OKLAHOMA NATURAL GAS COMPANY
Book Depreciation Study as of December 31, 2002
Summary of Amortization Lives

SCHEDULE 3

[1] Account	[2] Description	[6] Amortization Life yrs.
	GENERAL PLANT	
391.1	Office Furniture and Equipment	17.0
391.2	Data Processing and Equipment	10.0
391.3	Office Machines and Equipment	20.0
391.5	Artwork	25.0
391.6	Purchased Software	10.0
391.8	Micro Computer Equipment	5.5
391.9	Information Technology	10.0
393.0	Stores Equipment	25.0
394.0	Tools, Shop and Garage Equipment	20.0
394.1	Tools	20.0
394.3	Garage Equipment	20.0
395.0	Laboratory Equipment	20.0
397.0	Communication Equipment	15.0
397.1	Radio Equipment	15.0
397.2	Telephone Equipment	15.0
397.3	Stationary Radio Equipment	20.0

APPENDIX A

RESULTS

TRANSMISSION PLANT

Account 365.2—Rights of Way

The existing ASL is 43 years. There has been only one retirement recorded. These assets are related to rights of way acquired for constructing transmission lines and facilities. We recommend that the ASL be tied to the life of those assets (Account 367), resulting in a change from 43 years with an R2 curve to 55 years with an R1.5. No salvage or cost of removal is expected, so zero was retained. The depreciation rate decreases from 1.30% to 0.91%.

Account 366.2—M&R Station Structures

The existing parameters are an R0.5 curve and a 30-year ASL. Our recommendation is to retain the 30-year ASL, with a change to an R4 dispersion pattern. No salvage had been recorded or is expected, so zero was used. Some cost of removal is expected, which we recommend at 5%, resulting in a negative 5% net salvage factor, an increase over the existing negative 15%. The depreciation rate increases from 0.82% to 2.54%, which is due to the reserve position.

Account 366.3—Other Structures

Only one retirement has been recorded in 1999. The existing ASL is 40 years, but the Company expectation, based on the type of assets, is 30 years. We recommend an ASL of 30 years with an R4 curve. We recommend zero salvage and cost of removal, which is a change from the existing negative 15% net salvage factor. The depreciation rate decreases from 2.57% to 1.75%.

Account 367.0—Line Equipment

This account is primarily steel, with less than 1% in plastic. Based on type of asset, Company input and judgment, we recommend changing the existing ASL of 50 years with an R2.5 curve to 55 years with an R1.5. The net salvage factor is changed from negative 10% to negative 5%. The depreciation rate decreases from 1.86% to 1.09%.

Account 368.0—Compressor Station Equipment

Only one retirement has been recorded. ASL expectations range from 25 to 35 years. Our recommendation is to increase the existing ASL from 28 years to 35 years based upon existing history, judgment and Account 377. We also recommend a slightly steeper dispersion pattern, changing from an R1 to an R2. The existing net salvage is negative 5%, which we recommend changing to negative 10%. The depreciation rate decreases from 3.23% to 2.75%.

Account 369.1—Measuring Station Equipment

The existing ASL is 30 years with an R0.5 curve. Our recommendation, based upon the history and changing technology to turbines, is to decrease the ASL to 20 years with an R2 curve. The net salvage factor is changed from negative 5% to negative 15% based upon experience. The depreciation rate increases from 2.62% to 4.54%.

Account 371.0—Transmission Systems Equipment

We recommend changing the existing 26-year ASL to 20 years and the dispersion pattern from an L0 to an SQ based upon type of assets, history, company expectations and judgment. No salvage or cost of removal is expected, so zero net salvage was used. The depreciation rate increases from 1.24% to 3.34%.

DISTRIBUTION PLANT

Account 375.1—District Regulator Structures

The prior study, existing and current study recommendations are a 40-year ASL. We recommend changing the dispersion pattern from an R1 to a slightly different S1. No salvage is expected, and our cost of removal factor, 40%, is half of the full experience band indications, resulting in a change from negative 35% to negative 40% net salvage factor. The depreciation rate decreases from 5.29% to 1.81%.

Account 375.2—Other District Structures

The existing ASL is 51 years. However, the prior study and our study recommendations are the same at 45 years and are supported by the life analysis. The existing curve is an L1, and we recommend an R1.5. Salvage has been recorded and continues, but with a slight decline in recent experience band. Cost of removal shows a very slight increase. Our recommendation is 10% for both salvage and cost of removal, which results in a zero net salvage factor. The depreciation rate increases from 1.45% to 3.25%.

Account 376.0—Mains Line Equipment

This account comprises 50% steel and 50% plastic. The prior study ASL was 44 years, the existing is 57 years, and our study recommendation is 50 years, based upon the fuller experience bands. The curve is changed from an R2 to a slightly steeper pattern, R3. The existing net salvage factor, negative 15%, is retained. The depreciation rate increases from 1.74% to 2.48%.

Account 377.0—Compressor Station Equipment

The existing ASL and curve, 35-R2, are retained. The net salvage factor of negative 10% is also retained. The depreciation rate increases from 3.14% to 10.56%, which is due primarily to the reserve position.

Account 378.0—Measuring Station Equipment

Our recommendation is to increase the existing ASL from 30 years to 35 years. The curve is also changed from an L2 to an S0.5. The existing net salvage factor is negative 20% and is decreased to negative 40% based upon the indications across the bands. The depreciation rate increases from 3.83% to 4.90%.

Account 378.1—District Regulators

The prior study and existing parameters are the same, 30-L2. Our study recommendations are based upon Company input and expectations, which support moving the life downward to 25 years while retaining the L2 curve. The existing net salvage factor is negative 20% and is decreased to negative 40% based upon the indications across the bands. The depreciation rate increases from 3.83% to 7.77%.

Account 378.2—District Regulators—Odorizers

The prior study and existing parameters are the same, 30-L2. Our study recommendations are based upon Company input and expectations, which support moving the life downward to 25 years while retaining the L2 curve. The existing net salvage factor is negative 20% and is decreased to negative 40% based upon the indications across the bands. The depreciation rate increases from 3.83% to 7.00%.

Account 378.3—District Regulator Equipment

The prior study and existing parameters are the same, 30-L2. Our study recommendations are based upon Company input and expectations, which support moving the life downward to 25 years while retaining the L2 curve. The existing net salvage factor is negative 20% and is decreased to negative 40% based upon the indications across the bands. The depreciation rate increases from 3.83% to 9.41%.

Account 379.0—City Gate Equipment

There have been no retirements, but equipment is similar to that contained in Accounts 378.1, 378.2 and 378.3. We recommend utilizing those parameters, 25-year ASL with an L2 curve. We suggest using 1/2 of the negative 40% net salvage factor. The depreciation rate increases from 3.83% to 6.97%.

Account 380.0—Service Line Equipment

For the purposes of analyzing, we have combined Accounts 380.0, 380.1 and 380.2 due to their similarity. Approximately 98% of new additions and replacements are plastic. Fuller bands have good curve fits with consistent indications through the 10-year band. Our recommendation, 33-R4, reflects those indications. Existing net salvage is negative 35%, which we recommend decreasing to negative 50% based upon more recent (three-year band) indications. The depreciation rate increases from 3.36% to 5.21%.

Account 380.1—Industrial Service Line

The existing ASL is 38 years, and our study recommendation is to increase it to 45 years with an S1.5 curve. Existing net salvage is negative 35%, which we recommend decreasing to negative 50% based upon the analysis for Account 380.0. The depreciation rate increases from 3.36% to 3.60%.

Account 380.2—Commercial Service Line Equipment

The existing ASL is 38 years, and our study recommendation is to increase it to 33 years with an R2.5 curve. Existing net salvage is negative 35%, which we recommend decreasing to negative 50% based upon the analysis for Account 380.0. The depreciation rate increases from 3.36% to 5.60%.

Account 380.3—CNG Fill Stations CUS

The existing ASL is eight years. Current study indications suggest increasing the ASL, which we have done, to 10 years. We are also changing the curve from an R2 to an R2.5. The existing net salvage factor of zero is retained. The depreciation rate decreases from 17.17% to 9.36%.

Account 381.0—Metering Equipment

The life analysis produced consistent results across all the bands, which is a slight ASL increase from the existing 28 years to 30 years. The R5 dispersion pattern is retained. Salvage and cost of removal are offsetting at 3%, which results in a zero net salvage factor. The depreciation rate decreases from 3.80% to 3.40%.

Account 383.0—House Regulators

The life analysis produced consistent results across all the bands, which is a slight ASL increase from the existing 30 years to 40 years. The curve is also changed from an L3 to an S2. The net salvage factor of zero is retained. The depreciation rate decreases from 3.62% to 2.36%.

Account 386.0—Other Property on Customers' Premises

This equipment is a CNG station on an army base. Since there are no retirements, our selection is based upon the type of assets, Company input and expectations, and judgment. We recommend a 20-SQ, with a zero net salvage factor. The depreciation rate decreases from 5.26% to 4.11%.

Account 387.0—Other Miscellaneous Equipment

There are no retirements and no additional information to warrant changing from the existing 20-R1 with zero net salvage. The depreciation rate increases from 5.26% to 7.00%.

GENERAL PLANT

Account 390.0—Structures and Improvements

The mix of assets is approximately 70% structures and 30% improvements. The existing 35-R3 and zero net salvage are retained. The depreciation rates decreases from 11.45% to 3.15%.

Account 391.1—Office Furniture and Equipment

The existing ASL is 20 years with an L1.5 curve. Our study indications suggest that the life is decreasing slightly, which we have recognized in our selection of 17-SQ. The existing net salvage factor is positive 5%, but current study indications show salvage declining, so we have selected zero. The depreciation rate increases from 4.32% to 6.18%.

Account 391.2—Data Processing Equipment

The existing ASL is eight years, but our life analysis indications suggest a life closer to 10 years. Our recommendation is to increase ASL to 10 years and change the curve from an L3 to an SQ. Zero net salvage is retained. The depreciation rate decreases from 10.83% to 10.57%.

Account 391.3—Office Machines and Equipment

The existing ASL is 18 years with an R1 curve. Our study indicates the life is increasing, which we have reflected in our selection of 20-SQ. The existing net salvage factor is positive 2%, which we recommend decreasing to zero. The depreciation rate decreases slightly from 5.99% to 5.97%.

Account 391.5—Artwork

There is no reason to change from the existing 25 years, but we do recommend changing the curve from an L0 to an SQ. The zero net salvage factor was also retained. The depreciation rate increases from 2.90% to 5.02%.

Account 391.6—Purchase Software

The existing life of 11 years with R3 dispersion is decreased very slightly to reflect the type of assets. Our recommendation is a 10-SQ, retaining zero net salvage. The depreciation rate increases from 8.54% to 11.00%.

Account 391.8—Microcomputer Equipment

The life of these assets is impacted by technology changes, which have been very rapid over the past five years. Our recommendation, 5.5-SQ, reflects this impact, as well as the Company's input and expectations. The net salvage factor is zero. The depreciation rate increases from 10.61% to 20.49%, which is due primarily to the reserve position.

Account 391.9—Information Technology

There have been no retirements recorded in this account. Based upon the mix of the assets, we recommend an ASL of 10 years with an SQ curve. Zero net salvage is recommended. The depreciation rate increases from 10.61% to 11.86%, due primarily to the reserve position.

Account 392.0—Transportation Equipment

Based on type and mix of assets, we recommend an ASL of 15 years with an R2.5 curve. Our net salvage recommendation is positive 10%, which reflects a reasonable expectation for these types of assets. The depreciation rate decreases from 7.89% to 6.82%.

Account 392.3—Trucks and Vans

The existing ASL is 10 years with an L2 curve. We have no reason to change those parameters at this time. The existing net salvage factor is positive 10%, which we recommend increasing to positive 20% based upon experience. The depreciation rate decreases from 10.05% to 8.62%.

Account 392.5 Trailers

The existing ASL is 30 years with an L1 curve. Our study life analysis suggests that the ASL is decreasing. Our recommendation is 25-L1.5. The existing net salvage factor is positive 20%, which we have increased to positive 50% based upon experience. The depreciation rate increases from 1.99% to 2.28%, which is due to reserve positions.

Account 393.0—Store Equipment

The existing ASL is 30 years with an L2 curve. Our study recommendations would be 25-SQ based upon the mix and type of assets, as well as the life analysis indications showing some decline. The existing net salvage factor is positive 5%, which we recommend decreasing to zero based upon expectations. The depreciation rate increases from 2.41% to 4.49%.

Account 394.0—Tools, Shop and Garage Equipment

There have been no retirements recorded in this account. Based upon the type and mix of assets, we would recommend a 20-SQ, with zero net salvage. The depreciation rate decreases from 5.97% to 5.23%.

Account 394.1—Tools

The existing ASL is 16 years with an L1 curve. Our study life analysis suggests that the life is increasing slightly, which is reflected in our 20-SQ selection. The existing net salvage factor is positive 5%, which we have decreased to zero. The depreciation rate decreases from 5.97% to 5.35%.

Account 394.3—Garage Equipment

The existing ASL is 16 years with an L1 curve. Our study life analysis suggests that the life is increasing slightly, which is reflected in our 20-SQ selection. The existing net salvage factor is positive 5%, which we have decreased to zero. The depreciation rate decreases from 5.97% to 5.57%.

Account 394.4—CNG Company Stations

The existing ASL is 16 years with an L1 curve. There was only one retirement recorded, so we relied upon Account 387, which has an ASL of 20 years. We recommend changing from an R1 to an SQ curve. The existing net salvage factor is positive 5%, which we have decreased to zero. The depreciation rate decreases from 5.97% to 5.18%.

Account 395.0—Laboratory Equipment

There have been no retirements recorded. Based upon type of equipment and judgment, we recommend a 20-year ASL with an SQ curve. We also recommend using zero net salvage. The depreciation rate increases from 4.56% to 5.43%.

Account 396.0—Power-Operated Equipment

The existing ASL is 18 years with an L2 curve. Our study life analysis indications show the life declining to 16 years, which is our recommendation. The curve shape is changed very slightly from an L2 to an S2. We retained the existing 15% positive net salvage. The depreciation rate increases from 5.03% to 5.72%.

Account 396.1—Power-Operated Equipment (Rubber Tire)

This account consists of one vintage from 2002. The existing ASL is 18 years with an L2 curve. Based upon the type of asset, we recommend an ASL of 15 years with an SQ curve. The net salvage factor is decreased from positive 15% to zero. The depreciation rate increases from 5.03% to 6.69%.

Account 397.0—Communication Equipment

This account contains assets that can be impacted by technological advances. We recommend using a life of 15 years with an SQ dispersion pattern. No salvage or cost of removal expected, so zero net salvage is used. The depreciation rate decreases from 11.68% to 7.34%.

Account 397.1—Radio Equipment

The existing ASL is 15 years with an R2 curve. We recommend retention of the life, with a change in curve to an SQ. The existing zero net salvage factor is retained. The depreciation rate decreases from 11.68% to 7.39%.

Account 397.2—Telephone Equipment

The existing parameters are 15-R2 with zero net salvage. Our recommendation changes the dispersion pattern from an R2 to SQ, while retaining the 15-year ASL. The depreciation rate decreases from 11.68% to 7.08%.

Account 397.3—Stationary Radio Equipment

This account contains towers, base stations and recorders. Based upon the type of assets, we recommend increasing the life from 15 years to 20 years and changing the R2 curve to an SQ. The existing net salvage factor of zero is retained. The depreciation rate changes from 11.68% to 6.21%.

APPENDIX B

CALCULATION OF EQUAL LIFE GROUP DEPRECIATION RATES

It is the group concept of depreciation that leads to the existence of the ELG procedure of calculating depreciation rates. This concept has been an integral part of utility depreciation accounting practices for many years. Under the group concept, there is no attempt to keep track of the depreciation applicable to individual items of property. This is not surprising, in view of the millions of items making up a utility system. Any item retired is assumed to be fully depreciated, no matter when retirements occurs. The group of property would have some average life. "Average" is the result of an arithmetic calculation, and there is no assurance that any of the property in the group is "average."

The term "average service life" used in the context of book depreciation is well known, and its use in the measurement of the mortality characteristics of property carries with it the concept of retirement dispersion. If every item was average, thereby having exactly the same life, there would be no dispersion. The concept of retirement dispersion recognizes that some items in a group live to an age less than the average service life, and other items live longer than the average. Retirement dispersion is often identified by standard patterns.

The Iowa-type dispersion patterns that are widely used by electric and gas utilities were devised empirically about 60 years ago to provide a set of standard definitions of retirement dispersion patterns. Figure 1 shows the dispersion patterns for three of these curves. The L series indicates the mode is to the Left of average service life, the R series to the Right, and the S series at average service life, and therefore, Symmetrical. There is also an O series that has the mode at the Origin, thereby identifying a retirement pattern that has the maximum percentage of original installations retired during the year of placement.

The subscripts on Figure 1 indicate the range of dispersion, with the high number (4) indicating a narrow dispersion pattern, and the low number (1) indicating a wide dispersion pattern. For example, the R1 curve shown in the figure indicates that retirements start immediately and some of the property will last twice as

long as the average service life. The dispersion patterns translate to survivor curves, which are the most widely recognized form of Iowa curves. Other families of patterns exist, but are not as widely used as the Iowa type.

The methods of calculating depreciation rates are categorized as straight-line and non-straight-line.

Non-straight-line methods can be accelerated or deferred. There are three basic procedures for calculating straight-line book depreciation rates:

Units-of-Production

Average Life Group (ALG)

Equal Life Group (ELG)

Each of these procedures can be calculated using either the whole life or the remaining life technique.

Productive life may be identified by (a) a life span or (b) a pattern of production or usage. If production or usage is the suitable criteria, depreciation should be straight-line over life measured by time. Units-of-Production is straight-line over production or usage, while the others are straight-line over life measured by time. ALG is straight-line over the average life of the group, while ELG is straight-line over the actual life of the group.

The formulas for the whole life and remaining life techniques are shown on Table 1. For the ELG calculation procedure, Formulas 1 and 3 are applied to the individual equal life components of the property group. For the ALG calculation, the formulas are applied to the property group itself. Formula 2 is applied to the property group for either ELG or ALG. Use of the units (percent and years) in the formulas results in rates as a percent of the depreciable plant balance. The depreciable plant balance is the surviving balance at the time the rate is calculated, and is expressed as a percent (always 100) of itself. Salvage and reserves are expressed

as a percent of the depreciable plant balance. For example, a property group having a 35-year average service life and negative 5% salvage would have an ALG whole life rate of (100 + 5/35), or 3.00%.

The first term of Formula 2 is identical to Formula 1 for the whole life rate. The second term of Formula 2 illustrates that the difference between a remaining life rate and whole life rate is the allocation of the difference between the book and calculated theoretical reserves over the remaining life by a remaining life rate.

The widely used ALG procedure of depreciation rate calculation does not recognize the existence of retirement dispersion in the calculation. The difference between the ALG and ELG procedures is the recognition of the existence of retirement dispersion in the ELG rate calculation. ELG is a rate calculation procedure; nothing more. The data required to make the ELG calculation are average service life, retirement dispersion, net salvage, and the age distribution of the property. The depreciation study required to determine the applicable mortality characteristics is independent from the calculation of the depreciation rates. The resulting mortality characteristics can be used to calculate either ALG or ELG rates, both with either the whole life technique or the remaining life technique. Any set of mortality characteristics that is suitable for calculating ALG rates is just as suitable for calculating ELG rates. Conversely, any set that is not suitable for ELG is not suitable for ALG either.

The ELG procedure calculates the depreciation rates based on the expected life of each equal life component of the property rather than the average life of all components. As discussed earlier, "average" is the result of a calculation and there may not be any "average" property. When curves are used to define retirement dispersion, the average service life and the retirement dispersion pattern define the equal life groups and the expected life applicable to each group.

When retirement dispersion does not exist, the ELG rate is identical to the ALG rate. When dispersion exists, the ELG rate for recently installed property is higher than the ALG rate and for old property, it is lower.

A Simple Illustration of ELG

This illustration provides a framework for visualizing the ELG methodology. Table 2 assumes 20% of the $5,000 investment is retired at the end of each year following placement. The retirement frequencies are shown on Line 7. As shown in Columns 2 through 6, this means $1,000 of investment is retired each year, with the retirement at Age 1 being recovered in its entirety during Year One, at Age 2 in Years One and Two, etc. The depreciation rate applicable to each equal life group is shown on Line 8. The annual provision in dollars for Year One shown in Column 7 is made up of the Age 1 annual amounts shown on Line 1, Columns 2 through 6. As shown on the Table, the annual provision for Age 2 is equal to the annual provision for Age 1, less the amount collected during Year One applicable to the group retired during Year One. Thus, the annual provisions can be thought of as a matrix, with the provision for any given year being produced by a portion of the matrix.

The depreciation rates in Column 9 are determined by dividing the annual provisions in Column 7 by the survivors in Column 8. The rate formula shown on Table 2 can also be used to calculate the rates and is used on the table to illustrate the working of the matrix by calculating the depreciation rates for Year One and Year Three. For Year One, the numerator and denominator both consist of five terms. Each year, the left-hand terms of both numerator and denominator drop off. It should be noted that the reverse summation of retirement ratios (starting with Column 6 and moving left on Line 7) is equal to the survivor ratio at the beginning of the period shown in Column 10.

The formula can illustrate how the matrix can be thought of in terms of a depreciation rates. If the multiplier of 100 is incorporated in each element of the numerator of the formula, such as (100 x 0.2)/2, it can be seen that 100/2 is a rate and the retirement frequency (0.2) is a weighting factor. This particular rate (50%) is the one shown for Age 2 property on Line 8, Column 3.

It can be seen that the only data required for the ELG rate calculation are the retirement frequencies for each year. These frequencies are defined by the average service life and the shape of the dispersion pattern.

A Real Illustration of ELG

The depreciation analyst deals with much larger groups of property than those appearing on Table 2. Table 3 contains an ELG rate calculation for an actual depreciable property group. The retirement frequencies shown in Column 4 are defined by the 38-year average service life and the L5 Iowa-type dispersion pattern. The ALG rate without salvage for this property is 2.632% (100%/38 years), while the ELG rate varies from 2.704% at age 0.5 years to 1.471% at the age just prior to the last retirement, 67.5 years.

The rate listed in Column 5 at each age is the weighted summation of individual rates applicable to that portion of the surviving property that the retirement frequencies in Column 4 indicate will be retired in each following year. This combination of average service life and dispersion pattern means that the first retirement will be from the age 18.5-year property during the following year at an age of 19 years; therefore, it will require a rate of 5.263% (100%/19 years). (This example does not have any surviving balance at age 18.5.) The last retirement will be from age 67.5-year property; consequently, it will require a rate of 1.471% (100%/68 years). The vintage composite rate shown in Column 5 at age 0.5 years is the weighted summation of rates varying from 5.263% to 1.471%.

Since this example is for a narrow dispersion pattern, the first retirement occurs at age 19 years and the vintage composite rate remains at 2.704% at age 19.5 years, because the first retirement drops the 5.263% rate from the summation.

A wider dispersion pattern would result in a wider range of vintage composite rates than defined by the L5 curve (2.704% to 1.471%).

All that is necessary for calculating the depreciation rates applicable to each age of property are the retirement frequencies. These frequencies are defined by the average service life and the retirement dispersion pattern. The determination of average service life requires the determination of the dispersion pattern, as without dispersion there would be no "average."

Depending on the dispersion pattern, the number of retirement frequencies making up the complete Iowa curve can be up to about 4.4 times the number of years of average service life. Thus, for an account whose number of retirement frequencies is three times average service life and whose average service life is 30 years, the rate applicable to the Age 1 property will be made up of the weighted summation of 89 components, etc. Thus, the rate calculation process is complex, but certainly not complicated. It is this complexity that makes the rate calculations much more practical using a computer.

RETIREMENT DISPERSION DEFINED

BY IOWA TYPE CURVES

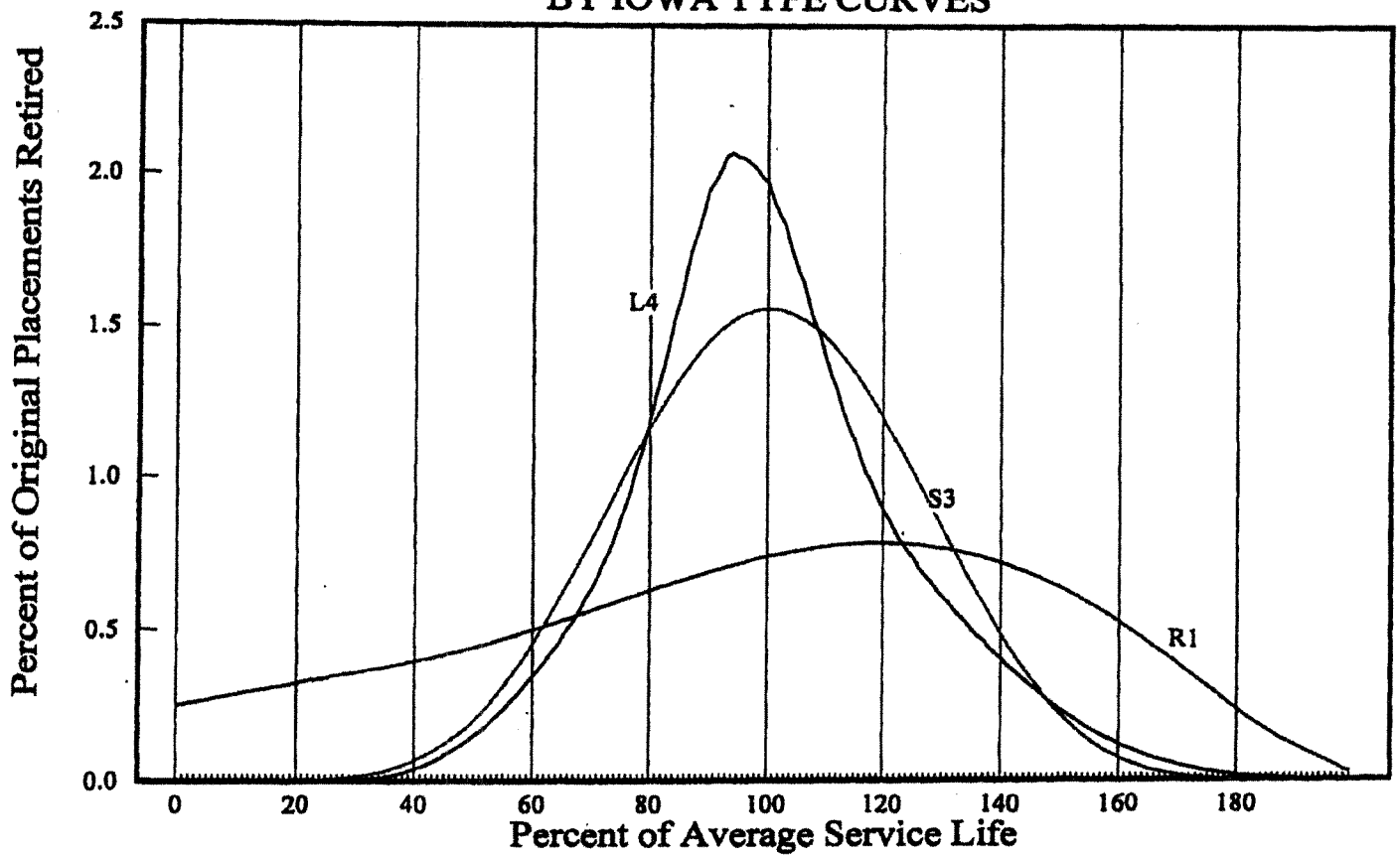

TABLE 1

DEPRECIATION RATE CALCULATION PROCEDURES

Whole Life

$$\text{Rate (\%)} = \frac{PB - AS}{ASL}$$ Formula 1

Remaining Life

$$\text{Rate (\%)} = \frac{PB - FS}{ASL} - \frac{BR - CTR}{ARL}$$ Formula 2

$$\text{Rate (\%)} = \frac{PB - FS - BR}{ARL}$$ Formula 3

Where

PB is Depreciable Balance, %

AS is Average Net Salvage, %

FS is Future Net Salvage, %

ASL is Average Service Life, years

BR is Depreciation Reserve, %

CTR is Calculated Theoretical Reserve, %

ARL is Average Remaining Life, years

TABLE 2

DEVELOPMENT OF EQUAL LIFE GROUP CAPITAL RECOVERY RATE

Line	(1) Age Years	(2) Group 1 $	(3) Group 2 $	(4) Group 3 $	(5) Group 4 $	(6) Group 5 $	(7) Annual Provision $	(8) Beginning Survivors $	(9) Rate %	(10) Survivor Factor
1	1	1,000.00	500.00	333.33	250.00	200.00	2,283.33	5,000.00	45.67	1.00
2	2		500.00	333.33	250.00	200.00	1,283.33	4,000.00	32.08	0.80
3	3			333.33	250.00	200.00	783.33	3,000.00	26.11	0.60
4	4				250.00	200.00	450.00	2,000.00	22.50	0.40
5	5					200.00	200.00	1,000.00	20.00	0.20
6	Retirements	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00				
7	Frequency	0.20	0.20	0.20	0.20	0.20				
8	Rate	100%	50%	33.33%	25%	20%				

$$\text{Rate, \%} = \frac{\text{Retirements Frequencies}}{\text{Age at Retirement}} \times 100$$

Reverse of Retirement Frequencies

$$\text{Year One Rate} = \frac{0.2 + 0.2 + 0.2 + 0.2 + 0.2}{1 \quad 2 \quad 3 \quad 4 \quad 5} \times 100 = 45.67\%$$

$$0.2 + 0.2 + 0.2 + 0.2 + 0.2$$

$$\text{Year Three Rate} = \frac{0.2 + 0.2 + 0.2}{3 \quad 4 \quad 5} \times 100 = 26.11\%$$

$$0.2 + 0.2 + 0.2$$

TABLE 3

DETERMINATION OF DEPRECIATION RATES BY ELG PROCEDURES

[1] Age Years	[2] Year	[3] Vintage Balance $	[4] Retirement Frequency ASL 38 Curve L5	[5] Rate	[6] Amount $
0.5	1993	4,244,285	0.0000	0.02704	114,758.36
1.5	1992	800,784	0.0000	0.02704	21,651.86
2.5	1991	60,016	0.0000	0.02704	1,622.73
3.5	1990	43,455,063	0.0000	0.02704	1,174,952.00
4.5	1989	81,456	0.0000	0.02704	2,202.43
5.5	1988	172,483	0.0000	0.02704	4,663.11
6.5	1987	2,096,991	0.0000	0.02704	56,753.20
7.5	1986	2,685,949	0.0000	0.02704	72,623.55
9.5	1984	1,642,443	0.0000	0.02704	44,406.90
10.5	1983	222,602	0.0000	0.02704	6,018.78
11.5	1982	85,661	0.0000	0.02704	2,316.13
12.5	1981	4,985	0.0000	0.02704	134.79
13.5	1980	72,942	0.0000	0.02704	1,972.23
14.5	1979	219,163	0.0000	0.02704	5,925.80
15.5	1978	120,885	0.0000	0.02704	3,282.58
16.5	1977	37,042	0.0000	0.02704	1,001.55
17.5	1976	339,236	0.0000	0.02704	9,172.21
19.5	1974	336,723	0.0001	0.02703	9,101.41
20.5	1973	10,375,359	0.0004	0.02702	280,292.86
21.5	1972	4,481,906	0.0009	0.02699	120,983.25
22.5	1971	5,923,340	0.0018	0.02695	159,618.98
23.5	1970	78,848	0.0030	0.02689	2,119.97
24.5	1969	305,178	0.0047	0.02681	8,180.42
25.5	1968	10,312,586	0.0069	0.02670	275,375.94
26.5	1967	2,754,067	0.0094	0.02658	73,203.24
27.5	1966	9,558,786	0.0123	0.02644	252,715.77
29.5	1964	5,556,083	0.0194	0.02610	144,995.54
30.5	1963	23,383	0.0242	0.02589	605.42
31.5	1962	3,313,564	0.0305	0.02566	85,012.50
32.5	1961	32,271	0.0386	0.02538	819.15
33.5	1960	151,658	0.0482	0.02507	3,802.24
34.5	1959	171,483	0.0583	0.02472	4,238.70
35.5	1958	167,116	0.0674	0.02433	4,065.35
36.5	1957	70,420	0.0740	0.02390	1,683.22
37.5	1956	1,792,312	0.0768	0.02345	42,036.33
39.5	1954	2,270,555	0.0701	0.02252	51,131.79
40.5	1953	187	0.0622	0.02206	4.13
41.5	1952	20,185	0.0531	0.02161	436.14
42.5	1951	12,860	0.0442	0.02118	272.40
43.5	1950	706	0.0362	0.02078	14.67
44.5	1949	2,652	0.0296	0.02041	54.13
45.5	1948	6,422	0.0245	0.02006	128.81
46.5	1947	19,573	0.0205	0.01972	386.07
47.5	1946	323,058	0.0173	0.01940	6,268.69
49.5	1944	2,285,041	0.0123	0.01879	42,943.47
50.5	1943	15,514	0.0103	0.01850	288.88
51.5	1942	620,752	0.0085	0.01821	11,306.36
53.5	1940	684,810	0.0055	0.01766	12,090.28
54.5	1939	47,173	0.0043	0.01740	820.76
55.5	1938	22,725	0.0033	0.01714	389.52
56.5	1937	560	0.0025	0.01689	9.46
57.5	1936	722	0.0019	0.01664	12.02
59.5	1934	3,065	0.0005	0.01573	48.21
61.5	1932	944,400	0.0005	0.01573	14,853.98
67.5	1926	2	0.0000	0.01471	0.03
Totals		119,029,891			3,133,730.27
				SALVAGE (%) =	-5.0
				AFTER SALVAGE =	3,290,417
				ANNUAL DEPRECIATION RATE =	2.76

APPENDIX C

This appendix consists of a glossary of terms frequently used in depreciation accounting. This glossary is from the book, *Public Utility Depreciation Practices*, August 1996. This was compiled and edited by the Staff Subcommittee on Depreciation of The NARUC Finance and Technology Committee of the National Association of Regulatory Utility Commissioners.

GLOSSARY

Accelerated Capital Recovery System (ACRS)
The 1982 Economic Recovery Tax Act (ERTA) established this accelerated depreciation method liberalizing previous tax laws (Class Life System and Asset Depreciation Range) for capital assets placed in service after December 31, 1980, and before January 1, 1987. This method allows for shorter lives and accelerated methods for calculating tax depreciation expense.

Accelerated Depreciation
A generic term for depreciation methods that allow larger depreciation accruals in the early years of an asset's life and diminishing accruals in later years compared to straight-line methods. The various accelerated depreciation methods accomplish the same goal, i.e., to recover the investment over the life of the plant, but the timing of the depreciation accruals is varied depending on the method selected. Accelerated depreciation is currently used for tax depreciation but not for regulated book depreciation.

Accounting Period
The period of time for which the accounting data is regularly reported.

Accrual
See **Depreciation Accruals.**

Accrual Accounting
An accounting procedure that attempts to match revenue and expense for a particular accounting period, regardless of when the actual cash flow takes place.

Accrual Weighting
The process of determining an average service life (ASL) by means of weighting factors calculated by dividing component net or gross investment amounts by the corresponding life of each component. Gross book investment is used to weight average service lives, and net investment is used to weight the remaining lives. The weighting factors are the annual depreciation accruals (neglecting net salvage) for the components. The composite life is the sum of the net or gross investments divided by the sum of the accruals. See **Reciprocal Weighting, Direct Weighting.**

Accrued Depreciation
See **Depreciation Accruals.**

Accumulated Depreciation Account
The account that reflects the portion of the cost of existing plant that has been expensed. Also referred to as the "accumulated provision for depreciation" account.

Acquisition Cost
The price paid for material, supplies and plant. The acquisition cost will be the same as original cost or book cost for materials, supplies and plant purchased new. However, if operating plant is purchased, the acquisition cost may differ from the original cost of the plant.

Activity Year
Usually refers to the accounting data for a particular calendar year or other designated accounting period. For example, the 1995 activity year retirement would refer to the total retirements occurring (from all existing vintages) during 1995.

Actuarial Analysis
The translation of mortality data into statistics or charts displaying the relationships among age, retirements, realized life, unrealized life, life expectancy and indicated average life. It can also refer to the body of age-dependent statistical procedures used to study mortality data.

Additions
See **Gross Additions.**

Age
The length of time, in years, the survivors of a vintage have been in service. This may be stated as (1) age at a particular location or (2) age since originally placed in service without regard to location. The first would be "location life" age and the second would be "cradle-to-grave" age. Because it is assumed that plant is added evenly throughout the year (or on the average, all at midyear), age as of the end of a calendar year will normally be 0.5, 1.5, 2.5, . . . rather than 1.0, 2.0, 3.0, ... See **Age Interval.**

Aged Data
A collection of property data for which the dates of placements, retirements, transfers and other actions are known.

Age Distribution of Plant
The surviving investment, in units or dollars, by year of placement (vintage year).

Age Interval
Age interval is measured from the beginning of one period of observation (usually a year) to the beginning of the next consecutive period. See **Half-Year Convention.**

Amortization
The process of allocating a fixed amount, such as the total cost of an asset, to an expense account over future accounting periods.

Annuity Rate
See **Sinking Fund.**

Asset
Tangible or intangible property that has economic value. Although loosely thought of as anything that has value to its owner, in accounting, it must be measurable and must possess future utility. In other words, it must possess utility beyond the current accounting period, such as cash, a building, a generating unit or telephone central office equipment.

Average Life
The average expected life of all units of a group when new. It is determined as the arithmetic average of the lives of the units. It is equal to the area under the survivor curve divided by the original placements. See **Average Service Life, Vintage Average Life-Vintage Group Procedure, Vintage Average Life-Equal Life Group Procedure.**

Average Net Salvage
The composite of the past and future net salvage. See **Net Salvage.**

Average Realized Life
See **Realized Life.**

Average Remaining Life
The future expected service in years of the survivors at a given age. For single units or single age groups of property, the age of the survivors plus the remaining life equals the probable life. Using this relationship, the probable life curve is drawn so that for any age along the survivor curve, the horizontal distance to the probable life curve represents the remaining life. At any given age, the average remaining life is the unrealized life divided by the proportion surviving at that age.

Average Retirement Unit Cost
The average (annual or cumulative) installed cost of a unit of plant that is normally placed in large quantities for which development of an actual unit cost is not practical.

Average Service Life (ASL)
Average service life is the same as average life when a single group is involved. When two or more groups, such as vintages, categories or plant accounts are involved, the average service life is the reciprocal or harmonic average of the lives of the groups.

Average Year of Final Retirement (AYFR)
The direct weighted average of the individual estimated final retirement years for existing units in a major structure category. It is generally used in conjunction with an interim retirement life table to develop vintage group remaining lives. See **Life Span, Major Structure.**

Average Year of Placement (AYP)
The direct weighted average of the individual placement years for existing units in a major structure category. Weighting is generally based on investment. AYP may be used to develop an AYFR, by adding an estimated life span. See **Life Span, Major Structure.**

Band
A period of three or more years for which the average life and the retirement pattern (dispersion) can be determined through actuarial analysis of mortality experience.

Betterment
An addition to the plant that provides new or increased services, more efficient operation, increased safety or reliability and increased capacity.

Book Cost
The amount at which property is recorded on the books. See **Original Cost, Net Book Cost, Acquisition Cost.**

Book Depreciation
Depreciation accruals calculated on a "straight-line" basis for regulatory purposes. These depreciation charges are designed to spread the cost of plant uniformly over its estimated service life.

Book Reserve
See **Accumulated Depreciation Account.**

Broad Group Procedure
Under this procedure, all units of plant within a particular depreciation category, usually a plant account or subaccount, are considered to be one group. The broad group procedure requires, at a minimum, records of annual additions and balances. Records of retirements by vintage are desirable.

Capital Recovery
Recovery of the cost of assets from revenues generated by use of the asset over a number of accounting periods.

Class of Plant
A group of assets having common physical or mortality characteristics as prescribed by a system of accounts, commonly referred to as a plant account.

Composite Depreciation Rate
The weighted average of two or more component rates. Accruals resulting from the application of a composite depreciation rate should always equal the accruals calculated by applying the component rates to their related investments.

Computed Mortality
A model that computes retirement data, rather than using actual data, by year of placement, based on a curve shape considered reasonable for the plant.

Conformance Index (CI)
A measure of closeness of fit between calculated and actual balances in the Simulated Plant-Record Model. The best fits are those with the highest CIs. The CI equals 1,000 divided by the index of variation (IV). See **Simulated Plant-Record Model (SPR).**

Continuing Property Record (CPR)
A perpetual collection of essential records showing the detailed original costs, quantities and locations of plant in service. These records vary in detail depending upon the kind of plant. CPRs are required by most systems of accounts. Generally, a CPR should contain 1) an inventory of property record units that can be readily checked for proof of physical existence, 2) the association of costs with such property record units to ensure accurate accounting for retirements and 3) the dates of installation and removal of plant to provide data for use in connection with depreciation studies.

Converted Life Table
A life table with the same basic shape as the Graduated Life Table from which it was developed but having whatever average life was specified by the analyst.

Cost of Removal
The costs incurred in connection with the retirement from service and the disposition of depreciable plant. Cost of removal may be incurred for plant that is retired in place. See **Net Salvage.**

Cradle-to-Grave
An accounting method that treats a unit of plant as being in service from the time it is first purchased until it is finally junked or disposed of. Periods in shop for refurbishing, and in stock awaiting reinstallation are included in the service life. See, in contrast, **Location Life.**

Depletion
The loss of service value incurred in connection with the exhaustion of a natural resource in the course of service.

Depreciable Base
The cost of plant in service that is allocable to expense during the service life of the property through the depreciation process.

Depreciable Plant
Plant in service for which it is proper to allocate the original cost to annual expense through the depreciation process. Items such as land and plant under construction are not considered depreciable.

Depreciation
As applied to the depreciable plant of utilities, the term depreciation means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes that are known to be in current operation, against which the company is not protected by insurance, and the effect of which can be forecast with reasonable accuracy. Among the causes to be considered are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and the requirement of public authorities.

Depreciation Accounting
The process of charging the book cost of depreciable property, adjusted for net salvage, to operations over its useful life. See **Depreciable Base, Service Value.**

Depreciation Accruals
The amount of depreciation expense during each period of an asset's life. The amount is developed by applying a depreciation rate to the appropriate depreciation base. Depreciation accruals are charged to depreciation expense accounts or clearing accounts and credited to the accumulated depreciation account.

Depreciation Base
The cost of depreciable plant to which the depreciation rate is applied to compute the amount of depreciation expense. Under a cost basis method, the depreciation base is the original cost of the depreciable plant.

Depreciation Expense
The periodic charge to expense to allocate the cost of depreciable plant over the expected service life of the plant. See **Depreciation Accruals, Accumulated Depreciation Account.**

Depreciation Rate
The rate applied to the depreciation base to determine the amount of depreciation expense for an accounting period.

Depreciation Reserve
See **Accumulated Depreciation Account.**

Direct Weighting
The process of computing the weighted average of a set of numbers by multiplying each by its corresponding weight, and then dividing the sum of the products by the sum of the weights.

Economic Depreciation
The change in economic value of an asset from one time period to the next.

Economic Life
The total revenue producing life of an asset.

Exposure
Depreciable property subject to retirement during a period.

Extraordinary Retirement
Unanticipated nonrecurring retirement of plant not recognized in setting depreciation rates, with a loss in service value not covered by insurance. Usually, the charging of the retirement against the reserve will unduly deplete the reserve. Early retirements brought about by technological and social changes should properly be considered in depreciation accruals and should not be considered extraordinary.

Final Retirement
The retirement of a major structure unit in its entirety, or a very large part of it, as opposed to interim retirements.

Future Life Expectancy
See **Average Remaining Life.**

Forecast Method
See **Life Span.**

Generation Arrangement
An exhibit that displays the age, plant surviving, proportion surviving, realized life and the calculation of the remaining life and average life of each vintage. This exhibit is used to combine the past realized life with the expected future life and produces the composite average service life and average remaining life for each category.

Gompertz-Makeham Formula
Formula used to calculate a least squares mathematical algorithm (root-mean-square) to fit an observed life table.

Graduation
A method of smoothing and extending an observed life table to zero percent surviving. See **Gompertz-Makeham Formula, Iowa Curves.**

Gross Additions
Plant additions made during an accounting period. These additions do not include adjustments, transfers and reclassifications applicable to plant placed in a previous year.

Gross Salvage
The amount recorded for the property retired due to the sale, reimbursement or reuse of the property.

Group Depreciation
In depreciation accounting, a procedure under which depreciation charges are accrued on the basis of the original cost of all property included in each depreciable group.

h Curves
A system of mathematically-developed, generalized survivor curves based on the truncated normal distribution (curve). The h curves are used by the New York Department of Public Service and most New York utilities.

Half-Year Convention
For calculation purposes, the units installed during an age interval are assumed to have been installed simultaneously at the middle of the interval and thus to have an age dating from the middle of the interval during which they were placed in service. See **Age Interval.**

Harmonic Weighting
See **Reciprocal Weighting.**

Historical Cost
See **Book Cost.**

Index of Variation (IV)
The conformance index divided by 1,000. See **Conformance Index (CI).**

Indirect Weighting
See **Reciprocal Weighting.**

Installations
See **Gross Additions.**

Installed Cost
The cost of labor, material, engineering and overhead associated with transporting and delivering, attaching, testing and preparing a piece of equipment for the purpose for which it is acquired. These outlays are capitalized as part of the cost of the asset. This is also referred to as in-place cost.

Interim Additions
As used in life span analysis, additions made subsequent to the year in which the unit was placed in service. Interim additions are not considered in the depreciation computation until they occur.

Interim Retirements
As used in life span analysis, retirements of component parts of a major structure prior to the complete removal of the retirement unit from service. See **Final Retirement, Retirement Unit.**

Interim Retirement Ratio
The ratio of the interim dollars retired from a group during a period divided by the total dollars in service at the beginning of the period.

Interim Salvage
Salvage received from the disposition of plant as a result of interim retirements.

Iowa Curves
Several families of curve shapes derived empirically from analysis of the mortality data for many different types of industrial property.

Life
A general term, used broadly to refer to the period of time during which depreciable plant is in service. See **Average Life, Average Remaining Life, Average Service Life (ASL), Economic Life, Life Characteristics, Life Cycle, Life Indication, Location Life, Probable Life, Realized Life, Service Life, Unrealized Life.**

Life Characteristics
A general term to refer to the average life and shape of a survivor curve.

Life Cycle
The state of an asset at every point in time from its inception to termination with the asset passing through identifiable and predictable stages.

Life Indication
A life indicated by analysis of historical property records.

Life Span
The number of years between the year of installation of a major structure unit and its year of final retirement.

Life Table
A tabulation showing the proportion of the original additions surviving at successive ages after placement. See **Survivor Curve.**

Location Life
The period of time during which depreciable plant is in service at one location. See, in contrast, **Cradle-to-Grave Accounting.**

Major Structure
A large, identifiable unit of plant or any assembly of plant, most of which will continue in service until final retirement. See **Interim Retirements, Final Retirement, Average Year of Final Retirement.**

Mass Property Group or Account
An account consisting of large numbers of similar units, the life of any one of which is not, in general, dependent upon the life of any of the other units. For such classes of plant, the retirement of a group of units occurs gradually until the last unit is retired. The retirements and additions to the account occur more or less continually and systematically.

Mortality Data
See **Aged Data.**

Mortality Rate
See **Retirement Ratio (Rate).**

Net Book Cost
The recorded cost of an asset or group of assets minus the accumulated depreciation of those assets.

Net Salvage
The gross salvage for the property retired less its cost of removal.

Observed Life Table
A series of percents surviving, by age, reflecting the actual experience recorded in a band of mortality data.

Original Cost
The cost of property when first placed in service. See **Book Cost.**

Placement Year
See **Vintage Year.**

Probable Life
The total expected service life for survivors at a given age. It is the sum of the age of the survivors and their remaining life.

Projection Life
The average life expectancy of new additions to plant. See **Projection Life Table.**

Projection Life Table
A series of percents surviving, by age, selected to reflect the appropriate retirement pattern and used to develop the remaining life at any age. The projection life table is described by specifying a curve shape (e.g., Gompertz-Makeham or Iowa curve) and the projection life.

Property Group
A collection of units having similar mortality characteristics for depreciation study purposes.

Property Units
See **Units of Property.**

Proportion Surviving
The ratio of units or dollars surviving in a vintage at a given point in time to the gross additions to the vintage. This should not be confused with the Survival Ratio, which is the complement of the Retirement Ratio. See **Survival Ratio.**

Realized Life
A vintage's average realized life is the average years of service experienced to date from the vintage's original installation.

Reciprocal Weighting
The process of computing the weighted average of a set of numbers by dividing each by its corresponding weights, and then dividing the sum of the weights by the sum of the quotients. See **Accrual Weighting, Direct Weighting.**

Remaining Life
See **Average Remaining Life.**

Remaining Life Span
See **Life Span.**

Remaining Life Technique
A technique used to determine the annual depreciation accruals required to recover the undepreciated service value over its remaining life. The annual depreciation accruals amount is the original cost less accumulated depreciation and future net salvage divided by the remaining service life.

Reserve
See **Accumulated Depreciation Account.**

Reserve Imbalance
Difference between the accumulated depreciation account and the theoretical reserve at a point in time. See **Theoretical Depreciation Reserve.**

Reserve Ratio
The accumulated depreciation divided by its associated plant balance, expressed as a percentage.

Reserve Requirement
See **Theoretical Depreciation Reserve.**

Retirement
The sale, abandonment, destruction or withdrawal of assets from service.

Retirement Dispersion
The distribution of retirements by age. See **Retirement Frequency Curve.**

Retirement Experience Index (REI)
The REI associated with a retirement dispersion pattern is the percentage of installations from the oldest vintage that would have retired by the end of the most recent year in the chosen band of years if the installations retired according to the specified survivor curve. The higher the REI, the more assurance that a unique retirement pattern was used in the SPR simulation.

Retirement Frequency Curve
The retirement frequency curve shows the distribution of the percentage (or number) retired at each age.

Retirement Ratio (Rate)
The ratio of the number of units (or dollars) retired from a group during a period divided by the units (or dollars) in service at the beginning of the period.

Retirement Unit
The largest unit of plant for which addition and retirement records are maintained as defined by the relevant accounting system. See **Average Retirement Unit Cost.**

Reuse Salvage
The material (as opposed to labor) portion of a retirement, reported as salvage and placed in materials and supplies in anticipation of putting it back into service.

Salvage
See **Gross Salvage, Net Salvage.**

Service Life
See **Life.**

Service Value
The original cost of an asset less its estimated net salvage. See **Depreciable Base.**

Simulated Plant-Record Model (SPR)
A trial-and-error model used to estimate the average service life of a depreciable group. The SPR model simulates retirements and the resultant plant balances for combinations of standardized survivor curves and average service lives and compares the results to the historical data until a good match is found.

Sinking Fund Method
Under this method, the depreciation accrual is composed of two parts: an annuity and interest on the accumulated depreciation. As compared with the straight-line method, the sinking fund method produces lower early accruals and higher accruals in the latter part of the service life.

Statistical Aging
See **Computed Mortality.**

Straight-Line Method
A depreciation method by which the service value of plant is charged to depreciation expense (or a clearing account) and credited to the accumulated depreciation account through equal annual charges over its service life. See **Depreciation Rate.**

Survivor Curve
A plot representing the percent surviving at each age.

Survival Ratio
The ratio of the number of units (or dollars) surviving in a group at the end of a period to the number of units (or dollars) in the group at the beginning of that period. The ratio is equal to one minus the retirement ratio. See **Proportion Surviving.**

T-cut
A truncation of the observed life table values that is generally used in a mathematical fitting of a curve to the observed values.

Theoretical Depreciation Reserve
The calculated balance that would be in the accumulated depreciation account at a point in time using current depreciation parameters, such as average service and net salvage. Also known as "reserve requirement" or "calculated accumulated depreciation (CAD)." See **Accumulated Depreciation Account.**

Turnover Methods
Methods of estimating service life based on the time it takes the plant to "turn over," that is, the time it takes for the actual retirements to exhaust a previous plant balance. See **Computed Mortality.**

Total Life
A term sometimes used to represent the sum of the age and the remaining life. Not to be confused with average service life.

Type Curves
Generalized survivor curve families, for example, Iowa, h and Bell curves.

Unit Depreciation Procedure
The depreciation procedure in which each plant unit (retirement unit) is accounted for individually in the depreciation process, as compared to the "group" depreciation procedure.

Unit of Production Method
A straight-line depreciation method that allocates the depreciable base to expense on a "use" or production basis using, for example, miles, megawatt-hours or cubic feet, as opposed to the allocation of the depreciable base over the average service life in years.

Units of Property
The terms in which quantities of plant are expressed, for example, dollars, poles, sheath-feet, lines.

Unrealized Life
That portion of the average life of a vintage group expected to be realized subsequent to the study date. Realized life plus unrealized life equals the vintage group average life.

Vintage Group
Plant placed in service during the same year. See **Vintage Year.**

Vintage Average Life-Vintage Group Procedure
The average life of a vintage is calculated by dividing the total unit-years or dollar-years lived during the total life of the vintage by the original number of units or dollars in the vintage.

Vintage Group Procedure
Under this procedure, each vintage within the depreciation category is considered to be a separate group. This requires that each vintage group be analyzed separately to determine its average life, and then the average lives of all vintages are composited to produce the average service life for the plant class.

Vintage Year
Year of placement of a group of property. See **Vintage Group.**

Weighting
See **Accrual Weighting, Direct Weighting, Reciprocal Weighting.**

Whole Life Technique
The whole life technique bases the depreciation rate on the estimated average service life of the plant. See **Average Service Life.** See, in contrast, **Remaining Life Technique.**

OKLAHOMA NATURAL GAS COMPANY
CHANGE IN ANNUAL DEPRECIATION BY CAUSE

EXHIBIT DSR-4

[1]	[2] 12/31/2002 Balance	[3] Existing Rate	[4] Annual Amount	[5] Study Rate	[6] Annual Amount	[7] Increase or (Decrease)	[8] Change in ASL	[9] Change in Net Salv.	[10] Reserve Position	[11] Change in Procedure	[12] Inter-Relations
	$	%	$	%	$	$	$	$	$	$	$
TRANSMISSION	73,086,178	1.86	1,362,607	1.21	880,825	(481,782)	(95,493)	(48,916)	(681,856)	75,572	268,911
DISTRIBUTION	864,131,841	2.53	21,864,896	3.55	30,639,174	8,774,278	1,807,606	1,513,077	1,986,327	1,440,364	2,026,904
GENERAL	71,784,993	7.94	5,701,472	8.73	6,265,045	563,573	75,226	(174,041)	636,632	(85,664)	111,420
TOTAL GAS PLANT	1,009,003,012	2.87	28,928,975	3.74	37,785,044	8,856,069	1,787,339	1,290,120	1,941,103	1,430,272	2,407,235

OKLAHOMA NATURAL GAS COMPANY
Test Year Comparison of Depreciation Rates and Annual Amounts

Exhibit DSR-5

[1] Account Number	[2] Description	[3] 7/31/2004 Balance $	[4] Existing Rates %	[5] Annual Amount $	[6] Proposed Rates %	[7] Annual Amount $	[8] Increase or (Decrease) $
	TRANSMISSION PLANT						
365.2	Rights of Way	2,988,255	1.30	38,847	0.91	27,193	(11,654)
366.2	M&R Station Structures	53,222	0.82	436	2.54	1,352	915
366.3	Other Structures	40,176	2.57	1,033	1.75	703	(329)
367.0	Line Equipment	69,306,480	1.86	1,289,101	1.09	755,441	(533,660)
368.0	Compressor Station Equipment	61,176	3.23	1,976	2.75	1,682	(294)
369.0	M&R Station Equipment	3,703	2.62	97	4.54	168	71
369.1	Measuring Station Equipment	2,662,221	2.62	69,750	4.54	120,865	51,115
371.0	Transmission Systems Equipment	11,212	1.24	139	3.34	374	235
	Total Transmission Plant	75,126,445	1.87	1,401,379	1.21	907,778	(493,601)
	DISTRIBUTION PLANT						
375.1	District Regulator Structures	970,780	5.29	51,354	1.81	17,571	(33,783)
375.2	Other District Structures	41,660,698	1.45	604,080	3.25	1,353,973	749,893
376.0	Mains Line Equipment	480,633,069	1.74	8,363,015	2.48	11,919,700	3,556,685
377.0	Compressor Station Equipment	53,098	3.14	1,667	10.56	5,607	3,940
378.0	Measuring Station Equipment	25,653,818	3.83	982,541	4.90	1,257,037	274,496
378.1	District Regulators	9,786,359	3.83	374,818	7.77	760,400	385,583
378.2	District Regulators - Odorizers	2,051,014	3.83	78,554	7.00	143,571	65,017
378.3	District Regulator Equipment	814,605	3.83	31,199	9.41	76,654	45,455
379.0	City Gate Equipment	370,099	3.83	14,175	6.97	25,796	11,621
380.0	Service Line Equipment	243,847,339	3.36	8,193,271	5.21	12,704,446	4,511,176
380.1	Industrial Service Line	7,249,661	3.36	243,589	3.60	260,988	17,399
380.2	Commercial Service Line Equipment	10,407,437	3.36	349,690	5.60	582,816	233,127
380.3	CNG Fill Stations CUS	3,764,939	17.17	646,440	9.36	352,398	(294,042)
380.4	Customer Service Yard Line	32,818,933	3.36	1,102,716	5.21	1,709,866	607,150
381.0	Metering Equipment	74,989,594	3.80	2,849,605	3.40	2,549,646	(299,958)
383.0	House Regulators	10,980,147	3.62	397,481	2.36	259,131	(138,350)
386.0	Other Property on Cust. Premises	150,229	5.26	7,902	4.11	6,174	(1,728)
387.0	Other Miscellaneous Equipment	86,968	4.99	4,340	7.00	6,088	1,748
	Total Distribution Plant	946,288,787	2.57	24,296,437	3.59	33,991,865	9,695,428
	GENERAL PLANT						
390.0	Structures and Improvements	413,214	11.45	47,313	3.15	13,016	(34,297)
391.1	Office Furniture and Equipment	4,425,726	4.32	191,191	6.18	273,510	82,319
391.2	Data Processing and Equipment	2,501,982	10.83	270,965	10.57	264,459	(6,505)
391.3	Office Machines and Equipment	261,340	5.99	15,654	5.97	15,602	(52)
391.4	Audio/Visual Equipment	137,962	2.90	4,001	5.02	6,926	2,925
391.5	Artwork	0	2.90	0	5.02	0	0
391.6	Purchased Software	23,744,864	8.54	2,027,811	11.00	2,611,935	584,124
391.8	Micro Computer Equipment	2,651,118	10.61	281,284	20.49	543,214	261,930
391.9	Information Technology	224,988	10.61	23,871	11.86	26,684	2,812
392.0	Transportation Equipment	681,182	7.89	53,745	6.82	46,457	(7,289)
392.3	Trucks and Vans	12,309,731	10.05	1,237,128	8.62	1,061,099	(176,029)
392.5	Trailers	1,011,633	1.99	20,131	2.28	23,065	2,934
393.0	Stores Equipment	311,775	2.41	7,514	4.49	13,999	6,485
394.0	Tools, Shop and Garage Equipment	587,405	5.97	35,068	5.23	30,721	(4,347)
394.1	Tools	6,792,433	5.97	405,508	5.35	363,395	(42,113)
394.3	Garage Equipment	160,939	5.97	9,608	5.57	8,964	(644)
394.4	CNG Company Stations	3,347,587	5.97	199,851	5.18	173,405	(26,446)
395.0	Laboratory Equipment	1,632	4.56	74	5.43	89	14
396.0	Power Operated Equipment	7,696,273	5.03	387,123	5.72	440,227	53,104
396.1	Power Operated Equipment (Rubber Tire)	197,888	5.03	9,954	6.69	13,239	3,285
397.0	Communication Equipment	266,574	11.68	31,136	7.34	19,567	(11,569)
397.1	Radio Equipment	903,986	11.68	105,586	7.39	66,805	(38,781)
397.2	Telephone Equipment	2,047,081	11.68	239,099	7.08	144,933	(94,166)
397.3	Stationary Radio Equipment	290,601	11.68	33,942	6.21	18,046	(15,896)
	Total General Plant	70,967,914	7.94	5,637,558	8.71	6,179,356	541,798
	Total Depreciable Plant	1,092,383,146	2.87	31,335,373	3.76	41,078,999	9,743,626
	Intangible Plant	4,196,781					
	Land	2,681,229					
	Fully Depreciated Plant	6,025,492					
	Completed Const. - Unclassified	28,396,709					
	Unfinished Construction	20,824,979					
390.0	Leasehold Improvements	126,372					
	Total Gas Plant	1,154,634,708					

OKLAHOMA NATURAL GAS
TEST YEAR ENDED JULY 31, 2004
CAUSE NO: PUD 200400610
PRO FORMA ACCUMULATED DEPRECIATION

LINE NO.	A ACCT. CODE	B ACCOUNT DESCRIPTION	C TOTAL COMPANY PER BOOKS	D TOTAL PRO FORMA ADJUSTMENTS	E TOTAL COMPANY PRO FORMA
1	ONG-DISTRIBUTION				
2	3740	Land	($74.53)		($74.53)
3	3741	Land	$220,897.21		$220,897.21
4	3751	District Regulator Structures	$7,323,002.05		$7,323,002.05
5	3752	Other Distribution System Structures	$169,517,649.55	$8,695,165.04	$178,212,814.59
6	3760	Distribution Line Equipment	($51,880.21)		($51,880.21)
7	3770	Compressor Station Equipment	$9,395,831.01		$9,395,831.01
8	3780	Measuring Station Equipment - General	$4,271,403.91		$4,271,403.91
9	3781	District Regulation	$873,449.27		$873,449.27
10	3782	District Regulation - Odorize	$282,120.48		$282,120.48
11	3783	District Regulator Equip	$116,131.54		$116,131.54
12	3790	Measuring Station Equipment - CityGate	$115,093,127.11	($57,326.48)	$115,035,800.63
13	3800	Service Line Equipment	$3,932,473.19		$3,932,473.19
14	3801	Indust. Servc Line	$3,207,588.58		$3,207,588.58
15	3802	Service Line Equipment	$2,960,203.59		$2,960,203.59
16	3803	CNG Fill Stations	$1,810,800.86		$1,810,800.86
17	3804	Yard Lines	$27,560,478.72		$27,560,478.72
18	3810	Metering Equipment	$5,414,297.74		$5,414,297.74
19	3830	House Regulators	$48,367.30		$48,367.30
20	3860	Other Property On Customer's Premises	$99,063.93		$99,063.93
21	3870	Other	($600.00)		($600.00)
22	3891	Land	$0.00		$0.00
23	3872	Miscellaneous Construction Expenditures	$0.00		$0.00
24	1060	Construction Completed but Not Classified	$0.00		$0.00
25	1070	Unfinished Construction	$163,155.94		$163,155.94
26	1150	Accumulated Amortization of Acquisition Adjustmei	$352,237,487.24	$8,637,838.56	$360,875,325.80
27		TOTAL ONG DISTRIBUTION			
28	ONG-GENERAL				
29	3010	Organization	$0.00		
30	3020	Franchises & Consents	$0.00		
31	3030	Miscellaneous Intangible Plant	$0.00	$0.00	$0.00
32	3901	Structures and Improvements	$266,133.04	$0.00	$266,133.04
33	3902	Leasehold Improvements	$0.00	$0.00	$0.00
34	3911	Office Furniture	$1,383,793.35	$0.00	$1,383,793.35
35	3912	Data Processing Equipment	$1,468,899.47		$1,468,899.47
36	3913	Office Machines and Equipment	$118,584.54		$118,584.54
37	3914	AudioVisual Equipment	$137,962.45		$137,962.45
38	3915	Artwork	($5,077.30)		($5,077.30)
39	3916	Purchased Software	$19,233,778.93		$19,233,778.93
40	3917	Hardware	$0.00		$0.00
41	3918	Comp Equipment	$1,272,324.80		$1,272,324.80
42	3919	Computers & Electronic Equipment	$25,432.76		$25,432.76
43	3920	Transportation Equipment	$169,472.33		$169,472.33
44	3921	Automobiles	($1,564,451.35)		($1,564,451.35)
45	3922	Pickups and Vans	$2,547,132.94		$2,547,132.94
46	3923	Trucks - 3/4 ton to 3 ton	$6,483,892.76		$6,483,892.76
47	3924	Trucks - 3 ton to 5 ton	$745,492.13		$745,492.13
48	3925	Trailers	$257,460.24		$257,460.24
49	3930	Stores Equipment	$157,592.54		$157,592.54
50	3940	Tools, Shop & Garage Equipment	$290,686.01		$290,686.01
51	3941	Tools	$2,407,429.16		$2,407,429.16
52	3942	Shop Equipment	$455,341.81		$455,341.81
53	3943	Garage Equipment	$152,953.90		$152,953.90
54	3944	CNG Co. Stataion	$439,265.31		$439,265.31
55	3950	Laboratory Equipment	$1,047.80		$1,047.80

OKLAHOMA NATURAL GAS
TEST YEAR ENDED JULY 31, 2004
CAUSE NO: PUD 200400610
PRO FORMA ACCUMULATED DEPRECIATION

LINE NO.	A ACCT. CODE	B ACCOUNT DESCRIPTION	C TOTAL COMPANY PER BOOKS	D TOTAL PRO FORMA ADJUSTMENTS	E TOTAL COMPANY PRO FORMA
56	3960	Power Operated Equipment	$3,684,727.46		$3,684,727.46
57	3961	Power Operated Equipment Rubber Tired	$10,458.39		$10,458.39
58	3970	Communication Equipment	$158,951.32		$158,951.32
59	3971	Radio Equipment	$903,985.74		$903,985.74
60	3972	Telephone Equipment	$1,308,459.88		$1,308,459.88
61	3973	Radio Equipment - St	($419,042.00)		($419,042.00)
62	3974	Telephone Equipment Lease	$2,930,341.86		$2,930,341.86
63	3980	Miscellaneous Equipment	$266,074.90		$266,074.90
64	3981	School Appliances	$0.00		$0.00
65	3982	Appliances-Display	$0.00		$0.00
66	3991	Interest During Construction	$0.00		$0.00
67	3992	Miscellaneous Construction Expenditures	$0.00		$0.00
68	1011	Property Under Capital Leases	$0.00		$0.00
69	1050	Gas Plant Held For Future Use	$0.00		$0.00
70	1060	Construction Completed but not Not Classified	$0.00		$0.00
71	1070	Unfinished Construction	$0.00		$0.00
72		TOTAL ONG GENERAL	$45,289,105.17	$0.00	$45,289,105.17
73	ONG-TRANSMISSION				
74	3651	Land	$0.00		$0.00
75	3652	Rights-of-Way	$2,160,104.72		$2,160,104.72
76	3661	Compressor Station Structure	$4,544.50		$4,544.50
77	3662	Measuring Station Structures	$38,804.18		$38,804.18
78	3663	Other Structures	$20,347.41		$20,347.41
79	3670	Line Pipe Equipment	$48,332,716.01		$48,332,716.01
80	3680	Compressor Station Equipment	$46,937.86		$46,937.86
81	3691	Measuring Station Equipment	$1,970,387.64		$1,970,387.64
82	3692	Metering Equipment	$0.00		$0.00
83	3710	Other Transmission Equipment	$8,497.62		$8,497.62
84	3712	Interest During Construction	$0.00		$0.00
85	3713	Miscellaneous Construction Expenditures	$0.00		$0.00
86	1060	Construction Completed but Not Classified	$0.00		$0.00
87	1070	Unfinished Construction	$0.00		$0.00
88		TOTAL ONG TRANSMISSION	$52,582,339.94	$0.00	$52,582,339.94
89	ONG - OTHER PROPERTY				
90	1080	Retirement Work in Progress	($1,680,747.12)	($342,188.04)	($2,022,935.16)
91	1110	ACCUM AMORT & DEPL OF GAS PLT	$126,372.07	$0.00	$126,372.07
92	1210	Land 3891	$0.00	$0.00	$0.00
93		TOTAL OTHER PROPERTY	($1,554,375.05)	($342,188.04)	($1,896,563.09)
94		TOTAL ONG	$448,554,557.30	$8,295,650.52	$0.00 $456,850,207.82

OKLAHOMA NATURAL GAS
TEST YEAR ENDED JULY 31, 2004
CAUSE NO: PUD 200400610
PRO FORMA ACCUMULATED DEPRECIATION

LINE NO.	A ACCT. CODE	B ACCOUNT DESCRIPTION	C TOTAL COMPANY PER BOOKS	D TOTAL PRO FORMA ADJUSTMENTS	E TOTAL COMPANY PRO FORMA
95	CORPORATE ALLOCATED ASSETS				
96	3902	Leasehold Improvements	$396,082.83		$396,082.83
97	3911	Office Furniture & Fixtures	$94,882.84		$94,882.84
98	3912	Data processing equipment	$2,547,296.69		$2,547,296.69
99	3913	Office Machines	$83,943.16		$83,943.16
99	3914	Audio Visual Equipment	$8,702.07		$8,702.07
100	3915	Artwork	$0.00		$0.00
101	3916	Purchased software	$1,724,248.06	$739,960.97	$2,464,209.03
102	3918	Micro computer equip	$484,902.51		$484,902.51
103	3925	Trailers	$73.80		$73.80
104	3926	Aircraft	$496,220.73	($496,220.73)	$0.00
105	3972	Communications & phone systems	$703.82		$703.82
106		TOTAL CORPORATE ALLOCATED ASSETS	$5,837,056.51	$243,740.24	$6,080,796.75
107		TOTAL ONG PRO FORMA PLANT BALANCE	**$454,391,613.81**	**$8,539,390.76**	**$462,931,004.57**

BEFORE THE

GEORGIA PUBLIC SERVICE COMMISSION

PREFILED DIRECT TESTIMONY

OF

DONALD S. ROFF

IN RE:

ATLANTA GAS LIGHT COMPANY

DOCKET NO. 18638-U

Q. Please state your name, affiliation and business address.

A. My name is Donald S. Roff and I am a Director with the public accounting firm of Deloitte & Touche LLP. My business address is 2200 Ross Avenue, Dallas, Texas 75201.

Q. Please describe your business experience.

A. My business experience is described in Attachment A.

Q. Have you ever testified before this or any other regulatory body?

A. Yes. In December, 1997, I testified before the Georgia Public Service Commission (Commission) in Docket No. 8390-U on behalf of Atlanta Gas Light Company (Company or AGLC). In that proceeding, my recommendations regarding depreciation were endorsed by the Commission. I also testified in AGLC's last earnings review (Docket No. 14311-U), where some of my

recommendations were adopted and others were not. A listing of all of my regulatory experience is included on Attachment B.

Q. Are you sponsoring exhibits in connection with your testimony?

A. Yes. I am sponsoring AGLC Exhibit No. ___ (DSR-1), which presents a discussion of depreciation accounting principles, presents the depreciation study methodology, summarizes the results and itemizes the recommendations. This exhibit was prepared by me or under my supervision.

Q. What is the purpose of your testimony?

A. I have conducted a depreciation study of AGLC's gas properties and have made recommendations for revised depreciation rates, as necessary, for inclusion in the Company's revenue requirement. AGLC Exhibit No. ___ (DSR-1) is the report of my findings and recommendations. The purpose of my testimony is to present the study results, describe the depreciation study process and recommend appropriate depreciation rates for use by AGLC reflecting depreciation accounting principles and regulatory rules.

Q. What were your findings and recommendations?

A. I found that changes were needed to the mortality characteristics for a number of asset categories resulting in revised depreciation rates. A summary comparison of the existing and the recommended depreciation rates follows:

Function	Existing %	Recommended %
Production	0.69	1.19
Storage	2.57	3.08
Transmission	1.21	1.25
Distribution	2.23	2.87
General	10.63	9.48

Total Gas Plant	2.56	3.08

Q. Have you quantified the impact on annual depreciation due to your recommended changes?

A. Yes. The above summary was taken from Schedule 1 of AGLC Exhibit No. ___ (DSR-1). Using December 31, 2003 depreciable balances, the effect of the above changes in depreciation rates results in an increase in annual depreciation of about $12.3 million.

Q. What are the primary forces that drive this change in annual depreciation expense?

A. Certain average service lives have decreased and net salvage has become more negative. In particular, net salvage for Account 376, Mains was decreased from negative 11% to negative 30%, and net salvage for Account 380, Services was decreased from negative 8% to negative 60% reflective of recent experience and consistent with regulatory accounting principles. The basis for these net salvage recommendations will be addressed later in my testimony.

Q. What are mortality characteristics?

A. Mortality characteristics are the parameters necessary to calculate depreciation rates. They include average service life, retirement dispersion defined by Iowa-type curves and net salvage factors.

Q. What are Iowa-type curves?

A. The Iowa-type curves were devised empirically over 60 years ago by the Engineering Research Institute at what is now Iowa State University to provide a set of standard definitions of retirement dispersion. Retirement

dispersion merely recognizes that groups of assets are comprised of individual assets having different lives, i.e., each asset retires at a differing age. Retirement dispersion is the scattering of retirements by age for the individual assets around the average service life for the entire group of assets. Standard dispersion patterns are useful and necessary because they make calculations of the remaining life of existing property possible and allow life characteristics to be compared.

The Engineering Research Institute collected retirement information on many types of industrial and utility property and devised empirical curves that matched the range of patterns found. A total of 18 curves were defined. There were six left-skewed, seven symmetrical and five right-skewed curves, varying from wide to narrow dispersion patterns. The Iowa-curve naming convention allows the analyst to relate easily to the patterns. The left-skewed curves are known as the "L series", the symmetrical as the "S series" and the right-skewed as the "R series." A number identifies the range of dispersion. A low number represents a wide pattern and a high number a narrow pattern. The combination of one letter and one number defines a unique dispersion pattern. There is also an "SQ" pattern that has no dispersion and is the equivalent of an amortization period, that is, all assets survive for their entire average life. This pattern has been used for certain General Plant accounts to match the vintage accounting treatment applied to these accounts.

Q. What is depreciation?

A. The most widely recognized accounting definition of depreciation is that of the American Institute of Certified Public Accountants, which states:

> Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation.[1]

Q. What is the significance of this definition?

A. This definition of depreciation accounting forms the accounting framework under which my depreciation study was conducted. Several aspects of this definition are particularly significant. Salvage (net salvage) is to be recognized. The allocation of costs is over the useful life of the assets. Grouping of assets is permissible. Depreciation accounting is a process of cost allocation; it is not a valuation process. And the cost allocation must be both systematic and rational.

Q. Please explain the importance of the terms "systematic and rational."

A. Systematic implies the use of a formula, and the formula used for calculating the recommended depreciation rates is shown on Page 7 of AGLC Exhibit No. ___ (DSR-1). Rational means that the pattern of depreciation, in this case, the depreciation rate itself, must match either the pattern of revenues produced by the asset, or match the consumption of the asset. Since revenues are determined through regulation and are expected to continue to be so determined, asset consumption must be

[1] Accounting Research Bulletin No. 43, Chapter 9, Paragraph 5 (June 1953).

directly measured and reflected in depreciation rates. This measurement of asset consumption is accomplished by conducting a depreciation study.

Q. Are there other definitions of depreciation?

A. Yes. The Federal Energy Regulatory Commission Uniform System of Accounts (USOA), followed by the Company, provides a series of definitions related to depreciation as shown on Pages 3 and 4 of AGLC Exhibit No. ___ (DSR-1). These definitions of depreciation make reference to asset consumption, and therefore relate very well to the accounting framework for depreciation. These definitions form the regulatory framework under which my depreciation study was conducted. I recommend remaining life rates, which depreciation rates provide for full recovery of net investment adjusted for net salvage over the future useful life of each asset category, and are consistent with past practice.

Q. Please discuss the depreciation study process.

A. A depreciation study consists of four distinct yet inter-related phases: *data collection, analysis, evaluation and calculation.* Data collection refers to the gathering of historical investment activity. Analysis refers to the statistical processing of the data gathered in phase one. In my study there were two separate analyses performed – one for the determination of life and one for the determination of net salvage. Evaluation refers to the development of an understanding of asset history and its applicability to the surviving asset base into the future. The calculation phase utilizes the information and results determined in the first three phases in the computation of recommended depreciation rates.

Q. Were these phases conducted by you or under your direct supervision and control?

A. Yes. I requested Plant and Construction Accounting Department personnel to perform the data collection effort for this study using the Company's books and records.

Q. Please describe the life analysis phase of your depreciation study.

A. Quite simply, life analysis involves the measurement of the history of the gas assets. The actuarial life analysis procedure was utilized, because the Company has aged accounting information, where the vintage year of gas property (plant) retired and surviving is known. This analysis is described more fully at Page 5 of AGLC Exhibit No. ___ (DSR-1).

Q. Please describe actuarial analysis.

A. Actuarial analysis stems from the insurance industry, which utilizes statistical analysis of births and deaths to determine insurance premiums. For gas utility property, this same analysis process is applied to property additions (births) and retirements (deaths) to determine historical survivor curves. A survivor curve is a graphical representation of accounting history and is a plot of the portion surviving of each vintage group as a function of age.

Q. Why are actuarial analysis and the resulting survivor curve significant?

A. The survivor curve derived from actuarial analysis is significant because the area under the survivor curve is equal to average service life. Thus if one can match a standard curve such as the Iowa-type patterns to the historical data, one can obtain an estimate of average service life. In the current depreciation study, Iowa-type

curves were fitted to various experience bands as described in AGLC Exhibit No. ___ (DSR-1) at Page 5. Average service life and Iowa curve combinations were selected based upon AGLC's gas asset historical experience, Company plans and my engineering judgment.

Q. Please describe the evaluation process.

A. The evaluation process requires knowledge of the type of property surviving; the type of property retired; the reasons for changing life, dispersion, salvage and cost of removal characteristics; and the effect of present and future plans on mortality characteristics. The evaluation includes questioning of Company accounting, engineering and operations personnel, determination of the type of property carried in each account, a review of retirements to identify the types of property retired and the reasons for retirements, and understanding of the salvage and cost of removal activities. All of these activities were performed by me or under my supervision.

Q. Please describe the salvage and cost of removal analysis.

A. Annual salvage cost of removal and retirement experience was gathered for each primary asset category. In general, this experience covered the period 1989 through 2003. Rolling and shrinking bands of history were computed to detect trends. A rolling band uses a constant width, say three years, and moves forward through time, e.g., 1989-1991, 1990-1992, 1991-1993, etc. A shrinking band starts with the widest period of history (1989-2003) and continuously drops the oldest year (1990-2003, 1991-2003), etc. This analysis is further described at Pages 5 and 6 of AGLC Exhibit No. ___ (DSR-1). A net salvage figure was

selected for each asset category reflecting this experience, Company plans and my engineering judgment.

Q. Please discuss the results of your analysis for Production Plant.

A. The major facilities still in service are Liquefied Petroleum Gas ("LPG") Equipment. Discussions with operations personnel indicate this equipment has a useful life of approximately 35 years. Net salvage was estimated to be zero. The functional composite depreciation rate increases from 0.69% to 1.19%, as shown on Schedule 1 of AGLC Exhibit No. ___ (DSR-1) and is primarily due to the depreciation reserve position. The term reserve position refers to the comparison of a theoretical reserve and the recorded accumulated provision for depreciation balance. The theoretical reserve is discussed at page 8 of AGLC Exhibit No. ____ (DSR-1).

Q. Please discuss the results of your analysis for Storage Plant.

A. The primary remaining facilities relate to Liquefied Natural Gas ("LNG") operations. Discussions with Company engineering personnel indicate this equipment has a useful life of approximately 45 years. The functional depreciation rate increases from 2.57% to 3.08%, reflective of changing net salvage expectations. A change in net salvage (more negative) is recommended for several accounts.

Q. Please discuss the results of your analysis for Transmission Plant.

A. Approximately 91% of the functional Transmission Plant balance is comprised of mains. Mains are classified according to the operating pressure and are essentially high pressure Distribution loops. The existing average service life of

65 years was retained. The functional depreciation rate increases slightly from 1.21% to 1.25%.

Q. Please discuss the results of your analysis for Distribution Plant.

A. This functional group is influenced by two primary asset categories – Account 376, Mains and Account 380, Services, which comprise over 81% of the depreciable investment. The average service life of Mains was unchanged from that recommended in the prior depreciation study (55 years) to reflect the historical experience and asset mix. The average service life of Services was increased from that recommended in the prior depreciation study (from 38 years to 42 years) to reflect the historical experience and asset mix. The composite depreciation rate increases from 2.23% to 2.87%, so as to provide for recoupment of invested capital adjusted for net salvage reduced by the accumulated provision for depreciation over the estimated remaining lives of the facilities. I discuss these two accounts in further detail later in my testimony.

Q. Please discuss the results of your analysis of General Plant.

A. One account represents nearly two-thirds of the General Plant functional balance at September 30, 2003, that being Data Processing Equipment. The average service life of 8 years was retained. The composite rate decreases from 10.63% to 9.48%, based upon December 31, 2003 depreciable balances.

Q. Are you proposing any change regarding the accounting treatment of General Plant?

A. No. In 1996 the Company implemented an amortization accounting practice for certain asset categories as authorized by the Federal Energy Regulatory

Commission to simplify the recording and tracking of assets. I am proposing to continue this process.

Q. Please explain the significance of the treatment of net salvage to your depreciation recommendations.

A. There is neither disagreement nor dispute that net salvage (salvage less cost of removal) is an appropriate component of the depreciation rate and further is an allowable and recoverable cost. I am concerned with the approach that has been utilized by the Adversary Staff in the past, and approved in various cases by this Commission because I believe that this approach is incorrect. Briefly, the Staff approach utilizes two steps: a restatement cost of removal to current price levels and the estimate of a total life net salvage amount.

Q. Please explain your belief?

A. First, I believe that net salvage is a component of depreciation accounting. Second, I believe that intergenerational equity and principles of ratemaking fairness are violated by the Adversary Staff approach. Third, I do not believe that the Adversary Staff calculation is even correct or particularly meaningful. Fourth, the Adversary Staff approach ignores fundamental cause and effect relationships relevant to net salvage analysis.

Q. Please discuss your first belief that net salvage is a component of depreciation accounting.

A. My point here is merely to emphasize that net salvage is an essential element of depreciation rates and the inclusion of net salvage in the depreciation of annual depreciation rates is appropriate and proper. The Staff approach does not treat net

salvage as an appropriate component of depreciation accounting. (See third belief below).

Q. Please discuss your second belief that the Adversary Staff approach violates intergenerational equity and principles of ratemaking fairness.

A. Intergenerational equity is a concept that means that the appropriate generation of customer pays its proper share of total costs, no more and no less. I believe the Adversary Staff approach to net salvage defers these costs and "pushes" costs incorrectly to future customer generations. Clearly the Adversary Staff approach develops a net salvage factor based upon cost of removal that has already occurred. This deferral is unwarranted and improper, because future costs of removal will be greater and future customers will pay a disproportionate share of costs.

Q. Pleas discuss your third belief that the Adversary Staff calculation is neither correct nor meaningful.

A. Let me start with the fact that the calculation is not correct. As one might recall, the Adversary Staff calculation for Account 376, Distribution – Mains is shown on Schedule 6, as an Exhibit to Mr. King's testimony in Docket No. 14311-U (included here as Exhibit DSR-3). The first step taken by Mr. King is to restate historical cost of removal amounts into constant price levels. This re-valuation violates the GAAP ('Generally Accepted Accounting Principles") definition of depreciation accounting (see page 4) which states that depreciation accounting is a process of allocation, not of valuation. This is the first instance of this calculation being incorrect. Next, Mr. King divides history into two periods, one

beginning in 1997 and the other prior to 1997. He then apparently attempts to develop some estimate of the total removal cost of mains. It would seem that Mr. King has mis-estimated the number of future periods associated with this account. This is the second instance of this calculation being incorrect. Attached to my testimony is AGLC Exhibit No. ____ (DSR-2), which replicates Mr. King's calculations from Schedule 6, but has been updated through 2003. I have used the Consumer Price Index as a surrogate for the Handy-Whitman Index, as it was readily available. My limited test reveals no material differences in results. With a depreciable balance of $956,399,064 at year-end 2003, we can estimate the total retirements associated with the pipe replacement program ("PRP"). The total retirements for the period 1997-2003 for Account 376 are $26,049,378 or an annual average of $3,721,340. Over the eleven year PRP period, (note: this period was determined by Mr. King), some $40,934,740 would be estimated to be retired, as the PRP is roughly half complete in terms of miles. The average annual retirement for the period 1989-1996 is $2,403,755. Subtracting $40,934,740 from $956,399,064 leaves $915,464,324 of future non-PRP retirements. With an annual retirement of $2,403,755, there are 381 equivalent future periods, not 44, as exhibited by Mr. King! This makes the lifetime removal cost $303,175,815 ($697,277 x 381) or $265,662,537, plus $37,513,278. Dividing this correct total lifetime removal cost by the depreciable balance produces a net removal cost ratio of 31.7%. This factor is substantially different from the figure 8% figure developed by Mr. King. This is because Mr. King ignores the concepts and relationships described in the next Question and Answer.

It is important to note that the net salvage ratio over the next few years will be significantly higher than this estimated total life figure. Also, if escalation continues and there is no reason to believe that it will not, future net salvage, expressed as a percentage of retirements, will also be higher.

Q. Please discuss your fourth belief that the Adversary Staff approach ignores fundamental cause and effect relationships relevant to net salvage analyses.

A. Depreciation texts describe the proper analysis of net salvage history.[2] One reason for this process is to recognize the cause and effect relationships inherent in the historical activity. The cause is the retirement and the effect is the net salvage. The approach utilized by the Adversary Staff ignores this relationship. In effect, the Adversary Staff approach does not even give consideration to retirements. Mr. King's Schedule 6 does not even contain a column for retirements. My analysis process is consistent with the traditional analysis methodology and recognizes these important cause and effect relationships.

Q. Based upon the above discussion, what is the fundamental depreciation-related issue in this proceeding?

A. The fundamental depreciation-related issue in this proceeding is the proper and adequate level of net salvage to be accumulated for Account 376, Distribution – Mains and Account 380, Distribution – Services. After careful review of the analysis results, and giving due consideration to the ongoing PRP, it is my opinion that the proper and adequate level of net salvage for Account 376 is

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[2] *Public Utilities Depreciation Practices*, National Association of Regulatory Utility Commissioners, 1996 Edition, page 18: "Net salvage is expressed as a percentage of plant retired by dividing the dollars of net salvage by the dollars of original cost of retired."

negative 60%. This selection gives recognition to the impact of the PRP over the next four years. Consistent with the depreciation study recommendation, this issue and potential adjustments to depreciation rates can be made at the time of the next study. However, in order to mitigate the depreciation expense request in this proceeding, I have reduced this net salvage recommendation to negative 30%, consistent with normal activity levels. With respect to Account 380, my selection is for the use of a negative net salvage figure of 60%. This recommendation gives weight to the aggregate historical experience and the cause and effect relationship between retirements (cause) and cost of removal (effect).

Q. Please summarize your testimony.

A. I recommend that AGLC adopt the depreciation rates shown in Column 8 of Schedule 1 of AGLC Exhibit No. ___ (DSR-1), and that this Commission approve their use. I base this recommendation on the fact that I have conducted a comprehensive depreciation study, giving appropriate recognition to historical experience, cause and effect relationships, recent trends, AGLC expectations and professional judgment. This study and underlying workpapers support my recommendations. My study results in a fair, reasonable and adequate level of depreciation expense, which will provide AGLC with adequate capital recovery until such time as a new depreciation study indicates a need for change.

Q. Does this complete your prepared direct testimony?

A. Yes, it does.

Academic Background

Donald S. Roff graduated from Rensselaer Polytechnic Institute with a Bachelor of Science degree in Management Engineering in 1972.

Mr. Roff has also received specialized training in the area of depreciation from Western Michigan University's Institute of Technological Studies. This training involved three forty-hour seminars on depreciation entitled "Fundamentals of Depreciation", "Fundamentals of Service Life Forecasting" and "Making a Depreciation Study" and included such topics as accounting for depreciation, estimating service life, and estimating salvage and cost of removal.

Employment and Professional Experience

Following graduation, Mr. Roff was employed for eleven and one-half years by Gilbert Associates, Inc., as an engineer in the Management Consulting Division. In this capacity, he held positions of increasing responsibility related to the conduct and preparation of various capital recovery and valuation assignments.

In 1984, Mr. Roff was employed by Ernst & Whinney and was involved in several depreciation rate studies and utility consulting assignments.

In 1985, Mr. Roff joined Deloitte Haskins & Sells (DH&S), which, in 1989, merged with Touche Ross & Co. to form Deloitte & Touche. In 1995, Mr. Roff was appointed as a Director with Deloitte & Touche.

During his tenure with Gilbert Associates, Inc., Ernst & Whinney, DH&S and Deloitte & Touche, Mr. Roff has participated in or directed depreciation studies for electric, gas, water and steam heat utilities, pipelines, railroad and telecommunication companies in over 30 states, several Canadian provinces and Puerto Rico. This work requires an in-depth knowledge of depreciation accounting and regulatory principles, mortality analysis techniques and financial practices. At these firms, Mr. Roff has had varying degrees of responsibility for valuation studies, development of depreciation accrual rates, consultation on the unitization of property records, and other studies concerned with the inspection and appraisals of utility property, preparation of rate case testimony and support exhibits, data responses and rebuttal testimony, in addition to appearing as an expert witness.

Industry and Technical Affiliations

Mr. Roff is a registered Professional Engineer in Pennsylvania (by examination).

Mr. Roff is a member of the Society of Depreciation Professionals and a Certified Depreciation Professional, and a Technical Associate of the American Gas Association (A.G.A.) Depreciation Committee. He currently serves as the lead instructor for the A.G.A.'s Principles of Depreciation Course.

DONALD S. ROFF

CASE NO.	DATE	COMPANY	JURISDICTION	SUBJECT
Docket No. 93-3005	July 1993	Southwest Gas Corporation	Nevada	Gas Depreciation Rates
Docket No. 93-3025	July 1993	Southwest Gas Corporation	Nevada	Gas Depreciation Rates
Docket No. 12820	June 1994	Central Power and Light Company	Texas	Electric Depreciation Rates
Case No. U-10380	Dec 1994	Consumers Power Company	Michigan	Gas Depreciation Rates and Accounting
Cause No. 39938	April 1995	Indianapolis Power & Light Company	Indiana	Electric Depreciation Rates
Case No. U-10754	July 1995	Consumers Power Company	Michigan	Electric Depreciation Rates and Accounting
Docket No. 13369	Aug 1995	West Texas Utilities Company	Texas	Electric Depreciation Rates
Docket No. 95-02116	Sept 1995	Chattanooga Gas Company	Tennessee	Gas Depreciation Rates
Docket No. 95-715-G	Oct 1995	Piedmont Natural Gas Company	South Carolina	Gas Depreciation Rates
Docket No. 14965	Dec 1995	Central Power and Light Company	Texas	Electric Depreciation Rates
Cause No. 40395 (I)	Feb 1996	Wabash Valley Power Association, Inc.	Indiana	Electric Depreciation Rates
GUD NO. 8664	Oct 1996	Lone Star Pipeline Company	Texas	Gas Depreciation Rates
Docket No. 96-360-U	Nov 1996	Entergy Arkansas Inc.	Arkansas	Electric Depreciation Rates
Docket No. 16705	Nov 1996	Entergy Gulf States Inc.	Texas	Electric Depreciation Rates/Competitive Issue
Docket No. ER-97-394	Mar 1997	Missouri Public Service	Missouri	Electric Depreciation Rates/Competitive Issue
Docket No. U-22092	Mar 1997	Entergy Gulf States Inc.	Louisiana	Electric Depreciation Rates/Competitive Issue
Docket No. 97-00982	May 1997	Chattanooga Gas Company	Tennessee	Gas Depreciation Rates
Cause No. 40395 (II)	June 1997	Wabash Valley Power Association, Inc.	Indiana	Electric Depreciation Rates
Case No. U-11509	Sept 1997	Consumers Energy Company	Michigan	Gas Depreciation Rates and Accounting
Docket No. ER98-11	Sept 1997	Long Island Lighting Company	FERC	Electric Depreciation Rates
Docket No. 8390-U	Dec 1997	Atlanta Gas Light Company	Georgia	Gas Depreciation Rates and Accounting
Cause No. 41118	Mar 1998	Wabash Valley Power Association, Inc.	Indiana	Electric Depreciation Rates
Case No. U-11722	Oct 1998	Detroit Edison Company	Michigan	Electric Depreciation Rates
Docket No. 98-2035-03	Nov 1998	PacifiCorp	Utah	Electric Depreciation Rates
Docket No. 99-4006	April 1999	Nevada Power Company	Nevada	Electric Depreciation Rates
GUD Docket No. 9030	March 2000	Atmos Energy Corporation	Texas	Gas Depreciation Rates and Accounting
GUD Docket No. 9145	April 2000	TXU Gas Distribution	Texas	Gas Depreciation Rates
City of Tyler	Dec 2000	Reliant Energy Entex	Texas	Gas Depreciation Rates and Accounting
Docket No. U-24993	March 2001	Entergy Gulf States Inc.	Louisiana	Electric Depreciation Rates and Accounting
Docket Nos. GR01050328/GR0105029	May 2001	Public Service Electric & Gas	New Jersey	Gas Depreciation Rates and Accounting
Case No. U-12999	July 2001	Consumers Energy Company	Michigan	Gas Depreciation Rates and Accounting
Docket No. 01-10002	Oct 2001	Nevada Power Company	Nevada	Electric Depreciation Rates
Docket No. 14618-U	Nov 2001	Savannah Electric and Power Company	Georgia	Electric Depreciation Rates
Docket No. 01-11031	Dec 2001	Sierra Pacific Power Company	Nevada	Electric Depreciation Rates
Docket No. 010949-EL	Jan 2002	Gulf Power Company	Florida	Electric Depreciation Rates
Docket No. 14311-U	Jan 2002	Atlanta Gas Light Company	Georgia	Gas Depreciation Rates and Accounting
Docket No. UD-00-2	March 2002	Entergy New Orleans, Inc.	New Orleans	Electric Depreciation Accounting
Cause No. PUD200200166	May 2002	Reliant Energy Entex	Oklahoma	Gas Depreciation Rates and Accounting
Docket No. 01-243-U	June 2002	Reliant Energy Entex	Arkansas	Gas Depreciation Rates and Accounting
Docket No. 02-035-12	Oct 2002	PacifiCorp	Utah	Electric Depreciation Rates
Docket No. 20000-ER-2-192	Oct 2002	PacifiCorp	Wyoming	Electric Depreciation Rates
Docket No. UE-021271	Oct 2002	PacifiCorp	Washington	Electric Depreciation Rates
Docket No. UM-1064	Oct 2002	PacifiCorp	Oregon	Electric Depreciation Rates
Docket No. PAC-E-02-5	Oct 2002	PacifiCorp	Idaho	Electric Depreciation Rates
Docket No. 02-0391	Oct 2002	Hawaiian Electric Company, Inc.	Hawaii	Electric Depreciation Rates and Accounting
Docket No. 03-ATMG-1036-RTS	June 2003	Atmos Energy Corporation	Kansas	Gas Depreciation Rates and Accounting
Docket No. 02-0391	Aug 2003	Hawaiian Electric Company, Inc.	Hawaii	Electric Depreciation Rates and Accounting
Cause No. 42458	Sept 2003	Wabash Valley Power Association, Inc.	Indiana	Electric Depreciation Rates and Accounting
Docket No. 03-ATMG-1036-RTS	Nov 2003	Atmos Energy Corporation	Kansas	Gas Depreciation Rates and Accounting
Case No. 12999	Dec 2003	Consumers Energy Company	Michigan	Gas Depreciation Rates and Accounting
Docket No. PUE2003-00507	**Dec 2003**	**Atmos Energy Corporation**	**Virginia**	**Gas Depreciation Rates**
Case No. 12999	Feb 2004	Consumers Energy Company	Michigan	Gas Depreciation Rates and Accounting
Cause No. ER-2004-0570	April 2004	The Empire District Electric Company	Missouri	Electric Depreciation Rates
Docket No. 04-100-U	July 2004	The Empire District Electric Company	Arkansas	Electric Depreciation Rates

AGLC EXHIBIT NO. _____(DSR-2)

ATLANTA GAS LIGHT COMPANY
ACCOUNT 376 - MAINS

Spot = 184.3

[1]	[2] Retmts.	[3] COR	[4] CPI	[5] Adj. COR (Spot/CPI)*COR	[6] COR [5] / [2] %
1989	1,785,914	354,707	124.0	527,198	
1990	2,142,998	273,884	130.7	386,204	
1991	2,723,791	580,636	136.2	785,692	
1992	2,721,992	788,560	140.3	1,035,863	
1993	2,377,264	843,753	144.5	1,076,150	
1994	2,979,009	642,624	148.2	799,161	
1995	2,547,273	432,964	152.4	523,591	
1996	1,951,800	378,298	156.9	444,362	
	19,230,041	4,295,426		5,578,219	29.0%
AVG. =	2,403,755	536,928		697,277	
1997	2,767,315	2,889,746	160.5	3,318,257	
1998	2,807,421	2,680,929	163.0	3,031,259	
1999	2,989,921	2,321,969	166.6	2,568,661	
2000	12,657,418	3,477,519	172.2	3,721,874	
2001	2,064,209	4,502,705	177.1	4,685,762	
2002	2,008,698	3,541,246	179.9	3,627,858	
2003	754,396	2,913,662	184.0	2,918,413	
	26,049,378	22,327,776		23,872,084	
AVG. =	3,721,340	3,189,682		3,410,298	
TOTALS	45,279,419	26,623,202		29,450,303	65.0%
Incremental Diff. =	1,317,585	2,652,754		2,713,021	205.9%
12/31/2003 Balance	956,399,064				
PRP	40,934,740			37,513,278	
	915,464,324			265,662,537	
Future Periods	381				
Lifetime Net Removal Cost				303,175,815	31.7%

AGLC EXHIBIT NO. ____(DSR - 3)

Atlanta Gas Light Company
Net Removal Cost Ratio
Account No. 376 Distribution Mains

Exhibit of Charles W. King
Schedule 6
Docket No. 14311-U

	A	B	C	D	E	F	G	H	I
Year	Cost of Removal	Salvage	Net Removal Cost	Handy - Whitman Indices	Removal Cost @ 2000 Prices	Year Blocks	Year Block Averages	Applicable Years	Lifetime Removal Cost
1991	580,636	22,020	558,616	277	659,449				
1992	788,560	24,220	764,340	280	892,640	1991-1996	678,385	44	29,848,925
1993	843,753	21,424	822,329	287	936,939				
1994	642,624	20,834	621,790	292	696,320				
1995	432,964		432,964	297	476,698				
1996	378,298		378,298	303	408,262				
1997	2,889,746		2,889,746	308	3,068,010				
1998	2,680,929		2,680,929	316	2,774,252	1997-2000	2,919,451	11	32,113,965
1999	2,321,969		2,321,969	322	2,358,024				
2000	3,477,519		3,477,519	327	3,477,519				
Total									61,962,890
Plant Balance, September 30, 2000									799,188,639
Net Removal Cost Ratio									**8%**

Atlanta Gas Light Company

Book Depreciation Study of Gas Properties
as of December 31, 2003

Deloitte.

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September 2004

Mr. Richard T. O'Brien
Executive Vice President and Chief Financial Officer
AGL Resources, Inc.
Ten Peachtree Place, Suite 1000
Atlanta, Georgia 30309

Dear Mr. O'Brien:

In accordance with your request, we have conducted a book depreciation study of the properties of the Atlanta Gas Light Company (the "Company"). The study recognized addition and retirement experience through December 31, 2003, and the rates were calculated and the comparisons presented herein are based on depreciable plant balances as of that date. The purpose of the study was to determine the continued appropriateness of the existing depreciation rates, and recommend any changes determined to be needed. Changes are indicated and the individual account rates recommended herein should be adopted.

A comparison of the recommended depreciation rates with the existing rates is shown below:

Function	Depreciation Rates	
	Existing	Recommended
	%	%
Production Plant	0.69	1.19
Storage Plant	2.57	3.08
Transmission Plant	1.21	1.25
Distribution Plant	2.23	2.87
General Plant	10.63	9.48
Composite Total	2.56	3.08

The above summary is taken from Schedule 1, which compares the annual depreciation provisions for the existing and recommended rates.

Member of
Deloitte Touche Tohmatsu

The existing total Company composite rate is 2.56%, and the composite rate resulting from the account rates recommended as a result of this study is 3.08%. Schedule 1 shows the annual depreciation provisions for the existing and recommended rates. Based on December 31, 2003 depreciable balances, as shown in Column 8, the recommended rates will result in an increase in annual depreciation expense of $12,332,585, or approximately 20%. Schedule 2 shows the mortality characteristics (average service life, retirement dispersion and net salvage) for the existing rates and those determined by this study. The recommended rates were calculated using the Average Life Group ("ALG") procedure and the remaining life technique. The existing rates were calculated using the ALG procedure and the remaining life technique. Schedule 3 shows the amortization lives.

The existing rate, as well as the recommended rates applies to individual depreciable property groups consisting of primary plant accounts or subaccounts. As with the prior study, Account 392, Transportation Equipment, was not included in this study.

The following sections of this report describe the methods of analysis used, the bases for the conclusions reached and recommendations for future actions by the Company. We appreciate this opportunity to serve the Atlanta Gas Light Company and would be pleased to meet with you to discuss further the matters presented in this report, if you desire.

Yours truly,

Deloitte & Touche LLP

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PURPOSE OF DEPRECIATION ACCOUNTING

Book depreciation accounting is the recognition in financial statements that property is consumed in the process of providing a service or product. For accounting purposes, consumption is usually assumed to occur at a constant rate. The key to the validity of the book depreciation accounting process lies in the accurate measurement of property consumption through the determination of its mortality characteristics.

Depreciation accounting is an allocation process. Depreciation expense should provide for the full recovery of invested capital, adjusted for the net salvage (salvage less cost of removal) expected to be realized at the time facilities are abandoned or removed. Recovery implies a revenue component for depreciation provisions. Thus, for utilities, the recording of depreciation is but a step toward recovery. Accounting theory requires that the allocation of cost be over the expected life of the facilities constructed with the invested capital. Pricing theory suggests that recovery be from those customers served by the facilities.

Generally accepted depreciation accounting principles require that the recording of depreciation provisions be systematic and rational. Inherent in the terms "systematic" and "rational" is the concept that depreciation will match the consumption of facilities to the extent possible. The matching of expenses (consumption) and revenues is required by accounting theory to ensure that financial statements reflect the results of operations and changes in financial position as accurately as possible.

DEPRECIATION DEFINITIONS

The Uniform System of Accounts prescribed for gas utilities by the Federal Energy Regulatory Commission, followed by the Atlanta Gas Light Company and adopted by the Georgia Public Service Commission, provides the following depreciation-related definitions:

> "Depreciation," as applied to depreciable gas plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of gas plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities, and, in the case of natural gas companies, the exhaustion of natural resources.
>
> "Service value" means the difference between original cost and net salvage of gas plant.
>
> "Net salvage value" means the salvage value of property retired less the cost of removal.

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"Salvage value" means the amount received for the property retired, less any expenses incurred in connection with the sale or in preparing the property for sale, or, if retained, the amount at which the material is chargeable to materials and supplies, or other appropriate account.

"Cost of removal" means the cost of demolishing, dismantling, tearing down or otherwise removing gas plant, including the cost of transportation and handling incidental thereto.

Thus, it is the salvage that will actually be received and the cost of removal that will actually be incurred, both measured at the price level at the time of receipt or incurrence, that are required to be recognized by the Company through capital recovery. Implementation of these depreciation accounting definitions results in recovery of invested capital after expenditure, credit for salvage before receipt and recovery of cost of removal before expenditure. Thus, the accrual method of accounting is required.

These definitions are consistent with the purpose of depreciation accounting, and the study reported here was conducted in a manner consistent with both.

THE BOOK DEPRECIATION STUDY

Implementation of a policy toward book depreciation that recognizes the purpose of depreciation accounting requires accurate determination of the mortality characteristics that are applicable to surviving property. The purpose of the depreciation study reported here was to accurately measure those mortality characteristics and to use the characteristics to determine appropriate rates for accrual of depreciation provisions.

The major effort of the study was the determination of the appropriate mortality characteristics. The remainder of this report describes how those characteristics were determined, and how the mortality characteristics have been used to calculate rates, and presents the results of the rate calculations.

The study involved the following steps:

Step One of the study was a Life Analysis consisting of a study of historical retirement experience and an evaluation of the applicability of that experience to surviving property.

Step Two was a Salvage and Cost of Removal Analysis consisting of a study of salvage value and cost of removal experience, and an evaluation of the applicability of that experience to surviving property.

Step Three consisted of selection of average service lives, of retirement dispersion patterns identified by Iowa-type curves and of net salvage factors applicable to surviving property.

Step Four was the determination of the depreciation rate applicable to each depreciable property group, recognizing the results of the work in Steps One through Three.

LIFE ANALYSIS

Life Analysis concerns the determination of average service life and retirement dispersion identified by standard curve types. A statistical analysis of historical retirement activity, suitably tempered by informed judgment as to the future applicability of such activity to surviving property, formed the basis for determination of average service lives and dispersion patterns. Retirement experience through December 31, 2003 was analyzed using the actuarial method of Life Analysis. The actuarial method could be used because the age of retired and surviving property is known.

The actuarial method determines actual survivor curves for selected periods of retirement experience. In order to recognize trends in life characteristics and to ensure that the information in the curves is available to the analyst, actual survivor curves were calculated by computer using several different periods of retirement experience. The average service lives and retirement dispersion patterns indicated by these actual survivor curves were identified by visually fitting Iowa-type standard curves to the actual curves.

It is important to discern trends in historical mortality experience. In order to determine trends, the periods (year bands) of retirement experience analyzed for the actuarial method were the past five years, the past ten years, the past 15 years, the past 20 years and the past 30 years. The actual survivor curves for each of these year bands were plotted, and the standard curves were visually fitted to ensure that the significant amount of data contained in the actual curves is available to the analyst and to ensure that the analyst does not allow computer calculations to be the sole determinant of study results.

SALVAGE AND COST OF REMOVAL ANALYSIS

Company gross salvage and cost of removal experience for the period 1989 through 2003 was the basis for determining the net salvage factors shown in Column 8 of Schedule 2. The analysis was done in a manner that allows separate salvage and cost of removal factors to be selected for most depreciable property groups. The salvage and cost of removal factors were calculated for each property group by dividing the salvage amounts received and the cost of removal amounts incurred by the original cost of the retired property that produced the salvage and cost of removal. Factors were calculated for annual, rolling bands and shrinking bands of retirement experience.

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EVALUATION OF ACTUAL EXPERIENCE

The analysis process used involves historical retirement experience. Since the depreciation rates are to be applied to surviving property, the historical mortality experience indicated by the Life and the Salvage and Cost of Removal Analyses must be evaluated to ensure that the mortality characteristics used to calculate the rates are applicable to surviving property. The evaluation is required to ensure the validity of the recommended depreciation rates.

The evaluation process requires knowledge of the type of property surviving; the type of property retired; the reasons for changing life, dispersion, salvage and cost of removal characteristics; and the effect of present and future plans on property life. The evaluation included discussions with Company accounting, engineering and operating personnel; determination of the type of property carried in each account; and special analyses of retirements to identify the types of property retired and reasons for retirements.

ACCOMPLISHMENT OF ACCOUNTING AND REGULATORY PRINCIPLES

The ALG depreciation rate calculation procedure was selected to ensure consistency with past practices. Depreciation is a group concept, and depreciation rates are based on the recognition that a group has an average service life. However, very little of the property is "average." The average concept carries with it recognition that most property will be retired at an age either less than or greater than the average service life. The study recognized the existence of this variation through the identification of Iowa-type retirement dispersion patterns. "Average" is the result of a calculation, and there may not be any average property. When curves are used to define retirement dispersion, the average service life and the retirement dispersion pattern define the equal life groups and the expected life applicable to each such group.

ELG is a rate calculation procedure, nothing more. The data required to make ELG whole life and remaining life and ALG remaining life rate calculations are average service life, retirement dispersion pattern, net salvage and the age distribution of the property. Only the average service life and net salvage are required for the ALG whole life rate calculation. When retirement dispersion does not exist, the ELG rate is identical to the ALG rate. When dispersion exists, the ELG rate for recently installed property is higher than the ALG rate and for old property is lower.

The depreciation study required to determine the applicable mortality characteristics is independent from the calculation of the depreciation rates. The resulting mortality characteristics can be used to calculate

either ALG or ELG rates, both with either the whole life technique or the remaining life technique. Any set of mortality characteristics that is suitable for calculating ALG rates is just as suitable for calculating ELG rates. Conversely, any set that is not suitable for ELG is not suitable for ALG either.

Once the mortality characteristics have been determined, they are useful for calculating either ELG or ALG depreciation rates. The only difference between ELG and ALG is that ELG recognizes the existence of retirement dispersion in the calculation of the depreciation rates. The ELG rate calculation procedure was devised to ensure that recording and recovery of depreciation expenses occur over the actual life of property, rather than over the average life of the property group. Since ELG is merely a rate calculation procedure, adoption of ELG rates would have no effect on depreciation study data or procedures, accounting practices, or the administrative burdens of the Company. A more detailed discussion of the ELG rate calculation procedure appears in Appendix A.

CALCULATION OF RECOMMENDED DEPRECIATION RATES

The straight-line rate calculation procedures are units-of-production ("UOP"), ALG and ELG. UOP is straight-line over usage or production, ALG is straight-line over average life, and ELG is straight-line over actual useful life. No property groups were identified that have a distinctive usage pattern, so UOP was not utilized. Therefore, the rates are straight-line over life measured by time. The ALG procedure and remaining life technique were used to calculate the recommended rates.

A straight-line remaining life rate for each depreciable property group was calculated using the following formula:

$$\text{Rate} = \text{Whole Life Rate} - \frac{\text{Book Reserve - Theoretical Reserve}}{\text{Average Remaining Life}}$$

The whole life rate used in the above formula was calculated using the following formula:

$$\text{Rate} = \frac{\text{Plant Balance - Net Salvage}}{\text{Average Service Life}}$$

Formula numerator elements in percent of depreciable plant balance and the denominator element in years produce a rate in percent. The remaining life rate formula clearly illustrates that a remaining life rate is merely an adjustment to a whole life rate in order to amortize the calculated reserve difference over the remaining life.

The depreciable plant balance for each property group and the book reserve balance are from the Company accounting records. The net salvage factors were determined by the study, and the theoretical reserves were calculated from the age distributions of surviving investment and the mortality characteristics determined by the study. The average remaining life was determined from the average service life and dispersion pattern determined by the study, and the investment age distribution of each surviving property group. The age distributions were determined from Company property records.

The calculated theoretical reserve ratio without net salvage for each equal life group is calculated using the following formula:

$$\text{Theoretical Reserve Ratio} = 1 - \frac{\text{Remaining Life}}{\text{Average Life}}$$

The theoretical reserve amount for each vintage is calculated from the surviving balance and vintage ratio, and then summarized for the account and adjusted for the effect of net salvage.

The theoretical reserve was used to allocate the book reserve, where individual reserve balances were not maintained. This allocation was made at the account or subaccount level, and the only use of the theoretical reserve in this study was the allocation of the book reserve to accounts.

RESULTS

The rates developed in this study have been calculated using the mortality characteristics shown in Columns 6, 7 and 10 of Schedule 2. At the total Company level, the composite rate increases from 2.56% to 3.08%.

The bases for the selection of the mortality characteristics determined applicable to each property group are discussed in Appendix B.

Production Plant

The major facilities still in service are Liquefied Petroleum Gas ("LPG") Equipment. Discussions with operations personnel indicate this equipment has a useful life of approximately 35 years. Net salvage was estimated to be zero. The functional composite depreciation rate increases from 0.69% to 1.19% and is primarily due to the depreciation reserve position.

Storage Plant

The major facilities still in service are Liquefied Petroleum Gas ("LPG") operations. Discussions with operations personnel indicate this equipment has a useful life of approximately 45 years. The functional depreciation rate increases from 2.57% to 3.08% reflective of changing net salvage expectations.

Transmission Plant

Approximately 91% of the functional Transmission Plant balance comprises mains. Mains are classified according to the operating pressure and are essentially high-pressure Distribution loops. The functional depreciation rate increases slightly from 1.21% to 1.25%.

Distribution Plant

This functional group is influenced by two primary categories—Main and Services, which comprise more than 81% of the depreciable investment. The composite depreciation rate increases from 2.23% to 2.87%, which is due primarily to the change in net salvage for Mains and Services.

General Plant

This function is affected by one account, Data Processing Equipment, which represents nearly two-thirds of the functional balance. The composite depreciation rate decreases from 10.63% to 9.48%, which is due to life and net salvage changes and the reserve.

ADEQUACY OF THE BOOK RESERVE

A comparison of the accumulated provision for depreciation with the calculated theoretical reserve as of December 31, 2003 is not meaningful, since remaining life rates are recommended. The only way a reserve difference can exist is by use of whole life rates, because whole life rates are used in the development of the calculated theoretical reserve. The only use of the theoretical reserve was for the allocation of the book reserve to accounts, where individual reserve balances were not maintained.

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RECOMMENDATIONS

Our recommendations for your future action in regard to book depreciation are as follows:

1. The depreciation rate for each property group shown in Column 6 of Schedule 1 applies to surviving property, and they are recommended for adoption.

2. Because of variation of life and net salvage experience with time and the potential for changed circumstances to affect mortality characteristics, the continued validity of the rates recommended herein should be tested by a depreciation study made during 2008 based on retirement experience through December 31, 2007.

3. The Company should give consideration to the Equal Life Group depreciation procedure. We have included Appendix A, which provides a more detailed discussion of this rate calculation procedure.

4. We recommend the Company adopt the individual account depreciation rates shown on Schedule 1, Column 6, and we would further recommend the adoption of the respective account reserves listed on Schedule 4, Column 4.

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ATLANTA GAS LIGHT COMPANY **SCHEDULE 1**
Book Depreciation Study as of December 31, 2003
Comparison of Depreciation Rates and Annual Amounts

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Account Number	Description	12/31/03 Balance $	Existing Rate %	Annual Amount $	Study Rate %	Annual Amount $	Increase / (Decrease) $
	PRODUCTION PLANT						
304.1	Land Rights	16,575		114	1.48	245	131
305.0	Structures and Improvements	32,901		227	0.16	53	(174)
311.0	LPG Equipment	287,544		1,984	0.96	2,760	776
320.0	Other Equipment	57,108		394	2.86	1,633	1,239
	Total Production Plant	394,128	0.69	2,719	1.19	4,692	1,972
	STORAGE PLANT						
361.0	Structures and Improvements	22,829		587	3.40	776	189
361.1	LNG Structures and Improvements	22,358,912		574,624	2.24	500,840	(73,784)
362.1	LNG Storage Tanks	26,011,485		668,495	2.71	704,911	36,416
363.0	Purification Equipment	6,587,513		169,299	2.66	175,228	5,929
363.1	Liquefaction Equipment	13,573,958		348,851	4.32	586,395	237,544
363.2	Vaporizing Equipment	17,400,571		447,195	3.56	619,460	172,266
363.3	Compressor Equipment	5,388,369		138,481	2.36	127,166	(11,316)
363.4	M&R Equipment	2,289,902		58,850	2.10	48,088	(10,763)
363.5	Other Equipment	23,436,866		602,327	3.58	839,040	236,712
	Total Storage Plant	117,070,405	2.57	3,008,709	3.08	3,601,903	593,194
	TRANSMISSION PLANT						
365.1	Land Rights	1,583,460		19,160	1.16	18,368	(792)
365.2	Rights of Way	6,540,804		79,144	1.08	70,641	(8,503)
366.0	M&R Structures	607,554		7,351	2.43	14,764	7,412
367.0	Mains	117,916,072		1,426,784	1.24	1,462,159	35,375
369.0	M&R Equipment	2,930,768		35,462	1.67	48,944	13,482
	Total Transmission Plant	129,578,658	1.21	1,567,902	1.25	1,614,875	46,974
	DISTRIBUTION PLANT						
374.1	Land Rights	9,848,725		219,627	1.52	149,701	(69,926)
375.0	Structures and Improvements	812,872		18,127	2.13	17,314	(813)
376.0	Mains	956,399,064		21,327,699	2.33	22,284,098	956,399
378.0	M&R Equipment	21,221,584		473,241	2.05	435,042	(38,199)
379.0	City Gate Equipment	7,978,344		177,917	2.06	164,354	(13,563)
380.0	Services	682,076,117		15,210,297	3.75	25,577,854	10,367,557
381.1	Meters	106,389,530		2,372,487	2.44	2,595,905	223,418
381.2	Automated Meters (ERTS)	39,770,575		886,884	7.72	3,070,288	2,183,405
381.3	Metreteks	3,015,217		67,239	3.22	97,090	29,851
382.0	Meter Installations	100,910,276		2,250,299	1.65	1,665,020	(585,280)
383.0	House Regulators	39,136,052		872,734	1.96	767,067	(105,667)
384.0	House Regulator Installations	36,402,747		811,781	1.41	513,279	(298,503)
385.0	Industrial M&R Equipment	1,343,479		29,960	2.06	27,676	(2,284)
386.0	Otr. Prop. on Customers' Premises	4,142,614		92,380	6.41	265,542	173,161
387.0	Other Equipment	4,537,505		101,186	3.28	148,830	47,644
	Total Distribution Plant	2,013,984,701	2.23	44,911,859	2.87	57,779,059	12,867,200

ATLANTA GAS LIGHT COMPANY **SCHEDULE 1**
Book Depreciation Study as of December 31, 2003
Comparison of Depreciation Rates and Annual Amounts

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Account Number	Description	12/31/03 Balance $	Existing Rate %	Annual Amount $	Study Rate %	Annual Amount $	Increase / (Decrease) $
	GENERAL PLANT						
390.0	Structures and Improvements	17,214,355		1,829,886	2.23	383,880	(1,446,006)
391.1	Office Furniture and Equipment						
	Amortized Equipment	581,980		61,864	9.13	53,135	(8,730)
	Amortized Furniture	1,156,737		122,961	9.13	105,610	(17,351)
	Total Account 391.1	1,738,717	10.63	184,826	9.13	158,745	(26,081)
391.2	Data Processing Equipment						
	Amortized Hardware	2,921,862		310,594	4.81	140,542	(170,052)
	Amortized Software	68,492		7,281	4.81	3,294	(3,986)
	Depreciable Data Processing Eq.	61,759,906		6,565,078	12.68	7,831,156	1,266,078
	Total Account 391.2	64,750,260	10.63	6,882,953	12.32	7,974,992	1,092,039
393.0	Stores Equipment - Amortized	416,730		44,298	2.90	12,085	(32,213)
394.0	Tools, Shop and Garage Equipment						
	Amortized Tools	6,852,093		728,377	6.53	447,442	(280,936)
	Depreciable Tools	1,825,135		194,012	5.69	103,850	(90,162)
	Total Account 394.0	8,677,228	10.63	922,389	6.35	551,292	(371,097)
395.0	Laboratory Equipment - Amortized	36,087		3,836	4.06	1,465	(2,371)
396.0	Power Operated Equipment	1,742,802		185,260	14.52	253,055	67,795
397.0	Communication Equipment	5,902,747		627,462	4.04	238,471	(388,991)
398.0	Miscellaneous Equipment						
	Amortized Miscellaneous	1,494,882		158,906	7.46	111,518	(47,388)
	Depreciable Miscellaneous	648,634		68,950	7.17	46,507	(22,443)
	Total Account 398.0	2,143,516	10.63	227,856	7.37	158,025	(69,830)
	Total General Plant	102,622,442	10.63	10,908,766	9.48	9,732,010	(1,176,755)
	Total Depreciable Plant	2,363,650,334	2.56	60,399,955	3.08	72,732,540	12,332,585
	Land	5,145,999					
	Intangible Plant	545,841					
	Fully Depreciated (Acct 362)	238,090					
	Transportation Eq. (Acct 392)	13,694,700					
	Total Gas Plant	2,383,274,964					

ATLANTA GAS LIGHT COMPANY **SCHEDULE 2**
Book Depreciation Study as of December 31, 2003
Comparison of Mortality Characteristics

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
		Existing			Study				
Account Number	Description	ASL yrs.	Iowa Curve	Net Salvage %	ASL yrs.	Iowa Curve	Gross Salvage %	Cost of Removal %	Net Salvage %
	PRODUCTION PLANT								
304.1	Land Rights	69.0	SQ	0	40.0	SQ	0	0	0
305.0	Structures and Improvements	50.0	R3	0	50.0	R3	0	0	0
311.0	LPG Equipment	35.0	R3	0	40.0	R3	0	0	0
320.0	Other Equipment	20.0	L1.5	0	25.0	L1.5	0	0	0
	STORAGE PLANT								
361.0	Structures and Improvements	30.0	S4	0	30.0	S4	0	0	0
361.1	LNG Structures and Improvements	45.0	R3	0	45.0	R3	0	0	0
362.1	LNG Storage Tanks	45.0	R4	(15)	45.0	R4	0	20	(20)
363.0	Purification Equipment	40.0	R4	0	40.0	R4	0	5	(5)
363.1	Liquefaction Equipment	25.0	R4	0	25.0	R4	0	5	(5)
363.2	Vaporizing Equipment	30.0	R4	0	30.0	R4	0	5	(5)
363.3	Compressor Equipment	45.0	R4	0	45.0	R4	0	5	(5)
363.4	M&R Equipment	43.0	R1	0	48.0	R1	0	0	0
363.5	Other Equipment	30.0	R3	0	30.0	R3	0	5	(5)
	TRANSMISSION PLANT								
365.1	Land Rights	75.0	R5	0	75.0	R5	0	0	0
365.2	Rights of Way	75.0	R5	0	75.0	R5	0	0	0
366.0	M&R Structures	40.0	R5	0	40.0	R5	0	0	0
367.0	Mains	65.0	R5	(1)	65.0	R5	0	2	(2)
369.0	M&R Equipment	43.0	R1	0	48.0	R1	0	0	0
	DISTRIBUTION PLANT								
374.1	Land Rights	65.0	R5	0	65.0	R5	0	0	0
375.0	Structures and Improvements	40.0	R3	(15)	45.0	R4	0	0	0
376.0	Mains	55.0	R2.5	(8)	55.0	R2.5	0	30	(30)
378.0	M&R Equipment	43.0	R1	0	48.0	R1	0	0	0
379.0	City Gate Equipment	43.0	R1	0	48.0	R1	0	0	0
380.0	Services	38.0	R2.5	(11)	42.0	R2	0	60	(60)
381.1	Meters	35.0	R2.5	0	40.0	R2.5	0	0	0
381.2	Automated Meters (ERTS)	15.0	R1.5	1	12.0	R3	0	0	0
381.3	Metreteks	20.0	R1.5	0	30.0	R5	0	0	0
382.0	Meter Installations	60.0	S-.5	0	60.0	S0.5	0	0	0
383.0	House Regulators	50.0	R3	0	50.0	R3	0	0	0
384.0	House Regulator Installations	70.0	R2	0	70.0	R2	0	0	0
385.0	Industrial M&R Equipment	43.0	R1	0	48.0	R1	0	0	0
386.0	Otr. Prop. on Customers' Premises	10.0	R4	0	15.0	R4	0	0	0
387.0	Other Equipment	30.0	L1	0	30.0	R3	0	0	0
	GENERAL PLANT								
390.0	Structures and Improvements	45.0	R2	0	45.0	R2	0	0	0
391.2	Data Processing Equipment	8.0	R2	5	8.0	R2	0	0	0
394.0	Tools, Shop and Garage Equipment	16.0	R2	5	16.0	R2	10	0	10
396.0	Power Operated Equipment	8.0	S1.5	20	6.0	L2	15	0	15
397.0	Communication Equipment	20.0	R2	0	25.0	S0	0	0	0
398.0	Miscellaneous Equipment	14.0	S1	0	14.0	S1	0	0	0

ATLANTA GAS LIGHT COMPANY **SCHEDULE 3**
Book Depreciation Study as of December 31, 2003
General Plant Amortization Lives

[1] Account Number	[2] Description	[3] Amortization Life yrs.
	GENERAL PLANT	
391.1	Office Furniture and Equipment	12
391.2	Data Processing Equipment	5.5
393.0	Stores Equipment	35
394.0	Tools, Shop and Garage Equipment	16
395.0	Laboratory Equipment	25
398.0	Miscellaneous Equipment	14

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ATLANTA GAS LIGHT COMPANY **SCHEDULE 4**
Book Depreciation Study as of December 31, 2003
Summary of Allocated Book Reserves

[1] Account Number	[2] Description	[3] Theoretical Reserve $	[4] Book Reserve $
	PRODUCTION PLANT		
304.1	Land Rights	9,696	12,490
305.0	Structures and Improvements	25,047	32,266
311.0	LPG Equipment	195,787	252,212
320.0	Other Equipment	28,381	36,560
	Total Production Plant	258,911	333,528
	STORAGE PLANT		
361.0	Structures and Improvements	11,631	11,421
361.1	LNG Structures and Improvements	5,632,947	5,531,144
362.1	LNG Storage Tanks	15,043,092	14,771,222
363.0	Purification Equipment	2,811,473	2,760,662
363.1	Liquefaction Equipment	8,602,307	8,446,839
363.2	Vaporizing Equipment	9,081,430	8,917,303
363.3	Compressor Equipment	2,420,966	2,377,213
363.4	M&R Equipment	569,150	558,864
363.5	Other Equipment	13,445,846	13,202,842
	Total Storage Plant	57,618,842	56,577,510
	TRANSMISSION PLANT		
365.1	Land Rights	345,970	504,018
365.2	Rights of Way	1,925,878	2,805,668
366.0	M&R Structures	35,624	51,898
367.0	Mains	37,778,596	55,036,817
369.0	M&R Equipment	893,862	1,302,200
	Total Transmission Plant	40,979,930	59,700,601
	DISTRIBUTION PLANT		
374.1	Land Rights	1,653,202	1,735,934
375.0	Structures and Improvements	364,163	382,387
376.0	Mains	319,770,112	272,815,272
378.0	M&R Equipment	4,686,956	4,921,510
379.0	City Gate Equipment	1,500,337	1,575,420
380.0	Services	275,936,064	289,744,970
381.1	Meters	33,130,196	34,788,159
381.2	Automated Meters (ERTS)	23,641,872	24,825,003
381.3	Metreteks	1,192,508	1,252,186
382.0	Meter Installations	19,824,424	20,816,515
383.0	House Regulators	10,208,488	10,719,360
384.0	House Regulator Installations	7,508,485	7,884,239
385.0	Industrial M&R Equipment	243,388	255,568
386.0	Otr. Prop. on Customers' Premises	1,788,113	1,877,597
387.0	Other Equipment	1,100,040	1,155,090
	Total Distribution Plant	702,548,348	674,749,210

ATLANTA GAS LIGHT COMPANY **SCHEDULE 4**
Book Depreciation Study as of December 31, 2003
Summary of Allocated Book Reserves

[1] Account Number	[2] Description	[3] Theoretical Reserve $	[4] Book Reserve $
	GENERAL PLANT		
390.0	Structures and Improvements	4,800,621	4,733,307
391.1	Office Furniture & Eq. - Amortized	1,515,939	1,494,683
391.2	Data Processing Equipment		
	Amortized	2,886,866	2,846,387
	Depreciable	31,225,282	30,787,445
	Total Account 391.2	34,112,148	33,633,832
393.0	Stores Equipment - Amortized	209,065	206,133
394.0	Tools, Shop and Garage Equipment		
	Amortized	5,199,016	5,126,116
	Depreciable	744,568	734,128
	Total Account 394.0	5,943,584	5,860,244
395.0	Laboratory Equipment - Amortized	19,144	18,876
396.0	Power Operated Equipment	949,984	936,663
397.0	Communication Equipment	2,445,884	2,411,589
398.0	Miscellaneous Equipment		
	Amortized	1,137,741	1,121,788
	Depreciable	144,517	142,490
	Total Account 398.0	1,282,258	1,264,278
	Total General Plant	51,278,627	50,559,605
	Total Allocated Reserve	852,684,658	841,920,454

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APPENDIX A