"Hot" Topics

The comments made by the presenters represent the presenter's opinions only; these comments and opinions do not necessarily represent those of the Kentucky Public Service Commission

KENTUCKY PUBLIC SERVICE COMMISSION

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TRADITIONAL WATER REVENUES

MONTHLY WATER RATES			
First 2,000 gallons		$20.00	Minimum Bill
Next 3,000 gallons		6.00	Per 1,000 gallons
Next 5,000 gallons		5.00	Per 1,000 gallons
Over 10,000 gallons		4.50	Per 1,000 gallons

Non Recurring Charges
- Tap Fee
- Returned Check Charge
- Meter Test Charge
- Service Call

ALTERNATIVES

SURCHARGES TO RECOVER SPECIFIC COSTS

KRS 74 395 Financing of an expansion of water district system

Tank painting

Leak detection

Debt retirement

Meter replacement

SYSTEM DEVELOPMENT CHARGE

Fee charged to new customers connecting to the system to recover capital costs associated with growth
807 KAR 5:090

WATER CONSERVATION- ORIENTED RATES-
excess usage charges

Inclining block rates

INDEXING

Automatic annual increase in rates based on an established index

Kentucky American Water Company Case No 2012-00520

http://psc.ky.gov/efs/efs_search.aspx?case=2012-00520

PPACC
The Purchased Power And Chemicals Charge or PPACC is a tariff rate adjustment mechanism to recover from or credit to customers the incremental changes in purchased power and chemical costs above or below the level authorized for recovery in a base rate case proceeding through tariffs

DSIC
The Distribution System Infrastructure Charge or DSIC is a tariff rate adjustment mechanism that would allow the utility to earn a return on and recover the cost of capital improvements not covered in its last rate case application. The level of the DSIC would be established on an annual basis DSIC would be reset at Zero at the conclusion of the next base rate case filing

PURCHASED WATER ADJUSTMENT (PWA)

KRS 278.015 **Water district; combined water, gas, or sewer district** - authority to increase its rates commensurate with the wholesale supplier without prior approval by the commission

807 KAR 5:068 Districts and Associations – 100% recovery of increased cost
807 KAR 5:067 Privately- owned utilities - (held to 15% water loss)

ALTERNATIVE RATE FILING (ARF) 807 KAR 5:076

Requirement-In its immediate past calendar year of operation Applicant had $5,000,000 or less in gross annual revenues

http://psc ky gov/Home/UtilForms

Depreciation

Revenue Requirement Calculation for Water Districts

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Depreciation

Depreciation is the periodic allocation of the cost of a tangible long-lived asset over its estimated useful life

Periodic Allocation: Accounting Instruction 33 of the Uniform Systems of Accounts (USoA) for Water Districts and Water Associations requires the use of straight-line depreciation

Useful Life: NARUC Study

Recoupment of Investment or something else?

Depreciation

Public Service Commission v Dewitt Water District:

Kentucky Supreme Court ruled that recovery of depreciation through rates by a District does not represent recoupment of investment. It is to "provide an adequate fund for renewals, replacements, and reserves"

The Court did not define "adequate fund"

Depreciation

The PSC finds adequate funds to be any amount requested by the District that is equal to or less than annual depreciation expense if the expense is calculated using reasonable depreciable lives (NARUC Study)

Neither the Court nor the PSC limits the use of "depreciation funds" to asset renewal and replacement. These funds may be used for other costs necessary to deliver potable water. In fact, the PSC has required that depreciation funds be used to pay operation and maintenance expenses in some cases

Note: Lenders require a very small amount of cash reserves be set aside in a specific account designated as depreciation fund for as long as the debt remains outstanding. Refer to the flow of funds section of your bond resolutions and loan resolutions for details.

Depreciation

Should depreciable lives used for rate-making purposes also be used for accounting purposes?

Depreciation

Revenue Requirement Calculation for Water Districts

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

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DEPRECIATION PRACTICES FOR SMALL WATER UTILITIES

AUGUST 15, 1979

RECEIVED

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FOREWORD

To the National Association of Regulatory Utility Commissioners.

In December 1968, a manual entitled "Public Utility Depreciation Practices" was prepared by the Subcommittee on Depreciation, wherein many of the techniques used to determine service lives of depreciable property and depreciation rates were discussed. It was the observation of the Depreciation Subcommittee as well as that of some other state commissions that this manual was too complicated and too time-consuming to be of use to state commissions dealing with small utilities. It was felt that the Subcommittee should prepare a manual that could be used by state commissions dealing with small utilities having a limited amount of records and know-how. In December 1974, a manual entitled "Depreciation Practices for Small Telephone Utilities" was completed. The second of such manuals, for small water utilities, is presented herein and is intended to assist the state commissions in establishing depreciation rates for small water utilities. From an analysis of reports issued by state commissions, the majority of small water utilities generally have less than 200 customers and $50,000 of annual revenue. The Subcommittee analyzed data from various states and water utilities from which it selected typical average service lives and net salvages by plant accounts. It was assumed that the small water utilities use the same construction techniques, have similar

equipment, maintenance standards and accounting practices as those in the selected sample; therefore, the small water utility average service lives and depreciation rates would be similar to those used by the average water utility.

The manual should allow the staffs of the state commissions to establish reasonable depreciation rates for small water companies and test the reasonableness thereof.

Many state commissions have established their own practices which may differ somewhat from those proposed herein. It is not suggested that this manual replace those practices.

The Subcommittee on Depreciation is continuing its work on depreciation practices for small gas and electric utilities and, in addition thereto, is continuing its work in the preparation of a manual of definitions used in depreciation work.

The members of the Subcommittee on Depreciation working on these practices were:

DEPRECIATION SUBCOMMITTEE

Ray J. Nery, North Carolina, Chairman

B.C. Hostettler, ICC	James B. Safford, New York
Daniel C. McLean, Washington	F.W. Bone, IRS
Robert G. Warnek, FCC	Martin Abramson, California
Alfred E. Ueberroth, Michigan	Norman Deutsch, FERC
Larry Hoaglan, Arkansas	Walter D'Haeseleer, Florida

This manual was recommended to the National Association of Regulatory Utility Commissioners by the Committee on Engineering and its Staff Committee. The text of the resolution adopting the manual is stated below. The members of these committees are as follows:

STAFF SUBCOMMITTEE ON ENGINEERING

Henry A. Minch, Maryland, Chairman

Robert G. Warnek, FCC
William J. Ide, Illinois
Ray J. Nery, North Carolina
Harold C. Blatt, Pennsylvania
Richard Bibb, Tennessee
Lester Stuzin, New York PSC
David C. Lathom, FERC
William F. Fox, Ohio
Russell N. Staley, Alaska PUC
Robert J. Buckley, Iowa SCC
Bruno A. Davis, California
Joseph W. Ferraro, Sr., New York
Joseph M. Flanigan, REA, Observer
Ray L. Pruett, Utah
Walter D'Haeseleer, Florida
Kevin Kelly, NRRI, Observer

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Alfred H. Reichman, Illinois
James M. Plaskett, Indiana
Thomas J. Schneider, Montana
Roger L. Hanson, Minnesota PSC

Resolution Re Adoption of Depreciation Practices for Small Water Utilities

WHEREAS, The Committee on Engineering of this Association and its Subcommittee on Depreciation, after extended study and conferences, have developed Depreciation Practices for Small Water Utilities; and

WHEREAS, The Committee on Engineering of this Association has recommended the manual for adoption by this Association; and

WHEREAS, This Association believes that the Depreciation Practices for Small Water Utilities will be of value in assisting regulatory agencies in the practical solution of depreciation problems; now, therefore, be it

RESOLVED, That the Executive Committee of the National Association of Regulatory Utility Commissioners hereby adopts the Depreciation Practices for Small Water Utilities reported by the Committee on Engineering and authorizes its Washington Staff to make it available to the member regulatory agencies of the Association and others as a guide for the practical assistance and guidance to regulatory personnel and others regarding depreciation for small water utilities.

Adopted August 15, 1979

DEPRECIATION PRACTICES
FOR SMALL WATER UTILITIES

Purpose

The purpose of this manual is to present in a simplified manner the essential information and procedures recommended for estimating the service lives, net salvages and depreciation rates for the plant of small water utilities.

It is hoped that the practices developed in this manual will establish a basis for uniformity and be sufficiently clear to enable the staffs of regulatory commissions to prepare reasonable schedules of depreciation rates and amounts of annual depreciation accruals.

For a more complete discussion on the subject of depreciation practices or for a more detailed analysis of specific depreciation procedures, refer to "Public Utility Depreciation Practices" published in 1968 by the National Association of Regulatory Utility Commissioners, 1102 ICC Building, Post Office Box 684, Washington, D.C. 20044.

Scope

The scope of this manual includes the reasons for depreciation, the straight-line methods used to compute annual depreciation rates, an explanation of the factors used in the depreciation accrual equations, definitions of depreciation terms, some accounting transactions related to depreciation and suggested average service lives, net salvages and depreciation rates for most categories of water utility plant.

The straight-line average service life method of computing the annual depreciation rates used by most regulatory agencies has been developed and used in the text of this manual. The straight-line remaining life method used by some regulatory agencies has been developed and included as Appendix A.

A small water utility is defined for the purpose of this report as a water utility with plant investment of less than $1,000,000. The simplified and less detailed practices in this manual are designed to meet the needs of regulatory commissions to establish realistic depreciation rates for such utilities.

Objectives of Depreciation

The principal objective of recognizing depreciation as a cost of service is to allow the utility to recover the cost of the depreciable investment, less estimated net salvage, over the useful life of the depreciable plant by means of an equitable plan of charges to operating expenses or clearing accounts. The straight-line average service life method presented in this manual meets this objective.

Base for Depreciation Charges

The depreciation base used in this manual is the original cost of the depreciable property. Original cost is defined as the cost to the person who first devotes the property to public service. The base recoverable through depreciation is limited to cost of the depreciable parts of the property. This generally excludes the cost of organizing, franchises, intangible plant and land.[1] The base can usually be determined from actual construction costs recorded on the utility's books.

Actual construction costs include the cost of the labor, equipment and materials needed to construct the plant, the capitalized interest during construction, administrative and general expenditures such as engineering and supervision, general officers' and clerical salaries and expenses, office supplies and expenses, legal expenditures and other expenses covering injuries and damages, insurance, interest, and taxes. Care must be exercised in spreading these administrative and general expenses between the depreciable and nondepreciable plant such as land. While meticulous distinctions are impossible, reasonably accurate assignments or spreads can be obtained by the utilization of good accounting practices.

[1] Some jurisdiction may exclude contributions from the depreciable base.

Average Service Life Estimates

Determination of service lives basically involves an analysis of the past and engineering estimates of the future effect of wear and tear, decay, action of the elements, inadequacy, obsolescence and public requirements. In some cases, other factors such as anticipated changeover to new or improved kinds of plant, or specific plans of management must be given consideration. To arrive at a satisfactory estimate of future conditions, past experience generally gives an indication which can be used as at least one element in the estimate. The weight to be given to past experience depends upon the extent to which the conditions affecting service life in the future are expected to be similar or different from those in the past.

Utility property, in conformance with a uniform system of accounts, is classified broadly by function and each function is broken down into accounts. As an example, one function of a water utility is providing transmission and distribution services. The plant providing that function is divided into several accounts such as transmission and distribution mains, fire mains, services, meters, hydrants, and so on. Each account is further divided into subaccounts, groups, and units. Each unit is an individual item of plant, but it is common practice to combine units which have like mortality characteristics, like physical appearance and character and which operate under the same general conditions into one group. There may be one or more

groups within an account. For instance, in the "transmission and distribution mains" account, the units (individual items) of cast iron, steel and asbestos-cement pipe over 12 inches in diameter may constitute one group, units of pipe from 12 to eight inches in diameter may constitute the second group, and the third group might include all pipe smaller than eight inches in diameter. Because of greater simplicity in maintaining records, the group basis is more feasible for most classes of utility property where a large number of units are involved and is the more generally used base among electric, gas, telephone, and water utilities.

In the above example, the average service life of a group containing cast iron, steel, and asbestos-cement pipe would be based on a composite or weighted average of the service lives of all units within the group. When a group such as described above contains units or items of plant with varying estimated average service lives, the average service life of the group is the reciprocal average of the lives as shown under the subject of "weighting" in this manual.

In utility accounting, the depreciation rate is applied to depreciable plant in service. Therefore, the surviving plant is of more interest than the retired plant, and the retirement curve is seldom used. The survivor curve shows the percent of original plant surviving by year.

A reliable method of estimating the average service life of a unit or group is to use the survivor curve method.

Underlying this method are certain statistical concepts which require some explanation. In estimating service life, we are concerned with the span of years from the placement of plant to its retirement. In groups of property seldom do all units reach retirement at the same time. Some will reach it at an early age, many will bunch around a period somewhere near the average and a few will extend out to a long age. The statistician would say we have a number of events (retirements) occurring with different values (ages) which can be illustrated by a graph known as a frequency curve. The frequency curve shows the retirements, as a percentage of the group, occurring in each year of the group's life. From either the frequency curve or survival and retirement ratios, the survivor curves can be developed. The average life or average age at which retirements occur can also be developed from the frequency curve.

The probable life is the expected life of the survivors, or plant in service, at any given age. At any age after retirements have started, the probable life is longer than the average life because the short-lived units have been removed from the surviving group.

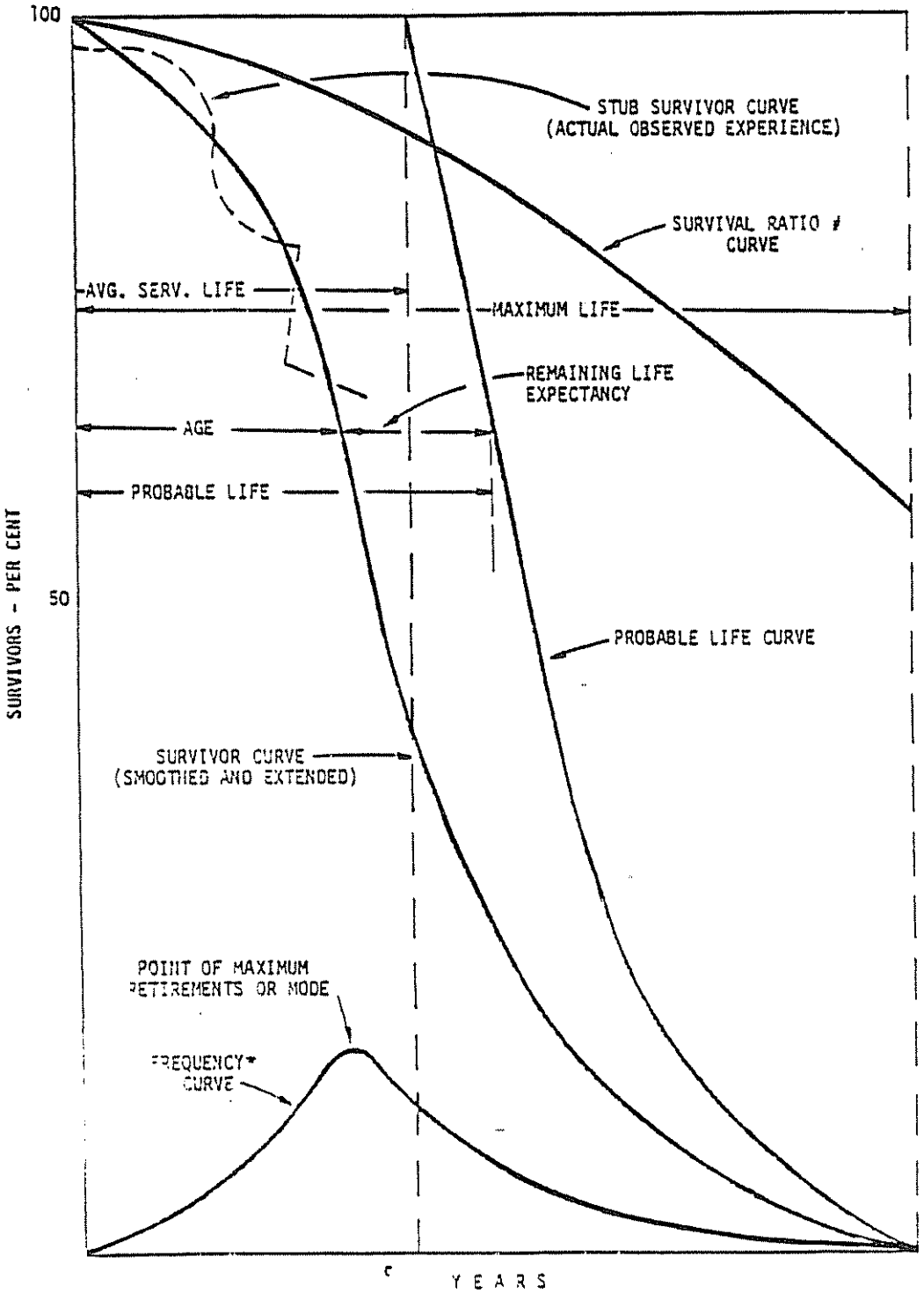
Using the survivor curve method, the remaining life of a group of depreciable property of any age can be determined by finding that age on the survivor curve and projecting horizontally to the probable life curve. The difference in years between the age and probable life is the remaining life. Typical survivor and related curves are shown on

Chart I.

The use of survivor curves developed from good mortality records by actuarial methods is considered to be an accurate and reliable method to determine the estimated average service life of depreciable property. One widely accepted study of survivor curves (Iowa Curves) is that conducted at the Iowa State College of Engineering Experiment Station as described in their Bulletin Nos. 125 and 155.

CHART I

A SURVIVOR CURVE AND RELATED CURVES



* THE FREQUENCY CURVE IS NOT REQUIRED IN THE USUAL DEPRECIATION COMPUTATIONS.
\# THE SURVIVAL RATIOS (SURVIVORS AT END OF PERIOD ÷ PLANT EXPOSED AT BEGINNING OF PERIOD) ARE USED IN COMPUTING THE SURVIVOR CURVE.

A small utility may not have sufficient records to develop its own survivor curves. This problem can be resolved by using survivor curves of comparable plant that have been developed by others, by selecting an average service life based on engineering judgment, or by using the forecast or life span method currently being used by other utilities throughout the country.

The forecast or life span method is basically an assumption that a given piece of property will be retired in a specific number of years after placement or that the actual date of retirement will be a certain date. At the final date of retirement of properties, all units comprising the piece of property including interim additions are retired at once. This is in contrast to group properties in which retirement of units occurs gradually until all are retired. The forecast method is basically the simplest method of computing depreciation and, theoretically, could be applied to each unit of property. Rather than using this method for group properties, it is generally used for comparatively large, easily identifiable pieces of property such as buildings, treatment plants, dams, and reservoirs. Appendix E shows an example of this method.

Where lack of appropriate data prevents the application of any of the two previous methods, engineering judgment estimates of service life expectancies may be appropriate. In developing these life expectancies, it is helpful to study possible ranges of life estimates setting down

reasonable minimum and maximum expectancies before coming to final conclusions. As previously indicated under the survivor curve discussion, it should be noted that the average life of all units originally placed in the group is less than the probable life of surviving units because of the prior retirement of short-lived units.

Without the benefits of mortality data or definitive retirements dates for particular pieces of property, it will be very difficult for staffs of regulatory commissions and small water utilities to make a proper estimate of average service life for each group or unit of plant. For that reason, a range of average service lives currently being used by water utilities throughout the country for water facilities designed and installed and maintained in accordance with good water works practice is shown below in Figure 1.

FIGURE 1

Typical Average Service Lives, Salvage Rates, and Depreciation Rates

Small Water Utilities

NARUC Account Number	Class of Plant	Average Service Life a/ Years	Net Salvage Percent	Depreciation Rate Percent
	Source of Supply Plant			
311	Structures and Improvements	35-40		2.9-2.5
312	Collecting & Impounding Reservoirs	50-75		2.0-1.3
313	Lake, River and Other Intakes	35-45		2.9-2.2
314	Wells and Springs	25-35		4.0-2.9
315	Galleries and Tunnels	25-50		4.0-2.0
316	Supply Mains	50-75		2.0-1.3
317	Other Source of Water Supply Plant	30-40		3.3-2.5
	Pumping Plant			
321	Structures and Improvements	35-40		2.9-2.5
324-7	Pumping Equipment	20		5.0
328	Other Pumping Plant	25		4.0
	Water Treatment Plant			
331	Structures and Improvements	35-40		2.9-2.5
332	Water Treatment Equipment	20-35		5.0-2.9
	Transmission and Distribution Plant			
341	Structures and Improvements	35-40		2.9-2.5
342	Reservoirs and Tanks	30-60		3.3-1.7
343	Transmission and Distribution Mains	50-75		2.0-1.3
344	Fire Mains	50-75		2.0-1.3
345	Services	30-50		3.3-2.0
346	Meters	35-45	10	2.6-2.0
347	Meter Installations	40-50		2.5-2.0
348	Hydrants	40-60	5	2.4-1.6
	General Plant			
390	Structures & Improvements	35-40		2.9-2.5
391	Office Furniture and Equipment	20-25	5	4.8-3.8
392	Transportation Equipment	7	10	12.9
393	Stores Equipment	20		5.0
394	Tools, Shop & Garage Equipment	15-20	5	6.3-4
395	Laboratory Equipment	15-20		6.7-5.
396	Power Operated Equipment	10-15	10	9.0-6.0
397	Communication Equipment	10	10	9.0

a/ These lives are intended as a guide; longer or shorter lives should be used where conditions warrant.

Net Salvage Estimate

Estimated net salvage is the estimated gross salvage in cash or value which is expected to be realized from utility property retired less the estimated cost of removal involved in retiring such property. The estimated net salvage can be a negative figure in instances where the cost of removal is expected to exceed any gross salvage value. Net salvage is usually expressed as a percentage of the plant retired.

Reasonable salvage estimates and forecasts for small water utilities can be made by trending the net salvage experience and applying engineering judgment. Some of the factors to be considered in developing an estimated salvage percentage are:

(a) Utility's recorded experience, including trends with the same or similar type property;

(b) Effect on recorded salvage of transfers, sales and reimbursements from damages or forced relocations;

(c) Future conditions affecting cost of removal; and

(d) Changes in accounting practices that have affected salvage and cost of removal amounts.

Where records are available, recorded or past salvage experience for each account may be determined by analyzing the debits and credits to the reserve for depreciation. The retirements should be summarized for each year and the totals of gross salvage and cost of removal determined. Dividing each of the latter by the retirements gives the percent gross salvage and percent cost of removal realized each year. This type of calculation for a series of years

is illustrated in the following table.

FIGURE 2

Determination of Net Salvage Value
Pumping Equipment

Year	Plant Retired	Gross Salvage Amount	Gross Salvage % of Retirement	Cost of Removal Amount	Cost of Removal % of Retirement	Net Salvage Amount	Net Salvage % of Retirement
	a	b	c=b÷a	d	e=d÷a	f=b-d	g=f÷a
1973	$ 50	$12	24.0%	$ 3	6.0%	$ 9	18.0%
1972	100	22	22.0	7	7.0	15	15.0
1971	70	11	15.7	5	7.1	6	8.5
1970	40	5	12.5	4	10.0	1	2.5
1969	30	7	23.3	5	16.7	2	6.7
1968	30	5	16.7	2	6.7	3	10.0
1967	50	2	4.0	7	14.0	-5	-10.0
Totals	$370	$64	17.3%	$33	8.9%	$31	8.4%

The above tabulation shows that the past recorded net salvage value amounted to 8.4% of the cost of plant retired.

In the use of the straight-line average service life method for computing depreciation rates, an estimated net salvage covering the entire life of the unit or group of property is needed. The utility must estimate salvage values for property that will retire many years in the future. In doing so, it should be remembered that with most depreciable property the percent gross salvage realized on retirement varies with the age of the unit. Past experience is usually based on only a few retirements, probably of shorter-lived units. Generally, the older units yield lower values. The decrease in gross salvage with age may be approximated by assuming a straight-line diminution from

realized gross salvage of early retirements to the predicted ultimate gross salvage of oldest-lived units. A sample calculation of estimated net salvage values, using recorded values developed in the preceding tabulation and judgment values based on anticipated future conditions, is shown below.

FIGURE 3

Average and Future Net Salvage
Pumping Equipment

Factors	% of Retmt.	Amt. of Retmt.	Source of Data
A. Gross Salvage Past Retirements	17.3%	$ 370	Preceding tabulation
B. Gross Salvage Last Survivors	5.0		Selected by judgment
C. Gross Salvage Future Avg. = $\frac{A+B}{2}$	11.2	3,755	Plant presently in service
D. Average Gross Salvage	11.7		(17.3x370+11.2x3755)÷(370+3755)
E. Cost of Removal Past Retirement	8.9		Preceding tabulation
F. Cost of Removal Future Retmt.	11.0		Selected by judgment
G. Average Cost of Removal	10.8		(8.9x370+11.0x3755)÷(370+3755)
H. Future Net Salvage	0.2		C-F
I. Average Net Salvage	0.9		D-G

Where records are not available, management and engineering judgments must be made and comparisons with other utilities operating under similar conditions can often be made to develop reasonable estimated net salvage values. For a thorough discussion on estimating net salvage, the reader is referred to Chapter 3 of "Public Utility Depreciation Practices" published by the National Association of Regulatory Utility Commissioners, copyright 1968.

Weighting

Accounts frequently include more than one unit or group of depreciable utility property with different average service lives. To avoid the detailed work of calculating the accrual for each unit or group within an account, an average service life or a composite average service life should be obtained for each account. Reciprocal weighting should always be used in computing an average service life for an account or class of plant comprised of several groups. Only reciprocal weighting will derive the same total as if accruals were developed for each unit or group.

An example of reciprocal weighting to establish a composite average service life is shown in the following tabulation:

FIGURE 4

Weighted Average Service Life
Pumping Equipment

Group (a)	Gross Plant Investment (b)	Average Service Life (c)	Reciprocal Weighting (b÷c) (d)
1	$1,500	30.0 years	50 $/year
2	1,255	20.0	63
3	1,000	27.0	37
	$3,755	25.0 years	150 $/year

The weighting in column (d) is obtained by dividing the plant dollars in column (b) by the average service life in column (c) of every category to be weighted. A weighted

average service life of 25.0 years is obtained by dividing the sum of column (b) by the sum of column (d).

In certain accounts as in the transmission and distribution mains account where the total account consists of several groups of pipe with each group having a different average service life and where the units constituting the group have different physical qualities and average service lives, it may be necessary to weight the units within each group first and then weight the groups to develop a composite or weighted average for the entire account.

Weighting can also be applied to develop a composite salvage for a group or an account. The following tabulation is an example:

FIGURE 5

Weighted Net Salvage Value
Pumping Equipment

Group	Gross Plant Investment	Average Service Life	Life Weight	Net Salvage Percent	Salvage Weight
a	b	c	d=b÷c	e	f=dxe
1	$1,500	30.0 years	50 $/year	8.0%	400% $/year
2	1,255	20.0	63	10.0	630
3	1,000	27.0	37	12.7	470
	$3,755	25.0 years	150 $/year	10.0%	1,500% $/year

The weighting of the net salvage values of the above three groups resulted in a weighted net salvage value of 10.0%. The total of column (f) was divided by the total of column (d) to obtain the weighted value of net salvage.

Theoretical Reserve Studies

A theoretical depreciation reserve is defined as that amount which together with the estimated future depreciation accruals will equal the original cost of the property less net salvage. Studies to determine this theoretical amount may be used for several purposes.

Certain jurisdictions may use the theoretical reserve for rate-making purposes where no reasonable actual reserve is available or for computing fair value in some fair value jurisdictions. It may also be used to allocate the total book reserve to individual account, plant categories or areas.

In making such studies, it is best to separate short-lived plant such as motor vehicles from the longer-lived water plant to be sure that the plant is fully accrued at the time of replacement. The prices, the dates of purchase, the expected dates of disposal, and the expected allowances at trade-in will usually be readily available for these short-lived facilities. With this data, the amount that should be in the reserve can be quickly determined.

The degree of merit and value of a theoretical depreciation reserve study are discussed in the manual,

"Public Utility Depreciation Practices," published in 1968 by the NARUC. To use its suggested procedures for the calculation of a theoretical reserve, the manual assumes that the depreciation analyst has sufficient historical data on which to base a judgment on such things as mortality dispersion, average service life, and net salvage. However, such data is seldom available for a small water utility.

When adequate records are not available, a single theoretical reserve should not be selected on an arbitrary or convenient basis. Rather, it must be based on reasonable assumptions for service life, retirement dispersion, and salvage.

For the company that has periodic additions and retirements, no matter how large or small, a theoretical reserve percentage can be determined by assuming a certain dispersion of retirements, by estimating the average service life and by determining the average realized life of the plant. The average realized life is different from the average age in that it includes not only the ages of presently existing plant but also those for past retirements. An example of the determination of average realized life is presented in Appendix C.

The example assumes an average service life of 35 years and develops a realized life of 10.45 years. Interpolating between 10 and 11 years in Appendix D, the reserves would be 24.[illegible] to 29.9% for a 30-year life and 16.9% to 21.9% for a 45-year life. Interpolating between these two sets of

figures, a range of 22.2% to 27.2% is obtained for a 35-year service life.

Federal Income Tax Depreciation

Under section 167 of the Internal Revenue Code 1954, the general rule for depreciation for Federal income tax purposes is that there shall be allowed as a depreciation deduction a reasonable allowance for exhaustion and wear and tear (including a reasonable allowance for obsolescence) of property used in a trade or business or held for the production of income.

Accelerated methods of depreciation are provided by the 1954 Code, as well as the straight-line method most commonly used prior to 1954. In 1962, Rev. Proc. 62-21, 1962-2 C.B. 418, supplanted Bulletin F, old guidelines used for many years by taxpayers and the Internal Revenue Service in arriving at useful lives for depreciable property. Rev. Proc. 62-21 established guideline rules and lives for various classes of depreciable properties and generally liberalized depreciation deductions for income tax purposes. Although water utilities were not materially affected, some advantage was gained by the establishment of one guideline life for depreciable assets of water utilities except in the area of specific depreciable assets used in all business activities.

In 1971 an elective Asset Depreciation Range (ADR) system revoked Rev. Proc. 62-21 guidelines, including subsequent

supplements and amendments thereto, for taxable years ending after December 31, 1970. The new elective system established vintage accounts (closed-end depreciation accounts containing eligible property to which a taxpayer elects to apply the ADR system) with an asset depreciation range in years (a lower limit, an asset guideline period, and upper limit) for each class of depreciable assets acquired after December 31, 1970. This system was modified by section 167 (m) of the 1954 Code in the Revenue Act of 1971 to include assets acquired both before January 1, 1971, and after December 31, 1970. For depreciable assets acquired before January 1, 1971, the system is called the Class Life (CL) system; for depreciable assets acquired after December 31, 1970, the system is called the Class Life Asset Depreciation Range (CLADR) system. The two systems are similar but they apply to depreciable assets differently; e.g., there is no range of years applicable to assets acquired prior to January 1, 1971. The asset guideline period is used instead. Section 1.167(a)-11 of Income Tax Regulations applies to assets acquired after December 31, 1970, and section 1.167(a)-12 applies to assets acquired before January 1, 1971.

To use the CLADR system, additions and retirements must be to and from vintage accounts, and gross salvage credited to the vintage account reserves, with removal costs charged to expense on retirement. Either gross or net salvage may be used for the CL system, but for tax purposes, some water companies have asked and received permission to change to

gross salvage accounting to be consistent with the CLADR system. The cost of reinstalling depreciable assets that are not retired but merely relocated is treated as part of the repair allowance unless the permissible repair allowance is exceeded, in which case the excess is capitalized in a special vintage account.

In Appendix E is a summary of some of the asset guideline classes, periods, ranges, and repair allowances provided by Rev. Proc. 77-10, 1977-1 C.B. 548, updating Rev. Proc. 72-10, 1972-1 C.B. 721, that may be used by water companies.

Prior to the CLADR and CL systems estimated salvage was generally considered as either a reduction of the amount subject to depreciation (basis) or by a reduction in the rate of depreciation (rate). Under these two systems basis or rates are not affected, but salvage is not disregarded. Depreciation can only be claimed until the adjusted basis equals estimated salvage value. For water utilities class 49.3, the maximum rate would be 100÷40 = 2 1/2%. Under section 167 of the Code when depreciable property is placed in service, estimated salvage can be reduced by 10%. For example, if salvage is reasonably estimated at 5% it can be reduced to zero, if 25%, it can be reduced to 15%, and depreciation may be claimed for the full cost in the first instance and 85% of the cost in the second instance.

Both the CLADR and CL systems are elective each taxable year; however, under CLADR, the system must be applied to vintage accounts until all the assets in the vintage

accounts are retired. If one of these systems is not elected, taxpayers must demonstrate the useful life used and follow the prior rules under section 167 of the Code with the exception that Rev. Proc. 62-21 and Bulletin F guidelines are no longer applicable.

If the CLADR system is elected, the annual asset guideline repair allowance percentage which applies to both CLADR and CL property may also be elected (see last column in Appendix E). Sufficient books and records must be kept for expenditures incurred for both CLADR and CL assets. Under the repair allowance election, expenditures for repairs, maintenance, rehabilitation or improvement of "repair allowance property" (investments subject to depreciation) that are not clearly capital expenditures are treated as deductible repairs to the extent that they do not exceed the repair allowance percentage of the repair allowance property. The excess, if any, is capitalized in a special vintage account as a property improvement in that class.

These newer income tax procedures for depreciation have only been briefly described, because they are complicated; but even with the complications, most utility companies that were opposed to the maintenance of continuing property records have adopted the CLADR and CL systems which generally require the maintenance of records in greater detail than that of regulatory authorities. With the consideration of added tax incentive there is a general tendency toward greater detail rather than lesser in most

phases of utility operations, and, therefore, it would seem to be desirable for utilities to establish a system of continuing property records.

Depreciation Rate Calculations

To compute the annual depreciation rate for the straight-line average service life method, the basic equation is:

$$d = \frac{100-c}{L}$$

Where:

d = Depreciation rate in percent.
c = Estimated average net salvage percentage.
L = Estimated average service life.

Items c and L require estimates based on both experiences of the past and judgments of future conditions.

The values for service life and salvage components used in the above formula are the weighted average values for all of the plant in each of the accounting classifications. Weighted average values were discussed previously in this manual.

In actual practice, not only is a depreciation rate in percent desired but also a depreciation accrual in dollars. For the straight-line method, the equation is:

$$D = \frac{B-C}{L} \text{ or } \left(\frac{100-c}{100L}\right) \times B$$

where D is the depreciation accrual in dollars, C is the

estimated average net salvage in dollars and B is the book cost of gross depreciable plant in dollars.

The composite annual depreciation accrual rate is the ratio of the sum of the depreciation accrued from all depreciable accounts to the gross depreciable plant in the same year. Expressed as a percentage, the equation for the composite or total annual accrual depreciation rate is:

$$d = \% \text{ Rate} = \frac{\text{Annual Accrual}}{\text{Gross Depreciable Plant}} \times 100 = \frac{D}{B} \times 100$$

Determination of Annual Depreciation Accrual

The form for calculating annual depreciation accruals and rates by the average service life method is shown with sample calculations in Figure 6 below.

FIGURE 6

Company _____
Area/Dept. _____

Summary of Annual Depreciation Rate Determination
Straight-line Average Service Life Method

Year_____

NARUC Account Number	Description Plant	Gross Depreciable Plant	Average Service Life Years	Net Salvage Percent	Depr. Rate Percent	Annual Accrual
		1	2	3	4	5
311	Structures & Improv.	$ 3,014	40		2.5	$ 75
314	Wells	11,290	30		3.3	373
324	Pumping Equip. 1/	3,755	25	10	3.6	135
342	Reservoirs & Tanks	8,628	50		2.0	173
343	Trans. & Distr. Mains	53,550	60		1.7	0
345	Services	9,452	40		2.5	236
346	Meters	6,038	40	12	2.2	133
348	Hydrants	995	50		2.0	20
391	Off. Furniture & Equip.	1,721	15	5	6.3	108
392	Transportation Equip.	6,290	6	15	14.2	39[illegible]
	Total	$104,733			2.9 2/	$3,05[illegible]

1/ Derivation of Columns 4 & 5

Col. 4 (Depr. Rate) = $\left(\frac{100-10}{100 \times 25}\right) \times 100 = 3.6\%$

Col. 5 (Annual Accr.) = $3,755 x 3.6% = $135

2/ Composite Rate of 2.9% is derived by dividing the sum of Column 5 by the sum of Column 1 and multiplying the product by 100.
$3,056 ÷ $104,733 = 0.029 x 100 = 2.9%

The first two unnumbered columns on the form are for the listing of an appropriate plant account number and its corresponding description. Column (1) shows the dollar amount of gross depreciable plant in each account of the utility's books at the beginning of the year. This is element B in the accrual equation.

Columns (2) and (3) are provided for the two elements in the depreciation accrual calculation which must be estimated. These are the average service lives to be assigned to a property and the percentage of average net salvage which can be expected when the property is retired.

For the average service life method, column (4) shows the depreciation rate for each account. This rate is derived from the estimates of average service lives and salvage percentages to be shown in columns (2) and (3). The annual accrual for each account to be entered in column (5) is calculated by multiplying plant dollars in column (1) by the depreciation rate in column (4).

Recording the Depreciation Accrual

There are several methods which can be used in calculating the annual accrual to be recorded on the utility's books for the year. The simplest is to apply the predetermined annual depreciation rates to the beginning-of-year depreciable plant. Another method is to estimate the end-of-year plant and then apply the depreciation rates to the average of the beginning- and end-of-year plant. The last method requires

an adjustment to be made to the annual accrual after the recorded end-of-year plant amounts become available. In either method the utility may record the annual accrual as a single amount or in 12 monthly entries at its discretion or at the discretion of the regulatory commission. A third method employed by some of the larger utilities is to apply the annual depreciation rates each month to that month's beginning-of-month plant account balances or average monthly balances and record 1/12 of the result as that month's accrual.

Depreciation Accounting

Reference should be made to an appropriate system of accounts and instructions for complete details of accounting transactions. The following tabulation presents some of the essential transactions in a double entry set of records:

FIGURE 7

Depreciation Accounting

Transaction	Debit	Credit
Original cost on placing plant in service	Plant account (asset account)	Cash, materials and supplies
Depreciation accruals	Operation expenses and clearing accounts	Deprecation reserve account
Retirement of original cost of plant	Depreciation reserve account	Plant account (reduces the asset balance)
Cost of removal on retirement from service	Depreciation reserve account	Cash, or accounts payable
Gross salvage on retirement from service	Cash, materials and supplies or other investment accounts receivable	Depreciation reserve account

The accounting for additions and retirements should be promptly and properly recorded at the time of installation or retirement so that the plant and reserve accounts at all times reflect the current conditions.

Reasonableness of Final Report

An overall test of reasonableness should be applied to the final determination of the annual accrual. The overall composite depreciation rate produced by the accrual calculation should normally fall within a range of from 2.0% to 4.0%. When results are obtained which fall significantly outside this range, further review should be made to ascertain the nature of any special conditions which may be influencing the result. Under most circumstances, estimates of average service lives and net salvage should be made at intervals of not more than five years.

DETERMINATION OF STRAIGHT-LINE REMAINING LIFE DEPRECIATION ACCRUALS

General

The straight-line remaining life method is another method to determine depreciation accruals and is used frequently enough to warrant development in this manual. The factors considered in the straight-line remaining life method tend to control erratic fluctuations in the annual or periodic accruals. This method also has as its objective the control of excessive or deficient accumulations in the depreciation reserve.

Under the straight-line remaining life method, the net depreciable plant is recovered over the estimated remaining useful life of the property. This method differed significantly from the straight-line average service life method under which the depreciable plant is recovered over its entire estimated average life.

The straight-line remaining life method meets the objectives of depreciation accounting. The base for the depreciation charges is the same as the base used in the straight-line average service life method, explained earlier in the text.

The Depreciation Rate Equation

The basic equation for determining the annual depreciation rate by the straight-line remaining life method is:

$$d = \left(\frac{B - C' - U}{E}\right) \times \frac{100}{B}$$

Straight Line Average Service Life

$$d = \frac{100 - C}{L}$$

Where:

B = book cost of the gross depreciable plant in dollars.
C' = estimated net salvage in dollars from survivors.
d = annual depreciation rate in percent.
U = book depreciation reserve in dollars.
E = estimated average remaining life of survivors.
L = estimated average service life.
C = estimated average net salvage percentage.

Items B and U are obtainable from the utility's books of accounts. Item C' is estimated based on past experience and conditions likely to occur in the immediate future.

Determination of Annual Depreciation Accrual

The form used and examples of the straight-line remaining life method of calculating annual depreciation accruals are shown in Table I on page 33.

The first two unnumbered columns are for the listing of appropriate plant account number and its corresponding description. Column (1) shows the dollar amount of gross depreciable plant in each account of the utility's books at the beginning of the year. This is element B in the accrual equation.

Columns (2) and (6) show the two elements in the depreciation accrual calculation which must be estimated. They are the percentage of net salvage which can reasonably be expected when the property is retired and the service lives to be assigned to the property.

Column (3) is designed to show the estimated future net salvage dollars calculated by multiplying the plant dollars in Column (1) by the salvage percentage in Column (2). Column (4) is provided for the recorded depreciation reserve taken from the utility's books which, together with the salvage dollars, is deducted from the gross plant amounts to produce the net balance shown in Column (5).

Column (6) shows one weighted average service life for all the plant, units or groups within each account. Column (7) shows the average service life of the survivors (sometimes called probable life) and equals age plus remaining life. Column (9) shows the weighted average remaining life (element E in the accrual equation) in years and is determined either by subtracting the average age in Column (8) from the average service lives in Column (7) or determined directly by either the Forecast, Approximation or Direct Judgment methods as noted in the footnotes in Table I. The annual accrual in Column (10) is computed by dividing the net balance in Column (5) by the average remaining life in Column (9). Column (11) shows the

depreciation rate for each account derived by dividing the annual accrual in Column (10) by the gross plant in Column (1).

An overall depreciation rate or composite rate for the entire plant is determined by dividing the total annual accrual of all accounts by the total gross plant. The composite depreciation rate in Table I is 3.71%.

The discussion in the text relating to the reasonableness of the annual depreciation accrual, the recording of the depreciation accrual, and general depreciation accounting applies equally to the straight-line remaining life method.

TABLE I

SUMMARY OF
ANNUAL DEPRECIATION RATE DETERMINATION
STRAIGHT LINE REMAINING LIFE METHOD

Account No.	Description	Gross Plant at Beginning of Year $ (1)	Est. Est. Future Net Salvage (Est. Gross Salvage Less Cost of Removal) % (2)	$ (3)	Depreciation Reserve at Beginning of Year $ (4)	Net Balance (1)-(3)-(4) $ (5)	Average Service Life Original Group Yrs. (6)	Est. Survivors Yrs. (7)	Average Age Yrs. (8)	Remaining Life Yrs. (9)	Annual Accrual (5)÷(9) $ (10)	Depreciation Accrual Rate (10)÷(1) % (11)
311	Structures & Improvements	19,540	5.0	977	8,014	10,549	--	--	--	18 1/	586	3.0
315	Wells	13,786	0.0	--	9,618	4,168	--	--	--	16 1/	261	1.9
314	Springs and Tunnels	165	0.0	--	49	116	--	--	--	18 1/	6	3.6
324	Pumping Equipment	22,028	2.0	441	8,294	13,293	25	--	--	15 2/	886	4.0
332	Water Treatment Equipment	1,813	5.0	91	531	1,191	18	--	--	13 2/	92	5.1
343	Trans. & Distr. Mains	170,096	(5.0)	(8,505)	61,743	116,858	30	--	--	18 2/	6,492	3.8
342	Reservoirs and Tanks	21,103	0.0	--	6,805	14,298	33	--	--	17 2/	841	4.0
348	Hydrants	4,105	3.0	123	315	3,667	25	--	--	21 2/	175	4.3
345	Services	29,993	(10.0)	(2,999)	12,344	20,648	25	--	--	16 3/	1,291	4.3
346	Meters	34,865	15.0	5,230	6,974	22,661	30	--	--	22 2/	1,030	3.0
349	Other Trans. & Distr. Plant	931	0.0	--	120	811	18	22	13	9 4/	90	9.7
372	Office Furniture & Equipment	657	0.0	--	214	443	11	12	5	7 4/	63	9.6
374	Stores Equipment	2,471	5.0	124	451	1,896	12	13	3	10 4/	190	7.7
378	Tools, Shop & Garage Equip.	6,579	15.0	987	2,283	3,309	7	8	4	4 4/	827	12.6
	TOTALS	328,132	-	(3,531)	117,755	213,908	--	--	--	--	12,830	3.91

1/ Remaining life determined by forecast method.
2/ Remaining life determined by selecting survivor curve.
3/ Remaining life determined by computation from accounting records. (See Appendix C)
4/ Column 7 - Column 8.

DEPRECIATION STUDY BY FORECAST OR LIFE SPAN METHOD

Example: A dam is put into service at the beginning of 1961. The estimated life span is 40 years and the estimated time of retirement is the end of the year 2000. No salvage is assumed. Developments occur as follows:

No.	Year End	Event	Additions $	Retirements $
1	1963	Outlet works modified	4,500	3,000
2	1965	Spillway modified	6,000	3,000
3	1970	Fencing installed	1,500	-
4	1980	Sealant placed (capitalized)	3,000	-
5	1985	New source of water supply procured. Existing source phased out over a 5-year period after which dam is retired.		

Year	Plant Surviving Beg. of Yr.	Additions $	Retirements $	Average Service Life: Orig. Dam	Addition No. 1	2	3	4	Depreciation: Rate %	Accrual $	Beg. Yr. Reserve
1961	$42000	-	-	38 1/					2.63 2/	1105	
1962	42000	-	-	38					2.63	1105	$ 1105
1963	42000	4500	3000	38					2.63	1105	2210
1964	43500	-	-	38	38 3/				2.63	1144	315 4/
1965	43500	6000	3000	38	38				2.63	1144	1459
1966	46500	-	-	20 5/	20	18			5.00 6/	2325	(397)
1967	46500	-	-	20	20	18			5.00	2325	1928
1968	46500	-	-	20	20	18			5.00	2325	4253
1969	46500	-	-	20	20	18			5.00	2325	6578
1970	46500	1500	-	20	20	18			5.00	2325	8903
1971	48000	-	-	30 7/	31	29	24		3.33 8/	1598	11228
1972	48000	-	-	30	31	29	24		3.33	1598	12825
1973	48000	-	-	30	31	29	24		3.33	1598	14424
1974	48000	-	-	30	31	29	24		3.33	1598	16022
1975	48000	-	-	30	31	29	24		3.33	1598	17620
1976	48000	-	-	33	34	32	27		3.03 9/	1454	19213
1977	48000	-	-	33	34	32	27		3.03	1454	20672
1978	48000	-	-	33	34	32	27		3.03	1454	22126
1979	48000	-	-	33	34	32	27		3.03	1454	23580
1980	48000	3000	-	33	34	32	27		3.03	1454	25034
1981	51000	-	-	34	36	34	29	19	3.13 10/	1596	26488
1982	51000	-	-	34	36	34	29	19	3.13	1596	28084
1983	51000	-	-	34	36	34	29	19	3.13	1596	29680
1984	51000	-	-	34	36	34	29	19	3.13	1596	31276
1985	51000	-	-	34	36	34	29	19	3.13	1596	32872
1986	51000	-	-	26	27	25	20	10	4.17 11/	2127	34468
1987	51000	-	-	26	27	25	20	10	4.17	2127	36595
1988	51000	-	-	26	27	25	20	10	4.17	2127	38722
1989	51000	-	-	26	27	25	20	10	4.17	2127	40849
1990	51000	-	51000	26	27	25	20	10	4.17	2127	42976
1991	-	-	-	-	-	-	-	-	-	-	(3897) 3/

(See Sheets 2 & 3 for Footnotes)

Footnotes:

1/ It is assumed that 10% of the original installation will be retired in piecemeal (interim) retirements over the life of the dam, which would average to 0.25% per year. Over a 40-year period this would amount to a loss of 2 years' service life (½ x 40 x .10). See Figure E-1.

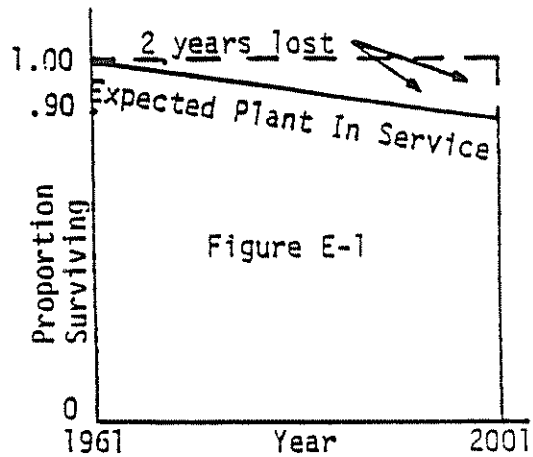


Figure E-1

2/ Assuming zero salvage, the depreciation rate is 100 ÷ 38 = 2.63% and the Accrual is .0263 x 42000 or $1,105.

3/ It is assumed that depreciation studies are made every 5 years, as recommended in the text of this practice. Thus, the 1963 addition takes the same life as the original addition until the time of the next study.

4/ Depreciation reserve at the end of the third year (beginning of fourth year) is prior years' reserve of $2,210 plus $1,105 accrual less $3000 retirement.

5/ A depreciation study made as of the beginning of 1966 determines that the experienced interim retirement rate is (0 + 0 + 3000 + 0 + 3000) ÷ (42,000 + 42,000 + 42,000 + 43,500 + 43,500), which equals 2.82%. For the remaining 35 years, this represents a loss of life of ½ x 35 x (.0282 x 35), or 17.3 years. The remaining life is 35 - 17.3 or 17.7 years for the remaining plant. It would apply to the 1965 placement. The unrealized life of the original placement would be 86% of this, or 15.2 years. See Figure E-2. During the first 3 years, when the original placement was intact, the life that was realized was a full 3 years. During the next two, when only 93% of the original investment still survived, the realized life was 2 x .93 or 1.9 years. The average service life for the full span is 3 + 1.9 + 15.2, or 20.1 years. For the 1963 placement, from which nothing has been retired, the realized life is 2.0 years and the unrealized life is 17.7 for a total of 19.7. Both of these would round to 20 years.

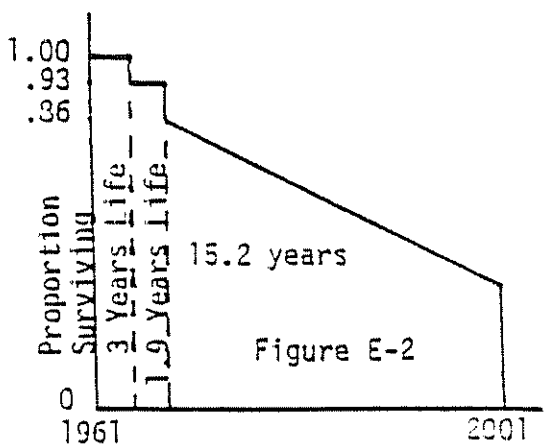


Figure E-2

6/ Composite average service life is:

Vintage a	Plant Surviving b	Service Life c	Accrual d=b÷c
1961	$36000	20	$1800
1963	4500	20	225
1965	6000	18	333
	$46500	19.7 years*	$2358

* 19.7 yr. from 46,500 ÷ 2358 use 20

Depreciation rate = $\frac{100}{20}$ = 5.0%

7/ At the time of the 1971 depreciation study, the experienced interim retirement rate is 6000 ÷ (3 x 42,000 + 2 x 43,500 + 5 x 46,500), or 1.35%. For the remaining 30 years the loss of life is ½ x 30 x (.0135 x 30), or 6.1 years and the remaining life is 23.9 years. This applies directly to the 1970 addition and is added to the realized lives of 5 and 7 years for the 1965 and 1963 additions. The realized life of the 1961 addition is 3 x 1.0 + 2 x .93 + 5 x .86, or 9.2 years and the unrealized life is .86 x 23.9, or 20.6 for a total average service life of 29.8 years. The composite life using the procedure as in 6/ above is 30 years and the depreciation rate is 3.33%.

8/ For the 1976, 1981 and 1986 studies, the following factors can be derived using the same procedures as above:

Date of Study	Experienced Int. Ret. Rate-%	Remaining Life	Composite Life	Depreciation Rate-%
1976	0.88	22.3	33	3.03
1981	0.65	18.7	32	3.13
1986	0.51	4.9	24	4.17

9/ Because of the reduction in the life span of the dam from 40 to 30 years, there is a shortage in the reserve at the time of retirement of the dam. The shortage is not large, however, when compared with annual accruals and no corrective measures should be taken. Rather, the span of the replacement facility should be adjusted downward as, for example, from 40 to 30 years, in expectation of a similar overestimation. The beginning interim retirement rate should also be higher (0.5 instead of 0.25), reflecting past experience.

Form D-5

UTILITY Alpha Water Company
AREA/DEPT -
AC 345 Services

REALIZED LIFE AND REMAINING LIFE OF PLANT
COMPUTED FROM ACCOUNTING RECORDS
AS OF 1/1 60

YEAR	GROSS ADDITIONS RECORDED	GROSS ADDITIONS ADJUSTED	TRANSFERS IN AND (OUT)	PLANT BALANCES (END OF YEAR)
1959	$1,923	$1,923	-	$29,993
58	2,705	2,705	-	28,518
57	1,620	1,620	-	26,225
56	1,278	1,278	-	24,998
55	1,127	1,127	-	23,992
1954	1,431	1,431	-	23,083
53	1,733	2,054	321*	21,901
52	983	983	-	20,018
51	308	308	-	19,114
50	447	447	50	18,806
1949	959	959	-	18,309
48	1,323	1,323	-	17,410
47	1,076	1,076	-	16,154
46	1,442	1,442	-	15,209
45	1,193	1,193	-	13,873
1944	1,754	1,754	-	12,791
43	1,893	1,893	-	11,110
42	1,276	1,276	-	9,244
41	521		-	8,048
40	409		-	7,617
19				
			* Originally devoted to public service in 1944.	
TOTALS	(1)	24,792	(2) 371	(3) 358,797

TOTALS TAKEN FROM MOST RECENT YEAR BACK TO SELECTED BEGINNING YEAR OF 1942

(4) Beginning Plt. Bal. 8,048
(5) ½ Beg. Plt. Balance 4,024
(6) Plant Exposed=(1)+(4) 32,840
(7) Plant Surviving 29,993
(8) ½ Surviving Balance 14,997
(9) Portion Surviving=(7)/(6) 0.9133
(10) $ Years=(3)-(5)-(8) 339,776
(9 x 371)
(11) Correction to Past Dollar Years for Transfers: 3,339
(12) Estimated Av. Serv. Life 35.00 Yrs.
(13) Past Dollar Years 343,115
(14) Realized Life=(13)/(6) 10.45
(15) Difference(12)-(14) 24.55
(16) Rem. Life=(15)/(9) 26.88 Yrs.
(17) Conclusion: (Use Rounded Value) Remaining Life 27 Yrs.

Appendix D

RANGE OF DEPRECIATION RESERVE FOR AVERAGE REALIZED LIFE[1]

Average Realized Life In Years	Range of Depreciation Reserve As A Percentage Of Plant In Service		
	For 30-Year Life	For 45-Year Life	For 60-Year Life
1	2 to 4	1 to 3	1 to 2
2	5 to 7	3 to 5	2 to 4
3	7 to 10	5 to 7	4 to 5
4	10 to 13	6 to 9	5 to 7
5	12 to 16	8 to 11	6 to 8
6	14 to 19	10 to 13	7 to 10
7	16 to 22	11 to 15	8 to 12
8	18 to 24	13 to 17	10 to 13
9	19 to 27	14 to 19	11 to 15
10	24 to 29	16 to 21	12 to 16
11	26 to 31	18 to 23	13 to 17
12	27 to 33	19 to 24	14 to 19
13	29 to 35	21 to 26	15 to 20
14	30 to 37	22 to 27	16 to 22
15	31 to 39	24 to 29	17 to 23
16	32 to 40	25 to 30	18 to 24
17	33 to 42	26 to 31	19 to 25
18	34 to 43	27 to 33	21 to 27
19	35 to 43	28 to 34	23 to 28
20	36 to 43	29 to 36	24 to 29
21	36 to 43	30 to 37	25 to 30
22	36 to 43	31 to 38	26 to 31
23		32 to 39	27 to 32
24		32 to 40	27 to 33
26		34 to 42	29 to 35
28		35 to 43	30 to 37
30		36 to 43	31 to 39
32		36 to 43	32 to 40
35		36 to 43	34 to 42
45			36 to 43

[1]For the guideline reserves, the dispersion characteristics of Iowa Curves of the R_1, R_2, and L_1 and L_2 shapes were used; the net salvage was assumed to be zero.

Appendix E

ASSET GUIDELINE CLASSES AND PERIODS, ASSET DEPRECIATION RANGES, AND ANNUAL ASSET GUIDELINE REPAIR ALLOWANCE PERCENTAGE

Asset guide-line class	Description of assets included	Asset depreciation range (in years) Lower limit	Asset guideline period	Upper limit	Annual asset guideline repair allowance percentage
SPECIFIC DEPRECIABLE ASSETS USED IN ALL BUSINESS ACTIVITIES, EXCEPT AS NOTED:					
00.11	Office Furniture, Fixtures, & Equipment: Includes furniture & fixtures which are not a structural component of a building. Includes such assets as desks, files, safes, and communications equipment. Does not include communications equipment that is included in other CLADR classes	8	10	12	2
00.13	Data Handling Equipment, except Computers: Includes only typewriters, calculators, adding & accounting machines, copiers, & duplicating equipment	5	6	7	15
00.22	Automobiles	2.5	3	3.5	16.5
00.241	Light General Purpose Trucks: Includes trucks for use over the road (actual unloaded weight less than 13,000 pounds)	3	4	5	16.5
DEPRECIABLE ASSETS USED IN THE FOLLOWING ACTIVITIES:					
49.3	Water Utilities: Includes assets used in the gathering, treatment, & commercial distribution of water	40	50	60	1.5

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Table 44
Average Service Lifetimes, Major Systems Components
Wastewater Systems

Description			Average Service Lifetimes
Septic Tank-Soil Absorption			
Septic Tank			20-50 years
Soil Absorption System			10-30 years
Home Aerobic Tanks			
Tank			20-50 years
Mechanical Components			3-10 years
Collection Systems			
Gravity Sewers, clay, cement			25-50 years
Gravity Sewers, cast iron			30-75 years
Gravity Sewers, plastic			30-75 years
Manholes, structures			20-50 years
Lift Station, structures			20-50 years
Lift Station, pumps, etc.			7 years
Pressure sewers, plastic, small dia.			5-10 years
Small (household) sewage pumps			5-10 years
Pressure Mains-same as gravity sewers			
Treatment Systems			
Primary	Comminutors		5 years
	Screens		10 years
	Clarifier Tanks, concrete		20 years
	Clarifier Tanks, metal		20 years
	Grit and Sludge Handling Equipment		5-10 years
Secondary	Lagoons		5-25 years
	Extended Aeration tankage, concrete		20-50 years
	Extended Aeration tankage, metal		20-30 years
	Aerator Compressors		5-10 years
	Air diffusers		3 years
	Sludge pumps		5-10 years
	Clarifier Tankage, Concrete		20-50 years
	Clarifier Tankage, Metal		20-30 years
	Chlorinators		10 years
	Sludge Digesters-same as aeration tankage		
Advanced Wastewater Treatment		Sand Filters	5-10 years
Sludge Disposal Equipment		Drying beds	5-15 years
		Incinerators	
		Dewatering devices	
Effluent Disposal		Irrigation Pumps	5-10 years
		Sprinkler Heads	2-5 years
General Use Equipment			
Laboratory instrumentation			3-10 years
Service Vehicles			3-5 years
Pumper/Tank trucks			5-10 years
Automatic Controls			5-20 years

Source: O &M Guide for the Support of Rural Water-Wastewater Systems by Commission on Rural Water, Chicago, Illinois, 1974, p 246-247

C

Supreme Court of Kentucky.

PUBLIC SERVICE COMMISSION OF KENTUCKY, Appellant,
v.
DEWITT WATER DISTRICT, Appellee.
EAST CLARK WATER DISTRICT and Warren County Water District, Appellant,
v.
PUBLIC SERVICE COMMISSION and David L. Armstrong, Attorney General, Division of Consumer Protection, Appellee.

Nos. 86-SC-342-DG, 86-SC-362-DG

Nov. 26, 1986.

In one case, the Franklin Circuit Court held that depreciation expense on contributed property should be allowed to water district the same as for other property. In other cases, the Franklin Circuit Court determined that the Public Service Commission properly disallowed rate recovery for depreciation expense on contributed property to water districts. After conflicting action by the Court of Appeals, the Supreme Court, Wintersheimer, J., held that: (1) Commission's denial of rate recovery for depreciation expense on contributed property with respect to water districts that were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors was unlawful act in contravention of statutory and regulatory requirements; (2) disallowance of depreciation with respect to the water districts was unreasonable and amounted to confiscatory governmental policy; and (3) depreciation expense on publicly owned water district plant that had been purchased by federal grants and contributions and/or tap-on fees should be allowed in revenue requirement of public water districts.

One Court of Appeals decision affirmed; the other decision reversed.

Vance, J., concurred in result only.

West Headnotes

[1] Public Utilities ⚷194

317Ak194 Most Cited Cases

It is responsibility of reviewing court to protect parties subject to regulatory authority of Public Service Commission from arbitrary and capricious action.

[2] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Public Service Commission's denial of rate recovery for depreciation expense on contributed property to water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors was unlawful act in contravention of statutory and regulatory requirements; statute requires regulated utilities to keep accounts in uniform system in accordance with specific standards, statute requires Commission to consider costs of reproduction, among other factors, in valuing plant property for rate-making purposes, and statute requires that water districts be permitted to charge rates which will provide for adequate depreciation reserves. KRS 74.480, 278.220, 278.290.

[3] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Fact that Kentucky was original value state did not preclude water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors from taking depreciation expense on contributed property, where original cost was only one factor to be considered in valuing utility's property, under statutes, with Public Service Commission being required to consider various factors, including cost of reproduction as going concern. KRS 278.290.

[4] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Public Service Commission's denial of rate recovery for depreciation expense on contributed property with respect to water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors was unreasonable and amounted to confiscatory governmental policy; disallowance of depreciation expense as rate recovery permitted substantial portion of property of district to be

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consumed by current customers without requiring customers to pay for a replacement, and total plants, not just portion financed by noncontributed funds, were wearing out.

[5] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

When considering issue of confiscation and determining whether Public Service Commission's denial of rate recovery for depreciation expense on contributed property was confiscatory with respect to water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors, future as well as present must be considered, with determination being made as to whether rates complained of were yielding and would yield sum sufficient to meet operating expenses.

[6] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Public Service Commission's disallowance of depreciation expense by denying rate recovery for depreciation expense on contributed property to water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors was not sound utility management practice; if districts did not have sufficient revenues to cover replacement costs, due to refusal to recognize total depreciation expense, districts would be forced to short-term credit market for funding, which would raise overall cost to district, and higher rates were concededly inevitable in event districts were forced into short-term credit market.

[7] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Purpose of depreciation expense as applied to nonprofit water districts does not relate to recoupment of investment, but rather, relates to renewal and replacement. KRS 74.480, 278.220, 278.290.

[8] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Proper rate-making treatment for depreciation expense of contributed property with respect to water districts which were nonprofit utilities that were political subdivisions of county government with no private capital and no corporate investors was to allow depreciation on contributed plant as operating expense, with fact that utility did not make investment in plant being of no consequence in context of publicly owned facilities.

[9] Waters and Water Courses ⚷203(6)
405k203(6) Most Cited Cases

Depreciation expense on publicly owned water district plant that has been purchased by federal grants and contributions and/or customer tap-on fees should be allowed in revenue requirement; publicly owned water district had no private investor capital and its rates did not generate return on rate base, and public water districts relied on internally generated cash flow.

***726** John N. Hughes, Thomas A. Marshall, Frankfort, for Public Service commission.

James M. Honaker, Frankfort, for Dewitt Water District.

Charles E. English, Murry A. Raines, English Lucas Priest & Owsley, Bowling Green, James W. Clay, Winchester, for East Clark Water District and Warren County Water District.

David L. Armstrong, Atty. Gen., Frankfort, Pamela Johnson, James D. Brannen, Paul E. Reilander Jr., Frankfort, for Attorney General, Division of Consumer Protection.

WINTERSHEIMER, Justice.

These two cases represent a conflict between panels of the Court of Appeals as well as a conflict in the same division of the Franklin Circuit Court. Both Court of Appeals opinions were rendered the same day and recognize that their conflict should be resolved by this Court.

The question is whether the Public Service Commission may disallow a depreciation expense on contributed property when determining the rates of publicly-owned water districts.

The resolution of this question is important and it appears that both sides have ***727** some merit to their respective positions. If depreciation is

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considered to be the allocation of an investment over a period of time, it could be said that depreciation expenses on contributed property should not be allowed because to allow such an expense would require the customers to, in part, pay again for facilities for which they had already paid in full. On the other hand, failure to allow depreciation for rate-making purposes on contributed property would necessarily cause this property to be utilized only by the present generation and become unavailable as an ongoing asset.

Contributed property is property obtained by the water district either through government grants or directly from customer contributions. Consequently, the water district has title to but no specific investment in the property. No imputed interest expense is claimed. However, for rate-making purposes, the water districts desire to list as an expense depreciation on the contributed properties. The Commission considers depreciation for accounting purposes but not for rate-making.

In the Dewitt case, the circuit court held that depreciation expense on contributed property should be allowed the same as for other property. The court noted that recipients of this contributed property would be limited to the present generation if depreciation expense were not allowed. In the East Clark Water case the circuit court held that the appropriate role of depreciation is to recapture invested capital. Here, the water districts have no investments in these facilities because they are contributed property. Consequently, the circuit court determined that the Commission properly disallowed rate recovery for depreciation expense on contributed property.

There are approximately 115 water districts in the Commonwealth of Kentucky which are nonprofit political subdivisions of county government. They have no investor or private capital. Their rates, as regulated by the Public Service Commission do not generate a return on rate base. The water districts are permitted to earn net revenues based either on a debt services cost formula or on a percentage of operating expenses known as an operating ratio. Lower operating expenses mean lower rate recovery.

The Dewitt Water District has 83 customers and is a publicly owned utility which has furnished water service in a rural section of Knox County since 1971.

The Warren County Water District has been in existence for 16 years. It has two divisions, a water division and a sewer division. It owns a water treatment plant but also purchases treated water from the city of Bowling Green.

The East Clark Water District provides water services to residential customers living in rural Clark County. It began its operation in March, 1979, and has approximately 300 customers.

The districts argue that the Commission's rate-making determination in regard to a disallowance for depreciation is an unlawful and unreasonable exercise of its regulatory authority and that the regulatory agency has acted in an arbitrary and capricious manner. They also maintain that the customers and the company are virtually one and the same and that they desire to pay rates which are sufficient to provide for the orderly replacement of existing water plant facilities. They contend that there is no question relating to private capital and no outside investors involved in this situation.

The Public Service Commission argues that the depreciation expense should not be allowed and that the order of the Commission be upheld as being in conformity with the law, both statutory and case law. They maintain that the water districts failed to accept the distinction between accounting and rate making and that the criteria for appellate review has been properly met in the East Clark and Warren County cases.

The Attorney General's Consumer Protection Division argues that the Commission properly disallowed depreciation because nonprofit water districts that attempt to charge customers for facilities purchased with grant money and customer ***728** contributions are violating the spirit of the grants and frustrating the governmental intent. In addition the Attorney General contends that the districts are attempting to assess a double charge on tap-on fees and other customer contributions and the result is a confiscation of rate-payer funds in violation of the law.

This Court affirms the decision of the Court of Appeals in the Dewitt water case and reverses the decision in the East Clark and Warren County

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cases. Depreciation expense on contributed plant property may be considered as an operating expense for rate-making purposes in matters involving publicly held water districts as distinguished from investor-owned companies.

The Public Service Commission's disallowance of rate of recovery for depreciation expense on contributed property was arbitrary, capricious and confiscatory.

The standard of review of commission action is found in KRS 278.410 which provides for judicial review on a showing by clear and convincing evidence that the Commission's order is unlawful or unreasonable. The decision to disregard depreciation expenses on contributed property effectively reduced recoverable revenues for each of the districts involved.

[1] It is the responsibility of the reviewing court to protect the parties subject to the regulatory authority of the Commission from arbitrary and capricious action. *Kentucky Power Company v. Energy Regulatory Commission of Kentucky,* Ky., 623 S.W.2d 904 (1981) holds that judicial intervention is permissible only when the reviewing court determines that the Commission has not dealt fairly with the utility. The failure of the Commission to allow a rate recovery for depreciation expense on contributed property could have a substantial impact on the financial stability of the publicly-owned systems and their ability to continue to provide needed water utility services to the rural areas of this state.

The disallowance of depreciation expense on contributed property by the Commission is opposed to its statutory mandate, constitutional prohibitions against confiscation and sound utility management practices.

[2] The Commission's denial of rate-recovery for depreciation expense on contributed property is an unlawful act in contravention of statutory and regulatory requirements. KRS 278.220 and the Uniform System of Accounts require the water district to account for depreciation on all classes of depreciable property as an operating expense.

Water districts subject to the regulatory jurisdiction of the commission are required to maintain a uniform system of accounts. KRS 278.220. The applicable system promulated by the Public Service Commission for water and sewer districts is codified in a regulation manual entitled, "Uniform System of Accounts for Class C and D Sewer Utilities," which became effective October 1, 1979. This manual specifically requires that depreciation of contributed property be accounted for in language identical to the National Association of Railway and Utility Commissioners (NARUC) regulation pertaining to donated property which is in accord with generally accepted accounting principles set forth by the American Institute of Public Accountants.

The uniform system required by the Commission provides that depreciation expense be treated as a utility-operating expense account. Section 403 of the uniform system, entitled Depreciation Expense, provides that the account shall include the amount of depreciation expense for all classes of depreciable utility plant in service. The clear language of the Commission's own regulations draws no distinction between depreciation of contributed and noncontributed plant property. The source of the funds does not affect the properties' status as depreciable or nondepreciable. Consequently, the stated rate-making treatment of depreciation expense on property financed by federal grants and customer contributions is to view the expense the same as for that of noncontributed property.

KRS 278.290 requires the Commission to consider cost of reproduction, among other ***729** factors, in its valuation of plant property for rate-making purposes. The Commission must follow the valuation standards set out in KRS 278.290 so that there will be a check on its assessment of assets and liabilities of utilities subject to its regulation.

KRS 278.290(1) provides the method for valuation of a utility's property for rate-making purposes. The plant to be valued is the plant used to give the service.

There are essentially three methods for evaluating a utility's property. The original cost method uses the cost of utility plant to the person first devoting it to public use. The fair value method examines the fair value of the utility's property in service at the time of the rate inquiry. The reproduction cost method applies the reproduction cost to the utility's existing plant.

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[3] The Commission argues that water districts are not entitled to take depreciation expense on contributed property because Kentucky is an original value state. It cites *Princess Anne Utilities Corporation v. Commonwealth,* 211 Va. 620, 179 S.E.2d 714 (1971) as authority that an original value jurisdiction should not allow depreciation on contributed property. KRS 278.290 provides that Kentucky is not exclusively an original cost jurisdiction. Original cost is only one factor to be considered in valuing the utility's property. The Commission must consider various factors including cost of reproduction as a going concern.

We have previously held that contributed property must be included in valuing the utility plant for purposes of assessing a rate base. Rate base is the value of the facility of a utility employed in providing its services. *City of Covington v. Public Service Commission,* Ky., 313 S.W.2d 391 (1958) held that the Commission's order excluding a federal grant from the city's water plant's rate base was unlawful. We are not convinced by the Commission's attempts to distinguish *City of Covington, supra,* on the basis that its holding is limited to "rate base" cases. The concern in *City of Covington* is the proper valuation for public utilities in assessing the revenue requirements needed by the utility. The Commission cannot disregard contributed plant property purchased through federal grants in making its determination. If the Commission must consider all plant property for rate-making purposes, it follows that it must consider all operating expenses incurred in conjunction with the use of the property. Therefore, depreciation expense must be treated uniformly for all plant property thus acquired.

Depreciation is a concern to most enterprises, but it is of particular importance to water and sewer utilities because of the relatively large investment in utility plants required to produce each dollar of annual revenue. Water districts are capital intensive, asset-wasting enterprises. The structure of a water plant, comprised of innumerable components, demands allocation of proper depreciation to ensure financial stability. Adequate depreciation allowance is critical in order to allot to the district sufficient revenue to provide for a replacement fund for all its plant property, contributed or noncontributed.

KRS 74.480 requires the Commission to establish such rates and charges for water as will be sufficient at all times to provide an adequate fund for renewals, replacement and reserves.

This statute indicates the legislative intent that water operations must have sufficient revenues to provide for depreciation. The Commission's reduction of the depreciation expense is in contravention of this legislative directive. Therefore it is an unlawful act.

[4] The Commission cites no authority for disallowing depreciation of the property of the water district. Reference to a "well-established policy of disallowing depreciation in connection with facilities funded with contributions in aid of construction" is not sufficient. KRS 278.220 provides that regulated utilities shall keep their accounts in a uniform system in accordance with the standards of NARUC. The guidelines of ***730** the Commission define depreciation as "loss in service value not restored by current maintenance" and require that depreciation be treated as an operating expense. KRS 74.480 requires that districts be permitted to charge rates which will provide for adequate depreciation reserves. Consequently depreciation should be allowed as an expense. The Commission's disallowance of depreciation in this situation is unreasonable and amounts to a confiscatory governmental policy.

A determination by the Commission will not withstand judicial review if it is unreasonable pursuant to KRS 278.410. Unreasonable has been construed in a rate-making sense to be the equivalent of confiscatory. This Court has equated an unjust and unreasonable rate to confiscation of utility property. We have declared that rates established by a regulatory agency must enable the utility to operate successfully and maintain its financial integrity in order to meet the just and reasonable nonconfiscatory tests. *See Commonwealth ex rel Stephens v. South Central Bell Telephone Company,* Ky., 545 S.W.2d 927 (1976).

The rates established by the Commission will not generate sufficient revenues to enable the districts to provide for an adequate depreciation account and replacement fund. Disallowance of depreciation expense as a rate recovery permits a substantial portion of the property of the district to be consumed by present customers without requiring

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the customers to pay for replacement. Approximately 50 percent of Warren County's total utility plant is attributable to federal grants. Sixty-four percent of the East Clark District's plant is attributable to federal grants and customer contributions.

Both state and federal constitutions protect against confiscation of property without regard to the source of acquisition funds. *See Board of Commissioners v. New York Telephone Company,* 271 U.S. 23, 31, 46 S.Ct. 363, 70 L.Ed. 808 (1926).

[5] When considering the concept of confiscation, the future as well as the present must be considered. It must be determined whether the rates complained of are yielding and will yield a sum sufficient to meet operating expenses. *See McCardle v. Indianapolis Water Company,* 272 U.S. 400, 47 S.Ct. 144, 71 L.Ed. 316 (1926). Depreciation is uniformly recognized as an operating expense and it is important that the amounts set aside to cover depreciation of public utility property be large enough to replace the property when it is worn out. 64 Am.Jur.2d *Public Utilities* § 182 (1972).

The districts' total plants are wearing out, not just that portion financed by noncontributed funds. The Commission's disallowance of rate recovery of depreciation expense is unreasonable and constitutes a taking of the property of the districts without just compensation.

[6] The Commission's disallowance of depreciation expense is not sound utility management practice. The Commission has ignored one of its most important roles which is to provide the lowest possible cost to the rate payer. In refusing to recognize the total depreciation expense, it does not consider the obvious. If the districts do not have sufficient revenues to cover replacement costs, they will be forced to the short-term credit market for funding which will raise the overall cost to the district. The Commission conceded that higher rates were inevitable in the event the districts were forced into the short-term credit market. In the Dewitt case, the Commission expressed its concern over rate case expense. Invocation of the bonding authority provided by KRS 74.300 would undoubtedly escalate the expenses of all the districts involved far beyond the present cost.

Other jurisdictions have recognized the necessity of setting rates sufficient to provide for replacement costs. *Westwood Lake v. Dade County,* Fla., 264 So.2d 7 (1972) held that to arbitrarily disregard that part of a utility's equipment because it was contributed ignores reality and would result in rate increases later when it was necessary to replace the equipment. ***731***Du Page Utility Company v. Illinois Commerce Commission,* 47 Ill.2d 550, 267 N.E.2d 662 (1971) stated in part that depreciation should be allowed because a utility will need to replace from time to time properties which become obsolete in order to sustain customer services.

Therefore in order to properly assess the revenue requirements of water districts, it is critical that the commission consider all of the district's operating expenses. Failure to do so will result in an inaccurate computation of the operating ratio on which the allowable rates hinge and jeopardize the financial integrity and stability of the districts.

It is important to remember that this case involves water districts which are nonprofit utilities organized under Chapter 74 of the Kentucky Revised Statutes. The owners and consuming ratepayers are essentially the same individuals because the districts are political subdivisions of county government. They have no private capital and no corporate investors who must be satisfied as to traditional profits. Their rates do not generate a return on rate base. The water districts are permitted to earn net revenues based on a debt service formula or on an operating ratio computed in accordance with a percentage of operating expenses. Lowering operating expenses means lowering rate recovery.

[7] Water lines are indivisible and not identifiable as to the source of funds used to purchase them. The elements causing depreciation indiscriminately take their toll over time on the service life of all plant facilities. The districts are responsible for making replacements and are obliged by statute to make provisions for future replacements. The purpose of depreciation expense as applied to nonprofit water districts does not relate to a recoupment of investment. The overriding statutory concept is renewal and replacement. The Commission's argument relative to recoupment of investment is without merit and unconvincing.

[8] The Commission is required by statute to treat

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depreciation as an operating expense to provide an adequate fund for renewals, replacement and reserves. The proper rate-making treatment for depreciation expense of contributed property is to allow depreciation on contributed plant as an operating expense. The fact that the utility did not make an investment in the plant is of no consequence in the context of publicly-owned facilities. The water district must eventually replace this plant which customers are using and the ratepayers are therefore obligated to provide funds for this replacement. The proper rate-making treatment of depreciation expense on property financed by federal grants and customer contributions is to treat the expense the same as that for noncontributed property. *See City of Covington*.

The Commission misinterprets and misapplies *Public Service Commission v. Continental Telephone Co.*, Ky., 692 S.W.2d 794 (1985), which related to job development tax credit, intrastate toll revenues and return on rate base. There was no issue of depreciation expense involved in that case which can be applied here.

Chapter 74, by definition, does not apply to privately owned utilities which have investors to provide needed funds on their behalf in expectation of legitimate monetary dividends. The water districts sole concern is continuous water service to its members and consumers who are one and the same.

Board of Public Utilities Commissioners v. New York Telephone Co., supra, held that constitutional protections against confiscation does not depend on the source of money used to purchase the property. It is enough that it is used to render the service.

The propriety of permitting a reasonable depreciation deduction on property of a utility is not dependent on the source of funds for the original construction of the plant. *See DuPage, supra,* and *Langan v. West Keansburg Water Co.*, 51 N.J.Super. 41, 143 A.2d 185 (1958).

Any water district will be required to replace property and plant which have become *732 obsolete or whose useful lives have expired in order to sustain continued service to the customers. Therefore, the utility should be entitled to a reasonable depreciation deduction on its entire plant in-service for the purpose of computing its operating expenses. Depreciation by definition includes only that loss which cannot be restored by current maintenance. *See Lindheimer v. Illinois Bell Telephone Co.*, 292 U.S. 151, 54 S.Ct. 658, 78 L.Ed. 1182 (1934).

[9] The Commission's rate-making determinations in these cases constitute an unlawful and unreasonable exercise of its regulatory authority. It is the holding of this Court that depreciation expense on a publicly-owned water district plant that has been purchased by federal grants and contributions and/or customer tap-on fees should be allowed in the revenue requirement because they have no private investor capital and their rates do not generate a return on rate base. Public water districts rely on internally generated cash flow.

The decision of the Court of Appeals in Dewitt Water District is affirmed. The decision of the Court of Appeals in East Clark County Water District and Warren County Water District is reversed.

All concur, except VANCE, J., who concurs in result only.

720 S.W.2d 725

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DEPRECIATION SCHEDULE

December 31, 2011

Account			ASSET BALANCES Balance 1/1/2011	Additions	Retirements	Balance 12/31/2011	ACCUMULATED DEPRECIATION Balance 1/1/2011	Additions	Retirements	Balance 12/31/2011	12/31/2011 Remaining Basis		E/Q Using Revised Lives
Account 301													
Organization costs		40	17,854			17,854	13,701	446		14,148	3,706	40	446
Bond Issuance costs		40	10,718			10,718	1,608	268		1,876	8,842	40	268
Account 251													
Land & Land Rights	1976-94		5,502			5,502					5,502	N/A	
Land 94 Construction	Jan-95		1,000			1,000					1,000	N/A	
Land Survey - Hardy Creek	2001		1,725			1,725					1,725	N/A	
Kemper Easement hardy Creek	2001		550			550					550	N/A	
Ford Lewis Tank Site	2005		2851			2,851					2,851	N/A	
Tank Site Louise Alexander	2006		5,127			5,127					5,127	N/A	
			16,755	0	0	16,755					16,755	N/A	
Account 253													
Wells & Springs	Sep-90	25	0			0	0	0	0	0	0		
Account 255													
Distrib Reservoirs & Standpipe	Jul-76	1.50%	105,185			105,185	54,830	1,578		56,407	48,778	45	2,337
Distribution Construction 94	Jan-95	1.50%	122,743			122,743	29,472	1,841		31,313	91,430	45	2,728
Painting Water Tower	1984	5	10,900			10,900	10,900			10,900	0		
Elevated Tank 2020 project	2005	45	270,421			270,421	31,549	6,009		37,558	232,863	45	6,009
Scada Equipment (telemetry)	Jan-08	10	6,471			6,471	1,941	647		2,588	3,883	20	324
Bells Ridge Tank	Jan-08	45	471,904			471,904	31,461	10,487		41,947	429,957	45	10,487
Total Distr Reservoirs			987,624	0	0	987,624	160,152	20,562	0	180,714	806,910		21,885

Account 256														
Transmission & Dist Mains	1976	1.50%	529,905			529,905	276,448	7,949		284,397	245,508	65	8,152
Transmission & Dist Mains	1983	35	362,984			362,984	285,113	10,371		295,484	67,500	65	5,584
Transmission & Dist Mains	1987	20	23,275			23,275	23,276			23,276	(1)		
Engineering Fees	1983	35	77,182			77,182	60,498	2,205		62,704	14,478	65	1,187
Line Replacement	1989	20	10,223			10,223	10,681	(458)		10,223	(0)	65	157
Transmission & Dist Mains -													
Jackson Springs	1994	20	17,483			17,483	14,131	874		15,005	2,478	65	269
Meadows Line	1994	20	1,110			1,110	915	56		971	140	65	17
Construction 95	1995	20	632,271			632,271	506,067	31,614		537,681	94,590	65	9,727
Engineering Fees 95	1995	20	17,807			17,807	14,207	890		15,097	2,710	65	274
King Service Line	1998	20	8,547			8,547	5,341	427		5,768	2,779	65	131
Bypass System - Straefer Pump	1999	10	8,739			8,739	8,739	0		8,739	0		
Line - Irene Taylor	1999	20	2,375			2,375	1,347	119		1,465	910	65	37
Highway 55	2000	20	47,682			47,682	24,039	2,384		26,423	21,259	65	734
Berryman Locust line	2001	20	8,970			8,970	3,813	449		4,262	4,709	65	138
Lock Road #1 line imrp	2002	20	10,145			10,145	4,312	507		4,819	5,326	65	156
Dripping Springs line impr	2002	20	44,526			44,526	18,923	2,226		21,149	23,377	65	685
2590' extension M Gividen	2002	20	5,195			5,195	2,209	260		2,468	2,727	65	80
Hunter Heights	2003	20	22,104			22,104	8,289	1,105		9,395	12,709	65	340
H & T Farm Extension	2003	20	1,450			1,450	544	73		617	834	65	22
Transmission & Distribution 2020 p	2005	20	1,099,702			1,099,702	288,671	54,985		343,656	756,046	65	16,918
GIS Digital Mapping	2006	10	2,400			2,400	1,080	240		1,320	1,080	10	240
Total Trans & Distr Mains			2,934,075	0	0	2,934,075	1,558,642	116,275		1,674,917	1,259,158		44,850
Account 257													
Services	1976-80	1.50%	22,240			22,240	11,106	334		11,440	10,800	40	556
Services	1981-82	35	2,012			2,012	1,669	57		1,726	286	35	57
Services	1983	35	10,140			10,140	7,972	290		8,262	1,878	35	290
Services	1984	35	1,821			1,821	1,326	52		1,378	443	35	52
Services	1985	35	2,174			2,174	1,582	62		1,644	530	35	62
Services	1986	35	1,917			1,917	1,400	55		1,454	463	35	55
Services	1987	20	2,566			2,566	2,566			2,566	0		

Services	1988	20	2,300			2,300	2,300			2,300	0			
Services	1989	20	1,853			1,853	1,853	0		1,853	0			
Services	1990	20	2,797			2,797	2,797			2,797	0			
Services	1991	20	3,396			3,396	3,313	83		3,396	0			
Services	1992	20	4,434			4,434	4,113	222		4,335	99	40	111	
Services	1993	20	3,197			3,197	2,878	160		3,038	159	40	80	
Services	1994	20	4,995			4,995	4,248	250		4,497	498	40	125	
Services	1995	20	5,394			5,394	4,182	270		4,452	942	40	135	
New Construction	1995	20	1,842			1,842	1,473	92		1,565	277	40	46	
Services	1996	20	6,793			6,793	4,926	340		5,266	1,527	40	170	
Services	1997	20	5,994			5,994	4,047	300		4,347	1,647	40	150	
Services	1998	20	5,994			5,994	3,747	300		4,047	1,947	40	150	
Services	1999	20	7,192			7,192	4,135	360		4,495	2,697	40	180	
Services	2000	20	6,393			6,393	3,356	320		3,676	2,717	40	160	
Services	2001	20	6,393			6,393	3,037	320		3,357	3,036	40	160	
Services	2002	20	5,795			5,795	2,463	290		2,752	3,043	40	145	
Services	2003	20	3,160			3,160	1,185	158		1,343	1,817	40	79	
Services	2004	20	4,395			4,395	1,429	220		1,648	2,747	40	110	
Services	2005	20	6,846			6,846	1,883	342		2,225	4,621	40	171	
Services	2006	20	1,910			1,910	430	96		526	1,385	40	48	
Services	2007	20	2,314			2,314	405	116		521	1,793	40	58	
Services	2008	20	2,306			2,306	289	115		404	1,902	40	58	
Services	2009	20	677			677	51	34		85	592	40	17	
Services	2010	20	1,242			1,242	31	62		93	1,149	40	31	
Services	2011	20		1242		1,242		31		31	1,211	40	31	
plug							(3)			(3)				
Total Services			**140,482**	**1,242**	**0**	**141,724**	**86,189**	**5,327**		**91,517**	**50,204**		**3,285**	
Account 334														
Meters	1976	1.50%	15,180			15,180	7,829	228		8,057	7,123	40	380	
Meters	1981-82	35	910			910	758	26		784	126	40	23	
Meters	1983	35	21,655			21,655	17,019	619		17,638	4,017	40	541	
Meters	1984	35	824			824	632	24		656	168	40	21	
Meters	1985	35	996			996	718	28		746	250	40	25	
Meters	1986	35	866			866	609	25		634	232	40	22	
Meters	1987	20	997			997	997	0		997	0	40	25	
Meters	1988	20	1,042			1,042	1,042	0		1,042	0	40	26	

Meters	1989	20		838			838		838	0		838		0		40	21
Meters	1990	20		1,266			1,266		1,266			1,266		(0)		40	32
Meters	1991	20		1,537			1,537		1,500	37		1,537		0		40	38
Meters (24)	1992	20		2,170			2,170		2,012	109		2,121		50		40	54
Meters (16)	1993	20		1,447			1,447		1,300	72		1,372		75		40	36
Meters (25)	1994	20		2,260			2,260		1,921	113		2,034		226		40	57
Meters (8) Jackson Ridge	Nov-94	20		3,508			3,508		2,833	175		3,008		500		40	88
Meters (27)	1995	20		2,441			2,441		1,891	122		2,013		428		40	61
Meters (new construction)	1995	20		23,254			23,254		18,605	1,163		19,768		3,486		40	581
Meters	1996	20		3,074			3,074		2,230	154		2,384		690		40	77
Meters	1997	20		2,712			2,712		1,832	136		1,968		744		40	68
Meters	1998	20		2,852			2,852		1,783	143		1,926		926		40	71
Meters (begin 10 yr change out)	1999	10		3,535			3,535		3,535	0		3,535		0		40	88
Meters	2000	10		3,033			3,033		3,033	0		3,033		(0)		40	76
Meters	2001	10		3,173			3,173		2,856	317		3,173		0		40	79
Meters	2002	10		3,042			3,042		2,585	304		2,890		152		40	76
Meters	2003	10		1,460			1,460		1,095	146		1,241		219		40	37
Meters	2004	10		2,549			2,549		1,657	255		1,912		637		40	64
Meters	2005	10		3,982			3,982		2,190	398		2,589		1,393		40	100
Meters	2006	10		4,331			4,331		1,949	433		2,382		1,949		40	108
Meters	2007	10		3,352			3,352		1,173	335		1,509		1,843		40	84
Meters	2008	10		3,568			3,568		892	357		1,248		2,320		40	89
Meters	2009	10		997			997		105	100		204		793		40	25
Meters	2010	10		1,830			1,830		92	183		275		1,556		40	46
Meters	2011	10			3302		3,302			165		165		3,137		40	83
									(5)			(5)		(5)			
Total Meters				**124,681**	**3,302**	**0**	**127,983**		**88,774**	**6,166**	**0**	**94,940**		**33,033**			**3,200**
Account 334																	
Meter Installations	1978	1.50%		21,614			21,614		10,592	324		10,917		10,697		45	480
Meter Installations	1981-82.	35		2,012			2,012		1,668	57		1,725		287		45	45
Meter Installations	1983	35		1,821			1,821		1,430	52		1,482		339		45	40
Meter Installations	1984	35		1,821			1,821		1,430	52		1,482		339		45	40
Meter Installations	1985	35		2,174			2,174		1,581	62		1,643		531		45	48
Meter Installations	1986	35		1,917			1,917		1,293	55		1,347		570		45	43
Meter Installations	1987	20		2,204			2,204		2,204			2,204		0		45	49
Meter Installations	1988	20		2,300			2,300		2,300			2,300		0		45	51

Meter Installations	1989	20		1,853			1,853		1,853	0		1,853		0		45	41
Meter Installations	1990	20		2,797			2,797		2,797			2,797		0		45	62
Meter Installations	1991	20		3,396			3,396		3,313	83		3,396		0		45	75
Meter Installations	1992	20		4,795			4,795		4,438	240		4,677		118		45	107
Meter installations	1993	20		3,196			3,196		2,878	160		3,037		159		45	71
Meter Installations	1994	20		4,995			4,995		4,123	250		4,372		623		45	111
Meter Installations	1995	20		5,394			5,394		4,182	270		4,452		942		45	120
Meter Installations	1996	20		6,793			6,793		4,927	340		5,267		1,526		45	151
Meter Installations	1997	20		5,994			5,994		4,047	300		4,347		1,647		45	133
Meter Installations	1998	20		5,994			5,994		3,747	300		4,047		1,947		45	133
Meter Installations	1999	20		7,193			7,193		4,137	360		4,497		2,696		45	160
Meter Installations	2000	20		6,394			6,394		3,357	320		3,677		2,717		45	142
Meter Installations	2001	20		6,394			6,394		3,038	320		3,358		3,036		45	142
Meter Installations	2002	20		5,793			5,793		2,463	290		2,753		3,040		45	129
Meter Installations	2003	20		2,997			2,997		1,124	150		1,274		1,723		45	67
Meter Installations	2004	20		4,396			4,396		1429	220		1,648		2,748		45	98
Meter Installations	2005	20		6,902			6,902		1,898	345		2,243		4,659		45	153
Meter installations	2006	20		2,459			2,459		553	123		676		1,783		45	55
Meter Installations	2007	20		3,084			3,084		539	154		694		2,390		45	69
Meter Installations	2008	20		3,296			3,296		412	165		576		2,720		45	73
Meter Installations	2009	20		922			922		69	46		115		807		45	20
Meter Installations	2010	20		1,692			1,692		42	85		127		1,565		45	38
Meter Installations	2011	20			1,799		1,799			45		45		1,754		45	40
									1			1		1			
Total Meter Installations				132,592	1,799	0	134,391		77,866	5,165	0	83,031		51,362			2,986
Account 335																	
Hydrants	1978	1.50%		10,244			10,244		5,346	154		5,500		4,744		50	205
Hydrants	1983	35		4,758			4,758		3,740	136		3,876		882		50	95
Hydrants	1984	35		500			500		374	14		388		112		50	10
Hydrants (2 English)	2008	35		7,417			7,417		424	212		636		6,781		50	148
Total Hydrants			0	22,919	0	0	22,919		9,884	516		10,399		12,520			458
Account 339																	

Fence	1983	5		350			350		350	0		350		0			
Fence	1992	20		4,212			4,212		3,829	211		4,040		172		35	120
Fence	1994	20		3,824			3,824		3,106	191		3,298		526		35	109
Fence-Mound Hill	Feb-03	20		2,520			2,520		998	126		1,124		1,396		35	72
Fence-Hardy Creek	Mar-03	20		1,575			1,575		591	79		669		906		35	45
Total Fence				12,481	0	0	12,481		8,874	607		9,481		3,000			347
Account 340																	
Total Office Eq				0		0	0		0	0		0					
Account 343																	
				0			0										
				0			-										
				0			-										
Total Tools				0	0	0	0		0	0	0	0		0			
Account 311																	
Pumping Equipment Hardy Creek	2001	20		31,376			31,376		14,905	1,569		16,474		14,902		20	1,569
Pumping Equipment Mound Hill	2006	20		41,290			41,290		10,324	2,065		12,388		28,902		20	2,065
Total Pumping Equipment				72,666	-	-	72,666		25,228	3,633	-	28,862		43,804			3,633
Total Depreciation				4,444,275	6,343	0	4,450,618		2,015,610	158,251	0	2,173,861		2,276,746			80,644
Organization Costs				17,854	0	0	17,854		13,701	446	0	14,148		3,706			
Bond Issuance Costs				10,718	0	0	10,718		1,608	268	0	1,876		8,842			
Total				4,472,847	6,343	0	4,479,190		2,030,919	158,965	0	2,189,884		2,289,295			