REPORT ON DEPRECIATION ACCRUAL RATES

BLACK & VEATCH PROJECT NO. 180858.0100

PREPARED FOR

Missouri Gas Energy

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12 September 2013

Mr. Michael R. Noack
Director of Pricing and Regulatory Affairs
Missouri Gas Energy
3420 Broadway
Kansas City, MO 64111

Dear Mr. Noack:

Our enclosed report summarizes the results of our analysis of the depreciation accrual rates for the gas utility properties of Missouri Gas Energy (Company). Our studies are based on the plant balances as of December 31, 2012. The Executive Summary of the report summarizes our major findings and recommendations.

Ultimately, the appropriate level of depreciation expense rates is a management decision taking into consideration various factors. If management concludes that a change is warranted in depreciation rates at this time, we recommend implementation of the rates set forth Column U of Table 5-4 of this report.

We appreciate the opportunity to provide this service. If you have any questions concerning the contents of this report, please do not hesitate to contact us.

Very truly yours,
BLACK & VEATCH CORPORATION

Gregory E Macias
Principal

NAVILLUS UTILITY CONSULTING, LLC

Thomas J Sullivan
President

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1 Executive Summary

This report describes the analyses conducted and the results obtained for the gas utility property of Missouri Gas Energy with respect to its depreciation expense rates. The report is based on plant activity through December 31, 2012. The depreciation rates recommended in this report are considered appropriate for use in the near future. We recommend these rates be reviewed at least every five years. Ultimately the appropriate level of depreciation expense rates is a management decision taking into account various factors.

MGE's current rates went into effect in February 2010 as a result of the Missouri Public Service Commission order in Case No. GR-2009-0355. If the Company concludes that a change in depreciation expense rates is appropriate in the next rate filing, we recommend the Company implement the depreciation expense rates based on the analyses set forth in Sections 4 and 5. Recommended rates are summarized on Table 5-4, Column U.

The individual accrual rates that we recommend for each account recognize average service lives and reflect the results of simulated plant balance analysis, regional industry averages, reserve analysis, and our experience with similar utility property. We recommend changes to depreciation rates for the following accounts:

- Accounts 375 and 390 – Structures and Improvements. We recommend decreasing the average service life to 47 years for both accounts.
- Account 376 – Mains. We recommend increasing the average service life from 44 to 50 years with a positive net salvage allowance of $980,000 per year.
- Account 379 – City Gate Stations. We recommend decreasing the average service life from 47 years to 38 years.
- Account 380 – Services. We find the existing service life of 40 years is reasonable and recommend a negative net salvage allowance of $630,000 per year.
- Account 381 – Meters: We recommend adjusting the net salvage allowance to zero.
- Account 391 – Furniture and Equipment: We recommend reducing the average service life from 12.4 to 11 years.
- Account 392 – Account 392 – Transportation Equipment: We recommend a decrease in average service life from 11.5 years to 10 years for 392.2 (heavy trucks) with a positive net salvage allowance of $150,000 per year.
- Account 393 – Stores Equipment, we recommend decreasing the average service life from 37 to 28 years.
- Account 396 – Power Operated Equipment. We recommend decreasing the average service life from 12 years to 10 years and adjusting the net salvage allowance to zero.
- Account 397.1 – Communication Equipment (ERT). We recommend decreasing the average service life from 20 to 19 years.
- Account 398 – Miscellaneous Equipment. We recommend decreasing the average service life from 26 to 23 years.

In our 1995, 2000, 2005, and 2010 studies, we used several actuarial methods in an effort to measure the Company's retirement experience. These methods included survivor curve analysis and simulated plant balance method. However, a sufficient retirement history did not exist at that time to complete a study based on survivor curve analysis and other sources of data were inadequate to conduct a complete and reliable simulated plant balance analysis for each of the accounts. The issue of the lack of data was addressed by the Commission in its 1998 order in Case No. GR-98-140 when the Commission found "that it would not be appropriate to require the reconstruction or re-creation of records that apparently do not exist or cannot be completed by any reasonable efforts of MGE." Since February 1994, Missouri Gas Energy has captured the necessary plant information on a prospective basis for future depreciation study needs. However, nineteen years of continuing plant data is not adequate to perform detailed and comprehensive analysis of service life characteristics for most accounts. We performed an actuarial analysis on the 1994 through 2012 data and found that sufficient data exists for only one account, 397.1 Communication Equipment (ERT), at this time.

The scope of this report includes a discussion of the practice of depreciation accounting (Section 3), the type of information examined in our analysis, the methods applied, and the results of the analyses conducted (Section 4), and a discussion of the Company's depreciation reserve , and development of our recommended accrual rates (Section 5).

2 Introduction

This report presents the results of our analysis of the depreciation expense requirements for the gas utility property of Missouri Gas Energy ("Company" or "MGE"). The analysis is based on plant activity through December 31, 2012. We understand that the Company desires this report in order to meet the Missouri Public Service Commission's (PSC) requirement that depreciation rates be reviewed when filing a general rate increase if the prior depreciation study is over three years old [4 CSR 240-3.235(1)(A)].

Missouri Gas Energy was acquired by Southern Union Company in February 1994. In June of 1995, 2000, 2005 and 2010, we prepared depreciation rate studies based on plant activity through December 31, 1994, 1998, 2004, and 2009, respectively. The 1995, 2000, 2005, and 2010 studies were performed to fulfill the Commission's requirement to review depreciation rates at least every five years. KPL (the Company's predecessor) had previously submitted a study in 1990.

The rates recommended in this report reflect consideration of the results of simulated plant balance analysis, regional industry norms, survivor curve retirement analysis, and our experience with other utilities. In our previous four reports, sufficient retirement history did not exist to adequately perform survivor curve analysis. We now have nineteen years of continuing plant data and were able to perform survivor curve analysis on select accounts, but the results are not sufficiently conclusive to use in developing recommended rates with one exception, Account 397.1 Communication Equipment (ERT). We are able to rely on the simulated plant balance approach to estimate average service lives for some accounts. We also relied upon a survey of depreciation rates for regional gas utilities.

Section 3 of this report briefly discusses the practice of depreciation accounting. Section 4 discusses the type of information examined in the analysis and the methods applied to develop the depreciation rates. Section 4 also discusses the results of the analyses and the recommended average service lives. Section 5 discusses analysis of the Company's existing depreciation reserve and develops our recommended accrual rates.

3 Depreciation Accounting

Depreciation is 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 considered 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 (FERC Uniform System of Accounts).

Depreciation accounting provides a method whereby charges for the loss in service value are made against current income. By properly charging depreciation, the cost of depreciable plant less estimated salvage value (or plus estimated cost of removal) is distributed over the useful life of the asset in such a way as to equitably allocate it to the period during which service is provided through the use and consumption of such facilities.

3.1 ANNUAL DEPRECIATION EXPENSE

The annual depreciation expense represents the annual charge against income associated with the loss of service value of utility equipment. Historically, a number of different methods have been used by gas utilities to determine the level of depreciation expense to be charged against current income. Among the more common are:

1. A percentage of the investment in depreciable property.
2. A direct appropriation by management.
3. An amount equal to the original cost investment retired during the year.
4. A percentage of revenues.

The company's current practice is to calculate annual depreciation expense through the application of straight-line depreciation rates to the respective plant investment account balances. In essence, the annual depreciation expense rate is a percentage figure which, when applied to the dollar balance of investment in plant, yields a depreciation expense level which is expected to amortize the Company's investment over the life of the property.

The existing depreciation rates are based on those approved by the Missouri Public Service Commission in 2010 in Case No. GR-2009-0355. In that case the Company and the Staff of the Missouri PSC entered a Stipulation and Agreement concerning Depreciation and Accounting for the Net Cost of Removal. With respect to depreciation rates the Company was authorized to implement new depreciation rates for new transportation subaccounts 392.1 (13.33%) and 392.2 (7. 83%).

3.2 DEPRECIATION RESERVE

The depreciation reserve account is a balance sheet item which reflects accumulation of the activity related to annual depreciation expense and retirement accounting. Under the FERC Uniform System of Accounts, depreciation reserve is shown on the balance sheet as "Accumulated Provision for Depreciation."

The depreciation expense charged annually is accumulated in depreciation reserve. The original cost of investment in property retired during the year is deducted from the depreciation reserve. A further adjustment to the reserve is made by adding the salvage value credit and deducting the cost of removal associated with property retired. The use of proper annual depreciation rates to amortize investment over its useful service life will result in accruals to the depreciation reserve which equal the total investment ultimately retired, as adjusted for salvage value and cost of removal.

An illustrative example follows:

Line No.	Depreciation Reserve Balance	$	$
1	Beginning of Period		1,000,000
2	Depreciation Charges		
3	Depreciation Expense	100,000	
4	Depreciation Charges to Clearing Accounts	10,000	
		110,000	
5	Subtotal		1,110,000
6	Deductions		
7	Original Cost of Plant Retired	75,000	
8	Cost of Removal of Retired Plant	10,000	
9	Salvage Realized from Retired Plant	(5,000)	
10	Total Deductions	80,000	
11	Depreciation Reserve End of Period		1,030,000

4 Historical Information and Procedures

The determination of a reasonable annual depreciation expense rate is dependent on average service life, cost of removal, and salvage of the property in question. Ideally, the determination of average service life begins with analysis of Company records which show additions by year of installation (vintage year) and retirements by vintage year. We refer to this type of analysis as an actuarial method. Where historical data is not sufficient to produce reliable results using actuarial analysis, data may be sufficient to use a semi-actuarial approach such as simulated plant balance. Both of these two analytical methods provide measures of historically experienced service lives. In order to reflect the prospective nature of depreciation, we consider past, present and anticipated future economic and environmental conditions; and sound engineering judgment. As a final step, the adequacy of depreciation reserve balances must be evaluated and the indicated depreciation rate adjusted so that total investment is recovered over the asset's life.

4.1 ACTUARIAL ANALYSIS

To prepare a sound and credible survivor curve analysis, a sufficient history of retirement data must exist. Based upon historical plant activity (retirements), a survivor stub curve explains the percent of original placements remaining in service by age. Using a least squares analysis technique, we compare this experienced survivor stub curve to general survivor curve types to identify the best fitting curve type and service life based on historical retirements. These curves provide an estimate of the average service life based on historical retirements. Using this method, and relying on general survivor curves, we can estimate average service life of property which has only been partially retired.

In our studies in 1995, 2000 and 2005, we found that MGE did not have a sufficient retirement history available to perform meaningful survivor curve analysis. The issue of the lack of data was addressed by the Commission in its order in Case No. GR-98-140 when the Commission found "that it would not be appropriate to require the reconstruction or re-creation of records that apparently do not exist or cannot be completed by any reasonable efforts of MGE." MGE's continuing property record only contains retirement history from 1994 to the present. Sixteen years of historical retirement data are generally not enough data to produce significantly reliable results using survivor curve analysis.

As part of a Stipulation and Agreement in Case No. GR-2009-0355, MGE agreed to include in their next depreciation study, an actuarial analysis of its 1994 to present continuing property record and identify which accounts lacked sufficient data for the analysis. We performed this analysis in our 2010 study on the 1994 through 2009 data and found that one account, 397.1 Communication Equipment (ERT), produced results that appear reasonable, eight accounts produced results that were unreasonable, and the remainder of accounts produced no results.

We performed the actuarial analysis in this study on the 1994 through 2012 data and found that, again, only Account 397.1 Communication Equipment (ERT) produced a reasonable result. Table 4-1 summarizes the results of the actuarial analysis. Because these results are largely unreliable, we use a simulated plant balance approach to estimate average service lives of MGE's depreciable property as an alternative to actuarial analysis.

Table 4-1 Summary of Actuarial Analysis

Acct. No.	Account Description	Number 1 Rank Curve Type	Number 1 Rank Avg. Service Life	Number 2 Rank Curve Type	Number 2 Rank Avg. Service Life	Number 3 Rank Curve Type	Number 3 Rank Avg. Service Life
			Years		Years		Years
	Distribution Plant						
3742	Land Rights	Program could not fit					
3751	Structures	L1	29.0	S0.5	25.6	R2	22.7
3760	Mains	Program could not fit					
3780	Measuring & Regulating Stations	Program could not fit					
3790	City Gate Stations	Program could not fit					
3800	Services	Program could not fit					
3810	Meters	O1	27.8	O2	31.2	L0	26.8
3820	Meter/Regulator Installations	Program could not fit					
3830	Regulators	Program could not fit					
3850	EGM-Meas/Reg Equip	Program could not fit					
	General Plant						
3901	Structures & Improvements	L0	35.3	S0	26.2	L0.5	30.3
3910	Furniture & Equipment	L0.5	19.5	L1	18.2	S0	17.3
3921	Transportation Equipment	R4	14.4	R5	14.0	L5	14.3
3922	Transportation Equipment	L4	12.8	S4	12.6	L5	12.7
3930	Stores Equipment	O1	42.6	O2	47.9	R1	28.7
3940	Tools	L0.5	27.1	L0	30.9	S0	23.5
3960	Power Operated Equipment	L4	7.2	L3	7.3	S3	7.2
3970	Communication Equipment	O3	14.0	O2	11.6	L0	11.0
3971	Electronic Reading-ERT	L2.5	18.8	S2	17.8	L3	18.2
3980	Miscellaneous Equipment	R2.5	22.5	R3	20.5	L1.5	28.0

4.2 SIMULATED PLANT BALANCE

For the purpose of this report, we conducted simulated plant balance analyses to estimate average service lives based on historical plant activity. The simulated plant balance method may produce reliable results when aged retirement data is unavailable. Data requirements for the simulated plant balance approach are far less rigorous than for survivor curve analysis. The only data needed for a simulated plant balance analysis are annual additions and end of year plant balances. In the simulated plant balance method, actual end of year plant balances are compared to those simulated by applying the percent surviving at a given age to the initial additions using the same general curves as used in the survivor curve analysis. The curve type that best simulates actual plant balances is the curve that best explains the mortality characteristics of the plant.

We base our simulated plant balance analysis on plant ledger summaries provided by the Company for the period 1968 through 2012. Generally, a reasonable simulated plant estimate requires 40 or more years of data. Data requirements may be reduced provided that the data is "clean" and "behaves" reasonably. Because plant ledger data prior to 1968 is not available and therefore having no breakdown of the initial plant balance in 1968, we performed two analyses: 1) assuming a zero beginning balance in 1968, 2) assuming 1968 additions include the 1967 ending balance. Tables 4-2 and 4-3 summarize the results of these analyses, respectively. The two analyses (Tables 4-2 and 4-3) are updates to analyses performed in our previous reports.

Based on review of the results shown in Table 4-2, and a thorough assessment of available information regarding additions, retirements, transfers, and year end plant balances, we find that the simulated plant balance approach does produce reasonable estimates for some accounts. The simulated plant balance with zero beginning balance in 1968 approach appears to provide reasonable results for the two largest accounts, Account 376 – Mains, and Account 380 – Services.

For the Company's largest account, Mains – Account 376, we find a best fit curve to be a "square curve" which indicates that all plant will retire at the average service life. Square curves are not a reasonable portrayal of our expectation of the retirement disbursement for natural gas mains. Our experience is that underground utility plant generally retires in a right modal pattern, meaning the majority of the plant retires after the average service life. We find our second and third best fit curve fits are an R0.5 and S0.5 with an average service life of 53 and 50 years respectively when the analysis was run starting with a zero beginning balance in 1968 (Table 4-2). We believe these to be reasonable indications of life estimation for the mains account, however we relied on our benchmarking survey as well for verification.

For the Company's second largest account, Services – Account 380, we again disregard the square curve and find the second and third best fit curves to be an R0.5 and S0.5 respectively, both with a 38 year average service life when starting with a zero beginning balance (Table 4-2). We believe these to be reasonable indications of life estimation for the services account, however with the 1968 beginning balance (Table 4-3) the best fit is an average service life of 69 years. We therefore relied on our benchmarking survey for verification of the reasonableness of the zero beginning balance (Table 4-2) average service life indication.

Overall, the results for the analysis run with the 1968 beginning balance included (Table 4-3) produced questionable results for most of the distribution plant assets. Many of the distribution plant assets produced results with very high modal curves (5 or 6), which tends to reduce confidence in the results. In this report, we did not rely on any of the results from the analysis shown in Table 4-3.

Table 4-2 Summary of Simulated Plant Balance Analysis Starting with a Zero Beginning Balance in 1968

Acct. No.	Account Description	Number 1 Rank		Number 2 Rank		Number 3 Rank	
		Curve Type	Avg. Service Life	Curve Type	Avg. Service Life	Curve Type	Avg. Service Life
			Years		Years		Years
Distribution Plant							
037400	Land Rights (1)	L 1.0	23	L 0.5	24	L 2.0	21
037500	Structures (2)	R 1.5	14	R 1.0	15	R 2.0	14
037600	Mains	SC 0.0	63	R 0.5	53	S -0.5	50
037800	Measuring and Regulating Station	SC 0.0	36	L 0.0	35	R 0.5	33
037900	City Gate Station	SC 0.0	35	L 0.0	33	R 0.5	32
038000	Services	SC 0.0	43	R 0.5	38	S 0.5	38
038100	Meters	L 0.0	14	L 0.5	13	L 1.0	13
038200	Meter/Regulator Installations	S 6.0	31	S 5.0	32	L 5.0	44
038300	Regulators	SC 0.0	23	R 0.5	22	S -0.5	22
038500	Industrial Meas/Regulating Equip	SC 0.0	69	R 0.5	55	R 1.0	43
General Plant							
039000	Structures (2)	L 0.0	13	L 0.5	13	L 1.0	12
039100	Office Furniture & Equipment	R 4.0	10	R 3.0	10	S 3.0	10
039200	Transportation Equipment	L 3.0	6	L 2.0	6	S 2	6
039300	Stores Equipment	L 0.5	28	L 1.0	26	L 0.0	30
039400	Tool, Shop & Garage Equipment	L 0.0	18	L 0.5	17	L 1.0	17
039600	Power Operated Equipment	SC 0.0	9	R 0.5	9	S -0.5	9
039700	Communication Equipment	R 5.0	9	R 4.0	9	S 4.0	9
039800	Miscellaneous Equipment	Program could not converge					

(1) Includes land because before 1984 there was no separation between land and land rights
(2) Includes leasehold improvements because before 1984 there was no separation between structures and leasehold improvements.

Table 4-3 Summary of Simulated Plant Balance Analysis Starting with 1968 Beginning Balance

Acct. No.	Account Description	Number 1 Rank Curve Type	Number 1 Rank Avg. Service Life	Number 2 Rank Curve Type	Number 2 Rank Avg. Service Life	Number 3 Rank Curve Type	Number 3 Rank Avg. Service Life
			Years		Years		Years
Distribution Plant							
037400	Land Rights (1)	L 3.0	27	S 3.0	26	L 2.0	29
037500	Structures (2)	R 5.0	16	S 6.0	15	S 5.0	15
037600	Mains	Program could not converge					
037800	Measuring and Regulating Station	S 6.0	25	S 5.0	26	R 5.0	26
037900	City Gate Station	S 5.0	38	S 6.0	37	L 5.0	39
038000	Services	SC 0.0	69	R 0.5	57	S 0.5	54
038100	Meters	L 3.0	23	S 3.0	22	L 5.0	22
038200	Meter/Regulator Installations	S 6.0	31	S 5.0	32	L 5.0	33
038300	Regulators	S 6.0	32	S 5.0	33	L 5.0	35
038500	Industrial Meas/Regulating Equip	SC 0.0	69	R 0.5	55	R 1.0	43
General Plant							
039000	Structures (2)	L 0.0	16	L 0.5	16	SC 0.0	18
039100	Office Furniture & Equipment	S 4.0	12	L 5.0	12	R 5.0	12
039200	Transportation Equipment	L 3.0	9	S 2.0	9	S 1.5	9
039300	Stores Equipment	L 1.5	29	S 1.0	27	L 2.0	27
039400	Tool, Shop & Garage Equipment	L 3.0	20	S 2.0	21	S 1.5	21
039500	Power Operated Equipment	L 1.5	10	L 2.0	10	S -0.5	11
039700	Communication Equipment	S 6.0	9	R 5.0	9	S 5.0	9
039800	Miscellaneous Equipment	Program could not converge					

(1) Includes land because before 1984 there was no separation between land and land rights
(2) Includes leasehold improvements because before 1984 there was no separation between structures and leasehold improvements.

4.3 REGIONAL INDUSTRY NORMS

We consider regional industry norms in developing average service lives used in this report. In Table 4-4, we summarize depreciation information obtained from 12 Midwestern gas utilities. These utilities include Interstate Power and Light (Alliant Energy), AmerenUE, Kansas Gas Service, The Empire District Gas Company, Black Hills Energy, Laclede Gas Company, and Liberty Energy Corporation. Properties of these utilities generally include facilities located in Missouri, Kansas, Iowa, and Nebraska.

Where data are available, we have attempted to expand our survey analysis with additional information regarding the basis for the rates for each of the utilities. In Columns AP through AU of Table 4-4, we calculate a regional industry average of the average service life and annual depreciation rates. Of course with any such analysis, there will be some differences between the depreciation rates and the rates that would result from a whole life calculation using the average service lives and net salvage values shown because some of the utilities do not provide net salvage figures.

Table 4-4 Summary of Regional Depreciation Survey

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]
		Interstate Power and Light (Alliant Energy)				Ameren (Union Electric)			KS Gas Service			The Empire District Gas Company		
		Iowa				Missouri			Kansas			Missouri		
Account Description	FERC Account	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %	Average Remaining Life	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %	P-Life	Net Salvage %	Applied Depreciation Rate %	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %
Distribution											3.8333%			
Land and Land Rights	374								70		1.39%			
Structures and Improvements	375	50	-10.00%	2.01%	37.5	49	0.00%	2.04%	30	-15.00%	3.72%	45	0.00%	2.22%
Service Centers	375.1													
Garage	375.2													
Other Small Structures	375.3													
Mains	376	53	-35.00%	2.37%	40.7	44	1.00%	2.25%				45	-104.42%	4.54%
Mains - Metallic	376.1								70	-13.00%	1.53%			
Mains - Non-Metallic	376.2								50	-16.00%	2.23%			
Steel	376.3													
Cast Iron	376.4													
Plastic and Copper	376.5													
Measuring and Regulating Equip	378	35	-10.00%	3.28%	25.2	45	-3.00%	2.29%	50	-25.00%	2.37%	50	0.00%	2.00%
Meas & Reg Equip - City Gate	379	35	-10.00%	2.68%	26.9	45	0.00%	2.22%	60	-20.00%	1.88%	50	0.00%	2.00%
Services	380	41	-70.00%	4.35%	29.2	37	-1.00%	2.73%				43	-42.47%	3.31%
Services - Metallic	380.1								50	-43.00%	2.55%			
Services - Non-Metallic	380.2								45	-38.00%	2.92%			
Meters	381	22	-20.00%	6.94%	15.8	36	3.00%	2.70%	38	0.00%	2.50%	40	-2.61%	2.57%
AMR Communication Devices	381.5								15		6.39%			
Meter Installations	382								48	-50.00%	3.02%			
House Regulators	383	41	-15.00%	3.10%	28.5	51	-18.00%	2.31%	50	-5.00%	1.91%	40	-81.09%	4.53%
Industrial Meas and Reg Equipment	385	31	-5.00%	1.61%	18.0	29	34.00%	2.28%				45	-21.21%	2.69%
Large Vol Meters (System Wide)	385.2													
Other Equipment	387	25	-5.00%	3.51%	6.9			3.36%	10		7.07%			
General														
Land and Land Rights	389													
Structures and Improvements	390	42	-10.00%	3.12%	26.4	55	-21.00%	2.20%	60	-5.00%	1.61%	45	-4.24%	2.32%
Improvements	390.03													
Office Furn and Equipment	391	20	0.00%	5.02%	5.7	21	0.00%	4.76%	20*		4.97%	15	0.00%	6.67%
Computers	391.1	5	0.00%	44.78%	1.2	5	0.00%	20.00%	7*		14.16%	7	0.00%	14.29%
Computer Software	391.3										14.16%			
Mech Office Equip	391.4													
DP Systems	391.5													
DP Equipment	391.6													
Transportation Equipment	392	11	10.00%	6.57%	6.2	11	15.00%	7.69%	14	20.00%	5.03%	12	30.69%	5.78%
Autos	392.1													
Trucks	392.2													
Trailers	392.3													
Stores Equipment	393					27	0.00%	3.70%	20*		4.59%	25	0.00%	4.00%
Tool, Shop, and Garage Equipment	394	25	0.00%	4.09%	16.0	27	0.00%	3.70%	15*		6.66%	30	0.00%	3.33%
Lab Equipment	395	15	0.00%	5.27%	2.9	24	0.00%	4.17%	15*		6.67%	30	0.00%	3.33%
Power Operated Equipment	396	19	10.00%	4.50%	9.5	18	9.00%	5.06%	12	10.00%	6.20%	16	14.35%	5.35%
Communication Equipment	397	12	0.00%	10.10%	4.1	21	0.00%	4.76%	15*		5.04%	25	0.00%	0.00%
Miscellaneous Equipment	398	10	0.00%	0.00%	-				20*		5.00%	23	0.00%	4.35%
Other Tangible property	399													

* Amortization period used in lieu of depreciation rate

Table 4-4 Summary of Regional Depreciation Survey (Continued)

[A]	[B]	[P]	[Q]	[R]	[S]	[T]	[U]	[V]	[W]	[X]	[Y]	[Z]	[AA]	[AB]
		Black Hills Energy												
		Colorado(1)				Iowa					Kansas			
Account Description	FERC Account	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %	Average Remaining Life	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %	Curve Type	Average Remaining Life	Estimated Average Service Life	Net Salvage %	Applied Depreciation Rate %	Average Remaining Life
Distribution														
Land and Land Rights	374													
Structures and Improvements	375		-5.00%	0.18%	19.01	45	67.9%	0.28%	R 1.5	35.38	20.00	-5.00%	0.23%	10.36
Service Centers	375.1													
Garage	375.2													
Other Small Structures	375.3													
Mains	376													
Mains - Metallic	376.1		-20.00%	1.40%	34.56	60	-50.6%	1.52%	R 2	33.77	65.00	-50.00%	1.77%	43
Mains - Non-Metallic	376.2		-20.00%	1.95%	46.25	50	-49.8%	2.80%	S 2	38.26	65.00	-20.00%	1.71%	56.18
Steel	376.3													
Cast Iron	376.4													
Plastic and Copper	376.5													
Measuring and Regulating Equip	378		-5.00%	2.27%	31.89	40	-22.5%	1.88%	L 1	28.48	40.00	-5.00%	2.27%	31.32
Meas & Reg Equip - City Gate	379										40.00	-5.00%	2.96%	26.42
Services	380													
Services - Metallic	380.1		-10.00%	2.25%	20.53	49	-93.8%	3.92%	R 3	21.18	40.00	-65.00%	2.96%	26.42
Services - Non-Metallic	380.2		-10.00%	2.20%	32.38	45	-45.0%	2.79%	S 2	31.77	65.00	-50.00%	2.28%	50.44
Meters	381			2.80%	24.42	38	1.8%	2.66%	R 2.5	24.42	38.00		2.69%	24.72
AMR Communication Devices	381.5													
Meter Installations	382		-10.00%	1.76%	25.43	50	-50.6%	2.36%	R 2.5	32.34	60.00	-50.00%	2.06%	43.49
House Regulators	383		-5.00%	2.40%	33.23	43	-50.1%	3.40%	S 2	33.40	50.00	-20.00%	2.20%	43.29
Industrial Meas and Reg Equipment	385		-5.00%	2.80%	26.27	40	-4.2%	2.22%	R 2.5	25.85	45.00	-10.00%	1.99%	32.27
Large Vol Meters (System Wide)	385.2			2.58%	25.61	30	12.1%	3.38%	L 0.5	25.61	38.00		2.35%	28.21
Other Equipment	387			10.98%	2.58	46	0.9%	0.57%	S -0.5	34.21	20.00		3.23%	13.72
General														
Land and Land Rights	389													
Structures and Improvements	390		-5.00%	1.54%	43.5	41	3.2%	0.69%	R 2	23.94	45.00		0.65%	34.24
Improvements	390.03													
Office Furn and Equipment	391			-0.06%	13.07	23		6.07%	L 1	14.13	18.00		4.17%	13.52
Computers	391.1			1.87%	6.22	7		19.39%	S 0.5	3.2	6.00		11.00%	3.44
Computer Software	391.3				1.00	9		23.46%	R 4	2.23	7.00		6.66%	3.36
Mech Office Equip	391.4													
DP Systems	391.5													
DP Equipment	391.6													
Transportation Equipment	392		10.00%	6.88%	3.07	16	25.1%	-0.12%	L 1.5	9.00				
Autos	392.1										11.00		0.75%	3.89
Trucks	392.2										15.00	10.00%	3.65%	8.32
Trailers	392.3										20.00		3.16%	11.54
Stores Equipment	393										20.00		4.51%	16.68
Tool, Shop, and Garage Equipment	394			0.27%	24.01	25	0.4%	4.59%	L 1.5	14.84	30.00		2.37%	19.74
Lab Equipment	395			4.53%	18.83	20		5.77%	S 3	15.07	20.00		3.16%	11.85
Power Operated Equipment	396		10.00%	8.09%	7.00	18	20.2%	0.19%	L 0.5	10.07	18.00	25.00%	2.32%	12.09
Communication Equipment	397			10.28%	8.17	9		22.71%	R 5	3.66	20.00		4.19%	15.29
Miscellaneous Equipment	398			9.96%	3.22						20.00		4.45%	16.32
Other Tangible property	399													

(1) Black Hills Colorado uses vintage group procedure

Table 4-4 Summary of Regional Depreciation Survey (Continued)

[A]	[B]	[AC]	[AD]	[AE]	[AF]	[AG]	[AH]	[AI]	[AJ]	[AK]	[AL]	[AM]	[AN]	[AO]
		Black Hills Energy					Laclede		Liberty Energy Corp.					
		Nebraska					Missouri		Missouri (2)		Missouri (3)		Missouri (4)	
Account Description	FERC Account	Estimated Average Service Life	Net Salvage %	W/L Rate	Amorti-zation	R/L Rate	Estimated Average Service Life	Applied Depreciation Rate %	Estimated Average Service Life	Applied Depreciation Rate %	Estimated Average Service Life	Applied Depreciation Rate %	Estimated Average Service Life	Applied Depreciation Rate %
Distribution														
Land and Land Rights	374	66	-0.2%	1.52%	-1.52%	0.00%								
Structures and Improvements	375	65		1.53%	0.75%	2.28%		3.00%		2.33%		2.50%		4.37%
Service Centers	375.1							3.00%						
Garage	375.2							3.00%						
Other Small Structures	375.3							3.00%						
Mains	376									1.53%		1.53%		3.43%
Mains - Metallic	376.1	65	-34.2%	2.05%	-0.82%	1.23%								
Mains - Non-Metallic	376.2	40	-34.4%	3.36%	0.17%	3.53%								
Steel	376.3							1.44%						
Cast Iron	376.4							3.31%						
Plastic and Copper	376.5							1.57%						
Measuring and Regulating Equip	378	60	-22.8%	2.04%	-0.43%	1.61%		3.71%		3.00%		3.01%		1.89%
Meas & Reg Equip - City Gate	379							3.71%		3.21%		3.15%		1.89%
Services	380									5.00%		5.00%		5.13%
Services - Metallic	380.1	49	-28.9%	2.61%	-0.40%	2.21%		5.23%						
Services - Non-Metallic	380.2	40	-21.4%	3.07%	0.55%	3.62%		** 3.75%						
Meters	381	38	1.8%	2.58%	0.09%	2.67%		2.37%		2.16%		2.16%		2.52%
AMR Communication Devices	381.5													
Meter Installations	382	65	-50.4%	2.32%	-0.21%	2.11%				3.00%		2.96%		3.91%
House Regulators	383	57	-50.8%	2.63%	0.05%	-2.67%		2.00%		4.55%		4.19%		3.24%
Industrial Meas and Reg Equipment	385	34	-5.2%	3.09%		3.09%		3.25%		3.60%		3.60%		1.89%
Large Vol Meters (System Wide)	385.2	30	12.1%	2.92%	-0.33%	2.59%								
Other Equipment	387	15		6.47%	7.23%	13.70%		2.78%		0.00%		5.52%		5.52%
General														
Land and Land Rights	389													
Structures and Improvements	390	50	-2.3%	2.06%	0.09%	2.15%		3.00%		5.00%		1.00%		1.00%
Improvements	390.03													
Office Furn and Equipment	391	26		3.86%	-0.10%	3.76%		3.33%		4.75%		5.00%		5.00%
Computers	391.1	11		8.85%	-2.04%	6.81%								10.00%
Computer Software	391.3	7		14.35%	34.63%	48.98%		7.00%						
Mech Office Equip	391.4							10.00%						
DP Systems	391.5							20.00%						
DP Equipment	391.6							10.00%						
Transportation Equipment	392	8	23.4%	9.90%	-29.89%	-19.79%				10.39%		10.39%		10.00%
Autos	392.1							14.17%						
Trucks	392.2							8.18%						
Trailers	392.3													
Stores Equipment	393							2.22%		4.50%		4.01%		5.00%
Tool, Shop, and Garage Equipment	394	37		2.69%	-2.09%	0.60%		2.63%		4.50%		4.33%		3.29%
Lab Equipment	395	30		3.37%	-0.62%	2.75%		3.57%		4.00%		3.69%		3.85%
Power Operated Equipment	396	15	21.6%	5.11%	-13.29%	-8.18%		6.92%		7.92%		7.71%		13.81%
Communication Equipment	397	12	-0.1%	8.36%	7.62%	15.98%		5.00%		4.54%		4.36%		12.00%
Miscellaneous Equipment	398							3.45%		3.60%		3.60%		10.00%
Other Tangible property	399									4.75%		4.75%		5.00%

** Includes Plastic and Copper

(2) Liberty Missouri (2) includes Butler and Kirksville.
(3) Liberty Missouri (3) includes SEMO.
(4) Liberty Missouri (4) includes UCG, Palmyra and Neelyville. Rich Hill was not included due to the small number of Missouri customers.

Table 4-4 Summary of Regional Depreciation Survey (Continued)

[A]	[B]	[AP]	[AQ]	[AR]	[AS]	[AT]	[AU]	[AV]
		Regional Range				Regional Average		
Account Description	FERC Account	Average Service Life (5)		Depreciation Rate		Estimated Average Service Life	Applied Depreciation Rate %	FERC Account
		Low	High	Low	High	(4)		
Distribution								Distribution
Land and Land Rights	374	66	70	1.39%	1.52%	68	1.46%	374
Structures and Improvements	375	20	65	0.18%	4.37%	43	2.03%	375
Service Centers	375.1			3.00%	3.00%		3.00%	375.1
Garage	375.2			3.00%	3.00%		3.00%	375.2
Other Small Structures	375.3			3.00%	3.00%		3.00%	375.3
Mains	376	44	53	1.53%	4.54%	47	2.61%	376
Mains - Metallic	376.1	60	70	1.40%	2.05%	65	1.65%	376.1
Mains - Non-Metallic	376.2	40	65	1.71%	3.36%	51	2.41%	376.2
Steel	376.3			1.44%	1.44%		1.44%	376.3
Cast Iron	376.4			3.31%	3.31%		3.31%	376.4
Plastic and Copper	376.5			1.57%	1.57%		1.57%	376.5
Measuring and Regulating Equip	378	35	60	1.88%	3.71%	46	2.50%	378
Meas & Reg Equip - City Gate	379	35	60	1.88%	3.71%	46	2.63%	379
Services	380	37	43	2.73%	5.13%	40	4.25%	380
Services - Metallic	380.1	40	50	2.25%	5.23%	47	3.25%	380.1
Services - Non-Metallic	380.2	40	65	2.20%	3.07%	49	2.65%	380.2
Meters	381	22	40	2.16%	6.94%	36	2.89%	381
AMR Communication Devices	381.5	15	15	6.39%	6.39%	15	6.39%	381.5
Meter Installations	382	48	65	1.76%	3.91%	56	2.67%	382
House Regulators	383	40	57	1.91%	4.55%	47	3.04%	383
Industrial Meas and Reg Equipment	385	29	45	1.61%	3.60%	37	2.64%	385
Large Vol Meters (System Wide)	385.2	30	38	2.35%	3.38%	33	2.81%	385.2
Other Equipment	387	10	46	0.00%	10.98%	23	4.46%	387
General								General Plant
Land and Land Rights	389							389
Structures and Improvements	390	41	60	0.65%	5.00%	48	2.02%	390
Improvements	390.03							390.03
Office Furn and Equipment	391	15	26	-0.06%	6.67%	21	4.46%	391
Computers	391.1	5	11	1.87%	44.78%	7	16.04%	391
Computer Software	391.3	7	9	6.66%	23.46%	8	13.13%	391.3
Mech Office Equip	391.4			10.00%	10.00%		10.00%	391.4
DP Systems	391.5			20.00%	20.00%		20.00%	391.5
DP Equipment	391.6			10.00%	10.00%		10.00%	391.6
Transportation Equipment	392	8	16	-0.12%	10.39%	12	7.25%	392
Autos	392.1	11	11	0.75%	14.17%	11	7.46%	392.1
Trucks	392.2	15	15	3.65%	8.18%	15	5.92%	392.2
Trailers	392.3	20	20	3.16%	3.16%	20	3.16%	392.3
Stores Equipment	393	20	27	2.22%	5.00%	24	4.07%	393
Tool, Shop, and Garage Equipment	394	25	37	0.27%	6.66%	29	3.54%	394
Lab Equipment	395	15	30	3.16%	6.67%	23	4.28%	395
Power Operated Equipment	396	12	19	0.19%	13.81%	17	6.10%	396
Communication Equipment	397	9	25	0.00%	22.71%	16	7.61%	397
Miscellaneous Equipment	398	10	23	0.00%	10.00%	18	4.93%	398
Other Tangible property	399			4.75%	5.00%		4.83%	399

(5) The regional range and regional average estimated average service lives are exclusive of companies reporting only remaining life.

4.4 RECOMMENDED AVERAGE SERVICE LIVES

In Table 4-5, we summarize the average service lives underlying MGE's existing depreciation rates (Column C), and the average service lives we recommend for the purpose of this report (Column E). We use recommended average service lives to develop our recommended accrual rates. Based on consideration of the actuarial analysis, simulated plant balance analysis, regional industry averages, and our experience with gas (and other) utility property, the following discussion explains in further detail the basis for our recommended average service lives for each plant account:

- Account 374 – Land Rights. We recommend no change in this account. We do round to whole number average service life for our depreciation calculation.
- Accounts 375 and 390 – Structures and Improvements. We recommend a decrease in average service life from 60.5 years and 50 years to 47 years. This places MGE within the range of other gas utilities in the region.
- Account 376 – Mains. We recommend increasing the average service life from 44 to 50 years based on our simulated plant balance analysis and the regional average.
- Account 378 – Measuring and Regulating Station Equipment. We recommend no change from the 35 year average service life based on our simulated plant balance analysis and the regional average.
- Account 379 – City Gate Stations. We recommend decreasing the average service life from 47 years to 38 years based on our simulated plant balance analysis and the regional average.
- Account 380 – Services. We find the existing service life of 40 years is reasonable based on our simulated plant balance analysis and the regional average.
- Account 381 – Meters. We recommend no change to the existing average service life of 35 years which is close to the regional average. We believe other data is not conclusive enough to recommend a decrease in average service life.
- Account 382 – Meter/Regulator Installations. We recommend no change in average service life based on the results of our simulated plant balance analysis.
- Account 383 – House Regulators. We recommend no change in average service life. The existing 41 year life falls within the range of the regional average.
- Account 385 – Industrial Measuring and Regulating Equipment. We recommend no change in average service life. The existing 30 year life falls within the range of the regional average.
- Account 391 – Furniture and Equipment, we base our recommendation for Account 391 on a weighting study performed on the subclasses of assets within the account, as presented in Table 4-6. The account has furniture, which we estimate to have a 40 year service life, office equipment which we estimate to have a 15 year service life, and computer equipment which has a 7 to 9 year service life. By computing a weighted average based on the dollar amounts in each subclass (Table 4-6) we determine our recommended 11 year service life.
- Account 392 – Transportation Equipment, we base our recommendation on our findings in Case No. GR-2009-0355 and recommend continuing the 6 year average service life for 392.1 (passenger trucks, light trucks and sport utility vehicles). We recommend a decrease in average service life from 11.5 years to 10 years for 392.2 (heavy trucks). Our recommended average

service lives for transportation equipment are based primarily on the Company's vehicle replacement standard.

- Account 393 – Stores Equipment, we recommend decreasing the average service life from 37 to 28 years based on our simulated plant balance analysis and the regional average.
- Account 394 – Tools, Shop and Garage Equipment. We recommend no change in this account. We do round to whole number average service life for our depreciation calculation.
- Account 396 – Power Operated Equipment. We recommend decreasing the average service life from 12 years to 10 years based on indications from our simulated plant balance analysis and the regional average.
- Account 397 – Communications Equipment. We recommend no change in this account based on the regional average.
- Account 397.1 – Communication Equipment (ERT). Based on the actuarial analysis of this account, we recommend decreasing the average service life from 20 to 19 years.
- Account 398 – Miscellaneous Equipment. We recommend decreasing the average service life from 26 to 23 years based on the range of the regional average.

Table 4-5 Recommended Average Service Lives and Associated Accrual Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
		Existing		Recommended		Change in	
Acct. No.	Account	Average Service Life	Life Accrual Rate	Average Service Life	Life Accrual Rate	Average Service Life	Life Accrual Rate
		Years		Years		Years	
			1 / [C]		1 / [E]	[E] - [C]	[F] - [D]
	Distribution Plant						
3742	Land Rights	47.8	2.09%	48	2.08%	0.2	-0.01%
3751	Structures	60.5	1.65%	47	2.13%	-13.5	0.48%
3760	Mains	44.0	2.27%	50	2.00%	6.0	-0.27%
3780	Measuring & Regulating Stations	35.0	2.86%	35	2.86%	0.0	0.00%
3790	City Gate Stations	47.0	2.13%	38	2.63%	-9.0	0.50%
3800	Services	40.0	2.50%	40	2.50%	0.0	0.00%
3810	Meters	35.0	2.86%	35	2.86%	0.0	0.00%
3820	Meter/Regulator Installations	35.0	2.86%	35	2.86%	0.0	0.00%
3830	Regulators	41.0	2.44%	41	2.44%	0.0	0.00%
3850	EGM-Meas/Reg Equip	30.0	3.33%	30	3.33%	0.0	0.00%
	General Plant						
3901	Structures & Improvements	50.0	2.00%	47	2.13%	-3.0	0.13%
3910	Furniture & Equipment	12.4	8.06%	11	9.09%	-1.4	1.03%
3921	Transportation Equipment	6.0	16.67%	6	16.67%	0.0	0.00%
3922	Transportation Equipment	11.5	8.70%	10	10.00%	-1.5	1.30%
3930	Stores Equipment	37.0	2.70%	28	3.57%	-9.0	0.87%
3940	Tools	18.9	5.30%	19	5.29%	0.0	-0.01%
3960	Power Operated Equipment	12.0	8.33%	10	10.00%	-2.0	1.67%
3970	Communication Equipment	16.0	6.25%	16	6.25%	0.0	0.00%
3971	Electronic Reading-ERT	20.0	5.00%	19	0.00%	-1.0	-5.00%
3980	Miscellaneous Equipment	26.0	3.85%	23	4.35%	-3.0	0.50%

Table 4-6 Calculation of Whole Life Rate for Account 391

[A]	[B]	[C]	[D]	[E]	[F]
Description	Depreciable Plant 12/31/2012	Percent of Total	Net Salvage	Average Service Life	Whole Life Rate
Account 391 Subcategories					
Furniture	2,126,145	22.04%	10%	40	2.25%
Office Equipment	678,084	7.03%		15	6.67%
Computers	3,635,751	37.68%	10%	7	12.86%
Software	3,208,730	33.26%		9	11.11%
Total	9,648,710	100.00%			
				Weighted Average Rate for Account 391	9.50%
				Equivalent Service Life	10.52
				Recommended Service Life	11

5 Development of Recommended Accrual Rates

After developing our recommended average service lives, we then look at any adjustments that need to be made within the accounts for net salvage and amortization of depreciation reserve, before developing our recommended accrual rates.

5.1 NET SALVAGE ALLOWANCE

The traditional approach for incorporating allowance for net salvage is to compare annual net salvage (salvage minus cost of removal plus reimbursements) to the original cost of the plant retired during that year over a representative historical period, preferably at least 10 years. The traditional approach assumes that the ratio of net salvage dollars to the original cost dollars of the retirements is representative of the allowance that will ultimately apply to all plant in service over that life of that asset. In a whole life depreciation calculation, this allowance is then added to (for a net cost of removal) or deducted from (for a net salvage) one in the numerator and then divided by the average service life.

This approach provides reasonable results where there are modest amounts of salvage or cost of removal or where the amounts are fairly consistent (such as for unit property or general plant). However, cost of removal for some natural gas distribution plant can be as much as or more than the original cost of the plant retired especially if natural gas lines that are under streets need to be relocated. In these instances, it may not be reasonable to assume that this experience applies to all plant.

Problems may result (especially with mains and services) if the net salvage allowance is large and a relatively small amount of plant is being retired. A large depreciation reserve may be accumulated in anticipation of cost of removal expenses that may or may not occur. In the 1998 Laclede case, the Missouri Public Service Commission Staff believed that this was at the root of large differences between actual and theoretical reserve. The Staff proposed removing net salvage from the depreciation calculation and treated salvage and cost of removal as a separate expense (or revenue requirement). Beginning in August 2001, MGE began to treat net salvage as an expense. In March 2007, the expense approach for net salvage was reversed and MGE has been accruing salvage and cost of removal in the depreciation reserve since then.

We believe that the goal of matching actual cost of removal expenses and cost of removal allowances can be accomplished within the calculation of depreciation rates. For example, we analyzed MGE's salvage and cost of removal over the ten year period 2003 through 2012 and found that the annual net salvage amounts are fairly consistent for Account 380 - Services.

For Account 376 – Mains, we base our salvage recommendation based on MGE's historic gross salvage less cost of removal plus any reimbursements. It is our understanding that from around 2005 until 2010, MGE was netting any reimbursement dollars against the cost of the newly added plant. In 2010, MGE changed their way of booking reimbursements and began to add the reimbursement dollars to the accrued depreciation reserve. Based on the data provided by MGE for gross salvage, cost of removal and reimbursements we find that the average net salvage amount for mains is $980,000 annually.

For Account 392 – Transportation Equipment, we base our net salvage amount on the Company's resale goal of 20% of purchase price.

We recommend a total net salvage allowance of $700,000 annually, as shown in Table 5-1, Column P.

Table 5-1, Column Q shows our recommended net salvage accrual rates calculated by dividing the annual net salvage allowance shown in Column P by the plant in service balance for each account shown in Column C (note that a positive net salvage allowance translates into a negative net salvage accrual rate as it is a decrease to depreciation expense, and vice versa).

Some may view this annual allowance approach is an "impure" application of the "whole" life method because it is based on a rather short term analysis of activity. As plant ages and retirement activity increases, we expect that the annual allowance may increase. Insufficient depreciation reserve might be accumulated if the annual allowance is not reviewed on a regular basis. However, in Missouri, depreciation rates are reviewed every five years as required by Commission rule. This frequency will allow for future adjustment of the annual net salvage allowance to reflect changes in activity, if necessary.

Table 5-2 summarizes our recommended average service lives and the life portion of the depreciation accrual rates in Columns D and E, respectively. The annual net salvage accruals and net salvage portion of the depreciation accrual rates are summarized in Columns F and G, respectively. The total whole life depreciation rates which are the sum of the life accrual rate and net salvage rate are shown in Column H.

Table 5-1 Summary of Recommended Net Salvage Allowance

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]
Acct. No.	Account	Depreciable Plant 4/30/2013	Historical Gross Salvage less Cost of Removal plus Reimbursements												Recommended Net Salvage Allowance	Recommended Net Salvage Accrual Rate
			2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total	10 Year Average		
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	- [P] / [C]
	Distribution Plant															
3742	Land Rights	2,510,537	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3751	Structures	11,763,359	0	0	0	0	0	0	0	0	(20,848)	0	(20,848)	(2,085)	0	0.00%
3760	Mains	444,104,562	(412,637)	1,163,718	1,086,358	486,428	19,545	3,086,447	821,769	924,008	789,605	1,878,814	9,844,054	984,405	980,000	-0.22%
3780	Meas. & Reg. Stations	13,259,477	(583)	18,816	28,621	(11,598)	(9,625)	(5,934)	(13,524)	(18,297)	(13,507)	(6,388)	(32,021)	(3,202)	0	0.00%
3790	City Gate Stations	5,681,613	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3800	Services	354,111,925	(706,087)	(834,251)	(761,103)	(827,731)	(713,960)	(538,740)	(458,801)	(443,195)	(563,360)	(450,333)	(6,297,560)	(629,756)	(630,000)	0.18%
3810	Meters	35,765,451	(16,047)	(13,753)	0	0	0	0	0	0	0	163,086	133,287	13,329	0	0.00%
3820	Meter/Regulator Installations	85,203,042	(3,294)	6,609	(1,044)	7,407	3,083	298	(4,836)	(4,822)	(12,086)	33,445	24,760	2,476	0	0.00%
3830	Regulators	14,785,302	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3850	EGM-Meas/Reg Equip	463,614	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	General Plant															
3901	Structures & Improvements	2,891,241	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3910	Furniture & Equipment	9,716,541	457	849	0	0	0	0	0	0	713	0	2,019	202	0	0.00%
3921	Transportation Equipment	5,918,869	0	23,500	117,575	5,850	51,300	14,750	44,403	108,915	268,472	154,314	789,079	78,908	200,000	-3.38%
3922	Transportation Equipment	7,729,035	0	0	0	0	0	0	0	0	0	0	0	0	150,000	-1.94%
3930	Stores Equipment	664,474	0	1,863	0	2,750	0	0	0	0	0	2,500	7,113	711	0	0.00%
3940	Tools	7,145,016	0	2,470	0	1,441	3,575	0	0	884	35,241	0	43,611	4,361	0	0.00%
3960	Power Operated Equipment	1,734,943	0	0	0	0	0	17,800	5,845	0	10,600	0	34,245	3,425	0	0.00%
3970	Communication Equipment	4,649,249	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3971	Electronic Reading-ERT	36,188,766	0	79,774	0	0	0	0	0	170,560	0	1,540	251,874	25,187	0	0.00%
3980	Miscellaneous Equipment	806,362	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
	Total	1,045,093,377	(1,138,191)	449,594	470,408	(335,453)	(646,083)	2,574,622	394,856	738,053	494,829	1,776,978	4,779,613	477,961	700,000	

Table 5-2 Recommended Life Rates, Net Salvage Rates and Depreciation Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
			Recommended				
Acct. No.	Account	Depreciable Plant 4/30/2013	Average Service Life	Life Accrual Rate	Net Salvage Accrual	Net Salvage Rate	Whole Life Deprecaition Rate
		$	Years	1 / [D]	$	[F] / [C]	[E] + [G]
	Distribution Plant						
3742	Land Rights	2,510,537	48	2.08%	0	0.00%	2.08%
3751	Structures	11,763,359	47	2.13%	0	0.00%	2.13%
3760	Mains	444,104,562	50	2.00%	(980,000)	-0.22%	1.78%
3780	Measuring & Regulating Stations	13,259,477	35	2.86%	0	0.00%	2.86%
3790	City Gate Stations	5,681,613	38	2.63%	0	0.00%	2.63%
3800	Services	354,111,925	40	2.50%	630,000	0.18%	2.68%
3810	Meters	35,765,451	35	2.86%	0	0.00%	2.86%
3820	Meter/Regulator Installations	85,203,042	35	2.86%	0	0.00%	2.86%
3830	Regulators	14,785,302	41	2.44%	0	0.00%	2.44%
3850	EGM-Meas/Reg Equip	463,614	30	3.33%	0	0.00%	3.33%
	General Plant						
3901	Structures & Improvements	2,891,241	47	2.13%	0	0.00%	2.13%
3910	Furniture & Equipment	9,716,541	11	9.09%	0	0.00%	9.09%
3921	Transportation Equipment	5,918,869	6	16.67%	(200,000)	-3.38%	13.29%
3922	Transportation Equipment	7,729,035	10	10.00%	(150,000)	-1.94%	8.06%
3930	Stores Equipment	664,474	28	3.57%	0	0.00%	3.57%
3940	Tools	7,145,016	19	5.29%	0	0.00%	5.29%
3960	Power Operated Equipment	1,734,943	10	10.00%	0	0.00%	10.00%
3970	Communication Equipment	4,649,249	16	6.25%	0	0.00%	6.25%
3971	Electronic Reading-ERT	36,188,766	19	5.26%	0	0.00%	5.26%
3980	Miscellaneous Equipment	806,362	23	4.35%	0	0.00%	4.35%
	Total	1,045,093,377			(700,000)		

5.2 DEPRECIATION RESERVE

After developing indicated accrual rates, we evaluate the adequacy of the depreciation reserve balance (Table 5-3). A simple view of existing depreciation reserve shows two accounts (396 – Power Operated Equipment and 397 – Communication Equipment) with negative reserve balances (Table 5-3, Column D). This might be caused by several factors, including depreciation rates that are too low or extraordinary retirements. In order to correct any imbalances in the depreciation reserve accounts, we first determine a theoretical level of where depreciation reserve should be. We calculate this based on the weighted age of the assets in each account, relative to our recommended service lives. Without adjustment, to the extent that the calculated reserve, Table 5-3, Column I, is greater than or less than the book reserve, Table 5-3, Column D, the Company will under- or over-recover, respectively, its depreciable plant investment. Differences between the calculated theoretical reserve and the book reserve can be attributed primarily to changes in life characteristics or historical depreciation rates which have not properly reflected life characteristics or changes in life characteristics. Also affecting the differences in theoretical and book reserve is the

level of net salvage in the depreciation rates. These changing life and salvage characteristics and the degree to which these changes are recognized and reflected in the depreciation rates directly affect the book reserves.

By subtracting the actual depreciation reserve from the calculated depreciation reserve, we determine the reserve deficiency, Table 5-3, Column J. The total depreciation reserve deficiency of $3.6 million is relative minor (less than 1% of accrued reserve) and we do not recommend a change to the depreciation reserve at this time.

Table 5-3 Analysis of Accumulated Depreciation Reserve

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Acct. No.	Account	Depreciable Plant 4/30/2013	Accumulated Depreciation Reserve 4/30/2013	Reserve Ratio	Recommended Average Service Life	Weighted Age	Calculated Reserve Ratio Based On Weighted Age	Calculated Depreciation Reserve	Reserve Deficiency
		$	$	%	Years	Years	%	$	$
				[D] / [C]			[G] / [F]	[H] * [C]	[I] - [D]
	Distribution Plant								
3742	Land Rights	2,510,537	709,790	28.27%	48	15.69	32.69%	820,632	110,842
3751	Structures	11,763,359	841,089	7.15%	47	7.84	16.68%	1,962,228	1,121,140
3760	Mains	444,104,562	162,308,650	36.55%	50	18.53	37.06%	164,585,151	2,276,500
3780	Measuring & Regulating Stations	13,259,477	5,106,373	38.51%	35	18.78	53.66%	7,114,656	2,008,284
3790	City Gate Stations	5,681,613	1,249,232	21.99%	38	11.54	30.37%	1,725,416	476,184
3800	Services	354,111,925	187,819,839	53.04%	40	16.22	40.55%	143,592,386	(44,227,453)
3810	Meters	35,765,451	3,340,268	9.34%	35	15.77	45.06%	16,114,890	12,774,622
3820	Meter/Regulator Installations	85,203,042	28,142,980	33.03%	35	14.73	42.09%	35,858,309	7,715,329
3830	Regulators	14,785,302	4,094,764	27.69%	41	14.79	36.07%	5,333,527	1,238,763
3850	EGM-Meas/Reg Equip	463,614	191,885	41.39%	30	12.38	41.27%	191,318	(567)
	Total Distribution Plant	967,648,881	393,804,870	40.70%			38.99%	377,298,513	(16,506,356)
	General Plant								
3901	Structures & Improvements	2,891,241	1,887,618	65.29%	47	20.76	44.17%	1,277,068	(610,551)
3910	Furniture & Equipment	9,716,541	3,840,886	39.53%	11	9.12	82.91%	8,055,895	4,215,010
3921	Transportation Equipment	5,918,869	2,026,067	34.23%	6	3.08	51.33%	3,038,353	1,012,286
3922	Transportation Equipment	7,729,035	3,800,228	49.17%	10	5.85	58.50%	4,521,486	721,258
3930	Stores Equipment	664,474	120,997	18.21%	28	13.24	47.29%	314,201	193,204
3940	Tools	7,145,016	1,802,771	25.23%	19	11.58	61.27%	4,377,740	2,574,969
3960	Power Operated Equipment	1,734,943	(256,468)	-14.78%	10	3.07	30.70%	532,628	789,096
3970	Communication Equipment	4,649,249	(1,200,716)	-25.83%	16	8.17	51.06%	2,374,023	3,574,739
3971	Electronic Reading-ERT	36,188,766	13,253,529	36.62%	19	11.05	58.16%	21,046,625	7,793,096
3980	Miscellaneous Equipment	806,362	408,807	50.70%	23	9.52	41.39%	333,764	(75,044)
	Total General Plant	77,444,496	25,683,719	33.16%			59.23%	45,871,781	20,188,062
	Total Depreciable Plant	1,045,093,377	419,488,588	40.14%			40.49%	423,170,294	3,681,706

5.3 RECOMMENDED ACCRUAL RATES

Table 5-4 summarizes the Company's existing and recommended accrual rates and the annual depreciation expense incurred when each of these rates is applied to the depreciable plant balances at April 30, 2013.

We show in Table 5-4 that when our recommended average service life related accrual rates in Column J are applied to depreciable plant balances as of April 30, 2013, annual depreciation expense would decrease by approximately $778,000 over levels produced by existing rates (Column R). Our recommended net salvage rate and associated accrual are shown in Table 5-4, Columns M and N respectively. Our annual net salvage recommendation is a decrease of approximately $2.1 million over the existing allowance (Column S). The total change in depreciation expense based on our recommend depreciation rates is a decrease of approximately $2.9 million as shown in Column T of Table 5-4.

We propose the use of whole life depreciation rates that include both the average service life accrual and the net salvage accrual. We show our proposed depreciation accrual rates in Column U of Table 5-4.

Table 5-4 Summary of Recommended Depreciation Accrual Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]	[T]	[U]
			Existing						Recommended						Change In					Proposed
Acct. No.	Account	Depreciable Plant 4/30/2013	Average Service Life	Life Accrual Rate	Life Related Accrual	Net Salvage Rate	Net Salvage Accrual	Total Depreciation Accrual	Average Service Life	Life Accrual Rate	Life Related Accrual	Net Salvage Rate	Net Salvage Accrual	Total Depreciation Accrual	Average Service Life	Life Accrual Rate	Life Related Accrual	Net Salvage Accrual	Total Depreciation Accrual	Whole Life Depreciation Rate
		$	Years		$		$		Years		$		$		Years		$	$		
				1 / [D]	[C] * [E]		[C] * [G]	[F] + [H]		1 / [J]	[C] * [K]	Table 5-2	[C] * [M]	[L] + [N]	[J] - [D]	[K] - [E]	[L] - [F]	[N] - [H]	[O] - [I]	[K] + [M]
	Distribution Plant																			
3742	Land Rights	2,510,537	47.8	2.09%	52,470	0.00%	0	52,470	48	2.08%	52,219	0.00%	0	52,219	0.2	-0.01%	(251)	0	(251)	2.08%
3751	Structures	11,763,359	60.5	1.65%	194,095	-0.16%	(18,821)	175,274	47	2.13%	250,560	0.00%	0	250,560	-13.5	0.48%	56,464	18,821	75,285	2.13%
3760	Mains	444,104,562	44.0	2.27%	10,081,174	-0.11%	(488,515)	9,592,659	50	2.00%	8,882,091	-0.22%	(977,030)	7,905,061	6.0	-0.27%	(1,199,082)	(488,515)	(1,687,597)	1.78%
3780	Meas & Reg Stations	13,259,477	35.0	2.86%	379,221	0.00%	0	379,221	35	2.86%	379,221	0.00%	0	379,221	0.0	0.00%	0	0	0	2.86%
3790	City Gate Stations	5,681,613	47.0	2.13%	121,018	0.00%	0	121,018	38	2.63%	149,426	0.00%	0	149,426	-9.0	0.50%	28,408	0	28,408	2.63%
3800	Services	354,111,925	40.0	2.50%	8,852,798	0.63%	2,230,905	11,083,703	40	2.50%	8,852,798	0.18%	637,401	9,490,200	0.0	0.00%	0	(1,593,504)	(1,593,504)	2.68%
3810	Meters	35,765,451	35.0	2.86%	1,022,892	0.03%	10,730	1,033,622	35	2.86%	1,022,892	0.00%	0	1,022,892	0.0	0.00%	0	(10,730)	(10,730)	2.86%
3820	Meter/Regulator Installations	85,203,042	35.0	2.86%	2,436,807	0.00%	0	2,436,807	35	2.86%	2,436,807	0.00%	0	2,436,807	0.0	0.00%	0	0	0	2.86%
3830	Regulators	14,785,302	41.0	2.44%	360,761	0.00%	0	360,761	41	2.44%	360,761	0.00%	0	360,761	0.0	0.00%	0	0	0	2.44%
3850	EGM-Meas/Reg Equip	463,614	30.0	3.33%	15,438	0.00%	0	15,438	30	3.33%	15,438	0.00%	0	15,438	0.0	0.00%	0	0	0	3.33%
	Total Distribution Plant	967,648,881			23,516,675		1,734,298	25,250,974			22,402,214		(339,629)	22,062,586			(1,114,461)	(2,073,927)	(3,188,388)	2.28%
	General Plant																			
3901	Structures & Improvements	2,891,241	50.0	2.00%	57,825	0.00%	0	57,825	47	2.13%	61,583	0.00%	0	61,583	-3.0	0.13%	3,759	0	3,759	2.13%
3910	Furniture & Equipment	9,716,541	12.4	8.06%	783,153	0.00%	0	783,153	11	9.09%	883,234	0.00%	0	883,234	-1.4	1.03%	100,080	0	100,080	9.09%
3921	Transportation Equipment	5,918,869	6.0	16.67%	986,675	-3.34%	(197,690)	788,985	6	16.67%	986,675	-3.38%	(200,058)	786,618	0.0	0.00%	0	(2,368)	(2,368)	13.29%
3922	Transportation Equipment	7,729,035	11.5	8.70%	672,426	-0.87%	(67,243)	605,183	10	10.00%	772,904	-1.94%	(149,943)	622,960	-1.5	1.30%	100,477	(82,701)	17,777	8.06%
3930	Stores Equipment	664,474	37.0	2.70%	17,941	0.00%	0	17,941	28	3.57%	23,722	0.00%	0	23,722	-9.0	0.87%	5,781	0	5,781	3.57%
3940	Tools	7,145,016	18.9	5.30%	378,686	0.00%	0	378,686	19	5.29%	377,971	0.00%	0	377,971	0.0	-0.01%	(715)	0	(715)	5.29%
3960	Power Operated Equipment	1,734,943	12.0	8.33%	144,521	-2.08%	(36,087)	108,434	10	10.00%	173,494	0.00%	0	173,494	-2.0	1.67%	28,974	36,087	65,060	10.00%
3970	Communication Equipment	4,649,249	16.0	6.25%	290,578	0.00%	0	290,578	16	6.25%	290,578	0.00%	0	290,578	0.0	0.00%	0	0	0	6.25%
3971	Electronic Reading-ERT	36,188,766	20.0	5.00%	1,809,438	0.00%	0	1,809,438	19	5.26%	1,903,529	0.00%	0	1,903,529	-1.0	0.26%	94,091	0	94,091	5.26%
3980	Miscellaneous Equipment	806,362	26.0	3.85%	31,045	0.00%	0	31,045	23	4.35%	35,077	0.00%	0	35,077	-3.0	0.50%	4,032	0	4,032	4.35%
	Total General Plant	77,444,496			5,172,288		(301,020)	4,871,269			5,508,767		(350,001)	5,158,766			336,479	(48,981)	287,498	
	Total Depreciable Plant	1,045,093,377			28,688,963		1,433,279	30,122,242			27,910,981		(689,630)	27,221,352			(777,982)	(2,122,908)	(2,900,891)	2.60%