CALIFORNIA PUBLIC UTILITIES COMMISSION

Water Division

DEPRECIATION PROCEDURES FOR SMALL WATER AND SEWER SYSTEM UTILITIES

Standard Practice U-4-SM

San Francisco, California
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DEPRECIATION PROCEDURES
FOR SMALL WATER AND SEWER SYSTEM UTILITIES

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DEPRECIATION PROCEDURES
FOR SMALL WATER UTILITIES

A - PURPOSE

1. The purpose of this Standard Practice is to provide Water Division and utility staff the essential information and methods for computing depreciation accruals of Class B, C and D water utilities.

B - BASIC OBJECTIVE OF DEPRECIATION ACCRUAL

2. The objective of allowing depreciation for utilities under the jurisdiction of the California Public Utilities Commission is to recover the original cost of utility plant (less estimated net salvage) over the useful life of the property by means of an equitable plan. It is not to provide funds for replacing these facilities. The straight-line remaining life method meets this objective. Periodic reviews of the accrual, including appropriate adjustments in the annual rate caused by estimated changes in the remaining life of plant, are necessary in order to be assured that reasonable depreciation accruals occur.

C - STAFF ASSISTANCE

3. Assistance may be obtained from the Commission's Audit and Compliance Branch staff in resolving questions related to plant accounting and remaining life determinations. Additional information regarding depreciation determinations is available in a Commission publication, "Determination of Straight-Line Remaining Life Depreciation Accruals, Standard Practice U-4-W". Copies of this publication are available from the Water Division.

D - THE ACCRUAL EQUATION

4. The basic equation for the straight-line remaining life accrual is:

$$D^1 = \frac{B - C^1 - U^1}{E}$$

Where:

D^1 = the annual accrual in dollars
B = the beginning-of-year depreciable plant balance in dollars
C^1 = the estimated future net salvage in dollars
U^1 = the beginning-of-year book depreciation reserve in dollars
E = the estimated remaining life expectancy of the depreciable plant in years as of the beginning of the year.

The elements B and U^1 are obtainable from the utility's books, while the elements C^1 and E require estimates of future conditions.

E - DETERMINATION OF ANNUAL DEPRECIATION ACCRUAL RATE

5. A standard form for use in making the depreciation accrual and rate determination is available as Appendix A, a Microsoft Excel version of this form is attached to this document as Attachment 1. Typical examples of the use of the standard form is shown in Appendices B1 and B2. Alternate methods for companies with less than $100,000 of plant are described in Paragraphs 18, 19 and 20 and Appendix B-3.

6. The first two columns of the standard form are for the account number and its corresponding description. Column (1), Gross Plant, is the amount of plant in each account on the books of the utility at the beginning of the year, element B in the accrual equation.

7. Future net salvage is the estimated gross salvage less the estimated cost of removal. The net salvage is generally estimated, from past experience or statistics, as a percentage of the gross plant and entered in Column (A). This percent multiplied by the plant, Column (1), gives the dollar amount of salvage in Column (2), element C^1 in accrual equation.

8. The depreciation reserve shown on the utility's books at the beginning of the year is entered in Column (3), element U^1 in accrual equation.

9. Net balance, Column (4), represents the remaining plant subject to depreciation over future years. It is the gross plant less the net salvage and the depreciation reserve.

F - THE LIFE ESTIMATE

10. The lettered Columns (B) and (C) are used to record weighted average data for all units in an account. Normally, the data shown represent an average of varying amounts at varying prices and different age groups. Supporting sheets should be prepared to determine weighted averages for each account, if necessary.

11. Column (B), titled Average Service Life, shows the average estimated life of all units in the group.

12. Column (C) is the weighted average age of all units in service.

13. The remaining life shown in Column (5) is the weighted average remaining life of all units in service, element E in accrual equation. If only a single unit or age group is being considered, the remaining life is the difference between the average service life, Column (B), and the average age, Column (C).

14. At times the remaining life may be estimated directly due to planned retirement or replacement of the major portion of an account. Under these circumstances, enter the remaining life directly in Column (5) with an explanatory note.

15. It is important that age and remaining life be adjusted when significant plant additions or retirements are made. Appendix D, Item 1 defines average age and presents an example of average age calculation using the direct weighting method.

16. The annual accrual, Column (6), is determined by dividing the Net Balance, Column (4), by Remaining Life, Column (5). Column (D) is the accrual expressed as a percent of gross plant, Column (6) divided by Column (1). This is the depreciation rate for each account. The composite rate, shown at the bottom of Column (D), is the sum of the Accruals, Column (6), divided by the sum of Gross Plant, Column (1), expressed as a percentage. Column (6) is element D^1 in accrual equation.

17. Smaller utilities having limited technical personnel available or having minimal records relating to plant additions and retirements may have to estimate remaining life directly, based on judgment. In so doing, consider the estimated service life, the estimated average age of the plant, the present condition of the plant, current maintenance practices, and known or planned replacements or retirements expected to be made. Shorter service lives should be used where plant is not adequately maintained.

G - ALTERNATE LIFE ESTIMATE FOR SMALLER COMPANIES

18. For utilities having less than $100,000 of plant or that elect not to separate or maintain the depreciation reserve by accounts, it is appropriate to develop a composite value for remaining life for the entire plant. The total accrual is then determined by completing the calculation as shown on Appendix B-3.

19. To develop a composite value of the remaining life from separate estimates by accounts, reciprocal weighting may be used as follows:

a. For each account divide the plant in Column 1 by the remaining life in Column 5.
b. Total these quotients for all accounts and divide into the total of Column 1. This is the weighted composite remaining life.

20. Further simplification for utilities with less than $25,000 of plant may be made by omitting estimates for each account and developing by direct judgment a remaining life estimate for the entire plant of 2.5% to 3.5%.

H - RECORDING THE ACCRUAL AND CARRYING IT FORWARD

21. A method which may be used for tabulating the accrual and carrying it forward in succeeding years is as follows:

> Use the accrual calculation as determined on the standard form directly as the accrual for the year. This may be done as a single entry for the year or in 12 equal entries by months. In succeeding years the rates determined in the study year [shown in Column (D)] are applied to the beginning-of-year plant for each succeeding year. This method is the simplest and is used by some large as well as some small utilities.

I - REASONABLENESS OF FINAL RESULT

22. An overall test of reasonableness should be applied to the final accrual. Assuming the reserve is not unreasonably large or small, the overall composite depreciation rate produced by the accrual calculation should normally fall within the range from 2.0% to 3.5%. Where results outside this range are obtained, further review should be made to ascertain the nature of any special conditions which may be influencing the result.

23. When plant additions or retirements indicate changes in the rates may be warranted, a study developing new rates should be made. In any case, studies of plant ages and estimates of future life should be made at intervals of one to five years consistent with the Commission orders or letters of agreement.

24. The results of the studies should be submitted to the Commission on the standard Form A (see Paragraph 5), which should be dated and signed by a responsible officer of the utility and should be accompanied by supporting data which justifies or explains any changes in rates. After being reviewed and accepted by staff, as stated in a letter from the Water Division to the utility, the accrual rates are to be used in succeeding years to determine the actual accruals.

J - DEPRECIATION ACCOUNTING

25. The Public Utilities Commission of the State of California has prescribed a uniform system of accounts for Class A water utilities (Standard Practice U-38) and a separate uniform system of accounts for Class B, C and D water utilities (Standard Practice U-39).

26. Refer to the appropriate system of accounts for complete details of accounting transactions. The following illustrates briefly the essential transactions:

Transaction	Debit	Credit
Original cost on placing plant in service.	Plant account (asset account).	Cash, materials and supplies, labor, or accounts payable.
Depreciation accruals.	Operating expenses or clearing accounts.	Depreciation reserve account.
Retirement of original	Depreciation reserve	Plant account

cost of plant.	account.	(reduces the asset balance).
Cost of removal on retirement from service.	Depreciation reserve account.	Cash, labor, or accounts payable.
Gross salvage on retirement from service.	Cash, materials and supplies or accounts receivable.	Depreciation reserve account.

27. Accounting for additions and retirements should be done promptly and be properly recorded at the time of installation or retirement so that the plant and reserve accounts reflect the current condition.

K - DEPRECIATION ON CONTRIBUTED PLANT

28. The uniform systems of accounts for Class B, C and D water utilities provide that all non-refundable contributions of cash and/or properties received by a water utility in connection with the construction of its water system shall be credited to Ac. 271, Contributions in Aid of Construction. In general, it also provides that balances in this account representing contributions of depreciable plant shall be amortized over the estimated service life of the property involved by charges to this account (instead of to Ac. 403, Depreciation Expense) with contra credits to Ac. 108, Reserve for Depreciation of Utility Plant. For further instructions refer to the appropriate Uniform Systems of Account.

UTILITY _____
LOCATION _____

File No. _____

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) (2) EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)-(2)-(3)	(B) AVG. SERVICE LIFE (YRS.)	(C) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)/(5)	(D) %OF GROSS PLT. (6)/(1) X 100
			(Signature)					(Date)			

Appendix A

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT-LINE REMAINING LIFE METHOD
YEAR 1999

UTILITY Small Water Company
LOCATION Smalltown, Alameda County

File No. 681

		(1)	(A) (2)		(3)	(4)	(B)	(C)	(5)	(6)	(D)
ACCOUNT NO.	DESCRIPTION	GROSS PLANT (BEG. YEAR)	EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	AMOUNT	DEPRECIATION RESERVE (BEG. YEAR)	NET BALANCE (1)-(2)-(3)	AVG. SERVICE LIFE (YRS.)	AVERAGE AGE (YRS.)	REMAINING LIFE (YRS.)	ANNUAL ACCRUAL (4)/(5)	% OF GROSS PLT. (6)/(1) X 100
304	Structures and Improvements	$ 2,850	8	$ 228	$ 1,021	$ 1,601	40	13	27	59	2.1
312	Coll. & Impounding Reservoirs	1,702	-	-	1,510	192	75	67	8	24	1.4
307	Wells	11,291	-	-	4,120	7,171	30	10	20	359	3.2
311	Pumping Equipment	3,527	5	176	1,084	2,267	25	15	10	227	6.4
317	Other Water Source Plant	568	-	-	323	245	25	7	18	14	2.5
330	Reservoirs and Tanks	8,949	-	-	4,371	4,578	50	24	26	176	2.0
331	Water Mains	58,574	-	-	21,220	37,354	60	29	31	1205	2.1
333	Services & Meter Instal.	8,128	-	-	2,911	5,217	40	13	27	193	2.4
334	Meters	5,602	10	560	1,576	3,466	35	10	25	139	2.5
335	Hydrants	580	3	17	265	298	50	19	31	10	1.7
339	Other Equipment	1,977	-	-	847	1,130	20	7	13	87	4.4
340	Office Furn. & Equipment	3.355	-	-	1,085	2,270	15	5	10	227	6.8
	Total Depr. Plant	107,103	-	981	40,333	65,789				2,720	2.5
	Contributed Plant (Included Above)							See Note 1			
307	Wells	1,050	-	-	500	550				34	3.2
331	Trans. & Distr. Mains	3,500	-	-	875	2,625				74	2.1
333	Services	425	-	-	100	325				10	2.4
334	Meters	275	-	-	75	200				7	2.5
	Total Contr. Plant										
	Debit Accrual to Ac. 265	5,250			1,550	3,700				125	2.4%
	Debit to Ac. 503									2,595	

Note 1 - Accruals for contributed plant were computed by multiplying balances in Col. (1) by the depreciation rate, Col. (D), developed for the corresponding account.

(Signature) (Date)

UTILITY Smaller Water Company
LOCATION 3 Miles North of Upland, Plumas County

File No. 681

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT-LINE REMAINING LIFE METHOD
YEAR 1999

ACCOUNT NO.	DESCRIPTION	(1) GROSS PLANT (BEG. YEAR)	(A) %	(2) EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) AMOUNT	(3) DEPRECIATION RESERVE (BEG. YEAR)	(4) NET BALANCE (1)-(2)-(3)	(B) AVG. SERVICE LIFE (YRS.)	(C) AVERAGE AGE (YRS.)	(5) REMAIN-ING LIFE (YRS.)	(6) ANNUAL ACCRUAL (4)/(5)	(D) %OF GROSS PLT. (6)/(1) X 100
304	Structures & Improvements	$ 698	-	$ -	$	$	45	21	24		
307	Wells	8,350	-	-			30	12	18		
311	Pumping Equipment	6,725	5	336			20	3	17		
320	Water Treatment Equip.	4,946	-	-			20	10	10		
330	Reservoirs and Tanks	9,891	-	-			40	15	25		
331	Trans. & Distr. Mains	12,192	-	-			50	12	38		
333	Services	2,120	-	-			30	9	21		
334	Meters	3,230	10	323			30	12	18		
340	Office Furn. & Equipment	1,274	-	-			10	6	4		
341	Transportation Equip.	3,493	10	349			7	2	5		
		52,919		1,008	24,465	27,446			15.6	1,759	3.3%

Composite Remaining Life Developed as follows:

Ac.	Plant (1)	Rem.Life (2)	Weight (3)=(1)/(2)
304	698	24	29
307	8,350	18	464
311	6,725	17	396
320	4,946	10	495
330	9,891	25	396
331	12,192	38	321
333	2,120	21	101
334	3,230	18	179
340	1,274	4	319
341	3,493	5	699
	52,919	15/6	3,399

Rem. Life = $52,919 / 3,399 = 15.6 Yrs

(Signature) (Date)

SUMMARY OF
ANNUAL DEPRECIATION ACCRUAL AND RATE DETERMINATION
STRAIGHT-LINE REMAINING LIFE METHOD
YEAR _____

UTILITY Smallest Water Company
LOCATION Smallestown, Calaveras County

File No. 681

		(1)	(A)	(2)	(3)	(4)	(B)	(C)	(5)	(6)	(D)
ACCOUNT NO.	DESCRIPTION	GROSS PLANT (BEG. YEAR)	EST. FUTURE NET SALVAGE (EST. GROSS SALVAGE LESS COST OF REMOVAL) %	AMOUNT	DEPRECIATION RESERVE (BEG. YEAR)	NET BALANCE (1)-(2)-(3)	AVG. SERVICE LIFE (YRS.)	AVERAGE AGE (YRS.)	REMAIN-ING LIFE (YRS.)	ANNUAL ACCRUAL (4)/(5)	%OF GROSS PLT. (6)/(1) X 100
304	Structures	$ 2,700		$	$	$					
307	Wells	450									
311	Pumping Equipment	625									
320	Water Treatment Equip.	1,450									
330	Reservoirs and Tanks	1,875									
331	Trans. & Distr. Mains	4,950									
340	Office Furn. & Equipment	450									
		$12,500.00		125	2,175	10,200	40	6	34	300	2.4%
				(Signature)				(Date)			

TYPICAL AVERAGE SERVICE LIVES

Small Water Utilities

Account No.	Class of Plant	Suggested Average Service Life (1)		
	Source of Water Plant			
304	Structures and Improvements			
	Wood Frame		30	
	Steel		40	
	Cement Block		40	
	Reinforced Concrete or Brick		50	
	Miscellaneous		25	
307	Wells		30	
317	Lake River and Other Intakes			
	Wood Structures		35	
	Concrete Structures		60	
	Springs and Tunnels		40	
320	Collecting and Impounding Reservoirs			
	Wood Structures		35	
	Earth Fill Structures		60	
	Concrete Structures		75	
331	Supply Mains	Over 6”	4”- 6”	Under 4”
	Cast Iron	75	60	
	Asbestos Cement	60	60	
	Steel, Cement Lines	50	50	
	Concrete	50	50	
	Other	45	40	25
317	Other Source of Supply Plant	25		
	Pumping Plant			
311	Pumping Equipment		25	
	Other Pumping Plant		15	

Account No.	Class of Plant	Suggested Average Service Life (1)
	Water Treatment Plant	
320	Water Treatment Equipment	
	Chlorinators	15
	Other	30
	Transmission and Distribution Plant	
330	Reservoirs and Tanks	
	Earth	50
	Concrete	60
	Steel	50
	Redwood	40
	Miscellaneous	25
333	Services	
	Galvanized	35
	Copper	50
	Meter Installations	20
334	Meters	20
335	Hydrants	
	Wharf	40
	Standard	50
	General	
340	Office Furniture and Equipment	15
341	Transportation Equipment	7

(1) These lives are intended only as a guide, and longer or shorter lives should be used where conditions warrant.

DEFINITIONS

1. Age

Average Age is the weighted average age of all units of plant in the same specific category of plant structure (e.g., meters or mains) at the beginning of the accounting year. For the purposes of depreciation accounting, the original cost of the units is multiplied by their ages and resulting total dollar years divided by the total dollars of plant to obtain a dollar weighted average age. Units in the same category added during the year may be considered one-half year old at the end of the accounting year to simplify calculations. The example below illustrates the method of determining the weighted average (dollar) age:

Year Placed	Amount Placed	Age	Dollar Years
1995	$10,000	3.5	$35,000
1996	5,000	2.5	12,500
1997	7,000	1.5	10,500
1998	8,000	0.5	4,000
	30,000		62,000

$$\text{Average Age} = \frac{62{,}000}{30{,}000} = 2.1 \text{ years as of January 1,1999.}$$

2. Cost

2a. Original Cost as applied to public utility plant, franchises, and patent rights, means the actual money cost of (or the current money value of any consideration other than money exchanged for) property at the time when it was first dedicated to the public use, whether by the accounting company or by predecessors.

2b. Cost of Removal means the cost of demolishing, dismantling, removing, tearing down, or otherwise disposing of water utility plant and recovering the salvage, including the cost of transportation and handling incident thereto.

3. Depreciation

3a. Depreciation, as applied to depreciable water utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of water utility pant in the course of service from causes which are known to be in current operation, against which the company is not protected by insurance, and the effect of which can be forecast with a reasonable

approach to accuracy. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities.

3b. Depreciation Accrual, or Annual Accrual. The annual amount calculated for recovery of the original cost of utility plant, less net salvage, at retirement, by a charge (debit) to expense, clearing accounts or contributions. The accrual is credited to depreciation reserve.

3c. Depreciation Rate. The ratio of the depreciation accrual to the total amount of related depreciable plant, expressed as a percentage.

$$\% \text{ Rate} = \frac{\text{Accrual}}{\text{Gross Plant}} \times 100$$

3d. Depreciation Reserve. A balance sheet account to which the depreciation accrual is credited.

3e. Beginning-of-Year Depreciation Reserve. Amount of the depreciation reserve shown on the books as of the first day of the calendar year.

4. Group

4a. Original Group. A group of like units placed in service during the same calendar year.

4b. Survivors. The original group less retirements.

5. Life

5a. Service Life means the number of years elapsed between the time of installation of utility plant and the time of its retirement from public utility service.

5b. Average Service Life is the average estimated life of all units in the group.

5c. Remaining Life or Remaining Life Expectancy is the expected number of remaining years before retirement of a unit or group of units of depreciable plant.

5d. Remaining Life-Composite. The remaining life (dollar weighted) of the entire depreciable plant recorded on the books as utility plant, calculated as the average

of the (dollar) weighted individual groups or plant accounts.

6. Plant

6a. Beginning-of-Year Balance. The balance shown on the books for plant accounts as of the first day of the accounting year.

6b. Net Balance. Gross plant reduced by the amount of estimated future net salvage and also reduced by the amount of the depreciation reserve accumulated.

6c. Contributed Plant. Donated plant or plant constructed with contributions of cash, services, or property.

6d. Gross Plant. Original cost of plant for the accounts as shown on the books.

6e. Depreciable Utility Plant. The original cost of that utility property subject to depreciation. (Accounts 315 through 374 of Commission's Uniform System of Accounts for Class D Water Utilities.)

6f. Non-depreciable Utility Plant. The original cost of that utility property not subject to depreciation, such as land, perpetual rights-of-way, organization costs, water rights, and franchises.

6g. Retired Plant. Plant that has been removed, sold, abandoned, destroyed, or otherwise withdrawn from public utility service.

7. Salvage

7a. Gross Salvage. The actual cash or cash value of payment received for retired public utility plant if sold; or if retained for reuse, the amount at which the property recovered is chargeable to the materials and supplies or other appropriate account.

7b. Net Salvage. The gross salvage of the property retired less the cost of removal. This will be negative, if the cost of removal exceeds the gross salvage.

7c. Estimated Future Net Salvage. An estimate of the amount which will be realized from sale, reuse, or scrap value of plant retired less the cost of its removal.