
1.5	0.9948
2.5	0.9894
3.5	0.9818
4.5	0.9690
5.5	0.9482
6.5	0.9254
7.5	0.8998
8.5	0.8613
9.5	0.8298
10.5	0.7979
11.5	0.7688
12.5	0.7406
13.5	0.7150
14.5	0.6912
15.5	0.6683
16.5	0.6470
17.5	0.6288
18.5	0.6130
19.5	0.5957
20.5	0.5803
21.5	0.5659
22.5	0.5532
23.5	0.5413
24.5	0.5320
25.5	0.5245
26.5	0.5175
27.5	0.5110
28.5	0.5064
29.5	0.5029

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 370 - Meters**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
L0	29.0	10,263.494
O2	31.0	10,386.567
O1	27.5	10,387.200
S-0.5	26.5	10,401.967
O3	42.0	10,418.689
L0.5	28.0	10,434.023
O4	56.5	10,460.736
R0.5	26.0	10,481.404
S0	25.5	10,731.035
L1	27.0	10,787.123
R1	25.0	10,850.421
S0.5	25.0	11,326.196
R1.5	24.5	11,535.462
L1.5	26.5	11,564.322
S1	25.0	12,144.650
R2	24.5	12,515.099
L2	26.0	12,648.617
S1.5	25.0	13,206.547
R2.5	24.5	13,875.029
S2	25.0	14,501.167
R3	25.0	15,508.951
L3	25.5	15,565.657
S3	25.0	17,448.855
R4	25.5	19,137.240
L4	25.5	19,433.619
S4	25.5	21,708.220
L5	26.0	23,665.703
R5	26.0	24,374.099
S5	26.5	26,140.036
S6	27.0	30,333.731
SQ	29.5	40,270.675

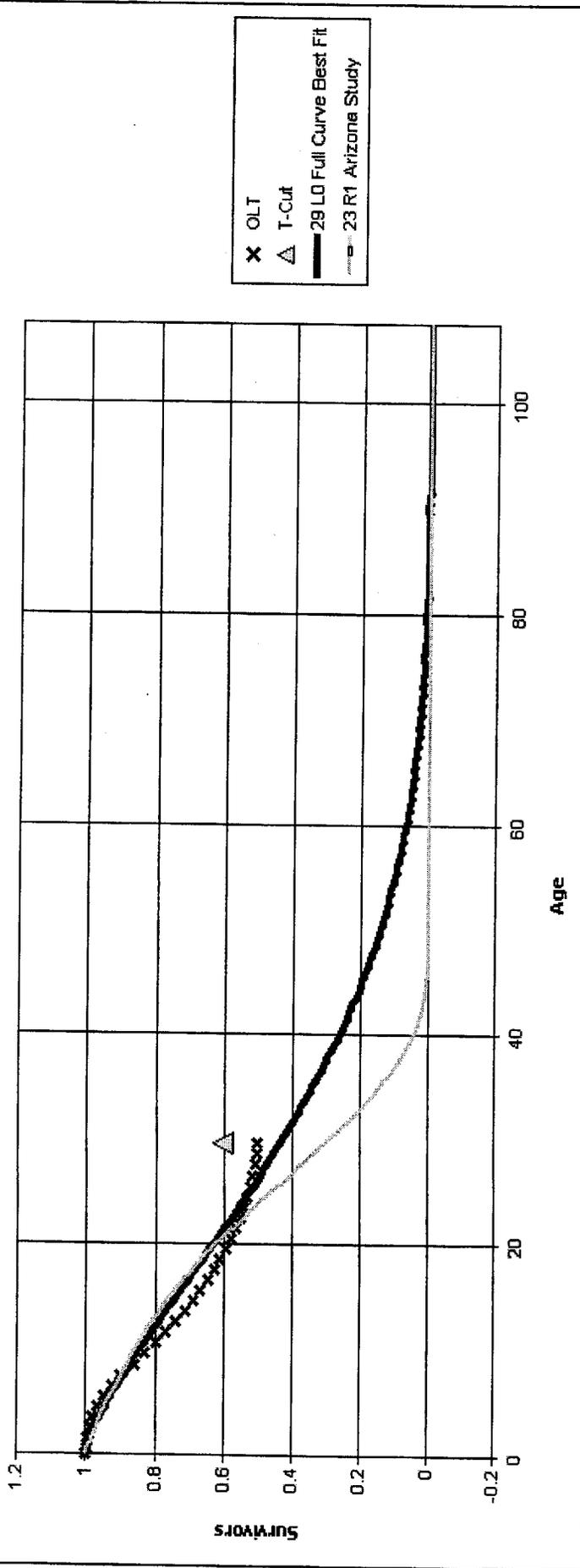
**Analytical Parameters**

OLT Placement Band: 1972 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 3.5  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 29.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 370 - Meters



**Analytical Parameters**

OLT Placement Band:	1972 - 2001
OLT Experience Band:	1972 - 2001
Minimum Life Parameter:	3.5
Maximum Life Parameter:	60
Life Increment Parameter:	0.5
Maximum Age (T-Cut):	29.5

Arizona Public Service Company

370 - Meters

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

29 L0

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5	-	29.00	28.56	-	-
2001	1.5	-	29.00	27.82	-	-
2000	2.5	-	29.00	27.15	-	-
1999	3.5	-	29.00	26.54	-	-
1998	4.5	-	29.00	25.97	-	-
1997	5.5	-	29.00	25.44	-	-
1996	6.5	-	29.00	24.93	-	-
1995	7.5	6,598,188	29.00	24.44	227,524	5,561,502
1994	8.5	11,709,742	29.00	23.98	403,784	9,682,902
1993	9.5	6,361,178	29.00	23.54	219,351	5,162,520
1992	10.5	14,352,966	29.00	23.11	494,930	11,436,149
1991	11.5	4,278,397	29.00	22.69	147,531	3,347,755
1990	12.5	5,499,803	29.00	22.29	189,648	4,227,129
1989	13.5	7,840,313	29.00	21.90	270,356	5,920,008
1988	14.5	5,562,400	29.00	21.51	191,807	4,126,404
1987	15.5	5,259,712	29.00	21.14	181,369	3,833,510
1986	16.5	1,770,643	29.00	20.77	61,057	1,267,920
1985	17.5	3,410,636	29.00	20.40	117,608	2,399,509
1984	18.5	3,016,539	29.00	20.05	104,019	2,085,077
1983	19.5	1,329,451	29.00	19.69	45,843	902,839
1982	20.5	1,201,945	29.00	19.35	41,446	801,948
1981	21.5	1,730,571	29.00	19.01	59,675	1,134,416
1980	22.5	1,941,619	29.00	18.68	66,952	1,250,444
1979	23.5	1,492,217	29.00	18.35	51,456	944,167
1978	24.5	959,923	29.00	18.03	33,101	596,707
1977	25.5	1,197,492	29.00	17.71	41,293	731,315
1976	26.5	423,807	29.00	17.40	14,614	254,271
1975	27.5	335,523	29.00	17.09	11,570	197,762
1974	28.5	898,193	29.00	16.79	30,972	520,084
1973	29.5	847,786	29.00	16.50	29,234	482,241
1972	30.5	718,911	29.00	16.20	24,790	401,715
1971	31.5	322,391	29.00	15.92	11,117	176,961
1970	32.5	290,108	29.00	15.64	10,004	156,422
1969	33.5	242,895	29.00	15.36	8,376	128,642
1968	34.5	158,278	29.00	15.09	5,458	82,338
1967	35.5	103,616	29.00	14.82	3,573	52,942

Arizona Public Service Company

370 - Meters

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

29 L0

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
1966	36.5	135,542	29.00	14.55	4,674	68,019
1965	37.5	84,083	29.00	14.29	2,899	41,440
1964	38.5	156,046	29.00	14.04	5,381	75,526
1963	39.5	133,558	29.00	13.78	4,605	63,479
1962	40.5	144,843	29.00	13.53	4,995	67,600
1961	41.5	134,644	29.00	13.29	4,643	61,703
1960	42.5	113,182	29.00	13.05	3,903	50,925
1959	43.5	100,131	29.00	12.81	3,453	44,233
1958	44.5	70,591	29.00	12.58	2,434	30,612
1957	45.5	57,180	29.00	12.35	1,972	24,341
1956	46.5	40,316	29.00	12.12	1,390	16,845
1955	47.5	43,566	29.00	11.89	1,502	17,866
1954	48.5	40,421	29.00	11.67	1,394	16,268
1953	49.5	33,308	29.00	11.45	1,149	13,154
1952	50.5	25,024	29.00	11.24	863	9,697
1951	51.5	107,821	29.00	11.02	3,718	40,990
1950	52.5	14,865	29.00	10.82	513	5,544
1949	53.5	8,078	29.00	10.61	279	2,955
1948	54.5	2,228	29.00	10.40	77	799
1947	55.5	5,064	29.00	10.20	175	1,782
1946	56.5	5,980	29.00	10.00	206	2,063
1945	57.5	4,531	29.00	9.81	156	1,532
1944	58.5	2,596	29.00	9.61	90	860
1943	59.5	1,982	29.00	9.42	68	644
1942	60.5	1,464	29.00	9.23	50	466
1941	61.5	3,060	29.00	9.04	106	954
1940	62.5	788	29.00	8.86	27	241
1939	63.5	281	29.00	8.67	10	84
1938	64.5	628	29.00	8.49	22	184
1937	65.5	342	29.00	8.31	12	98
1936	66.5		29.00	8.14	-	-
1935	67.5		29.00	7.96	-	-
1934	68.5		29.00	7.79	-	-
1933	69.5	321	29.00	7.61	11	84
1932	70.5		29.00	7.44	-	-
1931	71.5	491	29.00	7.27	17	123

Arizona Public Service Company

370 - Meters

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

29 L0

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
1930	72.5	356	29.00	7.11	12	87
1929	73.5	2,120	29.00	6.94	73	507
1928	74.5	-	29.00	6.77	-	-
1927	75.5	-	29.00	6.61	-	-
1926	76.5	-	29.00	6.44	-	-
1925	77.5	-	29.00	6.28	-	-
1924	78.5	-	29.00	6.12	-	-
1923	79.5	-	29.00	5.96	-	-
1922	80.5	36	29.00	5.80	1	7
		91,330,710			3,149,335	68,527,310
AVERAGE SERVICE LIFE						29.00
AVERAGE REMAINING LIFE						21.76

**Arizona Public Service Company**

**Distribution Plant**

**371.00 - Electronic Meters**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 370.1 - Electronic Meters

Depreciable Balance \$54,691,249

	APS	Snavelly King
Depreciable Reserve	<u>\$11,298,055</u>	<u>\$8,612,961</u>
Reserve Percent	<u>15.7%</u>	<u>20.7%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>26</u>	<u>12</u>	<u>26</u>
Iowa Curve	<u>R1.5</u>	<u>S2</u>	<u>R1.5</u>
Remaining Life (Yrs.)		<u>8.7</u>	<u>23.3</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>2,482,983</u>	<u>4,987,610</u>	<u>1,975,913</u>
Rate (%)	<u>4.54%</u>	<u>9.12%</u>	<u>3.61%</u>

\*\*\*\*\*

Comment: According to Mr. Wiedmayer's study, p. 11-29, this is one of the accounts where the survivor curve estimates was based on judgments which considered the nature of the plant and equipment, reviews of available historical retirement data and general knowledge of service lives for similar equipment and other electric companies. (6F Depreciation Study, p.11-29.) We do not accept Company judgment because no data was provided and the life is not supported. SK analysis recommends keeping the existing rates.

Arizona Public Service Company

370.1 - Electronic Meters

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

26 R1.5

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	8,127,704	26.00	25.59	312,604	7,999,016
2001	1.5	7,821,267	26.00	24.77	300,818	7,451,860
2000	2.5	8,309,433	26.00	23.96	319,594	7,658,889
1999	3.5	6,758,092	26.00	23.17	259,927	6,021,425
1998	4.5	16,140,488	26.00	22.38	620,788	13,890,899
1997	5.5	2,336	26.00	21.60	90	1,940
1996	6.5	7,531,929	26.00	20.82	289,690	6,032,539
		54,691,249			2,103,510	49,056,568
AVERAGE SERVICE LIFE						26.00
AVERAGE REMAINING LIFE						23.32

**Arizona Public Service Company**

**Distribution Plant**

**371 - Installations On Customer Premises**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 371 - Installations On Customer Premises

Depreciable Balance \$25,335,831

	APS	Snavelly King
Depreciable Reserve	<u>8,708,344</u>	<u>\$3,863,126</u>
Reserve Percent	<u>34.4%</u>	<u>15.2%</u>

	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>30.0</u>	<u>30.0</u>	<u>50.0</u>
Iowa Curve	<u>R0.5</u>	<u>R1</u>	<u>O2</u>
Remaining Life (Yrs.)		<u>22.9</u>	<u>45.0</u>
Net Salvage (%)	<u>(30)</u>	<u>(20)</u>	<u>0.0</u>
Accrual (\$)	<u>884,221</u>	<u>945,981</u>	<u>477,065</u>
Rate (%)	<u>3.49%</u>	<u>3.73%</u>	<u>1.88%</u>

\*\*\*\*\*  
 Comment: Mr. Wiedmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Wiedmayer's statistical study was deficient and incomplete because he excluded a substantial portion of the OLT. The complete statistical analysis results is a 50-O2 life and curve.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 371 - Installations on Customers Premises**

Age	Cumulative Survivors
<b>BAND</b>	
0	1.0000
0.5	0.9987
1.5	0.9909
2.5	0.9809
3.5	0.9653
4.5	0.9456
5.5	0.9290
6.5	0.9168
7.5	0.9027
8.5	0.8860
9.5	0.8706
10.5	0.8534
11.5	0.8386
12.5	0.8243
13.5	0.8121
14.5	0.7977
15.5	0.7844
16.5	0.7744
17.5	0.7626
18.5	0.7519
19.5	0.7410
20.5	0.7314
21.5	0.7215
22.5	0.7134
23.5	0.7029
24.5	0.6938
25.5	0.6873
26.5	0.6758
27.5	0.6703
28.5	0.6661
29.5	0.6626
30.5	0.6583
31.5	0.6550
32.5	0.6489
33.5	0.6455
34.5	0.6418
35.5	0.6391
36.5	0.6376
37.5	0.5277
38.5	0.5277

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 371 - Installations on Customers Premises**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
O2	50.0	10,233.310
O1	44.0	10,233.979
R0.5	40.0	10,452.766
L0	46.0	10,544.322
S-0.5	41.0	10,582.651
O3	60.0	10,617.992
R1	38.0	10,942.165
L0.5	43.0	11,018.962
S0	39.0	11,298.869
R1.5	37.0	11,697.328
L1	41.0	11,736.432
S0.5	38.0	12,069.160
L1.5	40.0	12,716.355
R2	36.0	12,789.698
S1	37.0	13,116.758
R2.5	36.0	14,079.064
L2	39.0	14,116.240
S1.5	37.0	14,218.683
O4	60.0	14,872.085
S2	36.0	15,586.724
R3	36.0	15,721.367
L3	38.0	17,036.000
S3	36.0	18,308.156
R4	36.0	18,915.864
L4	37.0	20,117.644
S4	36.0	21,882.338
R5	36.0	23,435.459
L5	37.0	23,446.134
S5	37.0	25,243.123
S6	37.0	28,131.044
SQ	39.0	35,412.735

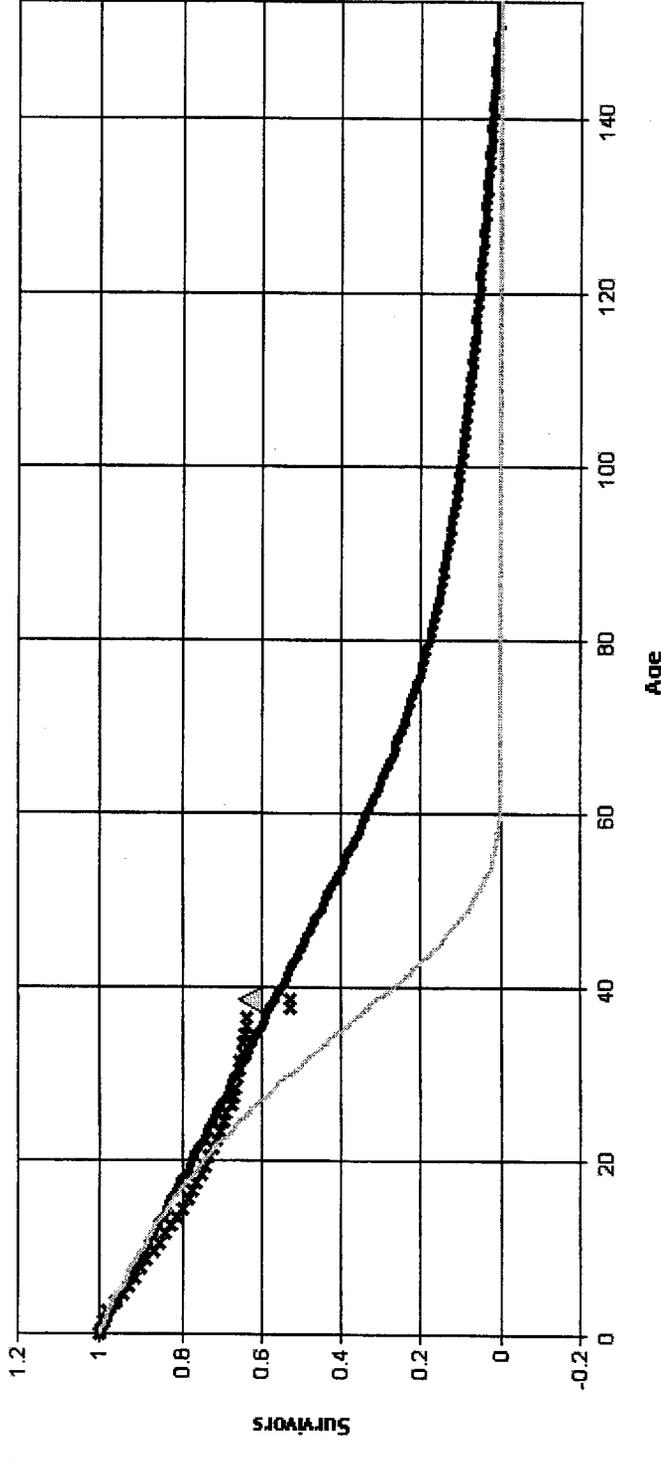
**Analytical Parameters**

OLT Placement Band: 1951 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 5  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 38.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 371 - Installations on Customers Premises**



x OLT  
 Δ T-Cut  
 — 50 O2 Full Curve Best Fit  
 - - - 30 R1 Arizona Study

**Analytical Parameters**

OLT Placement Band:	1951 - 2001
OLT Experience Band:	1972 - 2001
Minimum Life Parameter:	5
Maximum Life Parameter:	60
Life Increment Parameter:	1
Maximum Age (T-Cut):	38.5

**Arizona Public Service Company**

**371 - Installations on Customers Premises**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**SURVIVOR CURVE..IOWA**

**50 O2**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BGVG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	2,099,294	50.00	49.60	41,986	2,082,665
2001	1.5	1,464,506	50.00	49.16	29,290	1,440,039
2000	2.5	1,953,834	50.00	48.73	39,077	1,904,092
1999	3.5	1,031,626	50.00	48.29	20,633	996,367
1998	4.5	1,367,898	50.00	47.86	27,358	1,309,264
1997	5.5	1,807,630	50.00	47.42	36,153	1,714,507
1996	6.5	1,498,224	50.00	46.99	29,964	1,408,128
1995	7.5	1,312,957	50.00	46.56	26,259	1,222,733
1994	8.5	1,218,109	50.00	46.14	24,362	1,123,991
1993	9.5	1,561,175	50.00	45.71	31,224	1,427,265
1992	10.5	654,712	50.00	45.29	13,094	593,007
1991	11.5	1,053,735	50.00	44.87	21,075	945,539
1990	12.5	556,993	50.00	44.45	11,140	495,128
1989	13.5	834,611	50.00	44.03	16,692	734,943
1988	14.5	685,069	50.00	43.61	13,701	597,570
1987	15.5	330,275	50.00	43.20	6,606	285,364
1986	16.5	115,021	50.00	42.79	2,300	98,436
1985	17.5	581,552	50.00	42.38	11,631	492,953
1984	18.5	216,684	50.00	41.98	4,334	181,916
1983	19.5	193,604	50.00	41.57	3,872	160,980
1982	20.5	110,356	50.00	41.17	2,207	90,878
1981	21.5	532,894	50.00	40.78	10,658	434,606
1980	22.5	185,191	50.00	40.38	3,704	149,576
1979	23.5	91,606	50.00	39.99	1,832	73,273
1978	24.5	207,508	50.00	39.61	4,150	164,374
1977	25.5	77,533	50.00	39.22	1,551	60,822
1976	26.5	166,582	50.00	38.84	3,332	129,412
1975	27.5	297,419	50.00	38.47	5,948	228,820
1974	28.5	170,482	50.00	38.10	3,410	129,893
1973	29.5	211,604	50.00	37.73	4,232	159,670
1972	30.5	305,578	50.00	37.37	6,112	228,361
1971	31.5	278,615	50.00	37.01	5,572	206,216
1970	32.5	82,619	50.00	36.65	1,652	60,567
1969	33.5	341,280	50.00	36.31	6,826	247,812
1968	34.5	190,043	50.00	35.96	3,801	136,693

**Arizona Public Service Company**

**371 - Installations on Customers Premises**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**SURVIVOR CURVE..IOWA**

**50 O2**

<u>Year</u>	<u>Age</u>	<u>Surviving Investment</u>	<u>BG/VG Average</u>		<u>ASL Weights</u>	<u>RL Weights</u>
			<u>Service Life</u>	<u>Remaining Life</u>		
1967	35.5	331,929	50.00	35.63	6,639	236,514
1966	36.5	213,427	50.00	35.30	4,269	150,666
1965	37.5	1,003,656	50.00	34.97	20,073	702,012
		25,335,831			506,717	22,805,050
AVERAGE SERVICE LIFE						50.00
AVERAGE REMAINING LIFE						45.01

**Arizona Public Service Company**

**Distribution Plant**

**373.00 - Street Lightning and Signal Systems**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

Distribution Plant

Account 373.00 - Street Lightning and Signal Systems

Depreciable Balance \$57,185,737

	APS	Snavelly King
Depreciable Reserve	<u>19,618,266</u>	<u>\$22,716,125</u>

Reserve Percent	<u>34.3%</u>	<u>39.7%</u>
-----------------	--------------	--------------

	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>32.0</u>	<u>35.0</u>	<u>35.0</u>
Iowa Curve	<u>R1.5</u>	<u>R2</u>	<u>R2</u>
Remaining Life (Yrs.)		<u>25.9</u>	<u>25.9</u>
Net Salvage (%)	<u>(20)</u>	<u>(20)</u>	<u>0</u>
Accrual (\$)	<u>2,241,681</u>	<u>1,890,534</u>	<u>1,330,873</u>
Rate (%)	<u>3.92%</u>	<u>3.31%</u>	<u>2.33%</u>

\*\*\*\*\*  
 Comment: Mr. Wiedmayer relied on statistical analysis for his account. (6F Depreciation Study, p. 11-24.  
 While SK analytical analysis show a much long life for this account we believe the  
 results show marginal data for a complete statistical analysis.  
 We accept the Company results based on the analysis and responses to MJM 1-4.

)

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 373 - Street Lighting and Signal Systems**

<b>Age</b>	<b>Cumulative Survivors</b>
0	1.0000
0.5	0.9995
1.5	0.9958
2.5	0.9893
3.5	0.9825
4.5	0.9789
5.5	0.9723
6.5	0.9679
7.5	0.9577
8.5	0.9525
9.5	0.9443
10.5	0.9386
11.5	0.9301
12.5	0.9232
13.5	0.9148
14.5	0.9067
15.5	0.8960
16.5	0.8887
17.5	0.8746
18.5	0.8680
19.5	0.8630
20.5	0.8539
21.5	0.8420
22.5	0.8310
23.5	0.8199
24.5	0.8176
25.5	0.8169
26.5	0.8166
27.5	0.8090
28.5	0.8024
29.5	0.7990

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 373 - Street Lighting and Signal Systems**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
S-0.5	59.0	10,013.713
R1	51.0	10,017.285
R0.5	60.0	10,030.901
R1.5	44.0	10,031.251
L0.5	58.0	10,038.349
S0	50.0	10,052.712
R2	39.0	10,109.533
L0	60.0	10,111.941
S0.5	45.0	10,121.355
L1	51.0	10,131.446
L1.5	46.0	10,226.111
R2.5	37.0	10,232.884
S1	41.0	10,270.081
O1	60.0	10,298.274
S1.5	39.0	10,412.049
L2	42.0	10,452.020
R3	35.0	10,468.633
S2	37.0	10,655.841
O2	60.0	10,711.939
L3	37.0	10,885.066
R4	32.0	11,005.306
S3	34.0	11,124.442
L4	34.0	11,333.419
S4	32.0	11,796.688
R5	31.0	11,931.733
L5	32.0	11,970.842
S5	31.0	12,429.720
S6	31.0	12,959.205
O3	60.0	13,921.292
SQ	30.0	13,987.335
O4	60.0	20,221.502

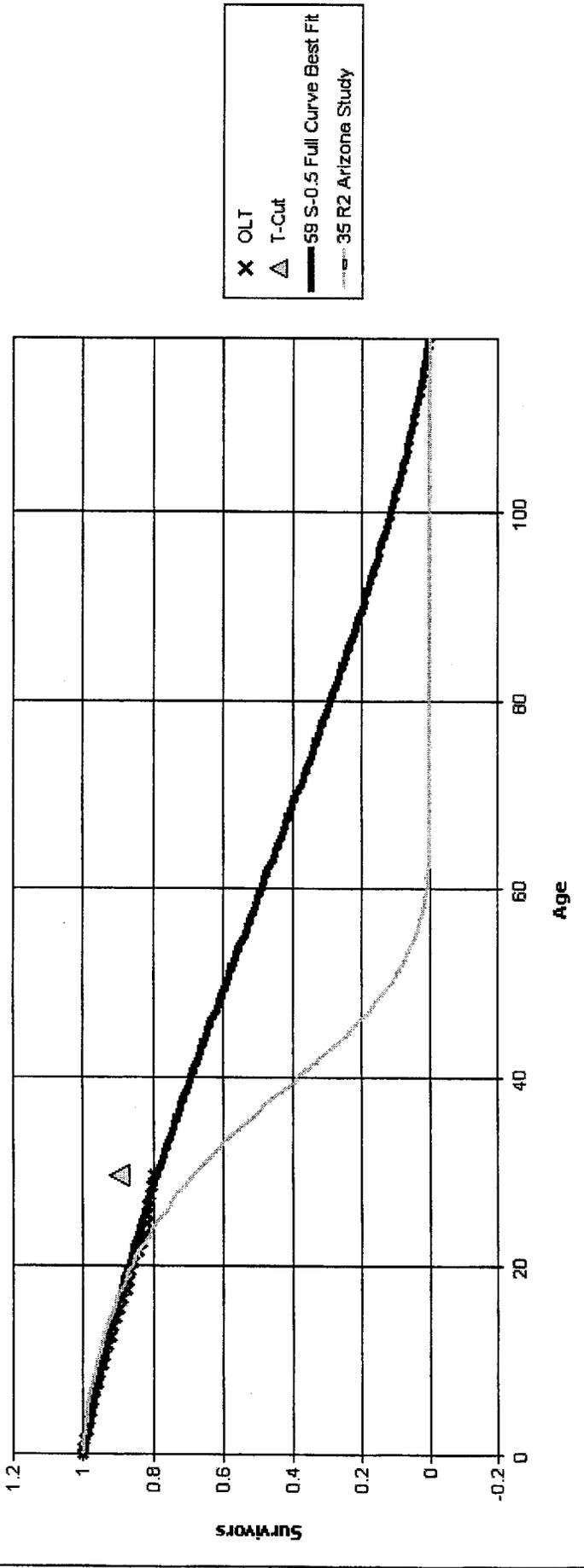
**Analytical Parameters**

OLT Placement Band: 1972 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 29.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 373 - Street Lighting and Signal Systems**



X OLT  
 Δ T-Cut  
 — 58 S-0.5 Full Curve Best Fit  
 - - - 35 R2 Arizona Study

**Analytical Parameters**

OLT Placement Band:	1951 - 2001
OLT Experience Band:	1972 - 2001
Minimum Life Parameter:	5
Maximum Life Parameter:	60
Life Increment Parameter:	1
Maximum Age (T-Cut):	38.5

**Arizona Public Service Company**

**Section G**

**General Plant**

**Arizona Public Service Company**

**General Plant**

**390.0 - Structures & Improvements**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 390 - Structures & Improvements

Depreciable Balance \$96,667,435

	APS	Snavelly King
Depreciable Reserve	<u>\$30,654,079</u>	<u>\$24,085,116</u>

Reserve Percent	<u>31.7%</u>	<u>24.9%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>30.0</u>	<u>39.0</u>	<u>39.0</u>
Iowa Curve	<u>R1</u>	<u>R1</u>	<u>R1</u>
Remaining Life (Yrs.)		<u>30.7</u>	<u>30.7</u>
Net Salvage (%)	<u>(5)</u>	<u>(15)</u>	<u>0</u>
Accrual (\$)	<u>3,383,360</u>	<u>2,624,392</u>	<u>2,364,245</u>
Rate (%)	<u>3.50%</u>	<u>2.71%</u>	<u>2.45%</u>

\*\*\*\*\*  
 Comment: Mr. Wiedmayer relied on statistical analysis for his account. External information has no impact on statistical results. (6F Depreciation Study, p. 11-24.) However, Mr. Wiedmayer's statistical study excludes portions of the curve and does not show the best fit to the curve. The complete statistical analysis results is a 51-L0 life and curve.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 390 - Structures and Improvements**

Age	Cumulative Survivors
0	1.0000
0.5	0.9995
1.5	0.9926
2.5	0.9849
3.5	0.9804
4.5	0.9762
5.5	0.9710
6.5	0.9676
7.5	0.9479
8.5	0.9324
9.5	0.9251
10.5	0.9178
11.5	0.9107
12.5	0.9059
13.5	0.9045
14.5	0.8995
15.5	0.8961
16.5	0.8666
17.5	0.8360
18.5	0.7785
19.5	0.7755
20.5	0.7734
21.5	0.7639
22.5	0.7560
23.5	0.7427
24.5	0.7342
25.5	0.7236
26.5	0.7027
27.5	0.7000
28.5	0.6909
29.5	0.6870
30.5	0.6776
31.5	0.6722
32.5	0.6461
33.5	0.6348
34.5	0.6219
35.5	0.6218
36.5	0.6184
37.5	0.6184
38.5	0.6122

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 390 - Structures and Improvements**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
L0	51.0	10,113.777
S-0.5	45.0	10,147.317
L0.5	47.0	10,178.712
R0.5	44.0	10,204.555
R1	40.5	10,230.322
S0	42.0	10,263.055
O2	56.0	10,281.058
O1	50.0	10,281.531
L1	44.0	10,417.247
R1.5	38.5	10,462.459
S0.5	40.0	10,567.096
L1.5	42.0	10,896.632
R2	37.5	10,972.208
S1	39.0	11,095.418
L2	40.5	11,714.816
R2.5	36.5	11,717.429
S1.5	38.0	11,744.912
O3	60.0	11,959.460
S2	37.5	12,644.747
R3	36.0	12,780.852
L3	38.5	13,726.930
S3	36.5	14,672.610
R4	36.0	15,179.818
L4	37.5	16,156.469
S4	36.5	17,646.648
O4	60.0	18,312.635
R5	36.5	19,044.568
L5	37.0	19,066.660
S5	37.0	20,700.994
S6	37.5	23,587.540
SQ	38.5	30,127.931

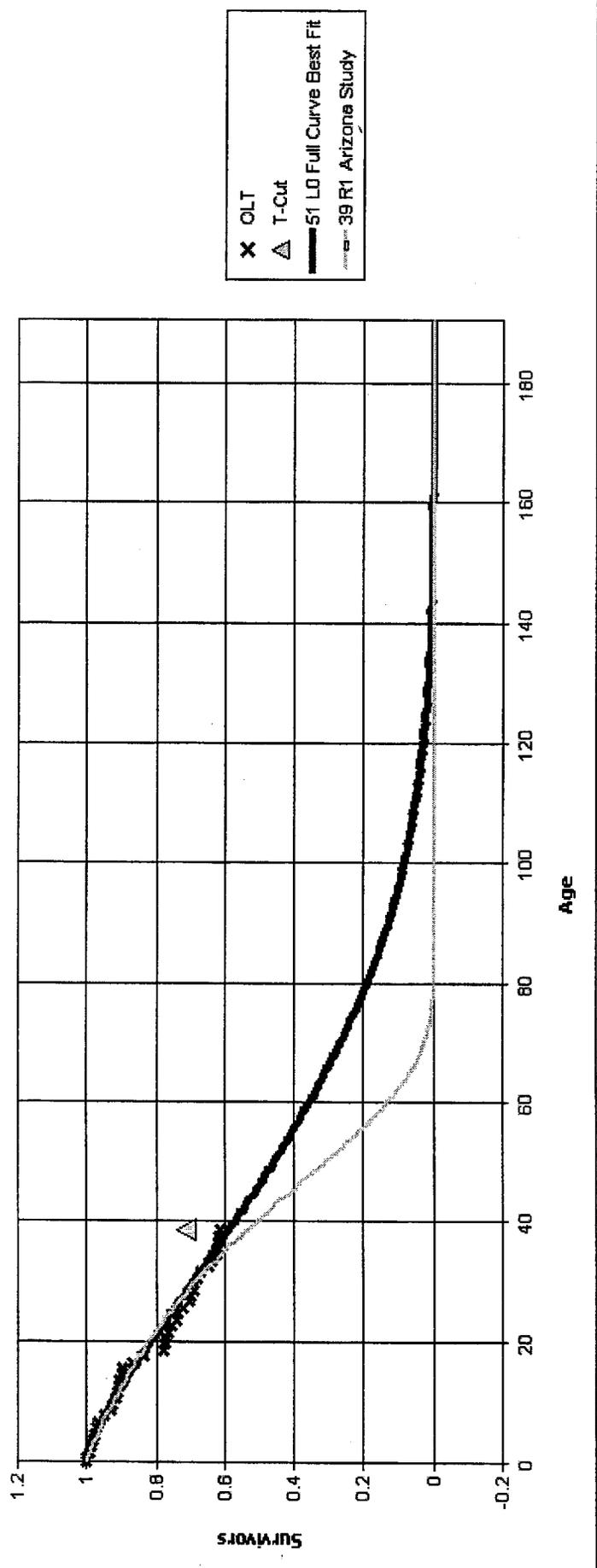
**Analytical Parameters**

OLT Placement Band: 1914 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 1.5  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 38.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 390 - Structures and Improvements**



**Analytical Parameters**

- OLT Placement Band: 1914 - 2001
- OLT Experience Band: 1972 - 2001
- Minimum Life Parameter: 1.5
- Maximum Life Parameter: 60
- Life Increment Parameter: 0.5
- Maximum Age (T-Cut): 38.5

12/8/2003

Snavey King Majeros O'Connor & Lee, Inc.

Arizona Public Service Company

390 - Structures and Improvements

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

51 L0

Year	Age	Surviving Investment	BGVG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life	Remaining Life		
(1)	(2)	(3)	(4)	(5)		
2001	0.5	1,654,528	51.00	50.54	32,442	1,639,682
2000	1.5	6,846,351	51.00	49.75	134,242	6,678,379
1999	2.5	2,154,561	51.00	49.02	42,246	2,070,886
1998	3.5	4,350,774	51.00	48.34	85,309	4,123,451
1997	4.5	4,219,011	51.00	47.69	82,726	3,944,948
1996	5.5	3,684,155	51.00	47.07	72,238	3,400,156
1995	6.5	6,585,038	51.00	46.48	129,118	6,000,855
1994	7.5	2,096,429	51.00	45.90	41,106	1,886,992
1993	8.5	1,795,415	51.00	45.35	35,204	1,596,659
1992	9.5	2,070,926	51.00	44.82	40,606	1,820,032
1991	10.5	1,989,393	51.00	44.30	39,008	1,728,220
1990	11.5	2,301,445	51.00	43.80	45,126	1,976,658
1989	12.5	2,472,304	51.00	43.31	48,477	2,099,736
1988	13.5	10,489,412	51.00	42.84	205,675	8,810,850
1987	14.5	4,668,728	51.00	42.37	91,544	3,879,133
1986	15.5	9,609,712	51.00	41.92	188,426	7,899,068
1985	16.5	7,625,834	51.00	41.48	149,526	6,202,060
1984	17.5	1,484,973	51.00	41.04	29,117	1,195,085
1983	18.5	982,963	51.00	40.62	19,274	782,877
1982	19.5	3,501,594	51.00	40.20	68,659	2,760,175
1981	20.5	1,123,834	51.00	39.79	22,036	876,842
1980	21.5	3,417,561	51.00	39.39	67,011	2,639,440
1979	22.5	730,602	51.00	38.99	14,326	558,569
1978	23.5	570,064	51.00	38.60	11,178	431,456
1977	24.5	267,988	51.00	38.21	5,255	200,797
1976	25.5	333,321	51.00	37.83	6,536	247,252
1975	26.5	466,816	51.00	37.45	9,153	342,813
1974	27.5	574,016	51.00	37.08	11,255	417,322
1973	28.5	713,106	51.00	36.71	13,982	513,259
1972	29.5	2,445,237	51.00	36.34	47,946	1,742,364
1971	30.5	156,781	51.00	35.98	3,074	110,598
1970	31.5	335,334	51.00	35.62	6,575	234,189
1969	32.5	191,040	51.00	35.26	3,746	132,083
1968	33.5	142,086	51.00	34.91	2,786	97,255
1967	34.5	87,834	51.00	34.56	1,722	59,519

Arizona Public Service Company

390 - Structures and Improvements

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

51 L0

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
1966	35.5	76,565	51.00	34.21	1,501	51,364
1965	36.5	95,233	51.00	33.87	1,867	63,248
1964	37.5	474,062	51.00	33.53	9,295	311,693
1963	38.5	2,545,420	51.00	33.20	49,910	1,656,852
1962	39.5	971,077	51.00	32.86	19,041	625,761
1961	40.5	290,749	51.00	32.54	5,701	185,482
1960	41.5	23,662	51.00	32.21	464	14,944
1959	42.5	-	51.00	31.89	-	-
1958	43.5	7,714	51.00	31.57	151	4,775
1957	44.5	-	51.00	31.25	-	-
1956	45.5	-	51.00	30.94	-	-
1955	46.5	1,345	51.00	30.63	26	808
1954	47.5	41	51.00	30.32	1	24
1953	48.5	-	51.00	30.01	-	-
1952	49.5	313	51.00	29.71	6	182
1951	50.5	-	51.00	29.41	-	-
1950	51.5	24,318	51.00	29.12	477	13,884
1949	52.5	2,057	51.00	28.82	40	1,163
1948	53.5	-	51.00	28.53	-	-
1947	54.5	1,926	51.00	28.25	38	1,067
1946	55.5	-	51.00	27.96	-	-
1945	56.5	-	51.00	27.68	-	-
1944	57.5	-	51.00	27.40	-	-
1943	58.5	-	51.00	27.12	-	-
1942	59.5	-	51.00	26.84	-	-
1941	60.5	-	51.00	26.57	-	-
1940	61.5	-	51.00	26.30	-	-
1939	62.5	-	51.00	26.03	-	-
1938	63.5	-	51.00	25.77	-	-
1937	64.5	-	51.00	25.51	-	-
1936	65.5	-	51.00	25.25	-	-
1935	66.5	-	51.00	24.99	-	-
1934	67.5	-	51.00	24.73	-	-
1933	68.5	-	51.00	24.48	-	-
1932	69.5	-	51.00	24.23	-	-

Arizona Public Service Company

390 - Structures and Improvements

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

51 L0

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
1931	70.5	-	51.00	23.98	-	-
1930	71.5	-	51.00	23.73	-	-
1929	72.5	-	51.00	23.48	-	-
1928	73.5	-	51.00	23.24	-	-
1927	74.5	-	51.00	23.00	-	-
1926	75.5	-	51.00	22.76	-	-
1925	76.5	-	51.00	22.52	-	-
1924	77.5	-	51.00	22.29	-	-
1923	78.5	-	51.00	22.05	-	-
1922	79.5	-	51.00	21.82	-	-
1921	80.5	-	51.00	21.59	-	-
1920	81.5	-	51.00	21.37	-	-
1919	82.5	-	51.00	21.14	-	-
1918	83.5	-	51.00	20.92	-	-
1917	84.5	-	51.00	20.69	-	-
1916	85.5	-	51.00	20.47	-	-
1915	86.5	-	51.00	20.25	-	-
1914	87.5	13,789	51.00	20.04	270	5,418

96,667,435

1,895,440

82,036,324

AVERAGE SERVICE LIFE

51.00

AVERAGE REMAINING LIFE

43.28

**Arizona Public Service Company**

**General Plant**

**391.0 - Office Furniture & Equipment - Furniture**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 391 - Office Furniture & Equipment - Furniture

Depreciable Balance \$19,919,640

	APS	Snavely King
Depreciable Reserve	<u>\$9,897,448</u>	<u>\$11,543,613</u>

Reserve Percent	<u>49.7%</u>	<u>58.0%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>25.0</u>	<u>20.0</u>	<u>20.0</u>
Iowa Curve	<u>O1</u>	<u>SQ</u>	<u>SQ</u>
Remaining Life (Yrs.)		<u>10.1</u>	<u>10.1</u>
Net Salvage (%)	<u>(5)</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>788,818</u>	<u>994,570</u>	<u>829,310</u>
Rate (%)	<u>3.96%</u>	<u>5.00%</u>	<u>4.16%</u>

\*\*\*\*\*  
Comment: SK agrees with Mr. Wiedmayer's analysis for this account.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 391 - Office Furniture and Equipment - Furn**

Age	Cumulative Survivors
<b>BAND</b>	
0	1.0000
0.5	1.0000
1.5	0.9986
2.5	0.9970
3.5	0.9959
4.5	0.9483
5.5	0.7661
6.5	0.6675
7.5	0.4828
8.5	0.4134
9.5	0.3509
10.5	0.3300
11.5	0.3169
12.5	0.2707
13.5	0.2308
14.5	0.2232
15.5	0.2053
16.5	0.1908
17.5	0.1804
18.5	0.1759
19.5	0.1493
20.5	0.1201
21.5	0.1139
22.5	0.1125
23.5	0.0988
24.5	0.0871
25.5	0.0768
26.5	0.0541
27.5	0.0430
28.5	0.0417
29.5	0.0030
30.5	0.0028
31.5	0.0028
32.5	0.0027
33.5	0.0027
34.5	0.0027
35.5	0.0027
36.5	0.0024
37.5	0.0023
38.5	0.0023
39.5	0.0023
40.5	0.0023
41.5	0.0023
42.5	0.0023
43.5	0.0023
44.5	0.0023

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 391 - Office Furniture and Equipment - Furn**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.0023
46.5	0.0023
47.5	0.0023
48.5	0.0023
49.5	0.0023
50.5	0.0023
51.5	0.0023
52.5	0.0023
53.5	0.0023
54.5	0.0023
55.5	0.0023
56.5	0.0023
57.5	0.0023
58.5	0.0023
59.5	0.0023
60.5	0.0023
61.5	0.0023
62.5	0.0023
63.5	0.0023
64.5	0.0023
65.5	0.0023
66.5	0.0023
67.5	0.0023
68.5	0.0023
69.5	0.0023
70.5	0.0023
71.5	0.0023
72.5	0.0023
73.5	0.0023
74.5	0.0023
75.5	0.0023

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 391 - Office Furniture and Equipment - Furn**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1925 - 2001</b>	
L0.5	10.0	1,655.542
L0	10.0	1,664.314
O2	10.0	1,734.061
L1	10.0	1,830.827
L1.5	9.5	2,012.311
L2	9.5	2,378.492
O3	11.0	2,734.884
S-0.5	9.5	2,836.100
S0	9.5	2,902.650
O1	9.5	3,072.678
R0.5	9.5	3,117.171
S0.5	9.5	3,121.136
S1	9.0	3,473.618
R1	9.0	3,511.723
L3	9.0	3,793.399
R1.5	9.0	3,830.159
S1.5	9.0	3,912.084
R2	9.0	4,388.757
S2	9.0	4,501.716
O4	12.0	4,811.445
R2.5	8.5	4,969.072
R3	8.5	5,692.093
S3	8.5	5,733.650
L4	8.5	5,959.483
R4	8.0	7,076.008
S4	8.0	7,410.038
L5	8.0	7,734.106
R5	8.0	8,615.443
S5	8.0	8,955.143
S6	7.5	10,275.977
SQ	6.5	13,152.333

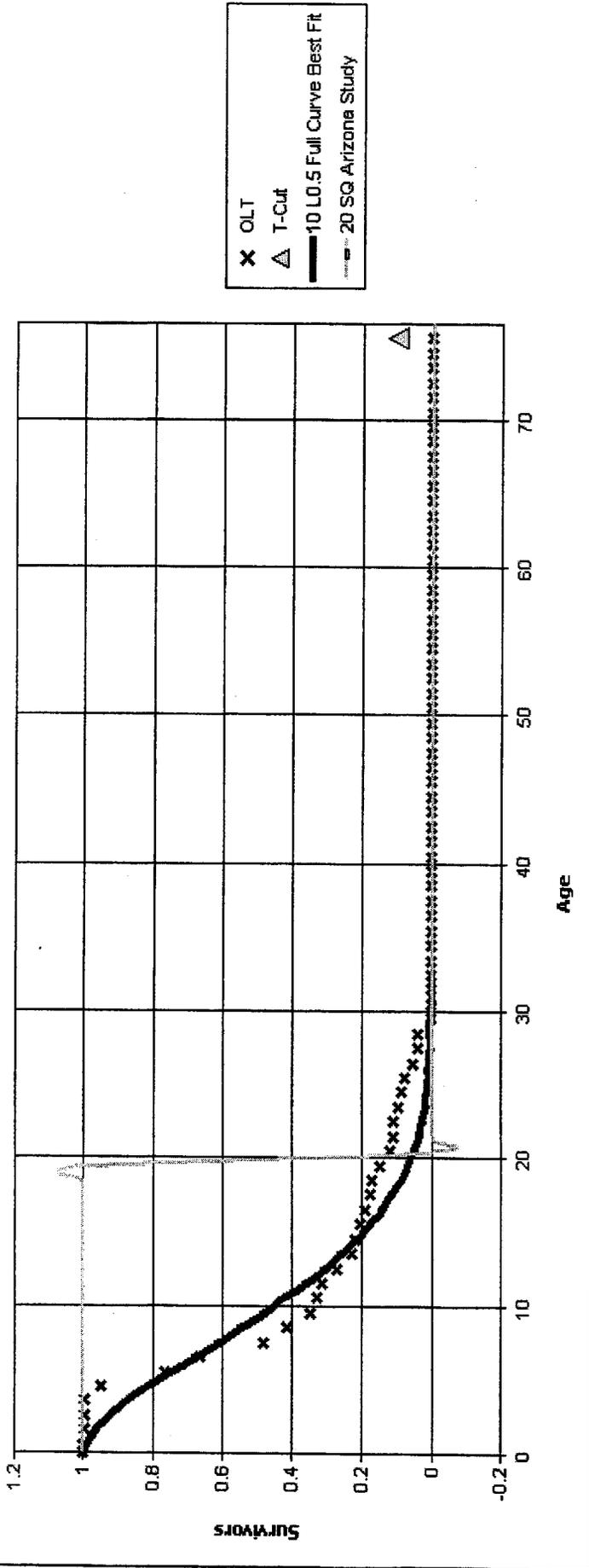
**Analytical Parameters**

OLT Placement Band: 1925 - 2001  
 OLT Experience Band: 1925 - 2001  
 Minimum Life Parameter: 0.5  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 75.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company

Account: 391 - Office Furniture and Equipment - Furn



**Analytical Parameters**

OLT Placement Band:	1925 - 2001
OLT Experience Band:	1925 - 2001
Minimum Life Parameter:	0.5
Maximum Life Parameter:	50
Life Increment Parameter:	0.5
Maximum Age (T-Cut):	75.5

**Arizona Public Service Company**

**General Plant**

**391.1 - Office Furniture & Equipment - Pc Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 391.1 - Office Furniture & Equipment - Pc Equipment

Depreciable Balance	<u>\$38,654,946</u>	
Depreciable Reserve	<u>APS \$21,283,348</u>	<u>Snavely King \$15,103,632</u>
Reserve Percent	<u>55.1%</u>	<u>39.1%</u>

	EXISTING *	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>8.0</u>	<u>5.0</u>	<u>8.0</u>
Iowa Curve	<u>R3</u>	<u>SQ</u>	<u>R3</u>
Remaining Life (Yrs.)	<u></u>	<u>2.7</u>	<u>5.3</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>4,831,868</u>	<u>6,467,368</u>	<u>4,418,633</u>
Rate (%)	<u>12.50%</u>	<u>20.00%</u>	<u>11.43%</u>

\*\*\*\*\*  
 Comment: SK analysis does not agree with Mr. Wiedmayer's study.  
 Based on SK analysis and experience, SK recommends the existing  
 curve and life of 8-R3

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 391.1 - Office Furniture and Equipment - PC**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	0.9998
2.5	0.9933
3.5	0.9763
4.5	0.9171
5.5	0.8784
6.5	0.7809
7.5	0.7273
8.5	0.6210
9.5	0.4312
10.5	0.2337
11.5	0.2024
12.5	0.0944
13.5	0.0740
14.5	0.0650
15.5	0.0261
16.5	0.0261
17.5	0.0254
18.5	0.0197
19.5	0.0165
20.5	0.0156
21.5	0.0141
22.5	0.0071
23.5	0.0071
24.5	0.0071
25.5	0.0071
26.5	0.0071
27.5	0.0071
28.5	0.0071
29.5	0.0071
30.5	0.0071
31.5	0.0071
32.5	0.0071
33.5	0.0071
34.5	0.0071
35.5	0.0071
36.5	0.0071
37.5	0.0071
38.5	0.0071
39.5	0.0071
40.5	0.0071

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 391.1 - Office Furniture and Equipment - PC**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1960 - 2001</b>	
S2	9.0	143.902
R2.5	9.0	170.822
S1.5	9.0	217.807
R3	9.0	224.908
L3	9.0	264.857
S3	9.0	322.525
R2	9.0	328.495
S1	9.0	442.703
L4	9.0	493.002
R1.5	9.0	657.083
L2	9.0	668.958
R4	9.0	673.496
S0.5	9.0	806.750
S4	9.0	1,013.806
L1.5	9.0	1,049.143
R1	9.0	1,224.553
L5	9.0	1,281.815
S0	9.0	1,339.996
L1	9.0	1,601.007
R5	9.0	1,667.561
R0.5	8.0	1,966.372
S5	9.0	1,990.786
S-0.5	8.0	2,154.662
L0.5	9.0	2,202.152
L0	9.0	2,937.977
O1	8.0	2,976.976
S6	9.0	3,072.354
O2	9.0	3,465.942
O3	12.0	5,634.037
SQ	9.0	5,890.035
O4	15.0	6,611.321

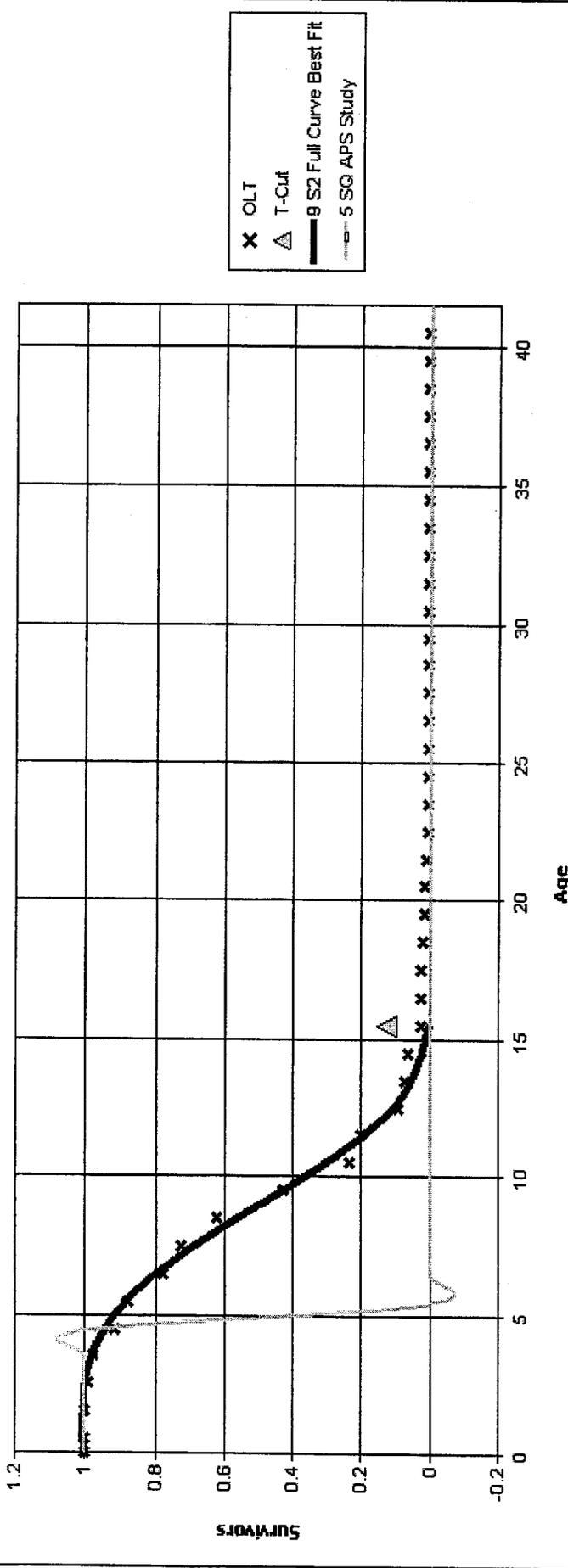
**Analytical Parameters**

OLT Placement Band: 1960 - 2001  
 OLT Experience Band: 1960 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 15.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 391.1 - Office Furniture and Equipment - PC**



x OLT  
 Δ T-Cut  
 — S2 Full Curve Best Fit  
 - - - 5 SQ APS Study

**Analytical Parameters**

OLT Placement Band: 1960 - 2001  
 OLT Experience Band: 1960 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 15.5

Arizona Public Service Company

391.1 - Office Furniture and Equipment - PC

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

9 S2

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2001	0.5	5,325,396	9.00	8.50	591,711	5,029,329
2000	1.5	4,986,153	9.00	7.50	554,017	4,157,401
1999	2.5	2,514,739	9.00	6.54	279,415	1,826,317
1998	3.5	6,653,336	9.00	5.63	739,260	4,162,761
1997	4.5	537,496	9.00	4.82	59,722	287,601
1996	5.5	7,766,784	9.00	4.10	862,976	3,539,504
1995	6.5	5,780,447	9.00	3.49	642,272	2,238,806
1994	7.5	1,805,477	9.00	2.96	200,609	593,399
1993	8.5	1,853,638	9.00	2.51	205,960	515,942
1992	9.5	-	9.00	2.11	-	-
1991	10.5	239,265	9.00	1.77	26,585	47,160
1990	11.5	252,596	9.00	1.48	28,066	41,410
1989	12.5	613,585	9.00	1.21	68,176	82,625
1988	13.5	142,096	9.00	0.98	15,788	15,461
1987	14.5	88,670	9.00	0.78	9,852	7,645
1986	15.5	89,422	9.00	0.61	9,936	6,039
1985	16.5	5,835	9.00	0.50	648	327
1984	17.5	11	9.00	0.50	1	1
1983	18.5	-	9.00	0.50	-	-
1982	19.5	-	9.00	0.50	-	-
1981	20.5	-	9.00	0.50	-	-
1980	21.5	-	9.00	0.50	-	-
1979	22.5	-	9.00	0.50	-	-
1978	23.5	-	9.00	0.50	-	-
1977	24.5	-	9.00	0.50	-	-
1976	25.5	-	9.00	0.50	-	-
1975	26.5	-	9.00	0.50	-	-
1974	27.5	-	9.00	0.50	-	-
1973	28.5	-	9.00	0.50	-	-
1972	29.5	-	9.00	0.50	-	-
1971	30.5	-	9.00	0.50	-	-
1970	31.5	-	9.00	0.50	-	-
1969	32.5	-	9.00	0.50	-	-
1968	33.5	-	9.00	0.50	-	-
1967	34.5	-	9.00	0.50	-	-

Arizona Public Service Company

391.1 - Office Furniture and Equipment - PC

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

9 S2

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
1966	35.5	-	9.00	0.50	-	-
1965	36.5	-	9.00	0.50	-	-
1964	37.5	-	9.00	0.50	-	-
1963	38.5	-	9.00	0.50	-	-
1962	39.5	-	9.00	0.50	-	-
1961	40.5	-	9.00	0.50	-	-
1960	41.5	-	9.00	0.50	-	-
		38,654,946			4,294,994	22,551,729
AVERAGE SERVICE LIFE						9.00
AVERAGE REMAINING LIFE						5.25

**Arizona Public Service Company**

**General Plant**

**391.2 - Office Furniture & Equipment - Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 391.2 - Office Furniture & Equipment - Computer Software

Depreciable Balance \$7,652,923

	APS	Snaveley King
Depreciable Reserve	<u>\$4,070,284</u>	<u>\$2,932,191</u>

Reserve Percent	<u>53.2%</u>	<u>38.3%</u>
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	EXISTING *	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>14.0</u>	<u>10.0</u>	<u>22.0</u>
Iowa Curve	<u>S2</u>	<u>SQ</u>	<u>R4</u>
Remaining Life (Yrs.)	<u></u>	<u>7.8</u>	<u>14.8</u>
Net Salvage (%)	<u>1</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>541,062</u>	<u>461,909</u>	<u>318,968</u>
Rate (%)	<u>7.07%</u>	<u>10.00%</u>	<u>4.17%</u>

\*\*\*\*\*  
 Comment: SK analysis does not agree with Mr. Wiedmayer's study.  
 SK statistical analysis shows a result of a 22-R4 live and curve

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 391.2 - Office Furniture and Equipment (Eq.)**

Age	Cumulative Survivors
0	1.0000
0.5	1.0000
1.5	0.9999
2.5	0.9980
3.5	0.9963
4.5	0.9867
5.5	0.9370
6.5	0.9352
7.5	0.9253
8.5	0.8894
9.5	0.8678
10.5	0.8641
11.5	0.8632
12.5	0.8564
13.5	0.8515
14.5	0.8398
15.5	0.8302
16.5	0.8286
17.5	0.8265
18.5	0.8174
19.5	0.8135
20.5	0.7428
21.5	0.7371
22.5	0.6615
23.5	0.2405
24.5	0.1801
25.5	0.0794
26.5	0.0735
27.5	0.0417
28.5	0.0099
29.5	0.0099
30.5	0.0099
31.5	0.0099
32.5	0.0099
33.5	0.0099
34.5	0.0099
35.5	0.0099
36.5	0.0099
37.5	0.0099
38.5	0.0099
39.5	0.0099
40.5	0.0099
41.5	0.0099
42.5	0.0099
43.5	0.0099
44.5	0.0099

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 391.2 - Office Furniture and Equipment (Eq.)**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.0099
46.5	0.0099
47.5	0.0099
48.5	0.0099
49.5	0.0099
50.5	0.0099

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 391.2 - Office Furniture and Equipment (Eq.)**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1950 - 2001</b>	
R4	22.0	2,361.550
R5	22.0	2,601.908
R3	21.0	2,881.789
S4	22.0	2,950.991
L5	22.0	3,121.152
S5	22.0	3,147.762
R2.5	21.0	3,517.936
L4	22.0	3,532.600
S3	22.0	3,576.669
S6	23.0	3,645.460
S2	21.0	4,603.393
R2	21.0	4,648.179
S1.5	21.0	5,296.225
L3	22.0	5,669.048
R1.5	20.0	5,823.030
S1	21.0	6,341.752
SQ	23.0	6,615.327
R1	20.0	7,511.908
S0.5	20.0	7,533.743
L2	22.0	8,170.272
S0	20.0	8,901.878
L1.5	21.0	9,347.696
R0.5	19.0	10,126.205
L1	21.0	10,851.703
S-0.5	19.0	10,987.421
L0.5	21.0	12,534.323
O1	19.0	13,276.477
L0	20.0	14,575.262
O2	21.0	15,988.444
O3	24.0	25,369.044
O4	31.0	30,707.102

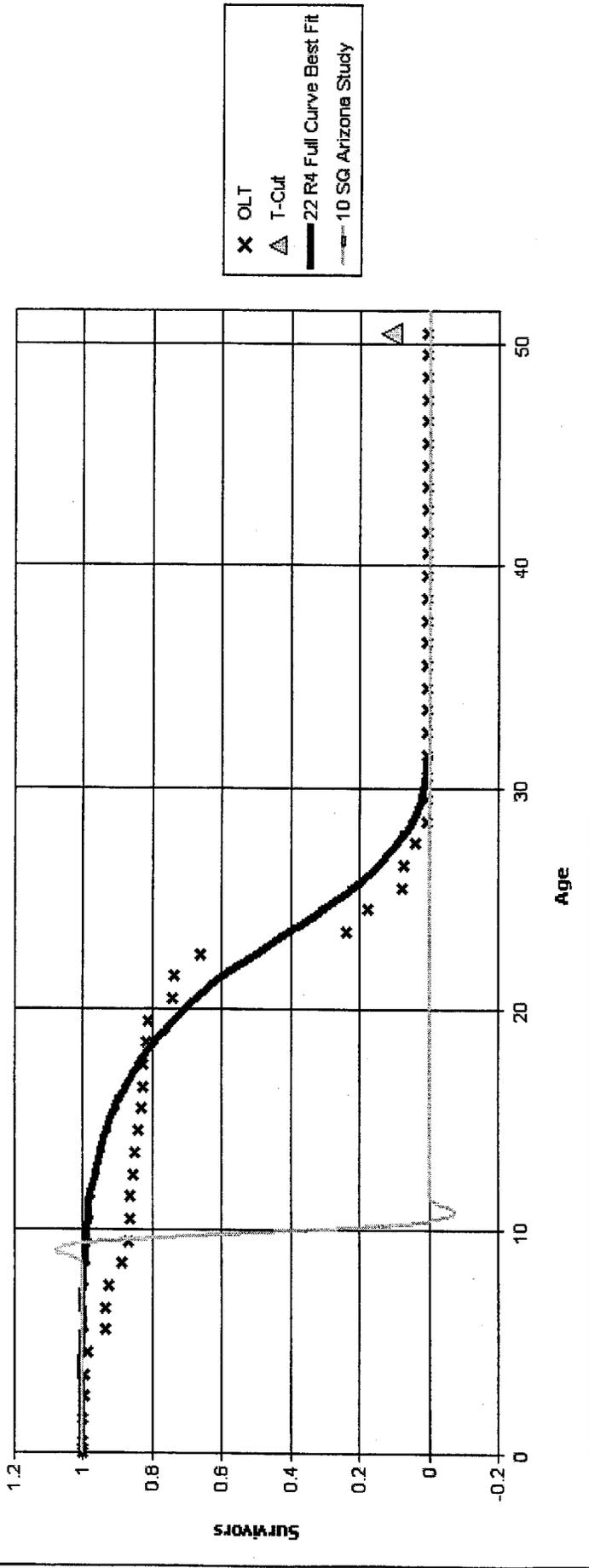
**Analytical Parameters**

OLT Placement Band:	1950 - 2001
OLT Experience Band:	1950 - 2001
Minimum Life Parameter:	1
Maximum Life Parameter:	100
Life Increment Parameter:	1
Max Age (T-Cut):	50.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company Office Furniture and Equipment (Eq.)**

**Account: 391.2**



**Analytical Parameters**

OLT Placement Band: 1950 - 2001  
 OLT Experience Band: 1950 - 2001  
 Minimum Life Parameter: 1  
 Maximum Life Parameter: 100  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 50.5

Arizona Public Service Company

391.2 - Office Furniture and Equipment (Eq.)

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

22 R4

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	1,333,600	22.00	21.50	60,618	1,303,307
2001	1.5	2,320,311	22.00	20.50	105,469	2,162,289
2000	2.5	33,506	22.00	19.50	1,523	29,705
1999	3.5	98,555	22.00	18.51	4,480	82,915
1998	4.5	47,234	22.00	17.52	2,147	37,606
1997	5.5	389,977	22.00	16.53	17,726	292,962
1996	6.5	2,972	22.00	15.54	135	2,100
1995	7.5	21,691	22.00	14.57	986	14,365
1994	8.5	277,713	22.00	13.61	12,623	171,748
1993	9.5	93,530	22.00	12.66	4,251	53,804
1992	10.5	50,703	22.00	11.72	2,305	27,019
1991	11.5	337,134	22.00	10.81	15,324	165,691
1990	12.5	92,554	22.00	9.93	4,207	41,759
1989	13.5	147,322	22.00	9.07	6,696	60,727
1988	14.5	332,473	22.00	8.24	15,112	124,556
1987	15.5	845,445	22.00	7.45	38,429	286,266
1986	16.5	352,472	22.00	6.69	16,021	107,188
1985	17.5	194,477	22.00	5.97	8,840	52,740
1984	18.5	158,214	22.00	5.27	7,192	37,925
1983	19.5	180,890	22.00	4.62	8,222	37,953
1982	20.5	262,056	22.00	4.01	11,912	47,765
1981	21.5	0	22.00	3.47	-	-
1980	22.5	0	22.00	3.01	-	-
1979	23.5	64,656	22.00	2.62	2,939	7,692
1978	24.5	15,438	22.00	2.28	702	1,597

7,652,923

347,860

5,149,678

AVERAGE SERVICE LIFE

22.00

AVERAGE REMAINING LIFE

14.80

**Arizona Public Service Company**

**General Plant**

**393 - Stores Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 393 - Stores Equipment

Depreciable Balance \$1,227,371

	APS	Snavely King
Depreciable Reserve	<u>\$1,142,564</u>	<u>\$1,235,746</u>

Reserve Percent	<u>93.1%</u>	<u>100.7%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>40.0</u>	<u>20.0</u>	<u>20.0</u>
Iowa Curve	<u>R3</u>	<u>SQ</u>	<u>SQ</u>
Remaining Life (Yrs.)	<u></u>	<u>2.8</u>	<u>2.8</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>30,684</u>	<u>29,921</u>	<u>(2,991)</u>
Rate (%)	<u>2.50%</u>	<u>5.00%</u>	<u>-0.24%</u>

\*\*\*\*\*

Comment: Based on SK analysis and statistical results SK accepts Mr. Wiedmayer's results.

**Observed Life Table Results  
Arizona Public Service Company  
Account: 393 - Stores Equipment**

Age	Cumulative Survivors
<b>BAND</b>	<b>1953 - 1995</b>
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	1.0000
6.5	1.0000
7.5	1.0000
8.5	1.0000
9.5	1.0000
10.5	1.0000
11.5	1.0000
12.5	1.0000
13.5	1.0000
14.5	0.9995
15.5	0.9995
16.5	0.9995
17.5	0.9995
18.5	0.9995
19.5	0.9995
20.5	0.9995
21.5	0.8869
22.5	0.8869
23.5	0.8869
24.5	0.8869
25.5	0.8869
26.5	0.8869
27.5	0.8869
28.5	0.8869
29.5	0.8869
30.5	0.8869
31.5	0.8869
32.5	0.8869
33.5	0.8869
34.5	0.8869
35.5	0.8869
36.5	0.8797
37.5	0.8583
38.5	0.8209
39.5	0.8209
40.5	0.8209
41.5	0.8209
42.5	0.8209
43.5	0.8209
44.5	0.8209

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 393 - Stores Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.8209
46.5	0.8209
47.5	0.8209

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 393 - Stores Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1953 - 2001</b>	
R4	50.0	1,635.949
R3	50.0	1,808.402
R2.5	50.0	2,388.301
R5	50.0	2,618.958
S4	50.0	2,767.572
S3	50.0	2,778.684
L4	50.0	2,894.301
L5	50.0	2,908.140
S5	50.0	3,316.327
R2	50.0	3,451.239
S2	50.0	3,520.522
S6	49.5	4,067.805
S1.5	50.0	4,244.162
R1.5	50.0	5,072.087
L3	50.0	5,079.531
S1	50.0	5,387.377
SQ	47.5	5,472.553
S0.5	50.0	6,836.959
R1	50.0	7,287.276
L2	50.0	8,036.279
S0	50.0	8,763.042
L1.5	50.0	9,622.615
R0.5	50.0	10,855.853
S-0.5	50.0	11,635.984
L1	50.0	11,872.990
L0.5	50.0	14,624.591
O1	50.0	15,305.507
L0	50.0	17,975.575
O2	50.0	21,660.977
O3	50.0	42,812.855
O4	50.0	66,961.511

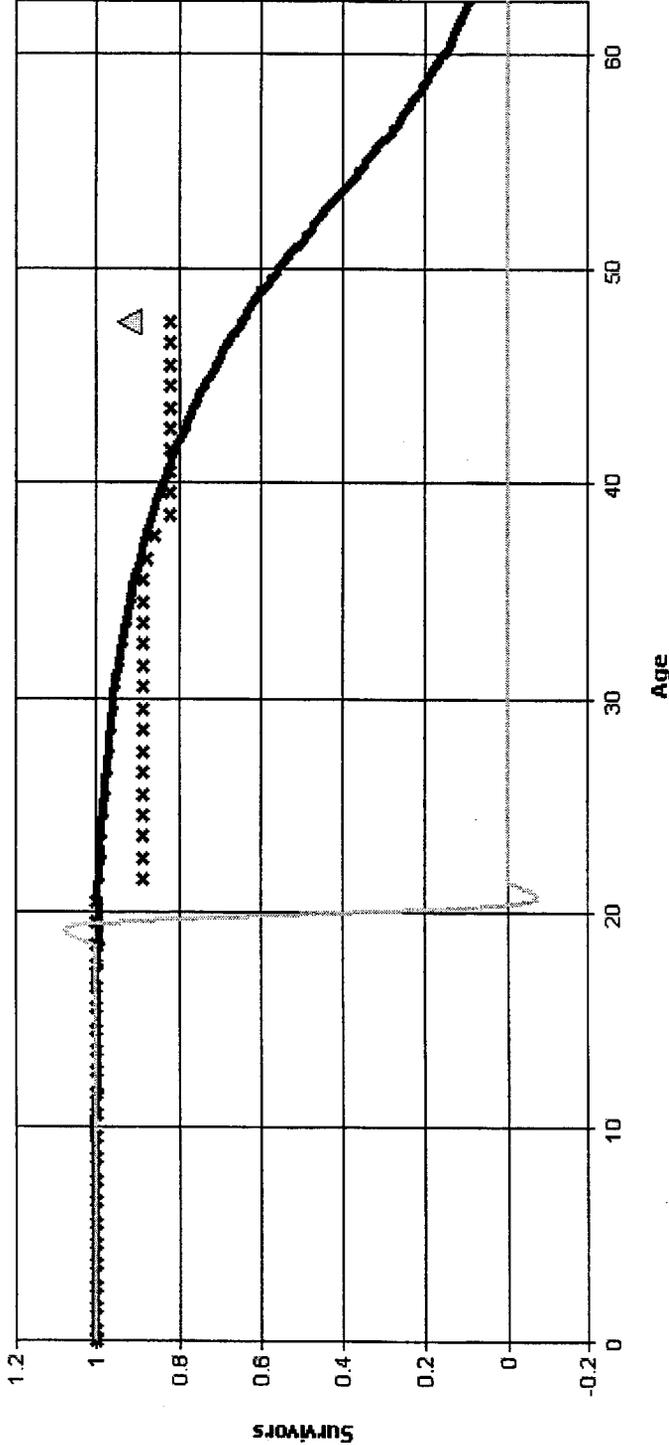
**Analytical Parameters**

OLT Placement Band: 1953 - 1995  
 OLT Experience Band: 1953 - 2001  
 Minimum Life Parameter: 4.5  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 47.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company Stores Equipment**

Account: 393



x OLT  
 Δ T-Cut  
 — 50 R4 Full Curve Best Fit  
 - - - 20 SQ Arizona Study

**Analytical Parameters**

OLT Placement Band: 1953 - 1995  
 OLT Experience Band: 1953 - 2001  
 Minimum Life Parameter: 4.5  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 0.5  
 Maximum Age (T-Cut): 47.5

**Arizona Public Service Company**

**General Plant**

**394 - Tools, Shops, & Garage Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 394 - Tools, Shop & Garage Equipment

Depreciable Balance \$12,673,031

	APS	Snavely King
Depreciable Reserve	<u>\$3,989,281</u>	<u>\$4,673,542</u>

Reserve Percent	<u>31.5%</u>	<u>36.9%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>25.0</u>	<u>20.0</u>	<u>20.0</u>
Iowa Curve	<u>R3</u>	<u>SQ</u>	<u>SQ</u>
Remaining Life (Yrs.)		<u>13.7</u>	<u>13.7</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>506,921</u>	<u>633,652</u>	<u>583,904</u>
Rate (%)	<u>4.00%</u>	<u>5.00%</u>	<u>4.61%</u>

\*\*\*\*\*  
Comment: Based on SK analysis and statistical results SK accepts Mr. Wiedmayer's results.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 394 - Tools, Shop & Garage Equipment**

Age	Cumulative Survivors
BAND	1929 - 2001
0	1.0000
0.5	1.0000
1.5	0.9984
2.5	0.9980
3.5	0.9976
4.5	0.9973
5.5	0.9942
6.5	0.9699
7.5	0.9345
8.5	0.8708
9.5	0.7531
10.5	0.6469
11.5	0.5640
12.5	0.5051
13.5	0.4563
14.5	0.4152
15.5	0.3779
16.5	0.3486
17.5	0.3321
18.5	0.3046
19.5	0.2810
20.5	0.2723
21.5	0.2601
22.5	0.1900
23.5	0.1328
24.5	0.1062
25.5	0.0935
26.5	0.0787
27.5	0.0699
28.5	0.0645
29.5	0.0593
30.5	0.0541
31.5	0.0487
32.5	0.0440
33.5	0.0326
34.5	0.0302
35.5	0.0260
36.5	0.0227
37.5	0.0213
38.5	0.0197
39.5	0.0170
40.5	0.0149
41.5	0.0122
42.5	0.0090
43.5	0.0000
44.5	0.0000

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 394 - Tools, Shop & Garage Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.0000
46.5	0.0000
47.5	0.0000
48.5	0.0000
49.5	0.0000
50.5	0.0000
51.5	0.0000
52.5	0.0000
53.5	0.0000
54.5	0.0000
55.5	0.0000
56.5	0.0000
57.5	0.0000
58.5	0.0000
59.5	0.0000
60.5	0.0000
61.5	0.0000
62.5	0.0000
63.5	0.0000
64.5	0.0000
65.5	0.0000
66.5	0.0000
67.5	0.0000
68.5	0.0000
69.5	0.0000
70.5	0.0000
71.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 394 - Tools, Shop & Garage Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1929 - 2001</b>	
L1.5	15.0	654.102
L2	15.0	784.255
L1	15.0	828.505
L0.5	15.0	1,228.807
S0	14.5	1,366.276
S0.5	14.5	1,386.660
S1	14.5	1,683.498
S-0.5	14.5	1,744.064
L0	15.0	1,905.196
R1	14.5	1,932.407
R0.5	14.5	1,961.292
R1.5	14.5	2,182.932
S1.5	14.5	2,228.717
L3	14.5	2,275.025
O1	14.0	2,564.903
O2	15.0	2,783.334
R2	14.5	2,820.328
S2	14.5	3,017.435
R2.5	14.5	3,675.538
R3	14.5	4,871.886
S3	14.0	5,022.824
L4	14.0	5,494.527
O3	16.0	7,120.020
R4	14.0	7,169.370
S4	13.5	7,889.307
L5	13.5	8,533.159
R5	13.5	10,014.293
S5	13.5	10,678.377
O4	18.0	11,727.808
S6	13.0	13,130.692
SQ	12.5	18,159.694

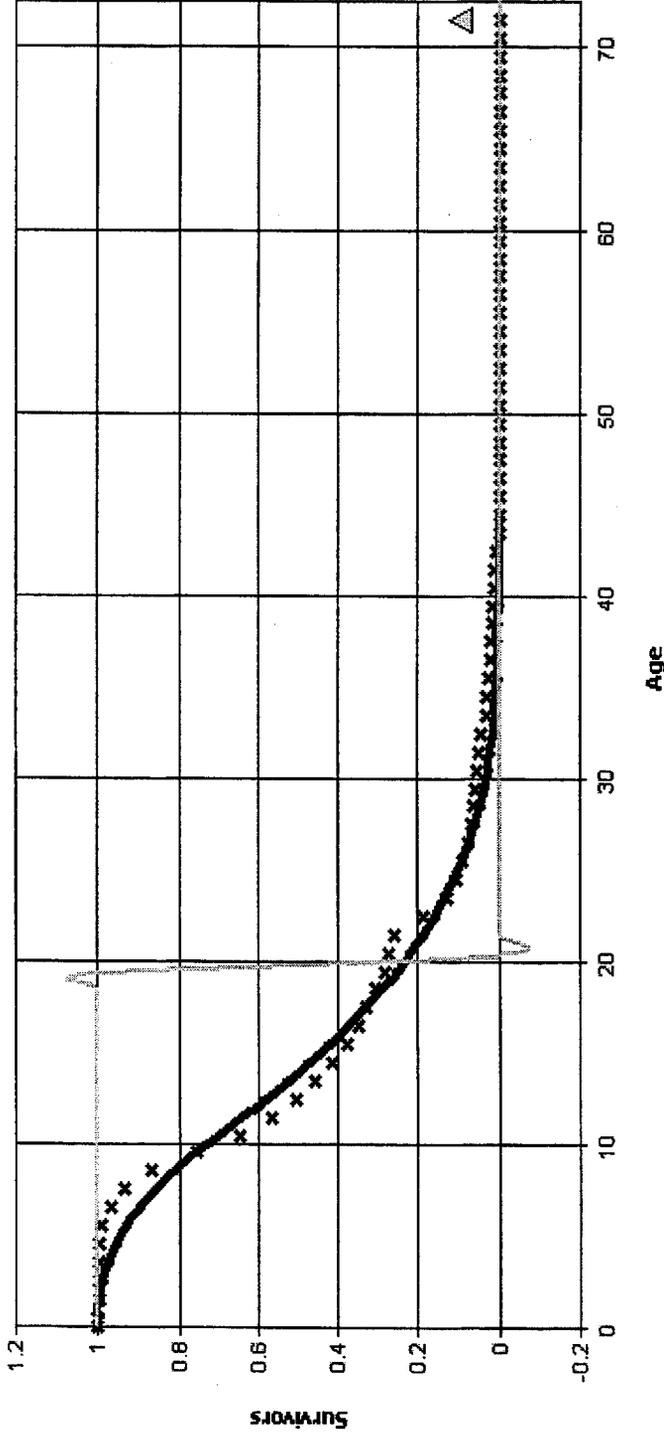
**Analytical Parameters**

OLT Placement Band: 1929 - 2001  
 OLT Experience Band: 1929 - 2001  
 Minimum Life Parameter: 2.5  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 71.5

**Fitted Curve Results**

Fitted Curve Results - Arizona Public Service Company Tools, Shop & Garage Equipment

Account: 394



**Analytical Parameters**

OLT Placement Band: 1929 - 2001  
 OLT Experience Band: 1929 - 2001  
 Minimum Life Parameter: 2.5  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 0.5  
 Maximum Age (T-Cut): 71.5

**Arizona Public Service Company**

**General Plant**

**395 - Laboratory Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 395 - Laboratory Equipment

Depreciable Balance \$1,350,583

	APS	Snavelly King
Depreciable Reserve	<u>\$1,082,162</u>	<u>\$531,270</u>

Reserve Percent	<u>80.1%</u>	<u>39.3%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELLY KING RECOMMENDED
Average Service Life (Yrs.)	<u>15.0</u>	<u>15.0</u>	<u>20.0</u>
Iowa Curve	<u>R3</u>	<u>SQ</u>	<u>L1</u>
Remaining Life (Yrs.)	<u></u>	<u>3.6</u>	<u>12.0</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>90,084</u>	<u>75,200</u>	<u>68,504</u>
Rate (%)	<u>6.67%</u>	<u>6.67%</u>	<u>5.07%</u>

\*\*\*\*\*  
Comment: Based on SK analysis the recommended life and curve are 20-L1.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 395 - Laboratory Equipment**

Age	Cumulative Survivors
BAND	1952 - 1999
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	1.0000
3.5	1.0000
4.5	1.0000
5.5	1.0000
6.5	1.0000
7.5	0.9822
8.5	0.9210
9.5	0.8480
10.5	0.7753
11.5	0.7417
12.5	0.6206
13.5	0.6206
14.5	0.6197
15.5	0.6031
16.5	0.6031
17.5	0.5509
18.5	0.5509
19.5	0.5401
20.5	0.5401
21.5	0.5401
22.5	0.5401
23.5	0.5401
24.5	0.5401
25.5	0.5401
26.5	0.5401
27.5	0.5401
28.5	0.5401
29.5	0.5401
30.5	0.5401
31.5	0.5401
32.5	0.5401
33.5	0.5401
34.5	0.5401
35.5	0.5401
36.5	0.5401
37.5	0.5401
38.5	0.5401
39.5	0.5401
40.5	0.5401
41.5	0.5401
42.5	0.5401
43.5	0.5401
44.5	0.5401

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 395 - Laboratory Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.5401
46.5	0.5401

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 395 - Laboratory Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1952 - 1999</b>	
L1	20.0	490.716
L1.5	19.0	588.545
S0	19.0	604.418
S0.5	18.0	609.434
L0.5	22.0	613.876
S1	18.0	665.433
R1.5	18.0	784.750
L0	23.0	787.186
L2	19.0	811.374
R1	19.0	836.697
S-0.5	21.0	839.795
R2	17.0	882.876
S1.5	18.0	944.680
R0.5	20.0	988.144
O1	23.0	1,156.440
O2	26.0	1,156.904
R2.5	17.0	1,178.074
O3	36.0	1,238.302
O4	50.0	1,276.325
S2	17.0	1,302.101
R3	17.0	1,643.764
L3	18.0	1,821.957
S3	17.0	2,383.629
R4	17.0	2,963.393
L4	17.0	3,437.355
S4	17.0	4,311.608
L5	18.0	5,382.596
R5	17.0	5,453.680
S5	18.0	6,491.240
S6	18.0	8,182.887
SQ	19.0	12,095.772

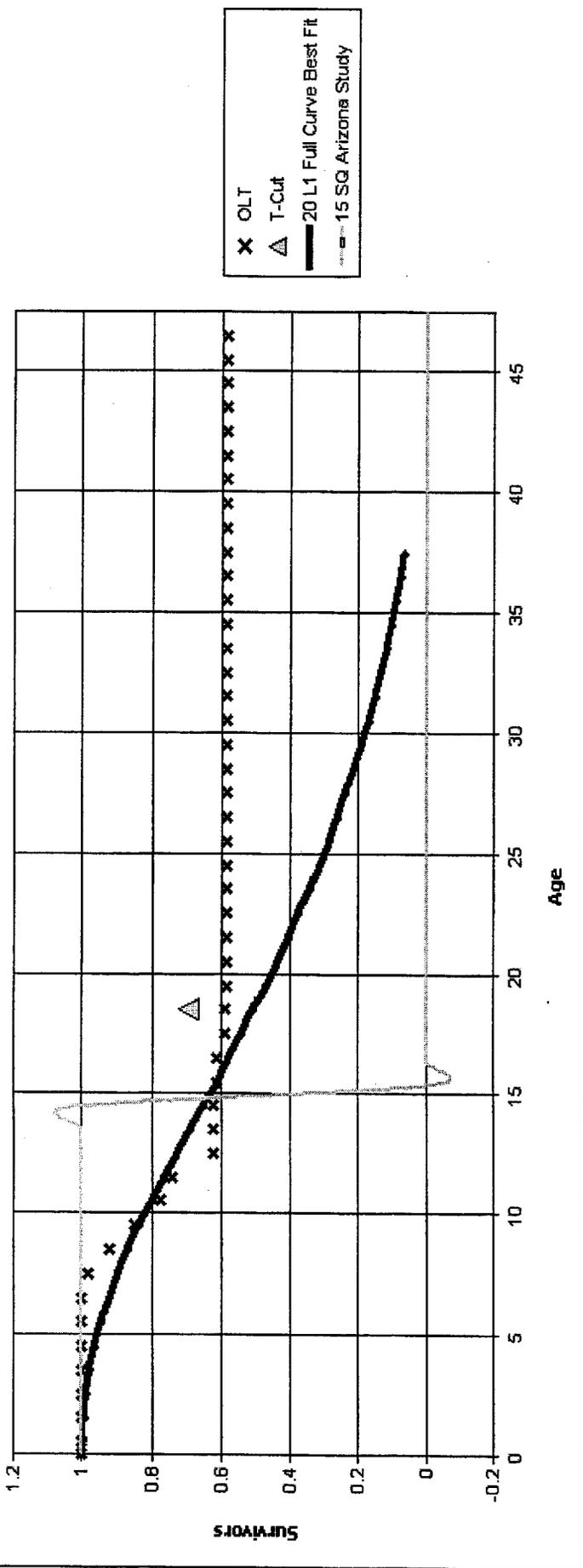
**Analytical Parameters**

OLT Placement Band: 1952 - 1999  
 OLT Experience Band: 1952 - 1999  
 Minimum Life Parameter: 3  
 Maximum Life Parameter: 60  
 Life Increment Parameter: 1  
 Max Age (T-Cut): 18.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 395 - Laboratory Equipment**



**Analytical Parameters**

OLT Placement Band:	1952 - 1999
OLT Experience Band:	1952 - 1999
Minimum Life Parameter:	3
Maximum Life Parameter:	60
Life Increment Parameter:	1
Maximum Age (T-Cut):	18.5

Arizona Public Service Company

395 - Laboratory Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

20 L1

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5		20.00	19.53	-	-
2001	1.5		20.00	18.62	-	-
2000	2.5		20.00	17.75	-	-
1999	3.5		20.00	16.93	-	-
1998	4.5	38,789	20.00	16.17	1,939	31,357
1997	5.5	0	20.00	15.46	-	-
1996	6.5	4,228	20.00	14.82	211	3,133
1995	7.5	0	20.00	14.23	-	-
1994	8.5	101,225	20.00	13.70	5,061	69,344
1993	9.5	38,992	20.00	13.22	1,950	25,772
1992	10.5	127,003	20.00	12.78	6,350	81,149
1991	11.5	438,006	20.00	12.37	21,900	270,907
1990	12.5	176,146	20.00	11.98	8,807	105,506
1989	13.5	64,472	20.00	11.60	3,224	37,393
1988	14.5	138,581	20.00	11.23	6,929	77,817
1987	15.5	24,730	20.00	10.87	1,237	13,442
1986	16.5	23,132	20.00	10.52	1,157	12,169
1985	17.5	115,702	20.00	10.18	5,785	58,898
1984	18.5	1,938	20.00	9.85	97	954
1983	19.5	4,080	20.00	9.53	204	1,943
1982	20.5	1,224	20.00	9.21	61	564
1981	21.5	0	20.00	8.90	-	-
1980	22.5	630	20.00	8.60	32	271
1979	23.5	0	20.00	8.31	-	-
1978	24.5	315	20.00	8.03	16	126
1977	25.5	0	20.00	7.75	-	-
1976	26.5	1,801	20.00	7.47	90	673
1975	27.5	1,352	20.00	7.21	68	487
1974	28.5	0	20.00	6.95	-	-
1973	29.5	2,392	20.00	6.69	120	800
1972	30.5	43,765	20.00	6.44	2,188	14,096
1971	31.5	0	20.00	6.20	-	-
1970	32.5	2,080	20.00	5.96	104	620

Arizona Public Service Company

395 - Laboratory Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

20 L1

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
		1,350,583			67,529	807,422
AVERAGE SERVICE LIFE						20.00
AVERAGE REMAINING LIFE						11.96

**Arizona Public Service Company**

**General Plant**

**397 - Communication Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 397 - Communication Equipment

Depreciable Balance \$94,309,691

	APS	Snavelly King
Depreciable Reserve	<u>\$36,587,109</u>	<u>\$40,677,647</u>

Reserve Percent	<u>38.8%</u>	<u>43.1%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>21.0</u>	<u>19.0</u>	<u>19.0</u>
Iowa Curve	<u>R3</u>	<u>S1.5</u>	<u>S1.5</u>
Remaining Life (Yrs.)	<u></u>	<u>12.0</u>	<u>12.0</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>4,489,141</u>	<u>4,811,742</u>	<u>4,469,337</u>
Rate (%)	<u>4.76%</u>	<u>5.10%</u>	<u>4.74%</u>

\*\*\*\*\*  
Comment: Based on SK analysis and statistical results SK accepts Mr. Wiedmayer's results.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 397 - Communication Equipment**

Age	Cumulative Survivors
<b>BAND</b>	<b>1972 - 2001</b>
0	1.0000
0.5	0.9999
1.5	0.9993
2.5	0.9988
3.5	0.9985
4.5	0.9976
5.5	0.9931
6.5	0.9838
7.5	0.9675
8.5	0.9437
9.5	0.9299
10.5	0.9009
11.5	0.8201
12.5	0.7605
13.5	0.7209
14.5	0.6397
15.5	0.6176
16.5	0.5715
17.5	0.5298
18.5	0.5061
19.5	0.4877
20.5	0.4782
21.5	0.4528
22.5	0.3697
23.5	0.3279
24.5	0.2870
25.5	0.2215
26.5	0.0659
27.5	0.0615
28.5	0.0561
29.5	0.0549
30.5	0.0496
31.5	0.0410
32.5	0.0275
33.5	0.0249
34.5	0.0006
35.5	0.0006
36.5	0.0006
37.5	0.0006
38.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 397 - Communication Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1972 - 2001</b>	
S1.5	20.0	10,578.984
S1	19.5	10,600.081
R2	19.5	10,727.948
R1.5	19.5	10,881.275
S2	20.0	10,882.345
S0.5	19.5	10,980.826
L2	20.0	11,053.756
R2.5	20.0	11,084.420
L3	20.0	11,274.304
R1	19.0	11,475.587
L1.5	20.0	11,596.836
S0	19.0	11,710.145
R3	20.0	11,877.170
S3	20.5	12,416.319
L1	20.0	12,535.567
R0.5	18.5	12,859.404
S-0.5	19.0	13,077.369
L4	20.5	13,515.910
L0.5	19.5	13,768.036
R4	20.5	14,290.230
O1	18.0	14,869.632
L0	19.5	15,320.578
S4	20.5	15,646.396
O2	20.0	16,608.000
L5	20.5	16,932.608
R5	21.0	18,466.994
S5	20.5	19,657.830
O3	24.5	22,196.621
S6	20.5	23,598.383
O4	32.0	25,049.355
SQ	19.5	31,785.724

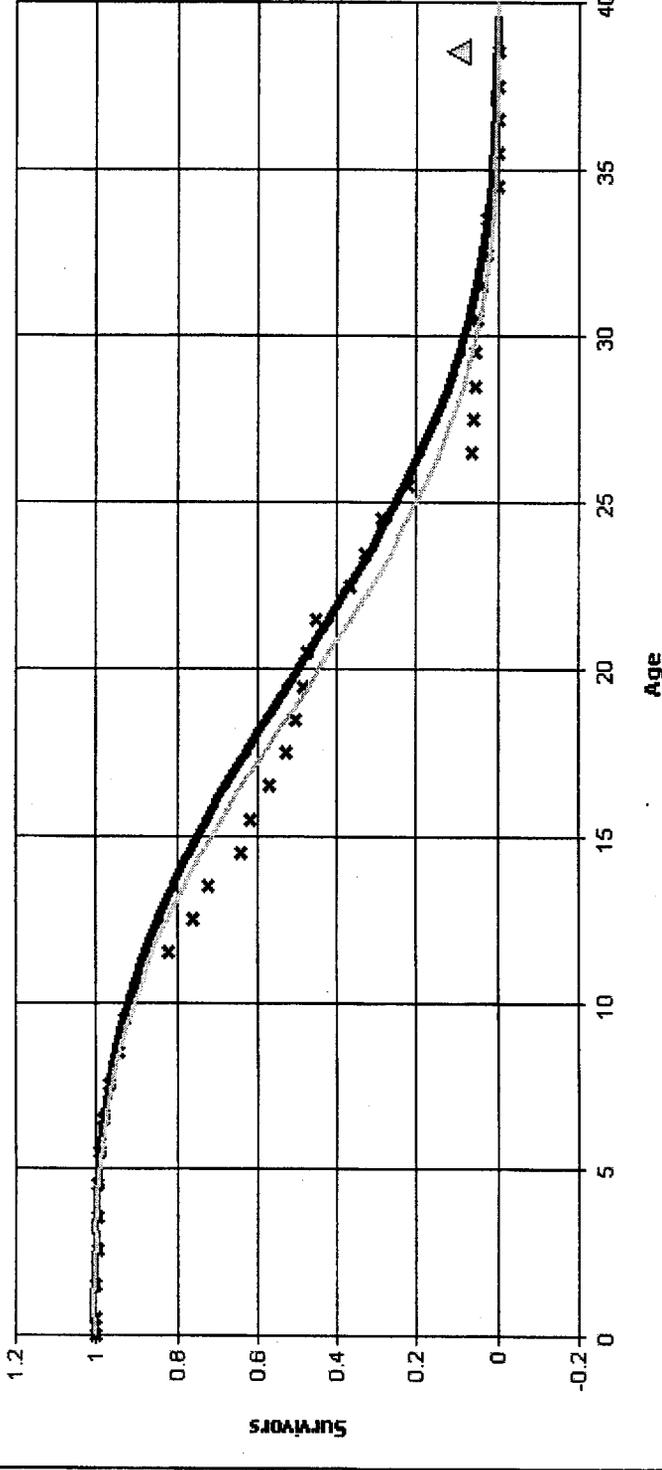
**Analytical Parameters**

OLT Placement Band: 1911 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 0.5  
 Maximum Life Parameter: 40  
 Life Increment Parameter: 0.5  
 Max Age (T-Cut): 38.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company**

**Account: 397 - Communication Equipment**



x OLT  
 Δ T-Cut  
 — 20 S1.5 Full Curve Best Fit  
 - - - 19 S1.5 Arizona Study

**Analytical Parameters**

OLT Placement Band: 1911 - 2001  
 OLT Experience Band: 1972 - 2001  
 Minimum Life Parameter: 0.5  
 Maximum Life Parameter: 40  
 Life Increment Parameter: 0.5  
 Maximum Age (T-Cut): 38.5

**Arizona Public Service Company**

**General Plant**

**398 - Miscellaneous Equipment**

**Arizona Public Service Company**  
Depreciation Study as of December 31, 2002

General Plant

Account 398 - Miscellaneous Equipment

Depreciable Balance \$1,336,404

	APS	Snavelly King
Depreciable Reserve	<u>\$584,352</u>	<u>\$481,755</u>

Reserve Percent	<u>43.7%</u>	<u>36.0%</u>
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	EXISTING	COMPANY PROPOSED	SNAVELY KING RECOMMENDED
Average Service Life (Yrs.)	<u>20.0</u>	<u>20.0</u>	<u>24.0</u>
Iowa Curve	<u>R3</u>	<u>SQ</u>	<u>S1</u>
Remaining Life (Yrs.)	<u></u>	<u>11.5</u>	<u>16.6</u>
Net Salvage (%)	<u>0</u>	<u>0</u>	<u>0</u>
Accrual (\$)	<u>66,820</u>	<u>65,276</u>	<u>51,454</u>
Rate (%)	<u>5.00%</u>	<u>5.00%</u>	<u>3.85%</u>

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Comment: Based on SK analysis the recommended ASL is 24-S1.

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 398 - Miscellaneous Equipment**

Age	Cumulative Survivors
BAND	1940 - 2001
0	1.0000
0.5	1.0000
1.5	1.0000
2.5	0.9968
3.5	0.9968
4.5	0.9960
5.5	0.9708
6.5	0.9696
7.5	0.9692
8.5	0.9586
9.5	0.9432
10.5	0.8966
11.5	0.8899
12.5	0.8321
13.5	0.8318
14.5	0.8096
15.5	0.7954
16.5	0.7900
17.5	0.7900
18.5	0.7886
19.5	0.7333
20.5	0.7333
21.5	0.5200
22.5	0.4938
23.5	0.4886
24.5	0.4844
25.5	0.4551
26.5	0.4489
27.5	0.4486
28.5	0.4038
29.5	0.2162
30.5	0.2138
31.5	0.2086
32.5	0.2011
33.5	0.1924
34.5	0.1845
35.5	0.1751
36.5	0.1659
37.5	0.1623
38.5	0.1592
39.5	0.0000
40.5	0.0000
41.5	0.0000
42.5	0.0000
43.5	0.0000
44.5	0.0000

**Observed Life Table Results**  
**Arizona Public Service Company**  
**Account: 398 - Miscellaneous Equipment**

<b>Age</b>	<b>Cumulative Survivors</b>
45.5	0.0000
46.5	0.0000
47.5	0.0000
48.5	0.0000
49.5	0.0000
50.5	0.0000
51.5	0.0000
52.5	0.0000
53.5	0.0000
54.5	0.0000
55.5	0.0000
56.5	0.0000
57.5	0.0000
58.5	0.0000
59.5	0.0000
60.5	0.0000

**Best Fit Curve Results**  
**Arizona Public Service Company**  
**Account: 398 - Miscellaneous Equipment**

Curve	Life	Sum of Squared Differences
<b>BAND</b>	<b>1940 - 2001</b>	
S1	24.0	927.770
R1.5	24.0	1,031.150
S0.5	24.0	1,047.572
S1.5	25.0	1,135.109
R2	24.0	1,221.833
L2	25.0	1,313.368
R1	24.0	1,480.826
S0	24.0	1,624.976
L3	25.0	1,692.365
S2	25.0	1,700.006
L1.5	25.0	1,749.236
R2.5	24.0	1,892.164
L1	24.0	2,593.650
R0.5	23.0	2,641.833
S-0.5	23.0	2,861.849
R3	25.0	3,054.026
S3	25.0	3,630.662
L0.5	24.0	3,837.089
L4	25.0	4,437.326
O1	23.0	4,667.802
L0	24.0	5,519.027
R4	25.0	5,901.496
S4	25.0	7,130.854
O2	24.0	7,344.589
L5	25.0	8,340.774
R5	25.0	10,183.832
S5	25.0	11,319.621
S6	24.0	15,810.157
O3	27.0	16,115.601
O4	34.0	21,809.131
SQ	22.0	25,179.928

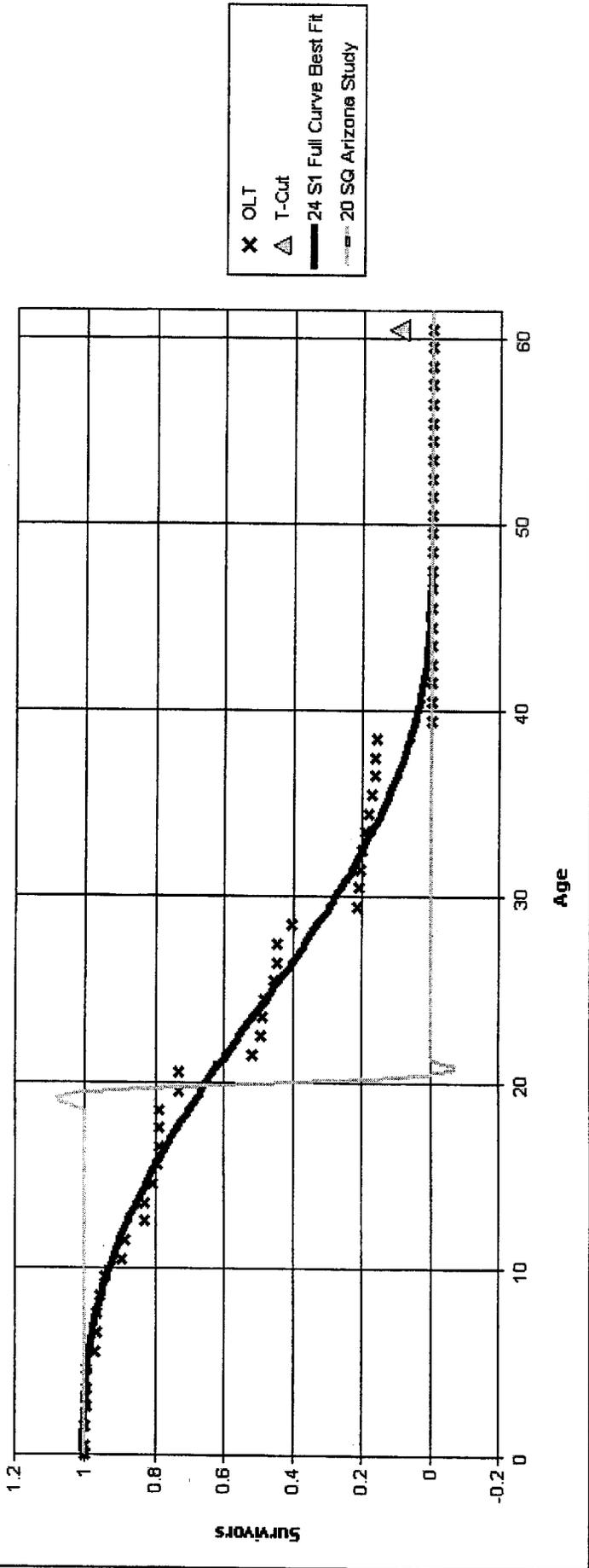
**Analytical Parameters**

OLT Placement Band:	1940 - 2001
OLT Experience Band:	1940 - 2001
Minimum Life Parameter:	2
Maximum Life Parameter:	50
Life Increment Parameter:	1
Max Age (T-Cut):	60.5

**Fitted Curve Results**

**Fitted Curve Results - Arizona Public Service Company Miscellaneous Equipment**

**Account: 398**



**Analytical Parameters**

OLT Placement Band: 1940 - 2001  
 OLT Experience Band: 1940 - 2001  
 Minimum Life Parameter: 2  
 Maximum Life Parameter: 50  
 Life Increment Parameter: 1  
 Maximum Age (T-Cut): 60.5

Arizona Public Service Company

398 - Miscellaneous Equipment

Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002

SURVIVOR CURVE..IOWA

24 S1

Year (1)	Age (2)	Surviving Investment (3)	BG/VG Average		ASL Weights (6)=(3)/(4)	RL Weights (7)=(6)*(5)
			Service Life (4)	Remaining Life (5)		
2002	0.5	255,380	24.00	23.50	10,641	250,053
2001	1.5	27,403	24.00	22.51	1,142	25,700
2000	2.5	23,461	24.00	21.54	978	21,055
1999	3.5		24.00	20.60	-	-
1998	4.5		24.00	19.68	-	-
1997	5.5		24.00	18.80	-	-
1996	6.5		24.00	17.96	-	-
1995	7.5		24.00	17.15	-	-
1994	8.5	601,135	24.00	16.38	25,047	410,243
1993	9.5	4,383	24.00	15.64	183	2,856
1992	10.5		24.00	14.93	-	-
1991	11.5	2,956	24.00	14.25	123	1,755
1990	12.5	111,815	24.00	13.60	4,659	63,363
1989	13.5	103,445	24.00	12.98	4,310	55,937
1988	14.5	11,188	24.00	12.38	466	5,772
1987	15.5	69,632	24.00	11.81	2,901	34,258
1986	16.5	67,697	24.00	11.26	2,821	31,753
1985	17.5	5,828	24.00	10.73	243	2,605
1984	18.5	11,419	24.00	10.22	476	4,862
1983	19.5	9,787	24.00	9.73	408	3,966
1982	20.5		24.00	9.25	-	-
1981	21.5	25,332	24.00	8.79	1,056	9,282
1980	22.5		24.00	8.35	-	-
1979	23.5		24.00	7.92	-	-
1978	24.5		24.00	7.50	-	-
1977	25.5	469	24.00	7.10	20	139
1976	26.5	5,074	24.00	6.71	211	1,418
		1,336,404			55,684	925,016

**Arizona Public Service Company**

**398 - Miscellaneous Equipment**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**SURVIVOR CURVE..IOWA**

**24 S1**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
AVERAGE SERVICE LIFE						24.00
AVERAGE REMAINING LIFE						16.61

**Arizona Public Service Company**

**Section NS**

**Net Salvage**

Schedule 1. Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant in Service at December 31, 2002  
Company Parameters With No Net Salvage

Depreciable Group (1)	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2001 (5)	Book Accumulated Depreciation (6)	Future Accruals (7)	Composite Remaining Life (8)	Amount (9)	Rate (10)=(9)/(5)
<b>PLANT IN SERVICE</b>									
<b>311 STEAM PRODUCTION PLANT</b>									
Structure and Improvements									
Cholla Unit 1	06-2017	75-S1.5	0	2,144,789	1,964,146	180,643	14.0	12,903	0.60%
Cholla Unit 2	06-2033	75-S1.5	0	5,022,179	2,346,306	2,675,873	29.0	92,271	1.84%
Cholla Unit 3	06-2035	75-S1.5	0	9,583,277	6,113,726	3,469,551	29.9	116,038	1.21%
Cholla Common	06-2035	75-S1.5	0	36,234,550	22,949,841	13,284,709	29.9	444,305	1.23%
Four Corners Units 1-3	06-2016	75-S1.5	0	15,972,927	7,395,910	8,577,017	13.3	644,888	4.04%
Four Corners Units 4-5	06-2031	75-S1.5	0	9,195,585	5,253,259	3,942,326	26.8	147,102	1.60%
Four Corners Common	06-2031	75-S1.5	0	3,946,871	2,790,814	1,156,057	26.8	43,136	1.09%
Navajo Units 1-3	06-2026	75-S1.5	0	27,152,517	11,359,467	15,793,050	22.8	692,678	2.55%
Ocotillo Units 1-2	06-2020	75-S1.5	0	3,787,972	1,882,068	1,905,904	17.1	111,456	2.94%
Saguaro Units 1-2	06-2014	75-S1.5	0	2,446,832	2,011,377	435,455	11.3	38,536	1.57%
Yucca Unit 1	06-2016	75-S1.5	0	462,567	471,080	(8,513)	13.1	(650)	-0.14%
<b>Total Account 311</b>				<b>115,950,066</b>	<b>64,537,994</b>	<b>51,412,072</b>		<b>2,342,664</b>	<b>2.02%</b>
<b>312 Boiler Plant Equipment</b>									
Cholla Unit 1	06-2017	48-L2	0	26,431,681	17,353,280	9,078,401	13.4	677,493	2.56%
Cholla Unit 2	06-2033	48-L2	0	140,612,492	93,979,314	46,633,178	22.0	2,119,690	1.51%
Cholla Unit 3	06-2035	48-L2	0	100,448,985	63,309,215	37,139,750	22.9	1,621,823	1.61%
Cholla Common	06-2035	48-L2	0	22,626,051	11,951,401	10,674,650	24.8	430,429	1.90%
Four Corners Units 1-3	06-2016	48-L2	0	197,139,757	90,637,620	106,502,137	12.7	8,385,995	4.25%
Four Corners Units 4-5	06-2031	48-L2	0	111,591,873	60,671,520	50,920,363	22.1	2,304,088	2.06%
Four Corners Common	06-2031	48-L2	0	3,290,391	2,787,122	503,269	22.8	22,073	0.67%
Navajo Units 1-3	06-2026	48-L2	0	149,350,243	65,220,188	84,130,055	20.6	4,063,983	2.73%
Ocotillo Units 1-2	06-2020	48-L2	0	24,152,351	18,891,592	5,260,759	15.2	346,103	1.43%
Saguaro Units 1-2	06-2014	48-L2	0	24,387,712	17,510,312	6,877,400	11.1	619,586	2.54%
<b>Total Account 312</b>				<b>800,031,516</b>	<b>442,311,564</b>	<b>357,719,952</b>		<b>20,611,263</b>	<b>2.58%</b>
<b>314 Turbogenerator Units</b>									
Cholla Unit 1	06-2017	65-R2	0	10,417,373	8,187,222	2,230,151	14.0	159,297	1.53%
Cholla Unit 2	06-2033	65-R2	0	28,551,889	18,457,272	10,094,617	27.5	367,077	1.29%
Cholla Unit 3	06-2035	65-R2	0	39,626,197	19,942,381	19,683,816	29.7	662,755	1.67%
Cholla Common	06-2035	65-R2	0	631,278	389,822	241,456	29.0	8,326	1.32%
Four Corners Units 1-3	06-2016	65-R2	0	36,412,926	24,997,649	11,415,277	13.1	871,395	2.39%
Four Corners Units 4-5	06-2031	65-R2	0	14,488,238	8,049,950	6,438,288	26.3	244,802	1.69%
Four Corners Common	06-2031	65-R2	0	1,726,164	1,965,225	(239,061)	23.3	(10,260)	-0.59%
Navajo Units 1-3	06-2026	65-R2	0	24,387,110	15,363,242	9,023,868	22.0	410,176	1.68%
Ocotillo Units 1-2	06-2020	65-R2	0	15,517,601	13,579,702	1,937,899	16.8	115,351	0.74%
Saguaro Units 1-2	06-2014	65-R2	0	16,259,698	12,946,682	3,313,016	11.2	295,805	1.82%
<b>Total Accounts 314</b>				<b>188,018,474</b>	<b>123,879,147</b>	<b>64,139,327</b>		<b>3,124,723</b>	<b>1.66%</b>

**Schedule 1. Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant in Service at December 31, 2002  
Company Parameters With No Net Salvage**

Depreciable Group (1)	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2001 (5)	Book Accumulated Depreciation (6)	Future Accruals (7)	Composite Remaining Life (8)	Calculated Annual Accrual (9)	Rate (10)=(9)/(8)
<b>315 Accessory Electric Equipment</b>									
Cholla Unit 1	06-2017	60-R2.5	0	4,756,906	3,537,479	1,219,427	13.9	87,729	1.84%
Cholla Unit 2	06-2033	60-R2.5	0	42,235,618	29,787,215	12,448,403	26.8	464,493	1.10%
Cholla Unit 3	06-2035	60-R2.5	0	29,917,206	18,952,154	10,965,052	28.5	384,739	1.29%
Cholla Common	06-2035	60-R2.5	0	4,476,001	2,804,488	1,671,513	28.7	58,241	1.30%
Four Corners Units 1-3	06-2016	60-R2.5	0	16,353,282	6,735,295	9,617,987	13.2	728,635	4.46%
Four Corners Units 4-5	06-2031	60-R2.5	0	9,183,206	5,249,818	3,933,388	25.9	151,868	1.65%
Four Corners Common	06-2031	60-R2.5	0	2,596,719	3,017,438	(420,719)	21.0	(20,034)	-0.77%
Navajo Units 1-3	06-2026	60-R2.5	0	20,226,194	12,812,227	7,413,967	22.0	336,999	1.67%
Ocotillo Units 1-2	06-2020	60-R2.5	0	2,407,622	2,349,290	58,332	16.3	3,579	0.15%
Saguaro Units 1-2	06-2014	60-R2.5	0	2,654,661	2,598,693	55,968	11.2	4,997	0.19%
<b>Total Account 315</b>				<b>134,807,415</b>	<b>87,844,097</b>	<b>46,963,318</b>		<b>2,201,244</b>	<b>1.63%</b>
<b>316 Miscellaneous Power Plant Equipment</b>									
Cholla Unit 1	06-2017	40-R2	0	2,315,189	849,777	1,465,412	13.5	108,549	4.69%
Cholla Unit 2	06-2033	40-R2	0	4,846,431	2,942,292	1,904,139	22.1	86,160	1.78%
Cholla Unit 3	06-2035	40-R2	0	4,138,531	2,216,283	1,920,248	23.8	80,683	1.95%
Cholla Common	06-2035	40-R2	0	7,096,069	2,519,563	4,576,506	25.8	177,364	2.50%
Four Corners Units 1-3	06-2016	40-R2	0	4,330,612	557,644	3,772,968	13.1	288,013	6.65%
Four Corners Units 4-5	06-2031	40-R2	0	3,304,340	1,499,998	1,804,342	23.0	78,450	2.37%
Four Corners Common	06-2031	40-R2	0	8,133,224	3,516,915	4,616,309	23.2	198,979	2.45%
Navajo Units 1-3	06-2026	40-R2	0	11,805,250	5,178,470	6,626,780	20.2	328,058	2.78%
Ocotillo Units 1-2	06-2020	40-R2	0	3,711,192	1,047,634	2,663,558	16.2	164,417	4.43%
Saguaro Units 1-2	06-2014	40-R2	0	3,191,024	1,012,665	2,178,359	10.9	199,849	6.26%
Yucca Unit 1	06-2016	40-R2	0	452,868	353,040	99,828	12.2	8,183	1.81%
<b>Total Account 316</b>				<b>53,324,730</b>	<b>21,696,281</b>	<b>31,628,449</b>		<b>1,718,725</b>	<b>3.22%</b>
<b>TOTAL STEAM PRODUCTION PLANT</b>									
				<b>1,292,132,201</b>	<b>740,269,083</b>	<b>551,863,118</b>		<b>29,998,620</b>	
<b>NUCLEAR PRODUCTION PLANT</b>									
<b>321 Structures and Improvements</b>									
Palo Verde Unit 1	12-2024	65-R2.5	0	161,039,432	68,224,238	92,815,194	21.2	4,384,691	2.72%
Palo Verde Unit 2	12-2025	65-R2.5	0	88,415,270	37,056,726	51,358,544	22.0	2,331,149	2.64%
Palo Verde Unit 3	03-2027	65-R2.5	0	159,591,077	62,020,595	97,570,482	23.3	4,195,723	2.63%
Palo Verde Water Reclamation	03-2027	65-R2.5	0	125,593,913	50,775,392	74,818,521	23.2	3,225,203	2.57%
Palo Verde Common	03-2027	65-R2.5	0	98,127,309	38,045,036	60,082,273	23.2	2,586,955	2.64%
<b>Total Account 321</b>				<b>632,767,001</b>	<b>256,123,987</b>	<b>376,643,014</b>		<b>16,723,721</b>	<b>2.64%</b>
<b>322 Reactor Plant Equipment</b>									
Palo Verde Unit 1	12-2024	70-R1	0	359,545,213	144,992,453	214,552,760	20.6	10,415,183	2.90%
Palo Verde Unit 2	12-2025	70-R1	0	176,362,235	64,407,419	111,954,816	21.5	5,207,201	2.95%
Palo Verde Unit 3	03-2027	70-R1	0	322,750,700	118,393,045	204,357,655	22.6	9,042,374	2.80%
Palo Verde Water Reclamation	03-2027	70-R1	0	123,313	5,190	118,123	23.0	5,136	4.16%
Palo Verde Common	03-2027	70-R1	0	26,449,873	9,772,755	16,677,118	22.6	737,926	2.79%
<b>Total Account 322</b>				<b>885,231,334</b>	<b>337,570,862</b>	<b>547,660,472</b>		<b>25,407,819</b>	<b>2.87%</b>

Depreciable Group (1)	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2001 (5)	Book Accumulated Depreciation (6)	Future Accruals (7)	Composite Remaining Life (8)	Amount (9)	Rate (10)=(9)/(5)
<b>322.1 Reactor Plant Equipment - Steam Generators</b>									
Palo Verde Unit 1	12-2005	Square	0	30,722,375	31,766,117	(1,043,742)	3.0	(347,914)	-1.13%
Palo Verde Unit 2	12-2003	Square	0	15,670,053	17,917,124	(2,047,071)	1.0	(2,047,071)	-12.90%
Palo Verde Unit 3	12-2007	Square	0	25,413,317	23,597,351	1,815,966	5.0	363,193	1.43%
<b>Total Account 322.1</b>				<b>72,005,745</b>	<b>73,280,592</b>	<b>(1,274,847)</b>		<b>(2,031,792)</b>	<b>-2.82%</b>
<b>323 Turbogenerator Units</b>									
Palo Verde Unit 1	12-2024	60-S0	0	117,808,078	50,929,473	66,878,605	19.9	3,360,734	2.85%
Palo Verde Unit 2	12-2025	60-S0	0	76,754,224	30,390,765	46,363,459	20.8	2,229,012	2.90%
Palo Verde Unit 3	03-2027	60-S0	0	142,895,088	55,717,208	87,177,880	21.8	3,998,985	2.80%
Palo Verde Water Reclamation	03-2027	60-S0	0	217,707	54,310	163,397	22.2	7,427	3.41%
<b>Total Account 323</b>				<b>338,898,976</b>	<b>136,960,348</b>	<b>201,938,628</b>		<b>9,657,208</b>	<b>2.85%</b>
<b>324 Accessory Electric Equipment</b>									
Palo Verde Unit 1	45-R3	0	0	50,119,388	51,830,648	63,664,522	20.0	3,183,226	2.76%
Palo Verde Unit 2	45-R3	0	0	89,143,623	20,346,865	29,772,523	20.9	1,424,523	2.84%
Palo Verde Unit 3	45-R3	0	0	17,916,193	36,276,331	52,867,292	22.1	2,392,185	2.68%
Palo Verde Water Reclamation	45-R3	0	0	7,373,717	7,373,717	10,544,476	22.0	479,294	2.67%
<b>Total Account 324</b>				<b>115,827,561</b>	<b>115,827,561</b>	<b>156,848,813</b>		<b>7,479,228</b>	<b>2.74%</b>
<b>325 Miscellaneous Power Plant Equipment</b>									
Palo Verde Unit 1	35-R0.5	0	0	29,871,405	17,809,436	12,061,969	17.7	881,467	2.30%
Palo Verde Unit 2	35-R0.5	0	0	26,389,406	13,408,579	12,960,827	18.7	694,162	2.63%
Palo Verde Unit 3	35-R0.5	0	0	27,284,046	15,083,087	12,200,859	19.2	635,467	2.33%
Palo Verde Water Reclamation	35-R0.5	0	0	48,459,510	46,552	42,267	19.4	2,166	2.44%
<b>Total Account 325</b>				<b>111,893,186</b>	<b>21,228,993</b>	<b>64,516,539</b>		<b>3,416,898</b>	<b>2.59%</b>
<b>TOTAL NUCLEAR PRODUCTION PLANT</b>				<b>2,333,472,616</b>	<b>67,376,647</b>	<b>1,346,332,619</b>		<b>60,653,082</b>	
<b>HYDRO PRODUCTION PLANT</b>									
331 Structures and Improvements	12-2024	Square	0	100,878	100,878	(113,150)	-	0.0	0.00%
332 Reservoirs, Dams, and Waterways	12-2004	Square	0	991,936	1,105,086	-	-	0.0	0.00%
333 Water Wheels, Turbines, and Waterways	12-2004	Square	0	157,196	627,611	-	-	0.0	0.00%
334 Accessory Electric Equipment and Generators	12-2004	Square	0	627,611	126,018	-	-	0.0	0.00%
335 Miscellaneous Power Plant Equipment	12-2004	Square	0	126,018	126,018	-	-	0.0	0.00%
336 Roads, Railroads, and Bridges	12-2004	Square	0	77,427	77,427	-	-	0.0	0.00%
Hydro Decommissioning Costs				2,081,066	7,864,531	-	-	-	-
<b>TOTAL HYDRO PRODUCTION PLANT</b>				<b>10,058,747</b>	<b>5,335,469 (a)</b>	<b>2.0</b>		<b>2,667,735</b>	<b>128.19%</b>
					<b>5,222,319</b>				

**Schedule 1. Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant in Service at December 31, 2002  
Company Parameters With No Net Salvage**

Depreciable Group (1)	Probable Retirement Date (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/2001 (5)	Book Accumulated Depreciation (6)	Future Accruals (7)	Composite Remaining Life (8)	Calculated Annual Amount (9)	Rate (10)=(9)/(5)
<b>OTHER PRODUCTION PLANT</b>									
341 Structures and Improvements									
Douglas CT	06-2017	80-S1	0	4,562	3,417	1,145	13.9	82	1.81%
Ocotillo CT 1-2	06-2017	80-S1	0	328,749	309,919	18,830	14.5	1,299	0.40%
Saguaro CT	06-2017	80-S1	0	1,286,525	360,232	928,293	14.4	64,461	5.00%
Solar Unit 1	06-2017	12-SQ	0	375,512	237,890	137,622	3.6	38,056	10.13%
West Phoenix CT 1-2	06-2031	80-S1	0	510,951	475,096	35,855	14.2	2,525	0.49%
West Phoenix Combined Cycle 1-3	06-2031	80-S1	0	6,706,722	3,949,614	2,757,108	28.1	98,118	1.46%
Yucca CT 1-4	06-2016	80-S1	0	452,751	155,293	297,458	13.4	22,198	4.90%
<b>Total Account 341</b>				<b>9,667,772</b>	<b>5,491,522</b>	<b>4,176,250</b>		<b>226,739</b>	<b>2.35%</b>
342 Fuel Holders, Products and Accessories									
Douglas CT	06-2017	70-S1	0	137,759	73,566	64,193	14.0	4,585	3.33%
Ocotillo CT 1-2	06-2017	70-S1	0	719,859	359,329	360,530	14.0	25,752	3.58%
Saguaro CT	06-2017	70-S1	0	1,304,977	804,476	500,501	14.0	35,750	2.74%
West Phoenix CT 1-2	06-2017	70-S1	0	1,437,533	840,769	596,764	14.0	42,626	2.97%
West Phoenix Combined Cycle 1-3	06-2031	70-S1	0	19,343,993	2,978,088	16,365,905	27.7	590,827	3.05%
Yucca CT 1-4	06-2016	70-S1	0	3,232,217	2,710,284	521,933	12.9	40,460	1.25%
<b>Total Account 342</b>				<b>26,176,338</b>	<b>7,766,512</b>	<b>18,409,826</b>		<b>740,000</b>	<b>2.83%</b>
343 Prime Movers									
Douglas CT	06-2017	70-L1.5	0	1,101,449	1,102,406	(957)	0.0	-	0.00%
Ocotillo CT 1-2	06-2017	70-L1.5	0	6,679,324	6,127,017	552,307	14.1	39,158	0.59%
Saguaro CT	06-2017	70-L1.5	0	8,102,651	6,441,363	1,661,363	13.8	120,086	1.48%
West Phoenix CT 1-2	06-2017	70-L1.5	0	8,802,636	6,428,854	2,373,782	14.2	167,290	1.90%
Yucca CT 1-4	06-2016	70-L1.5	0	7,920,584	8,796,851	(876,267)	0.0	-	0.00%
<b>Total Account 343</b>				<b>32,606,644</b>	<b>28,896,416</b>	<b>3,710,228</b>		<b>326,634</b>	<b>1.00%</b>
344 Generators and Devices									
Douglas CT	06-2017	37-R3	0	551,765	546,431	5,334	9.7	549	0.10%
Ocotillo CT 1-2	06-2017	37-R3	0	6,402,044	2,369,080	4,032,964	13.6	296,448	4.63%
Saguaro CT	06-2017	37-R3	0	4,185,247	1,954,137	2,231,110	13.0	171,743	4.10%
Solar Unit 1	06-2017	12-SQ	0	6,933,081	3,041,951	3,891,130	7.8	498,118	7.18%
West Phoenix CT 1-2	06-2031	37-R3	0	4,115,901	2,407,953	1,707,948	12.3	138,912	3.36%
West Phoenix Combined Cycle 1-3	06-2031	37-R3	0	81,920,222	11,064,493	70,855,729	26.2	2,704,417	3.30%
Yucca CT 1-4	06-2016	37-R3	0	5,395,818	3,751,109	1,644,709	11.6	141,655	2.63%
<b>Total Account 344</b>				<b>109,504,078</b>	<b>25,135,154</b>	<b>84,368,924</b>		<b>3,951,842</b>	<b>3.61%</b>
345 Accessory Electric Equipment									
Douglas CT	06-2017	50-S2	0	353,277	296,417	56,860	13.1	4,339	1.23%
Ocotillo CT 1-2	06-2017	50-S2	0	1,494,636	1,158,282	336,354	13.2	25,401	1.70%
Saguaro CT	06-2017	50-S2	0	1,715,774	1,133,530	582,244	13.4	43,562	2.54%
Solar Unit 1	06-2017	12-SQ	0	169,527	12,853	156,674	9.9	15,865	9.36%
West Phoenix CT 1-2	06-2017	50-S2	0	1,557,744	1,079,614	478,130	13.2	36,163	2.32%
West Phoenix Combined Cycle 1-3	06-2031	50-S2	0	11,925,645	3,758,130	8,167,515	27.8	293,998	2.47%
Yucca CT 1-4	06-2016	50-S2	0	2,166,526	1,818,547	347,979	13.0	26,820	1.24%
<b>Total Account 345</b>				<b>19,383,129</b>	<b>9,257,373</b>	<b>10,125,756</b>		<b>446,148</b>	<b>2.30%</b>

**Schedule 1. Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant in Service at December 31, 2002  
Company Parameters With No Net Salvage**

(1) Depreciable Group	(2) Probable Retirement Date	(3) Estimated Survivor Curve	(4) Net Salvage Percent	(5) Original Cost at 12/31/2001	(6) Book Accumulated Depreciation	(7) Future Accruals	(8) Composite Remaining Life	(9) Amount	(10)=(9)/(5) Rate
346 Miscellaneous Power Plant Equipment									
Douglas CT	06-2017	70-L1	0	40,913	29,882	11,031	13.8	798	1.95%
Ocotillo CT 1-2	06-2017	70-L1	0	553,173	460,255	92,918	14.0	6,650	1.20%
Saguaro CT	06-2017	70-L1	0	790,906	388,367	402,539	14.1	28,508	3.60%
West Phoenix CT 1-2	06-2017	70-L1	0	957,431	478,217	478,214	14.1	33,908	3.54%
West Phoenix Combined Cycle 1-3	06-2031	70-L1	0	2,608,877	1,714,480	894,397	26.6	33,618	1.29%
Yucca CT 1-4	06-2016	70-L1	0	427,175	411,833	15,342	13.2	1,166	0.27%
<b>Total Account 346</b>				<b>5,378,475</b>	<b>3,484,034</b>	<b>1,894,441</b>		<b>104,648</b>	<b>1.95%</b>
<b>TOTAL OTHER PRODUCTION PLANT</b>				<b>202,716,436</b>	<b>80,031,011</b>	<b>122,685,425</b>		<b>5,795,911</b>	
<b>TRANSMISSION PLANT</b>									
352 Structures and Improvements									
352.5 Structures and Improvements - SCE 500 KV Line									
353 Station Equipment									
353.5 Station Equipment - SCE 500 KV Line									
354 Towers and Fixtures									
354.5 Towers and Fixtures - SCE 500 KV Line									
355 Poles and Fixtures - Wood									
355.1 Poles and Fixtures - Steel									
355.5 Poles and Fixtures - SCE 500 KV Line									
356 Overhead Conductors and Devices									
356.5 Overhead Conductors and Devices - SCE 500 KV Line									
357 Underground Conduit									
358 Underground Conductors and Devices									
<b>TOTAL TRANSMISSION PLANT</b>				<b>994,274,409</b>	<b>402,048,830</b>	<b>605,873,606</b>	<b>289</b>	<b>18,365,369</b>	<b>1.85%</b>
<b>DISTRIBUTION PLANT</b>									
361 Structures and Improvements									
362 Station Equipment									
364 Poles and Fixtures - Wood									
364.1 Poles and Fixtures - Steel									
365 Overhead Conductors and Devices									
366 Underground Conduit									
367 Underground Conductors and Devices									
368 Line Transformers									
369 Services									
370 Meters									
370.1 Electronic Meters									
371 Installations On Customer Premises									
373 Street Lighting and Signal Systems									
<b>TOTAL DISTRIBUTION PLANT</b>				<b>2,984,164,052</b>	<b>865,761,801</b>	<b>2,118,402,251</b>	<b>25.9</b>	<b>77,367,297</b>	<b>2.59%</b>

**Schedule 1. Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant in Service at December 31, 2002  
Company Parameters With No Net Salvage**

(1) Depreciable Group	(2) Probable Retirement Date	(3) Estimated Survivor Curve	(4) Net Salvage Percent	(5) Original Cost at 12/31/2001	(6) Book Accumulated Depreciation	(7) Future Accruals	(8) Composite Remaining Life	(9) Calculated Annual Accrual		(10)=(9)/(5) Rate
								Amount	Rate	
<b>GENERAL PLANT</b>										
390 Structures and Improvements		39-R1	0	96,667,435	30,654,079	66,013,356	30.7	2,150,272	2.22%	(c)
391 Office Furniture and Equipment - Furniture Reserve Variance Amortization		20-SQ	0	19,919,640	9,897,448	10,022,192	10.1	994,570	5.00%	(c)
391.1 Office Furniture and Equipment - Pc Equip Reserve Variance Amortization		5-SQ	0	38,654,946	21,283,348 (7,055,994)	17,371,598 7,055,994	2.7 3.0 (d)	994,570 6,467,368 2,351,998 8,819,366	20.00%	(c)
391.2 Office Furniture and Equipment - Equipment Reserve Variance Amortization		10-SQ	0	7,652,923	4,070,284	3,582,639	7.8 3.0 (d)	461,909	10.00%	(c)
393 Stores Equipment Reserve Variance Amortization		20-SQ	0	1,227,371	1,142,564 (303,976)	84,807 303,976	2.8 3.0 (d)	29,921 101,325	5.00%	(c)
394 Tools, Shop and Garage Equipment Reserve Variance Amortization		20-SQ	0	12,673,031	3,989,281 (690,684)	8,683,750 690,684	13.7 3.0 (d)	633,652 230,228 863,880	5.00%	(c)
395 Laboratory Equipment Reserve Variance Amortization		15-SQ	0	1,350,583	1,082,162 (38,339)	268,421 38,339	3.6 3.0 (d)	75,200 12,780 87,980	6.67%	(c)
397 Communication Equipment		19-S1.5	0	94,309,691	36,587,109	57,722,582	12.0	4,811,742	5.10%	(c)
398 Miscellaneous Equipment Reserve Variance Amortization		20-SQ	0	1,336,404	584,352 62,877	752,052 (62,877)	11.5 3.0 (d)	65,276 (20,959) 44,317	5.00%	(c)
<b>TOTAL GENERAL PLANT</b>				<b>273,792,024</b>	<b>101,264,511</b>	<b>172,527,513</b>		<b>18,365,282</b>		
<b>TOTAL DEPRECIABLE PLANT STUDIED</b>				<b>8,082,632,804</b>	<b>3,185,573,980</b>	<b>4,922,906,851</b>		<b>213,213,297</b>		
<b>COMPANY PROPOSAL</b>								<b>244,796,360</b>		
<b>DIFFERENCE DUE TO NET SALVAGE</b>								<b>31,583,063</b>		

(a) Future Accruals Related to Hydro Decommissioning are Equal to the Expected Decommissioning Costs of 13.2 Million less the Book Accumulated Depreciation

(b) Assets Related to the 500 KV SCE Transmission Line are Depreciated at a 3.25 Rate

(c) SK Note: For purposes of this analysis, net salvage, if any, is not removed from the 3.25 rate.

(d) Amortization Rate Applicable to those Vintages Within the Amortization Period

Reserve Variances Related to General Plant Amortization Accounts are Amortized Over 3 Years

**Arizona Public Service Company  
Actual Net Salvage Experience  
1998 - 2002**

<u>Year</u>	<u>Gross Salvage</u>	<u>Cost of Removal</u>	<u>Net Salvage</u>
1998	\$ 6,661,775	\$ 863,156	\$ 5,798,619
1999	4,830,835	1,993,667	2,837,168
2000	10,694,073	4,796,643	5,897,430
2001	7,230,051	14,136,598	(6,906,547)
2002	<u>9,119,972</u>	<u>11,046,897</u>	<u>(1,926,925)</u>
Total	\$ 38,536,706	\$ 32,836,961	\$ 5,699,745
Average	\$ 7,707,341	\$ 6,567,392	\$ 1,139,949

Source: FERC Form 1 Reports

**Arizona Public Service Company**

**Section PWEC**

**Pinnacle West Energy Corporation  
Calculations**

**Pinnacle West Energy Corporation**

**Summary New Gas Plants**

	<b>Company Proposed 2002</b>	<b>Snavelly King Recommended 2002</b>
<b><u>Depreciable Base</u></b>		
Redhawk 1	268,550	268,550
Redhawk 2	268,550	268,550
Redhawk Transmission	49,000	49,000
WP 4	78,133	78,133
WP 5 - Gross Plant @ 6/1/03 for '02	308,644	308,644
Saguaro	<u>36,558</u>	<u>36,558</u>
Total	1,009,435	1,009,435
<b><u>Depreciation Rate</u></b>		
Redhawk 1	4.28%	2.86%
Redhawk 2	4.28%	2.86%
Redhawk Transmission	2.34%	1.75%
WP 4	3.61%	2.20%
WP 5 - Gross Plant @ 6/1/03 for '02	4.28%	2.86%
Saguaro	3.76%	2.81%
Total		
<b><u>Annualized Depreciation Expense</u></b>		
Redhawk 1	11,494	7,693
Redhawk 2	11,494	7,693
Redhawk Transmission	1,147	857
WP 4	2,821	1,723
WP 5 - Gross Plant @ 6/1/03 for '02	13,210	8,842
Saguaro	<u>1,375</u>	<u>1,028</u>
Total	41,540	27,836

1/ Company Workpaper DGR\_WP14, page 18 of 21.

2/ Exhibit\_\_\_(MJM-3), page PWEC-3 of PWEC-9.

Note: West Phoenix 5 is not included in depreciation study. Used Redhawk rate for this plant to match Company.

PINNACLE WEST ENERGY CORPORATION

Summary of Service Life and Net Salvage Estimates and Calculated Remaining Life Annual Accruals  
Related to Electric Plant at December 31, 2002  
Snavely King Recommendations

Depreciable Group (1)	Probable Retirement Year (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Original Cost at 12/31/02 (5)	Snavely King Allocated Accumulated Depreciation (6)	Future Accruals (7)=(5)-(6)	Composite Remaining Life (8)	Calculated Annual Accrual Amount (9)=(7)/(8)	Rate (10)=(9)/(5)
<b>OTHER PRODUCTION</b>									
341 Structures and Improvements West Phoenix CC 4	6-2056	80-S1	0	3,768,898	69,749	3,699,149	49.71	74,415	1.97%
342 Fuel Holders, Products and Accessories West Phoenix CC 4	6-2056	70-S1	0	4,135,109	62,598	4,072,511	48.32	84,282	2.04%
343 Prime Movers West Phoenix CC 4	6-2056	70-L1.5	0	57,116,985	919,686	56,197,299	46.94	1,197,216	2.10%
344 Generators and Devices Redhawk CC Units 1 & 2 West Phoenix CC 4 Saguaro CT 3 Total Account 344	6-2057 6-2056 6-2047	70-O4 37-R3 37-R3	0 0 0	546,899,426 14,296,553 37,659,176 598,855,155	13,736,086 28,896 75,121 13,840,102	533,163,340 14,267,657 37,584,055 585,015,053	34.03 35.47 35.49	15,667,450 402,246 1,059,004 17,128,700	2.86% 2.81% 2.81% 2.86%
<b>TOTAL OTHER PRODUCTION PLANT</b>									
<b>TRANSMISSION</b>									
353 Station Equipment Redhawk CC Units 1 & 2 West Phoenix CC 4 Total Account 353		57-R1.5 57-R1.5	0 0	46,000,000 1,953,105 47,953,105	569,193 72,502 641,695	45,430,807 1,880,603 47,311,410	56.59 55.77	802,806 33,721 836,527	1.75% 1.73% 1.74%
355 Poles and Fixtures - Steel Redhawk CC Units 1 & 2		55-R3	0	1,500,000	23,458	1,476,542	54.5	27,093	1.81%
356 Overhead Conductors and Devices Redhawk CC Units 1 & 2		55-R3	0	1,500,000	23,458	1,476,542	54.5	27,093	1.81%
<b>TOTAL TRANSMISSION PLANT</b>									
<b>TOTAL DEPRECIABLE PLANT</b>									
<b>COMPOSITE CALCULATIONS</b>									
Redhawk				546,899,426				15,667,450	2.86%
Redhawk Transmission				49,000,000				856,991	1.75%
West Phoenix 4				81,270,650				1,791,879	2.20%
Saguaro				37,659,176				1,059,004	2.81%
Total				714,829,252	15,580,746	699,248,506		19,375,325	2.71%

PINNACLE WEST ENERGY CORPORATION

Calculation of Theoretical Reserve and Allocation of Book Reserve  
Related to Electric Plant at December 31, 2002  
Snavely King Recommendations

Depreciable Group (1)	Probable Retirement Year (2)	Estimated Survivor Curve (3)	Net Salvage Percent (4)	Composite Remaining Life (5)	Average Service Life (6)	Original Cost at 12/31/02 (7)	Snavely King Theoretical Reserve (8)	Book Reserve (9)	Snavely King Allocation of Book Reserve (10)
<b>OTHER PRODUCTION</b>									
341 Structures and Improvements West Phoenix CC 4	6-2056	80-S1	0	49.71	80	3,768,898	1,426,999		68,749
342 Fuel Holders, Products and Accessories West Phoenix CC 4	6-2056	70-S1	0	48.32	70	4,135,109	1,280,702		62,598
343 Prime Movers West Phoenix CC 4	6-2056	70-L1.5	0	46.94	70	57,116,985	18,815,967		919,686
344 Generators and Devices Redhawk CC Units 1 & 2 West Phoenix CC 4 Saguaro CT 3 Total Account 344	6-2057 6-2056 6-2047	70-O4 37-R3 37-R3	0 0 0	34.03 35.47 35.49	70 37 37	546,899,426 14,296,553 37,659,176 <u>598,855,155</u>	281,028,176 591,182 1,536,902 <u>283,156,260</u>		13,736,086 28,896 75,121 <u>13,840,102</u>
<b>TOTAL OTHER PRODUCTION PLANT</b>									
							304,679,928	14,892,135	14,892,135
<b>TRANSMISSION</b>									
353 Station Equipment Redhawk CC Units 1 & 2 West Phoenix CC 4 Total Account 353		57-R1.5 57-R1.5	0 0	56.59 55.77	57 57	46,000,000 1,953,105 <u>47,953,105</u>	330,877 42,146 <u>373,023</u>		569,193 72,502 <u>641,695</u>
355 Poles and Fixtures - Steel Redhawk CC Units 1 & 2		55-R3	0	54.5	55	1,500,000	13,636		23,458
356 Overhead Conductors and Devices Redhawk CC Units 1 & 2		55-R3	0	54.5	55	1,500,000	13,636		23,458
							400,296	688,611	688,611
<b>TOTAL TRANSMISSION PLANT</b>									
							305,080,224	15,580,746	15,580,746
<b>TOTAL DEPRECIABLE PLANT</b>									

**Pinnacle West Energy Corporation**

**341 - Structures & Improvements**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**WEST PHOENIX CC 4  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **80 S1  
6-2056**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	-	80.00	49.94	-	-
2001	1.5	3,768,898	80.00	49.71	47,111	2,342,130
		3,768,898			47,111	2,342,130
AVERAGE SERVICE LIFE						80.00
AVERAGE REMAINING LIFE						49.71

**Pinnacle West Energy Corporation**

**342 - Fuel Holders, Products and Accessories**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**WEST PHOENIX CC 4  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **70 S1  
6-2056**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	-	70.00	48.63	-	-
2001	1.5	4,135,109	70.00	48.32	59,073	2,854,656
		4,135,109			59,073	2,854,656
<b>AVERAGE SERVICE LIFE</b>						<b>70.00</b>
<b>AVERAGE REMAINING LIFE</b>						<b>48.32</b>

**Pinnacle West Energy Corporation**

**343 - Prime Movers**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**WEST PHOENIX CC 4  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **70 L1.5  
6-2056**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	-	70.00	47.30	-	-
2001	1.5	57,116,985	70.00	46.94	815,957	38,299,581
		57,116,985			815,957	38,299,581
AVERAGE SERVICE LIFE						70.00
AVERAGE REMAINING LIFE						46.94

**Pinnacle West Energy Corporation**

**344 - Generators and Devices**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

**REDHAWK CC 1 & 2  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **70 O4  
6-2057**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	546,899,426	70.00	34.03	7,812,849	265,892,430
		546,899,426			7,812,849	265,892,430

**WEST PHOENIX CC 4  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **37 R3  
6-2056**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	-	37.00	36.44	-	-
2001	1.5	14,296,553	37.00	35.47	386,393	13,704,185
		14,296,553			386,393	13,704,185

**SAGUARO CT 3  
INTERIM SURVIVOR CURVE..IOWA  
PROBABLE RETIREMENT YEAR** **37 R3  
6-2047**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
2002	0.5	37,659,176	37.00	35.49	1,017,816	36,124,073
		37,659,176			1,017,816	36,124,073
		598,855,155			9,217,058	315,720,687

COMPOSITE AVERAGE SERVICE LIFE 64.97  
COMPOSITE AVERAGE REMAINING LIFE 34.25

**Pinnacle West Energy Corporation**

**353 - Station Equipment**

**Calculation of Remaining Life  
Based Upon Broad Group/Vintage Group Life Group Procedures  
Related to Original Cost as of December 31, 2002**

<u>Year</u> (1)	<u>Age</u> (2)	<u>Surviving Investment</u> (3)	<u>BG/VG Average</u>		<u>ASL Weights</u> (6)=(3)/(4)	<u>RL Weights</u> (7)=(6)*(5)
			<u>Service Life</u> (4)	<u>Remaining Life</u> (5)		
<b>REDHAWK CC 1 &amp; 2</b>						
<b>SURVIVOR CURVE..IOWA</b>						
			<b>57</b>	<b>R1.5</b>		
2002	0.5	46,000,000	57.00	56.59	807,018	45,666,377
<b>WEST PHOENIX CC 4</b>						
<b>SURVIVOR CURVE..IOWA</b>						
			<b>57.00</b>	<b>R1.5</b>		
2002	0.5	-	57.00	56.59	-	-
2001	1.5	1,953,105	57.00	55.77	34,265	1,910,804
		1,953,105			34,265	1,910,804
		47,953,105			841,283	47,577,181
<b>COMPOSITE AVERAGE SERVICE LIFE</b>						<b>57.00</b>
<b>COMPOSITE AVERAGE REMAINING LIFE</b>						<b>56.55</b>

**BEFORE THE ARIZONA CORPORATION COMMISSION**

**MARC SPITZER**  
Chairman

**WILLIAM A. MUNDELL**  
Commissioner

**JEFF HATCH-MILLER**  
Commissioner

**MIKE GLEASON**  
Commissioner

**KRISTIN K. MAYES**  
Commissioner

IN THE MATTER OF THE APPLICATION OF ) DOCKET NO. E-01345A-03-0437  
ARIZONA PUBLIC SERVICE COMPANY FOR )  
A HEARING TO DETERMINE THE FAIR VALUE )  
OF THE UTILITY PROPERTY OF THE COMPANY )  
FOR RATEMAKING PURPOSES, TO FIX A JUST )  
AND REASONABLE RATE OF RETURN THEREON )  
TO APPROVE RATE SCHEDULES DESIGNED TO )  
DEVELOP SUCH RETURN, AND FOR APPROVAL )  
OF PURCHASED POWER CONTRACT )

DIRECT

TESTIMONY

OF

HAROLD T. JUDD

ON BEHALF OF

UTILITIES DIVISION

ARIZONA CORPORATION COMMISSION

February 3, 2004

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**EXECUTIVE SUMMARY**  
**ARIZONA PUBLIC SERVICE COMPANY**  
**DOCKET NO. E-01345A-02-0403**

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13

Mr. Judd testifies on ways to modify decommissioning funding by APS customers. His recommendations are designed to align decommissioning expense collection with the remaining operation life of the Palo Verde units. Mr. Judd also recommends correcting the decommissioning cost estimate by recognizing that some assets included in the cost estimate will have a useful life after the nuclear units are out of service. If his recommendations are adopted, the annual decommissioning obligation of APS customers will be reduced by \$5.6 million to \$13,611,000.

1 Q. Please state your name, business address, and position.  
2

3 A. My name is Harold T. Judd. I am Vice President of Accion Group, Inc.,  
4 consultants to the energy industry. Our main office is at 244 North Main Street,  
5 Concord, New Hampshire 03301-5041.  
6

7 **Q. Please describe the clients of Accion Group.**  
8

9 A. Accion Group provides strategic planning, operational evaluation and regulatory  
10 support services to utilities and to state regulatory agencies nationwide.  
11

12 **Q. What is the purpose of your testimony?**  
13

14 A. Accion Group was retained by the ACC Staff to review the nuclear  
15 decommissioning expense charges proposed to be included in the cost of service  
16 determination for APS. My testimony addresses that review and our  
17 recommendations concerning the amount of decommissioning costs of the Palo  
18 Verde units that should be included in APS's jurisdictional retail rates.  
19

20 **Q. Please describe your prior work experience.**  
21

22 A. I began my career in 1978 in New Hampshire as the Deputy Consumer  
23 Advocate for the Legislative Utilities Consumer Counsel. I left that office as

1 Acting Consumer Advocate in 1979 to become the Deputy General  
2 Counsel and Energy Advisor to the Special Assistant to the President in  
3 the White House Office of Consumer Affairs. In 1981, I was appointed an  
4 Assistant Solicitor for the Department of Energy. From 1985 through 1987, I  
5 served as the Economic Development Advisor to the Congress of the Federated  
6 States of Micronesia, and as Special Counsel to the President of the FSM. From  
7 September 1989 until January 1994, I served in the Office of the Attorney General  
8 for the State of New Hampshire, first as an Assistant Attorney General and later  
9 as a Senior Assistant Attorney General. In 1994, I entered the private practice of  
10 law in Concord, New Hampshire where I provided general utility and corporate  
11 representation with an emphasis on utility restructuring. In 1996, I became the  
12 National Regulatory Manager for Southern Electric International, a wholly owned  
13 subsidiary of the Southern Company. In 1997, I joined PG&E Energy Services, a  
14 wholly owned subsidiary of PG&E Corporation, as Chief Counsel and Director of  
15 Regulatory Policy. I am a founding director of Accion Group, Inc., which was  
16 formed in 2001.

17  
18 **Q. Please describe your education.**

19  
20 **A.** I graduated from the University of Wisconsin at Madison in 1974 with a  
21 B.A. Degree. In 1978, I received a law degree from the Franklin Pierce  
22 Law Center. I have continued my education through professional  
23 education courses.

1 **Q. What is your experience in the field of nuclear decommissioning?**

2

3 A. In 1979 I drafted what was to become the first nuclear decommissioning statute  
4 for the State of New Hampshire. In light of the controversy surrounding the  
5 Seabrook Station, the state opted to establish rigorous decommissioning standards  
6 that exceeded those imposed by the Nuclear Regulatory Commission (NRC) and  
7 established a committee of state officials, known as the Nuclear  
8 Decommissioning Fund Committee (NDFC), to oversee decommissioning  
9 funding. Since 1999 I have represented the NDFC as legal counsel, while my  
10 firm has also provided financial and engineering expertise to the committee. In  
11 2000, on behalf of the NDFC and the New Hampshire Legislature, I authored a  
12 complete revision to the state's decommissioning statute in anticipation of the  
13 Seabrook Station sale to a merchant generator. New Hampshire now has the most  
14 comprehensive decommissioning statute in the nation, addressing all of the major  
15 decommissioning issues facing the industry.

16

17 **Q. Briefly describe your review of the decommissioning costs for the Palo Verde**  
18 **units.**

19

20 A. In addition to reviewing APS's pre-flied testimony and exhibits, we reviewed the  
21 study used by Palo Verde as a basis for projecting the cost of decommissioning  
22 all three Palo Verde units. As part of that review we considered the assumptions  
23 developed by APS for the storage and disposal of radioactive waste and spent

1 nuclear fuel, the activities included in the decommissioning estimate, and the  
2 period over which decommissioning, including the ultimate disposal of spent  
3 nuclear fuel, is projected to be completed. We reviewed the assumptions that  
4 APS used in developing the schedule of payments necessary to meet the  
5 decommissioning funding requirements that the study concluded were necessary.  
6 These included escalation, inflation, funding period and the impact of the  
7 uncertainties inherent in estimating the cost of disposing of decommissioning-  
8 generated low level radioactive waste. We also evaluated APS's proposal to  
9 recover its projected annual decommissioning contributions in retail rates from  
10 Arizona ratepayers.

11  
12 **Q. Briefly describe how APS accounts for decommissioning costs for the Palo**  
13 **Verde units in the rate application.**

14  
15 **A.** Simply stated, APS segregated decommissioning expenses into three discrete  
16 amounts. There is an amount for the funding of decommissioning each of the  
17 Palo Verde Units 1 through 3 and all facilities other than the Independent Spent  
18 Fuel Storage Installation (ISFSI). The ISFSI expense is accounted for in two  
19 pieces, with the post shutdown expense separated from the ISFSI amortization  
20 requirement. Each account is identified in Attachment DGR-6 that accompanies  
21 the pre-filed testimony of APS witness Donald G. Robinson.  
22

1 **Q. In summary, what did you determine?**

2

3 A. Our review showed that the cost estimate prepared for the Palo Verde units, for  
4 the most part, conforms to the methodology employed in the industry and applies  
5 the same standards as applied by the vast majority of other nuclear stations in the  
6 U.S and are consistent with the minimum requirements of the NRC. The  
7 decommissioning study that was completed in 2001 was relied upon to project  
8 decommissioning costs and to establish the funding schedule presented by APS.  
9 The decommissioning study was conducted by TLG Services, using conservative  
10 estimates of disposal costs. The assumptions that APS used in their schedule of  
11 payments model such as escalation, inflation and the cost of Low Level  
12 Radiological Waste (LLRW) disposal were also reasonable and in line with  
13 current industry thinking.

14

15 **Q. Are there adjustments to APS' cost of service request that you recommend**  
16 **be made in this rate case?**

17

18 A. Yes, I have two. First, I recommend that the projected cost of decommissioning  
19 be reduced to reflect the probability that certain of the structures, systems and  
20 infrastructure of the site will have residual commercial and industrial value after,  
21 or even during, decommissioning. If done, the estimated cost of  
22 decommissioning Palo Verde would be reduced by approximately \$89 million and  
23 the annual contribution by APS customers would be reduced by \$800,000.

1  
2 Second, I recommend that the Unit 2 decommissioning funding schedule be  
3 adjusted to match the licensed life of the unit. As discussed below, this would  
4 significantly reduce the required annual contribution to the Trust yet meet the  
5 desire to be fully funded when the plant is out of the rate base. This change  
6 would reduce the annual contribution by approximately \$4.8 million. Together,  
7 these two adjustments would reduce the annual contribution by APS customers to  
8 \$13,611,000.

9  
10  
11 **Q. Please summarize the options available to the ACC for setting the criteria for**  
12 **the proper scope of decommissioning.**

13  
14 **A.** There are four that have been generally used. First, federal law (10 CFR 50.75)  
15 requires that all nuclear power plants meet the NRC Minimum funding  
16 requirements. This is a non-site specific formulaic approach. The starting point  
17 is a 1986 decommissioning estimate for the Trojan Nuclear Plant in Oregon that is  
18 then escalated to the present through labor, energy, and low level radioactive  
19 waste disposal cost adjustments prescribed in the regulations. Many states,  
20 however, require a site-specific estimate that significantly exceeds the NRC  
21 Minimum.

22

1 Second, there is the Licensing Termination Estimate that is a site-specific estimate  
2 that projects the cost of meeting the NRC's requirements (10 CFR 20) for  
3 removing radiological contamination and releasing the site for unrestricted use.  
4 This is generally 75% to 95% of a Full Site Restoration or "greenfields" estimate.  
5 A Full Site Restoration estimate assumes that essentially all site structures and  
6 systems are removed and the surface is restored to a condition close to its natural  
7 state. This is essentially the type of estimate presented in the 2001 TLG Study for  
8 Palo Verde.

9  
10 Finally, there is the Commercial-Industrial Estimate. This is an approach to  
11 decommissioning in which certain of the buildings, structures, systems and  
12 physical features constructed for the operating station are deemed to have value  
13 for the site's post-nuclear commercial or industrial development and are,  
14 therefore, excluded from the scope of the estimate.

15  
16 **Q. Does a Commercial-Industrial Estimate exclude all non-radiologically**  
17 **contaminated structures from the scope of decommissioning?**

18  
19 **A.** No. Only those that are likely, or at least have reasonable potential, to be used for  
20 another commercial or industrial purpose once the nuclear reactor is removed are  
21 excluded from the decommissioning cost estimate. For example, power block  
22 buildings that will be heavily damaged through the decontamination process  
23 would be assumed to be completely dismantled and the costs included in the

1 estimate. A cooling tower, however, that could be used to support a re-powering  
2 of the site would have continuing value and would not be included in the  
3 decommissioning estimate.

4  
5 **Q. What is the scope of the Palo Verde decommissioning study?**

6  
7 **A.** The Palo Verde decommissioning cost study assumes that all site structures and  
8 systems except the switchyard and site drainage facilities will be removed by the  
9 end of the operation life of the nuclear reactors.

10  
11 **Q. What are your views on APS' approach to developing it's cost estimates?**

12  
13 **A.** The Palo Verde decommissioning cost study is consistent with traditional  
14 decommissioning studies in not recognizing that some on-site improvements will  
15 have continuing usefulness after the nuclear facilities are out of service. It is my  
16 opinion, however, that assets with remaining commercial value should be  
17 excluded from the cost estimate of decommissioning to avoid overstating the  
18 decommissioning cost and, in turn, overcharging customers.

19  
20 **Q. What types of improvements are included in the Palo Verde**  
21 **decommissioning study that could be excluded from the decommissioning**  
22 **cost estimate?**

23

1 A. If there is a possibility that another power plant requiring cooling water will be  
2 located at the site, the Circulating Water Systems, the Water Reclamation  
3 facilities and pipelines, spray ponds, evaporation ponds, Cooling Towers and the  
4 Make-up Reservoir should be excluded from nuclear decommissioning. The  
5 Diesel Generators and their supporting systems could have value as power  
6 sources once freed from their emergency requirements. Non-contaminated  
7 support buildings could be used for power or non-power applications as  
8 warehouses, shops or office space. Roads, parking lots, potable water systems,  
9 sewage systems and other infrastructure would also have value for a wide range  
10 of potential future commercial or industrial ventures.

11  
12 **Q. Have you determined how much the Palo Verde decommissioning cost**  
13 **estimate could be reduced if it took the Commercial-Industrial approach?**

14  
15 A. Based on a review limited to the spreadsheets (Appendices C, H, I, J, K, and L)  
16 contained in the 2001 Palo Verde Decommissioning Cost Study, it appears that a  
17 Commercial-Industrial approach that excludes the dismantling activities discussed  
18 above would reduce the estimated cost by about \$89 million. Attachment HTJ-1.  
19 This is a conservative estimate as it does not include the commensurate reduction  
20 in period dependent costs such as Utility Staff, energy, heavy equipment rental,  
21 and insurance that would result from the exclusion of these activities from the  
22 estimate. In Attachment HTJ-2 I have provided a summary of the NRC  
23 Minimum, Full Site Restoration, License Termination and Commercial/Industrial

1 Estimates to demonstrate the impact of recognizing the value of limiting  
2 decommissioning activities by not including the cost of removing improvements  
3 that have residual usefulness. The reduction in the overall estimate is small, about  
4 5%, but no insignificant.

5  
6 **Q. What would be the effect of removing those assets from the decommissioning  
7 cost estimate?**

8  
9 **A.** The immediate and obvious effects would be to decrease the cost estimate and to  
10 reduce the annual contribution to the decommissioning fund. Other effects would  
11 be to encourage realistic planning for future use of the site, including its role in  
12 meeting future energy needs.

13  
14 This estimate of effect is based on our review of the facilities included in the Palo  
15 Verde decommissioning plan. However, the precise effect of removing facilities  
16 from the decommissioning plan will only be known after there is a new  
17 comprehensive decommissioning study performed for the Palo Verde units,  
18 excluding all assets that have a useful life after the nuclear units are shut down.  
19 Each decommissioning study is a detailed work plan for dismantling a nuclear  
20 station, including the order in which things are removed. Typically, the  
21 decommissioning and demolition process takes ten years before a nuclear site is  
22 reduced to the ISFSI. In order to correctly account for the change in cost, it will  
23 be necessary to adjust the decommissioning plan, and the corresponding earnings

1 and withdrawals from the decommissioning trust fund, to reflect the timing of  
2 when the facilities remaining in the decommissioning plan will be removed.  
3

4 **Q. Is this recognition of remaining commercial life used elsewhere?**

5  
6 A. Yes. New Hampshire moved to this standard in 2000 in recognition of the fact  
7 that the Seabrook site would be used for other commercial purposes during and  
8 after decommissioning. This step was taken in response to the desires of local  
9 communities that were anxious to improve the likelihood that commercial and  
10 industrial facilities would continue to be located at the site to support their tax  
11 base and provide jobs. The joint owners of the Seabrook Station also recognized  
12 the value of this approach because it reduced decommissioning funding  
13 obligations and signaled a governmental recognition of the likelihood that  
14 generation facilities might be located at the site in the future.  
15

16 **Q. If the projected cost of decommissioning is reduced by \$89 million, what**  
17 **impact would that have on the annual contribution to the decommissioning**  
18 **trust?**

19  
20 A. I estimate that the annual decommissioning cost would be reduced by  
21 approximately \$800,000. As discussed above, it will be necessary to determine  
22 the timing of each decommissioning activity to have a more precise appreciation  
23 for the effect on the annual contribution. I believe it is appropriate in this rate

1 case to use my estimate for the purpose of establishing APS' retail rates. A more  
2 comprehensive analysis of the impact of using the Commercial/Industrial  
3 approach can then be provided by APS during a future rate case.

4  
5 **Q. Have you reviewed the Schedule of Amounts to be Deposited in the Palo**  
6 **Verde Decommissioning Trusts included in APS' Cost of Service,**  
7 **Attachment DGR-6 and the assumptions that were used to develop that**  
8 **schedule?**

9  
10 **A.** Yes I have. Attachment HTJ-3 is a summary of the assumptions and conclusions  
11 contained in the 2001 Pal Verde Decommissioning Cost Study. I previously  
12 discussed the appropriateness of the APS cost estimate. Next I will discuss the  
13 escalation rate employed to estimate the ultimate cost in nominal dollars of the  
14 decommissioning effort that will be required at the end of the projected license  
15 life of the three units, the expected rate of return on the funds contributed into the  
16 trusts, and the periods over which APS will be contributing to the  
17 decommissioning Trust.

18  
19 **Q. Would you please explain the "escalation" factor?**

20  
21 **A.** The cost estimate utilized to develop the funding schedule is an estimate of what  
22 it would cost to decommission the Palo Verde plant today if it were in the  
23 condition it is expected to be in at the time the plant's license terminates. The

1 estimate is based on today's labor, material, and waste disposal costs. In order to  
2 assure that enough funding is available to complete the necessary  
3 decommissioning tasks, the cost estimate has to be inflated to reflect anticipated  
4 increases in the costs of labor materials and waste disposal as well as increases in  
5 taxes and regulatory expenses. This rate of inflation applied to decommissioning  
6 activities is referred to as "escalation". As discussed in the testimony of APS  
7 witness Robinson, APS uses a 4% rate, which reflects the long-term historic  
8 general inflation of the overall economy in the past twenty years.

9  
10 **Q. Do you believe that a 4% escalation rate is appropriate?**

11  
12 **A.** Yes. This opinion is based on a recent review of the escalation rates of costs  
13 associated with decommissioning a nuclear power station that was completed by  
14 the New Hampshire Nuclear Decommissioning Financing Committee (NDFC) in  
15 December 2003. Seabrook Station proposed a decommissioning escalation rate  
16 calculated in accordance with the NRC standards set forth in 10 CFR 50.75.  
17 Their overall rate had four components: labor, material, energy and transportation,  
18 and low level radioactive waste (LLRW) disposal. Regional government-  
19 sanctioned indices were used to determine the projected rates of inflation over the  
20 funding period for labor, material and energy and transportation. The LLRW  
21 disposal component, usually the most volatile, was determined using the  
22 methodology of the NRC's set forth in NUREG 1307. An average of these four  
23 components, weighted in accordance with their percentage of the overall

1 estimated decommissioning cost, was then calculated to be 4.1%. The NDFC  
2 accepted the owners' escalation methodology, but added a contingency factor of  
3 0.4% to reflect perceived risks not accounted for in the Seabrook cost estimate.  
4 While APS' escalation rate is lower, resulting in lower contribution requirements  
5 and ultimately in less funds being available to pay for the clean up of the Palo  
6 Verde plant, it appears to be reasonable at this time.

7  
8 **Q. Is the escalation factor an assumption that should be periodically reviewed**  
9 **by this Commission?**

10  
11 **A.** Yes. The Commission should require APS to propose an escalation rate each time  
12 that it submits a comprehensive decommissioning study. APS should include a  
13 detailed description of the methodology, the assumptions and the calculation for  
14 ACC review and approval. In light of the fact that the Palo Verde plant is  
15 expected to operate for an additional twenty years, any deviations in funding  
16 resulting from under or over estimation of the escalation rate can then be  
17 remedied through gradual adjustment of the annual contribution rate.

18  
19 **Q. Have you reviewed the anticipated rates of return on funds invested in the**  
20 **Trusts?**

21  
22 **A.** Yes. APS primarily contributes its decommissioning funding into tax advantaged  
23 Qualified Trusts. These Trusts pay taxes on earnings at a Federal rate of 20% as

1 compared to the higher corporate rates that would otherwise apply. Investments  
2 are made pursuant to established guidelines that permit investments in qualifying  
3 equities and fixed income securities as well as in other securities permitted by the  
4 guidelines. APS bases its earnings estimates on advice provided to it by the funds  
5 investment advisors. In the current case, APS has assumed that the Trusts will  
6 earn at a blended after-tax rate of 4.8%, compounded annually for the life of the  
7 trusts. This estimate appears to be within the range of earnings estimates for  
8 similar investments of which I am aware.

9  
10 **Q. Is this estimate reasonable?**

11  
12 **A.** Yes I believe it is.

13  
14 **Q. Should the Commission review this assumption periodically?**

15  
16 **A.** Yes it should. Annual rates of return on investments can be highly volatile and  
17 shortfalls or greater than expected annual performance can have significant  
18 impacts on required contribution levels. I would therefore recommend that APS  
19 be required to provide to the ACC detailed annual performance data on each of its  
20 Trusts, clearly describing actual earned rates of return and proposed changes in  
21 funding levels that may be required to mitigate the effect of any variance in  
22 earnings experienced. Annually, APS should also provide to the ACC its  
23 estimated rate of return on its investments in the Trusts for the remainder of the

1 Trusts life. As with the escalation factor, APS should be required to fully discuss  
2 the estimated rates of return on funds invested in the Decommissioning Trusts  
3 each time a new cost estimate is prepared and a comprehensive review of the  
4 adequacy of the Trusts is conducted.

5  
6 **Q Has APS made an assumption regarding when it will complete funding of the  
7 Decommissioning Trusts?**

8  
9 **A** Yes. APS has assumed that the funding period for Units 1 and 3 will be through  
10 2026 and the funding period for unit 2 will be through 2015.

11  
12 **Q. Please explain the significance of the decommissioning funding period.**

13  
14 **A** Certainly. The period over which contributions are made dictates the annual  
15 contribution level. Typically, owners of nuclear facilities fund the  
16 Decommissioning Trusts over the plant's authorized license life. APS has chosen  
17 to do that for units 1 and 3. However, APS is funding and seeking recovery of  
18 annual contributions to the Unit 2 trusts that reflect its obligation to fully fund  
19 those trusts by 2015.

20  
21 **Q. Why is APS funding decommissioning costs for Unit 2 over a period less than  
22 the unit's operating license life?**

23

1 A. The obligation to use a shorter period arose as a result of a financing transaction  
2 APS entered into with regard to Unit 2. In Decision 58644 in ACC Docket No.  
3 U1345-94-120, the Commission authorized APS to recover in rates the  
4 decommissioning contributions that reflect APS' obligation to fully fund the Unit  
5 2 Trusts by 2015. However, in that decision the Commission noted that

6 ...the Commission shall not be bound in any subsequent rate case  
7 to adopt the decommissioning funding levels or decommissioning  
8 factors adopted and approved herein.... (at p. 6).

9  
10 **Q. Is APS asking to recover those accelerated contributions in rates to be**  
11 **established in this case?**

12  
13 A. Yes they are. In addition, APS is seeking recovery of its Unit 2 spent nuclear fuel  
14 disposal costs (the expenses and amortization amount referred to by Mr. Robinson  
15 as the Independent Spent Fuel Storage Installation costs).

16  
17 **Q. What is the effect of having customers fund the Unit 2 trust and ISFSI costs**  
18 **over a period shorter than the licensed life of the Unit.**

19  
20 A. The accelerated funding has several effects on customers' rates, some beneficial  
21 and some adverse to current customers. Since the funding levels that are  
22 ultimately required to decommission the plant and the ISFSI are not affected by  
23 the timing of fund contributions, accelerating contributions and the recovery of

1 disposal costs will actually reduce total customer payments to fully fund the  
2 Trusts and dispose of the spent nuclear fuel. This is because fund earnings will be  
3 enhanced as a result of the higher fund balances that will be realized in earlier  
4 years. However, the acceleration of payments has the effect of shifting cost  
5 responsibility for decommissioning to present day customers and relieves  
6 customers who will receive benefits from the plant after 2015 of the responsibility  
7 for funding any part of the decommissioning expense. This intergenerational shift  
8 of responsibility is adverse to the interests of current customers. I believe that for  
9 rate making purposes such shifts of cost responsibility should generally be  
10 avoided.

11  
12 **Q. If the funding included in rates for Unit 2 were levelized over its licensed life,**  
13 **what would be the annual contribution includable in rates?**

14  
15 **A.** Mr. Robinson has calculated APS' 2005 decommissioning contributions to be  
16 approximately \$19.2 million and it's ISFSI related expense to be approximately  
17 \$1.5 million. Calculating a new payment schedule is a complex undertaking.  
18 Based on the information available to me, I would estimate that if the  
19 Commission were to allow recovery of decommissioning expenses and ISFSI  
20 costs on the basis of levelized recovery over the licensed life of each unit, the  
21 includable expense would decrease by between \$4.8 million and \$5.0 million  
22 annually. This estimate was developed using the computer model used by APS to  
23 determine Mr. Robinson's estimated contributions.

1 **Q. You have made two recommendations for action by the ACC in this rate**  
2 **case. Do you also have any recommendations for action by the ACC in future**  
3 **cases regarding APS's decommissioning contribution levels?**

4  
5 A. I recommend that the ACC require APS, as part of its next comprehensive review  
6 of decommissioning costs at Palo Verde, to evaluate and report to the  
7 Commission on its planning for radioactive waste disposal.

8  
9 **Q. How significant a component of the decommissioning cost estimate is the**  
10 **disposal of low-level radioactive waste (LLRW)?**

11  
12 A. Burial and recycling of LLRW constitutes about 24% of the Palo Verde 2002  
13 Decommissioning Cost Estimate. As importantly, the cost of the burial of LLRW  
14 is one of the components (along with labor, energy and transportation) of the  
15 decommissioning escalation rate used in the NRC's 10 CFR 50.75 methodology.  
16 It can, in fact, be the most volatile and significant of these components because of  
17 the political and regulatory uncertainties associated with LLRW burial.

18  
19 **Q. What LLRW burial sites are available to the nuclear power industry?**

20  
21 A. There are currently only three facilities licensed to accept LLRW from  
22 commercial nuclear power plants: a state-owned facility at Richland, Washington;  
23 a state-owned facility at Barnwell, South Carolina; and Envirocare, a private

1 facility in Utah. The facility at Richland, Washington is only available to states  
2 that belong to the Northwest Compact. This does not include Arizona. Since  
3 Envirocare is not licensed to accept the more highly contaminated waste  
4 (designated as Class B and Class C waste), these waste forms must be sent to  
5 Barnwell for burial. The State of South Carolina, however, passed legislation in  
6 2000 that is gradually limiting access to Barnwell and will exclude all but Atlantic  
7 Compact members (South Carolina, Connecticut and New Jersey) by 2008.

8  
9 **Q. What has the industry been doing to address this problem?**

10  
11 **A.** The high cost of LLRW disposal is incenting the industry to find ways to  
12 minimize the LLRW produced through changes in operations and to use off-site  
13 processing to reduce the volume produced that must be buried. Off-site  
14 processing consists of volume reduction performed by private vendors using  
15 decontamination, compaction, dewatering, sorting and stabilizing technologies.  
16 The type of LLRW sent to Barnwell is particularly suited for this treatment.

17  
18 **Q. How does this situation impact decommissioning estimates?**

19  
20 **A.** Because of the uncertain availability of a place to bury the LLRW when the plants  
21 are decommissioned and the importance of these costs to properly funding  
22 decommissioning, assumptions on the future costs to bury LLRW should be

1 conservative. At the same time, it is appropriate for decommissioning cost studies  
2 possibly unavailable burial site.

3

4 **Q. Do you believe that the Palo Verde decommissioning cost study appropriately**  
5 **addresses the impact of LLRW disposal?**

6

7 A. I believe they are conservative, but reasonable. For example, the  
8 decommissioning-generated LLRW volumes at the three Palo Verde units that  
9 must be sent to a burial site exceed the volumes for Seabrook Station by 4, 18 and  
10 18% on a per unit basis. The assumed overall burial costs per cubic foot at Palo  
11 Verde are also about 40% higher than at Seabrook Station. This probably stems  
12 from APS taking less credit for offsite processing of LLRW.

13

14 **Q. What recommendations do you make for future action with respect to**  
15 **LLRW disposal?**

16

17 A. I believe that APS handles projected decommissioning-generated LLRW disposal  
18 costs in a conservative manner. I recommend, however, that the ACC request  
19 APS to provide more detail on the basis of the assumptions related to projected  
20 costs at a future Southwest Compact facility, including a breakdown of the type  
21 and quantity that would be sent to Envirocare and this facility. Because of the  
22 tremendous impact that escalation can have on funding, I would also recommend  
23 that the ACC request that APS calculate escalation using the methodology

1 contained in 10 CFR 50.75. This includes consideration of regional labor, energy  
2 and transportation costs as well as using the methodology of NUREG 1307 in  
3 calculating the LLRW component of escalation. With this level of detail backing  
4 up the estimate, the ACC and its staff would be in a better position to review and  
5 make appropriate rulings regarding the treatment of the LLRW component of  
6 decommissioning.

7  
8 **Q. Do you have any recommendations for future review?**

9  
10 **A.** Yes. I believe the ACC should review the adequacy of the funding assurances  
11 provided by the out of state Palo Verde owners. Only 46.6% of Palo Verde is  
12 owned by Arizona utilities. In the event of a default by out of state owners,  
13 Arizona utilities could be at risk and the ability of the state to recover the  
14 decommissioning obligation of a defaulting owner or others may not be assured.  
15 It is appropriate for the ACC to consider whether the citizens of Arizona bear an  
16 excess risk for decommissioning costs, simply because Arizona agreed to be the  
17 host state for three nuclear reactors. At this time I am unaware of any reason to  
18 believe any owner of Palo Verde will default on its obligation, but I also believe it  
19 would be prudent for the ACC to take action before a problem exists. The NRC  
20 recognizes many forms of funding assurances that could be adopted without  
21 adverse impact on the owners, while at the same time providing financial  
22 protection for Arizona citizens.

23

1 **Q. In conclusion, what would be the impact of your recommended adjustments**  
2 **to APS' cost of service?**

3  
4 A. I have recommended two adjustments. Adjusting the Unit 2 decommissioning  
5 funding to match license life of the unit would reduce the annual contribution by  
6 between \$4.8 million and \$5.0 million, and I recommend reducing the annual  
7 contribution by \$4.8 million. Reducing the projected cost of decommissioning to  
8 reflect the future commercial use of the site would reduce the projected cost by  
9 approximately \$89 million, which would, in turn, reduce the annual  
10 decommissioning contribution requirement by about \$800,000. Combined, these  
11 recommendations would lower the annual decommissioning expense to be  
12 included in the APS cost of service to \$ 13,611,000.

13  
14 **Q. Does this conclude your testimony?**

15  
16 A. Yes, it does.

17

**Decommissioning Costs Excluded  
from the APS Estimate Using a  
Commercial/Industrial Estimate  
(000,000)**

<b>ACTIVITY, COMPONENT OR SYSTEM</b>	<b>DECON COSTS (2001 \$)</b>
<b>COOLING WATER</b>	
Circulating Water Systems	507
Plant Cooling Water	265
Essential Spray Ponds	633
Cooling Towers	3,738
Cooling Tower Electrical Building	80
Intake Structure and Canals	168
Nuclear Service Spray Ponds	5,153
Water Reclamation Facility	8,025
Water Reclamation Supply system Pipeline & Structures	34,006
Evaporation Ponds	4,921
Makeup Water Reservoir	759
<b>Subtotal</b>	<b>58,255</b>
<b>Buildings And Support Systems</b>	
Control Buildings	2,259
Turbine Buildings and Turbine Building Pedestal	15,318
Turbine Maintenance Facilities	66
Operations Support Building	342
Technical Support Center	277
Warehouse	1,313
Diesel Generator Building	1,071
Switchgear Building	117
Transformer Area	243
Chemical Storage Building	318
Corridor Building	232
Yard Tunnels	843
Administration Buildings (including Annex, Bldgs A and B)	1,168
Calibration Lab & Hot Instrument Calibration	15

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Lab	
Vehicle Maintenance Facility	77
Energy Information Center	73
Fire Pumphouse	32
Guardhouse	30
LLRW Storage Facility	147
North Annex Building	176
Service Building	189
Decon & Laundry Facility	273
Miscellaneous Structures	828
<b>Subtotal</b>	<b>25,407</b>
<b>Infrastructure</b>	
Domestic Water	415
Fire Protection	383
Electrical (clean excluding RCA)	2,334
Sanitary Drains and Treatment	217
Retention Basin	14
<b>Subtotal</b>	<b>3,363</b>
<b>Surface Restoration</b>	
Grading and landscaping site	174
Site Fencing, Paving & Railroad	1,497
<b>Subtotal</b>	<b>1,671</b>
<b>Power</b>	
Diesel Generators and Support Systems	252
Station Blackout Gas Turbine Generator	31
<b>Subtotal</b>	<b>283</b>
<b>GRAND TOTAL</b>	<b>88,979</b>

**Palo Verde Decommissioning Assumptions**  
(000,000)

	PV 1	PV 2	PV 3	ISFSI	Other Facilities	Combined
<b>Full Site Restoration Estimate (2001 \$M)</b>	511	543	578	267	73	1972
<b>Funding Period</b>	2024	2025	2026	2024	2026	
<b>Inflation of Contributions</b>	Levelized					
<b>Escalation of Decom Cost</b>	4%					
<b>LLRW Disposal (Packaging, Shipping and Burial)</b>						
- Volume (1000cu. Ft.)	114	130	130	160		390
- Cost (2001 \$M)	147	160	164	9		480
<b>Yucca on line</b>	After 2010					
<b>First Spent Fuel Shipped to Yucca</b>	After 2010					
<b>Last Fuel Shipped to Yucca</b>	After 2037					
<b>Earnings</b>	4.8%					