AN EVALUATION OF ALTERNATIVE METHODS FOR DETERMINING ACCRUALS RELATED TO NEGATIVE NET SALVAGE FOR MASS PROPERTY

Presented by

William M. Stout, P.E.
Senior Vice President
Gannett Fleming Valuation
and Rate Consultants, Inc.

Minneapolis, Minnesota

August 11, 1992

AN EVALUATION OF ALTERNATIVE METHODS FOR DETERMINING ACCRUALS RELATED TO NEGATIVE NET SALVAGE FOR MASS PROPERTY

Presented

by

William M. Stout, P.E.
Senior Vice President
Gannett Fleming Valuation
and Rate Consultants, Inc.

Minneapolis, Minnesota

August 11, 1992

ANNOTATION

A comparison of the annual accruals and a review of the magnitude, timing and present value of revenue requirements under five alternative methods of accruing for negative net salvage.

DISCLAIMER

This paper represents the consensus of the author. It does not have the specific endorsement of the EEI Property Accounting and Valuation Committee or the AGA Plant Accounting Committee Meeting. The thoughts, viewpoints and positions expressed herein are not necessarily those of the A.G.A., EEI or any of their member companies.

AN EVALUATION OF ALTERNATIVE METHODS FOR DETERMINING ACCRUALS RELATED TO NEGATIVE NET SALVAGE FOR MASS PROPERTY

INTRODUCTION

Prior to the double-digit inflation and increasing environmental regulation of the 1970's, the subject of negative net salvage was of interest to individuals in the depreciation profession, but probably was viewed as almost a non-issue to senior utility management who were coping with the need to finance and build capacity to meet customer demand. In recent years, the subject of negative net salvage for mass property has received increased attention, although not nearly the level received by decommissioning costs for nuclear plants.

The problem of negative net salvage for mass property is masked by growth in the account. However, because it does not appear to be a problem on the surface, does not mean it has gone away. There is no better time than now for a serious evaluation of the analytical techniques and accrual methods required for negative net salvage. This paper will not attempt to deal with both the necessary improvements in analysis of and accruing for negative net salvage. Rather, the purpose of this paper is to provide a comparison of several methods of accruing for negative net salvage including their impact on the magnitude, timing and present value of revenue requirements.

The alternative methods which are evaluated are those that are used in the industry today and those that have been proposed for use. The five methods are the straight line accrual method, expensing, amortization of experienced net salvage, a sinking fund which recognizes the price level in the year of retirement and a sinking fund which recognizes the price level in the year of calculation.

The five methods will be evaluated in two scenarios: (1) a single vintage with no dispersion of retirement and (2) multiple vintages with no dispersion of retirement. In the first scenario, the effect of taxes on revenue requirements are considered in

four different ways: (1) no tax effect, (2) normalization-deferred taxes only, (3) normalization with all tax effects and (4) flow-through. The purpose of including the first scenario is to promote an understanding of the manner in which the methods operate and their impact on the several factors to be considered. The purpose of the second scenario is to better illustrate the nature of the impacts on a case study more akin to an actual account.

There are a number of critical parameters to be selected in the evaluation of the several methods of accruing for negative net salvage. The rate of inflation, the rate of return on rate base, the income tax rate, the interest rate for determining the sinking fund annuities, and the interest rate for calculating the present value of the revenue requirements. In the scenarios developed in this paper, a 5 percent rate of inflation and a 10 percent return on rate base are used. The return on rate base is developed from a 50/50 capital structure with the cost of both equity and debt equal to 10 percent. The combined federal and state income tax rate is assumed to be 40 percent. In the sinking fund and present values calculations, an 8 percent interest rate is used.

A greater concern in the evaluation is the selection of the criteria for judging the merits of the methods. The total amount and timing of the accruals is of concern. That is, does the method fully recover the cost and in what manner is it charged to customers? The absolute amount of revenues required also is a factor to be considered. But how important is the timing of the revenues? Should the pattern of revenue requirements be increasing, decreasing or uniform? Should we seek the method that minimizes the present value of the revenue requirements?

The following discussions of the five methods as applied to the two scenarios will present observations related to the accruals and to the magnitude, timing and present value of the revenue requirements in each case. Comparisons of the methods using these criteria will be made. Although opinions are offered regarding the benefits of certain methods, *the relative appropriateness of a method for a utility will depend on its specific circumstances and policies.*

SINGLE VINTAGE

The single vintage example is based on a unit with a 10-year service life that would cost $100 to remove today. Based on the 5 percent inflation assumption, the cost to remove the unit at the end of its life will be $162.90. In the single vintage example, the "A" tables are those in which tax effects have not been considered, the "B" tables are those in which the deferred tax impact on rate base due to normalization is considered, the "C" tables are those in which both the tax deduction and the deferred tax impact are considered and the "D" tables are based on flow-through.

No Tax Effect. In the straight line accrual method, as presented in Table A1, the annual provision for removal is $16.29 in each year 1 through 10. The amount accrued is recorded to the depreciation reserve and reduces rate base. The reduction in rate base lowers the required return and partially offsets the annual provision. As a result, the total revenue requirement is $89.59. The present value of the revenue requirement is $66.98 when discounted using 8 percent interest. Although the revenue requirements are received while the unit is in service, they decline throughout its life from $16.29 in year 1 to $1.63 in year 10.

The expensing method is presented in Table A2 and results in an accrual and revenue requirement of $162.90 in the year in which the unit is retired. There is no impact on rate base. The present value of the $162.90 accrual which occurs at the end of year 10 is $75.45. The revenue requirement is recouped entirely in the final year of service.

The amortization method, which is used in Pennsylvania, provides for net salvage after it is experienced. In Pennsylvania and in the example as set forth in Table A3, one-fifth of the experienced net salvage is recorded as an accrual in each of the five years following the unit's retirement. The total accruals equal the experienced negative net salvage of $162.90. The negative net salvage decreases the reserve account when it occurs and, therefore, increases rate base. The return on rate base adds $48.87 to the total accrual for a total revenue requirement of

$211.77. The present value of the revenue requirements is $79.25. This method produces a decreasing revenue requirement in the five years following the unit's retirement.

The sinking fund method as illustrated in Table A4 provides for the negative net salvage of $162.90 through an annual annuity of $11.24 and earnings on the fund to which these annuities are deposited. Inasmuch as the earnings are used to provide for the negative net salvage, the annuities are not deducted from rate base and there is no rate base impact. This version of the sinking fund method fully recognizes inflation by accruing for the negative net salvage based on the estimated price level in the year of retirement. The total revenue requirement is the sum of the annuities, $112.47, and has a present value of $75.45. The revenue requirement is the same in each year during the life of the unit. Note that the present value of the revenue requirement is the same as the present value of the revenue requirements in the expensing method because the sinking fund earnings rate and the present value discount rate are both 8 percent.

Another approach to the sinking fund method is to develop an annuity based on the expected negative net salvage at the calculation year's price level. This sinking fund method which partially recognizes inflation is presented in Table A5. The annuity is determined by applying the sinking fund factor based on the remaining life of the unit and the remaining amount to be provided. The remaining amount to be provided is the estimate of negative net salvage in the calculation year less the cumulative amount accrued. The annuities which also are the revenue requirements increase from $6.90 in year 1 to $16.94 in year 10. The resultant total annuities of $122.53 are somewhat greater than the annuities in the sinking fund method with full recognition of inflation because the timing of the annuities is later and therefore, the interest earned is less. The present value of the revenue requirements is $77.00.

Figure A presents a graphical comparison of the revenue requirements in each year with no tax effects for four of the five methods of accruing for net salvage. The expensing method is not plotted, as it represents a single point at age 10. For years

1 through 10, the figure shows decreasing revenue requirements for the straight line method, uniform revenue requirements for the sinking fund method which recognizes inflation to the year of retirement and increasing revenue requirements for the sinking fund method which recognizes inflation to the year of calculation. The amortization method is characterized by decreasing revenue requirements in years 11 through 15.

Normalization. Tables B1 through B5 present the same methods for accruing net salvage as presented in Tables A1 through A5 and add the impact on revenue requirements of accumulated deferred income taxes. That is, the net salvage accrual is used as a deduction in determining the ratemaking allowance for income taxes, but is not a deduction on the actual return. In the case of negative net salvage, normalization of this difference in timing results in an addition to rate base. The "B" tables incorporate the return and taxes related to this rate base addition.

A further difference in the "B" tables is the introduction of the income taxes related to return. A tax effected rate of return of 13.33 percent is used [10% rate of return + 40% tax x (5% equity/(100% - 40%))].

In the straight line accrual method, as presented in Table B1, the annual provision for removal is $16.29 in each year 1 through 10. The reduction in rate base resulting from the accrual is partially offset by the deferred tax addition. The reduction in return and taxes related to the net rate base impact results in a total revenue requirement of $104.30. The annual revenue requirements decrease from $16.29 in year 1 to $4.57 in year 10. The present value of the revenue requirements is $75.48.

The expensing method is presented in Table B2 and, inasmuch as there is no impact on deferred taxes or rate base; the accrual, revenue requirements and present value of revenue requirements are the same as the amounts in Table A2.

The amortization method with normalization is set forth in Table B3. The accrual for net salvage is $32.58 in each of the five years, 11 through 15, subsequent to the experienced negative net salvage in year 10. In this case, the deferred taxes continue to offset the rate base impacts as compared to Table A3, but this time

represent a reduction in rate base. The return and taxes add $39.09 to the total accrual for a total revenue requirement of $201.99. The present value of the revenue requirements is $75.45, the same as the present value of the straight line and expensing methods with normalization. This equality results from the use of a discount rate equal to the after-tax rate of return.

The "full inflation" sinking fund method with normalization as presented in Table B4 provides for negative net salvage of $162.90 through an annuity of $11.24 plus fund earnings as was the case in Table A4. The only impact on rate base is the accumulated deferred tax addition which results in total return and taxes of $33.62. The total revenue requirements are the sum of the annuities, $112.47, and the return and taxes, $33.62, or $146.09. The present value of the revenue requirements is $94.56.

The "current inflation" sinking fund with normalization is presented in Table B5. The annuities are the same as in Table A5, increasing from $6.90 in year 1 to $16.94 in year 10. The rate base which results from the accumulated deferred income taxes requires return and taxes of $29.13 for a total revenue requirement of $151.66. The present value of the revenue requirements is $93.20.

Figure B presents a graphical comparison of the revenue requirements in each year with the return and taxes related to the impact of deferred taxes on rate base included. The patterns of revenue requirements are similar to those presented in Figure A, with the exception of the sinking fund with full inflation method. As the result of the increasing return and taxes related to accumulated deferred income taxes, the revenue requirements for this method are no longer uniform, but are increasing.

Normalization with All Tax Effects. Tables C1 through C5 are the same as Tables B1 through B5 with the addition of the tax deduction for negative net salvage reflected in the determination of the ratemaking allowance for income taxes. This deduction for ratemaking purposes is what generates the deferral that is accumulated and added to rate base.

Table C1 presents the results for the straight line accrual method. The annual accrual and the return and taxes related to rate base are the same as in Table B1. However, the annual income tax decrease of $6.52 (40% of $16.29) is incorporated, reducing the total revenue requirement to $39.10 and the present value of the revenue requirements to $31.72.

The expensing method shown in Table C2 reflects the income tax reduction of $65.16 (40% of $162.90) resulting in revenue requirements of $97.74 and a present value of revenue requirements of $45.27.

The amortization method with normalization and all tax effects is set forth in Table C3. The amortization or accrual amounts and the return and taxes related to rate base are the same as in Table B3. A reduction in the ratemaking allowance for income taxes of $13.03 is reflected in each year 11 through 15. Revenue requirements are $65.15 less than in Table B3 and total $136.84. The present value of the revenue requirements is $51.35.

In the sinking fund method with full recognition of inflation as presented in Table C4, the annuities and the return and taxes are the same in each year as Table B4. The revenue requirements have been further adjusted to reflect an annual reduction in income taxes for ratemaking purposes of $4.50 (40% of $11.24). The total revenue requirements are reduced to $101.07 and their present value is $64.35.

In the methods other than the sinking fund methods, the reduced tax resulting from the negative net salvage deduction is the amount which is added to the accumulated deferred income taxes. However, in the sinking fund methods, there is both a tax deduction and income, i.e., the earnings on the sinking fund. The earnings create a current tax liability and the deduction is a deferred benefit. Thus, the tax related to net salvage for ratemaking purposes is based on the net of the earnings and the total accrual (annuity plus earnings), or the annuity. The deferred income tax is the accumulation of the tax reduction related solely to the total accrual, annuity and earnings.

Table C5 presents the sinking fund method with recognition of inflation to date and also adjusts the revenue requirements to reflect the reduction in income taxes related to the deduction of the negative net salvage accrual. The tax reduction is 40% of the annuity in each year and totals $49.01. The revenue requirements are reduced by this amount to $102.65 and the present value of these revenue requirements is $62.40.

Figure C presents a graphical comparison of the revenue requirements in each year for normalization with all tax effects. The pattern is similar to Figure B. It should be noted that the revenue requirements for the straight line accrual method are negative in years 9 and 10.

Flow-Through. Tables D1 through D5 present the same methods for accruing negative net salvage as presented in the A, B and C tables. The flow-through tables are very similar to the "no tax effect" tables. The differences are the use of the tax-effected rate of return of 13.33% rather than the rate of return of 10% and the tax reduction related to the experienced negative net salvage in year 10. Because the tax benefit is flowed through to customers in the revenue requirement during the year in which the unit is retired, there are no deferred tax impacts on the revenue requirements while the unit is in service.

In the straight line accrual method in Table D1, the annual provision for removal is $16.29 in each year 1 through 10. The return and taxes related to the rate base reduction caused by the accrual are $162.87 and result in total revenue requirements of $0.03 or, absent rounding differences, $0.00. This result is due to the combination of life, tax-effected rate of return and the income tax rate. The present value of the revenue requirements is $22.73.

The expensing method is presented in Table D2 and results in an accrual of $162.90, a tax deduction of $65.16 (40% of $162.90) and a revenue requirement of $97.74 in year 10, the year in which the unit is retired. The present value of the revenue requirement is $45.27.

The amortization method with flow-through is set forth in Table D3. The accruals equal one-fifth of the experienced negative net salvage and are recorded in the years 11 through 15. The return and taxes, including the tax deduction being flowed through total $0.02 or, absent rounding differences, $0.00. The total revenue requirements are $162.88 and their present value is $55.40.

The sinking fund method with full inflation recognition and flow-through is illustrated in Table D4. The constant annuity of $11.24 is the same as in Tables A4, B4 and C4. The return and taxes reflect taxes on the fund earnings in each year and the deduction in year 10 when the negative net salvage is incurred and total $(45.07). The total revenue requirement is $67.40 and its present value is $56.67.

The sinking fund method with recognition of current inflation and flow-through is presented in Table D5. The annuities are the same as those in Tables A5, B5 and C5. The return and taxes reflect taxes on the fund earnings in each year and the deduction in year 10 when the negative net salvage is incurred and total $(47.69). The total revenue requirement is $74.84 and its present value is $56.53.

Figure D presents a graphical comparison of the revenue requirements in each year with flow-through for four of the five methods of accruing for net salvage. The patterns are very similar to those shown in the other figures with the exception of the significant reduction in revenue requirement which occurs in the year of retirement due to the tax deduction.

Summary for Single Vintage. The straight line accrual method provides an equal amount of provision toward negative net salvage during each year of the asset's service life. The expensing and amortization methods provide for negative net salvage at the end of or after an asset has rendered service. The sinking fund methods provide, through the combination of annuity and earnings, an increasing amount toward the recovery of negative net salvage. Care must be taken in the sinking fund method which recognizes inflation to date in order to provide for the correct amount of net salvage.

The pattern of revenue requirements varies with the several alternative methods of accruing for net salvage, but the introduction of tax effects does not alter the basic pattern. The straight line method produces decreasing revenue requirements over the life of an asset. The sinking fund method with full recognition of inflation produces uniform or increasing revenue requirements. The sinking fund method with partial recognition of inflation produces revenue requirements that increase at a more rapid rate than sinking fund with full inflation. Expensing only has revenue requirements in the year of retirement. Amortization results in decreasing revenue requirements in the five years following retirement.

A comparison of the revenue requirements and their present value for each method and tax consideration is presented on the following page. The straight line method minimizes the total revenue requirements and their present value regardless of the tax effects because recovery of the cost occurs earlier. Methods such as the amortization of experienced net salvage maximize revenue requirements because recovery is delayed.

Inasmuch as the relative magnitude, timing and present value of the methods is not affected by the introduction of taxes, the analysis of multiple vintages which follows is conducted for the "no tax effect" consideration.

MULTIPLE VINTAGES

The multiple vintage example consists of twenty units, one unit added at the beginning of each year from 1 to 20. Each unit has a 10-year service life. The example account experiences growth during years 1 through 10, stability during years 11 through 20 and decay during years 21 through 29. The cost to remove a unit today is $100 and increases 5 percent each year throughout the period. When the first unit is retired at the end of year 10 the negative net salvage is $162.90. At the time of the final unit's retirement at the end of year 29, the negative net salvage is $411.66. The total negative net salvage is $5,386.69.

COMPARISON OF REVENUE REQUIREMENTS AND
THEIR PRESENT VALUE FOR FIVE ALTERNATIVE METHODS
OF ACCRUING FOR NEGATIVE NET SALVAGE

		Normalization		
	No Tax Effect	Deferred Tax Only	All Taxes	Flow-Through
REVENUE REQUIREMENTS				
Straight Line Accrual	89.59	104.30	39.10	0.03
Expensing	162.90	162.90	97.74	97.74
Amortization	211.77	201.99	136.84	162.88
Sinking Fund:				
Full Recognition of Inflation	112.47	146.09	101.07	67.40
Recognition of Inflation to Date	122.53	151.66	102.65	74.84
PRESENT VALUE OF REVENUE REQUIREMENT				
Straight Line Accrual	66.98	75.48	31.72	22.73
Expensing	75.45	75.45	45.27	45.27
Amortization	79.25	75.45	51.35	55.40
Sinking Fund:				
Full Recognition of Inflation	75.45	94.56	64.35	56.67
Recognition of Inflation to Date	77.00	93.20	62.40	56.53

The straight line accrual method for the multiple vintage example is presented in Table A6. As noted in the single vintage example, the accrual for negative net salvage prior to its occurrence results in a reduction in rate base which offsets the revenue required for the accrual. Although the total accrual equals the experienced negative net salvage of $5,386.69, the total revenue requirement is only $2,693.28. The present value of the revenue requirement is $954.11. The revenue requirement increases during the periods of growth and stability and decreases during the period of decay. The revenue requirement per unit decreases during the period of growth, increases at the rate of inflation during stability and decreases during the period of decay.

The expensing method as shown in Table A7 also has an accrual of $5,386.69, but the revenue requirement is equal to, not less than, the accrual amount. The present value of the revenue requirements is $1,170.06. There is no revenue requirement during the period of growth and increasing revenue requirements during both the period of stability and the period of decay. The revenue requirements per unit in service increase from $16.29 in year 10 to $411.66 in year 29.

The amortization method for the multiple vintage example is presented in Table A8. The total accruals equal the experienced net salvage of $5,386.69 and the revenue requirement includes an additional amount of $1,346.67 because the negative net salvage increases rate base prior to the accrual. The present value of the revenue requirements is $1,182.29. There are no revenue requirements during the period of growth, increasing revenue requirements during the period of stability and decay and decreasing revenue requirements for the five years following the retirement of the final unit. The revenue requirements per unit increase from $4.29 in year 11 to $449.05 in year 29 and cannot be defined thereafter, as no units are in service.

The sinking fund method that recognizes the estimated price level in the year of retirement as shown in Table A9 has a total accrual and revenue requirement of $3,718.40. The present value of the revenue requirements is $1,170.06. The revenue

requirements increase during the periods of growth and stability and decrease during the period of decay. The revenue requirement or annuity per unit increases at a rate less than inflation during growth and decay and at the rate of inflation during stability.

The sinking fund method that recognizes the price level at the time of calculation is presented in Table A10. The total accrual and revenue requirement are $3,970.09 and have a present value of $1,171.14. The revenue requirements increase during the period of growth and stability and decrease during the period of decay. The revenue requirement or annuity per unit increases at a rate greater than inflation during growth and decay and at the rate of inflation during stability.

Figures E and F present the accrual per unit and the revenue requirements per unit, respectively, for the multiple vintage example. The straight line method produces the lowest revenue requirement per unit during the period of stability and decay. The sinking fund methods provide lower revenue requirements per unit during the period of growth.

ADDITIONAL ANALYSES REQUIRED

A more complex, longer life model with greater negative net salvage should be prepared for each of the alternative methods. The simple models presented herein assist in gaining an understanding of the factors at work. A more complex model that simulates an actual account such as distribution mains, poles or conductor that experiences significant negative net salvage should provide an indication of the manner in which the methods would actually impact a utility.

CONCLUSIONS

Each of the five alternatives can be designed to provide recovery of negative net salvage. The straight line accrual method minimizes the revenue requirements and the present value of revenue requirements in each of the examples. This minimization results from the significant amount of early accruals. The sinking fund

methods result in lower total revenue requirements than the expensing and amortization methods.

The accruals in the straight line accrual method are in accord with the loss in service value. The accruals in the sinking fund methods increase over the life of an asset. It could be argued that this delay in recovery increases the utility's risk and a greater rate of return would be required if a sinking fund method were used. The expensing and amortization methods do not provide for accruals in the early years of a group's life cycle and provide for the highest level of accruals when the service rendered is decreasing.

The selection of the most appropriate method for a utility depends on its circumstances and policies. Is uniform recovery or uniform revenue requirements most appropriate? Uniform recovery, the straight line accrual method, matches costs with the loss in service value. Uniform revenue requirements, the sinking fund method with full recognition of inflation, may be considered more in line with some policies. Perhaps, increasing revenue requirements, in keeping with all other costs, would be more palatable to today's customers.

There is much to be said for the straight line accrual method. The provision for negative net salvage is accrued in accord with the loss in service value of the assets. For a single asset, the revenue requirements decrease over time, offsetting likely increases in operation and maintenance expense. The total revenue requirements and their present value are less for the straight line method than any of the four other methods evaluated.

Finally, as noted in the multiple vintage example, the revenue requirements per unit increase at the rate of inflation during periods of stability and at a level less than both of the sinking fund methods.

FIGURES

Figure A

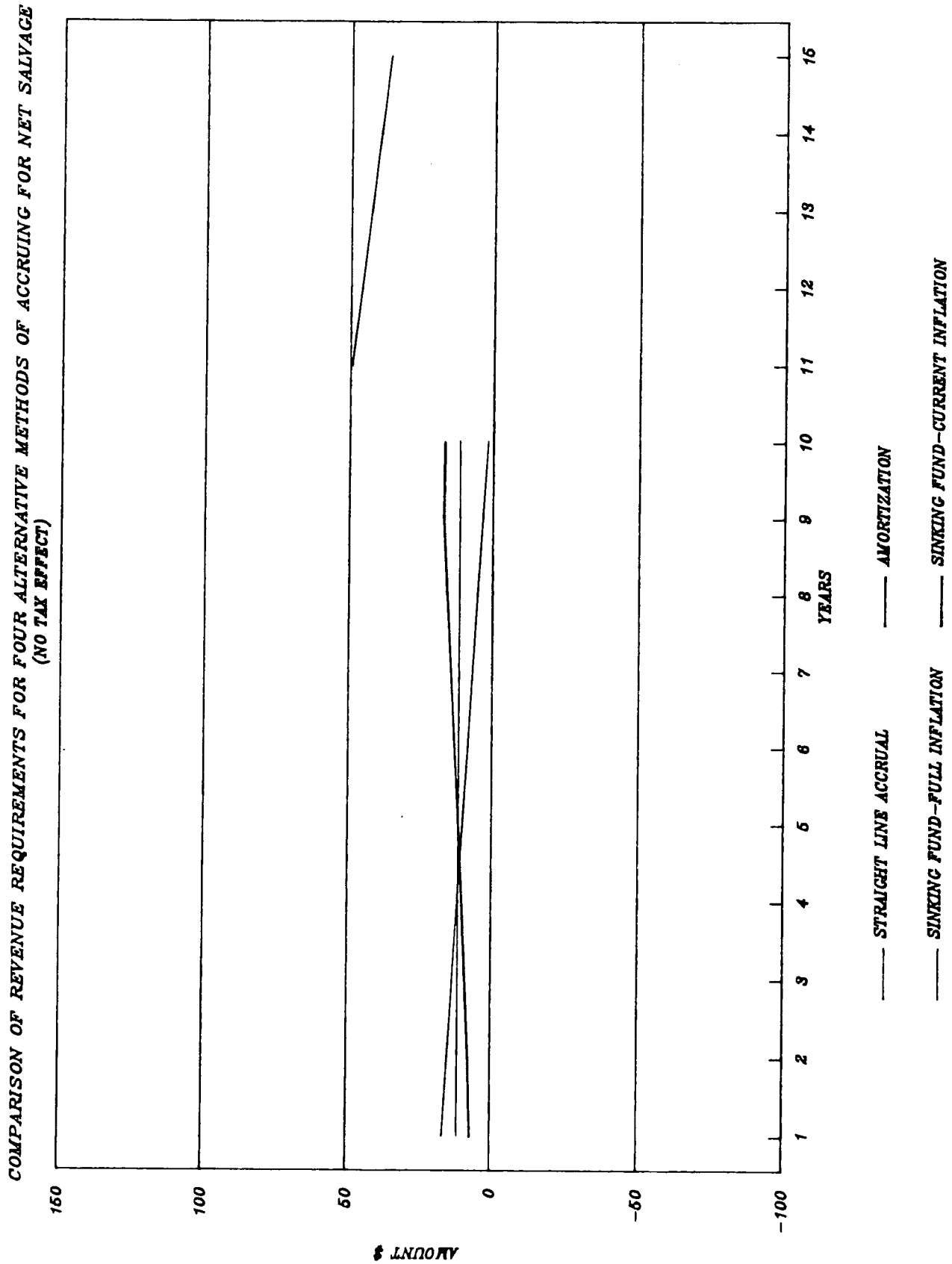

COMPARISON OF REVENUE REQUIREMENTS FOR FOUR ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(NO TAX EFFECT)
AMOUNT $
150
100
50
0
-50
-100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
YEARS
STRAIGHT LINE ACCRUAL
AMORTIZATION
SINKING FUND-FULL INFLATION
SINKING FUND-CURRENT INFLATION

Figure B

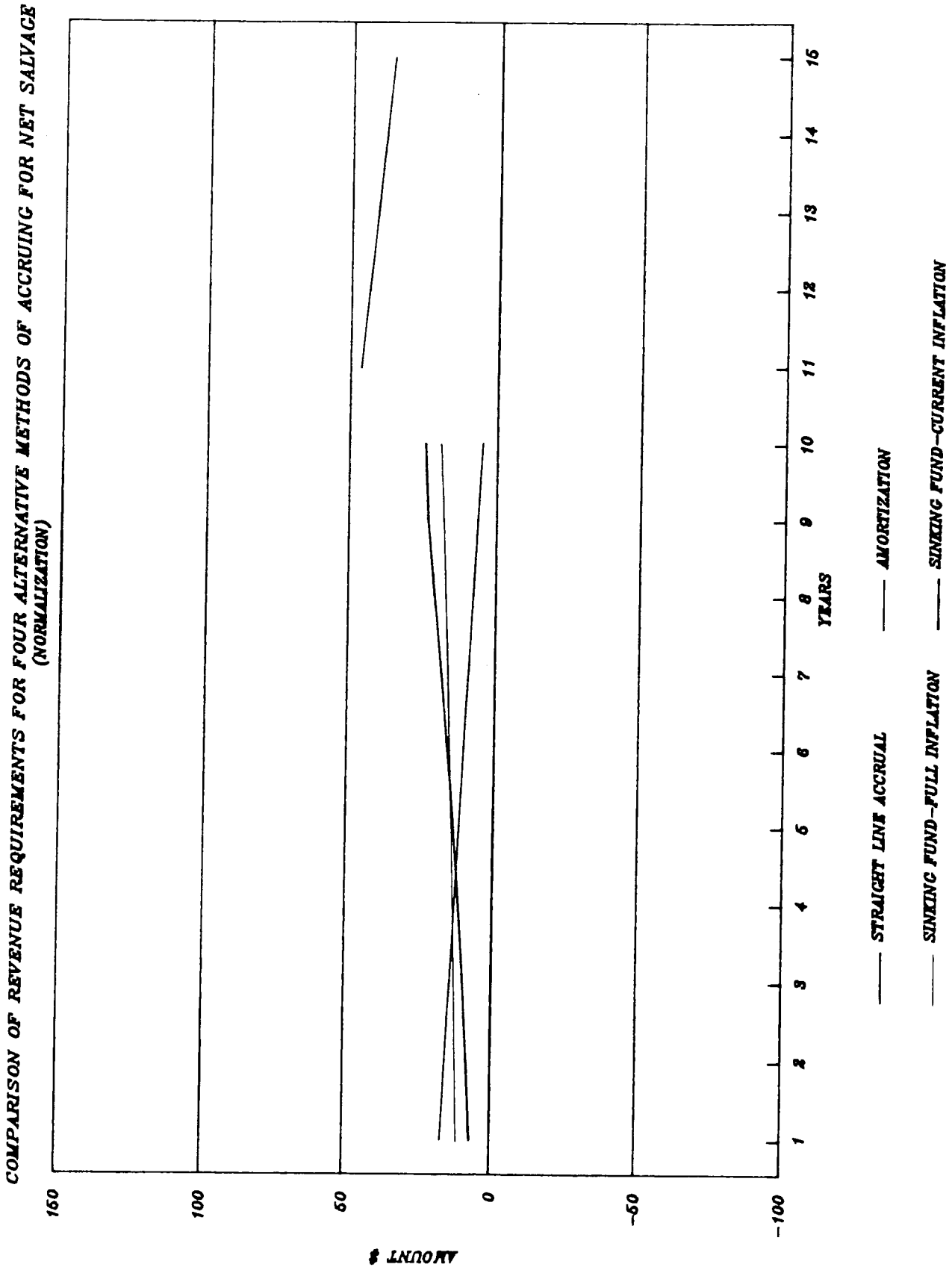

COMPARISON OF REVENUE REQUIREMENTS FOR FOUR ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(NORMALIZATION)
AMOUNT $
160
100
50
0
-50
-100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
YEARS
STRAIGHT LINE ACCRUAL
AMORTIZATION
SINKING FUND-FULL INFLATION
SINKING FUND-CURRENT INFLATION

Figure C

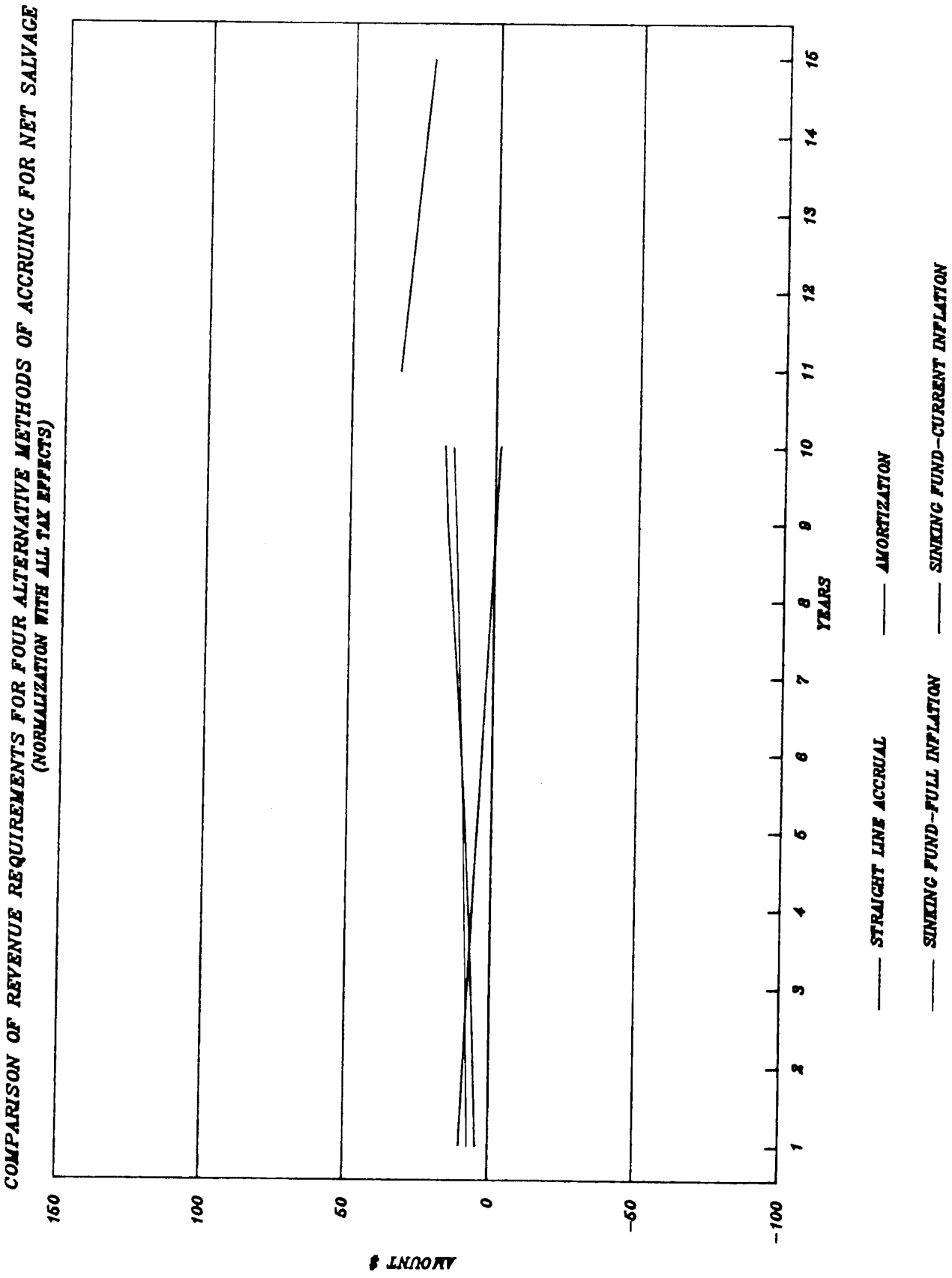

COMPARISON OF REVENUE REQUIREMENTS FOR FOUR ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(NORMALIZATION WITH ALL TAX EFFECTS)
AMOUNT $
160
100
50
0
-50
-100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
YEARS
STRAIGHT LINE ACCRUAL
AMORTIZATION
SINKING FUND-FULL INFLATION
SINKING FUND-CURRENT INFLATION

Figure D

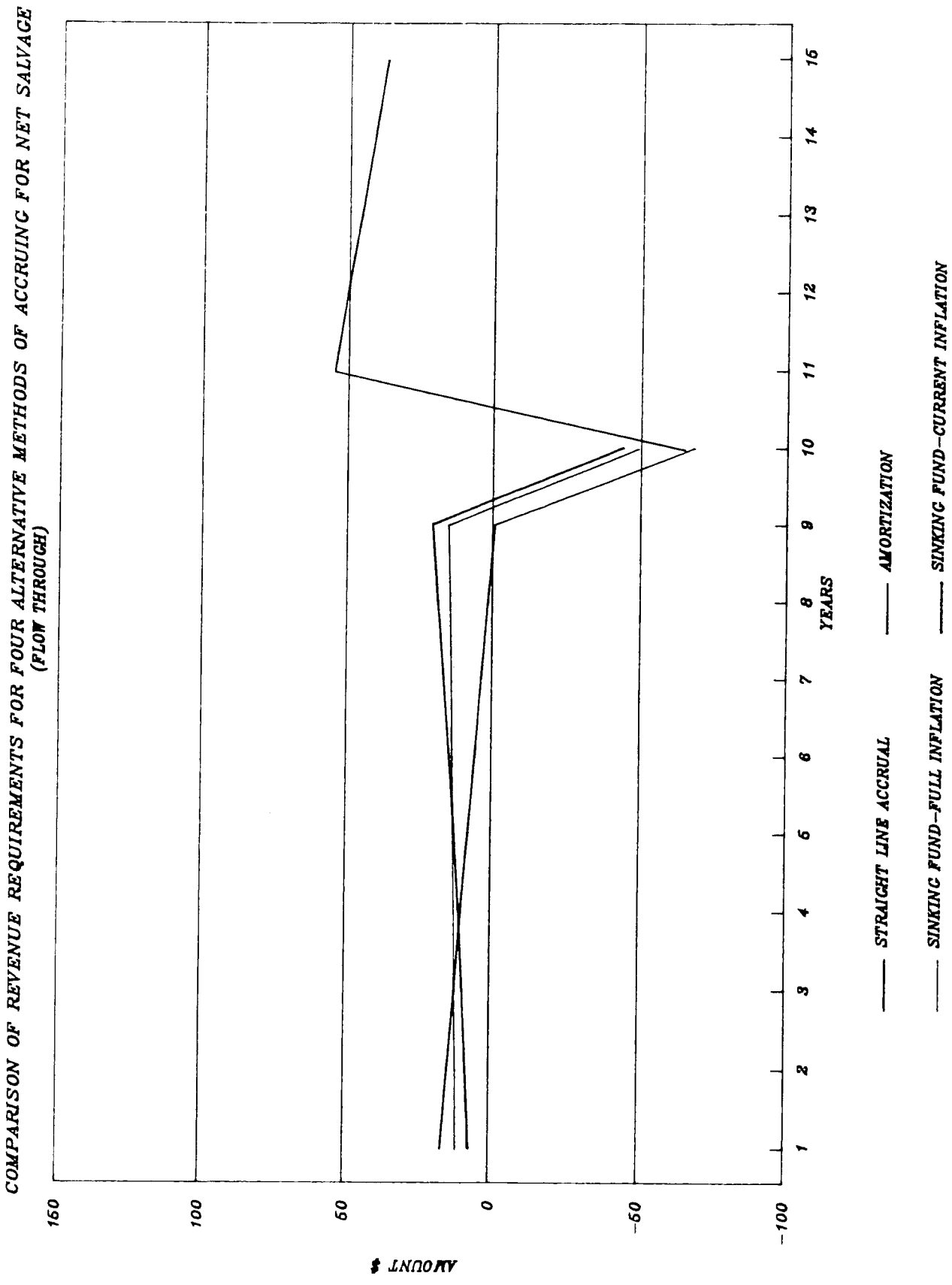
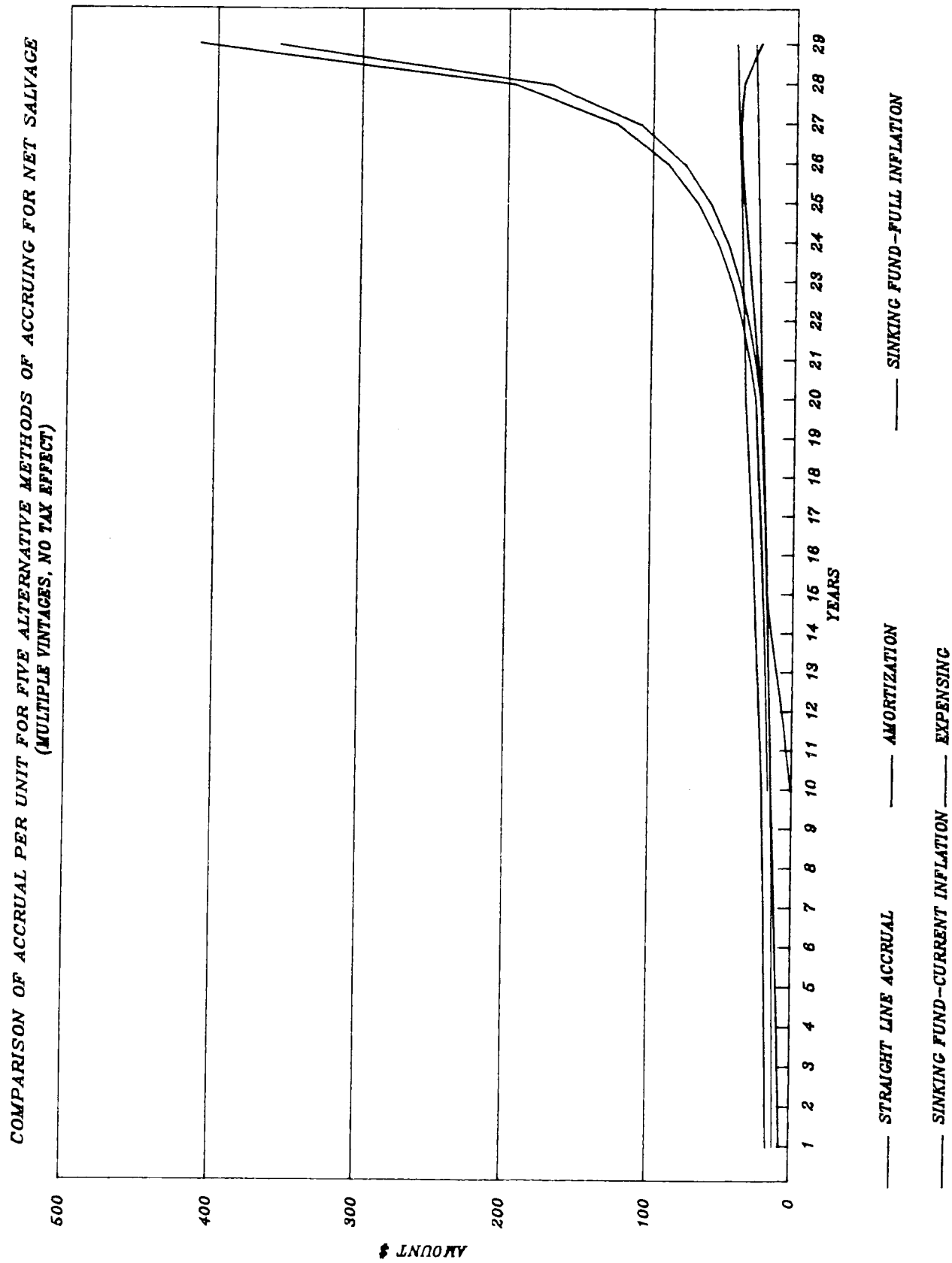

COMPARISON OF REVENUE REQUIREMENTS FOR FOUR ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(FLOW THROUGH)
AMOUNT $
160
100
60
0
-60
-100
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
YEARS
STRAIGHT LINE ACCRUAL
AMORTIZATION
SINKING FUND-FULL INFLATION
SINKING FUND-CURRENT INFLATION

Figure E


COMPARISON OF ACCRUAL PER UNIT FOR FIVE ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(MULTIPLE VINTAGES, NO TAX EFFECT)
AMOUNT $
600
400
300
200
100
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
YEARS
STRAIGHT LINE ACCRUAL
AMORTIZATION
SINKING FUND-FULL INFLATION
SINKING FUND-CURRENT INFLATION
EXPENSING

COMPARISON OF REVENUE REQUIREMENTS PER UNIT FOR FIVE ALTERNATIVE METHODS OF ACCRUING FOR NET SALVAGE
(MULTIPLE VINTAGES, NO TAX EFFECT)

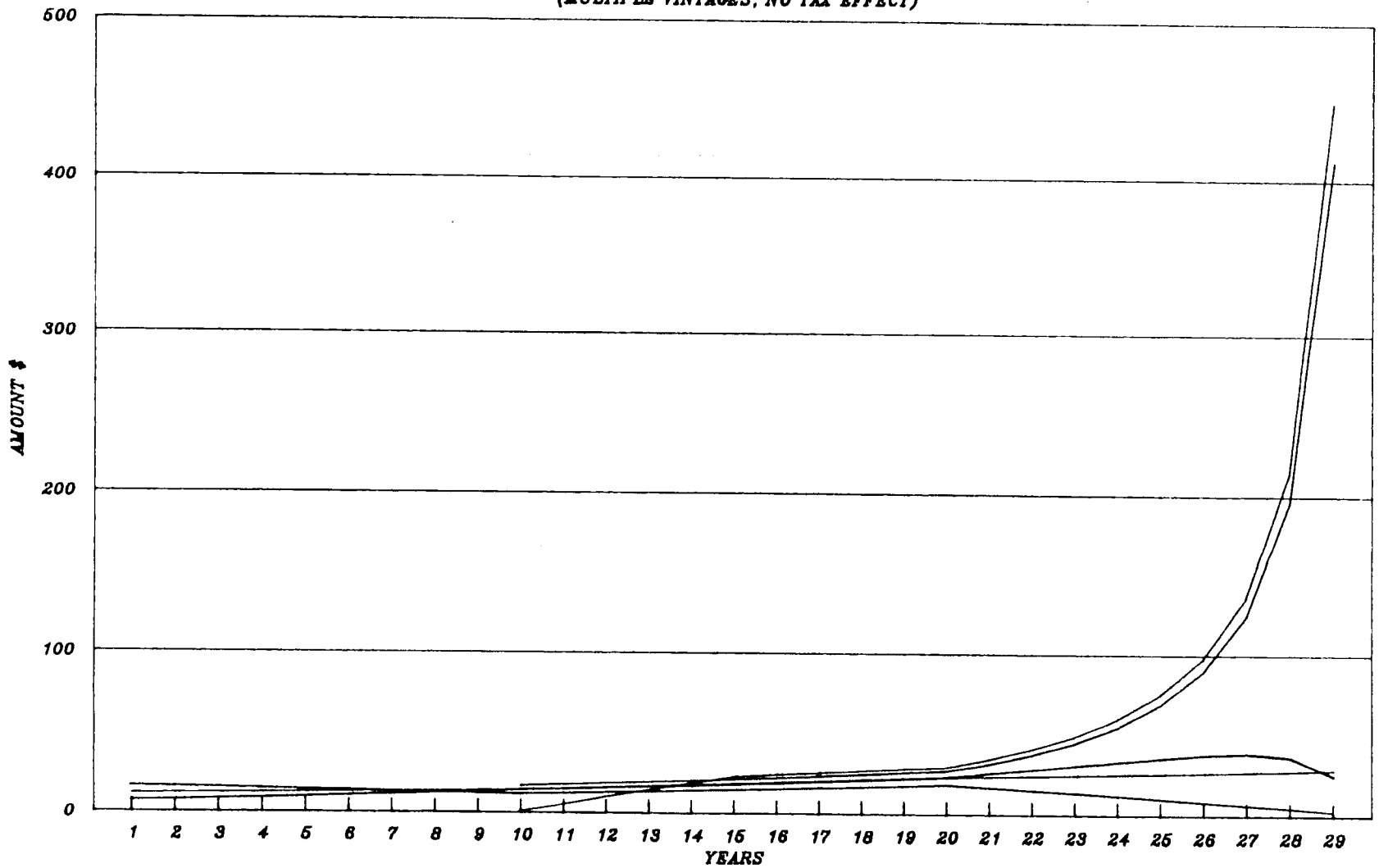


Figure F

TABLES

TABLE A1

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE STRAIGHT LINE ACCRUAL METHOD
(SINGLE VINTAGE, 10-SQUARE, NO TAX EFFECT)

	NET SALVAGE		BEGINNING OF YEAR		REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	RATE BASE	RETURN	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5) = (4) x 10%	(6) = (2) + (5)	(7)
1	16.29		-	-	16.29	15.08
2	16.29		(16.29)	(1.63)	14.66	12.57
3	16.29		(32.58)	(3.26)	13.03	10.34
4	16.29		(48.87)	(4.89)	11.40	8.38
5	16.29		(65.16)	(6.52)	9.77	6.65
6	16.29		(81.45)	(8.15)	8.14	5.13
7	16.29		(97.74)	(9.77)	6.52	3.80
8	16.29		(114.03)	(11.40)	4.89	2.64
9	16.29		(130.32)	(13.03)	3.26	1.63
10	16.29	(162.90)	(146.61)	(14.66)	1.63	0.76
11						
12						
13						
14						
15						
TOTAL	162.90	(162.90)		(73.31)	89.59	66.98

TABLE A2

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE EXPENSING METHOD
(SINGLE VINTAGE, 10-SQUARE, NO TAX EFFECT)

YEAR	NET SALVAGE ACCRUAL	NET SALVAGE EXPERIENCE	BEGINNING OF YEAR RATE BASE	RETURN	REVENUE REQUIREMENT AMOUNT	REVENUE REQUIREMENT PRESENT VALUE
(1)	(2)	(3)	(4)	(5)=(4)x10%	(6)=(2)+(5)	(7)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10	162.90	(162.90)	0.00	0.00	162.90	75.45
11						
12						
13						
14						
15						
TOTAL	162.90	(162.90)		0.00	162.90	75.45

TABLE A3

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE AMORTIZATION METHOD
(SINGLE VINTAGE, 10-SQUARE, NO TAX EFFECT)

	NET SALVAGE		BEGINNING OF YEAR		REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	RATE BASE	RETURN	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)=(4)x10%	(6)=(2)+(5)	(7)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10		(162.90)				
11	32.58		162.90	16.29	48.87	20.96
12	32.58		130.32	13.03	45.61	18.11
13	32.58		97.74	9.77	42.35	15.57
14	32.58		65.16	6.52	39.10	13.31
15	32.58		32.58	3.26	35.84	11.30
TOTAL	162.90	(162.90)		48.87	211.77	79.25

TABLE A4

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND FULL RECOGNITION OF INFLATION
(SINGLE VINTAGE, 10-SQUARE, NO TAX EFFECT)

YEAR	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	PRESENT VALUE OF REVENUE REQUIREMENT
(1)	(2)	(3)	(4)=(2)+.08(3)	(5)
1	11.24	0.00	11.24	10.41
2	11.24	11.24	12.14	9.64
3	11.24	23.38	13.11	8.92
4	11.24	36.49	14.16	8.26
5	11.24	50.65	15.29	7.65
6	11.24	65.94	16.52	7.08
7	11.24	82.46	17.84	6.56
8	11.24	100.29	19.26	6.07
9	11.24	119.56	20.80	5.62
10	11.31	140.36	22.54	5.24
11				
12				
13				
14				
15				
TOTAL	112.47		162.90	75.45

TABLE A5

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND RECOGNITION OF INFLATION TO DATE
(SINGLE VINTAGE, 10-SQUARE, NO TAX EFFECT)

	BEGINNING OF YEAR					PRESENT
YEAR	NET SALVAGE IN CURRENT $	NET SALVAGE TO BE ACCRUED	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	VALUE OF REVENUE REQUIREMENT
(1)	(2)	(3) = (2) - (5)	(4)	(5)	(6) = (4) + .08(5)	(7)
1	100.00	100.00	6.90	0.00	6.90	6.39
2	105.00	98.10	7.86	6.90	8.41	6.74
3	110.25	94.94	8.93	15.31	10.15	7.09
4	115.76	90.29	10.12	25.47	12.16	7.44
5	121.55	83.93	11.44	37.62	14.45	7.79
6	127.63	75.56	12.88	52.07	17.05	8.12
7	134.01	64.89	14.40	69.12	19.93	8.40
8	140.71	51.66	15.91	89.05	23.03	8.60
9	147.75	35.67	17.15	112.08	26.12	8.58
10	155.14	16.94	16.94	138.20	28.00	7.85
11						
12						
13						
14						
15						
TOTAL			122.53		166.20	77.00

TABLE A6

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE STRAIGHT LINE ACCRUAL METHOD
(MULTIPLE VINTAGES, 10-SQUARE, NO TAX EFFECT)

		NET SALVAGE					REVENUE REQUIREMENT		
YEAR	UNITS	ACCRUAL	ACCRUAL PER UNIT	EXPERIENCE	RATE BASE	RETURN	AMOUNT	AMOUNT PER UNIT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(6)x10%	(8)=(3)+(7)	(9)	(10)
1	1	16.29	16.29		(8.15)	(0.81)	15.48	15.48	14.33
2	2	33.40	16.70		(32.99)	(3.30)	30.10	15.05	25.81
3	3	51.36	17.12		(75.37)	(7.54)	43.82	14.61	34.79
4	4	70.21	17.55		(136.16)	(13.62)	56.59	14.15	41.60
5	5	90.01	18.00		(216.27)	(21.63)	68.38	13.68	46.54
6	6	110.81	18.47		(316.68)	(31.67)	79.14	13.19	49.87
7	7	132.64	18.95		(438.40)	(43.84)	88.80	12.69	51.81
8	8	155.56	19.45		(582.50)	(58.25)	97.31	12.16	52.57
9	9	179.63	19.96		(750.10)	(75.01)	104.62	11.62	52.34
10	10	204.90	20.49	(162.90)	(942.36)	(94.24)	110.66	11.07	51.26
11	10	215.15	21.52	(171.05)	(989.49)	(98.95)	116.20	11.62	49.84
12	10	225.90	22.59	(179.60)	(1,038.96)	(103.90)	122.00	12.20	48.45
13	10	237.20	23.72	(188.58)	(1,090.91)	(109.09)	128.11	12.81	47.11
14	10	249.06	24.91	(198.01)	(1,145.46)	(114.55)	134.51	13.45	45.80
15	10	261.52	26.15	(207.91)	(1,202.74)	(120.27)	141.25	14.13	44.53
16	10	274.59	27.46	(218.31)	(1,262.89)	(126.29)	148.30	14.83	43.29
17	10	288.32	28.83	(229.23)	(1,326.03)	(132.60)	155.72	15.57	42.09
18	10	302.74	30.27	(240.69)	(1,392.33)	(139.23)	163.51	16.35	40.92
19	10	317.88	31.79	(252.72)	(1,461.95)	(146.20)	171.68	17.17	39.78
20	10	333.77	33.38	(265.36)	(1,535.06)	(153.51)	180.26	18.03	38.67
21	9	307.23	34.14	(278.63)	(1,590.20)	(159.02)	148.21	16.47	29.44
22	8	279.37	34.92	(292.56)	(1,604.87)	(160.49)	118.88	14.86	21.87
23	7	250.11	35.73	(307.19)	(1,577.05)	(157.70)	92.41	13.20	15.74
24	6	219.40	36.57	(322.55)	(1,504.61)	(150.46)	68.94	11.49	10.87
25	5	187.14	37.43	(338.68)	(1,385.33)	(138.53)	48.61	9.72	7.10
26	4	153.27	38.32	(355.61)	(1,216.86)	(121.69)	31.58	7.90	4.27
27	3	117.71	39.24	(373.39)	(996.74)	(99.67)	18.04	6.01	2.26
28	2	80.37	40.19	(392.06)	(722.39)	(72.24)	8.13	4.07	0.94
29	1	41.15	41.15	(411.66)	(391.09)	(39.11)	2.04	2.04	0.22
30									
31									
32									
33									
34									
TOTAL		5,386.69		(5,386.69)		(2,693.41)	2,693.28		954.11

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE EXPENSING METHOD
(MULTIPLE VINTAGES, 10-SQUARE, NO TAX EFFECT)

		NET SALVAGE					REVENUE REQUIREMENT		
YEAR	UNITS	ACCRUAL	ACCRUAL PER UNIT	EXPERIENCE	RATE BASE	RETURN	AMOUNT	AMOUNT PER UNIT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(6)x10%	(8)=(3)+(7)	(9)	(10)
1	1								
2	2								
3	3								
4	4								
5	5								
6	6								
7	7								
8	8								
9	9								
10	10	162.90	16.29	(162.90)	0.00	0.00	162.90	16.29	75.45
11	10	171.05	17.11	(171.05)	0.00	0.00	171.05	17.11	73.36
12	10	179.60	17.96	(179.60)	0.00	0.00	179.60	17.96	71.32
13	10	188.58	18.86	(188.58)	0.00	0.00	188.58	18.86	69.34
14	10	198.01	19.80	(198.01)	0.00	0.00	198.01	19.80	67.41
15	10	207.91	20.79	(207.91)	0.00	0.00	207.91	20.79	65.54
16	10	218.31	21.83	(218.31)	0.00	0.00	218.31	21.83	63.72
17	10	229.23	22.92	(229.23)	0.00	0.00	229.23	22.92	61.95
18	10	240.69	24.07	(240.69)	0.00	0.00	240.69	24.07	60.23
19	10	252.72	25.27	(252.72)	0.00	0.00	252.72	25.27	58.56
20	10	265.36	26.54	(265.36)	0.00	0.00	265.36	26.54	56.93
21	9	278.63	30.96	(278.63)	0.00	0.00	278.63	30.96	55.35
22	8	292.56	36.57	(292.56)	0.00	0.00	292.56	36.57	53.81
23	7	307.19	43.88	(307.19)	0.00	0.00	307.19	43.88	52.32
24	6	322.55	53.76	(322.55)	0.00	0.00	322.55	53.76	50.87
25	5	338.68	67.74	(338.68)	0.00	0.00	338.68	67.74	49.45
26	4	355.61	88.90	(355.61)	0.00	0.00	355.61	88.90	48.08
27	3	373.39	124.46	(373.39)	0.00	0.00	373.39	124.46	46.74
28	2	392.06	196.03	(392.06)	0.00	0.00	392.06	196.03	45.45
29	1	411.66	411.66	(411.06)	0.00	0.00	411.66	411.66	44.18
30									
31									
32									
33									
34									
TOTAL		5,386.69		(5,386.09)		0.00	5,386.69		1,170.06

TABLE A8

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE AMORTIZATION METHOD
(MULTIPLE VINTAGES, 10-SQUARE, NO TAX EFFECT)

		NET SALVAGE					REVENUE REQUIREMENT		
YEAR	UNITS	ACCRUAL	ACCRUAL PER UNIT	EXPERIENCE	RATE BASE	RETURN	AMOUNT	AMOUNT PER UNIT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(6)x10%	(8)=(3)+(7)	(9)	(10)
1	1								
2	2								
3	3								
4	4								
5	5								
6	6								
7	7								
8	8								
9	9								
10	10	0.00	0.00	(162.90)	0.00	0.00	0.00	0.00	0.00
11	10	32.58	3.26	(171.05)	146.61	14.66	47.24	4.72	20.26
12	10	66.79	6.68	(179.60)	267.98	26.80	93.59	9.36	37.17
13	10	102.71	10.27	(188.58)	362.83	36.28	138.99	13.90	51.11
14	10	140.43	14.04	(198.01)	429.84	42.98	183.41	18.34	62.44
15	10	180.03	18.00	(207.91)	467.62	46.76	226.79	22.68	71.49
16	10	189.03	18.90	(218.31)	491.00	49.10	238.13	23.81	69.51
17	10	198.48	19.85	(229.23)	515.55	51.56	250.04	25.00	67.58
18	10	208.41	20.84	(240.69)	541.34	54.13	262.54	26.25	65.70
19	10	218.83	21.88	(252.72)	568.41	56.84	275.67	27.57	63.88
20	10	229.77	22.98	(265.36)	596.83	59.68	289.45	28.95	62.10
21	9	241.26	26.81	(278.63)	626.67	62.67	303.93	33.77	60.38
22	8	253.33	31.67	(292.56)	658.01	65.80	319.13	39.89	58.70
23	7	265.99	38.00	(307.19)	690.91	69.09	335.08	47.87	57.07
24	6	279.29	46.55	(322.55)	725.46	72.55	351.84	58.64	55.48
25	5	293.26	58.65	(338.68)	761.73	76.17	369.43	73.89	53.94
26	4	307.92	76.98	(355.61)	799.82	79.98	387.90	96.98	52.44
27	3	323.32	107.77	(373.39)	839.81	83.98	407.30	135.77	50.99
28	2	339.48	169.74	(392.06)	881.80	88.18	427.66	213.83	49.57
29	1	356.46	356.46	(411.06)	925.89	92.59	449.05	449.05	48.20
30	-	374.28			972.18	97.22	471.50		46.86
31	-	306.54			631.77	63.18	369.72		34.02
32	-	235.42			360.79	36.08	271.50		23.13
33	-	160.74			162.71	16.27	177.01		13.96
34	-	82.33			41.18	4.12	86.45		6.31
TOTAL		5,386.68		(5,386.09)		1,346.67	6,733.35		1,182.29

TABLE A9

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND FULL RECOGNITION OF INFLATION
(MULTIPLE VINTAGES, 10-SQUARE, NO TAX EFFECT)

		NET SALVAGE					PRESENT
			ANNUITY		CUMULATIVE ACCRUALS AT	NET SALVAGE	VALUE OF REVENUE
YEAR	UNITS	ACCRUAL	PER UNIT	EXPERIENCE	BEG. OF YEAR	ACCRUAL	REQUIREMENT
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(3)+.08(6)	(8)
1	1	11.24	11.24		0.00	11.24	10.41
2	2	23.05	11.53		11.24	23.95	19.76
3	3	35.45	11.82		35.19	38.27	28.14
4	4	48.47	12.12		73.45	54.35	35.63
5	5	62.14	12.43		127.80	72.36	42.29
6	6	76.49	12.75		200.16	92.50	48.20
7	7	91.56	13.08		292.67	114.97	53.42
8	8	107.38	13.42		407.64	139.99	58.01
9	9	124.00	13.78		547.63	167.81	62.03
10	10	141.44	14.14	(162.90)	715.44	198.68	65.51
11	10	148.51	14.85	(171.05)	751.22	208.61	63.69
12	10	155.94	15.59	(179.60)	788.78	219.04	61.93
13	10	163.74	16.37	(188.58)	828.22	230.00	60.21
14	10	171.93	17.19	(198.01)	869.64	241.50	58.54
15	10	180.52	18.05	(207.91)	913.13	253.57	56.91
16	10	189.55	18.96	(218.31)	958.79	266.25	55.33
17	10	199.03	19.90	(229.23)	1,006.73	279.57	53.79
18	10	208.98	20.90	(240.69)	1,057.07	293.55	52.30
19	10	219.43	21.94	(252.72)	1,109.92	308.22	50.84
20	10	230.40	23.04	(265.36)	1,165.43	323.63	49.43
21	9	212.08	23.56	(278.63)	1,223.70	309.98	42.13
22	8	192.85	24.11	(292.56)	1,255.05	293.25	35.47
23	7	172.65	24.66	(307.19)	1,255.74	273.11	29.40
24	6	151.45	25.24	(322.55)	1,221.66	249.18	23.88
25	5	129.18	25.84	(338.68)	1,148.29	221.04	18.86
26	4	105.80	26.45	(355.61)	1,030.66	188.25	14.30
27	3	81.26	27.09	(373.39)	863.30	150.32	10.17
28	2	55.48	27.74	(392.06)	640.23	106.70	6.43
29	1	28.40	28.40	(411.66)	354.87	56.79	3.05
30							
31							
32							
33							
34							
TOTAL		3,718.40		(5,386.69)		5,386.69	1,170.06

TABLE A10

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND RECOGNITION OF INFLATION TO DATE
(MULTIPLE VINTAGES, 10-SQUARE, NO TAX EFFECT)

		AT BEGINNING OF YEAR		NET SALVAGE					PRESENT
YEAR	UNITS	NET SALVAGE IN CURRENT $	NET SALVAGE TO BE ACCRUED	ACCRUAL	ANNUITY PER UNIT	EXPERIENCE	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	VALUE OF REVENUE REQUIREMENT
(1)	(2)	(3)	(4)=(3)-(7)	(5)	(6)	(7)	(8)	(9)=(5)+.08(8)	(10)
1	1	100.00	100.00	6.90	6.90		0.00	6.90	6.39
2	2	210.00	203.10	15.08	7.54		6.90	15.63	12.93
3	3	330.75	308.22	24.68	8.23		22.53	26.48	19.59
4	4	463.04	414.03	35.86	8.97		49.01	39.78	26.36
5	5	607.75	518.95	48.79	9.76		88.80	55.89	33.21
6	6	765.78	621.09	63.62	10.60		144.69	75.20	40.09
7	7	938.07	718.19	80.49	11.50		219.88	98.08	46.97
8	8	1,125.68	807.71	99.54	12.44		317.97	124.98	53.78
9	9	1,329.75	886.81	120.89	13.43		442.94	156.33	60.48
10	10	1,551.40	952.13	144.54	14.45	(162.90)	599.27	192.48	66.95
11	10	1,629.00	1,000.15	151.83	15.18	(171.05)	628.85	202.14	65.12
12	10	1,710.50	1,050.56	159.49	15.95	(179.60)	659.94	212.29	63.34
13	10	1,796.00	1,103.38	167.51	16.75	(188.58)	692.62	222.92	61.59
14	10	1,885.80	1,158.84	175.92	17.59	(198.01)	726.96	234.08	59.89
15	10	1,980.10	1,217.07	184.76	18.48	(207.91)	763.03	245.80	58.24
16	10	2,079.10	1,278.18	194.04	19.40	(218.31)	800.92	258.11	56.64
17	10	2,183.10	1,342.37	203.79	20.38	(229.23)	840.73	271.05	55.08
18	10	2,292.30	1,409.76	214.02	21.40	(240.69)	882.54	284.62	53.56
19	10	2,406.90	1,480.42	224.74	22.47	(252.72)	926.48	298.86	52.07
20	10	2,527.20	1,554.59	236.00	23.60	(265.36)	972.61	313.81	50.63
21	9	2,388.24	1,367.18	233.04	25.89	(278.63)	1,021.06	314.73	46.29
22	8	2,229.04	1,171.88	226.53	28.32	(292.56)	1,057.16	311.10	41.67
23	7	2,047.92	972.22	215.76	30.82	(307.19)	1,075.70	301.82	36.75
24	6	1,843.14	772.81	200.00	33.33	(322.55)	1,070.33	285.63	31.54
25	5	1,612.75	579.35	178.46	35.69	(338.68)	1,033.40	261.13	26.06
26	4	1,354.72	398.86	150.40	37.60	(355.61)	955.86	226.87	20.33
27	3	1,066.83	239.72	115.25	38.42	(373.39)	827.11	181.42	14.43
28	2	746.78	111.64	72.98	36.49	(392.06)	635.14	123.79	8.46
29	1	392.06	25.18	25.18	25.18	(411.66)	366.88	54.53	2.70
30									
31									
32									
33									
34									
TOTAL				3,970.09		(5,386.69)		5,396.44	1,171.14

TABLE B1

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE STRAIGHT LINE ACCRUAL METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION)

	NET SALVAGE		BEGINNING OF YEAR			REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	16.29		-	-	-	16.29	15.08
2	16.29		6.52	(9.77)	(1.30)	14.99	12.85
3	16.29		13.04	(19.54)	(2.60)	13.69	10.87
4	16.29		19.56	(29.31)	(3.91)	12.38	9.10
5	16.29		26.08	(39.08)	(5.21)	11.08	7.54
6	16.29		32.60	(48.85)	(6.51)	9.78	6.16
7	16.29		39.12	(58.62)	(7.81)	8.48	4.95
8	16.29		45.64	(68.39)	(9.12)	7.17	3.87
9	16.29		52.16	(78.16)	(10.42)	5.87	2.94
10	16.29	(162.90)	58.68	(87.93)	(11.72)	4.57	2.12
11							
12							
13							
14							
15							
TOTAL	162.90	(162.90)			(58.60)	104.30	75.48

TABLE B2

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE EXPENSING METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION)

	NET SALVAGE		BEGINNING OF YEAR			REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10	162.90	(162.90)	-	-	-	162.90	75.45
11							
12							
13							
14							
15							
TOTAL	162.90	(162.90)	-	-	-	162.90	75.45

TABLE B3

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE AMORTIZATION METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION)

	NET SALVAGE		BEGINNING OF YEAR			REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10		(162.90)					
11	32.58		(65.16)	97.74	13.03	45.61	19.56
12	32.58		(52.13)	78.19	10.42	43.00	17.08
13	32.58		(39.10)	58.64	7.82	40.40	14.85
14	32.58		(26.06)	39.10	5.21	37.79	12.87
15	32.58		(13.03)	19.55	2.61	35.19	11.09
TOTAL	162.90	(162.90)			39.09	201.99	75.45

TABLE B4

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND FULL RECOGNITION OF INFLATION
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION)

YEAR	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUALS	BEGINNING OF YEAR DEFERRED TAXES	RETURN AND TAXES	REVENUE REQUIREMENT	
						AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	11.24	-	11.24	-	-	11.24	10.41
2	11.24	11.24	12.14	4.50	0.60	11.84	10.15
3	11.24	23.38	13.11	9.35	1.25	12.49	9.91
4	11.24	36.49	14.16	14.60	1.95	13.19	9.70
5	11.24	50.65	15.29	20.26	2.70	13.94	9.49
6	11.24	65.94	16.52	26.38	3.52	14.76	9.30
7	11.24	82.46	17.84	32.98	4.40	15.64	9.13
8	11.24	100.29	19.26	40.12	5.35	16.59	8.96
9	11.24	119.56	20.80	47.82	6.37	17.61	8.81
10	11.31	140.36	22.54	56.14	7.48	18.79	8.70
11							
12							
13							
14							
15							
TOTAL	112.47		162.90		33.62	146.09	94.56

TABLE B5

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND RECOGNITION OF INFLATION TO DATE
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION)

	BEGINNING OF YEAR					BEGINNING		REVENUE REQUIREMENT	
YEAR	NET SALVAGE IN CURRENT $	NET SALVAGE TO BE ACCRUED	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	OF YEAR DEFERRED TAXES	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	100.00	100.00	6.90	-	6.90	-	-	6.90	6.39
2	105.00	98.10	7.86	6.90	8.41	2.76	0.37	8.23	7.06
3	110.25	94.94	8.93	15.31	10.15	6.12	0.82	9.75	7.74
4	115.76	90.29	10.12	25.47	12.16	10.19	1.36	11.48	8.44
5	121.55	83.93	11.44	37.62	14.45	15.05	2.01	13.45	9.15
6	127.63	75.56	12.88	52.07	17.05	20.83	2.78	15.66	9.87
7	134.01	64.89	14.40	69.12	19.93	27.65	3.69	18.09	10.56
8	140.71	51.66	15.91	89.05	23.03	35.62	4.75	20.66	11.16
9	147.75	35.67	17.15	112.08	26.12	44.83	5.98	23.13	11.57
10	155.14	16.94	16.94	138.20	28.00	55.28	7.37	24.31	11.26
11									
12									
13									
14									
15									
TOTAL			122.53		166.20		29.13	151.66	93.20

TABLE C1

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE STRAIGHT LINE ACCRUAL METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION WITH ALL TAX EFFECTS)

	NET SALVAGE		BEGINNING OF YEAR			TAX	REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	RELATED TO NET SALVAGE	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	16.29		-	-	-	(6.52)	9.77	9.05
2	16.29		6.52	(9.77)	(1.30)	(6.52)	8.47	7.26
3	16.29		13.04	(19.54)	(2.60)	(6.52)	7.17	5.69
4	16.29		19.56	(29.31)	(3.91)	(6.52)	5.86	4.31
5	16.29		26.08	(39.08)	(5.21)	(6.52)	4.56	3.10
6	16.29		32.60	(48.85)	(6.51)	(6.52)	3.26	2.05
7	16.29		39.12	(58.62)	(7.81)	(6.52)	1.96	1.14
8	16.29		45.64	(68.39)	(9.12)	(6.52)	0.65	0.35
9	16.29		52.16	(78.16)	(10.42)	(6.52)	(0.65)	(0.33)
10	16.29	(162.90)	58.68	(87.93)	(11.72)	(6.52)	(1.95)	(0.90)
11								
12								
13								
14								
15								
TOTAL	162.90	(162.90)			(58.60)	(65.20)	39.10	31.72

TABLE C2

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE EXPENSING METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION WITH ALL TAX EFFECTS)

	NET SALVAGE		BEGINNING OF YEAR			TAX	REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	RELATED TO NET SALVAGE	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)	(8)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10	162.90	(162.90)	-	-	-	(65.16)	97.74	45.27
11								
12								
13								
14								
15								
TOTAL	162.90	(162.90)	-	-	-	(65.16)	97.74	45.27

TABLE C3

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE AMORTIZATION METHOD
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION WITH ALL TAX EFFECTS)

	NET SALVAGE		BEGINNING OF YEAR			TAX	REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	DEFERRED TAXES	RATE BASE	RETURN AND TAXES	RELATED TO NET SALVAGE	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10		(162.90)						
11	32.58		(65.16)	97.74	13.03	(13.03)	32.58	13.97
12	32.58		(52.13)	78.19	10.42	(13.03)	29.97	11.90
13	32.58		(39.10)	58.64	7.82	(13.03)	27.37	10.06
14	32.58		(26.06)	39.10	5.21	(13.03)	24.76	8.43
15	32.58		(13.03)	19.55	2.61	(13.03)	22.16	6.99
TOTAL	162.90	(162.90)			39.09	(65.15)	136.84	51.35

TABLE C4

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND FULL RECOGNITION OF INFLATION
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION WITH ALL TAX EFFECTS)

YEAR	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUALS	BEGINNING OF YEAR DEFERRED TAXES	RETURN AND TAXES	TAX RELATED TO NET SALVAGE	REVENUE REQUIREMENT	
							AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	11.24	-	11.24	-	-	(4.50)	6.74	6.24
2	11.24	11.24	12.14	4.50	0.60	(4.50)	7.34	6.29
3	11.24	23.38	13.11	9.35	1.25	(4.50)	7.99	6.34
4	11.24	36.49	14.16	14.60	1.95	(4.50)	8.69	6.39
5	11.24	50.65	15.29	20.26	2.70	(4.50)	9.44	6.42
6	11.24	65.94	16.52	26.38	3.52	(4.50)	10.26	6.47
7	11.24	82.46	17.84	32.98	4.40	(4.50)	11.14	6.50
8	11.24	100.29	19.26	40.12	5.35	(4.50)	12.09	6.53
9	11.24	119.56	20.80	47.82	6.37	(4.50)	13.11	6.56
10	11.31	140.36	22.54	56.14	7.48	(4.52)	14.27	6.61
11								
12								
13								
14								
15								
TOTAL	112.47		162.90		33.62	(45.02)	101.07	64.35

TABLE C5

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND RECOGNITION OF INFLATION TO DATE
(SINGLE VINTAGE, 10-SQUARE, NORMALIZATION WITH ALL TAX EFFECTS)

	BEGINNING OF YEAR					BEGINNING			REVENUE REQUIREMENT	
YEAR	NET SALVAGE IN CURRENT $	NET SALVAGE TO BE ACCRUED	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	OF YEAR DEFERRED TAXES	RETURN AND TAXES	TAX RELATED TO NET SALVAGE	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	100.00	100.00	6.90	-	6.90	-	-	(2.76)	4.14	3.83
2	105.00	98.10	7.86	6.90	8.41	2.76	0.37	(3.14)	5.09	4.36
3	110.25	94.94	8.93	15.31	10.15	6.12	0.82	(3.57)	6.18	4.91
4	115.76	90.29	10.12	25.47	12.16	10.19	1.36	(4.05)	7.43	5.46
5	121.55	83.93	11.44	37.62	14.45	15.05	2.01	(4.58)	8.87	6.04
6	127.63	75.56	12.88	52.07	17.05	20.83	2.78	(5.15)	10.51	6.62
7	134.01	64.89	14.40	69.12	19.93	27.65	3.69	(5.76)	12.33	7.19
8	140.71	51.66	15.91	89.05	23.03	35.62	4.75	(6.36)	14.30	7.73
9	147.75	35.67	17.15	112.08	26.12	44.83	5.98	(6.86)	16.27	8.14
10	155.14	16.94	16.94	138.20	28.00	55.28	7.37	(6.78)	17.53	8.12
11										
12										
13										
14										
15										
TOTAL			122.53		166.20		29.13	(49.01)	102.65	62.40

TABLE D1

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE STRAIGHT LINE ACCRUAL METHOD
(SINGLE VINTAGE, 10-SQUARE, FLOW THROUGH)

	NET SALVAGE		BEGINNING OF YEAR	RETURN	REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	RATE BASE	AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	16.29		-	-	16.29	15.08
2	16.29		(16.29)	(2.17)	14.12	12.11
3	16.29		(32.58)	(4.34)	11.95	9.49
4	16.29		(48.87)	(6.51)	9.78	7.19
5	16.29		(65.16)	(8.69)	7.60	5.17
6	16.29		(81.45)	(10.86)	5.43	3.42
7	16.29		(97.74)	(13.03)	3.26	1.90
8	16.29		(114.03)	(15.20)	1.09	0.59
9	16.29		(130.32)	(17.37)	(1.08)	(0.54)
10	16.29	(162.90)	(146.61)	(84.70)	(68.41)	(31.68)
11						
12						
13						
14						
15						
TOTAL	162.90	(162.90)		(162.87)	0.03	22.73

TABLE D2

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE EXPENSING METHOD
(SINGLE VINTAGE, 10-SQUARE, FLOW THROUGH)

YEAR	NET SALVAGE		BEGINNING OF YEAR	RETURN	REVENUE REQUIREMENT	
	ACCRUAL	EXPERIENCE	RATE BASE	AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10	162.90	(162.90)	0.00	(65.16)	97.74	45.27
11						
12						
13						
14						
15						
TOTAL	162.90	(162.90)		(65.16)	97.74	45.27

TABLE D3

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE AMORTIZATION METHOD
(SINGLE VINTAGE, 10-SQUARE, FLOW THROUGH)

	NET SALVAGE		BEGINNING OF YEAR		REVENUE REQUIREMENT	
YEAR	ACCRUAL	EXPERIENCE	RATE BASE	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10		(162.90)		(65.16)	(65.16)	(30.18)
11	32.58		162.90	21.71	54.29	23.28
12	32.58		130.32	17.37	49.95	19.84
13	32.58		97.74	13.03	45.61	16.77
14	32.58		65.16	8.69	41.27	14.05
15	32.58		32.58	4.34	36.92	11.64
TOTAL	162.90	(162.90)		(0.02)	162.88	55.40

TABLE D4

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND FULL RECOGNITION OF INFLATION
(SINGLE VINTAGE, 10-SQUARE, FLOW THROUGH)

YEAR	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUALS	RETURN AND TAXES	REVENUE REQUIREMENT	
					AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	11.24	-	11.24	-	11.24	10.41
2	11.24	11.24	12.14	0.28	11.52	9.88
3	11.24	23.38	13.11	0.75	11.99	9.52
4	11.24	36.49	14.16	1.17	12.41	9.12
5	11.24	50.65	15.29	1.62	12.86	8.75
6	11.24	65.94	16.52	2.11	13.35	8.41
7	11.24	82.46	17.84	2.64	13.88	8.10
8	11.24	100.29	19.26	3.21	14.45	7.81
9	11.24	119.56	20.80	3.82	15.06	7.53
10	11.31	140.36	22.54	(60.67)	(49.36)	(22.86)
11						
12						
13						
14						
15						
TOTAL	112.47		162.90	(45.07)	67.40	56.67

TABLE D5

REVENUE REQUIREMENTS RELATED TO NET SALVAGE ACTIVITY
USING THE SINKING FUND METHOD
AND RECOGNITION OF INFLATION TO DATE
(SINGLE VINTAGE, 10-SQUARE, FLOW THROUGH)

	BEGINNING OF YEAR						REVENUE REQUIREMENT	
YEAR	NET SALVAGE IN CURRENT $	NET SALVAGE TO BE ACCRUED	NET SALVAGE ANNUITY	CUMULATIVE ACCRUALS AT BEG. OF YEAR	NET SALVAGE ACCRUAL	RETURN AND TAXES	AMOUNT	PRESENT VALUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	100.00	100.00	6.90	-	6.90	-	6.90	6.39
2	105.00	98.10	7.86	6.90	8.41	0.22	8.08	6.93
3	110.25	94.94	8.93	15.31	10.15	0.49	9.42	7.48
4	115.76	90.29	10.12	25.47	12.16	0.82	10.94	8.04
5	121.55	83.93	11.44	37.62	14.45	1.20	12.64	8.60
6	127.63	75.56	12.88	52.07	17.05	1.67	14.55	9.17
7	134.01	64.89	14.40	69.12	19.93	2.21	16.61	9.69
8	140.71	51.66	15.91	89.05	23.03	2.85	18.76	10.14
9	147.75	35.67	17.15	112.08	26.12	3.59	20.74	10.38
10	155.14	16.94	16.94	138.20	28.00	(60.74)	(43.80)	(20.29)
11								
12								
13								
14								
15								
TOTAL			122.53		166.20	(47.69)	74.84	56.53