Missouri Public Service Commission

Contents & Outline of a Depreciation Study

Overview - Planning Scope of Review

A. Gather and compile information for determination of the scope of Staff's depreciation review.
   1. Acquire the Company's depreciation study and work papers that apply to the current rate case or project..
   2. Submit all necessary Data Requests to gather additional data and other information. (Example Data Requests are attached as schedule1.)
   3. Acquire and familiarize yourself with Company's Accounting Manual regarding property accounting for plant additions and retirements
   4. Develop Data Requests to the Company to submit records showing that all retirements were recorded per the Company's Property Unit Catalogue (PUC).
   5. Develop Data Requests to the Company to submit its current Continuing Property Records.

B. Review the Company's current filing and work papers.
   1. Verify and document the Technique, Procedure and Method used in the Company's current depreciation study.
   2. Verify and document the Company's plant balances.
   3. Compare the Company's current study to Department's existing summary documentation for the Company's prior study to identify changes in Technique. Procedure, Method, etc.
   4. Verify and document the submission of current Property Unit Catalogue and Continuing Property Record.
   5. Verify and document that the Company is using the Commission's assigned account numbering system.

C. Review the work papers, recommendation and testimony from the previous rate case.
   1. Review the ordered depreciation rates from the previous rate case.
   2. Review the ordered depreciation rates for similar companies of similar size.
   3. Prepare schedule comparing the impact of current ordered depreciation rates to requested depreciation rates. Identify items that cause these differences.
   4. Contact any staff personnel assigned to the previous rate case that can provide insight to the decisions and order of that case.
   5. Identify the specific accounts that must be examined to have an adequate study. Determine if Staff resources and time requirements allow for discretionary examination. Finalize the scope of the accounts to be reviewed.
   6. Extract any schedules, databases, studies, etc. that will be useful in the current study.

7. Identify the specific work that must be performed by account to complete Depreciation review with specific deadlines for work to be completed.
8. Consult with management to get approval of work scope and requirements of work scope.

D. Meetings, plant tours and conferences.
1. Attend Pre-hearing conference.
2. Schedule meetings as needed with Company staff. Discuss the quality of the retirement data and other aspects as needed.
3. Schedule tours of the Company's capital plant. Discuss and record maintenance activity, lives, etc. Photograph plant assets recording the associated account number on each photograph.
4. Schedule meetings with other Staff members as necessary. Discuss questions, problems and/or special circumstances included in the Company's filing that the depreciation engineer needs to be aware of to complete the depreciation review.

E. Travel (if necessary)
1. If travel outside the state of Missouri may be necessary, submit a request for out of state travel to the necessary locations.
2. Coordinate travel for all meetings and plant tours with other Commission departments as needed.
3. Arrange travel schedules for meetings and plant tours with the appropriate Company personnel.
4. To review Company documents that are retained at an office outside the State of Missouri, ask the Company it the Company prefers to ship the documents to MO-PSC Staff or it the Company prefers to pay for MO-PSC Staff's travel expenses to the Company's office. (An example of this letter is in the Administrative Staff Procedures Manual.)

Authority

Title 4.DEPARTMENT OF ECONOMIC DEVELOPMENT
Division 240.Public Service Commission
Chapter 10.Utilities 4 CSR 240-10.010 Books and Records
PURPOSE: This rule provides for the keeping of certain public utility accounts, records, memoranda, books and papers required by law and prescribes conditions upon which any part of the books and records may be removed from, or kept outside, the state. (1) This rule applies to every public utility, as defined in section 386.020, RSMo, and to all persons employed by the public utilities.

4 CSR 240-2.(1911 Discovery and Prehearings
PURPOSE: this rule prescribes the procedures for depositions, written interrogatories, data requests and preheating conferences .

Electric

4 CSR 240-3.175 Submission Requirements for Electric Utility Depreciation Studies

4 CSR 240-3.175 Submission Requirements for Electric Utility Depreciation Studies
PURPOSE: This rule sets forth the requirements regarding the submission of depreciation studies by electric utilities.

Gas

4 CSR 240-3.275 Submission Requirements for Gas Utility Depreciation Studies
PURPOSE: This rule sets forth the requirements regarding the submission of depreciation studies by gas utilities.

4 CSR 240-3.235 Filing Requirements for Gas Utility General Rate Increase Requests
PURPOSE: This rule prescribes information which must be filed by all gas utilities when filing for a general company-wide increase in rates. As noted in the rule, additional provisions pertaining to the filing requirements for general rate increase requests are found at 4 CSR 240-3.030.

4 CSR 240-3.240 Gas Utility Small Company Rate Increase Procedure
PURPOSE: This rule provides procedures for small gas utilities to obtain rate increases.

4 CSR 240-40.040 Uniform System of Accounts. Gas Corporations
PURPOSE: This rule directs gas companies within the commission's jurisdiction to use the uniform system of accounts prescribed by the Federal Energy Regulatory Commission for major natural gas companies, as modified herein. Requirements regarding the submission of depreciation studies, databases and property unit catalogs are found at 4 CSR 240-3.235 and 4 CSR 240-3.275.

Telephone

4 CSR 240-30.040 Uniform System of Accounts.Class A and Class B Telecommunications Companies
PURPOSE: This rule adopts the Federal Communications Commission.s Part 32 uniform system of accounts to permit uniformity, as much as is advisable, in the filing of annual reports and the maintenance of books and records of companies regulated by both the FCC and the Missouri Public Service Commission. This rule prescribes for recordkeeping purposes a uniform system of accounts for Class A and Class B telecommunications companies regulated by the Missouri Public Service Commission. This rule also prescribes that, unless otherwise directed by the commission, certain telecommunications companies must develop surrogates to approximate the capital to expense shifts resulting from the use of Part 32, and that all Class B telecommunications companies must keep their plant accounts in Part 32, Class A detail.

Heating

4 CSR 240-80.020 Uniform System of Accounts.Heating Companies
PURPOSE: This rule prescribes a uniform system of accounts for all steam heating companies regulated by the Public Service Commission. Additional requirements regarding this subject matter and the filing annual reports are found at 4 CSR 240-3.435.

Water

4 CSR 240-50.030 Uniform Systems of Accounts.Water Companies
PURPOSE: This rule prescribes uniform systems of accounts for and the filing of annual reports by all classes of water companies.

(1) The uniform systems of accounts for Class A and B and for Class C and D water companies, issued by the National Association of Regulatory Utility Commissioners in 1973, as revised July 1976, are adopted and prescribed for use by all water companies under the jurisdiction of the Public Service Commission.
(2) For the purpose of this rule, the four (4) classes of water companies have annual water operating revenues as follows:

(A) Class A.$500,000 or more;
(B) Class B.$250,000 to $500,000;
(C) Class C.$50,000 to $250,000; and
(D) Class D.Less than $50,000.
Sewer

4 CSR 240-61.020 Uniform Systems of Accounts.
Sewer Companies
PURPOSE: This rule prescribes uniform systems of accounts for and the filing of annual reports by all classes of sewer companies.

(1) The Uniform Systems of Accounts For Class A and B Sewer Utilities 1976, issued by the National Association of Regulatory Commissioners and the Uniform Systems of Accounts For Class C and D Sewer Utilities 1976, issued by the National Association of Regulatory Utility Commissioners are adopted and prescribed for use by all sewer companies under the jurisdiction of the Public Service Commission.
(2) For the purpose of this rule, the four (4) classes of sewer companies are as follows:
(A) Class A.annual sewer operating revenues of $500,000 or more;
(B) Class B.annual sewer operating revenues of $250,000 to $500,000;
(C) Class C.annual sewer operating revenues of $50,000 to $250,000; and
(D) Class D.annual sewer operating revenues of less than $50,000.

Request and Review

Company's Depreciation Study

Gather and compile information for determination of the scope of Staff's depreciation review. Acquire the Company's depreciation study and work papers that apply to the current rate case or project.

Acquire and familiarize yourself with Company's Accounting Manual regarding property accounting for plant additions and retirements. Review internal and external audits by the Company of property and plant accounting systems.

Property Unit Catalog

INTRODUCTION
Develop Data Requests to the Company to submit records showing that all retirements were recorded per the Company's Property Unit Catalogue (PUC).

General

Company, as a regulated public utility, is required to maintain records of its annual property additions and retirements in accordance with "The Uniform System of Accounts". Further, we have the normal business requirement to be aware of the value of

property owned for such purposes as paying property taxes, insuring property, determining rates of depreciation, etc. As it would be impractical to keep records of each small piece of property owned, we are permitted to use a property accounting and records system that avoids such undue refinement. We are compelled, however, to meet certain minimum detail requirements and also to maintain consistency in our accounting policy.

Purpose and Scope

This catalog has been compiled to further a better understanding of our property accounting and records system and is issued as a guide to persons concerned with the requirements and use of this system. Specifically the purposes of this catalog are:

a) To define, or distinguish between the terms used in property accounting.
b) To describe the various classifications of property and the accounting requirements applicable to each.
c) To aid in the consistent identification of property.
d) To provide a basis for the consistent assignment of costs to construction, retirement and maintenance.

The information and instructions presented in the catalog are intended to be complete but of necessity are based on existing property and present construction and maintenance practices. It would therefore be impractical to expect these provisions to meet all future contingencies. Any situation not covered should be handled in accordance with the instructions of the Property Records until such time as a revision is issued. Also, whenever strict interpretation of the provisions of this catalog would apparently violate the spirit and intent thereof, the matter should be referred to the Asset Management Department for handling as an exception to the catalog provisions.

Correctness of Records

As in any continuing records system involving numerous and diverse items, there is a need for periodic verification of correctness. To meet this need, a listing of certain classification of plant in service, arranged by location, should be distributed annually for review by various departments. Any omissions or discrepancies noted in these listings should be promptly reported to the Asset Management Department. In addition, formal inventories should be conducted on a periodic basis as often as necessary. As well as, outside auditors reports of the CPR.

Consequently it should be expected that Staff should seek to review these internal and external audit reviews verifying the accuracy of the CPR. Staff as part of the depreciation study verification process should also undertake an audit of the items in the CPR for correctness as part of a process subscribing to due diligence.

A general outline of the steps involving an audit of the CPR should undertake the following steps.

1. Determine the assignment of company field locations, areas, territories, regions or method by which assets are geographically located and segregated.
2. Obtain the CPR for the location to be audited.
3. Select items from the CPR for field verification.
4. Obtain the work order system or other company specific documentation detailing the particulars of the item's placement. This will contain the appropriate who, what when, where and why information regarding the item's placement.
5. Go to the physical location and verify the existence and specific location of the item being verified.
6. Use the model number and serial number or the company's unique property identifier and tie it back to the model number and serial number of the item placed per the work order system. Mark as found.
7. If the item is not found document the fact along with the aberrant work order supposed to have placed it. Mark as NOT found.

See: Auditing Continuing Property Records section for more specific details.

Additions and Revisions

Any cancellation, revision or addition to this catalog shall be authorized by the Vice President – Finance. All suggestions for improvement or requests for revision should be forwarded to the Asset Management Department.

Property Catalog Definitions

1) **ADDITION** – the purchase, construction, installation or acquisition of gas plant not previously owned.
2) **BETTERMENT** – the replacement of minor items of property for the primary purpose of making the facilities affected more useful, more efficient, of greater durability or of greater capacity.
3) **BOOK COST** – the amount at which property is recorded in the plant accounts without deduction of related provisions for accrued depreciation, depletion, etc.
4) **CLASSIFICATION** – see "Property Classification".
5) **COST OF REMOVAL** – the cost of demolishing, dismantling, cutting off, tearing down or otherwise removing gas plant, including the cost of transportation and handling incidentals thereto.
6) **DETAIL CODE REQUIREMENTS** – the specifying qualifications required in certain property classifications to distinguish and differentiate among a given class of retirement units.
7) **LOCATION CODE REQUIREMENTS** – the specifying qualification required in certain property classifications to assign a specific locational identification to each retirement unit.
8) **MAINTENANCE** – all current expenditures recurring from day to day and from month to month for the general upkeep of existing property without renewal of any substantial part thereof (i.e., replacement of a retirement unit), and generally all periodic

repairs which are necessarily undertaken to continue the useful life of the property. This generally will include:
a) Direct field supervision of maintenance.
b) Inspecting, testing, and reporting on condition of plant specifically to determine the need for repairs, replacements, rearrangements and changes and inspecting and testing the adequacy of repairs which have been made.
c) Work performed specifically for the purpose of preventing failure, restoring serviceability or maintaining life of plant.
d) Rearranging and changing the location of plant not retired.
e) Repairing for reuse materials recovered from plant.
f) Testing for, locating and clearing trouble.
g) Net cost of installing, maintaining, and removing temporary facilities to prevent interruptions in service.
h) Replacing or adding minor items of plant which do not constitute a retirement unit.
9) **MINOR ITEMS OF PROPERTY** – the associated parts or items of which retirement units are composed.
10) **NON-SEPARABLE ITEMS** – those functional units of property which cannot be separated from one another either physically or in terms of cost.
11) **PLANT ACCOUNTS** – those accounts in which are recorded the original cost of property owned and used by the utility in its gas operations, having a service life of more than one year from the date of installation.
12) **PROPERTY CLASSIFICATION** – a primary division of gas plant by which the records and accounting requirements are determined. A classification may consist of a specific item such as "Automobiles" or it may consist of a functional assembly such as "Buildings".
13) **REPLACEMENT** – the purchase, construction, installation or acquisition of gas plant in place of gas plant retired, together with the removal or abandonment of the gas plant retired.
14) **RETIREMENT** – the sale, removal, abandonment or destruction of gas plant or the withdrawal of gas plant from service for any cause.
15) **RETIREMENT UNIT** – an item or assembly of items which is always accounted for in the gas plant accounts when they are added or removed (with or without replacement).
16) **SALVAGE VALUE** – the amount received for property retired, less any expenses incurred in connection with the sale or in preparing the property for sale; or, if retained, the amount at which the material recoverable is chargeable to Materials and Supplies, or other appropriate account.

Property Catalog General Provisions

Continuing Property Record

Develop Data Requests to the Company to submit its current Continuing Property Records.

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

Property Classifications

All plant property has been segregated into various property classifications. The requirements of property accounting and records system depend on which classification is involved. These requirements are given in this catalog for each property classification along with a description that is sufficient to define the classification limits. A classification may be composed of similar specific items such as "METERS – CUSTOMERS" or "AUTOMOBILES", or it may consist of functional assemblies such as "BUILDINGS" or "DISTRICT REGULATOR STATIONS". Generally, the items or assembly of items comprising a classification are readily identifiable, perform a single operating or functional purpose and are usually added, removed or abandoned as a single item or group.

Retirement Units

In order to avoid undue refinement in property accounting and records system, it be permitted to consider that all plant additions, retirements or replacements consist of (1) retirement units and (2) minor items of property. Retirement units are those items of property which are always accounted for in the plant accounts when they are added or removed from service (with or without replacement). A list of applicable retirement units is given in this catalog for each property classification. Also included is a List of General Retirement Units which are common to more than one classification. This general list should be considered when it is referred to in the lists given for the respective classifications. Inasmuch as retirement units have been defined as those items which are always accounted for in the plant accounts when they are added or removed from service, the predetermination of these units therefore establishes a consistent policy of cost assignment to construction, retirement and maintenance. The retirement units listed in the catalog have been determined on the basis of the following considerations:

a) They are readily separable from a large assembly of which they form a part.
b) They perform a single function and are usually added, removed, abandoned or replaced as a unit.
c) They are relatively costly compared with other items in a particular classification.
d) They are consistent with the minimum requirements for detail prescribed by regulatory authority and overall Company needs.

Minor Items of Property

Minor items of property are the associated parts or items of which retirement units are composed and are generally not separately recorded or accounted for in the gas plant

accounts. Any item of property not designated as a retirement unit in the catalog shall be considered a minor item of property.

Property Codes
The usefulness of a property records system can be most economically increased through utilization of electronic data processing equipment. Provision has therefore should be made in the catalog for the inclusion of required data processing codes. Generally, code symbols have been assigned to such information as property classification, retirement unit, retirement unit detail, and location.

Accounting and Work Order Requirements
The accounting and work order requirements should be specified in a Plant Instruction and Classification of Accounts document. See "Accounting for Retirement Units" and "Accounting for Minor Items" for further details.

ACCOUNTING FOR RETIREMENT UNITS

Addition of a Retirement Unit
When one or more retirement units are added to plant, the costs thereof shall be added to the appropriate plant account. A construction work order is required for such action.

Retirement of a Retirement Unit
When one or more retirement units are retired from plant, the book cost thereof shall be credited to the plant account in which the property is included. If the retirement unit is of a depreciable class, the book cost of the unit retired and credited to plant shall be charged to the applicable provision for depreciation. The cost of removal and salvage value shall be charged or credited to distribution expense account. A retirement work order is required to account for such action.

Replacement of a Retirement Unit
When one or more retirement units are replaced, the accounting shall be as indicated above for the retirement of the old property and the addition of the new. Both a retirement and a construction work order are required to account for such action.
Notes:
a) It is in keeping with the intent of the catalog that property be accounted for in the smallest applicable retirement units. It is not intended, however, to require separation of items that are integral to a larger unit or which are accessories of small relative cost.
b) The retirement units generally include all applicable components of construction costs, including the costs of accessories not otherwise listed as units.
c) Retirement units which include the costs of non-separable items are provided for certain types of installations. Also includible in these units are the costs of accessories and installation pertaining to those associated units of equipment which will likely be replaced without substantially affecting the accessory items. Examples are intraconnecting piping, supports, wiring, etc., that are solely associated with such items as meters, instruments, devices, etc.

d) The inclusion of a retirement unit in a classification is warranted only when its function and type is in keeping with the text of the classification description.
e) A retirement unit should be considered as a whole for retirement purposes. The determination of when a unit is retired should be based on its functional usefulness. For instance, if a compressor is removed but some minor item accessories are left in place, the entire unit should be retired.

Addition of Minor Items
When a minor item of property is added to plant, its cost shall be charged to the appropriate maintenance expense account except in the following cases in which the addition will be accounted for in the same manner as for the addition of a retirement unit:
a) The installed cost of the minor item is in excess of capitalization limit.
b) The installed cost of a group of like minor items added to a retirement unit or group of like retirement units is in excess of for example ten times the capitalization limit.
c) The minor item of property is added to an existing retirement unit in conjunction with other work being performed on a construction work order.

Retirement of Minor Items
When a minor item of property is retired from plant and not replaced, the cost of the minor item will not be credited to the plant account until the retirement unit, of which the minor item is a component part, is retired, or unless it qualifies under (c) below. The cost of removal or salvage will be charged or credited to the appropriate maintenance expense account except in the following cases in which the removal will be accounted for by means of a retirement work order:
a) Either the net salvage or cost of removal of the minor item is in excess of the capitalization limit.
b) The minor item of property is removed in conjunction with other work being performed on a retirement work order.
c) The minor item of property is for example 10% of the retirement unit of which it forms a part, or the capitalization limit, whichever is greater.

Replacement of Minor Items
When a minor item of property is replaced independently of the retirement unit of which it forms a part, the cost incurred in such replacement shall be charged to the appropriate maintenance expense account unless a substantial betterment is involved. In such cases of betterment, the excess cost of replacement over the estimated cost at current prices of replacing without betterment shall be charged to the appropriate plant account. A betterment is considered to be substantial when such excess cost is over the capitalization limit. A construction work order is required to account for these substantial betterments, and the charges will be split between capital and maintenance on closing. No retirement work order is required.

Transfer of a Retirement Unit
Retirement Units which are physically moved from one company account and/or location to another will be accounted for by transferring the original cost of the units from the old account and/or location to the new account and/or location.

Notes:
a) Units which require removal and installation cost of less than the capitalization limit will be retained in property at their installed cost and any cost incurred to move or install the unit will be charged to maintenance.
b) Units which require removal and installation cost in excess of the capitalization limit will be retained in the plant accounts at their original cost (including overheads) exclusive of installation costs.
The original installation costs will be retired. A transfer entry will be made to properly record the new account and/or location of the unit. Cost of removal and reinstallation will be charged to appropriate retirement and construction work orders.

Transfer of a Minor Item
If the minor item has a value of more than the capitalization limit, it will be treated separately from the remainder of the property unit, and will in effect be treated as if constituting a property unit in its own right.

Document Requests

A Data Request (DR) is a written request for information and is the primary means by which the Staff gathers information on which to base recommendations to the Commission. Routinely, the Staff prepares such documents for the purpose of gathering information from the utilities in connection with filings before the Commission. Data Requests are also used by the utilities to obtain information from the Staff, the Office of the Public Counsel (OPC) and/or intervenors in a case and by the Staff for gathering information when they are performing earnings reviews or other investigations.

The purpose of the Data Request, is to formally document the request for information so as to establish an audit trail and to establish a time limit for receiving the response to the information requested. A company has twenty days to respond to a DR once received. If it is unable to respond within the twenty day time limit it must notify the person issuing the DR within 10 days. If a company fails to respond within the allowed time, Staff has the option of filing a "Request for a Motion to Compel" which asks the Commission to order the company to respond by a date certain. (See Code of State Regulations 4CSR 240-2.090 attached.)

Such requests for information are made using part of the EFIS project. Data Requests provide the Staff with a log of all DRs issued and a tracking mechanism. (See attachment for a copy of a Data Request and Data Request Log.) The DR indicates from whom the information is being requested and to whom the response should be sent. Routinely at the beginning of a rate case or earnings review a group of standard DRs are issued to a company to request basic information, such as a copy of the Company's general ledger and accompanying journals or a copy of or access to the Board of Director's minutes. Staff also routinely includes a request to automatically update when appropriate. Staff

follows up with more specific information requests after reviewing and analyzing the basic information provided by the Company by issuing additional Data Requests.

The preparation of DRs requires skill and experience. They should be clear, concise and to the point. They should ask for exactly what the Staff needs and they must request an automatic update whenever necessary. Most discovery is performed in an adversarial situation. Utilities usually provide only the information literally requested. It is essential that Staff be precise about the information it is requesting. DRs must be written with UNDER REVISION the utility's perspective in mind. The Staff must be aware of how the utility will respond to the DR in order to have a reasonable assurance they will receive the required information. Witnesses often quote responses to DRs in their testimony, causing them to become part of the case's official record. Presently the responder is required to provide only one copy of the response to the Data Request. The DR is to be signed by the responder and the information may be provided in hard copy or electronic format, as long as the information is presented in a format compatible with programs available to the Staff. The Commission's rules require that the response to a Data Request be signed by a person who can attest and confirm that the information provided is true and accurate.

Generic Document Requests

DR ####
Please provide the most recent Depreciation Study of the utility's plant and equipment conducted by or on behalf of the Company.

DR ####
Please provide the actuarial data used in the submitted Depreciation Study in the following format:

RECORD LAYOUT FOR PLANT ACCOUNTING DATA

Account II.										
Account Number		Gp. No.	Co. No.	Tran. Code	Trans-action Year	Instal – latien Year	Transaction Amount		Adjusted Trans-action Year	Classification Data
1 2 3	4 5	6 7	8 9	10	11 12 13 14	15 16 :7 18	19 20 21 22 23 24 25 26	27 28	29 30 31 32	33 34 35 36 37 38 39 40

Columns	Description
	Account Identification.
1-5	Account Number. The primary account number recorded in the Continuing Property Record.

6-7 Group Number. Numeric codes for subdividing the primary account into life span, or other, groups such as major buildings, power plants, reservoirs, etc.

8-9 Company Number. Numeric code assigned by the user for identification of specific Company data files. Columns 8-9 may also be used for expanding the Group Number field to columns 6-9.

10 Transaction Code Numeric codes which identify the type of transaction or plant balance. The valid transaction codes are as follows (refer to 'Transaction Code Descriptions" for more detailed explanations):

0· -Regular Retirement
1· -Reimbursed Retirement
2· Sale
3 -Transfer
4 -Beginning-of-Interval Transfer
5· - Acquisition
6 - Adjustment
7 -Outlier Retirement
8 - Ending Balance
9 - Beginning Balance or Gross Addition

11-1 4 Transaction Year. Year the accounting transaction was recorded to the plant account.

15-18 Installation Year. Year the property item was first placed in public service, not necessarily the year it was placed in its present location (not required for "Simulated" data, except for the optional beginning aged balance).

19-28 Transaction Amount or Plant Balance. Transaction amount recorded to the plant account, or the surviving plant balance at a specific date. If the amount is a credit entry to the plant account, a minus sign over the units position (column 28) is required (refer to "Recommended Sign Convention" for further explanation).

29-32 Adjusted Transaction Year. Only used for entries correcting a previous entry. The year entered is the transaction year of the original entry being corrected.

33-40 Classification Data. Optional descriptive and/or numeric data used for further record identification purposes.

RECOMMENDED SIGN CONVENTION

Plant accounting entry amounts (columns 19-28) are coded according to whether they are debits or credits to the plant account. Credit entries are identified by a minus sign over the unit's position (column 28). The software will accept sign characters in the units position in either ASCII (American Standard Code for Information Interchange) or EBCDIC (Extended Binary-Coded Decimal Interchange Code) form. However, when editing data files, for ease of keyboard entry of credit amounts it is recommended that the EBCDIC form be used as follows:

Unsigned Digit (Debit) in Units Position -.of Amount Field	Equivalent EBCDIC Keyboard Character for Credit Amount
0	
1	I
2	K
3	L
4	M
5	N
6	0
7	P
8	Q
9	R

Cost of removal and salvage entries (columns 41-50, 51-60 and 61-70) are coded according to whether they are debits or credits to the depreciation reserve account. Cost of removal normally is a debit to the reserve and salvage normally is a credit. Credit entries are identified by a minus sign over the unit's position in the same manner as explained above for the plant account entries.

2. An alternative to item 1 above is to enter the amount fields in Kfree form". Under the 'free form' option, leading (or trailing) minus signs and decimal points are valid characters; plus signs and commas are also valid but they serve no purpose and are merely stripped from the input during the internal conversion process. The only 'free form restriction is that each amount field entry must be dght-justified on the units position. Therefore, column 28 for transaction amounts and columns 50, 60 and 70 for cost of removal and salvage amounts must not be blank.

In addition to providing compatibility with the sign conventions of other software products, the 'free form' option provides flexibility for entering rounded dollar amounts greater than 99,999,999.00, the previous maximum. For example, an entry of N999999999.0 in columns 19-28 is interpreted as 999,999,999.00, the largest possible debit amount. The largest possible whole dollar credit amount, which can be entered in 'free form', is 0-99999999.", or 99,999,999.00 CR. Note that when both dollars and cents are required for control purposes, the entry of a decimal point is not necessary although its omission is optional. That is, during the internal conversion process, the entry of dollars and cents is always assumed unless a decimal point is present.

RECORD LAYOUT FOR COST OF REMOVAL AND SALVAGE DATA

Account ID												Gross Salvage	
Account Number		Gp. No.	Co. No.	Tran. Code	Trans-action Year		Transaction Amount	Adjusted Trans-action Year	Classification Data	Cost of Removal		Reuse	Final
1 2 3	4 5	6 7	8 9	10	11 12 13 14	15 16 17 18	19 20 21 22 23 24 25 26 27 28	29 30 31 32	33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48	49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65

Columns	Description	Account Identification.

1-5 Account Number. The primary account number recorded in the Continuing Property Record.

6-7 Group Number. Numeric codes for subdividing the primary account. Normally, group numbers are not used in the compilation of cost of removal and salvage data.

8-9 Company Number. Numeric code assigned by the user for identification of specific Company data files.

10 Transaction Code. Numeric code which identifies the type of transaction. The valid transaction codes are as follows (refer to "Transaction Code Descriptions' for more detailed explanations):

0 - Regular Retirement
1- Reimbursed Retirement
2 - Sale
6 - Adjustment
7 - Outliner Retirement

11-14 Transaction Year. Year the entry was recorded to the depreciation reserve account.

19-28 Transaction Amount. Amount of the retirement, or other transaction, recorded to the plant account (Normally a credit entry) and to the depreciation reserve account (normally a debit entry). If the amount is a credit entry to the plant account, a minus sign over the units position (column 28) is required (refer to "Recommended Sign Convention" for further explanation).

29-32 Adjusted Transaction Year. Only used for entries correcting a previous entry. The year entered is the transaction year of the original entry being corrected.

33-40 Classification Data. Optional descriptive and/or numeric data used for further record identification purposes.

41-50 Cost of Removal. All costs associated with the retirement of plant and recorded to the depreciation reserve account (normally a debit entry). If the amount is a credit to the depreciation reserve account, a minus sign over the unit's position (column 50) is required.

51-60 Reuse Salvage. Value of retired plant, which is returned to stores (materials and supplies) for subsequent reuse and recorded to the depreciation reserve account (normally a credit entry). If the amount is a credit entry to the depreciation reserve account, a minus sign over the unit's position (column 60) is required.

61-70 Final Salvage. Trade-in values, receipts from sale of scrap, and other receipts resulting from the disposition of retired plant and recorded to the depreciation reserve account (normally a credit entry). Receipts for transactions coded as Reimbursed Retirements (Code 1) and Sales (Code 2), also credits to the depreciation reserve account, are entered as "Final salvage" for purposes of this analysis, and any other salvage is entered as 'Reuse Salvage'. If the amount is a credit entry to the deprecation reserve account, a minus sign over the unit's position (column 70) is required.

DR ####
Please provide the Company's most recent Property Unit Catalog.

DR ####
Please provide the Company's most recent Continuing Property Record.

DR ####
Please provide the Company's most recent external audit of the property and or plant accounting system audit.

DR ####
Please provide work papers associated with the Company's most recent external audit of the property and or plant accounting system audit.

DR ####
Please provide the Company's most recent internal audit of the property and or plant accounting system audit.

DR ####
Please provide work papers associated with the Company's most recent internal audit of the property and or plant accounting system audit.

DR ####
Please provide work papers associated with the Company's interpretation of the Fair Accounting Standards Board issue FASB 143.

DR ####
Please provide work papers associated with the Company's interpretation of the Federal Energy Regulatory Commission accounting standard issue FERC 631.

DR ####

Please provide the policies, procedures and guidelines for the Company's Work Order System.

DR ####
Please provide all correspondence, memorandums, e-mail communications, all formal and informal documentation including notes, provided to ***Consultant Name*** from all Company persons regarding projected retirement dates of generation facilities. Please include all verification ***Consultant Name*** engaged in to determine the reasonableness and accuracy of the retirement dates. Indicate whether ***Consultant Name*** verified the retirement dates with Company management personnel including the Company's CEO, CFO or others.

DR ####
Please provide a listing of all Company capital construction projects costing more than $250,000 during the most recent ten-year period and those planned for the next five years. Include in your answer a description of the projects, location and costs.

DR ####
Please provide all invoices from ***Consultant Name*** to Company for all work performed by the consultant, described on page ##, lines ## through ## of Mr. ***Consultant Name*** Direct Testimony. Specifically, include invoices for the data analysis conducted by the consultant, including life, salvage and cost of removal; the "evaluation phase" of the project; the computation of depreciation rates; and any other work.

DR ####
Please provide all time sheets for all ***Consultant Name*** personnel who performed work for Company as described on page ##, lines ## through ## of Mr. ***Consultant Name*** Direct Testimony.

DR ####
Please provide all time sheets of all Company personnel working on depreciation matters for the present Company rate case.

DR ####
Please provide all e-mail correspondence and all other documentation and records provided to ***Consultant Name*** with respect to specific work activities and responsibilities identified on page ##, lines ## through ## of Mr. ***Consultant Name*** Direct Testimony.

DR ####
Please provide all notes, memorandums, correspondence and materials provided by Company to ***Consultant Name*** to enable the consultant to complete its job responsibilities for each project phase, as presented on page ##, lines ## through ## of Mr. ***Consultant Name*** Direct Testimony. Include all cost of removal estimates provided to Deloitte.

DR ####

Please provide a copy of the engagement letter and contract the Company entered into with ***Consultant Name*** for the consultant's depreciation responsibilities in this case. Please list all other services ***Consultant Name*** has provided for Company in the past five years and the fees charged.

DR ####
Please provide all data maintained or processed by ***Consultant Name*** on cost of removal of generation, transmission and distribution plant, both actual and estimated.

DR ####
Please provide all data, studies, memorandum, formal and informal documentation regarding additional and/or future Company investment in production plant that has been provided to ***Consultant Name***.

DR ####
Please provide all data, studies, memorandum, formal and informal documentation regarding the dismantlement of Company power plants.

DR ####
Please provide the actual costs of dismantlement for each retired Company power plant at the date of its retirement.

DR ####
With reference to ***Consultant Name*** Direct Testimony, page ##, lines ## through ##, please provide the name of each ***Consultant Name*** and Company person who discussed life analysis indications. List each anomaly and each trend identified for each plant account. Provide the name of the person providing engineering and operations input, and the input provided.

DR ####
With reference to page ## of ***Consultant Name*** Direct Testimony, lines # # through ##, please provide all Company experience and expectations provided to ***Consultant Name*** by Company. Provide a list of all power production plant retirements known to ***Consultant Name*** and all power plant, distribution plant and transmission plant retirement information known to ***Consultant Name***. Identify the specific Deloitte and Company personnel involved in the 'evaluation' state of ***Consultant Name*** engagement with Company.

DR ####
With reference to page ##, lines ## through ## of ***Consultant Name*** Direct Testimony, please provide all "shrinking and rolling band analyses performed." Provide all Company expectations for each asset category of non-production plant.

DR ####

Please provide the number of transformers with PCBs that Company has in service as well as the number of utility poles treated with creosote. Identify all environmental requirements imposed on Company, by year of implementation, since 1980.

DR ####
With reference to in ***Consultant Name*** Direct Testimony, please indicate for each case if other parties filed depreciation testimony and whether or not depreciation issues were settled or decided by agency after hearing.

DR ####
Please provide the Company's study and/or other documentation that shows the economical comparison of replacing versus maintaining each of Company's power generation plants. The study should include a synopsis of which options are determined to be the most valid course of action. Also include how the Company plans to raise funds of the chosen option.

DR ####
Please provide the Company's plans for replacing ***anything major here***. Please provide all supporting documentation.

DR ####
Please provide the Company's plant accounting manual, or whatever document(s) is used to control the Company's policies and procedures for recording capitalization, retirement, and removal costs.

DR ####
Please provide all data, information, notes, drawings and photographs developed or produced by, for or during on site review and inspection of company depreciable assets or any other equipment and facilities, as part of your depreciation study.

DR ####
For each of the production units described in the company's most recent FERC Form 1 and any unit that has been retired, sold, removed from service or otherwise disposed of, please provide the following information:

Acquisition contract documents, including any maintenance agreement contained therein

Manufacturer, model number and serial number

Purchase price for each production unit and current book value for the unit

Age and hours at purchase (if leased, lease terms)

Total-to-date hours of operation

Date of each start and hours connected to load

Maintenance expense and normal interim capital additions and retirements

DR ####
A. Please provide a list, by date, of all board of director meetings held since one year prior to case filing.

DR ####
Please provide a list of all individuals in attendance at each of the board of director meetings set forth in response to **Data Request No. ####-A**.

DR ####
Please make available, or provide a copy, any document constituting an agenda, if any, of the items to be discussed or voted upon, at each of the board of director meetings set forth in response to **Data Request No. ####-A**.
1.

DR ####
Please make available, or provide a copy, any document constituting any presentation made to the Board at any of the board of director meetings set forth in response to **Data Request No. ####-A**.

DR ####
Please make available, or provide a copy, any document constituting any resolutions voted upon by the Board at any of the board of director meetings set forth in response to **Data Request No. ####-A**.

DR ####
Please make available, or provide a copy, any document constituting minutes taken at any of the board of director meetings set forth in response to **Data Request No. ####-A**.

DR ####
Please provide a copy of any emails or other electronic communications between Company personnel and any other Company personnel and any persons external to Company concerning any depreciation or depreciation matters approved by the Commission in Case No. **the last case**. To the extent you claim that any of such communications are privileged, please identify the date, addressees, senders, the nature of the privileged claimed and the summarized content of the communication sufficient to permit determination of the relevancy of that communication.

DR #### B.
Please provide a list of all individuals responsible for the preparation of Company's 10K Annual Report filed **most recent date**.

DR ####

Please describe the responsibilities of each of the individuals listed in response to Data Request No. **DR ### B**.

DR ####-C
Please provide a list of all individuals responsible for the preparation of the Company's 10Q filed **most recent date**.

DR ####
Please describe the responsibilities of each of the individuals listed in response to Data Request No. **DR ####-C**.

DR ####-D
Please provide a list of all individuals responsible for the preparation of Company's 10K Annual Report filed DR ####-D

DR ####
Please describe the responsibilities of each of the individuals listed in response to Data Request No. DR ####-D.

DR ####-E
Please provide a complete list of all presentations made by any Company personnel to any investment groups, bankers, or analysts since DR ####-D.

DR ####
Please provide a complete list of all individuals in attendance at each of the meetings set forth in response to Data Request No. **DR ####-E**.

DR ####
Please provide a copy of all documents constituting presentations given at each of the meetings set forth in response to Data Request No. **DR ####-E**.

DR ####
Please provide a copy of any document constituting notes taken by any of the Company personnel in attendance at any of the meetings set forth in response to Data Request No. **DR ####-E**.

DR ####
Please provide a copy of any documents prepared by Company or Company personnel in anticipation, preparation or in advance of any of the meetings identified in your response to Data Request No. **DR ####-E**. Identify the Company employee who prepared such documents.

DR ####
Please provide a copy of any internal emails or other electronic communications that refer to or mention any of the meetings identified in your Response to Data **DR ####-E**.

DR ####
Please provide an organizational chart, with corresponding names and titles, up through and including the Chief Executive Officer, of the Company of those individuals participating in the depreciation study decision and assumption process, including major capital expenditures.

DR ####
Please provide an organizational chart, with corresponding names and titles, up through and including the Chief Executive Officer, of the Company legislative affairs department.

DR ####
Please provide a list of all individuals responsible for the preparation of Company's 10Q Annual Report filed **most recent date**.

DR ####-F
Please provide a copy of all documents that constitute or state Company's document retention policy. If different, please provide a copy of all documents that constitute or state Company's electronic document retention policy.

DR ####
With respect to the policy(ies) referenced in Data Request No. **DR ####-F**, have there been any changes to this or to these policy(ies) in the last 10 years? If so, please provide all documents constituting the former policy or policies, the date of the change, and all documents describing, justifying or explaining the reason for the change(s).

DR ####
Please provide the Company's asbestos abatement plan and the current status of the plan. Provide location, areas and amounts estimated or actual that have not yet been mitigated. Provide estimated costs to complete all mitigations.

DR ####
Please provide the Company's lead abatement plan and the current status of the plan. Provide location, areas and amounts estimated or actual that have not yet been mitigated. Provide estimated costs to complete all mitigations.

DR ####
Please provide the Company's coal combustion residues and by-products abatement plan and the current status of the plan. Provide location, areas and amounts estimated or actual that have not yet been mitigated. Provide estimated costs to complete all mitigations.

DR ####
Please provide the portion of the depreciation accrual in Account 108 attributable to future costs of removal as instructed and outlined in the Commission's Third Report and

Order GR-99-315 at page 16 that would require the utility to track and account for net salvage amounts received separately from other components of the depreciation expense.

Review Work Order System

Determine the tracking method for placing and removing items in the field and from the CPR.

Audit Continuing Property Record

Select items from the Company's most recent Continuing Property Record (CPR) and verify thier placement in the field. This is often facilitated by tracking through the Company's Work Order System (WOS). Verify items buy means of the model number, serial number or other unique characteristics. Verify only those items that meet or exceed the capitalization limit.

CONTINUING PROPERTY RECORDS

Purpose:

Requirements of the Uniform System of Accounts adopted by rulemaking by the

Commission.

Objective:

To provide proof of physical existence of plant property.

To establish units of property and associated unit prices for retirements.
Provide age of property and aged retirements for use in trended original cost and depreciation rate studies.

Insure proper rate base used in establishing a rate of return to owners.

Documents and Forms Required:

None.

Procedures:

Obtain a listing of property units from utility company. Review property units for consistency and as prescribed by the Uniform System of Accounts.

Crosscheck by primary plant account and/or sub-account of surviving investments by accounting period contained in CPR with the general ledger. Surviving investment must be the same. Prepare schedule properly crosschecked and footed.

Request a copy of plant accounting instructions from utility company. Randomly select a representative sample of both construction and retirement work orders. Trace source of all costs capitalized on construction work orders ensuring consistency with allowable capitalized costs contained in the Uniform System of Accounts.

Check retirement work orders with CPR to insure proper unit pricing and appropriate JE to the plant and reserve accounts.

Check work orders to insure proper emphasis has been placed on estimated construction units versus as built along with proper approval level.

Determine it capitalized costs are indeed capital expenditures versus maintenance.

Obtain a copy of Company's work order numbering systems and related contracts. Check work order for all costs capitalized. Trace source documents back to the various elements of cost, i.e., Materials and Supplies, A&G Clearing Accounts, Direct Labor, Contract Labor, Direct Materials, etc.

Retirement{ XE "The sale, abandonment, destruction, or withdrawal of assets from service." } work orders - trace all costs associated with removal of plant facilities and the amounts received for salvage. Review outside vendor contracts associated with removal and salvage received. Check material returned to stock, i.e., minor items, etc., and amounts of salvage versus unit price of material returned to Materials and Supplies.

Interview Managers of Operational Areas

Visit Operational Areas

Summary of Procedures
Meetings, plant tours and conferences.

1. Attend Pre-hearing conference.
2. Schedule meetings as needed with Company staff. Discuss the quality of the retirement data and other aspects as needed.
3. Schedule tours of the Company's capital plant. Discuss and record maintenance activity, lives, etc. Photograph plant assets recording the associated account number on each photograph.
4. Schedule meetings with other Staff members as necessary. Discuss questions, problems and/or special circumstances included in the Company's filing that the depreciation engineer needs to be aware of to complete the depreciation review.

Travel (if necessary):

1. If travel outside the state of Missouri may be necessary, submit a request for out of state travel to the necessary locations.
2. Coordinate travel for all meetings and plant tours with other Commission departments as needed.

3. Arrange travel schedules for meetings and plant tours with the appropriate Company personnel.
4. To review Company documents that are retained at an office outside the State of Missouri, ask the Company it the Company prefers to ship the documents to MO-PSC Staff or it the Company prefers to pay for MO-PSC Staff's travel expenses to the Company's office. (An example of this letter is in the Administrative Staff Procedures Manual.)

For each area discuss with the manager having budgetary responsibility the following topics:

1. Total Budget
2. Operations Amounts
3. Maintenance Amounts
4. Planned New Purchases and Amounts
5. Types of Blanket Work Order System (WOS), if any
6. WOS approval thresholds
7. Any multi-year or large planned projects
8. Use of outside vendors or consultants
9. Manpower is it changing
10. System strength and weaknesses
11. Changes in process, materials and procedures
12. Needs analysis, assessment and wishes
13. Expected life of facility and primary/major components or systems

Production

Transmission

Distribution

General

Planning & Engineering

Conduct Depreciation Study

Summary of Procedures

A. Review the Company's current filing and work papers.
   1. Verify and document the Technique, Procedure and Method used in the Company's current depreciation study.
   2. Verify and document the Company's plant balances.
   3. Compare the Company's current study to Department's existing summary documentation for the Company's prior study to identify changes in Technique. Procedure, Method, etc.

4. Verify and document the submission of current Property Unit Catalogue and Continuing Property Record.
5. Verify and document that the Company is using the Commission's assigned account numbering system.

B. Review the work papers, recommendation and testimony from the previous rate case.
1. Review the ordered depreciation rates from the previous rate case.
2. Review the ordered depreciation rates for similar companies of similar size.
3. Prepare schedule comparing the impact of current ordered depreciation rates to requested depreciation rates. Identify items that cause these differences.
4. Contact any staff personnel assigned to the previous rate case that can provide insight to the decisions and order of that case.
5. Identify the specific accounts that must be examined to have an adequate study. Determine if Staff resources and time requirements allow for discretionary examination. Finalize the scope of the accounts to be reviewed.
6. Extract any schedules, databases, studies, etc. that will be useful in the current study.
7. Identify the specific work that must be performed by account to complete Depreciation review with specific deadlines for work to be completed.
8. Consult with management to get approval of work scope and requirements of work scope.

DEPRECIATION ACCOUNTING

The objective of depreciation accounting under established regulatory practice is the distribution of investments in a reasonable and consistent manner to all accounting periods related to their use in providing service to customers. Exceptions to this policy are the distribution of cost of removal to those periods due to tax implications in accordance with the Internal Revenue Code. Distributing investment in this manner insures those customers who have been served by particular plant investment pay for that investment -in equal timed installments over its life. Depreciation accounting is nothing more than allocating costs of a depreciable asset over a reasonable estimate of its average life.

Many assets of the utility are relatively long lived and the capital recovery rate of those assets must be periodically examined to insure full recovery. Depreciation expense is no different than other expenses except it is not a cash expenditure item but is included on the income statement to determine profit and loss. It is important that the accounts reflect as accurately as possible the actual cost of operating the business each year. Thus, the

records should not only show the total amount of all expenses, but these should appear in the expense accounts of the proper year. Some expenses present no problem here; operator wages, for example, are obviously a part of the operating expense in the year for which they are paid. Other expenses like fire insurance may be paid in advance for a period of perhaps three years.

Depreciation expenses can be compared to the cost of prepaid insurance. This expense is paid in advance, but is actually a part of the proper expenses of a number of future periods. Similarly, stock and bondholders advance capital to build utility plant facilities and this capital is returned to the stock and bondholder through funds received in the form of depreciation expense in annual installments over the life of the asset. The simplest and most widely accepted method of distributing this expense to the proper years is known as the "straight line" method and consists of distributing the total expense as equally as possible to all of the years the plant is in service.

Reasonable management requires a periodic review of expenses in determining profit and loss. Capital recovery is not as readily apparent in the tabulation of expenses and consequently is often neglected or deferred to some future accounting period. This becomes inequitable for the utility customers as well as the stock and bondholders.

Past depreciation practices of utility companies show that management plays an important role in policies pertaining to installation, retirement and maintenance of plant facilities. Equally important is management's obligation to implement sound accounting and capital recovery policies.

DEPRECIATION PROCEDURES

Each depreciation study is based on a method, a procedure and a technique.

I. Method - produces a pattern of cost allocation.

- A. Straight Line
- B. Declining Balance
- C. Sum of the years Digits
- D. Sinking Fund
- E. Units of Production

II. Procedure - defines level of grouping.

- A. Item
- B. Equal Life Group
- C. Vintage Group
- D. Broad Group
- E. Total Company

Item

Equal Group Life	ELG #1					
	ELG #2					
	ELG #3					
	(etc.)					
Vintage Group	Vintage #1	Vintage #2	Vintage #3	(etc.)		
Broad Group	Pole Lines				Cable	(etc.)
Total Group	All Accounts					

Technique - describes the life statistic

A. Whole Life

B. Remaining Life

C. Straight Line Method

$$\textit{Annual Depreciation Accrual} = \frac{\textit{Depreciable Costs}}{\text{Service Life}}$$

Average service life or whole life technique

$$d = 100 - \frac{\textit{Avg. Net Salvage \%}}{\textit{100x(Avg. Service Life)}}$$

where d = annual depreciation accrual rate

or

$$D = \frac{\textit{Plant Balance-Salvage Dollars}}{\text{Average Service Life}}$$

where D = annual depreciation accrual

a. Equal Life Group Procedure - whole life technique (straight-line method)

Each life group takes each previously established vintage group and separates that group into the dollar amount that will retire each year.

All assets within a vintage year which are expected to live one year make up one equal life group. All assets expected to live two years make up another equal life group, and so on.

The total depreciation reserve accruals in any year for the entire vintage is simply the sum of the straight-line accruals for each of the equal life groups. The annual depreciation rate is then determined by dividing the annual accruals by the average annual investment.

Example: Ten poles are installed in one vintage year. Each year, for the next ten years, one pole is retired. The initial cost of each pole is $100.

For this example, $100 is retired each year. The $100 retired the first year is all retired in one year. The $100 retired the second year is spread over two years, at $50 per year, and so on, until the tenth year, when $100 is spread over ten years, at $10 per year.

DEPRECIATION PROCEDURES

Capital Recovery Years 1-10

ELG	1	2	3	4	5	6	7	8	9	10
1	100									
2	50	50								
3	33.3	33.3								
4	25	25	25	25						
5	20	20	20	20	20					
6	16.7	16.7	16.7	16.7	16.7	16.7				
7	14.3	14.3	14.3	14.3	14.3	14.3	14.3			
8	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5		
9	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	
10	10	10	10	10	10	10	10	10	10	10
Accruals	292.90	192.90	142.90	109.60	94.60	64.60	47.90	33.60	21.20	10
Avg. Invst.	1000	900	800	700	600	500	400	300	200	100
Depr. Rate	.293	.214	.179	.157	.141	.129	.120	.112	.106	.100

Depreciation Reserve

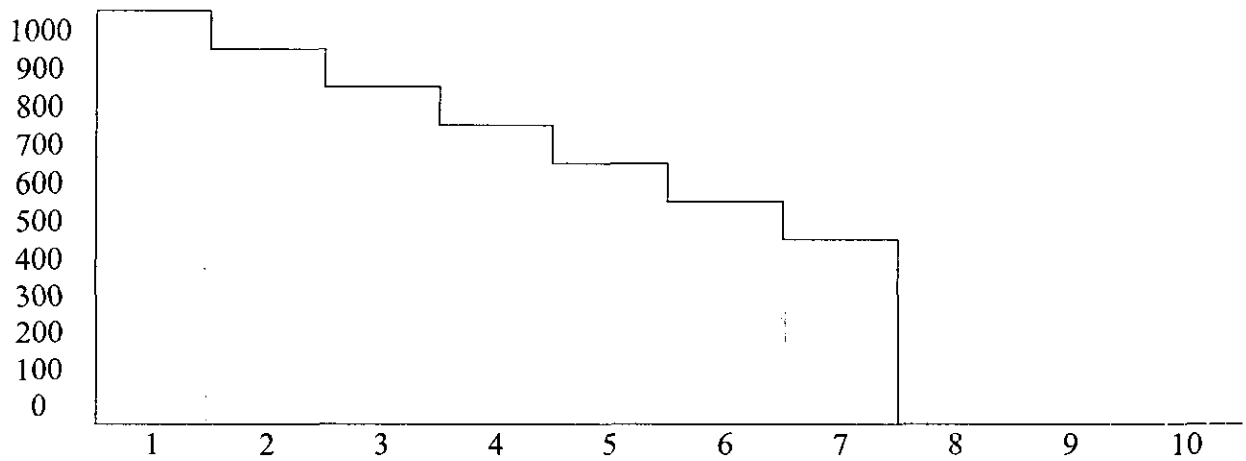
Year	BOY Investment	EOY Retirement	Annual Accruals	Net Change	End of Year Total
1	1000	100	292.90	192.90	192.90
2	900	100	192.90	92.90	289.80
3	800	100	142.90	42.90	328.70
4	700	100	109.60	9.60	338.30
5	600	100	84.60	-15.40	322.90
6	500	100	64.60	-35.40	287.50
7	400	100	47.90	-52.10	235.40
8	300	100	33.60	-66.40	169.00
9	200	100	21.10	-78.90	90.00
10	100	100	10	-90.00	-0-

Since, in this example, all retirements occur at the end of the year, the average plant in service in any year equals the Beginning of Year Plant Investment. Usually, however, retirements are assumed to occur in the middle of the activity year.

b. Vintage Group Procedure - Remaining Life Technique (Straight Line Method)

(a)	(b)	(c)	(d)	Depreciation Reserve	
Year	Beginning of Year Investment	End of Year Retirement	BOY Annual Accrual	Net Change (d - c)	End of Year Total (t = e + f)
1	1000	100	182*	82	82
2	900	100	164*	146	64
3	800	100	145*	191	45
Changes Become Known					
4	700	100	162	253	62
5	600	100	139	292	39
6	500	100	116	308	16
7	400	400	92	-0-	308
8					
9					
10					
	Sum	$1000			

depreciation for rows 1-3: $\frac{1-0}{5.5} = 18.2\%$



Future Net Salvage = 0%

Avg. Remaining Life = $\frac{700+600+500+400}{700}$ = 3.14 years

Depreciation for Rows 4-10: $\frac{1 - .273 - 0}{3.14}$ = 23.2%

Reserve Ratio = 191/700 = .273

B. Declining Balance Method

Based on charging greater depreciation in early years of service life and gradually reducing the expense with later years.

$$d = 100 - 100 \text{ (Net Salvage \$/plant balances)}^{1/ASL}$$

Note that if net salvage is zero, rate cannot be used

ASL = Average Service Life

C. Sum of the Years Digits Method

Like declining balance, this method is based on charging greater depreciation in the early years of service life.

$d = (ASL - n + 1)/SYD$ n = year #
SYD = Sum of the Year's Digits

Ex. ASL = 5 yrs.

# Yr.	# Yr. in Reverse Order	SYD depreciation factor
1	5	5/15
2	4	4/15
3	3	3/15
4	2	2/15
5	1	1/15
	15	

D. Sinking Fund Method

This method takes into account interest on the reserve

i = interest rate
annuity rate = $\frac{i}{ASL}$
$(1-1)^{-1}$

di = annuity rate

D = DI (P.B.) + iu

U = beginning of year reserve
P.B.= Plant Balance

E. Units of Production

Instead of using life characteristics, units of production are used, such as on coal or oil and gas fields. Units of production are appropriate only in instances where they predominantly affect the service life of a property.

Verify Data by repeating Company's Study Results

Conduct Staff Salvage Study

Gross Salvage And Cost Of Removal Objective:

To determine the appropriate net salvage percentage as the salvage component to include in the depreciation rate.

Description:

Gross salvage is recorded as a credit to the depreciation reserve account. Gross salvage represents monies received through:

Junk accumulated with removal of utility equipment due to replacement. These materials are sold to various dealers throughout the year dependent upon the amount accumulated.

Reused materials returned to the warehouse and included in the materials and supply inventory.

Reimbursements for utility equipment moved or changed due to requirements of other entities or through insurance payments for loss of utility property beyond control of company management.

Trade-in values associated with purchase of utility property such as vehicles or work equipment.

Sales of utility property.

Cost of removal is a debit to the depreciation reserve representing monies expended for the removal of utility property due to replacement or abandonment.

Net salvage is the difference between gross salvage and cost of removal acknowledging that negative net salvage exists as well as positive net salvage. Gross salvage exceeds the cost of removal and negative net salvage occurs when cost of removal exceeds gross salvage.

Since net salvage is an integral part of the depreciation rate, allocation of these costs to annual accounting periods is necessary. Customers therefore either benefit or pay their share of the cost involved with the removal of property retired.

Procedures:

Compute the annual percentage gross salvage, cost of removal and net salvage for at least ten years up to the date of the depreciation study.

Compute rolling three and five year bands for gross salvage, cost of removal and net salvage. Compare the removal of actual net salvage recorded annually with the amount which would accrue to the reserve using the percentage of salvage component inculpable in the depreciation rate.

Tabulate annual end of year plant balances for same periods as salvage estimates. Multiply prior net salvage percentage (it known) to plant balances to comparing salvage accrual amounts to actual net salvage booked in the accounting year. For example, R the average annual net salvage is $50,000 over the last five years and represents 5% of the retirements; apply the 5% to the annual plant balances for the same period of time. If you see that the average annual net salvage is greater than or less than the $50,000, one may want to consider adjusting the 5% net salvage to a more reasonable figure. It must be remembered that a large portion of the salvage is only representative of piecemeal construction and may not be indicative of the entire investment as in the case of removal of an entire building versus removal of copper conductors.

Determine by inspection of the property if salvage estimate is reasonable considering environmental issues, reuse of structures, liability claims, etc.

Analyze salvage and cost of removal data recorded on books for unusual fluctuations. Review salvage source documents to provide analyst with detailed knowledge of the accounting concepts.

Tabulate recommended salvage percentages on Depreciation Study Work Sheet along with written statements of why, in the opinion of the analyst, they are appropriate.

Data Requests:

Provide on magnetic tape or diskette by Primary Plant Account, Annual Salvage, Cost of Removal, Retirements and Plant Balances for years 19_ through 19- in accordance with the attached tape or diskette specifications.

TRANSACTION CODE DESCRIPTIONS

Code	Description
0.	Regular Retirement All retirements from plant which occur in the course of normal operations for causes that are to be covered by depreciation accruals. Typically, these include all causes other than those listed below.
1.	Reimbursed Retirement. Retirement for which the Company received payment approximating or exceeding the depreciated original cost of the property, and such payment was recorded as a credit to the depreciation reserve account. Reimbursed retirements are usually related to extraordinary circumstances such as fire or other accidents for which the loss is covered by insurance, and to property moved or abandoned due to the requirements or requests of outside parties, for which the Company is reimbursed.
2.	Sale. Transfer of ownership of property for which the Company received payment approximating or exceeding the depreciated original cost and the property would not have been retired at or near that time if the sale had not occurred. Sales generally relate to circumstances in which the property has not actually been retired, but continues in public service following the transaction. Sales in lieu of abandonment are classified as regular retirements.
3.	Transfer. Transfer of property between accounts or property

	groups. Use for both transfers-in and transfers-out, and for intra-account transfers.
4.	Beginning-of-Interval Transfer. Transfer of property between accounts and property groups that are to be considered as occurring at the beginning rather than the end of the age interval. Includes major transfers of property into the account or property group, such as to initiate an account or to substantially increase the size of an existing account.
5.	Acquisition. Purchase, trade or similar transaction where property previously in public service was acquired.
6.	Adjustment. Used for control purposes in Plant Accounting data, and for adjustments, special appropriations, or transfers to or from the Depreciation Reserve account in Cost of Removal and Salvage data.
7.	Outlier Retirement A retirement that occurs under unusual circumstances such that the analyst deems it appropriate that it be excluded from the retirements used in the service life or salvage study.
8.	Ending Balance. The balance of plant in service as of December 31 of the most recent year included in the Experience Band or as of a specified calculation date.
9.	Beginning Balance. The balance of plant in service as of December 31 of the year preceding the first year included in the Experience Band
10.	Gross Addition. Placements of plant in service as replacements of plant retired or as additions to plant in service.

NOTE: Corrections should be assigned the same code as the transaction being corrected.

Verify Depreciation Reserve

Purpose:

Requirements of the Uniform System of Accounts. adopted by rulemaking by the Commission. Contra account to plant accounts.

Objective:

To provide a measure of investment recovered through cost of service.

Deduction from plant in service for use in determining rate base.

Measure of consumed usefulness.
Measure of Capital return to the equity holder (both debt and equity).
Use for determining remaining life depreciation rates.
Checks and balances for under/over accrual of depreciation expense.

Procedures:

Obtain from annual reports and/or reserve ledgers, past reserve levels by primary account. Check for unusual fluctuations and determine reserve ratios by plant account. Reserve ratios are necessary to compute depreciation rates based on remaining life. Check salvage, cost of removal and retirements with random sample of work orders to insure proper accounting. Determine through analysis if salvage such as insurance claims, materials returned to stock, etc., is in conformance with the Uniform System of Accounts. Through analysis, determine if cost of removal is properly chargeable to reserve versus charged in current year maintenance.

For any account with more than 100% reserve, adjust depreciation rate to allow only the cost of removal component in depreciation expense.

For any account containing a debit reserve balance, investigate reasons debit balance occurred. Remove debit reserve from rate base and amortize to expense over a reasonable period provided the reasons causing a debit balance are prudent. If reserve is not maintained by primary plant account, recommend the Commission order the utility to do so.

Theoretical Reserve For Depreciation

Objective:

To test the adequacy of the reserve for depreciation.

Description :

Theoretical reserve studies consist of two procedures. The first is called the retrospective method in the calculation of theoretical reserve. It consists of applying prescribed or estimated depreciation rates to period (annual, monthly) plant balances to arrive at the amount of accrued depreciation. Its application is limited to special cases such as extraordinary retirement where there may be reserve deficiency requiring amortization.

In the prospective method the reserve requirement as of the date of study is equal to the plant balance minus the future accruals minus the estimated net salvage. Future accrual ratio is the depreciation rate times the remaining life expectancy. For most

reserve requirement studies, the theoretical reserve ratio is determined for each vintage of property investment utilizing the remaining life of the vintage. Summation of the ratios times the vintage investment yields the Theoretical Reserve Ratio.

Caution must be exercised in making judgments regarding theoretical reserve ratios in that they are very approximate.

Another variation of the Theoretical Reserve Ratio is the age life concept. Age life studies always result in an overstatement of the theoretical reserve since it overlooks early retirements.

Further explanation of theoretical reserve studies is contained in "Public Utility Depreciation Practices" published by NARUC and "Engineering Valuation and Depreciation" by Marston, Winfrey and Hemstead. The latter reference refers to several bulletins published by Iowa State University relating to the subject.

Procedures:

Tabulate a history of Commission prescribed depreciation rates by primary plant account beginning with the earliest year of available information.

Tabulate investment balances by primary plant and vintage at the date of study.

Determine by study, the average life, remaining life expectancy and retirement dispersion by primary plant account.

Determine net salvage values by primary plant account.

Tabulate the book depreciation reserve by primary plant account at the date of study and compare to the theoretical reserve.

Follow procedures outlined in the referenced publications since the purpose of the study may vary.

Data Requests:

Request annual gross additions and plant adjustments, retirements, and plant balances beginning with the earliest year of available data to date of the study.

Request utility to provide on magnetic tape or diskette and by primary plant account, gross dollar additions and plant account adjustments by vintage year, retirements by vintage year and year retired, and annual surviving dollars by vintage year in accordance with the attached tape or diskette specifications beginning with the earliest year to date of the study of available data.

Provide annual gross salvage, cost of removal, retirements for the previous ten years as of the date of study in accordance with the attached tape on diskette specifications.

Conduct Staff Depreciation Study

LIFE ESTIMATION

Objective:

To determine by primary plant account the estimated average life and remaining life of utility investment capitalized for the purpose of establishing proper and adequate depreciation rates.

Description:

Two methods are frequently used to analyze past historical accounting data to arrive at some meaningful indication of past life. The actuarial method requires detail records, which show the age of property retired by vintage year, annual gross additions and annual transfers or sale of property. For some accounts, it is not practical to maintain records in such detail since the identification of the various units of property may not be possible. Therefore, simulated methods of analysis of accounting data are used. Simulation requires a long history of the annual plant additions, retirements, plant adjustments and plant balances.

The first step to arrive at an estimated life is to analyze past accounting data using the statistical methods previously described which requires little personal judgment except for the selection of the statistical method. For some classes of plant such as electric generating facilities, telephone switching equipment, large buildings, etc., additional data as to final date of retirement of each unit is mandatory. This type of study is commonly referred to as the Life Span{ XE "The number of years between the year of installation of a major structure unit and its year of final retirement." } or forecast method of analysis.

The second step, life estimate or life forecast, is primarily a matter of fully informed engineering judgment concerning the type of plant facilities, operating characteristics, accounting methods, management practices and forecasting techniques. The most important element of judgment to forecasting lives based on past experience is the tabulation of observable trends, past and future-operating conditions, management practices, changes in technology, etc. There is no reason to assume that all factors of depreciation existing in the past will continue to operate similarly in the future. Therefore, it is necessary to study past lives, past performances and present conditions known to exist when interjecting informal judgment into predictions of future lives.

The accuracy of service life determinations will depend on the accuracy and completeness of the information obtained from accounting records and the forecasting techniques used.

FORECAST OR LIFE-SPAN STUDIES

Objective:
To arrive at an estimated average life for use in determining proper and adequate depreciation rates.

Description:

Unlike mass utility property such as poles, mains, conductors, etc., there exists utility property that requires some forecast as to its date of retirement. Types of plant applicable to this type of analysis are buildings, electric power plants, telephone switching equipment, gas storage fields, etc.

The life span analysis requires actuarial data which lists the interim retirements, i.e., components which are units of property and capitalized such as air conditioning, heating, floor coverings, piping, circuit boards and a host of other components contained in the retirement unit lists. From the interim retirements contained in the actuarial data, an interim retirement life table is constructed.

The general characteristic of life studied using this procedure is a gradual increase in the depreciation rate with time. Consider an electric power plant, which may have a useful life of 35 years. As individual components of the facility retire and replacement is necessary, the life of the component replaced is less than the 35-year life of the facility. Therefore, it is necessary to forecast the estimated date, which the entire facility is to be retired. It also points out the necessity of frequent reviews of the plant life.

Procedure:

Request all retirement history for each account, the same as mass property but do not include retirements associated with a facility which was retired previously. Interim retirement history is required for the facilities, which exist at the time of the study.

Estimate the date of final retirement for each structure, power plant, central office switch, etc.
Obtain the surviving dollars by age for each facility at the date of study.

Using direct weighing, multiply the surviving investment for each unit, structure, etc., times the number of years from the study date to retirement. Summation of the dollar weights divided by the total investment will yield the estimated dollar weighted remaining years to final retirement.

Do not include any future additions in the study as these additions represent plant yet to be installed which is not used and useful and in public service.

From history of the aged retirements and additions, determine the appropriate interim retirement life table. It historical data are insufficient, estimate a life table which may be considered reasonable. However, document whatever facts used as a basis of the selection. In most instances, the selection of the interim retirement life table will not have a dramatic impact on the life. More important is the accuracy of the forecasted date of final retirement.

Inspect facilities to determine its use, amount of use, operating characteristics, type of equipment, capacity, condition, etc., which may aid in forecasting the final retirement date.

Interview operations personnel for input as to their estimate of final date of retirement, Maintain careful and well document notes during the interview.

Request from other Departmental Commission Staff engineers, their estimated date of final retirement along with documentation of the basis these retirement dates were selected.

Review all economic studies of construction projects, which may indicate definite reasons warranting replacement of large plant facilities.

Carefully consider any large scale removal costs such as decommissioning of a nuclear power plant, demolition of large structures, or sale of facilities.

Utilizing the aged investment and retirements, complete the analysis using the computer program contained in "DEPRATE".

ACTUARIAL METHOD OF LIFE ANALYSIS

Description:

The actuarial method of analyzing past accounting experience is similar to those procedures used by insurance companies for investigating human morality. Actuarial methods require a knowledge of the age of property investment at the time of its retirement and in most cases, some additional information as to the age of survivors or plant investment remaining in service.

It is a process by which the retirement or survivorship characteristics with respect to age, as exhibited from vintage to vintage in the company's investment history, are merged or averaged and expressed as a composite. The resulting average survivorship characteristics or average retirement frequency distribution is dependent upon the accuracy of recording the age data in the accounting records.

Two principal methods of the actuarial approach are (1) the original group method, and (2) the annual rate method. For regulatory purposes, the annual rate method is used throughout the various computer programs and considered more appropriate for utility property. The annual rate method relates the survivors of a given age to the survivors of the previous age-year, yielding a sequence of survival probabilities from which a survivorship characteristic can be constructed. Under the annual rate method, a series of ratios, which constitute the survivor probabilities, are the ratios of the survivors at the end of the year compared with the survivors at the beginning of the year. A survivor relationship can be constructed from these survivor ratios by successive multiplications of these ratios starting with unity and taking the ratio in succession at annual intervals beginning with age 0.5. Beginning are 1.5 assumes that all plant investment is installed in the middle of the year since most construction may be made throughout a given year.

More often than not, survivor curves are irregular and require some type of smoothing and extrapolation. Various mathematical curve-smoothing techniques have been devised. However, for purpose of the studies contained herein, known survivor curves, which have been smoothed, are used to fit past data and known as the Iowa curves. It should be noted that use of Gompertz-Markham (another mathematical curve smoothing technique) is widely used by the Bell System and is recognized as an acceptable method of curve smoothing. Computer programs in use by the Depreciation Staff have incorporated the Gompertz-Markham process.

Graphical smoothing and extending of survivor ratios is frequently done, primarily because it is less complicated. However, mathematical type of survivorship characteristics which implies both smoothing and extrapolation, with the use of standard families of curve, is commonly done. Gompertz-Markham formulas, used extensively in life insurance work, were the forerunner of others. The "Iowa curves" are representative of several families of "generalized" survivor curves developed for application to physical plant and are used extensively in life determinations of utility assets.

Whatever the family of curves selected, the process consists of matching the particular type curve-survivor ratios against the "observed" stub curve data and assuming that the type curve which best fits the observed data is most likely to represent future experience. The matching may be done by plotting the stub curve on transparent paper, which is superimposed on the type curves plotted to the same scale, or may be fitted by squaring annual differences between the stub and type curve. However, the use of mathematical least square fitting process has objectivity in that two analysts would arrive at the same answer using like data. Superimposing stub curves upon type curves leave the analyst with judgment, which may be jeopardized, in a regulatory setting.

Procedures:

Check annual plant balances from database with annual report or company furnished reports to insure accuracy of database.

Analyze observed life tables for possible irregularities such as over retirement of vintages, negative retirement, irregular adjustments, etc.

Smooth life tables using Iowa dispersion curves and least square curve-fitting procedures. Alternative use of Gompertz-Markham curve fitting procedures permitted depending on data or utility. Manipulate the number of observations contained in observed life table ("T" cut) to arrive at best fitting curve. Tabulate results on depreciation study data worksheet.

Establish trends in past life indications to establish reasons for selection of future life table. Tabulate reasons for this selection insuring that the basis for selection is more than pure judgment.

Check matrix for incorrect data such as negative retirements, over retired vintages of investment, incorrect years or plant balances. It may be necessary to correct database to conform to program requirements. Any adjustment to database must be noted when corrections are made. (Corrections can be noted by using ISPF when correcting matrix or by manual notes.)

If data is received via magnetic tape or diskette, the data is read into the computer in accordance with the instructions tabulated under computer instructions contained herein.

Data Requests:

Request utility to provide on magnetic tape or diskette by primary plant account, gross dollar additions and plant account adjustments by vintage year, retirements by vintage year and year retired, and annual surviving dollars by vintage year in accordance with the attached type or diskette specifications beginning with the earliest year to date of the study of available data.

Request annual gross additions and plant adjustments, retirements, and plant balances beginning with the earliest year of available data to date of the study.

SIMULATED ANALYSIS

Simulated Plant Balance

Description:

The Simulated Plant Balance (SPB) method of determining the life of utility plant assets is described in the 1943 Report of the Committee on Depreciation of the NARUC and is published in the EEI Bulletin 51-53. When aged retirements are unavailable or

impracticable to record, the SPB is a recognized method of analysis. However, caution must be exercised in that ft is a simulated method. Use of the SPB method requires a long history of additions, retirements, adjustments and plant balances to arrive at a meaningful life indication. Pure mathematical theory of the method must not be substituted for engineering judgment of the equipment.

Using a family of mortality curves such as the Iowa curves found in Bulletin 125 of the Iowa State University, Ames, Iowa, the percent surviving of each year's additions for a given life are summed to arrive at a five or seven year average plant balance. Comparing these average plant balances to the actual balances using least square fitting routines, an indicated life of past mortality data can be found. By adjusting the life of each Iowa curve and a comparison of the least square fit, a reasonable life in most instances is attained-, provided a sufficient history of additions, retirements and plant balances are available.

Procedures:

Tabulate gross additions, retirements, adjustments and plant balances by primary plant accounting beginning with the earliest year of available history to present date. This information in most instances should be requested for the utility company.

For each account, make a comparison of the actual versus simulated plant balances to determine the best-fit curve using the simulated plant balance program located in DEPR. This program will list each curve, indicated life and conformance index.

The conformance index is a statistical device, which indicates the goodness of fit for each curve run. To indicate the goodness of fit in relation to the size of the account, an index has been devised and designated as the conformance index. The criterion of goodness of fit is the mean square of the differences between the actual and calculated balances. The square root of this mean square is considered the standard error of estimate. The conformance index has been taken as the ratio of the average of the year end balances of the account, in the years for which comparisons have been made, to the standard error of estimate. Thus computed, this conformance index usually ranges somewhere between 10 and 100, with a few cases so poor they are less than 10.

Arbitrarily, it has been considered the conformance index may be graded as:

Excellent for Ratios over 75
Good for Ratios between 75-50
Fair for Ratios between 50-25
Poor for Ratios between 25-0

The merit of a result, however, is not adequately represented by the conformance index. In some cases the conformance might be high and yet the result could be questionable because of insufficient experience with the account. For instance,

a particular account might show excellent conformance for an average life of Iowa dispersion. But d the experience with the account covers only 20 years, the retirement of the first year's additions will have amounted to only 6%.

To measure and codify this matter, a complementary index has been devised to show the amount of experience with the accounts and has been designated as the "Retirement Experience Index". This index is the accumulated retirements of the first year's additions in the account, on the assumption that these additions have been retired in accordance with that pattern of life and mortality dispersion which was found to be the best fitting by the SPR method. This index is obtained by observing the survivor's table for the type of mortality dispersion associated with a particular pattern which has been selected as the best fitting one and noting the accumulated retirement's percentage for that age which represents the age of the account. (Accumulated retirements in percent equal 100 minus survivors in percent.)

Retirement	Experience Index
Excellent	Over 75%
Good	From 50 to 75%
Fair	From 33 to 50%
Poor	From 17 to 33%
Valueless	From 0 to 17%

The retirement index as here described is, in effect, based on simulated accumulated retirements of the first year's additions.

Tabulate by primary plant account the best fitting life table, average life, and conformance index and retirement experience index.

For further information it is recommended that the analyst become familiar with Methods of Estimating Utility Plant Life published by Edison Electric Institute, Publication 51-23, Published 1952.

Data Requests:

Provide by primary plant account, the annual gross additions, retirements, plant adjustments and plant balances beginning with the earliest year of available data to present date.

Provide the data requested in Item (1) on diskette or electronically in accordance with the attached data format specifications.

COMPUTED MORTALITY

Description:

Computed mortality is a variation in the simulated plant balance procedures. Estimation of plant utility life rising computed mortality relies on curve formulas to distribute retirements based on a known retirement frequency to arrive at annual plant balances as life varies.

In the Bell System, use of the retirement distribution is applied to units of property, priced, thus retirement dollars are accounted for. It is also the basis of the age distribution of the surviving dollars for those accounts utilizing this method of retirement unit pricing. As long as retirements are distributed in this manner, curve shapes remain constant as life varies and reasonable life estimates are obtained.

However, use of computed mortality, without distribution of retirement units, applied to plant additions to arrive at plant balances most likely will not give the proper life since it only checks one year's plant balance where as in the SPB procedure, 5 to 7 years are checked for each of the 21 Iowa curves.

Procedures:

Computed mortality utilizes annual gross additions and plant balances by primary plant account.

Using a selected best fitting retirement dispersion pattern the program produces annual life indications. Since life indications based on one year of data can fluctuate radically, extreme caution should be exercised in basing a life indication based solely on this method.

Next, a best fitting retirement pattern and life can be chosen for the future. These selections can be used to calculate an average life and average remaining life for an account by using the generation arrangement described previously. In other words, this method simulates the actuarial data needed for a generation arrangement.

Tabulate results of computer runs listing average and remaining life in addition to projected curve type.

Data Requests:

This program uses the same data provided under the request for the simulated plant balance program.

SIMULATED PLANT RECORD

Description:

This method of analysis is a variation in the Simulated Plant Balance previously described. Instead of matching annual plant balances, the annual retirements are

matched using various retirement dispersion curves. Based on model tests, @ is somewhat more sensitive but theoretically should yield the same results as the simulated plant balance and requires the same data input.

OTHER SIMULATED METHODS

Description:

Published by Edison Electric Institute in Bulletin No. 51-53 are four additional methods of simulation to arrive at life of utility plant investment. For further information read the above referenced bulletin.

GENERATION ARRANGEMENT

Description:

All prior discussion relating to the life analyses was used to determine the future life of the utility investment. The generation arrangement is the mechanism by which past life of the asset is fused with the future life of the investment under study. Past life is one of record and can be documented as known fact. However, future life is one of gathering information as to survivorship characteristics in order to predict future life of the investment. Fusing past life with future life expectancies one can properly determine remaining life as well as average life. Each vintage of property investment must be weighted with past and future life expectancies to arrive at mathematically correct composite lives.

Procedures:

Use of the generation arrangement contained in "DEPR" to aid in computations, the future life table shape and average life is input to the computer program. Additionally, plant reserves, future and average salvage ratios are also inputs. Based on these inputs, each vintage's average life, remaining and percentage of investment surviving are computed. Upon composing these vintage lives, a remaining life and whole life depreciation rates are computed.

The generation arrangement is the final step in the determination of life of the asset under study.

Schedule of Staff Recommended Depreciation Rates

The following tables provide examples on compilation of the depreciation study result parameters, as well as, examples for presentation to the Commission via filed testimony.

UTILICORP UNITED ELECTRIC ACCOUNTS

Comparison of Mortality Characteristics

1.00	(2)	(4)	(5)	(6)		(7)	1.00	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
		EXISTING RATES										Commission Staff Recommended			DELOITTE STUDY RATES												
Account Number	Description	Plant Balance 12-31-95	Accrued Reserve 12-31-95	Ordered Average Service Life yrs	Ordered Iowa Type	Net Salvage %	Rating Index %	Current Annual Accrual	Average Service Life	Iowa Type Curve	Net Salvage	Deprec. Rates %	Annual Accrual	Increase or Decrease	Average Service Life yrs	Iowa Type Curve	Interim Retirement Ratio %	Interim Addition Factor	Interim Net Salvage %	Termit Net Salvage %	Salvage %	Study Rate %	Study Annual Accrual	Increase or Decrease	Proposed Rate %	Proposed Annual Accrual	Increase or Decrease
	JEFFREY PLANT														AVG R.L.						AVG Net						
311.11	Structures & Impr	$17,961,262	$8,220,706	31.0	R1	1	3.26	$585,538	31.8	R1	(13)	3.99	$716,655	$131,117	18.382		0.0110	92.9	-30	-9.2	-9.4	3.85	$691,509	$105,972	4.31	$774,131	$188,593
312.11	Boiler Plant Equip	$57,463,751	$26,045,375	27.0	R2	(4)	3.85	$2,212,354	38.8	L2.5	-9	4.19	$2,407,731	$195,377	18.856		0.1260	3.1	-60	-9.2	-9.8	3.716	$2,136,353	($77,001)	4.16	$2,390,462	$178,108
314.11	Turbogenerator Ur	$15,932,178	$3,516,124	27.0	S6	(2)	3.78	$602,236	27.8	S6	-7	4	$637,287	$35,051	18.564		0.4320	4.7	-20	-8.2	-8.4	4.233	$674,409	$72,173	4.69	$747,219	$144,983
315.11	Accessory Electric	$5,370,365	$2,563,936	28.0	L2	(5)	3.75	$201,389	28.8	R3	-20	4.19	$225,019	$23,630	17.478		0.6270	6.9	-20	-9.2	-9	4.087	$219,486	$18,098	4.54	$243,815	$42,426
316.11	Misc. Power Plant	$789,190	$218,619	32.0	R1.5	0	3.13	$24,702	32.0	R1.5	-1	3.77	$29,358	$4,656	15.173		0.4120	15.0	-5	-9.2	-9	6.26	$49,724	$24,623	6.76	$50,507	$29,805
	TOTAL		$42,564,761					$3,626,238					$4,016,050	$389,831									$3,770,083	$143,964		$4,209,165	$582,945
	STEAM PRODUCTION PLANT																										
	RILEY PLANT														AVG R.L.												
311.12	Structures & Impr	$32,302,129	$13,493,553	31.0	R1	1	3.26	$1,053,049	31.8	R1	-13	4.29	$1,385,761	$332,712	13.757		0.0880	20.8	-30	-11	-11.1	5.419	$1,750,452	$697,403	5.98	$1,931,667	$878,618
312.12	Boiler Plant Equip	$119,372,142	$34,691,697	27.0	R2	(4)	3.85	$4,595,827	41.2	L2	-9	3.69	$4,404,832	($190,995)	13.652		0.2730	4.8	-60	-11	-12	6.119	$7,304,381	$2,708,554	6.74	$8,045,682	$3,449,855
314.12	Turbogenerator Ur	$41,083,947	$18,878,311	27.0	S6	(2)	3.78	$1,552,973	36.5	S4	-15	3.4	$1,396,854	($156,119)	13.631		0.0280	36.3	-20	-11	-11.1	5.063	$2,079,972	$522,999	5.6	$2,300,701	$747,728
315.12	Accessory Electric	$13,435,365	$4,503,067	28.0	L2	(5)	3.75	$503,826	28.9	R3	-20	4.41	$592,466	$88,639	13.233		0.8370	2.4	-20	-11	-11.4	6.263	$841,459	$337,633	6.62	$916,291	$412,465
316.12	Misc. Power Plant	$575,618	$220,464	32.0	R1.5	0	3.13	$18,017	32.0	R1.5	-1	3.68	$20,907	$2,890	11.914		0.9020	6.2	-5	-11	-10.7	7.202	$41,974	$23,957	7.91	$45,531	$27,515
	TOTAL		$71,117,513					$7,723,823					$7,900,554	$76,881									$12,014,236	$4,290,543		$13,239,873	$5,516,181
								$11,349,912					$11,816,604	$466,692									$15,784,319	$4,434,407		$17,449,036	$6,099,126
	OTHER PRODUCTION PLANT																										
341.00	Structures & Impr	$1,106,361	$377,638	18.0	L0	(1)	5.61	$62,060	40.2	R4	-6	3.5	$36,724	($23,345)	11.62		0.0005	7.0	(5)	(5)	(5)	6.935	$76,728	$14,668	6.94	$76,784	$14,715
342.00	Fuel Holders, Pro	$968,788	$458,939	22.0	S3	(1)	4.59	$39,923	32.7	S3	0	3.56	$31,295	($8,628)	12.204		0.0005	7.0	(5)	(5)	(5)	5.614	$48,830	$8,907	5.61	$48,795	$8,872
343.00	Prime Movers	$5,504,572	$789,144	21.0	S0	(1)	4.81	$289,986	24.1	R3	-1	4.45	$246,958	($20,140)	14.127		0.0005	7.0	(5)	(5)	(5)	6.897	$380,823	$111,724	6.98	$390,501	$121,402
344.00	Generators	$5,748,002	$1,869,220	20.0	S0	0	5.00	$287,400	32.0	R3	-5	3.89	$223,597	($63,803)	11.494		0.0005	7.0	(5)	(5)	(5)	7.1	$408,108	$120,708	7.1	$408,108	$120,708
345.00	Accessory Electric	$2,256,718	$814,332	21.0	S3	0	4.76	$107,562	31.9	S1	-5	4.15	$93,778	($13,784)	12.321		0.0005	7.0	(5)	(5)	(5)	6.999	$158,158	$50,595	7	$158,180	$50,618
346.00	Misc. Power Plant	$503,208	($92,810)	21.0	S3	0	4.76	$23,952	34.4	S4	-5	3.99	$20,079	($3,873)	14.732		0.0005	7.0	(5)	(5)	(5)	7.88	$39,673	$15,720	7.88	$39,653	$15,700
	TOTAL		$4,014,884					$790,888					$858,361	($133,645)									$1,112,319	$322,313		$1,122,021	$332,015
	TRANSMISSION PLANT																										
352.00	Structures & Impr	$2,665,213	$734,331	52.0	R1	0	1.92	$51,148	45.0	R3	-5	2.33	$62,798	$11,650			W.L. Rate	avg R.L.				ELGRL					
353.00	Station Equipment	$52,980,011	$17,632,785	48.0	R2	2	2.04	$1,080,792	46.9	R1.5	-5	2.24	$1,186,752	$105,960	45.0	S6	2.33	31.15	(5)	0		2.50	$67,380	$15,632	2.50	$67,380	$15,632
354.00	Towers & Fixtures	$332,143	$213,364	46.0	S6	0	2.17	$7,209	46.0	S6	0	2.13	$7,075	($133)	50	R2	2.33	30.57	(5)	10		2.35	$1,246,030	$184,238	2.35	$1,246,030	$184,238
355.00	Poles & Fixtures	$26,294,561	$10,340,041	47.0	L2	(28)	2.72	$769,719	46.4	R2	-50	3.24	$916,871	$147,152	55.0	S3	3.91	28.58	-60	5		3.34	$11,094	$3,886	3.34	$11,094	$3,886
356.00	Overhead Conduc	$30,457,576	$11,805,420	54.0	R1.5	(18)	2.19	$667,021	53.6	R3	-31	2.46	$746,211	$79,190	46	R2	3.7	29.3	-60	5		4.21	$1,191,367	$421,646	4.21	$1,191,367	$421,646
358.00	Underground Cos	$58,133	$25,453	37.0	S0	0	2.70	$1,570	32.0	S4	0	3.10	$1,820	$250	54	R3	2.8	35.3	-40	25		2.87	$874,132	$207,112	2.87	$874,132	$207,112
	TOTAL		$40,751,424					$2,579,058					$2,921,527	$343,469	32.0	S4	4.01	13.61	-25	5		5.97	$3,471	$1,901	5.97	$3,471	$1,901
																							$3,392,474	$814,418		$3,392,474	$814,418
	DISTRIBUTION PLANT																										
361.00	Structures & Impr	$2,351,569	$561,225	47.0	R1	(2)	2.17	$51,039	47.0	R1	-5	2.24	$52,675	$1,646	43.0	R5	2.47	29.71	(5)	0		2.73	$64,198	$13,159	2.73	$64,198	$13,159
362.00	Station Equipment	$40,440,810	$12,516,389	47.0	R0.5	(1)	2.15	$869,477	57.4	R0.5	0	1.74	$703,670	($165,807)	42.0	S-5	2.71	24.83	0	20		2.77	$1,120,210	$250,733	2.77	$1,120,210	$250,733
364.00	Poles, Towers & F	$74,830,568	$28,419,652	39.0	L5	(19)	3.05	$2,282,228	39.4	L5	-75	4.36	$3,286,053	$1,003,727	40	R5	4.31	28.05	-70	10		5.07	$3,793,899	$1,511,673	5.07	$3,793,899	$1,511,673
365.00	Overhead Conduc	$45,685,169	$15,345,902	50.0	R2	(18)	2.36	$1,078,173	51.6	R2	-40	2.72	$1,242,637	$164,467	52.0	R2	2.92	30.58	-30	30		3.12	$1,425,377	$347,207	3.12	$1,425,377	$347,207
366.00	Underground Con	$11,683,895	$2,264,710	40.0	R4	(1)	2.53	$295,603	55.8	R2	-10	1.97	$230,173	($65,430)	56.0	R2	2.43	38.87	(10)	10		2.46	$287,424	($8,179)	2.46	$287,424	($8,179)
367.00	Underground Con	$36,701,318	$4,896,918	38.0	L1	(2)	2.68	$1,063,925	35.7	R3	-20	3.36	$1,333,984	$269,959	37	R2.5	3.77	24.23	-25	5		4.23	$1,679,366	$615,370	4.23	$1,679,366	$615,370
368.00	Line Transformers	$68,104,135	$16,789,784	28.0	S1.5	(5)	3.79	$2,581,142	28.1	R2.5	-25	4.45	$3,030,934	$449,487	29	R2.5	4.56	17.25	-25	10		5.82	$3,963,661	$1,382,514	5.82	$3,963,661	$1,382,514
369.00	Overhead Service	$10,646,436	$5,892,392	43.0	S6	(25)	2.91	$309,811	48.3	R4	-286	7.99	$850,650	$540,839	46	R5	7.39	30.76	-250	5		9.64	$1,026,316	$716,505	9.64	$1,026,316	$716,505
369.20	Underground Ser	$23,034,376	$752,395	25.0	L3	(1)	4.64	$999,523	28.2	L5	-1	3.81	$831,541	($99,948)	26	L5	4.2	18.11	-15	0		4.46	$1,004,243	$163,655	4.46	$1,004,243	$163,655
370.10	Meters	$17,461,417	$7,676,375	43.0	L4	(1)	2.35	$410,343	40.3	R4	-1	2.5	$436,535	$26,192	40	R4	2.61	34.42	-2	0		2.38	$415,582	$5,238	2.38	$415,582	$5,238
370.50	Load Research Mi	$2,071,851	$215,244	8.0	R5	0	2.35	$48,623	11.5	S6	0	8.7	$180,251	$131,583	10.0	S6	10.07	7.37	0	0		12.15	$251,730	$203,041	12.15	$251,730	$203,041
371.00	Installations on Cu	$7,044,940	$1,503,750	17.0	R2.5	(21)	7.12	$501,609	19.9	R2.5	-45	7.29	$513,576	$11,976	20.0	R2.5	7.5	12.34	-40	10		9.62	$677,723	$176,124	9.62	$677,723	$176,124
373.00	Street Lighting & T	$14,440,665	$3,853,188	26.0	R2	(17)	4.68	$675,796	30.3	R0.5	-30	4.27	$816,592	($59,204)	27.0	S0.5	5.17	15.62	-25	10		5.26	$903,949	$228,153	5.26	$903,949	$228,153
	TOTAL		$104,555,584					$11,096,513					$13,307,951	$2,209,376									$16,843,679	$5,545,104		$16,843,679	$5,545,104
	GENERAL PLANT																										
390.10	Structures & Impr	$7,652,273	$1,396,304	45.0	L3	(11)	2.47	$193,907	56.3	R2.5	-10	2.19	$171,985	($21,868)	45	R1.5	2.99	28.42	-10	5		3.44					
391.00	Office Furniture &	$4,957,712	$997,137	n/a	n/a	n/a	7.00	$347,040	17.1	L0	5	5.5	$272,674	($74,366)	45	R3	2.85	36.52	-10	0		3.02	$237,139	$43,188	3.02	$237,139	$43,188
391.01	Computer Equipm	$15,089,574	$15,665,786	n/a	n/a	n/a	2.50	$3,395,154	13.0	S6	25	5.77	$870,888	($2,524,486)	13	L0.5	7.46	6.04	5	5		10.79	$347,040	$0		$347,040	$0
391.12	Computer Equipm	$228,391	$120,265	12.0	R2.5	0	8.33	$19,153	13.0	S6	0	7.69	$17,858	($1,458)	9	R0	9.47	4.17	0	0		0.91	$3,395,154	$0		$3,395,154	$0
392.10	Transportation Eq	$1,062,671	$354,630	n/a	n/a	n/a	9.44	$110,949	9.3	R4	5	10.17	$108,074	($2,869)	10.64	R4	10.64	4.83	5	5		10.78	$110,949	$0	12.76	$110,949	$0
392.20	Transportation Eq	$3,491,462	$1,774,539	n/a	n/a	n/a	9.60	$342,163	9.3	R2.5	4	10.3	$359,621	$17,457	9	S2	10.61	4.68	5	0		9.44	$342,163	$0	9.44	$342,163	$0
392.30	Transportation Eq	$5,897,234	$3,376,207	n/a	n/a	n/a	9.00	$471,776	15.5	R3	5	8.06	$357,372	($114,405)	13	S3	7.25	5.9	5	0		6.4	$471,776	$0	6.40	$471,776	$0
392.40	Transportation Eq	$814,858	$313,812	n/a	n/a	n/a	5.26	$43,023	17.3	L1	7	5.38	$43,830	$815	15	L3	6.15	8.53	10	0		6.03	$43,025	$0	6.03	$43,025	$0
392.50	Transportation Eq	$3,468,753	$856,709	n/a	n/a	n/a	n/a	$0	17.3	L1	0	5.78	$202,228	$202,228	20	SQ	5	17.23	0	392.3		4.32	$0	$0	4.32	$0	$0
393.00	Stores Equipment	$83,833	($9,786)	n/a	n/a	n/a	8.33	$6,985	3.6	L3	0	24.35	$20,413	$13,430	18	L3	8.01	12.69	0	0		6.88	$6,983	$0		$6,983	$0
393.10	Stores Equipment	$84,191	$26,879	13.0	L3	0	7.69	$4,832	23.7	L0	0	4.22	$2,706	($2,225)	18.0	L3	4.82	8.04	0	0		9.19	$5,826	$994		$0	($4,832)
394.00	Tools, Shop & Ga	$1,994,320	$1,442,226	18.0	L0	(1)	5.61	$111,851	23.6	O2	-3	4.87	$97,152	($24,730)	16	L0	5.78	6.3	-5	0		3.94	$78,576	($33,305)		$0	($111,881)
395.10	Laboratory Equipr	$1,699,723	$542,005	20.0	L3	0	5.00	$84,986	34.2	L1	0	2.92	$49,632	($35,354)	25	R2	4.44	15.45	0	0		4.03	$68,499	($16,487)		$0	($84,986)
396.10	Power Operated E	$1,497,825	$831,645	n/a	n/a	n/a	3.60	$194,718	7.9	R3	3	12.22	$183,035	($11,683)	7	R2.5	12.42	3.7	10	10		12.94	$194,718	$0	12.94	$194,718	$0
396.20	Power Operated E	$2,722,379	$1,205,656	n/a	n/a	n/a	5.56	$151,384	17.9	L1.5	3	5.42	$147,553	($3,831)	15	L3	8.47	7.81	5	5		5.41	$151,364	$0	6.41	$151,364	$0
397.00	Communication Eq	$3,713,927	$586,748	n/a	n/a	n/a	3.41	$126,649	16.6	L1	-10	5.65	$217,265	$90,620	20	L3	8.01	13.37	-10	0		7.05	$126,645	$0		$126,645	$0
397.10	Communication Eq	$4,758,365	$2,865,284	10.0	R4	1	3.90	$471,691	18.8	L1	12	4.66	$222,693	($248,998)	16.0	R4	6.3	6.86	0	10		5.76	$275,036	($196,646)		$0	($471,691)
398.00	Miscellaneous Eq	$112,024	$35,977	n/a	n/a	n/a	5.26	$7,902	14.9	LO.5	0	5.71	$7,517	($615)	18	S-5	8.15	10.1	0	0		6.72	$7,002	$0		$7,002	$0
398.10	Miscellaneous Eq	$117,549	$71,795	13.0	S3	1	7.62	$8,957	20.2	R4	4	4.72	$5,548	($3,409)	20.0	S3	3.91	18.24	0	0		3.81	$4,478	($4,479)		$0	($8,957)
	TOTAL		$32,396,038					$6,691,767					$3,347,590	($2,744,116)									$4,478	($4,479)		$0	($8,957)
	TOTAL	$754,826,778	$295,490,204				3.04	$31,906,257				4.25%	$2,050,035	$141,778								5.67%	$42,814,895	$10,908,439	5.83%	$44,041,166	$12,132,909

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THE EMPIRE DISTRICT ELECTRIC COMPANY

SCHEDULE 2. Depreciation Rate Recommendation and Corresponding Annual Accrual{ XE "See Depreciation Accruals." }

Account Number	Description	Original Cost 6/30/2004 ($)	Depreciation Rate	Annual Accrual ($)
	STEAM PRODUCTION PLANT			
	RIVERTON			
311.00	Structures and Improvements	8,467,460	1.05%	88,908
312.00	Boiler Plant Equipment	21,727,092	1.85%	401,951
314.00	Turbogenerator Units	6,514,048	1.59%	103,573
315.00	Accessory Electric Equipment	1,299,877	0.00%	
316.00	Miscellaneous Power Plant Equipment	1,075,367	1.96%	21,077
	ASBURY			
311.00	Structures and Improvements	9,169,966	1.05%	96,285
312.00	Boiler Plant Equipment	66,841,958	1.85%	1,236,576
312.70	Unit Train	5,580,296	6.67%	372,206
314.00	Turbogenerator Units	20,730,452	1.59%	329,614
315.00	Accessory Electric Equipment	6,348,259	1.79%	113,634
316.00	Miscellaneous Power Plant Equipment	1,623,435	1.96%	31,819
	IATAN			
311.00	Structures and Improvements	3,997,069	1.05%	41,969
312.00	Boiler Plant Equipment	31,103,431	1.85%	575,413
314.00	Turbogenerator Units	8,252,043	1.59%	131,207
315.00	Accessory Electric Equipment	3,689,765	1.79%	66,047
316.00	Miscellaneous Power Plant Equipment	872,216	1.96%	17,095

	HYDRAULIC PRODUCTION PLANT			
	OZARK BEACH			
331.00	Structures and Improvements	556,389	1.64%	9,125
332.00	Reservoirs, Dams and Waterways	1,461,404	1.67%	24,405
333.00	Waterwheels, Turbines and Generators	1,305,038	1.47%	19,184
334.00	Accessory Electric Equipment	812,324	1.43%	11,616
335.00	Miscellaneous Power Plant Equipment	348,853	2.44%	8,512
	OTHER PRODUCTION PLANT			
	RIVERTON CT			
341.00	Structures and Improvements	193,357	1.82%	3,519
342.00	Fuel Holders, Producers and Access.	87,123	3.85%	3,354
343.00	Prime Movers	10,147,180	1.92%	194,826
344.00	Generators	926,850	1.82%	16,869
345.00	Accessory Electric Equipment	315,835	3.57%	11,275
346.00	Miscellaneous Power Plant Equipment	83,907	4.00%	3,356
	ENERGY CENTER			
341.00	Structures and Improvements	2,999,174	1.82%	54,585
342.00	Fuel Holders, Producers and Access.	1,209,362	0.00%	
343.00	Prime Movers	25,638,096	1.92%	492,251
344.00	Generators	44,338,097	1.82%	806,953
345.00	Accessory Electric Equipment	2,571,511	3.57%	91,803
346.00	Miscellaneous Power Plant Equipment	13,530,044	4.00%	541,202
	STATE LINE CT			
341.00	Structures and Improvements	4,130,748	1.82%	75,180
342.00	Fuel Holders, Producers and Access.	3,380,804	3.85%	130,161
343.00	Prime Movers	42,664,185	1.92%	819,152
344.00	Generators	11,268,284	1.82%	205,083

345.00	Accessory Electric Equipment	3,710,093	3.57%	132,450
346.00	Miscellaneous Power Plant Equipment	123,435	0.00%	
	STATE LINE CC			
341.00	Structures and Improvements	7,045,752	2.86%	201,508
342.00	Fuel Holders, Producers and Access.	7,971,750	2.86%	227,992
343.00	Prime Movers	83,979,493	2.86%	2,401,814
344.00	Generators	23,328,557	2.86%	667,197
345.00	Accessory Electric Equipment	7,782,686	2.86%	222,535
346.00	Miscellaneous Power Plant Equipment	64,665	2.86%	1,849
	TRANSMISSION PLANT			
352.00	Structures and Improvements	2,335,614	1.37%	31,993
353.00	Station Equipment	81,102,639	2.13%	1,727,486
354.00	Towers and Fixtures	777,080	1.30%	10,102
355.00	Poles and Fixtures	26,709,864	1.82%	486,120
356.00	Overhead Conductors and Devices	50,847,710	1.59%	808,479
	DISTRIBUTION PLANT			
361.00	Structures and Improvements	8,415,331	1.82%	153,159
362.00	Station Equipment	54,447,597	2.44%	1,328,521
364.00	Poles, Towers and Fixtures	75,481,042	2.33%	1,758,708
365.00	Overhead Conductors and Devices	94,509,876	1.92%	1,814,590
366.00	Underground Conduit	16,005,260	2.63%	420,938
367.00	Underground Conductors and Devices	33,575,290	3.03%	1,017,331
368.00	Line Transformers	61,194,572	2.33%	1,425,834
369.00	Services	42,710,443	2.63%	1,123,285
370.00	Meters	14,177,845	2.44%	345,939
371.00	I.O.C.P.	10,523,506	4.17%	438,830
373.00	Street Lighting and Signal Systems	9,520,690	2.13%	202,791

	GENERAL PLANT			
390.00	Structures and Improvements	9,234,589	3.57%	329,675
391.10	Office Furniture and Equipment	3,271,691	4.55%	148,862
391.20	Computer Equipment	8,804,676	8.62%	758,963
392.00	Transportation Equipment	6,528,679	7.69%	502,055
393.00	Stores Equipment	343,778	3.57%	12,273
394.00	Tools, Shop and Garage Equipment	2,950,039	3.33%	98,236
395.00	Laboratory Equipment	886,386	2.44%	21,628
396.00	Power Operated Equipment	10,036,913	6.25%	627,307
397.00	Communication Equipment	10,137,348	4.35%	440,975
398.00	Miscellaneous Equipment	231,871	3.70%	8,579
398.00	**TOTAL ANNUAL ACCRUAL (based on 6/30/04 plant in service)**			27,047,848

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THE EMPIRE DISTRICT ELECTRIC COMPANY

SCHEDULE 5. Comparison of Staff's and Company's Depreciation Position

Account Number	Description	Original Cost @ 12/31/2004	Staff Proposal ASL (Years)	Staff Proposal Iowa Curve	Staff Proposal Depreciation Rate	Staff Proposal Annual Accrual	Company Proposed ASL (Years)	Company Proposed Iowa Curve	Company Proposed Depreciation Rate	Company Proposed Annual Accrual	Last Case Ordered ASL (Years)	Last Case Ordered Depreciation Rate	Last Case Ordered Annual Accrual
	STEAM PRODUCTION PLANT												
	RIVERTON												
311.00	Structures and Improvements	8,457,490	55		1.09%	88,908			14.33%	1,216,774	55	1.09%	88,908
312.00	Boiler Plant Equipment	31,727,091	54		1.95%	401,351			7.22%	1,568,696	54	1.95%	401,351
314.00	Turbogenerator Units	5,514,048	50		1.56%	103,573			4.57%	297,682	45	1.56%	103,573
315.00	Accessory Electric Equipment	1,299,877	56		0.00%	-			0.79%	10,269	56	1.73%	22,208
316.00	Miscellaneous Power Plant Equipment	1,075,397	51		1.96%	21,077			10.52%	113,120	51	1.96%	21,077
	Total Riverton	39,083,843				615,510				3,206,580			636,778
	ASBURY												
311.00	Structures and Improvements	3,109,866	55		1.09%	66,265			8.91%	892,845	55	1.09%	66,265
312.00	Boiler Plant Equipment	88,841,258	54		1.65%	1,238,576			7.71%	5,153,515	54	1.65%	1,238,576
312.70	Unit Train	3,560,206	15		6.67%	372,206			1.34%	74,779	15	6.67%	372,206
314.00	Turbogenerator Units	20,730,452	60		1.50%	329,914			6.36%	1,318,457	60	1.50%	329,614
315.00	Accessory Electric Equipment	6,348,259	56		1.79%	113,634			7.74%	491,386	56	1.79%	113,634
316.00	Miscellaneous Power Plant Equipment	1,825,433	51		1.98%	21,819			9.97%	87,170	51	1.98%	21,819
	Total Asbury	113,294,395				2,140,134				7,756,926			2,160,134
	IATAN												
311.00	Structures and Improvements	3,997,069	95		1.05%	41,968			3.00%	191,903	95	1.05%	41,968
312.00	Boiler Plant Equipment	29,193,451	54		1.95%	579,413			2.21%	887,269	54	1.95%	579,413
314.00	Turbogenerator Units	8,292,941	60		1.50%	131,207			3.14%	256,114	60	1.50%	131,207
315.00	Accessory Electric Equipment	3,888,795	58		1.79%	69,647			2.66%	106,269	58	1.79%	69,647
316.00	Miscellaneous Power Plant Equipment	873,218	51		1.98%	17,006			4.19%	36,284	51	1.98%	17,006
	Total Iatan	27,914,524				831,732				1,220,853			831,732
	Total Steam Production	187,292,763				3,827,376				12,186,438			3,850,644
	HYDRAULIC PRODUCTION PLANT												
	OZARK BEACH												
331.00	Structures and Improvements	556,389	61		1.64%	9,125			4.09%	22,589	61	1.64%	9,125
332.00	Reservoirs, Dams and Waterways	1,491,404	60		1.67%	24,905			0.99%	14,468	60	1.67%	24,905
333.00	Waterwheels, Turbines and Generators	1,305,088	68		1.47%	19,184			4.06%	52,985	59	1.47%	19,184
334.00	Accessory Electric Equipment	812,324	70		1.43%	11,616			5.27%	42,808	70	1.43%	11,616
335.00	Miscellaneous Power Plant Equipment	346,851	41		2.44%	8,512			3.67%	12,809	41	2.44%	8,512
	Total Hydraulic Production	4,484,056				72,843				145,854			72,843
	OTHER PRODUCTION PLANT												
	RIVERTON CT												
341.00	Structures and Improvements	193,357	55		1.82%	3,519			4.67%	9,010	55	1.82%	3,519
342.00	Fuel Holders, Producers and Access	87,123	28		3.85%	3,354			4.79%	4,164	28	3.85%	3,354
343.00	Prime Movers	10,147,180	52		1.92%	194,828			6.15%	624,092	52	1.92%	194,828
344.00	Generators	926,850	55		1.82%	16,868			4.67%	45,138	55	1.82%	16,868
345.00	Accessory Electric Equipment	315,629	28		3.57%	11,275			5.29%	16,706	29	3.57%	11,275
346.00	Miscellaneous Power Plant Equipment	83,957	25		4.00%	3,356			3.85%	3,063	25	4.00%	3,356
	Total Riverton CT	11,754,293				259,199				703,734			753,189
	ENERGY CENTER CT												
341.00	Structures and Improvements	1,893,128	55		1.82%	34,273			2.33%	43,977	55	1.82%	34,273
342.00	Fuel Holders, Producers and Access.	1,309,302	26		0.00%	-			-1.77%	(21,469)	26	3.99%	46,560
343.00	Prime Movers	25,638,085	52		1.92%	462,251			4.88%	1,202,427	52	1.92%	462,251
344.00	Generators	4,180,383	55		1.82%	79,719			2.51%	106,922	55	1.82%	79,719
345.00	Accessory Electric Equipment	339,418	29		3.57%	12,117			-0.48%	(1,561)	28	3.57%	12,117
346.00	Miscellaneous Power Plant Equipment	1,253,520	25		4.00%	50,141			2.67%	33,489	25	4.00%	50,141
	Total Energy Center CT	34,493,909				684,501				1,363,727			711,682
	ENERGY CENTER AERO												
341.00	Structures and Improvements	1,119,048	55		1.82%	20,312			5.46%	36,564	55	1.82%	20,312
342.00	Generators	40,177,715	55		1.82%	731,234			3.43%	1,378,096	55	1.82%	731,234
345.00	Accessory Electric Equipment	2,252,096	25		3.57%	79,686			3.40%	75,891	28	3.57%	78,686
346.00	Miscellaneous Power Plant Equipment	12,278,524	25		4.00%	491,081			3.40%	417,472	25	4.00%	1,491,081
	Total Energy Center Aero	55,809,382				1,322,293				1,909,892			1,322,293
	STATE LINE CT												
341.00	Structures and Improvements	4,130,746	55		1.82%	75,180			3.23%	133,423	55	1.82%	75,180
342.00	Fuel Holders, Producers and Access	3,360,804	26		3.85%	130,161			3.24%	108,936	28	3.85%	130,161
343.00	Prime Movers	42,864,185	52		1.92%	819,152			3.39%	1,446,316	52	1.92%	819,152
344.00	Generators	11,288,284	55		1.82%	205,083			3.18%	358,331	55	1.82%	205,083
345.00	Accessory Electric Equipment	3,710,080	28		3.57%	132,450			3.54%	131,337	28	3.57%	132,450
346.00	Miscellaneous Power Plant Equipment	173,435	25		0.00%	-			-0.80%	(887)	25	4.00%	4,837
	Total State Line CT	65,277,548				1,362,026				2,177,956			1,366,863
	STATE LINE CC												
341.00	Structures and Improvements	7,645,753	35		2.86%	201,508			3.54%	248,430	35	2.86%	201,508
342.00	Fuel Holders, Producers and Access	7,971,750	35		2.86%	227,963			3.49%	278,214	35	2.86%	227,992
343.00	Prime Movers	83,979,483	35		2.86%	2,401,814			3.56%	2,988,870	35	2.86%	2,401,814
344.00	Generators	23,526,557	35		2.86%	867,197			3.49%	814,167	35	2.86%	867,197
345.00	Accessory Electric Equipment	7,782,666	35		2.86%	222,565			3.50%	273,394	35	2.86%	222,565
346.00	Miscellaneous Power Plant Equipment	64,666	35		2.86%	1,849			3.61%	2,354	35	2.86%	1,849
	Total State Line CC	130,172,902				3,722,945				4,606,199			3,722,945
	Total Other Production	287,460,987				7,304,965				10,780,510			7,356,483
	TOTAL PRODUCTION PLANT	488,257,726				11,005,184				23,092,672			11,079,950
	TRANSMISSION PLANT												
352.00	Structures and Improvements	2,535,914	73	R1	1.37%	31,886	70	R1.5	1.95%	49,544	73	1.37%	31,886
353.00	Station Equipment	61,102,839	47	R2.5	2.13%	1,727,466	50	R2.5	2.04%	1,654,484	48	2.19%	1,776,148
354.00	Towers and Fixtures	777,080	77	R4	1.30%	10,102	66	R5	1.35%	10,491	77	1.30%	10,102
355.00	Poles and Fixtures	28,709,864	55	R2.5	1.82%	486,126	60	R4	4.21%	1,124,485	54	1.89%	404,132
356.00	Overhead Conductors and Devices	50,947,719	65	R2.5	1.89%	906,478	65	S1.5	2.19%	1,113,566	70	1.43%	727,122
	TOTAL TRANSMISSION PLANT	181,777,997				3,084,184				3,948,579			3,059,502
	DISTRIBUTION PLANT												
361.00	Structures and Improvements	8,415,351	55	R2.5	1.87%	153,159	60	R5	2.10%	176,722	51	1.98%	166,624
362.00	Station Equipment	54,447,597	41	R1.5	2.44%	1,328,521	45	R2.5	1.83%	803,048	41	2.44%	1,328,521
364.00	Poles, Towers and Fixtures	75,497,042	43	R4	2.33%	1,756,709	46	L5	8.15%	6,151,705	41	2.43%	1,834,188
365.00	Overhead Conductors and Devices	64,999,879	52	R3	1.92%	1,814,560	53	R3	7.89%	7,426,479	48	2.10%	1,364,707
366.00	Underground Conduit	19,026,260	36	R3	2.50%	420,305	37	R3	4.91%	541,511	34	2.50%	475,356
367.00	Underground Conductors and Devices	33,578,260	53	R1	2.03%	1,017,331	32	S1	3.46%	1,161,705	28	3.61%	1,212,089
368.00	Line Transformers	67,184,572	43	S1	2.33%	1,425,834	45	S1	2.79%	1,888,970	40	2.51%	1,535,484
369.00	Services	42,710,445	38	S3	2.85%	1,123,285	40	S4	8.85%	4,240,888	33	3.05%	1,294,126
370.00	Meters	14,177,845	41	SQ.D	2.44%	345,939	44	S0	1.88%	266,543	39	2.56%	366,776
371.00	I.O.C.P.	10,923,509	34	L1.5	4.17%	436,650	25	L1.5	5.80%	578,783	18	5.15%	541,961
373.00	Street Lighting and Signal Systems	8,530,880	47	R1.5	2.13%	232,781	48	R2	3.00%	264,189	42	2.38%	224,689
Various	Other Jurisdiction's Distribution Plant	48,260,129											
	TOTAL DISTRIBUTION PLANT	488,841,574				10,059,975				23,471,852			10,964,013
	GENERAL PLANT												
390.00	Structures and Improvements	9,254,580	29	L1.5	3.57%	330,675	40	R1.5	2.24%	206,955	23	4.27%	394,517
391.10	Office Furniture and Equipment	3,251,691	22	L1	4.55%	148,962	20	L0	3.85%	125,060	21	4.81%	157,388
391.20	Computer Equipment	5,824,578	11.6	L2	8.62%	758,663	10	L2	12.08%	1,052,635	7	14.29%	1,256,188
392.00	Transportation Equipment	5,528,879	13	L2	7.69%	502,085	12	L2	0.28%	16,975	11	9.52%	621,530
393.00	Stores Equipment	343,774	28	R3	3.57%	12,273	30	R2.5	1.77%	6,086	25	3.99%	13,579
394.00	Tools, Shop and Garage Equipment	2,690,036	30	S1.5	3.33%	89,298	20	R5	3.69%	117,707	40	2.50%	73,751
395.00	Laboratory Equipment	880,366	41	R2.5	2.44%	21,625	38	R2.5	1.62%	14,446	36	2.99%	23,578
396.00	Power Operated Equipment	10,098,913	16	L3	6.25%	627,307	16	L3	5.49%	548,015	15	6.67%	699,492
397.00	Communication Equipment	10,137,348	23	R2.5	4.35%	440,875	25	R2	3.31%	335,648	20	4.90%	501,796
398.00	Miscellaneous Equipment	291,871	27	S1	3.70%	5,578	22	L1.5	4.39%	15,110	27	3.79%	6,998
	TOTAL GENERAL PLANT	52,405,087				2,946,365				2,445,305			3,722,206
	Total Depreciable Plant	1,182,308,177											
	Intangible Plant	8,001,698											
	Land and Land Rights	12,474,881											
	Capital Leases	810,061											
	Total Electric Plant in Service	1,203,594,815				27,047,848				52,954,136			26,805,739

x WATER COMPANY
DEPRECIATION RATES
(WATER)
FILE NO. 2005XXX

ACCOUNT NUMBER	ACCOUNT	DEPRECIATION RATES %	AVERAGE SERVICE LIFE (YEARS)
311	Structures & Improvements	2.5%	40
314	Wells & Springs	2.0%	50
316	Supply Mains	2.0%	50
317	Other Water Source Plant	2.5%	40
321	Structures & Improvements	2.5%	40
325	Electric Pumping Equipment	5.0%	20
326	Diesel Pumping Equipment	2.9%	35
331	Structures & Improvements	2.5%	40
332	Water Treatment Equipment	2.9%	35
341	Structures & Improvements	2.5%	40
342	Distribution Reservoirs & Standpipes	2.5%	40
343	Transmission & Distribution Mains	2.0%	50
345	Services	2.5%	40
346.1	Meters - Bronze Chamber	2.9%	35
346.2	Meters - Plastic Chamber	10.0%	10
347.1	Meter Installations - Bronze	2.9%	35
347.2	Meter Installations - Plastic	1.0%	10
348	Hydrants	2.0%	50
390	Structures & Improvements	2.5%	40
391	Office Furniture & Equipment	5.0%	20
391.1	Office Computer Equipment	20.0%	5
392	Transportation Equipment	13.0%	8
393	Stores Equipment	10.0%	10
394	Tools, Shop, Garage Equipment	5.0%	20
395	Laboratory Equipment	5.0%	20
396	Power Operated Equipment	6.7%	15
397	Communication Equipment	6.7%	15

x SEWER COMPANY
DEPRECIATION RATES
(SEWER)
File No. 2005xxx

Acct. No.	Description of Account	Annual Rate
311	Structures & Improvements	3.0%
352.1	Collection Sewers (Force)	2.0%
352.2	Collection Sewers (Gravity)	2.0%
353	Other Collection Plant	4.0%
354	Services to Customers	2.0%
355	Flow Measurement Devices	3.3%
362	Receiving Wells & Pump Pits	5.0%
363	Pumping Equipment	10.0%
372	Oxidation Lagoons	4.0%
373	Treatment & Disposal Facilities	4.5%
374	Plant Sewers	4.5%
375	Outfall Sewers	2.0%
376	Other Treatment & Disposal Plant	5.0%
391	Office Furniture & Equipment	5.0%
391.1	Office Computer Equipment	20.0%
392	Transportation Equipment (7 yr ,+ 9% sal	13.0%
393	Other General Equipment	10.0%
394	Tools, Shop, Garage Equipment	5.0%
395	Laboratory Equipment	5.0%
396	Power Operated Equipment	6.7%
397	Communication Equipment	6.7%
398	Miscellaneous Equipment	5.0%

Small Telephone Company
Depreciation Rates
Case No. Tx-98-x

Account	Account Number	Net Salvage	Average Service Life	Rate (%)
Vehicles - Combined	2112	12	8.6	10.23
Vehicles - Passenger Cars	2112.1	10	6.3	14.29
Vehicles - Light Trucks	2112.2	9	7.9	11.52
Vehicles - Heavy Trucks	2112.3	13	9.9	8.79
Garage Work Equipment	2115	1	13.0	7.62
Other Work Equipment	2116	6	14.0	6.71
Buildings	2121	2	35.0	2.80
Furniture	2122	6	14.0	6.71
Office Equipment - Office Support	2123.1	3	10.0	9.70
Office Equipment - Company Communications	2123.2	3	8.4	11.55
General Purpose Computers	2124	13	6.4	13.59
Digital Switching	2212	0	15.0	6.67
Electromechanical Switching	2215	*Rate based on company specific data*		
Operator Systems	2220	*Rate based on company specific data*		
Radio Equipment	2231	2	11.3	8.67
Circuit Equipment- Combined	2232	-3	10.0	10.30
Circuit Equipment - Digital	2232.x	-3	10.0	10.30
Circuit Equipment- Analog	2232.x	-3	10.0	10.30
Station Apparatus	2311	*Rate based on company specific data*		
Customer Premise Wiring	2321	*Rate based on company specific data*		
Large PBX	2341	*Rate based on company specific data*		
Public Telephones	2351	10	10.3	8.74
Other Terminal Equipment/Subscriber Carrier	2362	0	8.7	11.49
Poles	2411	-30	21.0	6.19
Aerial Cable - Metallic	2421.1	-16	21.0	5.52
Aerial Cable - Fiber	2421.2	-10	21.0	5.24
Aerial Cable - Drop	2421.3	-15	17.0	6.76
Underground Cable - Metallic	2422.1	-5	26.0	4.04
Underground Cable - Fiber	2422.2	-5	28.0	3.75
Buried Cable - Metallic	2423.1	-3	24.0	4.29
Buried Cable - Fiber	2423.2	-3	28.0	3.68
Buried Cable - Drop	2423.3	-2	21.0	4.86
Submarine Cable	2424	-1	21.0	4.81
Intrabuilding Network Cable	2426	*Rate based on company specific data*		
Aerial Wire	2431	-70	12.0	14.17
Conduit Systems	2441	0	50.0	2.00

Produce Written Testimony

TYPING TESTIMONY

Technical Staff is responsible for preparing the initial input of all testimony following the guidelines provided below:

Testimony should be typed using the testimony template, which can be obtained from the Division's Administrative Staff.

All testimony, until finalized by the Division's Administrative Staff, is to be maintained in the DRAFT mode.

All testimony is to be fully justified. Page numbers are to be centered at the bottom of the page.

Testimony should be double-spaced for ease in reviewing.

All testimony should be typed in the Times New Roman, Regular 12 point Font.

All highly confidential information needs to be marked in the text by the technical Staff. To indicate that a portion of the text is highly confidential, the text should be marked beginning with two asterisks, underlined and end with two asterisks. See attached sample.

Subheadings, i.e. issues, are bold, capitalized and underlined

All quotations longer than 49 words are to be single-spaced and to be indented ½ inch on both the right and left margins.

Documents should have spelling errors corrected before submitting to USD's Administrative Staff.

After inserting "Q." or "A.," tab the correct distance before typing the text to the question or answer. Do not use the space key to move the distance between the symbol and the text.

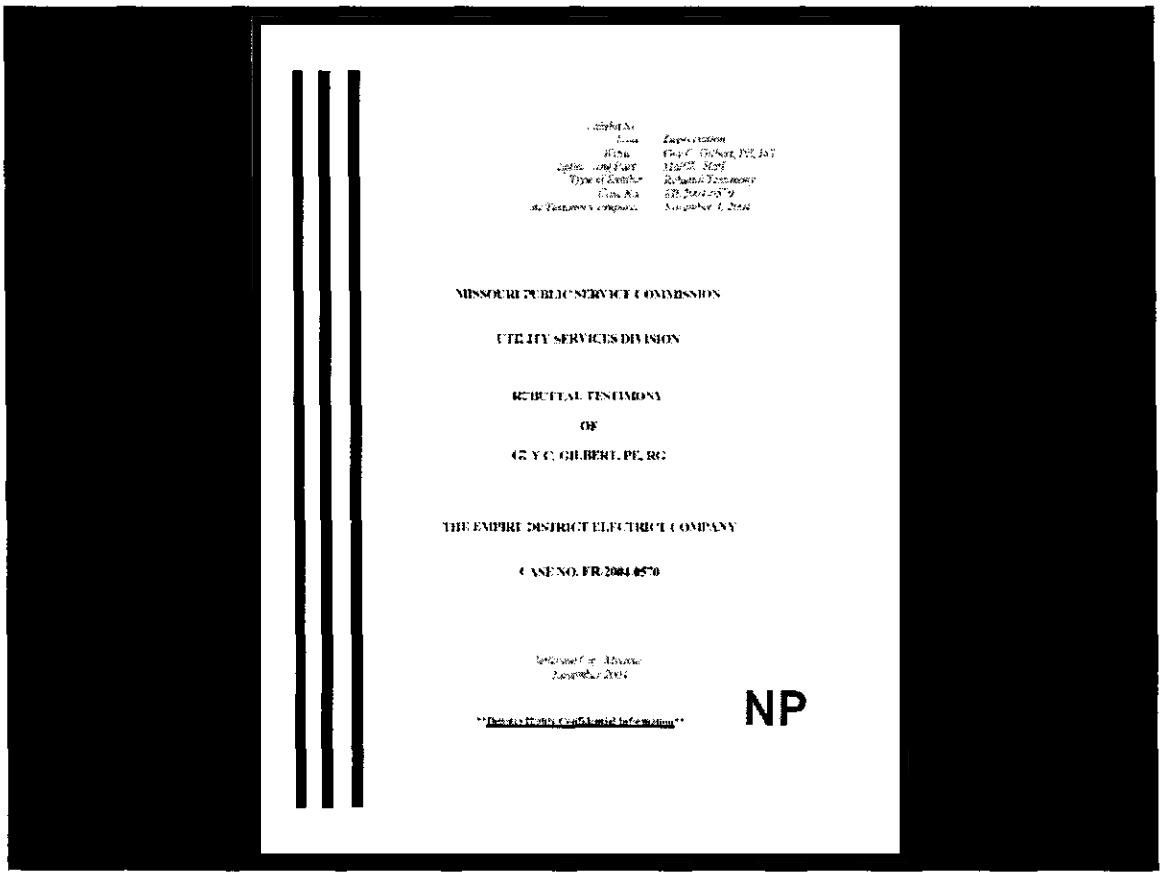
Technical Staff is to provide the Division's Administrative Staff with a list of issues by auditor and advise them if there will be highly confidential testimony in advance of turning the document over to the Administrative Staff.

Staff is responsible for keeping the Administrative Staff advised on any timing considerations.

Each technical Staff member submitting testimony is responsible for signing the affidavit to be affixed to the filed testimony. The coordination and communication

between USD's Administrative Staff members and technical Staff members are key to ensuring the successful completion of a long and often stressful process. It is essential that Staff members requiring special support make arrangements early and keep the appropriate Administrative Staff apprized of when they will submit corrections.

Once testimony is turned over to the Division's Administrative Staff, the technical Staff members are to make additional corrections only on paper copies. Such changes and corrections will be actually inputted into the document by the Administrative Staff. The Administrative Staff, not the Audit Staff, does all redaction. All testimony addressing more than one issue must include a Table of Contents. The Administrative Staff, when required, will generate the Table of Contents.


MISSOURI PUBLIC SERVICE COMMISSION

UTILITY SERVICES DIVISION

REBUTTAL TESTIMONY

OF

GARY C. GILBERT, PE, RG

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

NP

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In The Matter of the Tariff Filing of The Empire District Electric Company to Implement a General Rate Increase for Retail Electric Service Provided to Customers in its Missouri Service Area	)))))	Case No. ER-2010-0130

AFFIDAVIT OF GUY GILBERT

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Guy Gilbert, being of lawful age, on his oath states: that he has participated in the preparation of the following rebuttal testimony in question and answer form, consisting of 10 pages to be presented in the above case; that the answers in the following rebuttal testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.

Guy Gilbert

Subscribed and sworn to before me this 4th day of November 2009

Notary

LORI M. CHARLTON
NOTARY SEAL
STATE OF MISSOURI

LORI M. CHARLTON
NOTARY PUBLIC STATE OF MISSOURI
COUNTY OF COLE
My Commission Expires December 28, 2009

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REBUTTAL TESTIMONY

OF

GUY C. GILBERT, PE, RG

THE EMPIRE DISTRICT ELECTRIC COMPANY

CASE NO. ER-2004-0570

A. Yes. In Mr. Rolf's study, the theoretical reserve used in the Remaining Life calculations is higher, because Remaining Life rates include an adjustment to an estimated under accrual in the theoretical reserve based on inflated reserve requirements caused by inaccurate estimates of salvage costs of removal and shorter lives.

Q. Please further explain, your previous answer.

A. Mr. Rolf estimates a shorter life of "used and useful" for the equipment and also estimated higher costs of removal. The result of such shorter lives gives the theoretical reserve for depreciation from an over accrual to an under accrual. He then recommends yet additional depreciation expense to make up for this estimated shortfall.

The Commission has historically determined that Average Life Group - Whole Life method of depreciation is appropriate for energy utilities.

DEPRECIATION PARAMETERS

Lifespan

Q. Please describe and discuss the lifespan parameters used in the calculation of the Company's recommended depreciation rates.

A. Mr. Rolf has estimated retirement dates for production plant units as detailed in his direct testimony, ROFF SCHEDULE 2058-3, SCHEDULE 5. As Mr. Rolf states in his depreciation study:

> For production plant the service life span of each generating unit was estimated based on unit retirement dates provided by Company planning personnel. The dates are used solely to establish a reasonable depreciation accounting period over which to allocate costs as required by depreciation accounting principles.

Q. Has the Company provided conflicting information with respect to the retirement of these production assets?

A. **[redacted]**

Q. Has Mr. Rolf previously provided this Commission a depreciation study with similar recommendations?

A. Yes, in Case No. E-93-PS, Mr. Rolf presented the Commission with similar and numerous detailed recommendations.

Q. What are the results of Mr. Rolf's unwanted and dismissed allegation for the production plant accounts.

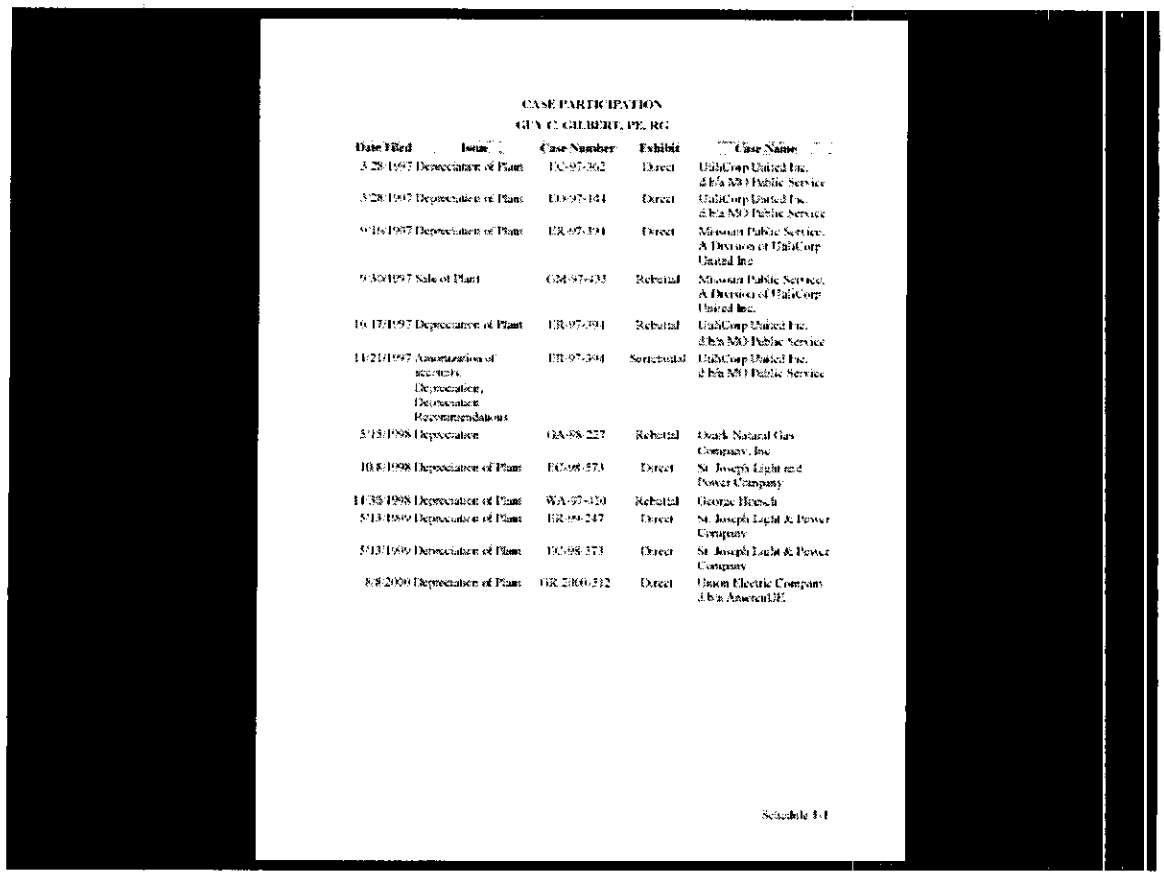
A. The shortening of plant life in conjunction with inaccurate estimations of future retirement costs result in a lower than replacement annual accrual to the reserve for depreciation in production plant accounts.

Terminal Net Salvage

Q. Please describe and discuss the Company's use of terminal net salvage estimates in calculating its proposed depreciation rates.

A. As detailed in ROLF SCHEDULE DSR-A SCHEDULE 2 of Mr. Rolf's direct testimony, he maintains that there are two separate components of cost of removal and salvage for Production Plant: interim and terminal. Interim net salvage refers to the cost of removal net of salvage related to interim retirements. Terminal net salvage refers to the net demolition cost of a plant or unit at final retirement. Staff maintains that neither of these salvage costs should be included in the derivation of depreciation rates in that such costs are

NP



CASE PARTICIPATION

GUY C. GILBERT, PE, RG

Date Filed	Issue	Case Number	Exhibit	Case Name
3/28/1997	Depreciation of Plant	EC-97-362	Direct	UtiliCorp United Inc. d/b/a MO Public Service
3/28/1997	Depreciation of Plant	EO-97-144	Direct	UtiliCorp United Inc. d/b/a MO Public Service
9/16/1997	Depreciation of Plant	ER-97-394	Direct	Missouri Public Service, A Division of UtiliCorp United Inc.
9/30/1997	Sale of Plant	GM-97-435	Rebuttal	Missouri Public Service, A Division of UtiliCorp United Inc.
10/17/1997	Depreciation of Plant	ER-97-394	Rebuttal	UtiliCorp United Inc. d/b/a MO Public Service
11/21/1997	Annualization of accounts, Depreciation, Depreciation Recommendations	ER-97-394	Surrebuttal	UtiliCorp United Inc. d/b/a MO Public Service
5/15/1998	Depreciation	GA-98-227	Rebuttal	Ozark Natural Gas Company, Inc.
10/8/1998	Depreciation of Plant	EC-98-573	Direct	St. Joseph Light and Power Company
11/30/1998	Depreciation of Plant	WA-97-320	Rebuttal	George Hemesh
5/13/1999	Depreciation of Plant	HR-99-245	Direct	St. Joseph Light & Power Company
5/13/1999	Depreciation of Plant	EC-98-573	Direct	St. Joseph Light & Power Company
8/8/2000	Depreciation of Plant	HR 2000-512	Direct	Union Electric Company d/b/a AmerenUE

Schedule 1-1

Direct

Schedule of Staff Recommended Depreciation Rates

Rebuttal

Supporting Schedules and Analysis

Comparative Schedules and Analysis

Valuation of Issue Impact to Case

Surrebuttal

Supporting Schedules and Analysis

Comparative Schedules and Analysis

Valuation of Issue Impact to Case

Prepare Lap Book for Witness Stand and Include

Staff's Testimony

Supporting Schedules and Analysis

Other's Supporting Testimony

Company's Testimony

Other's Opposing Testimony

Comparative Schedules and Analysis

Valuation of Issue Impact to Case

File and Store Work Papers and Products

PSC Document Retention Schedules
Utility Services – Engineering and Management Services Department

CORRESPONDENCE

General Correspondence – Management , Financial and Policy Matters
General Correspondence – Other
Interoffice Memorandums – Management, Financial and Policy Matters
Interoffice Memorandums – Other

LEGAL

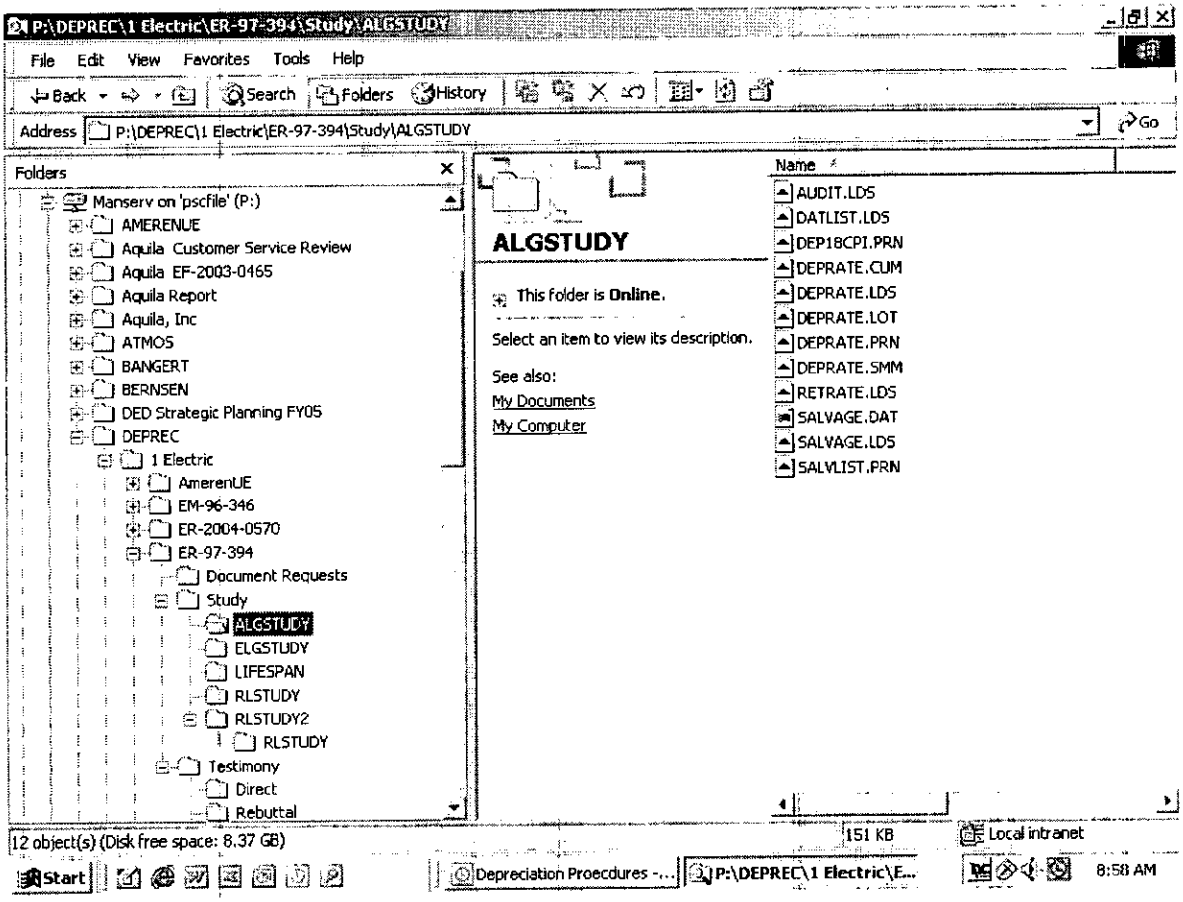
Rules and Regulations – copy original in Secretary of State's Office – Administrative
Attorney General Opinions – copy – original in Attorney General's Office
Records Management File – copy – contains agency records disposition schedules, transmittals, correspondence, etc. – Original in Secretary of State's Offices – Records

ADMINISTRATIVE

Auditor Reports – copy- original in State Auditor's Office
Equipment Inventory
Operating Procedures
Personnel Files (Active and Inactive)

TECHNICAL

Active Project Files
Inactive Project File or Summary Card (includes the following pertinent information condensed from personnel file; appointments, resignations, promotions, salary, all accumulated sick leave, etc.)
Photographs (utility plant)
Utility Management Audit Workpapers
Audit Workpapers – includes documents used during a case/project including the writing of reports, recommendations and/or testimony.
Technical Reference/Training Material – books, catalogs, magazines, articles, brochures, publications, etc.
Historical depreciations rates/studies for regulated utilities



Glossary

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

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

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

Accrual
See **Depreciation Accruals.**

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

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

Accrued Depreciation
See **Depreciation Accruals.**

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

Acquisition Cost

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

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

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

Additions
See **Gross Additions.**

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

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

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

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

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

Annuity Rate
See **Sinking Fund.**

Asset

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

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

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

Average Realized Life
See **Realized Life.**

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

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

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

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

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

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

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

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

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

Book Reserve
See **Accumulated Depreciation Account.**

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

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

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

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

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

Conformance Index (CI)

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

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

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

Cost of Removal
The costs incurred in connection with the retirement from service and the disposition of depreciable plant. Cost of removal may be incurred for plant that is retired in place. See **Net Salvage{ XE "The gross salvage for the property retired less its cost of removal." }.**

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

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

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

Depreciable Plant
Plant in service for which it is proper to allocate the original cost to annual expense through the depreciation process. Items such as land and plant under construction are not considered depreciable.
0

Equal Life Group (ELG
A subset of a vintage in which all units are expected to have the same life.

Equal Life Group (ELG Procedure

A depreciation procedure by which each vintage is divided into equal life groups, and the investment in each group is recovered over the expected life of that group. The vintage average life is then computed as the reciprocally weighted average of the lives of the equal lives groups still surviving in the vintage.

Exposure
Depreciable property subject to retirement during a period.

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

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

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

Forecast Method
See **Life Span.**

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

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

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

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

Gross Salvage

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

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

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

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

Harmonic Weighting
See **Reciprocal Weighting.**

Historical Cost
See **Book Cost.**

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

Indirect Weighting
See **Reciprocal Weighting.**

Installations
See **Gross Additions.**

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

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

Interim Retirements

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

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

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

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

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

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

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

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

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

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

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

Major Structure

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

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

Mortality Data
See **Aged Data.**

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

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

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

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

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

Placement Year
See **Vintage Year.**

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

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

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

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

Property Units
See **Units of Property.**

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

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

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

Remaining Life
See **Average Remaining Life.**

Remaining Life Span See **Life Span.**

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

Reserve
See **Accumulated Depreciation Account{ XE** "The account which reflects the portion of the cost of existing plant that has been expensed. Also referred to as the "accumulated provision for depreciation" account." **}.**

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

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

Reserve Requirement
See **Theoretical Depreciation Reserve.**

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

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

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

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

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

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

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

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

Service Life
See **Life.**

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

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

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

Statistical Aging
See **Computed Mortality.**

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

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

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

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

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

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

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

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

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

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

Unit Summation Procedure
See **Equal Life Group.**

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

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

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

Vintage Average Life-Equal Life Group Procedure
The average life of a vintage is calculated by dividing the number of surviving units or dollars in the vintage by the sum of the accrual weights, (i.e., investment divided by life) for all of the surviving equal life groups.

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

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

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

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

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

Survey of Other State Depreciation Practices

Survey Form Used

Telephone Survey Update of NARUC 1996 Survey

Depreciation Monitoring Program

Individual State Data Sheet for: _____

State Contact Person: _____

Title: _____

Date of Contact/Means of Contact: _____

Staff Member Making Contact: _____

1. Does Commission use rate base or rate of return regulation for electric, gas, telephone, water, sewer, and steam? (circle one)

2. Is depreciation an issue used in setting rates charged to electric, gas, telephone, water, sewer, and steam in your current regulatory scheme? Yes No
OR
3. Is it mandatory or permissive that depreciation rates be established by the Commission?
(circle one)

4. How often are depreciation rates prescribed or reviewed for each utility?
_____

5. Are depreciation rates reviewed only in a formal rate change proceeding?
Yes No

6. Which is used in ratemaking as an operating expense: book depreciation or calculated reserve requirement? (circle one)

7. Which is used in rate base computation: book depreciation or calculated reserve requirement?

8. Is Depreciation a Significant and/or Contested Issue at Your State Commission? If yes, what are those issues?

_____

9. Is depreciation testimony frequently filed by the staff and/or the Consumer Advocate in your state?

10. Are depreciation rates prescribed or reviewed for each/all utilities? If not, which utility/industry is excluded?

11. Does your Commission have a group of staff (engineers, accountants or other professionals) that performs their own independent depreciation analysis? If yes, can you give me the name and phone number of one of these individuals?

12. If no, Does your Commission have anyone that review utility-proposed depreciation rates? If yes, can you give me the name and phone number of one of these individuals?

13. If your Commission does independent depreciation studies or reviews depreciation studies, what software do they utilize?

14. Are there any key depreciation texts used by the depreciation staff?

15. Has net salvage been an issue in your state?

16. If so, please describe and indicate how net salvage or policy regarding net salvage is treated. (calculated as a component of reserve, expensed etc.)

17. Are there any changes foreseen at your state with respect to the calculation of or other matters with related to Depreciation?

18. Other Comments:

19. Is there a web site where your Commission rules and/or testimony regarding depreciation can be located?

Jurisdiction	Does the commission use ratebase, rate of return regulation?	Is depreciation a significant or contested issue at your state commission (Y/N)?	Is depreciation testimony frequently filed by the Staff and/or the Consumer Advocate in your state?	Are depreciation rates prescribed or reviewed for each/all utilities?	How often are depreciation rates prescribed or reviewed for each utility?	Does your Commission have a group of staff (engineers, accountants or other professionals) that perform their own independent depreciation analysis?	If so, what software do they utilize/?	Are there any key depreciation texts used by the depreciation staff?	Has net salvage been an issue in your state?	If so, please describe and indicate how net salvage is treated. (calculated as a component of reserve, expense etc.)	Are there any changes forseen at your state with respect to
	A	B	C	D	E	F	G	H	I	J	
MT	Y	N	Y - CA	Y	rate case	rate analyst	Excel	N	N	NA	
NE	Y	Y	N	Y-telco	Note 8	N	NA	N	Y	reserve	N
NV	Y	Y	Y	Y	Note 10	Note 11		Note 2	Y	rate	
NH	Y	Y	settled	Y		N		Note 12	Y	rates	
NJ											
NM											
NY	Y	Y, telco	N	Y	every 3 years	engineers	in house	Note 2	Y	reserve	Nc
NC											
ND											
OH	Y	varies	varies	Y	Note 14	2 staff	Note 15	Note 16	N		
OK											
OR	Y	Y		N	every 5 years	1 staff	Excel	Note 17	N		
PA	Y	N	N	Y	annually	Y	Excel		N, Note 19		
PR											
RI	Y	N	N	Y		N	NA	NA	Y	Note 20	
SC	Y	Y	Y	Y	as needed	N	NA	Note 2	N	NA	
SD	Y	varies	Y	Y	rate case	N	NA	N	Y	expensed	
TN											
TX											
UT											
VT	Y	N	N	Y	every 5 years	Y		N	N		
VA	Y	Y	Y	Note 21	every 5 years	Y	Note 22	Note 2	Note 23	reserve	Nc
WA											
WV	Y	Y	Y	Y	infrequent	N	NA	Note 2	Y	Note 25	
WI											
WY											

Authoritative References

1. American Gas Association (AGA), An Introduction to Depreciation of Public Utility Plant and Plant of Other Industries, AGA, Arlington, VA, (703) 841-8400.
2. Annual Journal of the Society of Depreciation Professionals.
3. Edison Electric Institute (EEI) / American Gas Association (AGA), Introduction To Depreciation And Net Salvage of Public Utility Plant and Plant of Other Industries, EEI, Washington D.C. (202) 508-5000; or AGA, Arlington, VA, (703) 841-8400.
4. Marston, Winfrey, and Hempstead, Engineering Valuation and Depreciation, Iowa State University Press, 1953, (800) 862-6657 or (515) 292-0155. [OUT OF PRINT].
5. National Association of Regulatory Utility Commissioners (NARUC), Public Utility Depreciation Practices, NARUC, 1996, (202) 898-2200.
6. Porter, Roper, Mason, Rossini, and Banks, Forecasting and Management of Technology, John Wiley and Sons, NY, 1991.
7. Vanston, John, Technology Forecasting: An Aid to Effective Technology Management, Technology Futures, Austin, TX, 1988, (800) 835-3887.
8. Winfrey, Robley, Bulletin 125: Statistical Analyses of Industrial Property Retirements, 1935 as revised 1967, Iowa State University Engineering Communications and Marketing, (515) 294-1800.
9. Winfrey, Robley, Bulletin 155: Depreciation of Group Properties, Iowa State University Engineering Communications and Marketing, (515) 294-1800.
10. Winfrey, Robley, Bulletin 156: Condition % Tables for Depreciation of Unit and Group Properties, Iowa State University Engineering Communications and Marketing, (515) 294-1800.
11. Winfrey, Robley, Iowa Survivor Curves (11 x 17 sepia graphs), Iowa State University Engineering Communications and Marketing, (515) 294-1800.
12. Wolf and Fitch, Depreciation Systems, $54.95, Iowa State University Press, 1992, (800) 862-6657 or (515) 292-0155. [OUT OF PRINT. Contact Depreciation Programs, Inc. (616) 375-6035]. An unused copy is available from: David Birenbaum, 209 Brook Lane, St. Charles, MO 63304
13. Wolf, Fitch, and Bissinger, Estimation of Depreciation, Iowa State University Press, (800) 862-6657 or (515) 292-0155. [OUT OF PRINT].

Recent Authoritative Cases

ER-1997-0394

No to Amortization of General Plant Accounts
No to current depreciation of Future Additions
No to current depreciation of Future Additions' Net Salvage
No to current depreciation of Terminal Net Salvage on Production Plant Accounts
No to Equal Life Group procedure
No to Remaining Life Procedure

GR-1999-0315
The Commission requires a separate accounting for net salvage in the depreciation reserve accrual.

ER-2004-0570
No to Life Spanning of Production Accounts
The Commission adopts:

$$\text{Depreciation Rate} = \frac{100\% \ -\% \textit{ Net Salvage}}{\text{Average Service Life (years)}}$$

In this formula, net salvage equals the gross salvage value of the asset minus the cost of removing the asset from service for non-production/mass asset accounts. It is the *policy* of this Commission to return to traditional accrual accounting methods for Net Salvage.

Position Abilities and Requirements

HOW TO DO IT?

Recommendation: A specialized and integrated Depreciation Engineering workforce should be established at the PSC consisting of engineers, analysts, and specialists who are recruited, trained, rewarded, and retained to ensure the development of an institutional culture imbued with a deep expertise in Depreciation Engineering.

• The executive director, should direct the PSC to develop this professional cadre.

• Recognizing that cross—fertilization between the utility industry and engineering disciplines is vital to the success of both missions, all new engineers should receive basic training in both areas. Furthermore, new engineers should begin their careers with meaningful assignments in both areas.

• Engineers and analysts should then specialize in one of these disciplines and have the option to work such matters for their entire career with the PSC. Certain advanced training courses and assignments to other agencies should be required to advance within the discipline.

• In the interest of cross—fertilization, all senior PSC managers, including those working on rate case matters, should be certified in one way or another.

• The PSC should fully implement a recruiting, hiring, and selection process for Engineers and analysts that enhances its ability to target and attract individuals with educational and professional backgrounds in depreciation, industrial relations, engineering, technology, and other relevant skills.

• The PSC should institute the integration of analysts and Engineers personnel in the field so that a dedicated team approach is brought to bear on operations.

• Each field office should have an assigned depreciation professional for depreciation matters. This individual would have management oversight and ensure that the depreciation priorities are carried out in the field.

• The PSC should align its budget structure according to its four main depreciation programs—intelligence, service lives and net salvage, criminal, and curves—to ensure better transparency on program costs, management of resources, and protection of the depreciation program.

• The PSC should report regularly to the Director in its semiannual program reviews designed to identify whether each field office is appropriately addressing PSC and depreciation program priorities.

• The Staff should report regularly to Director in detail on the qualifications, status, and roles of analysts in the field and at headquarters. The Commission should ensure that analysts are afforded training and career opportunities on a par with those offered analysts in other utility regulatory agencies.

• The Commission should make sure funding is available to accelerate the expansion of secure facilities in Commission field offices so as to increase their ability to use secure email systems and highly confidential product exchanges. The Commission should monitor whether the Staff's information—sharing principles are implemented in practice.

The Staff is just a small fraction of the national regulatory enforcement community in the United States, a community comprised mainly of state and local agencies. The network designed for sharing information, and the work of the Staff through local Joint Regulatory Task Forces, should build a reciprocal relationship, in which state and local agents understand what information they are looking for and, in return, receive some of the information being developed about what is happening, or may happen, in their communities.

Utility Engineering Specialist I Utility Services Engineering Analysis

DEFINITION:

This is a responsible professional position. It requires the ability to analyze, investigate, and perform technical engineering work related to utilities. This position requires the ability to carry out depreciation related projects to support staff positions and policy recommendations to decision makers, and the ability to communicate and work effectively as part of a team. This employee must have a basic knowledge of engineering

science, applied statistics, utility regulation and electronic data processing tools and methods.

Administrative supervision and general policy direction is provided by Management, however, direction may also be received from senior engineering staff.

DUTIES AND RESPONSIBILITIES:

% of Time Essential Functions

30% Provides technical support and assists in the preparation of depreciation studies, cost studies, valuations, or evaluations of utility property.

25% Reviews and analyzes operating standards, depreciation rates, procedures, allocations, regulations, and reserves for depreciation maintained by regulated utilities.

15% Provides and assists in the preparation of testimony and exhibits as an expert witness at Commission and other hearings and assists Commission attorneys in preparation for hearings.

15% Develops ability to maintain databases, assists in the evaluation of software, and develops knowledge of technical computer applications.

5% Attends conferences with utility company and public officials, members of the general public, and other interested parties to develop a background in utility regulation.

5% Participates in training, symposiums, seminars, regulation development and relevant technical activities.

OTHER FUNCTIONS

Develops a background in the preparation of testimony and review of rules, standards, and procedures associated with the regulation of utility service companies.

Perform other duties as instructed by Management.

ESSENTIAL KNOWLEDGE AND ABILITIES:

Basic knowledge of the principles and practices of engineering as applied in the construction and operation of electric, gas, telephone, water, and sewer utilities.

Ability to develop basic knowledge of federal, state, and local regulations relating to utility work and methods.

Good working knowledge of the modern trends and practices in public utility service, and a general knowledge of accounting principles as they relate to utility regulation.

Ability to organize, coordinate and direct the work of technical and clerical personnel to effectively attain the Commission's regulatory goals.

Ability to present ideas clearly and concisely, orally and written.

Good working knowledge of personal computers and commercial software.

Ability to establish and maintain pleasant, cooperative and professional demeanor with the Commission, staff members, utility company representatives, governmental officials, and the general public.

Ability to conduct investigations that may require: considerable walking, climbing ladders, walking on elevated and narrow walkways, crawling through small apertures, working in extreme weather conditions, and lifting overhead up to approximately fifty (50) pounds.

Ability to travel in the State of Missouri and to other states as necessary to conduct state business.

TRAINING AND EXPERIENCE:

Graduation from an accredited four (4) year college or university with a major in engineering.

Two (2) years of engineering experience or training.

Possess registration as a Professional Engineer in the State of Missouri or have eligibility therefor.

Computer training and experience in word processing, spreadsheet, and/or database required.

REPORT TO:

Utility Regulatory Engineer Supervisor

Utility Engineering Specialist III Utility Services Depreciation

DEFINITION:

This is a highly responsible and professional position. It requires the ability to analyze, investigate, and perform technical engineering work related to utilities. Also, it requires the ability to advise and assist the Commission in discharging its statutory responsibilities. This position requires expertise in the area of depreciation analyses and utility regulation. It requires the ability to make interpretations, recommendations, and decisions related to the regulation of jurisdictional utilities.

DUTIES AND RESPONSIBILITIES:

% of Time	ESSENTIAL FUNCTIONS:
40%	Prepares depreciation studies, cost studies, valuations, or evaluations of utility property.
40%	Reviews, analyzes, and makes recommendations related to operating standards, depreciation rates, procedures, allocations, regulations, and reserves for depreciation maintained by regulated utilities.
10%	Provides testimony and exhibits as an expert witness at Commission and other hearings and assists Commission attorneys in preparation for hearings.
10%	Arranges and participates in conferences with utility company officials, public officials, members of the general public, and other interested parties to resolve matters relating to depreciation, including service life, salvage, and cost of removal parameters, and other matters for which the department has responsibility.

OTHER FUNCTIONS:

Assists in the preparation and review of rules, standards, and procedures associated with the provision of utility services.

Performs other duties as instructed by Management.

ESSENTIAL KNOWLEDGE AND ABILITIES:

Good working knowledge of the principles and practices of engineering as applied in the construction and operation of electric, gas, telephone, water, and sewer utilities.

Good working knowledge of federal, state, and local regulations relating to utility work and methods.

Good working knowledge of the modern trends and practices in public utility service, and a general knowledge of accounting principles as they relate to utility regulation.

Ability to organize, coordinate and direct the work of technical and clerical personnel to effectively attain the Commission=s regulatory goals.

Ability to present ideas clearly and concisely, orally and written.

Good working knowledge of personal computers and commercial software.

Ability to establish and maintain pleasant, cooperative and professional demeanor with the Commission, staff members, utility company representatives, governmental officials, and the general public.

Ability to conduct investigations that may require: considerable walking, climbing ladders, walking on elevated and narrow walkways, crawling through small apertures, working in extreme weather conditions, and lifting overhead up to approximately fifty (50) pounds.

Ability to travel in the State of Missouri and to other states as necessary to conduct state business.

TRAINING AND EXPERIENCE:

Graduation from an accredited four (4) year college or university with a major in engineering.

Four (4) years of responsible regulatory and/or utility related engineering experience or training.

Possess registration as a Professional Engineer in the State of Missouri or have eligibility therefor.

Computer training and experience in word processing, spread-sheet, and/or database required.

REPORT TO:

Utility Regulatory Engineer Supervisor

Utility Regulatory Auditor III Utility Services Depreciation

DEFINITION:

This is a responsible professional position requiring a high degree of technical knowledge in utility regulation and regulatory auditing. Auditors in this position must possess a

proven expertise in utility regulation, must be able to handle multiple standard audit areas with minimum supervision, and must be able to successfully serve in the capacity of lead auditor in audits of small to middle size utility companies.

DUTIES AND RESPONSIBILITIES:

% of Time	ESSENTIAL FUNCTIONS:
75%*	Professionally conduct the timely and efficient examination of the accounts, books, records and reports of jurisdictional utilities.
75%*	Aid in the planning of audits for rate cases involving very small utilities and small company rate increase case procedures and in the development of Staff positions in such cases, in coordination with management and other Staff, as assigned.
75%*	Serve as lead auditor for cases involving very small utilities, as assigned. Advise the Utility Regulatory Auditor V of case progress and all problems encountered. Report to the Utility Regulatory Auditor V on the performance of less experienced auditors assigned to the case.
75%*	Assist in the technical training of less experienced auditors.
75%*	Ensure all deadlines are met for all assignments.
10%	Review and aid in the development of audit findings and prepared testimony to be filed by less experienced auditors for those cases involving lead auditor assignments.
5%	Prepare and present expert testimony in proceedings before the Commission and aid Staff attorneys in preparation for hearings and arguments, as requested.
10%	Professionally interact with utility company personnel and other Commission Staff.

*These items together comprise 75% of the time necessary to complete these functions.

OTHER FUNCTIONS:

Analyze utility company compliance with prescribed accounting systems and Commission requirements.

Aid management in ensuring Staff compliance with the Department Audit Manual and established auditing practices and procedures for cases involving lead auditor assignments.

Maintain CPE credits as may be necessary and stay current on new developments in the utility industry and regulation through regular review of relevant publications and attendance at seminars and conferences.

Perform any other duties, as directed.

ESSENTIAL KNOWLEDGE AND ABILITIES:

Advanced working knowledge of modern accounting/auditing practices and procedures, public utility operations and regulation.

Advanced working knowledge of the Uniform System of Accounts for all types of jurisdictional utilities.

Advanced working knowledge of rate making theory and practice and the ability to apply such knowledge to specific audits and cases.

Ability to plan, organize, direct, and conduct timely and professional audits in cooperation with management, Auditor Vs and IVs, and other staff outside the Department.

Ability to conduct and direct multiple audit responsibilities for an assigned case.

Proven ability to lead and work well with others.

Demonstrated ability to communicate effectively, both orally and in writing.

Demonstrated ability to accurately present and defend audit findings and Staff positions at prehearing conferences and under cross-examination.

Proven ability to display professional judgment and the highest level of integrity in the conduct of official duties.

Demonstrated ability to effectively motivate and assist in the training of less experienced auditors.

Ability to work extended hours on projects.

Ability to work under pressure and meet frequent deadlines.

Ability to effectively use and direct the use of personal computers in word processing, spreadsheet, and database software packages.

An employee in this classification should expect to travel at least fifty percent of the time, throughout the state and to other states to conduct official business.

TRAINING AND EXPERIENCE:

Graduation from an accredited college or university, with a major in accounting or a minimum of 24 core hours of accounting course work. A minimum of three years of relevant regulatory auditing experience. Provision is made for CPA license and/or related advanced degree.

Personal computer training and experience in the use of word processing, spreadsheet, and database software packages.

REPORTS TO:

Utility Regulatory Auditor V

Utility Regulatory Engineer I Utility Services Depreciation

DEFINITION:

This is a highly responsible and professional position. It requires the ability to analyze, investigate, and perform technical engineering work related to utilities. Also, it requires the ability to advise and assist the Commission in discharging its statutory responsibilities. This position requires expertise in the area of depreciation analyses and utility regulation. It requires the ability to make interpretations, recommendations, and decisions related to the regulation of jurisdictional utilities.

DUTIES AND RESPONSIBILITIES:

% of Time	ESSENTIAL FUNCTIONS:
40%	Prepares depreciation studies, cost studies, valuations, or evaluations of utility property.
40%	Reviews, analyzes, and makes recommendations related to operating standards, depreciation rates, procedures, allocations, regulations, and reserves for depreciation maintained by regulated utilities.
10%	Provides testimony and exhibits as an expert witness at Commission and other hearings and assists Commission attorneys in preparation for hearings.
10%	Arranges and participates in conferences with utility company officials, public officials, members of the general public, and other interested parties to resolve matters relating to depreciation, including

service life, salvage, and cost of removal parameters, and other matters for which the department has responsibility.

OTHER FUNCTIONS:

Assists in the preparation and review of rules, standards, and procedures associated with the provision of utility services.

Performs other duties as instructed by Management.

ESSENTIAL KNOWLEDGE AND ABILITIES:

Good working knowledge of the principles and practices of engineering as applied in the construction and operation of electric, gas, telephone, water, and sewer utilities.

Good working knowledge of federal, state, and local regulations relating to utility work and methods.

Good working knowledge of the modern trends and practices in public utility service, and a general knowledge of accounting principles as they relate to utility regulation.

Ability to organize, coordinate and direct the work of technical and clerical personnel to effectively attain the Commission=s regulatory goals.

Ability to present ideas clearly and concisely, orally and written.

Good working knowledge of personal computers and commercial software.

Ability to establish and maintain pleasant, cooperative and professional demeanor with the Commission, staff members, utility company representatives, governmental officials, and the general public.

Ability to conduct investigations that may require: considerable walking, climbing ladders, walking on elevated and narrow walkways, crawling through small apertures, working in extreme weather conditions, and lifting overhead up to approximately fifty (50) pounds.

Ability to travel in the State of Missouri and to other states as necessary to conduct state business.

TRAINING AND EXPERIENCE:

Graduation from an accredited four (4) year college or university with a major in engineering.

Four (4) years of responsible regulatory and/or utility related engineering experience or training.

Possess registration as a Professional Engineer in the State of Missouri or have eligibility therefor.

Computer training and experience in word processing, spread-sheet, and/or database required.

REPORT TO:

Utility Regulatory Engineer Supervisor

Utility Regulatory Engineer II Utility Services Depreciation

DEFINITION:

This is a highly responsible and professional position. It requires the ability to analyze, investigate, and perform technical engineering work related to utilities. Also, it requires the ability to advise and assist the Commission in discharging its statutory responsibilities. This position requires expertise in the area of depreciation analysis and utility regulation. It requires the ability to make interpretations, recommendations, and decisions related to the regulation of jurisdictional utilities.

DUTIES AND RESPONSIBILITIES:

% of Time	Essential Functions
40%	Prepares depreciation studies, cost studies, valuations, or evaluations of utility property.
40%	Reviews, analyzes, and makes recommendations related to operating standards, depreciation rates, procedures, allocations, regulations, and receives for depreciation maintained by regulated utilities.
10%	Provides testimony and exhibits as an expert witness at Commission and other hearings and assists Commission attorneys in preparation for hearings.

10% Arranges and participates in conferences with utility company officials, public officials, members of the general public, and other interested parties to resolve matters related to depreciation, including service life, salvage, and cost of removal parameters, and other matters for which the department has responsibility.

OTHER FUNCTIONS:

Assists in the preparation and review of rules, standards, and procedures associated with the provision of utility services.

Performs other duties as instructed by Management.

KNOWLEDGE AND ABILITIES:

Good working knowledge of the principles and practices of engineering as applied in the construction and operation of electric, gas, telephone, water, and sewer utilities.

Good working knowledge of federal, state, and local regulations relating to utility work and methods.

Good working knowledge of modern trends and practices in public utility service, and a general knowledge of accounting factors as they relate to utility regulation.

Ability to organize, direct, and coordinate the work of technical and clerical personnel to effectively attain the Commission=s regulatory goals.

Ability to present ideas clearly and concisely, both orally and in writing.

Good working knowledge of personal computers and commercial software.

Ability to establish and maintain pleasant, cooperative and professional demeanor with the Commission, staff members, utility company representatives, governmental officials, and the general public.

A willingness to travel in the state of Missouri and to other states as necessary to conduct state business.

Ability to conduct investigations and inspections that may require: considerable walking, climbing ladders, walking on elevated and narrow walkways, crawling through small apertures, working in extreme weather conditions, and lifting overhead up to approximately 50 pounds.

TRAINING AND EXPERIENCE

Graduation from an accredited four (4) year college or university with a major in engineering.

Possess registration as a Professional Engineer preferred, or have eligibility therefor.

Four years of responsible regulatory and/or utility related engineering experience or training.

Computer training and experience in word processing, spreadsheet, and/or database required.

REPORTS TO:

Utility Regulatory Engineer Supervisor

Utility Regulatory Engineer Supervisor Utility Services Depreciation

DEFINITION:

This is a highly responsible and professional position requiring mature judgment and the ability to effectively supervise and manage a professional staff. It requires the ability to plan, direct, and coordinate daily work activities, and advise and assist the Commission in discharging its statutory responsibilities. This position requires experience and expertise in utility depreciation matters, administration, and the ability to make crucial recommendations and decisions related to regulated utilities.

DUTIES AND RESPONSIBILITIES:

% of Time	ESSENTIAL FUNCTIONS
40%	Plans, directs, and assists in investigations related to utility depreciation matters. Coordinates and participates in the development of staff positions in cases before the Commission. Works closely with upper management to carry out the mission of the department.
25%	Supervises and effectively manages subordinate staff.
15%	Assists in the formulation and review of rules and standards associated with the provision of utility services, and directs, reviews, and audits to assure compliance with established operating rules and standards and Commission or Court orders.

10% Provides testimony and exhibits as an expert witness at Commission and other hearings and assists Commission attorneys in hearing preparation.

5% Professionally directs, arranges, and participates in conferences with utility company officials, public officials, members of the general public, and other interested parties to resolve matters relating to depreciation for which the department has responsibility.

5% Represents the Commission and staff on State and national committees, delivers talks, prepares papers and reports concerning Commission problems and activities.

OTHER FUNCTIONS:

Performs other duties as instructed by the Commission or by supervisors.

KNOWLEDGE AND ABILITIES:

A demonstrated superior working knowledge of federal, state, and local regulations relating to utility regulation and specifically depreciated matters.

A demonstrated superior working knowledge of the modern trends and practices in public utility service, investigation and regulation.

A demonstrated superior working knowledge of the principles and practices employed in the utility industry as it relates to depreciation matters.

A demonstrated superior working knowledge of utility rules, regulations, practices, and investigation techniques as it relates to depreciation matters.

A demonstrated working knowledge of the engineering and accounting factors in rate structure determination.

A demonstrated ability to recognize changing industry or regulatory requirements and advise the Commission on the proper course of action.

A demonstrated ability to organize, direct and coordinate the work of technical and clerical personnel to effectively attain the Commission=s regulatory goals.

A demonstrated ability to delegate authority, fix responsibility, and evaluate the work of a technical staff.

A demonstrated ability to present ideas clearly and concisely, both orally and in wiring, and possess a good working knowledge of and ability to use computers

Ability to establish and maintain effective working relationships with the Commission, staff members, utility company representatives, governmental officials, and the general public.

A willingness to travel in the State of Missouri and to other states as necessary to conduct state business.

TRAINING AND EXPERIENCE

Graduation from an accredited four (4) year college or university with t major in engineering or related area; plus,

Six (6) years of responsible utility related depreciation experience or training.

Possess professional registration or license in the appropriate field of endeavor or have eligibility therefor.

Possess a good working knowledge of and ability to use computers.

REPORTS TO:

Division Director-Utility Operations