BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION

In the Matter of the Application of MONTANA-DAKOTA UTILITIES CO., a Division of MDU Resources Group, Inc., for Authority to Establish Increased Rates for Natural Gas Service	)))))	Case No. PU-17-__

DIRECT TESTIMONY AND EXHIBITS

OF

EARL M. ROBINSON

On The Subject of Depreciation

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I. WITNESS INTRODUCTION

Q1. Please state your name, occupation and business address.

A. My name is Earl M. Robinson. I am a Principal of AUS Consultants. AUS Consultants is a consulting firm specializing in preparing various financial studies including depreciation, valuation, revenue requirements, cost of service, and other analysis and studies for the utility industry and numerous other entities. AUS Consultants provides a wide spectrum of consulting services through its various practices. My office is located at 792 Old Highway 66, Suite 200, Tijeras, NM 87059.

Q2. Have you prepared an appendix which contains your qualifications and experience?

A. Yes. Appendix A to my direct testimony contains a summary of my qualifications and experience.

II. PURPOSE OF TESTIMONY

Q3. What is the purpose of your testimony?

A. The purpose of my testimony is to set forth the results of my depreciation review and analysis of the plant in service of Montana-Dakota Utilities Co.-Gas Division and Common Plant ("Company") which was conducted in the process of preparing depreciation studies of the Company's gas and common plant assets as of December 31, 2015 and December 31, 2014, respectively. Reports of my review and analyses are contained in Exhibit No. ___(EMR-1), titled "Montana-Dakota Utilities Co-Gas Division Depreciation Study as of December 31, 2015" and Exhibit No. (EMR-2), the "Montana-Dakota Utilities Co.-Common Plant Depreciation Study as of December 31, 2014". In preparing the report, I investigated and

analyzed the Company's historical plant data and reviewed the Company's past experience and future expectations to determine the remaining lives of the Company's gas and common plant assets. The studies utilized the resulting remaining lives, the results of a salvage analysis, the Company's vintaged plant in service investment and depreciation reserve to develop recommended average remaining life depreciation rates and depreciation expense related to the Company's plant in service.

III. BACKGROUND

Q4. How is depreciation defined?

A. Depreciation is defined in the 1996 NARUC "Public Utility Depreciation Practices" publication as follows: "Depreciation**,** as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the 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."

Q5. Why is depreciation important to the revenue requirements of a utility company?

A. Depreciation is important because, as the above definition describes, depreciation expense enables a company to recover in a timely manner the capital costs related to its plant in service benefiting the company's customers. Appropriate

depreciation rates will allow recovery of a company's investments in depreciable assets over a life that provides for full recovery of the investments, less net salvage. Without the appropriate recovery of depreciation costs, the Company ultimately will not be able to meet its financial obligations related to the continued provision of service to customers. Furthermore, the inclusion of the appropriate level of depreciation recovery in revenue requirements serves to reduce overall costs (total of depreciation and return) to customers as opposed to a situation where an inadequate level of annual depreciation expense is currently being provided in rates.

IV. DEPRECIATION STUDY OVERVIEW

Q6. What is your professional opinion with regard to the results of the depreciation study that you performed?

A. In my opinion, the proposed depreciation rates resulting from the completed comprehensive depreciation study are reasonable and appropriate given that they incorporate the service life and net salvage parameters currently anticipated for each of the Company's property group investments over their average remaining lives.

Q7. What steps were involved in preparing the service life and salvage database that you utilized?

A. My comprehensive depreciation analyses included a detailed analysis of the Company's fixed capital books and records through December 31, 2015 and December 31, 2014 for the gas and common plant in service. The Company's historical investment cost records for each account have been assembled into a

depreciation database upon which detailed service life and salvage analysis were performed using standard depreciation procedures.

Q8. What is the purpose of the historical database?

A. The historical service life and net salvage data is a basic depreciation study tool that is assembled to prepare a depreciation study. The historical database is used to make assessments and judgments concerning the service life and salvage factors that have actually been achieved, and (along with information relative to current and prospective factors) to determine the appropriate future lives over which to recover the Company's depreciable fixed capital investments. In accordance with this standard depreciation analysis, the Company's depreciation database compiled through December 31, 2015 (gas) and December 31, 2014 (common), which contains detailed vintage level information, was used to develop observed life tables. The development of the observed life tables from the historical information was completed by grouping like aged investments within each property category and identifying the level of retirements that occur through each successive age to develop the applicable observed life tables. The resulting observed lives were then fitted to standard Iowa Curves to estimate each property group's historically achieved average service life.

Likewise, the net salvage database was used as a basis to identify historical experience and trends and to determine each property group's recommended net salvage factors. This was accomplished by preparing various three year rolling band analyses of salvage components as well as a forecast based on the Company's historical salvage experience.

Q9. In the preparation of the depreciation study, have you utilized information from additional sources when estimating service life and salvage parameters?

A. Yes. In addition to the historical data obtained from the Company's books and records, information was obtained from Company personnel relative to current operations and future expectations with respect to depreciation. Discussions were held with Company planning and operations management. In addition, physical inspections were also conducted of various representative sites of the Company's operating property.

Q10. Please briefly describe the information included in the depreciation study reports.

Each of the depreciation reports are divided into seven (7) sections. Section 1 of the report contains a brief narrative summary of the respective report. Two key portions of each of the reports are Sections 2 and 4. Section 2 includes the summary schedules listing the present and proposed depreciation rates for each depreciable property group and other depreciation rate development schedules. Section 4 contains a narrative description of the factors considered in selecting service life parameters for the Company's property. The various other sections of the report contain detailed information and/or documentation supporting the schedules contained in Sections 2 and 4. In addition, Section 5 is the graphical presentation of the average service life analysis, Section 6 is the detailed Average Remaining Life calculations, and Section 7 is detailed Net Salvage analysis schedules.

Q11. What was the source of the data utilized as a basis for determining the depreciation rates?

A. As previously discussed, all of the historical data utilized in the course of performing the detailed service life and salvage study was obtained from the Company's books and records. Historical vintaged data (additions, retirements, adjustments, and balances) were obtained for each depreciable property group.

Q12. Are there standard methods utilized to complete a service life analysis of a company's historical property investments?

A. Yes. As discussed in Section 3 of the depreciation study report as well as later in this testimony, the two most common methods are the Retirement Rate Method and the Simulated Plant Record Method. The method chosen to study a company's historical data is dependent upon whether aged or un-aged data is available. If specific aged data is available, the Retirement Rate Method is used. If only un-aged data is available, the Simulated Plant Record Method is used.

Q13. Were your studies prepared utilizing one of these accepted standard methods?

A. Yes.

V. METHODS, PROCEDURES & TECHNIQUES

Q14. Please describe the depreciation methods, procedures, and techniques commonly utilized to develop depreciation rates for utility property.

A. Inherent in all depreciation calculations is an overall method, such as the Straight Line Method (which is the most widely used approach within the utility industry) to depreciate property. Other methods available to develop average service lives and

depreciation rates are accelerated and/or deferral approaches such as the Sum of the Years Digits Method or Sinking Fund Method.

In addition, there are several procedures that can be used to arrange or group property by sub-groups of vintages to develop applicable service lives. These procedures include the Broad Group, the Equal Life Group and other procedures. Due to the existence of very large quantities of property units within utility operating property, utility property is typically grouped into homogeneous categories as opposed to being depreciated on an individual unit basis. While the Equal Life Group procedure is viewed as being the more definitive procedure for identifying the life characteristics of utility property and as a basis for developing service lives and depreciation rates, the Broad Group Procedure is more widely utilized throughout the utility industry by regulatory commissions as a basis for depreciation rates. My comments on the Equal Life Group procedure are discussed later in my testimony.

The distinction between the two procedures is in the manner in which recovery of the cost is achieved. Under the Broad Group Procedure, the useful life and resulting depreciation rate is based upon the overall average life of all of the property within the group, while under the Equal Life Group Procedure, the useful life and resulting depreciation rate is based upon separately recovering the investment in each equal life group within the property category over the actual life of the property in that group.

A brief example (with a property group that has three units/three equal life groups of like property) will demonstrate the difference between the two

procedures. The example incorporates the assumption that unit No. 1 (or equal life group of property) will retire after one year, unit No. 2 (or equal life group) will retire after two years, and Unit No. 3 (or equal life group) will retire after three years. Accordingly, the average life of all three (groups) is two (2) years (1+2+3)÷3. Under the Broad Group Procedure, the average useful life and resulting depreciation rate is calculated based upon the two (2) year average life. The resulting annual depreciation rates would be fifty (50) percent in every year. Conversely, under the Equal Life Group Procedure, each year's average life and resulting depreciation rate is calculated by using the period of time during which the portion of the property group remains in service. Since unit No. 1 (or that portion of the account) was retired from service after one year, the entire investment for that property is recovered over one (1) year. Likewise, since unit No. 2 (or that portion of the account) will have a service life of two years, the recovery of that portion of the account will occur over two years. Lastly, unit No. 3 (or that portion of the account) is recovered over three years. Hence, the useful average life for the property group in the first year is 1.64 years and the first year's annual depreciation rate is 61.11 percent. In the second year, the useful average life of the surviving group is 2.4 years and the second year's depreciation rate drops to 41.67 percent. This occurs because during the first year, unit No. 1 (or that portion of the account) was fully recovered. Likewise, in year three the useful life of the surviving group is 3 years and the depreciation rate further drops to 33.33 percent. See the following Table EMR-1 (BG and ELG).

BG Average Life Calculation

Year		Investment	Recovery Period (Yrs)	ASL (Years)	Weight
1	Group # 1	300	2		150
	Group # 2	300	2		150
	Group # 3	300	2		150
	Total	900		2.00	450
2	Group # 1	0	0		0
	Group # 2	300	2		150
	Group # 3	300	2		150
	Total	600		2.00	300
3	Group # 1	0	0		0
	Group # 2	0	0		0
	Group # 3	300	2		150
	Total	300		2.00	150
Grand Total		1,800		2.00	900

BG Depreciation Rate Calculation

Investment	Recovery Period (Yrs)	Annual Rate-%	Recovery Amount
300	2		150
300	2		150
300	2		150
900		50.00%	450
0	0		0
300	2		150
300	2		150
600		50.00%	300
0	0		0
0	0		0
300	2		150
300		50.00%	150
1,800		50.00%	900

ELG Average Life Calculation

Year		Investment	Recovery Period (Yrs)	ASL (Years)	Weight
1	Group # 1	300	1		300
	Group # 2	300	2		150
	Group # 3	300	3		100
	Total	900		1.64	550
2	Group # 1	0	0		0
	Group # 2	300	2		150
	Group # 3	300	3		100
	Total	600		2.40	250
3	Group # 1	0	0		0
	Group # 2	0	0		0
	Group # 3	300	3		100
	Total	300		3.00	100
Grand Total		1,800		2.00	900

ELG Depreciation Rate Calculation

Investment	Recovery Period (Yrs)	Annual Rate-%	Recovery Amount
300	1		300
300	2		150
300	3		100
900		61.11%	550
0	0		0
300	2		150
300	3		100
600		41.67%	250
0	0		0
0	0		0
300	3		100
300		33.33%	100
1,800		50.00%	900

Finally, the depreciable investment needs to be recovered over a defined period of time (through use of a technique), such as the Whole Life or Average Remaining Life of the property group. The distinction between the Whole Life and Average Remaining Life Techniques is that under the Whole Life Technique, the depreciation rate is based on a snapshot and determines the recovery of the investment and average net salvage over the average service life of the property group for that moment in time. The Whole Life technique requires either frequent updates to keep the "snapshot" current or the use of an artificial deferred account that holds "excess" or "deficient" depreciation reserves. In comparison, under the Average Remaining Life Technique, the resulting annual depreciation rate incorporates the recovery of the investment (and future net salvage) less any recovery experienced to date over the average remaining life of the property group. The Average Remaining Life Technique is clearly superior in that it incorporates all of the current and future cost components in setting the proposed annual depreciation rate as opposed to only some of the current and future cost components as is the case with the Whole Life Technique. This means that any changes that occur in between depreciation studies are automatically trued-up in the subsequent study. No artificial deferral account needs to be established to accomplish such a true-up.

The depreciation methods, procedures, and techniques can be used interchangeably. For example, one could use the Straight Line Method with the Broad Group Procedure and the Average Remaining Life Technique, or the

Straight Line Method with the Equal Life Group Procedure and Average Remaining Life Technique, or combinations thereof.

Q15. Which of these methods, procedures and techniques did you use in your depreciation studies?

A. The depreciation rates set forth in my depreciation study reports were developed utilizing the Straight Line Method, the Broad Group Procedure, and the Average Remaining Life Technique.

Q16. Why did you utilize this method, procedure and technique?

A. The Straight Line Method is widely understood, recognized, and utilized almost exclusively for depreciating utility property.

The Broad Group Procedure recovers the Company's investments over the average period of time in which the property is providing service to the Company's customers. While I have used the Equal Life Group procedure in other studies, I used the Broad Group Procedure in this study because it is consistent with depreciation methods and procedures generally accepted by regulatory Commissions and is the approach underlying the Company's current depreciation rates.

Finally, the amount of annual depreciation must be based upon the productive life over which the un-depreciated capital investment is recovered (the Average Remaining Life Technique). The utilization of the Average Remaining Life Technique to develop the applicable annual depreciation expense (over the average remaining life) assures that the Company's property investment is fully recovered over the useful life of the property, and that inter-generational inequities

are avoided as current and future customers will pay their fair share of depreciation expense. The determination of the productive remaining life for each property group relies on a study of both past experience and future expectations and develops the appropriate total life and applicable depreciation rates for each of the Company's property groups. The Average Remaining Life Technique incorporates all of the Company's fixed capital cost components, thereby better assuring full recovery of the Company's embedded net plant investment and related costs. The Average Remaining Life Technique gives consideration not only to the average service life and survival characteristics plus the net salvage component, but also recognizes the level of depreciation which has been accrued to date in developing the proposed depreciation rate. The Average Remaining Life Technique is used by regulated companies and regulatory agencies because it allows full recovery by the end of the property's useful life -- no more and no less.

VI. GROUP DEPRECIATION

Q17. Please explain the utilization of group depreciation.

A. Group depreciation is utilized to depreciate property when more than one item of property is being depreciated. Such an approach is appropriate because all of the items within a specific group typically do not have identical service lives, but have lives which are dispersed over a range of time. Utilizing group depreciation allows for a uniform application of depreciation rates to groups of similar property in lieu of performing extensive depreciation calculations on an item-by-item basis. The Broad Group approach is a recognized common group depreciation procedure.

The Broad Group Procedure recovers the investment within the asset group over the average service life of the property group. Given that there is dispersion within each property group, there are variations of retirement ages for the many investments within each property group. That is, some properties retire early (before average service life) while others retire at older ages (after average service life). This dispersion of retirement ages defines the survival pattern experienced by the applicable property group.

Q18. What factors influence the determination of the recommended annual depreciation rates included in your depreciation reports?

A. The depreciation rates reflect four principal factors: (1) the plant in service by vintage, (2) the book depreciation reserve, (3) the future net salvage, and (4) the composite remaining life for the property group. Factors considered in arriving at the service life are the average age, realized life and the survival characteristics of the property. The net salvage estimate is influenced by both past experience and future estimates of the cost of removal and gross salvage amounts.

Q19. Please explain further the assumptions considered when utilizing your depreciation approach.

A. According to my approach, the Company will recover its un-depreciated fixed capital investment through annual depreciation expense in each year throughout the useful life of the property. The Average Remaining Life Technique incorporates the future life expectancy of the property, the vintaged surviving plant in service, the survival characteristics, together with the book depreciation reserve balance and future net salvage in developing the amounts for each property

account. Accordingly, Average Remaining Life depreciation meets the objective of providing a Straight Line recovery of the Company's fixed capital property investments.

Q20. Please explain further the group you have used.

A. My depreciation calculations, as applied in this study, follow a group depreciation approach. The group approach refers to the method of calculating annual depreciation based on the summation of the investment in any one plant group rather than calculation of depreciation for each individual unit of plant. In theory, each unit achieves average service life by the time of retirement. Accordingly, the full cost of the investment will be credited to plant in service when the retirement occurs, and likewise the depreciation reserve will be debited with an equal retirement cost. No gain or loss is recognized at the time of property retirement because of the assumption that the property was retired at average service life.

VII. NET SALVAGE

Q21. What are the net salvage factors included in the determination of depreciation rates?

A. Net salvage is the difference between gross salvage, or the proceeds received when an asset is disposed of, and the cost of removing the asset from service. Net salvage is said to be positive if gross salvage exceeds the cost of removal. If the cost of removal exceeds gross salvage, the result is negative salvage. Many retired assets generate little, if any, positive salvage. Instead, numerous Company asset groups generate negative net salvage at the end of their lives due to the cost of removal.

The cost of removal includes costs such as demolishing, dismantling, tearing down, disconnecting or otherwise retiring/removing plant, as well as any environmental clean-up costs associated with the property. Net salvage includes any proceeds received from any sale of plant.

Net salvage experience is studied for a period of years to determine the trends which have occurred in the past. These trends are considered, together with any changes that are anticipated in the future, to determine the future net salvage factor for remaining life depreciation purposes. The net salvage percentage is determined by comparing the total net positive or negative salvage to the book cost of the property investment retired.

The method used to estimate the retirement cost is a standard analysis approach which is used to identify a company's historical experience with regard to what the end of life cost will be relative to the cost of the plant when first placed into service. This information, along with knowledge about the average age of the historical retirements that have occurred to date, allows an estimation of the level of retirement cost that will be experienced by the Company at the end of each property group's useful life. The study methodology utilized has been extensively set forth in depreciation textbooks and has been the accepted practice by depreciation professionals for many decades. Furthermore, the cost of removal analysis is the current standard practice used for mass assets by essentially all depreciation professionals in estimating future net salvage for the purpose of identifying the applicable depreciation rate for a property group. There is a direct relationship between the installation of specific plant and its corresponding removal.

The installation is its beginning of life cost while the removal is its end of life cost. Also, it is important to note that Average Remaining Life depreciation rates incorporate future net salvage which is typically more representative of recent versus long-term historical average net salvage.

The Company's historical net salvage experience was analyzed to identify the historical net salvage factor for each applicable property group and is included in Section 7 of the study. This analysis routinely finds that historical retirements have occurred at average ages significantly shorter than the property group's average service life. The occurrence of historical retirements at an age which is significantly younger than the average service life of the property category demonstrates that the historical data does not appropriately recognize the true level of retirement cost at the end of the property group's useful life. An additional level of cost to retire will occur due to the passage of time until all the current plant is retired at end of its life. That is, the level of retirement costs will increase over time until the average service life is attained. The additional inflation in the estimate of retirement cost is related to those additional years' cost increases (primarily the result of higher labor costs over time) that will occur prior to the end of the property group's average life.

To provide further explanation of the issue, several general principles surrounding property retirements and related net salvage should be highlighted. As property continues to age, assets that typically generate positive salvage when retired will generate a lower percentage of positive salvage as compared to the original cost of the property. By comparison, if the class of assets is one that

typically generates negative net salvage (cost of removal) with increasing age at retirement, the negative net salvage percentage as compared to original cost will typically be greater. This situation is routinely driven by the higher labor costs that occur with the passage of time.

A simple example will aid in understanding the above net salvage analysis and the required adjustment to the historical results. Assume the following scenario: A company has two cars, Car #1 and Car #2, each purchased for $20,000. Car #1 is retired after 2 years and Car #2, is retired after 10 years. Accordingly, the average life of the two cars is six (6) years. Car #1 generates 75% salvage or $15,000 when retired and Car #2 generates 5% salvage or $1,000 when retired.

	Unit Cost	Ret. Age (Yrs.)	% Salv.	Salvage Amount
Car #1	$20,000	2	75%	$15,000
Car #2	$20,000	10	5%	$ 1,000
Total	$40,000	6	40%	$16,000

Assume an analysis of the experienced net salvage at year three (3). Based upon the Car #1 retirement, which was retired at a young age (2 yrs.) as compared to the average six (6) year life of the property group, the analysis indicates that the property group would generate 75% salvage. This indication is incorrect, however, because it is the result of basing the estimate on incomplete data. That is, the estimate is based upon the salvage generated from a retirement that occurred at an age which is far less than the average service life of the property group. The

actual total net salvage that occurred over the average life of the assets (which experienced a six (6) year average life for the property group) is 40%, as opposed to the initial incorrect estimate of 75%.

This is exactly the situation that occurs with the majority of the Company's historical net salvage data, except that most of the Company's property groups routinely experience negative net salvage (cost of removal) as opposed to positive salvage.

VIII. DEPRECIATION STUDY ANALYSIS

Q22. Please explain what factors affect the length of the average service life that the Company's property may achieve.

A. Several factors contribute to the length of the average service life which the property achieves. The three major factors are: (1) physical; (2) functional; and (3) contingent casualties.

The physical factor includes such things as deterioration, wear and tear and the action of the natural elements. The functional factor includes inadequacy, obsolescence and requirements of governmental authorities. Obsolescence occurs when it is no longer economically feasible to use the property to provide service to customers or when technological advances have provided a substitute with superior performance. The remaining factor, contingent casualties, includes retirements caused by accidental damage or construction activity of one type or another.

In performing the life analysis for any property being studied, both past experience and future expectations must be considered in order to fully evaluate the circumstances that may have a bearing on the remaining life of the property.

This ensures the selection of an average service life which best represents the expected life of each property investment.

Q23. What study procedures were utilized to determine service lives for the Company's property?

A. Several study procedures were used to determine the prospective service lives recommended for the Company's plant in service. These include the review and analysis of historical, as well as anticipated, retirements, current and future construction technology, historical experience and future expectations of salvage and the cost of removal.

Service lives are affected by many different factors, some of which can be determined from studying past experience, others of which must rely heavily on future expectations. When physical characteristics are the controlling factor in determining the service life of property, historical experience is a useful tool in selecting service lives. In cases where there are changes in technology, regulatory requirements, Company policy or the development of a less costly alternative, historical experience is of lesser or little value. However, even when considering physical factors, the future lives of various properties may vary from those experienced in the recent past.

While a number of methods are available to study historical data, as I mentioned previously, the two methods most commonly utilized to determine average service lives for a company's property are the Retirement Rate Method and the Simulated Plant Record Method. I used the retirement rate method of analysis to study the company’s operating property investments.

Q24. Please explain further the use of the retirement rate method.

A. With this method of analysis, the Company's actuarial service life data, which is sorted by age, is used to develop a survivor curve (observed life table). This survivor curve is the basis upon which smooth curves (standard Iowa Curves) are matched or fitted to then determine the average service life being experienced by the property account under study. Computer processing provides the capability to review various experience bands throughout the life of the account to observe trends and changes. For each experience band analysis, an "observed life table" is constructed using the exposure and retirement experience within the selected band of years. In some cases, the total life cycle of the property has not been achieved and the experienced life table, when plotted, results in a "stub curve." It is the "stub curve," or the total life curve, if the total life curve is achieved, which is matched or fitted to the standard Iowa Curves. The matching process is performed both by computer analysis, using a least squares technique, and by overlaying the observed life tables on the selected smooth curves for visual reference. The fitted smooth curve is a benchmark which provides a basis to determine the estimated average service life for the property group under study.

Q25. Do the depreciation study reports contain charts which compare the analysis of the Company's actual historical data to the service life parameters you are proposing as a basis for your recommended annual depreciation rates?

A. Yes. Graphical representations of the Company's plant balances versus simulated plant balances based upon the estimated lives and Iowa Curves are contained in Section 5 of the report.

Q26. You have referred to the Iowa or smoothed survivor curves. Can you generally describe these curves and their purpose?

A. The preparation of a depreciation study typically incorporates smoothed curves to represent the experienced or estimated survival characteristics of the property. The "smoothed" or standard survivor curves are the "Iowa" family of curves developed at Iowa State University and which are widely used and accepted throughout the utility industry. The shape of the curves within the Iowa family is dependent upon whether the maximum rate of retirement occurs before, during or after the average service life. If the maximum retirement rate occurs earlier in life, it is a left (L) mode curve; if it occurs at average life, it is a symmetrical (S) mode curve; if it occurs after average life, it is a right (R) mode curve. In addition, there is the origin (O) mode curve for plant which has heavy retirements at the beginning of life.

At any particular point in time, actual Company plant may not have completed its life cycle. Therefore, the survivor table generated from the Company data is not complete. This situation requires that an estimate be made with regard to the incomplete segment of the property group's life experience. Further, actual company experience often varies from age interval to age interval, making its utilization for average service estimation difficult. Accordingly, the Iowa Curves are used to both extend Company experience to zero percent surviving as well as to smooth actual Company data.

Q27. What is the principal reason for completing the detailed historical life and salvage analysis?

A. The detailed historical analysis is prepared as a tool from which to make informed assessments as to the appropriate service life and salvage parameters over which to recover the Company's plant investment. However, in addition to the available historic data, consideration must be given to current events, the Company's ongoing operations, Company management's future plans, and general industry events which are anticipated to impact the lives that will be achieved by plant in service.

IX. COMPREHENSIVE DEPRECIATION STUDY RESULTS AS OF December 31, 2015 and December 31, 2014

Q28. What is the basis for the Company's currently approved gas depreciation rates?

A. As shown in Exhibit No. ___(EMR-1), Table 1, pages 2-1 to 2-2, the prior depreciation rates for the plant were based upon depreciation parameters set forth in a study completed using the Company's plant investment data through December 31, 2008. The current account level depreciation rates composite to an annual depreciation rate of 3.27 percent when applied to each of the December 31, 2015 plant in service account balances.

Q29. What are the most notable changes in annual depreciation rates and expense between the present and proposed depreciation rates as set forth in Section 2 of the Montana-Dakota gas depreciation report?

A. With regard to gas plant in service, several of the proposed rates reflect changes (as outlined in Section 4 of the study) from the current depreciation rates.

The most notable depreciation changes occurred relative to Account 376.20 – Plastic Mains, Account 380.20 - Plastic Services, Account 381.00 - Meters,

Account 392.2 - Transportation Equipment - Cars & Trucks, and Account 396.20 – Power Operated Equipment.

The proposed depreciation rate for Account 376.20 – Plastic Mains, increased from 2.15 percent to 3.41 percent. The proposed depreciation rate increased notwithstanding the fact that the underlying depreciation parameters remained the same. Based upon the Company's actual historical plant in service and net salvage data service life and net salvage parameters were estimated to develop the proposed depreciation rate. The proposed average service life remained the same as the current average service life of forty-seven (47) years. Likewise, the future negative net salvage remained the same at negative -50 percent. Accordingly, the ARL depreciation rate increase is being driven by the fact that the current book depreciation reserve is at a lower level than required relative to the estimated depreciation parameters and currently average age of the property group. Furthermore, as noted in Section 4 of the depreciation study, the Company is in the process of developing a plan and process to replace certain identified vintage plastic pipes as a part of its Distribution Integrity Management Program. These vintage pipes are currently in service across the Company's service territory.

The proposed depreciation rate for Account 380.20 – Plastic Services, increased from 6.46 percent to 7.06 percent. Based upon the Company's actual historical plant in service and net salvage data service life and net salvage parameters were estimated for the property group as outlined in section 4 of this depreciation study report. The proposed average service life is a thirty-eight (38)

years, as compared to a forty (40) year average service life underlying the present depreciation rate. The future net salvage underlying the proposed depreciation rates is the same negative two hundred (200) percent as underlying the current depreciation rate. The proposed depreciation rate is the result of a minor change to the average service life and more significantly to the fact that the current book depreciation reserve is at a lower level than required relative to the estimated depreciation parameters and currently average age of the property group. Furthermore, as noted in Section 4 of the depreciation study, the Company is in the process of developing a plan and process to replace to replace certain identified vintage plastic pipes as a part of its Distribution Integrity Management Program. These vintage pipes are currently in service across the Company's service territory.

The depreciation rate relative to Account 381.00 - Meters increased from 3.01 percent to 4.13 percent. The current estimated average service life is thirty-five (35) years and the net salvage factor is estimated at negative -15 percent. The average service life underlying the proposed depreciation rate is thirty-one (31) years and the future net salvage is estimated at negative -20 percent. In prior years, the Company implemented an AMR system through the installation of ERTs on its gas meters with the result that a large portion of Meter reads are now automated. It has been approximately 8 years since the initial implementation, thus Meters are beginning to age notwithstanding the fact that Meters are cycled and tested on a routine basis, with new Meters purchased and installed as required.

Presently, management estimates that approximately 10 percent of the Company's Meters need to be replaced.

The depreciation rate relative to Account 392.2 - Transportation Equipment - Cars & Trucks increased from 0.26 percent to 7.25 percent. The current estimated average service life is 7 years and the underlying net salvage factor is 20 percent. The average service life underlying the proposed depreciation rate is nine (9) years and the estimated future net salvage is 20 percent. Notwithstanding that the average service life for the proposed depreciation rate was lengthened, the depreciation rate increase is the product of the fact that the property group life is short and the current depreciation rate is very low (the plant investment was nearly fully depreciated at the time of the development of the current depreciation rate) plus, during the time between depreciation studies, even a moderate variation in plant activity can cause the resulting depreciation to vary materially.

The depreciation rate relative to Account 396.20 – Power Operated Equipment Account increased from 0.23 percent to 5.30 percent. The current estimated average service life is 4 years and the net salvage factor is estimated at 80 percent. The average service life underlying the proposed depreciation rate is three (3) years and the estimated future net salvage is 85 percent. The depreciation rate increase is the product of the fact that the property group life is very short and the current depreciation rate is very low (the plant investment was nearly fully depreciated at the time of the development of the current depreciation rate) plus, during the time between depreciation studies, even a moderate variation in plant activity can cause the resulting depreciation to vary materially.

Q29. What is the net change to the composite depreciation rate under the proposed gas depreciation rates in comparison to December 31, 2015 present depreciation rates?

A. Application of the proposed account level depreciation rates to the Company's plant in service as of December 31, 2015 produces a composite depreciation rate of 4.23 percent. By comparison the application of the December 31, 2015 the currently utilized account level depreciation rates to the Company's plant in service as of December 31, 2015 produces a composite depreciation rate of 3.27 percent.

Q30. What is the net change in annual depreciation expense under the proposed depreciation rates in comparison to present December 31, 2015 depreciation rates?

A. Exhibit No.___(EMR-1), Section 2, Table 1, pages 2-1 to 2-2 indicates a net increase in annualized depreciation expense of $4,104,693 in comparison to the depreciation expense produced by the current depreciation rates, when applied to the Company's plant in service investment as of December 31, 2015.

Q33. Have you prepared an exhibit which compares the composite depreciation rates versus the account level deprecation rates from the December 31, 2008 depreciation study when applied to the Company's December 31, 2014 Common plant in service balances?

A. Yes, that information is contained on Exhibit No.___(EMR-2).

Q34. What is the net change to the Company's Common Plant composite depreciation rate under the proposed December 31, 2014 depreciation study

rates in comparison to present book depreciation rates when applied to the Common plant in service as of December 31, 2014?

A. Exhibit No. ___(EMR-2) shows the application of the proposed December 31, 2008 depreciation study account level depreciation rates to the Company's Common plant in service as of December 31, 2014, which, as shown on page 1 of Section 2, produces a composite depreciation rate of 3.89 percent. By comparison, the application of the proposed common depreciation rates (Column j) to the Company's plant in service as of December 31, 2014 produces a composite depreciation rate of 4.30 percent, or an increase in the composite rate for Montana-Dakota Common Plant of 0.41 based on 2014 plant in service levels.

Q35. What are the most notable changes in annual depreciation rates and expense between the present and proposed depreciation rates as set forth in Section 2 of the Montana-Dakota Common Plant depreciation report?

A. With regard to Common plant in service, one property account reflects a notable change (as outlined in Section 4 of the study) from the current depreciation rates.

The account with the most notable depreciation/amortization change occurred relative to Account 392.20 - Transportation Equipment - Cars & Trucks. The depreciation rate relative to Account 392.20 - Transportation Equipment - Cars & Trucks increased from 4.11 percent to 6.65 percent. Contributing to the depreciation expense increase is the change in the estimated average service life from seven to nine years while the future net salvage estimate remained at 20%. However, the more significant driver of the depreciation rate increase is the fact that the current book depreciation reserve is currently lower than required in

comparison to the current age of the property group's investment.

X. RECOMMENDATION

Q36. What is your recommendation in this proceeding?

A. I recommend that the proposed depreciation rates set forth in the comprehensive depreciation study reports be uniformly and prospectively adopted by the Commission for regulatory purposes as well as by the Company for accounting purposes.

Q37. Does this conclude your direct testimony?

A. Yes, it does.

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

Experience includes approximately 40 years of service in the public utility field. Mr. Robinson has performed services in the areas of depreciation, original cost, valuation, cost of service, and bill analysis within numerous regulatory jurisdictions and property tax agencies throughout the Eastern, Midwestern, Southwestern, and Pacific regions of the United States, Canada plus various areas of the Caribbean.

EXPERIENCE

1977 to Date

AUS Consultants. Various positions - currently Principal. Mr. Robinson has prepared studies and coordinated analysis related to valuation, depreciation, original cost, trended original cost, cost of service, bill analysis, as well as analysis of expenses, revenues and income for various municipal and an extensive number of investor-owned electric, gas, water, wastewater, and telecommunications utilities.

Studies prepared have required the review of company records, inspection of property, the preparation of property inventories and original costs, preparation and review of mortality studies, selection of proper service lives, life characteristics and analysis of salvage, and analysis of capital recovery impact of changing depreciation methods.

During his many years of experience, Mr. Robinson has been involved in and/or responsible for an extensive quantity of comprehensive depreciation studies. Numerous early year's depreciation studies were prepared manually without the convenience of computer software systems. Subsequent, during the mid/late 1970's, Mr. Robinson became responsible for the completion of the many depreciation studies performed for the firm's clients. As part of that responsibility, Mr. Robinson was involved in not only performing the studies, but also in assisting AUS Consultants' MIS department in developing and testing various computer depreciation models. The studies performed by Mr. Robinson or under his direction have included all types of utilities, including electric, gas, water, wastewater, and telecommunications. During Mr. Robinson's career he has been involved in the preparation of more than a hundred depreciation related projects.

A Certified Depreciation Professional (CDP), Mr. Robinson, as a Principal of AUS Consultants provides services to the firm's clients with regard to depreciation and cost based valuation issues. With more than forty (40) years' experience, he began his career as a staff member of the Plant Accounting Department of United Telephone (now Sprint) Eastern Group Headquarters subsequent to which he has spent the past thirty-five (35) plus years, as a consultant, preparing depreciation and valuation studies for gas, pipeline, electric, telecommunications, water, and wastewater utilities. In conjunction with the provision of these services, Mr. Robinson has testified on many occasions before numerous regulatory agencies (including state, federal, and property tax agencies throughout the U.S., Canada, and the Caribbean in support of the many studies completed for his diverse list of clients. In addition he has negotiated depreciation rates with various state regulatory agencies, the FCC Staff, and the FERC Staff. Mr. Robinson has also participated in several FCC, State, Company three-way depreciation re-prescription meetings.

With regard to valuation matters Mr. Robinson has been involved with the development of cost indexes from the earliest part of his career through the present. During his earlier years, he assisted and/or developed and utilized cost indexes to prepare reproduction cost and related fair value determinations for various of the firm's regulated utility clients. Subsequently, he attained extensive experience in preparing custom indexes, replacement cost, and depreciated replacement cost studies, having been responsible for preparing many such cost studies relative to various clients within the telecommunications industry during

PROFESSIONAL QUALIFICATIONS
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EARL M. ROBINSON, CDP
AUS CONSULTANTS

the past twenty (20) plus year period.

He is also responsible for developing and publishing the firm's AUS Telephone Plant Index (successor to the Handy Whitman and C A Turner Telephone Construction Cost Index), a reproduction cost index subscribed to by various operating companies, regulatory agencies, and consultants.

Mr. Robinson is a founding member and past President of the Society of Depreciation Professionals, a professional organization that provides depreciation training, as well as provides a forum for discussion of depreciation issues. He is also a member of the American Gas Association (AGA) Accounting Services Committee and past chairman of the Statistics, Bibliography, Court Regulatory Sub-Committee of the AGA Depreciation Committee. As a member of that organization, he co-authored a publication entitled "An Introduction to Net Salvage of Public Utility Plant". Mr. Robinson has completed various previous presentations on the subject of depreciation studies as well as depreciated replacement cost to industry organizations and to property tax appraiser staffs.

1975 to 1977

Gannett, Fleming, Corddry & Carpenter, Inc. Valuation Analyst in the Valuation Division where his duties and responsibilities included the classifications, analysis and coordination of data in the development of depreciation rates for various companies including telephone, gas, water and electric utilities.

1971 to 1975

Weber, Fick & Wilson (Acquired by AUS Consultants), Public Utility Analyst engaged in the unitization and subsequent application of costs in the pricing of inventories for original cost determination, depreciation and salvage studies to determine proper annual depreciation rates and trended original cost studies used in the determination of utility rate base.

1966 to 1971

United Telephone Company of Pennsylvania (now Sprint/United Telephone Company of Pa.). As a staff member of the Plant Accounting Department, his duties and responsibilities included various plant accounting ledgers, unitization of location and mass property accounts, as well as special studies related to insurance and tax valuations of utility plant in service.

TESTIMONY

Jurisdictions testified in include Alberta, Arizona, California, Connecticut, Delaware, District of Columbia, FERC, Florida, Indiana, Illinois, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Montana, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, South Dakota, Oklahoma, Nevada, Pennsylvania, Rhode Island, South Carolina, Tennessee, Utah, and Virgin Islands. Extensive expert testimony has been presented on the subjects including Depreciation, Capital Recovery, Plant in Service Measures of Value, Depreciated Reproduction Cost, and Depreciated Replacement Cost. Numerous additional depreciation studies have been completed and filed in various different jurisdictions for which testimony appearances were not required.

PERSONAL

Education:

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

Graduate of Harrisburg Area Community College with an Associate of Arts Degree in Accounting, and has undertaken further studies at University Center of Harrisburg. Successfully completed numerous programs related to service life and salvage estimation, forecasting, and evaluation sponsored by Depreciation Programs, Inc. at Calvin College Campus, Grand Rapids, Michigan. In addition, Mr. Robinson successfully completed cost of service seminars sponsored by the American Water Works Association. He received his CDP (Certified Depreciation Professional) designation by Exam during 1996.

List of Clients Served

CATV

Storer Broadcasting Company
(DE, MD, MN)

Cable Television Consortium

ELECTRIC

Atlantic City Electric d/b/a Conectiv Power Delivery
Borough of Butler - Electric Dept.
Conectiv Power Delivery
Consolidated Edison Co of NY
Consolidated Hydro, Inc.
Delmarva Power and Light Company
Delaware
Maryland
Duquesne Light Company
Hershey Electric Company
Kentucky Utilities
Lockhart Power Company
Louisville Gas & Electric Co. - Elec. Div.
Montana – Dakota Utilities Co – Elec. Div
Nantahala Power and Light Company
New York State Electric and Gas Corp
Northern Indiana Public Service Co
Pennsylvania Power Company
Philadelphia Electric Company
Potomac Electric Power Company
Maryland
Washington DC
Progress Energy - Carolinas
Progress Energy - Florida, Inc.
Public Service Company of New Mexico
Public Service Electric & Gas Company
Rochester Gas and Electric Corporation
The United Illuminating Company
Wellsboro Electric Company
Vermont Electric Power, Inc.

GAS

ATCO Gas
ATCO Pipelines
Atlanta Gas Light Company
Bay State Gas Company
C & T Enterprises, Inc.
Valley Cities Waverly Gas Company
Canadian Western Natural
Gas Company Limited
Cascade Natural Gas Corporation
Citizens Gas & Coke Utility
Columbia Gas of Pennsylvania, Inc.
Connecticut Natural Gas Corporation
Consolidated Edison Co of New York
East Ohio Gas
North Carolina Gas Service
North Penn Gas
Northern Indiana Public Service Co.
Northern Utilities, Inc.-Maine
Northern Utilities, Inc.-New Hampshire
Oklahoma Natural Gas Company
Pacific Gas & Electric Company
Paiute Pipeline
Pennsylvania Gas & Water Company
PG Energy Inc.
Pennsylvania and Southern Gas Company
Valley Cities Division
Waverly Division
Pipeline Industry Group

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

Elkton Gas Service
Granite State Gas Transmission, Inc.
Great Plains Natural Gas Co.
Kansas Gas Service
Louisville Gas & Electric Co. - Gas Division
Montana Dakota Utilities - Gas Division
National Fuel Gas Distr. Corp., NY
National Fuel Gas Supply
New York State Electric & Gas Corp
NICOR Gas Company
Northeast Heat & Light Company
Providence Gas Company
Public Service Electric & Gas Co
Public Service Company of New Mexico
Roanoke Gas Company
Rochester Gas and Electric Corporation
Saxonburg Heat & Light Company
Sierra Pacific Power Co/NV Energy
Southern Connecticut Gas Company
Southwest Gas Corporation
T.W. Phillips Gas & Oil Company
Williams Companies

GENERAL CLIENTS

Arthur Andersen
Pricewaterhouse Coopers
Electric Utility Consultants, Inc.
Ernst & Young
Standard & Poors

REGULATORY AND GOVERNMENTAL

Regulatory Commission of Alaska
- Alaska Electric Light & Power Company
- Interior Telephone Company, Inc
- Fairbanks Water & Wastewater
- Mukluk Telephone Company, Inc
- TDX North Slope Generating
- United KUC, Inc
- United Utilities, Inc.

Arizona Corporation Commission
- Mountain States Telephone & Telegraph
- Southwest Gas Corporation

Baltimore County, MD
Bensalem Township - Water
Bethlehem Authority - Water
Borough of Butler, NJ
Borough of Media Water Works
City of New Orleans, LA
Delaware Public Service Commission
Delaware River Port Authority
Diamond State Telephone Company
Kansas Corporation Commission
- Southwest Bell

Public Service Comm. of Nevada
- Nevada Bell

Town of Waterford, CT
- Northeast Utilities

Washington, D.C. - PSC
- C&P Telephone Company
- Potomac Electric Power Company

TELECOMMUNICATIONS

Ace Telephone Association - IA & MN
Air Touch Communications
ALLTEL Pennsylvania, Inc.
AT&T-Advance Solutions, Inc-CA
BellSouth Telecommunications
Buffalo Valley Telephone Company
Paging Industry Study Group
- AirTouch Paging
- Mobile Comm

Paging Network, Inc.
- Skytel
- USA Mobile Communications

PROFESSIONAL QUALIFICATIONS
OF
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Cellular Industry Study Group
  AT&T Wireless
BellSouth Communications
  GTE Mobilnet
Brighthouse Networks-Citrus County
Cable & Wireless
Chenango & Unadilla Telephone Company
Cingular Wireless
  Cingular Wireless – California
  Cingular Wireless – Houston
  Cingular Wireless - Massachusetts
Commonwealth Telephone Company
CTC of Michigan
CTC of Virginia
Denver & Ephrata Telephone & Telegraph Co.
  D & E Network
  D & E System
Embarq Florida, Inc.
Empire Telephone Corporation
Illinois Consolidated Telephone Co.
Jamestown Telephone Corporation
Leesport Telephone Company
Lewisberry Telephone Company
Los Angeles Cellular Telephone Co.
MCI International, Inc.
MCI Telecommunications Corp.
MFS Communication Company, Inc.
Marianna & Scenery Hill Tel. Co.
Mid State Telephone Company
Motorola, Inc.
Nevada Bell
New Jersey Telephone Company
The North-Eastern Pennsylvania Tel. Co.
Pacific Bell
Pactel Cellular
Quaker State Telephone Company
Qwest Communications Corporation
  Qwest – Arizona
  Qwest – Iowa
  Qwest -- Montana
  Qwest -- Washington
RCA Global Communications, Inc.
SBC Ameritech Corporation
  SBC -- Arkansas
  SBC -- Kansas
  SBC -- Michigan
  SBC -- Missouri
  SBC -- Ohio
  SBC -- Oklahoma
  SBC – Wisconsin
  SBC – West – California
  SBC – West – Nevada
Southwestern Bell Telephone Company
Standard Telephone Company
Telecommunications d'Haiti
Telephone Utilities of Pennsylvania
United Telephone Company of New Jersey
Verizon Wireless
  Verizon – California
  Verizon – Kentucky
  Verizon – Massachusetts
  Verizon -- Montana
  Verizon – South Carolina
  Verizon -- Utah
  Verizon -- Washington
  Verizon – Wyoming
  Verizon – Total Company
Virgin Islands Telephone Corporation
Williams Communication
WilTel, Inc.

<u>WATER</u>

Arizona Water Company
Artesian Water Company
City of Auburn
Bethlehem Authority – Water
California Water Service Company
California-American Water Company
  Citizens Water – California
  Citizens Water – Arizona
Clinton Water Company
Columbia Water Company
Commonwealth Water Company
Consumers New Jersey Water Company
Dauphin Consolidated Water Supply Co.
Dominguez Water Company
Elizabethville Water Company
City of Fairfax
Garden State Water Company
Hackensack Water Company
Monarch Utilities, Inc.
Monmouth Consolidated Water Company
New Haven Water Company
New Jersey Water Company
New Mexico-American Water Company, Inc.
Newtown Artesian Water Company
New York-American Water Company
Ohio-American Water Company
Palm Coast Utility Corporation
Pennichuck East Utility
Pennichuck Water Works
Pennsylvania-American Water Company
Pennsylvania Gas & Water Company
Pennsylvania Water Company
  Erie & Sayre Divisions
Philadelphia Suburban Water Company
Pinelands Water Company
Public Service Water Company

PROFESSIONAL QUALIFICATIONS
OF
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Hawaii Water Service
Ka'anapali Water
Kona Water
Waikoloa Village Water
Waikoloa Resort Water
Waikoloa Resort Irrigation
Hershey Water Company
Illinois-American Water Company
Indian Rock Water Company
Indianapolis Water Company
Iowa-American Water Company
Keystone Water Company
Manufacturers Water Company
Masury Water Company
Middlesex Water Company
Monarch Utilities, Inc.
Riverton Consolidated Water Company
Roaring Creek Water Company
Rock Springs Water Company
Shenango Valley Water Company
Southern California Water Company
Spring Valley Water Company
Spring Valley Water Company
Tidewater Utilities, Inc.
United Water - Delaware
United Water - Toms River
United Water - New Jersey
United Water - Pennsylvania
United Water - Virginia
Virginia American Water Company
Western Pennsylvania Water Company
York Water Company

STEAM

Consolidated Edison Co of New York

WASTEWATER

California - American Water Company
Citizens Sewer – Arizona
Hawaii Water Service Company-Wastewater
Kona Wastewater
Pukalani Wastewater Company
Wailoloa Resort Wastewater
Illinois-American Company – Wastewater
Monarch Utilities, Inc.
New Jersey Water Company
Sewer Districts
Palm Coast Utility Corporation
Pinelands Sewer Company
Wynnewood Sewer Company

PROFESSIONAL QUALIFICATIONS

CDP (Certified Depreciation Professional) by Exam during October, 1996

PROFESSIONAL AFFILIATIONS

American Water Works Association
American Gas Association
American Railway Engineering Association
Pennsylvania Gas Association
Pennsylvania Municipal Authorities Association
Member AGA Accounting Services Committee
Society of Depreciation Professionals-Founding Member, Chairman Coordinating and Membership Committees, Treasurer, President, and Past President

PUBLICATIONS

AGA/EEI Depreciation Accounting Committee, Contributing Author 1989, "An Introduction to Net Salvage of Public Utility Plant"

"Replacement Cost and Service Life Studies", *Journal of Property Tax Management*, Fall 1994, Volume 6, Issue 2

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
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SPEECHES AND PRESENTATIONS

"Depreciated Replacement Cost", Institute of Property Taxation - 18th Annual Conference, San Francisco, CA

"RCNLD Issues for Utilities", The National Association of Railroad & Public Utilities Tax Representative, 1997 Annual Conference, North Lake Tahoe, NV

"Useful Service Lives of Cellular Industry Assets", State of Florida, Department of Revenue, Industry/Government Task Force (April 1997)

"Appraisal and Valuation Issues Associated with Technology Changes within the Wireless Industry", 30th Annual Wichita Program - Appraisal for Ad Valorem Taxation of Communications, Energy, and Transportation Program, Wichita State University - July 30-August 3, 2000

"Physical/Functional Obsolescence, Residual Values/Floors (Net Salvage)", 32th Annual Wichita Program - Appraisal for Ad Valorem Taxation of Communications, Energy, and Transportation Program Wichita State University - July 28-August 1, 2002

"Depreciation Study Preparation", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, Lake Tahoe, Nevada - October 28, 2002

"Use of Replacement Cost to Value High Tech Equipment" Southeastern Association of Tax Administrators, 53rd. Annual Conference, Savannah, Georgia - July 14-July 16, 2003

"Property Tax: Use of Replacement Cost in the Appraisal of Telecommunications Companies", Western States Association of Tax Representatives (WSATR), WSATA 2003 Annual Meeting, Austin, TX - Sept. 9, 2003

"Replacement Cost & Depreciated Replacement Cost Presentation", Southwestern Bell Telephone Company – Arkansas PSC – Tax Division - August, 2003

"Valuation of Assets", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, Scottsdale, Arizona - December 9, 2003

"*Property Tax: Use of Replacement Cost in the Appraisal of Telecommunications Companies",* Oklahoma State Board of Equalization Public Service Valuation Guidelines Subcommittee – Oklahoma City, OK – Feb 5, 2004

"*Net Salvage Issues In Rate Cases",* AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, San Antonio, Texas - May 17, 2004

"*Current Depreciation Issues: Point-Counterpoint",* AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, Savannah, Georgia – November 14, 2006

"Depreciation & Cost of Removal", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, Tucson, Arizona – October 24, 2007

"Whole Life versus Remaining Life", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, San Francisco, California – May 21, 2008

"Obsolescence-Measuring the Impact for Industries Experiencing Change" *"Depreciation & Cost of Removal",* IPT 32nd Annual

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

Conference, Atlanta, Georgia, June 23, 2008

"An Alternative to IFRS Unit Depreciation", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, Baltimore, Maryland – May 18, 2009

"Alternative to IFRS Unit Depreciation", Society of Depreciation Professionals, Albuquerque, New Mexico, – October 5, 2009

"Depreciation Training", Regulatory Commission of Alaska (RCA), Anchorage, Alaska, October 26 & 28, 2010

"Physical Depreciation – The Uses and Abuses of Iowa Curves and Other Errors", IPT Property Tax Symposium, Austin, Texas, November 2, 2010

"Preparing To Be A Depreciation Witness", AGA Accounting Services Committee/EEI Property Accounting & Valuation Committee, New Orleans, Louisiana – May 19, 2011

"Depreciation – The Last 25 Years & More", Society of Depreciation Professionals, Atlanta, Georgia, – September 20, 2011

"A Roadmap to Replacement Cost", 42nd Annual Wichita Program - Appraisal for Ad Valorem Taxation of Communications, Energy, and Transportation Program, Wichita State University - July 29-August 2, 2012

DEPRECIATION TRAINING INSTRUCTOR-CLASSES

Regulatory Commission of Alaska, Anchorage, AK, Oct 2012

EUCI Depreciation Training, Houston, TX, Nov 8-9, 2012

EUCI Depreciation Training, Denver, CO, May 6-7, 2013

EUCI Depreciation Training, Chicago, IL, Nov 14-15, 2013

EUCI Depreciation Training, Pasadena, CA, Apr 22-23, 2014

EUCI Depreciation Training, Newport Beach, CA, Dec 16-17, 2014

EUCI Depreciation Training, Denver, CO, Jun 24-25, 2015

EUCI Depreciation Training, Anaheim, CA, Apr 25-26, 2016

EUCI Fortis Depreciation Training, Calgary, AB, May 10-11, 2016

EUCI Depreciation Training, Denver, CO, Oct 27-28, 2016

EUCI Depreciation Training, Denver, CO, Feb 7-8, 2017

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

SUMMARY OF TESTIMONY APPEARANCES – HEARINGS & DEPOSITIONS (PLUS DECLARATIONS)

Jurisdiction	Client	Docket/Application	Subject
Alberta	Canadian Western Natural Gas Company Limited	980413	Depreciation
	ATCO Pipelines	1292783	Depreciation
		Appl. 1527976, Proc ID 13	Depreciation
Arizona	Arizona Corp. Comm./ Mtn. Bell	9981-E-1051	RCN/RCND *
	Arizona Corp. Comm./ Southwest Gas Corp.	U-1551-80-70	RCN/RCND *
	Qwest Corporation-Arizona	TX2001-000662	Property Tax Valuation Deposition
California (PUC & State Board of Equalization)	MCI Telecommunications Corporation	274	Replacement Cost/ Depr. Repl. Cost
		SAU87-38	Replacement Cost/ Depr. Repl. Cost
		SAU91-101	Replacement Cost/ Depr. Repl. Cost
	SBC-California	SAU 279 Declaration	Property Tax Valuation
	SBC-California	January 31, 2005 Declaration	Property Tax Valuation
	Southern California Water Company	ABJ-4	Depreciation
Connecticut	Connecticut Natural Gas Corp	08-12-06	Depreciation
		13-06-08	Depreciation
	Southern Connecticut Gas Co.	89-09-06	P.I.S. Measures of Value and Depreciation
		08-12-07	Depreciation
	The United Illuminating Company	16-06-04	Depreciation
Delaware	Artesian Water Company	82-20	Depreciation
		87-3	Depreciation
	United Water - Delaware	96-164	Depreciation
		98-98	Depreciation
	Delaware Public Service Comm./ Diamond State Telephone Co.	81-8	P.I.S. Measures of Value and Depreciation

PROFESSIONAL QUALIFICATIONS
OF
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AUS CONSULTANTS

Jurisdiction	Client	Docket/Application	Subject
	Delmarva Power & Light Company	05-304	Depreciation
	Tidewater Utilities, Inc/ Public Water and Supply, Inc	99-466	Depreciation
District of Columbia	Potomac Electric Power Co.	F.C. 869	Depreciation
	Washington, DC PSC/C&P Tel Corp.	F.C. 777	Depreciation
	Washington, DC PSC/ Potomac Electric Power Co.	F.C. 785 F.C. 813	Capital Recovery/ Depreciation
FERC	Granite State Gas Transmission, Inc.	RP91-164-000	Depreciation
	Paiute Pipeline	RP96-306-000	Depreciation
	Public Service Company of NM	ER-11-1915-000	Depreciation
Florida (County of Duval)	BellSouth Telecommunications	Petitions 1795-1800	Replacement Cost/ Depr. Repl. Cos
(County of Lee)	Sprint-Florida, Inc (Embarq)	Case No. 02-CA-013330-1	Replacement Cost
(County of St. Lucie)	BellSouth Telecommunications	1999 Petitions	Replacement Cost/ Depr. Repl. Cost
(County of Citrus)	Embarq	Case No. 2003-CA4473, 2004-CA4565, 2005-CA5010	Property Tax Valuation Deposition
(County of Lee)	Embarq	Case No. 02-13330 CA-WCM	Property Tax Valuation Deposition
	Progress Energy – Florida Progress Energy – Florida	050078-EI 090079-EI	Depreciation Depreciation
Illinois	Illinois - American Water Company	00-0340 02-0690 07-0507	Depreciation Depreciation Depreciation
	Illinois Consolidated Telephone Co.	81-0264 82-0623	RCN/RCND * RCN/RCND *
Indiana	Northern Indiana Public Service Company	Cause No. 41746	Depreciation
Iowa (Dept of Rev)	Qwest Corporation-Iowa	883	Property Tax Valuation Deposition

PROFESSIONAL QUALIFICATIONS
OF
EARL M. ROBINSON, CDP
AUS CONSULTANTS

Jurisdiction	Client	Docket/Application	Subject
Kansas	Kansas Gas Service	03-KGSG-602-RTS	Depreciation
Kentucky	Kentucky Utilities	Case No. 2003-00434	Depreciation
	Louisville Gas & Electric Electric Gas	Case No. 2003-00433	Depreciation
Maryland	Columbia Gas of Maryland, Inc.	9316	Depreciation
	Delmarva Power & Light Company	9093	Depreciation
	Potomac Electric Power Company	9092	Depreciation
Massachusetts	Bay State Gas Company	92-111 DTE 05-27	Depreciation Depreciation
Montana	Montana-Dakota Utilities Co-Gas	Docket #2012.9.100	Depreciation
	Montana-Dakota Utilities Co-Elec	Docket # 2007.7.79 Docket # 2010.8.82 Docket # 2015.6.51	Depreciation Depreciation Depreciation
	Qwest Corporation-Montana	06DORFC001 06DOTFC017	Property Tax Valuation Deposition
Nevada	Southwest Gas Corporation	04-3011	Depreciation
New Jersey	Atlantic City Electric d/b/a Conectiv Power Delivery	ER03020110	Depreciation
	Borough of Butler/ Butler Elec. Dept.	792-84	Valuation of Plant in Service Customer Revenue and Purchase Power
	Commonwealth Water Co.	842-100	Depreciation
	Consumers NJ Water Company	WR00030174	Depreciation
	Garden State Water Co.	WR91091483	Depreciation
	Middlesex Water Company	WR8602-240 WR90080884J	Depreciation Depreciation

PROFESSIONAL QUALIFICATIONS
OF
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Jurisdiction	Client	Docket/Application	Subject
		WR96110818	Depreciation
	Monmouth Cons. Water Co.	8312-1113	Depreciation
	New Jersey Water Company	834-292	Depreciation
	Public Service Electric & Gas	GR05100845	Depreciation
	United Water Resources (formerly Hackensack Water Co.)	8506-663 WR90080792J WR95070303	Depreciation Depreciation Depreciation
	Toms River Water Company	WR95050219	Depreciation
New Hampshire	Northern Utilities, Inc.	DR91-081	Depreciation
New Mexico	New-Mexico American Water Company, Inc.	2813 03-00206-UT	Depreciation Depreciation
	Public Service Company of NM	08-00273-UT 10-00086-UT	Depreciation Depreciation
New York	New York-American Water Co.	28911	Depreciation
	New York State Elec. & Gas Corp. Electric Business & Common Plant	05-E-1222	Depreciation
	New York State Elec. & Gas Corp-Elec.	09-E-0715	Depreciation
	New York State Elec. & Gas Corp-Gas	09-G-0716	Depreciation
	Rochester Gas and Elec. Corp-Elec.	09-E-0717	Depreciation
	Rochester Gas and Elec. Corp-Gas	09-G-0718	Depreciation
	Spring Valley Water Co., Inc.	89-W-1151 92-W-0645	Depreciation Depreciation
North Carolina	Nantahala Power and Light Co.	E-13, SUB157	Depreciation
North Dakota	Montana-Dakota Utilities Co-Gas	Case No. PU-399-02-183	Depreciation
Oklahoma (State Board of Equalization)	SWBT-Oklahoma	EQ-2004-10	Property Tax Valuation Deposition
Pennsylvania	Borough of Media Water Works	R-912150	Depreciation
	Columbia Gas of Penna.	R-80031129	Depreciation and Valuation
	Commonwealth Telephone Co.	I-00920020	Depreciation

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Jurisdiction	Client	Docket/Application	Subject
	Keystone Water Company	R-842755	Capital Recovery/Depreciation
		R-842756	Capital Recovery/Depreciation
		R-842759	Capital Recovery/Depreciation
	Mid Penn Tel. Corp.	R-80071264	Depreciation
	Penna.-American Water Co.	R-891208	Depreciation
	Penna. Gas & Water Co. -	R-821961	Depreciation
	Gas Division	R-832475	Depreciation
	Penna. Gas & Water Co. -	R-822102	Depreciation
	Water Division	R-850178	Capital Recovery/Depreciation
		R-870853	Capital Recovery/Depreciation
	Penna. Gas & Water Co. -	R-901726	PIS Meas. of
	Scranton Division		Value/Depreciation
		R-922482	Depreciation
	Penna. Gas & Water Co. -	R-911966	PIS Meas. of
	Spring Brook Division		Value/Depreciation
	Nesbitt Service Area		
	Crystal Lake Service Area	R-922404	PIS Meas. of
			Value/Depreciation
	Cease town/Watres		
	Service Area	R-93266	Depreciation
	Penna. Power Company	R-811510	PIS Meas. of
			Value/Depreciation
		R-821918	PIS Meas. of
			Value/Depreciation
		R-832409	PIS Meas. of
			Value/Depreciation
		R-842740	PIS Meas. of
			Value/Depreciation
		R-850267	PIS Meas. of
			Value/Depreciation
		R-870732	PIS Meas. of
			Value/Depreciation
	Pennsylvania & Southern		
	Gas Company	R-870686	Depreciation
	PG Energy Inc.	R-963612	PIS Meas. Of Value/Depr
		R-984280	PIS Meas. Of Value/Depr
		R-00061365	PIS Meas. OFValue/Depr
	Philadelphia Suburban	R-911892	Depreciation
	Water Company	R-922476	PIS Meas. of
			Value/Depreciation
		R-932868	PIS Meas. of

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Jurisdiction	Client	Docket/Application	Value/Depreciation Subject
	Riverton Consolidated Water Co.	R-842675	Capital Recovery/Depreciation
	United Water - Pennsylvania	R-00973947	Depreciation
	Western Pennsylvania Water Company	R-842621	Capital Recovery/Depreciation
		R-842622	Capital Recovery/Depreciation
		R-842623	Capital Recovery/Depreciation
		R-842624	Capital Recovery/Depreciation
		R-842625	Capital Recovery/Depreciation
	Wellsboro Electric Company	R-00016356	Depreciation
Rhode Island	Providence Gas Company	1914	Depreciation
		2286	Depreciation
South Carolina	Lockhart Power Company	87-435-E	Depreciation
Tennessee (Board of Equalization)	Bellsouth – Tennessee	67-5-903	Property Tax Valuation Deposition
Utah	Verizon Wireless	05-0826, 05-0829	Property Tax Valuation Deposition & Hearing
Virgin Islands	Virgin Islands Tel. Corp.	264	Depreciation
		314	Depreciation
		316	Depreciation

* Reproduction Cost New/Reproduction Cost New Depreciated.