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**SOAH DOCKET NO. 473-20-4709.WS  
PUC DOCKET NO. 50944**

**APPLICATION OF MONARCH                          §                      BEFORE THE STATE OFFICE  
UTILITIES I L.P. TO CHANGE RATES                §                      OF  
FOR WATER AND SEWER SERVICE                        §                      ADMINISTRATIVE HEARINGS**

**REBUTTAL TESTIMONY  
OF  
DANE WATSON**



**ON BEHALF OF  
MONARCH UTILITIES I L.P.**

**NOVEMBER 19, 2020**

**REBUTTAL TESTIMONY OF  
DANE WATSON**

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**ATTACHMENTS**

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|--------|--|
| DAW-1R | Response to Staff RFI No. 7-5  |
| DAW-2R | Excerpt of <i>Public Utility Depreciation Practices</i>                |
| DAW-3R | Excerpt of <i>Depreciation Systems</i>                                 |
| DAW-4R | Assets Commission Staff fails to fully accrue accumulated depreciation |
| DAW-5R | Correction of Commission Staff remaining life computations             |
| DAW-6R | Response to Staff RFI No. 7-4  |

**SOAH DOCKET NO. 473-20-4709.WS  
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APPLICATION OF MONARCH UTILITIES I L.P. TO CHANGE RATES FOR WATER AND SEWER SERVICE § BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

**REBUTTAL TESTIMONY OF  
DANE A. WATSON**

**I. INTRODUCTION**

1   Q.   **PLEASE STATE YOUR NAME AND ADDRESS.**  
2   A.   My name is Dane A. Watson. My business address is 101 E. Park Blvd, Suite 200,  
3         Plano, Texas 75074.

4   Q.   **ARE YOU THE SAME DANE A. WATSON WHO PREVIOUSLY PROVIDED  
5         DIRECT TESTIMONY IN THIS PROCEEDING?**

6   A.   Yes, I provided direct testimony on behalf of Monarch Utilities I L.P. (“Monarch”)  
7         regarding its proposed depreciation rates.

**II. PURPOSE**

9   Q.   **WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

10   A.   The purpose of my rebuttal testimony is to respond to the various positions  
11         recommended by Public Utility Commission of Texas (“Commission”) Staff Witness  
12         Heidi Graham.

13   Q.   **DO YOU SPONSOR ANY REBUTTAL EXHIBITS?**

14   A.   Yes. I am sponsoring the following rebuttal exhibits:  
15         • Attachment DAW-1R—Response to Staff RFI No. 7-5;  
16         • Attachment DAW-2R—Excerpt of *Public Utility Depreciation Practices*;  
17         • Attachment DAW-3R—Excerpt of *Depreciation Systems*;

- 1       • Attachment DAW-4R—Assets Commission Staff fails to fully accrue accumulated  
2              depreciation;
- 3       • Attachment DAW-5R—Correction of Commission Staff's remaining life  
4              computations; and
- 5       • Attachment DAW-6R—Response to Staff RFI No. 7-4.

6   **Q. WERE YOUR REBUTTAL TESTIMONY AND ATTACHMENTS PREPARED  
7          BY YOU OR UNDER YOUR SUPERVISION?**

8   A. Yes, they were.

9   **Q. PLEASE EXPLAIN HOW YOUR REBUTTAL TESTIMONY IS ORGANIZED.**

10   A. Commission Staff witness Ms. Graham's recommendations related to depreciation are  
11          unclear. Her testimony states a recommendation of annual depreciation expense of  
12          \$5.3 million (which is the same annualized expense as Monarch is currently accruing),  
13          while her exhibit calculates \$3.65 million in annual depreciation expense. Ms.  
14          Graham's testimony recommends a remaining life approach to calculating depreciation  
15          expense and recommends using existing lives, but her exhibit uses whole life (and  
16          Monarch's proposed lives) in her depreciation rate calculations. There are also other  
17          material flaws in her calculations. I will address each of these in my rebuttal.

18   **Q. DO YOU AGREE WITH EITHER RECOMMENDATION MADE BY MS.  
19          GRAHAM?**

20   A. No. The methodology in my recommendations follows past precedent for Monarch  
21          and the current accounting process it uses. Monarch also has processes in place to  
22          ensure assets are not over-recovered. My recommended lives are adjusted to match  
23          current and future expectations of Monarch's Subject Matter Experts ("SMEs"). The

1 recommendations in my Depreciation Study report are the most appropriate  
2 depreciation accrual for Monarch.

3 **III. RESPONSE TO COMMISSION STAFF TESTIMONY**

4 **Q. IF MS. GRAHAM'S RECOMMENDATION IS TO CONTINUE ACCRUING  
5 THE CURRENT \$5.3 MILLION ANNUAL DEPRECIATION EXPENSE, DO  
6 YOU AGREE WITH HER RECOMMENDATION?**

7 A. No. The lives used in my accrual calculation have been updated to match the current  
8 operations and expectations of Monarch's SMEs. Using outdated lives and  
9 depreciation expense (as her \$5.3 million does) is a less accurate approach than using  
10 lives based on current and future expectations for Monarch's assets.

11 **Q. IF MS. GRAHAM'S RECOMMENDATION IS THE \$3.65 MILLION  
12 DEPRECIATION EXPENSE FOUND IN HER DEPRECIATION EXPENSE  
13 CALCULATION,<sup>1</sup> DO YOU AGREE WITH HER RECOMMENDATION?**

14 A. No. First, for nearly 10 years, Monarch has been using whole life depreciation rates,  
15 which have been in place since TCEQ Docket Nos. 36630-R and 36631-R. In Docket  
16 No. 45570,<sup>2</sup> Commission Staff witness Ms. Graham adopted the rates recommended by  
17 Commission Staff witness Jolie Mathis. Ms. Mathis used Monarch's existing lives to  
18 develop depreciation rates, continuing Monarch's current item-based depreciation  
19 system. Those lives were used on a whole life basis. Second, Ms. Graham's concern  
20 that individual assets can be over-accrued without use of remaining life is unfounded.

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<sup>1</sup> Direct Testimony of Heidi Graham, Attachment HG-3 (Graham Direct).

<sup>2</sup> *Application of Monarch Utilities I L P for Authority to Change Rates*, Docket No. 45570 (Aug. 21, 2017).

1       In fact, Monarch's accounting system automatically stops depreciation accrual when  
2       an asset is fully accrued.<sup>3</sup> Third, there are mistakes in Ms. Graham's calculations  
3       contained in her Attachment HG-3.

4   **Q. WOULD YOU DESCRIBE THE MISTAKES FOUND IN MS. GRAHAM'S  
5       DEPRECIATION EXPENSE CALCULATIONS?**

6   A.   Yes.

- 7       • Ms. Graham's remaining life computations are incorrect. Instead of dividing the  
8       net book value by the remaining life, *she divides by the total proposed life* (ignoring  
9       the current age of the assets).
- 10      • Ms. Graham's depreciation reserve computations do not provide any accrued  
11       depreciation reserve for assets whose age is greater than the proposed life and do  
12       not fully accrue the assets.
- 13      • Ms. Graham does not use Monarch's per book reserve for her remaining life  
14       depreciation accruals. Her computed depreciation reserve is \$59.4 million  
15       compared to Monarch's actual reserve of \$69.4 million.
- 16      • Although in her testimony Ms. Graham rejects the proposed lives that I recommend  
17       (with no rationale offered for her opinion), her depreciation rate calculation uses  
18       my proposed lives.<sup>4</sup>

19   **Q. DO YOU AGREE THAT BOTH THE WHOLE LIFE AND REMAINING LIFE  
20       METHODOLOGIES ARE VALID, INDUSTRY STANDARD WAYS TO  
21       CALCULATE DEPRECIATION RATES?**

---

<sup>3</sup> See Attachment DAW-1R, Response to Staff RFI No. 7-5.

<sup>4</sup> Graham Direct at 9:1.

1    A. Yes. However, Monarch's current depreciation expense and accounting system use  
2    item-based, whole life depreciation expense calculations. This study follows  
3    Monarch's historical and current practice by also modeling item-based, whole life  
4    depreciation expense.

5    **Q. WHAT IS THE INDUSTRY STANDARD FOR COMPUTING REMAINING  
6    LIFE DEPRECIATION RATES?**

7    A. The standard computation for remaining life depreciation subtracts the book  
8    depreciation reserve for each asset group (or individual asset) from the gross book value  
9    of the group (or asset) and divides that net book value by the remaining life of the asset.  
10   Simply put, a remaining life accrual with no net salvage is computed as shown below:

11      Remaining Life Depreciation Accrual Amount =  $\frac{\text{Plant Balance} - \text{Accumulated Depreciation}}{\text{Remaining Life}}$   
12

13   This computation is discussed in Attachments DAW-2R and DAW-3R, which are  
14   excerpts from two learned treatises (*Public Depreciation Practices*,<sup>5</sup> and *Depreciation  
15   Systems*)<sup>6</sup> relied upon by depreciation experts.

16   **Q. HAS MS. GRAHAM CALCULATED REMAINING LIFE DEPRECIATION  
17   RATES FOLLOWING THE INDUSTRY-STANDARD APPROACH IN HER  
18   ATTACHMENT HG-3?**

19   A. No. The period over which the net book value should be spread in making a remaining  
20   life accrual computation is the *remaining life* of the asset. Instead, Ms. Graham uses  
21   the total current life as her amortization period. For example, on line 54 of her

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<sup>5</sup> National Association of Regulatory Utility Commissioners, *Public Depreciation Practices*, (1996).

<sup>6</sup> Drs. F.K. Wolf and W.C. Fitch, *Depreciation Systems*, Iowa State Press (1994).

1 calculation spreadsheet, an asset with a net book value of \$2,001.71 is shown. This  
2 asset has a total life of 50 years and is 28.5 years old. Ms. Graham's calculation divides  
3 the \$2,001.71 net book value by the *total life* of 50 years (my proposed life) to calculate  
4 \$40.03 in annual depreciation expense. The correct calculation is to divide the  
5 \$2,001.71 by the remaining life of 21.5 years (a 50 year total life minus the age of 28.5  
6 produced the 21.5 year remaining life). Her incorrect formula is consistently applied  
7 for all rows of her spreadsheet. To adopt her remaining life recommendation as  
8 computed in Attachment HG-3 would materially misstate Monarch's depreciation  
9 accrual.

10 **Q. WOULD YOU DISCUSS THE ISSUE IN MS. GRAHAM'S CALCULATIONS  
11 WITH OLD ASSETS?**

12 A. Yes. Staff's calculations fail to fully accrue assets whose age is greater than the current  
13 life. In other words, if an asset is older than its projected life, it should be fully accrued  
14 with zero net book value. Because Monarch stops depreciation in those instances and  
15 Ms. Graham's depreciation reserve calculation relied upon the current annual  
16 depreciation expense (which in these cases is zero) multiplied by the age of the asset,  
17 her calculation does not reflect depreciation reserve for those assets. For example, on  
18 line 35 of Attachment HG-3, there is an asset with a gross book value of \$5,919 that is  
19 46.5 years old (older than the projected life). Attachment HG-3 reflects zero  
20 depreciation reserve for this asset when it should be fully depreciated. Overall, in  
21 Attachment HG-3, Ms. Graham shows only approximately \$5,300 in accumulated  
22 depreciation for more than \$11.8 million in old plant assets. This further invalidates  
23 her calculations. Details of those assets are shown in Attachment DAW-4R.

1   **Q. HOW DOES STAFF COMPUTE ACCUMULATED DEPRECIATION FOR**  
2           **MONARCH?**

3   A.   As mentioned above, in Attachment HG-3, Ms. Graham determines a theoretical  
4        accumulated depreciation reserve as follows:

5                      Accumulated Depreciation = Age of Asset x Current Depreciation Expense

6       Contrary to the guidance given by learned treatises and the methodology used in  
7       multiple depreciation studies presented before the Commission, Ms. Graham does not  
8       true-up her theoretical depreciation reserve to reflect the actual per book accumulated  
9       depreciation on Monarch's books. In fact, the accumulated depreciation amounts vary  
10      considerably between Monarch's book numbers and Commission Staff's computation  
11      shown in Table 1 below. This creates an additional error in her calculations.

12      **Table 1—Comparison of Monarch Per Book and Commission Staff Reserve**

Asset Type	Company Per Book Depreciation <sup>7</sup> Reserve	Staff Reserve <sup>8</sup>
Water	58,161,014	49,353,400.84
Sewer	7,856,448	7,862,528.72
Shared	3,342,252	2,242,693.39
Total	69,359,714	59,458,662.95

13   **Q. HAVE YOU CORRECTED THE ERRORS AND RECALCULATED STAFF'S**  
14           **REMAINING LIFE DEPRECIATION EXPENSE COMPUTATIONS?**

---

<sup>7</sup> See Schedule II-B-3

<sup>8</sup> Graham Direct at 11:3–4.

1    A. Yes. After computing the theoretical reserve for each asset, I prorated accumulated  
2    depreciation to match the amounts shown in Schedule II-B-3. I then computed the  
3    remaining life accrual for each asset after correcting the flaws in Staff's formulas.  
4    Details of the corrections of Staff computations is shown in Attachment DAW-5R.

5    Below is a summary of the corrected calculations:

**MONARCH UTILITIES**  
**SUMMARY OF CURRENT AND RECALCULATED REMAINING LIFE DEPRECIATION**  
**EXPENSE**  
**AT DECEMBER 31, 2019**

Asset Group	Plant at 12/31/2019 (\$)	Expense at Current Rates (\$)	Expense at Remaining Life Proposed Lives (\$)	Difference (\$)
Total Water	149,873,936	3,958,068	3,251,821	(706,247)
Total Sewer	23,083,792	613,240	532,308	(80,932)
Total Shared	7,963,825	731,891	548,759	(183,131)
 Total Monarch	 180,921,553	 5,303,199	 4,332,889	 (970,310)

6    Q. PLEASE SUMMARIZE THE VARIOUS RECOMMENDATIONS FOR  
7    MONARCH'S DEPRECIATION ACCRUAL AMOUNTS.

8    A. The table below shows the various depreciation expense options.

**MONARCH DEPRECIATION EXPENSE PROPOSALS**

	Expense at Current Rates	Company Proposed <sup>9</sup>	Staff Recommended Current	Staff Next Case Recommended Remaining Life
Plant				
Water	149,873,936	3,958,068	3,491,209	3,958,068
Sewer	23,083,792	613,240	546,177	613,240
Shared	7,963,825	731,891	576,770	731,891

<sup>9</sup> Corrected Company proposed in response to Staff RFI No. 7-4 as provided in Attachment DAW-6R. Proposed expense is based on a whole life rate using proposed lives.

Total Monarch	180,921,553	5,303,199	4,614,155	5,303,199	4,332,889
---------------	-------------	-----------	-----------	-----------	-----------

1           Based on the prior ruling from the Commission and the accounting process used by  
 2           Monarch, Monarch's proposed depreciation is the most logical approach and is based  
 3           on sound depreciation methodology. I recommend the Commission adopt my proposed  
 4           rates and lives for Monarch.

5                                  **IV. SUMMARY AND CONCLUSION**

6     **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

7     A. Yes. The depreciation study and analysis performed under my supervision fully  
 8           support setting depreciation rates for Monarch at the level I have indicated in my direct  
 9           testimony. Monarch should continue to periodically review the lives assigned to its  
 10           various property types. In this way, all customers are charged for their appropriate  
 11           share of the capital expended for their benefit. The depreciation study of Monarch's  
 12           depreciable property as of December 31, 2019 describes the analysis performed and the  
 13           resulting lives that are now appropriate for its respective property. Monarch's  
 14           depreciable lives should be set at my recommended amounts to recover Monarch's total  
 15           investment in property over the estimated remaining life of the assets.

16    **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

17    A. Yes.

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**MONARCH'S RESPONSE TO  
COMMISSION STAFF'S SEVENTH RFI**

For Question Nos. Staff 7-3 and 7-5, please refer to Dane Watson's Depreciation Rate Study at Attachment DAW-2, page 11 of 349.

**Staff 7-5** Please admit that, for an asset that has already been depreciated at the original service life, using the original cost instead of the net plant balance of an asset at the time the service life is changed may result in over-recovery of the annual depreciation expense (annual accrual) and return.

**RESPONSE:** Deny. Under the item-based depreciation system used by Monarch, the net book value is computed for each period and depreciation stops when an asset is fully depreciated even if the asset is still in service. Note Appendix B of Exhibit DAW-2 contains assets that are shown with no depreciation accrual amount that are still in service.

Prepared by: Dane A. Watson, Alliance Consulting Group

Sponsored by: Dane A. Watson, Alliance Consulting Group

# Public Utility

## Depreciation Practices

August 1996



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## COMPUTING DEPRECIATION

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In utility rate making, the sinking fund (compound interest) method can be applied with either a depreciated or undepreciated rate base. The depreciation expense used with the depreciated rate base is the total accrual of the annuity plus interest. This is sometimes termed the modified sinking fund method. The depreciation expense to be used with the undepreciated rate base is the annuity only. The two results will give the same total cost of service if the interest rate and the rate of return are the same. If an interest rate less than the rate of return is used, only the modified sinking fund method avoids an overallowance for return.

Equalizing return and depreciation under the sinking fund method ignores the many other utility costs which are seldom equal from year to year. Compared to the straight-line method, the sinking fund method produces lower early accruals and higher accruals in the later years. This difference increases with an increase in interest rate. Conversely, sinking fund advocates say that the straight-line method is a sinking fund solution with an interest rate of zero. The heavy accruals due to greater interest toward the end of a property's life can produce wide differences between the accumulated accruals and the cost being recovered if retirements occur only a year or two from the estimated time. In other words, the sinking fund method requires closer accuracy in service life and net salvage estimates.

The sinking fund and related interest methods were widely adopted at the time retirement and replacement accounting were being discontinued. At that time, they caused substantial increases in depreciation expenses for many companies. The sinking fund method is rarely used today due to the advance of tax depreciation, first on a straight-line basis and now with more "liberalized" methods; problems of annuity mathematics; and difficulties of proper accruals near the end of a property's life.

### Summary

The straight-line method is almost universally used in the utility rate making process. The particular procedure used will vary depending upon the regulatory jurisdiction involved.

The accelerated methods identified above are not generally used for regulatory purposes. The Internal Revenue Service has permitted their use, and modifications of them, in computing tax depreciation, along with other specialized depreciation procedures for taxes. Interest methods, such as the sinking fund method, are no longer in general use.

### **Category Grouping Procedures**

The group plan of depreciation accounting is particularly adaptable to utility property but raises many questions concerning the makeup of the group or category selected for analysis. Rather than one single group containing all utility plant, each group should contain homogeneous units of plant that are generally alike in character, used in the same manner throughout the plant, and operated under the same general conditions. However, even within the framework of this definition, it must be realized that there will be differences in the lives of the individual units.

Consider the case of poles. Some poles will be retired because of storms or other casualties, some because of public convenience or decay, some because of the substitution of underground for aerial facilities, and many more for a combination of the several causes of retirement. There

## PUBLIC UTILITY DEPRECIATION PRACTICES

will be a wide dispersion of retirements by age. What then is the proper grouping for a study of poles? Should it be all of the poles owned by the company analyzed en masse? This has not always proven satisfactory because there was a time when it was evident that the life characteristics of untreated poles differed materially from those of treated poles. Accordingly, during the time when untreated poles were substantial in number, it was appropriate to study poles in two separate categories: untreated and treated.

Regardless of which depreciation method is used, several alternatives are available for grouping individual plant units within a depreciation category. The most commonly used grouping procedures are as follows:

1. The Single Unit. Under this procedure each unit of property is depreciated separately. Because the procedure requires separate record-keeping for each unit, it is not practical for most types of property. Thus, it is not widely used by utilities.
2. The Broad Group. Under this procedure all units of plant within a particular depreciation category, usually a plant account or subaccount, are considered to be one group. The Broad Group is widely used and produces reasonably stable depreciation rates from year to year because of its averaging effects. It is a procedure that requires at least accounting records of annual additions and balances. Retirements by vintage are desirable.
3. The Vintage Group. Under this procedure each vintage or placement year within the depreciation category is considered to be a separate group. This combines, into one group, all of the poles placed in a single calendar year, or vintage. Even within each vintage group there will be dispersions of retirements by age, due to the many causes of retirements mentioned above. This requires that each vintage group be analyzed separately to determine its average life; all vintages are composited to produce the average service life for the plant class. Then the depreciation rate may be based on this estimated average service life of the units making up the group.
4. The Equal Life Group (ELG). Under this procedure the plant units are grouped according to their service lives, with the units from each vintage expected to experience the same service life being included in the same life group. This procedure permits accruing the full cost of the shorter-lived units to the depreciation reserve while they are in service. Thus the longer-lived units bear only their own costs. This is accomplished by dividing each vintage group (plant placed in a single year) into smaller groups, each of which is limited to units that are expected to have the same life. This distribution is based on life tables developed from the recorded experience, with respect to the mortality of utility plant. While it is not possible to identify the individual units of plant that will have a given life, it is possible to estimate statistically the number of units or dollars of plant in each equal life group, provided

## COMPUTING DEPRECIATION

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mortality data were accumulated. The prediction of future retirement patterns is also necessary in application of the vintage group procedure. However, ELG is much more sensitive to these predictions. ELG may be expected to produce greater fluctuations in depreciation expense from year to year than the broad group procedure.

The Broad Group procedure does not require that an assumption be made concerning the shape of the appropriate survivor curve (see Chapter VI) in the grouping process. However, Vintage Group, as generally applied, and ELG require such a determination. ELG depends upon the survivor curve forecast to determine the subgroups. With the FCC's agreement, the ELG procedure has been widely adopted by telephone companies subject to FCC jurisdiction. Some of the state commissions, however, have disallowed its use for intrastate rate making on both practical and technical grounds. The Vintage Group and Equal Life Group procedures are discussed in more detail in Chapter XII.

### **Application Techniques**

There are two techniques commonly used to determine the depreciation rate to be applied to a utility's plant depreciation categories: Whole Life and Remaining Life.

#### Whole Life

The Whole Life technique bases the depreciation rate on the estimated average service life of the plant category. Whole life depreciation results in the allocation of a gross plant base over the total life of the investment. However, to the extent that the estimated average service life assigned turns out to be incorrect, (and precision in these estimates cannot reasonably be expected), the Whole Life technique will result in a depreciation reserve imbalance. For example, such over-accrual or under-accrual may remain in the reserve indefinitely unless offset by later overages or underages in the opposite direction. However, when a depreciation reserve excess or deficiency is reasonably certain, the Whole Life technique may be modified to include an adjustment to the accrual rate designed to eliminate the reserve imbalance in the future. For example, a special amortization of the difference may be allowed.

#### Remaining Life

The Remaining Life technique seeks to recover the undepreciated original cost less future net salvage over its remaining life. With this technique, the gross plant less book depreciation reserve is used as the depreciable cost and the remaining life or future life expectancy is used in the denominator. The formula is:

## PUBLIC UTILITY DEPRECIATION PRACTICES

$$D = \frac{B - U - C'}{E} \quad (11)$$

where D is the depreciation expense or annual accrual  
 where B is the book cost of the Gross Plant  
 where U is the book depreciation reserve at start of the year  
 where C' is the Estimated Future Net Salvage in dollars  
 where E is the Estimated Average Remaining Life

The following formula is used to arrive at the depreciation rate in percent:

$$\text{depreciation rate } d = \frac{D}{B} \times 100 \quad (12)$$

This rate may also be derived by dealing entirely in percentages as follows:

$$\text{depreciation rate } d = \frac{100 - u - c'}{E} \quad (13)$$

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$$\text{where, in percent reserve, } u = \frac{U}{B} \times 100 \quad (14)$$

$$\text{where, in percent future net salvage, } c' = \frac{C'}{B} \quad (15)$$

A review of the depreciation reserve is appropriate at the commencement of use of the remaining life technique to ensure consistency with prior accounting and regulatory policies. The desirability of using the remaining life technique is that any necessary adjustments of depreciation reserves, because of changes to the estimates of life or net salvage, are accrued automatically over the remaining life of the property. Once commenced, adjustments to the depreciation reserve, outside of those inherent in the remaining life rate would require regulatory approval.

### The Depreciation Model

The foregoing sections of this chapter discussed several depreciation Methods (e.g., Unit of Production, Straight-Line, Declining Balance), Procedures (e.g., Broad Group, Vintage Group, Equal Life Group) and Techniques (Whole Life and Remaining Life). A complete "depreciation model" is composed of a Method, a Procedure and a Technique, e.g., Straight-Line, Vintage Group, and the Remaining Life techniques. Subsequent chapters will also utilize this terminology.

# Depreciation Systems

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# Depreciation Systems

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**W. Chester Fitch, Ph.D., P.E.**, is dean of engineering, emeritus, Western Michigan University. He is retired after more than 40 years of conducting depreciation studies and educating and training depreciation staff. He founded a series of programs providing specialized training in depreciation in 1969 and is currently president of Depreciation Programs, Inc.

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equal to the area under the survivor curve and may be written (area under the survivor curve)/AL = original cost, or by rearranging this equation, AL = (the area under the survivor curve)/(original cost). The average life has been shown to equal the area under the survivor curve divided by the original cost (true whether the survivor curve is measured in dollars or units), so the original equality is true. We can conclude that this system will fully recover the initial investment regardless of the shape of the survivor curve.

This equation also shows that if the AL used in the accrual rate is not equal to the actual average life, the sum of the accruals will not equal the original cost. Suppose that the actual life was 8 years, but a life of 6 years was forecast and used in the depreciation rate. The total accruals would equal 8/6 or 133% of the original cost, and the accumulated provision for depreciation would show an overaccrual equal to 133% - 100% or 33% of the original cost at the time of the final retirement. Similarly, a forecast of a life of 10 years would result in total accruals of 8/10 or 80% of the original cost. At the time of the final retirement the accumulated provision for depreciation would show an underaccrual equal to 100% - 80% or 20% of the original cost.

Consider a property group having the survivor curve shown in Figure 5.1. This curve could result from the grouping of two units, one with a cost of \$4000 and a 4-year life and the second with a cost of \$6000 and an 8-year life. The average life (AL) is the area under the survivor curve divided by the original cost or the  $AL = [(4000 \times 4) + (6000 \times 8)]/10000$  or 6.4 years. The straight line, average life annual accrual rate is  $1/6.4$  or 15.625%.

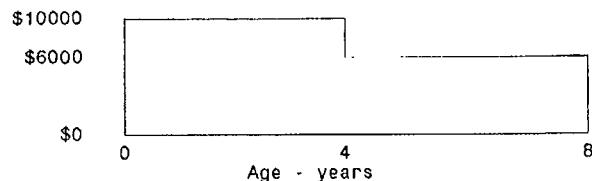


Figure 5.1. A survivor curve with an average life of 6.4 years.

**NOTE:** To simplify calculations in this section, age intervals will be 0-1, 1-2, 2-3, etc., installations will be assumed to occur at the start of the age interval, and retirements will be assumed to occur at the end of the age interval. The average plant in service during the age interval will then equal the balance at the start of the interval, so that applying the annual accrual rate to the plant in

service at the start of the interval is equivalent to applying it to the average balance. In all tables in this section, the balance, accumulated provision for depreciation, and calculated accumulated depreciation are calculated at the beginning of the year. Note that the accumulated provision for depreciation is zero at the beginning of the initial year. Examples using the half-year convention will be shown later.

Table 5.5 (see end of chapter) shows the annual accruals and accumulated provision for depreciation that result from the SL-AL system. Column (b) shows beginning of year balances of \$10,000 for the four years 1974 to 1977, and balances of \$6000 for the next four years, 1978 to 1981. This follows the survivor curve shown in Figure 5.1. Column (c) shows a \$4000 retirement at the end of 1977 and a \$6000 retirement at the end of 1981. The annual accrual, column (e), is the product of the rate, column (d), and the plant balance at the start of the year, column (b). As described in the preceding note, retirements are assumed to take place at the end of the year, so that the plant balance at the start of the year is also the average balance during the year. The accumulated provision for depreciation, column (f), is zero at the start of the first year and is then increased by the annual accruals and reduced by the annual retirements. At the time of the final retirement, the accumulated provision for depreciation is zero, showing that the sum of the annual accruals and the annual retirements equals zero and that the property is fully depreciated.

Suppose that at the time of the initial installation of the property, the estimate of the average life was 7.4 years. If the rate  $1/7.4$  is used throughout the life of the property but the actual life is 6.4 years, then only  $(6.4/7.4)(\$10000)$  or \$8649 will be depreciated and  $\$10000 - \$8649$  or \$1351 of invested capital will not be recovered. This is verified by the calculations shown in Table 5.6 (see end of chapter).

#### An Adjustment Problem—AL Procedure

Now suppose that in January 1977, because of events and activities occurring since 1974, the original forecast of 7.4 years average life is revised to 6.4 years. Table 5.7 (see end of chapter) shows the accumulated provision for depreciation at the start of 1977 is \$4054. Unless some corrective action is taken, the annual accruals will not equal the \$10,000 original cost, and at the time of the final retirement a total of \$1351 will remain unrecovered. The SL-AL system of calculating the annual accruals must be augmented to include a method of adjustment to define a depreciation system that will adapt to the almost certain circumstance that forecasts are revised from time to time.

When there is a revision of the original forecast of service life, it

becomes necessary to consider a method of augmenting the SL-AL system of calculating annual accruals. Either of two methods of adjustment, the amortization method (AM) or the remaining life method (RL), can be added to the system of calculating annual accruals to construct a depreciation system with a closed feedback loop.

#### **Amortization Method of Adjustment (SL-AL-AM)**

Use of the amortization method of adjustment does not result in the prescription of an adjustment, but places the responsibility of recommending the magnitude and timing of the adjustment in the hands of the depreciation professional. Control focuses on the calculated accumulated depreciation (CAD). The CAD is normally a reasonable and valid estimate of an adequate level of the accumulated provision for depreciation. The depreciation professional will examine the variation between the CAD and the accumulated provision for depreciation to determine if adjustments to the annual accrual are necessary.

**DEVELOPMENT OF THE CALCULATED ACCUMULATED DEPRECIATION.** Two approaches can be used to develop the calculated accumulated depreciation. One, a retrospective approach, is to reconstruct the past accruals and retirements to determine what the accumulated provision for depreciation would have been given the current estimate of the life characteristics. The other, a prospective approach, is to estimate the sum of the future additions to and subtractions from the accumulated provision for depreciation. The sum of these additions and subtractions also is an estimate of the accumulated provision for depreciation that would be desirable to have on the books.

The retrospective approach appears to be straightforward. In fact, Table 5.5 shows that if property had the service life characteristics shown in Figure 5.1, the accumulated provision for depreciation at the start of the fourth year would be \$4688. Comparison of this figure to the accumulated provision for depreciation of \$4054 shown in Table 5.7 shows that an adjustment of \$634 is necessary. In practice, however, the retrospective approach has a major shortcoming. The history of the account may go back many years and include accounting transactions, such as transfers, sales, acquisitions, and adjustments, which have been recorded in the accumulated provision for depreciation account. Use of the retrospective approach requires complete knowledge of these transactions as they must be considered for inclusion in the construction of the CAD. Because of the difficulties likely to be encountered in reconstructing the accumulated provision for depreciation, the retrospective approach is usually discarded in favor of the prospective approach.

The prospective approach to the CAD is based on estimates of the

future accruals and retirements. Estimates of future accruals and retirements can be made if the survivor characteristics of the property have been estimated. The following relationship states that the calculated accumulated depreciation plus all future accruals, less all future retirements, equals zero. If this relationship holds, the cost of the property will be fully allocated at the time of the final retirement.

$$\text{CAD}(i) + \text{future accruals} - \text{future retirements} = 0$$

or

$$\text{CAD}(i) = \text{future retirements} - \text{future accruals}$$

The future retirements equal the current balance of the plant in service, because all property currently in service must eventually be retired. The future accruals is the sum of the annual future accruals when the SL-AL system of calculating the annual accruals is used. Thus,  $\text{CAD}(i) = \text{current balance} - \sum (\text{average balance during year } j)(1/\text{AL}) = \text{current balance} - (1/\text{AL})\sum (\text{average balance during year } j)$  summed for  $j$  from year  $i$  to year of final retirement, where  $\text{CAD}(i) = \text{calculated accumulated depreciation at the start of year } i$ .

The average balance during each year is determined by the survivor curve used to describe the life characteristics of the vintage. The sum of the average balances during the year, starting with the current year and continuing through all years until the year of the final retirement, is equal to the area under the survivor curve and to the right of the current age. This area represents the remaining service and is measured, in this case, in dollar-years. The remaining service divided by the plant in service is defined as the average remaining life (also called the expectancy). Dividing both sides of the equation above by the current balance yields the following definition and equation for the calculated accumulated depreciation ratio, which will be abbreviated as CADR<sup>2</sup>:

$$\text{CAD}(i)/\text{current balance} = \text{current balance}/\text{current balance} - (\text{area under the survivor curve}/\text{current balance})/\text{AL}$$

$$\text{CAD}(i)/\text{current balance} = \text{CADR}(i) = 1 - \text{RL}(i)/\text{AL}, \text{ where CADR}(i) = \text{calculated accumulated depreciation ratio at age } i \text{ and RL}(i) = \text{remaining life at age } i$$

Tables of the Iowa survivor curves contain values of the calculated accumulated depreciation ratios.

Table 5.8 (see end of chapter) shows the calculation of the RL, the

CADR, and the CAD for the survivor curve shown in Figure 5.1. The 64,000 dollar-years of remaining service at age zero, column (d), is equal to the sum of the annual balances shown in column (c) and also equal to the area under the survivor curve. (Remember that the width of each interval is one year, so that the balance at the start of the year multiplied by the width of the interval, one year, is the area under the survivor curve attributable to that year.) The amount in column (d) represents the remaining service contained in the existing plant. Each year the amount in column (d) is reduced by the average plant balance during that year times the one-year period (i.e., the service provided during the year) to calculate the service, measured in dollar-years, remaining at the beginning of the next year. The remaining life, column (e), is the remaining service divided by the balance or column (d)/column (c). The CADR, column (f), is 1 – remaining life/average life. The CAD, column (g), equals the CADR multiplied by the plant in service. This calculation shows that the CADR is sensitive to both the average life and the shape of the survivor curve.

**AN AMORTIZATION SOLUTION TO THE AL ADJUSTMENT PROBLEM.** Now return to the problem raised in the scenario shown in Table 5.7. Table 5.8 shows that if the estimate of a 6.4-year average life is accurate, the current value of the accumulated provision for depreciation would be \$4688 rather than the recorded \$4054, and this results in an apparent deficit of \$634. If the depreciation professional believes this variation is significant, then an adjustment to the accumulated provision for depreciation should be made.

The adjustment to the accumulated provision for depreciation can be made in several ways, ranging from a lump sum adjustment of \$634 to amortizing the \$634 over a period less than the remaining life, equal the remaining life, or longer than the remaining life. For example, suppose it is decided to amortize the \$634 over two years; then the accumulated provision for depreciation would be credited an additional \$317 in 1978 and 1979. In addition, the annual rate would be changed to 1/6.4 to reflect the revised forecast. Table 5.9 (see end of chapter) shows that these adjustments will result in a recovery of the \$10,000 initial investment as reflected by the final zero balance of the accumulated provision for depreciation.

The CAD is not a precise measurement. It is based on a model that only approximates the complex chain of events that occur in an actual property group and depends upon forecasts of future life and salvage. Thus, it serves as a guide to, not a prescription for, adjustments to the accumulated provision for depreciation.

#### ***Remaining Life Method of Adjustment (SL-AL-RL)***

In 1953 the California Public Utilities Commission issued *Determina-*

*tion of Straight-line Remaining Life Depreciation Accruals*, also called *Standard Practice U-4*. This document, which was revised in 1961, presents the steps required in determining the annual accrual when using the straight line method of allocation, the average life procedure, and the remaining life method of adjustment.

Though the term *remaining life* is often thought of as a basis for calculating the annual accrual, it is more appropriately considered a method of adjustment used with a system of calculating annual accruals. As discussed in the preceding paragraphs, a revision of the forecast of average life may lead to an adjustment to the accumulated provision for depreciation. When the remaining life method of adjustment is used, the variation between the CAD and the accumulated provision for depreciation is amortized over the remaining life of the plant in service. This adjustment is automatic in the sense that it is built into the remaining life calculations.

Table 5.5 shows the calculation of annual accruals using the SL-AL system applied to property described by the survivor curve of Figure 5.1. Remember that the annual accrual is the average balance during the year times the straight line rate 1/AL. Use of the remaining life method of adjustment requires different calculations even though the same annual accruals will result. Before calculating the accruals, the remaining life rates for the survivor curve used to estimate the life characteristics must be determined, and these calculations are shown in Table 5.10 (see end of chapter).

The remaining life calculations can be viewed in two ways. One is that the rate 1/RL is applied to the future accrual, which is the current plant in service less the accumulated provision for depreciation. The future accrual (i.e., the amount remaining to be accrued) is allocated over the remaining life of the vintage group using the straight line method. The procedure used to apply the straight line method assumes each unit in service has a remaining life equal to the average remaining life. Thus the AL procedure is used. Table 5.11 (see end of chapter) shows the remaining life calculations using the survivor curve in Figure 5.1. Column (d), the future accruals, is the balance less the accumulated provision for depreciation, column (b) – column (g). The remaining life rates, taken from Table 5.10, are shown in column (e). The annual accruals, the product of columns (d) and column (e), are in column (f). Note that the annual accruals resulting from the remaining life calculations are identical with those obtained by applying the rate 1/AL to the average plant in service and shown in Table 5.5.

A second way of viewing the remaining life calculation is to consider the annual accrual as the SL-AL accrual plus an adjustment to reduce the variation between the CAD and the accumulated provision for depreciation. The following calculations show that the amortization method, SL-AL-AM, and the remaining life method, SL-AL-RL, yield identical annual accruals when the variation between the CAD and the accumulated provi-

sion for depreciation is either (a) zero or (b) amortized over the remaining life.<sup>3</sup>

Let: <sup>4</sup>	B	= plant balance
	AL	= average life
	RL	= remaining life
	APD	= the accumulated provision for depreciation
	APDR	= the ratio APD/B
	CAD	= the calculated accumulated depreciation
	CADR	= the ratio CAD/B
	AARL	= the annual accrual using the RL method of adjustment
	AAAM	= the annual accrual using the AM method of adjustment

The annual accrual will be calculated for both methods of adjustment, and the two annual accruals will then be compared. First, the annual accrual using the remaining life method of adjustment (the AARL) is the total amount remaining to be depreciated (i.e., the future accrual) divided by the remaining life or  $AARL = (B - APD)/RL = B[(1 - APDR)/RL]$ .

Next, the annual accrual using the amortization method of adjustment (the AAAM) will be written as the sum of the straight line, average life accrual plus the annual adjustment of the variation between the CAD and the accumulated provision for depreciation. The following calculations assume the variation is amortized over the remaining life and make use of the fact that the CADR =  $1 - RL/AL$ .

$$\begin{aligned}
 AAAM &= \text{annual accrual} + \text{adjustment} \\
 &= \text{annual accrual} + \text{variation}/\text{remaining life} \\
 &= B/AL + (CAD - APD)/RL \\
 &= B/AL + [B(CADR) - B(APDR)]/RL \\
 &= B[1/AL + CADR/RL - APDR/RL] \\
 &= B[1/AL + (1 - RL/AL)/RL - APDR/RL] \\
 &= B[1/AL + 1/RL - 1/AL - APDR/RL] \\
 AAAM &= B[(1 - APDR)/RL]
 \end{aligned}$$

but this is the same as the annual accrual using the RL method of adjustment so  $AARL = B[(1 - APDR)/RL] = AAAM$ .

If the variation is zero, then the accumulated provision for depreciation (APDR) equals the CAD. Because the CAD equals  $1 - RL/AL$ , the annual accruals using the remaining life method of adjustment can be written

$$\begin{aligned}
 AARL &= B[(1 - APDR)/RL] \\
 &= B[(1 - CADR)/RL]
 \end{aligned}$$

$$\begin{aligned}
 &= B[(1 - 1 + RL/AL)/RL] \\
 &= B[1/AL] \\
 &= AAAM
 \end{aligned}$$

Thus, when the variation is zero, the remaining life accrual can be expressed as the balance divided by the AL.

**EFFECTS OF USING AN IMPROPER REMAINING LIFE.** Calculation of the remaining life requires knowledge of the survivor curve; survivor curves with the same average life but different shapes will have different remaining lives. This raises the question of the result of applying the remaining life method of adjustment when the average life is correct but the shape of the survivor curve used to calculate the remaining lives differs from the actual retirement pattern. To examine this question, suppose the survivor curve shown in Table 5.12 (see end of chapter) is used to estimate the life characteristics of the property to be depreciated. Though the average life of this curve is 6.4 years, the same as the survivor curve shown in Figure 5.1, its retirement pattern is significantly different from the pattern shown in Figure 5.1.

Note that, as shown during 1981 in Table 5.12, calculation of the remaining life can be puzzling. Confusion arises because the final retirement takes place not at the end of the year, but 1/3 of the way through the year. At the start of the year, the remaining life is 2000/6000 or 1/3 year. However, a remaining life of 1 is needed to obtain a final rate of 100%. An explanation is the choice of one-year intervals to calculate accruals. Suppose that accruals were calculated every 1/3 year, so that a unit of time is 1/3 year rather than 1 year. The average life would then be  $6.4 \times 3$  or 19.2 units (i.e., 19.2 one-third years). These calculations would show the sum of the three 1/3-year accruals equal the annual accruals shown in Table 5.12. However, at the start of 1981, the remaining life is 1 unit, and the corresponding rate is 100%.

Table 5.13 (see end of chapter) shows the result of applying the accrual rates from Table 5.12 to property whose survivor curve is described in Figure 5.1. That is, we will use the correct average life but the incorrect remaining lives. Though the total accruals equal the \$10,000 original cost, the annual accruals are not identical with those of Table 5.11. In this example, the maximum life of the survivor curve used to calculate the remaining life rates (7.33 years) is less than the maximum life of the property (8 years), so the final, 100% accrual rate of Table 5.12 assures the accruals will total \$10,000.

Now suppose that the survivor curve used to describe the life characteristics of the property being depreciated still has an average life of 6.4 years but the maximum life is greater than 8 years, as shown in Table 5.14

(see end of chapter). When the accrual rates shown in Table 5.14 are applied to property whose life characteristics are shown in Figure 5.1, an under-accrual of \$1875 results, because the final retirement was forecast to occur in 1983 but actually occurred in 1981. This emphasizes the fact that when using the remaining life method of adjustment, estimates of the shape of the survivor curve may need to be revised, even though estimates of the average life are unchanged. See Table 5.15 at the end of this chapter.

How does the remaining life adjustment behave when life estimates are revised? Again, the scenario shown in Table 5.7 can be used to observe the results of applying the remaining life method of adjustment. Let the initial forecast of service life be the survivor curve shown in Table 5.16 (see end of chapter); it has an average life of 7.4 years, the same life used to generate the accrual rate shown in Table 5.6.

The remaining life rates of Table 5.16 are used to calculate annual accruals and the accumulated provision for depreciation shown in Table 5.17 (see end of chapter). Because the actual average life is 6.4 years but the forecast life is 7.4 years, the total accruals are \$1351 less than the required \$10,000.

**A REMAINING LIFE SOLUTION TO THE AL ADJUSTMENT PROBLEM.** Table 5.7 presented a scenario where accrual rates based on a forecast life of 7.4 years were used for the years 1974, 1975, and 1976. Then in January 1977, the forecast was revised to an average life of 6.4 years. From our discussion of the amortization method of adjustment, we know that in 1977 the accumulated provision for depreciation is \$634 less than it would be had the revised forecast been used during 1974, 1975, and 1976. Unless some adjustment is made, that difference will grow to \$1351.

The remaining life method of adjustment shown in Table 5.18 (see end of chapter) will amortize the \$634 in the following manner. At the start of 1977 the remaining life is 3.4 years, so the adjustment during that year is \$634/3.4 or \$186. This amount is the difference between the \$1749 accrual shown in Table 5.18 and the \$1563 accrual (i.e., the average life accrual \$10000/6.4) shown in Table 5.5. It reduces the adjustment to \$643 - \$186 or \$448 at the start of 1978. Then the remaining life is 4 years, so the adjustment during 1978 is \$448/4 or \$112, which is again the difference between the accrals for 1978 as shown in Tables 5.17 and 5.5. In this manner the adjustments for 1979, 1980, and 1981 can be shown to be \$112, \$112, and \$112. Thus, the \$1634 variation is amortized over the remaining life. The adjustments are "automatic"; that is, they result automatically when the remaining life calculations are used to determine the annual accruals.

### Summary

When comparing the amortization and remaining life methods of adjustment, remember that the magnitude and timing of the annual accruals depend upon the method of allocation and the procedure for applying the method of allocation. The difference between the two methods of adjustment only becomes apparent when the forecast is revised. The remaining life method amortizes the variation between the CAD and the accumulated provision for depreciation over the remaining life and the adjustment is included in the annual accrual. The amortization method allows the variation to be amortized over any period, but requires that the annual amount to be amortized be calculated separately and then added to the calculated accrual. If the depreciation professional chooses to amortize the variation over the remaining life, the two methods result in equal annual accruals.

Neither method of adjustment will properly recover the depreciable base unless accurate forecasts are made. It could be argued that the remaining life method requires only an estimate of the remaining life, while the amortization method requires an estimate of the average life. Remember that at age zero the remaining life is also the average life, and that at any time, the average life can be partitioned into the realized life and the remaining life. The realized life can be obtained from historical records while the remaining life must be forecast. From that point of view, there is no difference between the difficulty of forecasting the remaining life and the average life, because the average life depends on the realized life (which is known) and the remaining life (which must be forecast).

Both methods of adjustment require a forecast of the survivor curve describing the property. The amortization method requires only the average life when calculating the annual accruals, but requires the shape of the survivor curve to calculate the CAD. The remaining life method requires the average life and the shape of the curve to calculate the remaining life and the annual accruals.

### The Equal Life Group Procedure Applied to a Vintage Group

The next system of calculating the annual accrual uses the straight line method of allocation and applies the equal life group procedure to a vintage group (SL-ELG). Both the AM and RL methods of adjustment are combined with the ELG procedure.

#### History of the Equal Life Group Procedure

Allocation using the equal life group procedure was discussed as early as March, 1928, during an ICC hearing (*Telephone Engineer and Management*, 1967, p. 55). Robley Winfrey studied it during the 1930s and in 1942





















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Asset No.	Type	Asset Class	Asset Description	Original Yr	Current Mfr	Proposed Uf	Mfr	Age	Remaining Life Current Uf	Current Exp	Proposed Expense	Allocated Depreciation - Age Approved Uf	Net Value - Plus accumulated Deprec from Current Asset	Allocated Depreciation for Assets with Proposed Uf	Change in Net difference (Deprec Mfr Current Uf)	Service life decreased/decreased depreciation expense change
6119	Water	311	Buster Pump in Shop 2497&W	1998	10	10	\$1,631.00	21.50	11.50	0.00	0.00	\$0.00	\$1,593.00	\$119.30	0	\$0.00
6120	Water	311	Buster pump in 1151 gen 7.5 hp	1998	15	10	\$1,197.00	21.50	6.50	0.00	0.00	\$0.00	\$1,170.00	\$106.51	15	\$0.00
6121	Water	311	Buster Pump No 1.75hp	1998	15	10	\$1,197.00	21.50	6.50	0.00	0.00	\$0.00	\$1,170.00	\$119.70	5	\$0.00
6122	Water	311	Buster Pump No 2.75hp	1998	15	10	\$1,197.00	21.50	4.50	0.00	0.00	\$0.00	\$1,170.00	\$119.70	5	\$0.00
6123	Water	311	Transfer pump No 1.75kW 7.5hp	1998	15	10	\$1,197.00	21.50	6.50	0.00	0.00	\$0.00	\$1,170.00	\$119.70	5	\$0.00
6124	Water	311	Buster pump No 3.0kW/25	1998	15	10	\$0,481.00	21.50	6.50	0.00	0.00	\$0.00	\$0,453.00	\$187.70	15	\$0.00
6125	Water	311	WetPump 3.5hp	1998	15	10	\$1,631.00	21.50	6.50	0.00	0.00	\$0.00	\$1,593.00	\$182.70	15	\$0.00
6126	Water	311	Buster pump in 3.0kW/15	1998	15	10	\$1,631.00	21.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$111.10	5	\$0.00
6127	Water	311	Wet Pump 3.0hp 5hp	1998	15	10	\$1,631.00	21.50	6.50	0.00	0.00	\$0.00	\$1,593.00	\$149.20	5	\$0.00
6128	Water	311	WetPump 3.5/2hp	1998	15	10	\$1,208.00	21.50	6.50	0.00	0.00	\$0.00	\$1,170.00	\$109.80	5	\$0.00
6129	Water	311	WetPump 15hp 75hp	1998	15	10	\$2,640.00	21.50	6.50	0.00	0.00	\$0.00	\$2,599.00	\$89.67	15	\$0.00
6130	Water	311	WetPumps vs Shop Kit Control	1998	20		\$1,674.00	20.50	-0.50	0.00	0.00	\$0.00	\$1,646.00	\$63.60	10	\$0.00
6141	Water	311	Buster Pump in Shop 3.0kW/15	1998	10	10	\$1,631.00	20.50	10.00	0.00	0.00	\$0.00	\$1,593.00	\$154.70	0	\$0.00
6142	Water	311	Buster pump in 3.0kW/15hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$187.40	5	\$0.00
6143	Water	311	WetPump vs Shop 15kW 15hp stage	1998	10	10	\$2,654.00	20.50	10.50	0.00	0.00	\$0.00	\$2,614.00	\$185.49	0	\$0.00
6144	Water	311	Buster pump in 3.0kW/15hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$140.70	5	\$0.00
6145	Water	311	Buster pump in 3.0kW/15hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$140.70	5	\$0.00
6146	Water	311	Buster pump in 3.0kW/15hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	10	\$0.00
6147	Water	311	WetPump 3.5hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$128.30	5	\$0.00
6148	Water	311	WetPump 2.5kW 45hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$126.07	5	\$0.00
6149	Water	311	Chemical pump 3/4HP 1/2in	2000	5	10	\$79.00	19.50	14.50	0.00	0.00	\$0.00	\$79.00	\$29.50	5	\$0.00
6151	Water	311	PERFECT PUMP 3/25 PFT 15 HP 3M	2000	11	10	\$1,198.00	19.50	4.50	0.00	0.00	\$0.00	\$1,158.00	\$43.62	15	\$0.00
6152	Water	311	Buster pump in 2.75hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6153	Water	311	Buster pump in 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6154	Water	311	Buster pump in 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$66.67	5	\$0.00
6155	Water	311	WetPump 2.0kW 45hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$137.42	5	\$0.00
6156	Water	311	WetPump 2.5kW 45hp	1998	15	10	\$1,631.00	20.50	5.50	0.00	0.00	\$0.00	\$1,593.00	\$126.07	5	\$0.00
6157	Water	311	Buster pump in 3.0kW	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6158	Water	311	Transfer pump No 4.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6159	Water	311	Buster pump in 2.0kW	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$116.67	15	\$0.00
6160	Water	311	Buster pump in 1.75kW	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$123.83	15	\$0.00
6161	Water	311	Buster pump in 1.0kW/15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$150.00	15	\$0.00
6162	Water	311	Buster Pump 7.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6163	Water	311	Buster pump in 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6164	Water	311	Buster pump in 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$66.67	5	\$0.00
6165	Water	311	Buster pump in 3.0kW/5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	15	\$0.00
6166	Water	311	Buster pump in 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6167	Water	311	Transfer pump No 2.0kW/3.5hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6168	Water	311	WET PUMP 3.0kW/15HP	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$113.94	5	\$0.00
6169	Water	311	Buster Pump 2.0kW/30hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$140.00	15	\$0.00
6170	Water	311	Buster pump in 2.0kW/30hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$170.00	5	\$0.00
6171	Water	311	Buster pump in 2.0kW/30hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$170.00	5	\$0.00
6172	Water	311	Buster pump in 2.0kW/30hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	15	\$0.00
6173	Water	311	Buster pump in 3.0kW/25	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$200.00	15	\$0.00
6174	Water	311	HOLLOW WASTE WELL INC SERV CALL STICK KIT PFT 25HP	2000	15	10	\$4,609.95	19.50	4.50	0.00	0.00	\$0.00	\$4,569.95	\$101.00	5	\$0.00
6175	Water	311	Kerckhoff 25hp	2000	15	10	\$4,609.95	19.50	4.50	0.00	0.00	\$0.00	\$4,569.95	\$150.00	15	\$0.00
6176	Water	311	Buster pump in 2.0kW	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6177	Water	311	Buster pump in 3.0kW/10hp 2000	2000	15	10	\$4,500.00	19.50	4.50	0.00	0.00	\$0.00	\$4,450.00	\$150.00	5	\$0.00
6178	Water	311	Buster pump in 3.0kW/15hp	2000	15	10	\$4,500.00	19.50	4.50	0.00	0.00	\$0.00	\$4,450.00	\$150.00	5	\$0.00
6179	Water	311	Spiral Pump 80hp	2000	15	10	\$1,000.00	19.50	4.50	0.00	0.00	\$0.00	\$1,000.00	\$233.33	15	\$0.00
6180	Water	311	WetPump 2.5HP	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6181	Water	311	WetPump 40hp 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6182	Water	311	WetPump 7.5 to 70HP	2000	15	10	\$9,000.00	19.50	4.50	0.00	0.00	\$0.00	\$9,000.00	\$100.00	15	\$0.00
6183	Water	311	WetPump 15HP	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6184	Water	311	WetPump 15hp 25hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6185	Water	311	Repair WetPump	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$179.47	15	\$0.00
6187	Water	311	WetPump 40hp 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,593.00	\$100.00	5	\$0.00
6188	Water	311	WetPump 100hp 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$100.00	15	\$0.00
6189	Water	311	WetPump 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$100.00	15	\$0.00
6190	Water	311	WetPump 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$100.00	15	\$0.00
6191	Water	311	WetPump 15hp	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$100.00	15	\$0.00
6192	Water	311	J GARDNER INSTALLATION OF PUMPS & SUPPLY SWITCH	2000	15	10	\$1,631.00	19.50	4.50	0.00	0.00	\$0.00	\$1,631.00	\$100.00	15	\$0.00

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Asset ID	Type	Asset Class	Asset Description	Weighted	Current Qty	Proposed Qty	Phase	Age	Remaining Life Current	Capacity	Proposed Capacity	Accrued Depreciation Ag*Proposed	Accrued Depreciation Ag*Current	Net Plus A/P Accumulated Depreciation from Current Finance	Accrued Interest on Proposed Dues Using Current Finance	Change in Net Plus A/P Accumulated Depreciation from Current Finance	Interest on Accrued Interest on Proposed Dues Using Current Finance
6304	Water	311	WEIR PUMP 200 GPM 30 HP	200	15	10	\$17,250.00	15.50	4.50	0.00	0.00	\$0.00	\$17,250.00	\$375.00	15	\$0.00	
4395	Water	311	WEIR PUMP 120 HP	200	15	10	\$17,200.00	15.50	4.50	0.00	0.00	\$0.00	\$17,200.00	\$370.00	15	\$0.00	
6306	Water	311	WEIR PUMP 210 HP	200	15	10	\$18,000.00	15.50	4.50	0.00	0.00	\$0.00	\$18,000.00	\$370.00	15	\$0.00	
6307	Water	311	WEIR PUMP 240 HP	200	15	10	\$18,600.00	15.50	4.50	0.00	0.00	\$0.00	\$18,600.00	\$373.33	15	\$0.00	
6308	Water	311	REEDER INLET SELVE STARVOS AND MACHINE WORK	2001	15	10	\$95.07	15.50	3.50	0.00	0.00	\$0.00	\$96.07	\$10.11	5	\$0.00	
6309	Water	311	22 GPM 100 HP PUMP	2001	15	10	\$125.15	15.50	3.50	0.00	0.00	\$0.00	\$125.15	\$32.56	5	\$0.00	
6400	Water	311	PUMP FUEL 6000 GPM 3 DAY	2001	15	10	\$450.00	15.50	1.50	0.00	0.00	\$0.00	\$450.00	\$45.00	5	\$0.00	
6401	Water	311	BOOSTER PUMPS SHP OR LESS	2001	15	10	\$102.75	15.50	1.50	0.00	0.00	\$0.00	\$102.75	\$14.28	5	\$0.00	
6402	Water	311	PERIODIC PUMP MOTION	2001	15	10	\$564.84	15.50	1.50	0.00	0.00	\$0.00	\$564.84	\$56.18	5	\$0.00	
6403	Water	311	BOOSTER PUMPS SHP OR LESS	2001	15	10	\$1,038.05	15.50	1.50	0.00	0.00	\$0.00	\$1,038.05	\$101.81	5	\$0.00	
6404	Water	311	Pump 43 SPLS/T 12HP	2001	15	10	\$1,271.02	15.50	1.50	0.00	0.00	\$0.00	\$1,271.02	\$137.10	5	\$0.00	
6405	Water	311	INERTIAL PUMPS STAL AND GASES AND FRACSTERS	2001	15	10	\$1,854.43	15.50	1.50	0.00	0.00	\$0.00	\$1,854.43	\$196.44	5	\$0.00	
6406	Water	311	COMPRESSOR 1200 CFM 5000 FT	2001	15	10	\$1,423.22	15.50	1.50	0.00	0.00	\$0.00	\$1,423.22	\$142.52	5	\$0.00	
6407	Water	311	81437P165 127-18P CHECK VALVE	2001	15	15	\$1,581.59	15.50	1.50	0.00	0.00	\$0.00	\$1,581.59	\$105.55	0	\$0.00	
6408	Water	311	SAT OF 12 BLACK PVC HN	2001	15	30	\$2,818.55	15.50	1.50	0.00	0.00	\$0.00	\$2,818.55	\$87.99	15	\$0.00	
6409	Water	311	35' PVC HOSE 4" DIAMETER AND 50' PVC HOSE 4" DIAMETER	2001	15	10	\$1,809.00	15.50	1.50	0.00	0.00	\$0.00	\$1,809.00	\$116.37	15	\$0.00	
6410	Water	311	WESTINGHOUSE 1000W SHP	2001	15	10	\$1,834.89	15.50	1.50	0.00	0.00	\$0.00	\$1,834.89	\$201.90	15	\$0.00	
6411	Water	311	GRUNDIG 1000W/1400W MOTOR	2001	15	10	\$1,551.75	15.50	1.50	0.00	0.00	\$0.00	\$1,551.75	\$75.19	15	\$0.00	
6412	Water	311	WEIR PUMPS ABOVE 5 HP	2001	15	10	\$1,209.46	15.50	1.50	0.00	0.00	\$0.00	\$1,209.46	\$70.95	0	\$0.00	
6413	Water	311	3 PHASE 240V 1.5 HP 2-PHASE CARB VIB	2001	15	10	\$1,702.75	15.50	1.50	0.00	0.00	\$0.00	\$1,702.75	\$172.28	5	\$0.00	
6415	Water	311	WELL PUMPS ABOVE 5 HP	2001	15	10	\$17,600.00	15.50	1.50	0.00	0.00	\$0.00	\$17,600.00	\$170.27	15	\$0.00	
6416	Water	311	Electrical Pump Inverters and Control Panels	2001	15	10	\$2,144.28	15.50	1.50	0.00	0.00	\$0.00	\$2,144.28	\$224.62	0	\$0.00	
6421	Water	311 WELL PUMPS ABOVE 5 HP	2002	15	10	\$1,825.74	15.50	1.50	0.00	0.00	\$0.00	\$1,825.74	\$152.57	5	\$0.00		
6423	Water	311 BOOSTER PUMPS SHP V/S 5 HP Berkley C	2002	15	10	\$1,841.57	15.50	1.50	0.00	0.00	\$0.00	\$1,841.57	\$164.36	0	\$0.00		
6429	Water	311 WELL PUMPS ABOVE 5 HP	2002	15	10	\$1,950.00	15.50	2.50	0.00	0.00	\$0.00	\$1,950.00	\$95.33	15	\$0.00		
6430	Water	311 WELL PUMPS SHP OR LESS	2002	15	10	\$1,679.75	15.50	2.50	0.00	0.00	\$0.00	\$1,679.75	\$208.98	5	\$0.00		
6431	Water	311 WELL PUMPS SHP OR LESS	2002	15	10	\$1,214.32	15.50	2.50	0.00	0.00	\$0.00	\$1,214.32	\$213.43	5	\$0.00		
6432	Water	311 BOOSTER PUMPS ABOVE 5 HP	2002	15	10	\$1,742.70	15.50	2.50	0.00	0.00	\$0.00	\$1,742.70	\$174.76	15	\$0.00		
6434	Water	311 WELL PUMPS SHP OR LESS	2002	15	10	\$1,734.30	15.50	2.50	0.00	0.00	\$0.00	\$1,734.30	\$175.42	5	\$0.00		
6435	Water	311 WELL PUMPS ABOVE 5 HP	2002	15	10	\$1,637.92	15.50	2.50	0.00	0.00	\$0.00	\$1,637.92	\$229.60	15	\$0.00		
6445	Water	311 NEW SUB TURBINE PUMP SHP	2003	15	30	\$106.62	15.50	1.50	0.00	0.00	\$0.00	\$106.62	\$16.89	15	\$0.00		
6446	Water	311 NEW SUB PUMP SHP RADIAL BALL	2003	15	10	\$164.99	15.50	1.50	0.00	0.00	\$0.00	\$164.99	\$17.49	5	\$0.00		
6449	Water	311 NEW SUB BOOSTER PUMP SHP	2003	15	10	\$109.35	15.50	1.50	0.00	0.00	\$0.00	\$109.35	\$14.59	5	\$0.00		
6450	Water	311 NEW 70HP PUMP	2003	15	35	\$1,325.45	15.50	1.50	0.00	0.00	\$0.00	\$1,325.45	\$115.42	5	\$0.00		
6451	Water	311 PARTS FOR WELL PUMP	2003	15	10	\$1,251.92	15.50	1.50	0.00	0.00	\$0.00	\$1,251.92	\$114.18	15	\$0.00		
6452	Water	311 NEW SUB TURBINE PUMP SHP	2003	15	10	\$105.33	15.50	1.50	0.00	0.00	\$0.00	\$105.33	\$16.67	5	\$0.00		
6453	Water	311 NEW BOOSTER PUMP SHP	2003	15	10	\$130.83	15.50	1.50	0.00	0.00	\$0.00	\$130.83	\$15.09	5	\$0.00		
6454	Water	311 BOOSTER PUMPS SHP OR LESS	2003	15	10	\$147.17	15.50	1.50	0.00	0.00	\$0.00	\$147.17	\$16.72	5	\$0.00		
6455	Water	311 BOOSTER PUMPS ABOVE 5 HP	2003	15	10	\$1,643.19	15.50	1.50	0.00	0.00	\$0.00	\$1,643.19	\$17.77	15	\$0.00		
6456	Water	311 WELL PUMPS SHP OR LESS	2003	15	10	\$1,719.85	15.50	1.50	0.00	0.00	\$0.00	\$1,719.85	\$177.87	5	\$0.00		
6457	Water	311 NEW PUMP SHP	2003	15	10	\$1,019.55	15.50	1.50	0.00	0.00	\$0.00	\$1,019.55	\$100.55	5	\$0.00		
6458	Water	311 BOOSTER PUMP SHP	2003	15	10	\$1,818.74	15.50	1.50	0.00	0.00	\$0.00	\$1,818.74	\$187.14	15	\$0.00		
6459	Water	311 WELL PUMPS ABOVE 5 HP	2003	15	30	\$1,219.94	15.50	1.50	0.00	0.00	\$0.00	\$1,219.94	\$141.96	15	\$0.00		
6460	Water	311 NEW CENTRIFUGAL PUMP SHP	2003	15	10	\$1,014.85	15.50	1.50	0.00	0.00	\$0.00	\$1,014.85	\$107.63	5	\$0.00		
6461	Water	311 BOOSTER PUMPS ABOVE 5 HP	2003	15	10	\$1,004.43	15.50	1.50	0.00	0.00	\$0.00	\$1,004.43	\$66.21	5	\$0.00		
6462	Water	311 NEW BOOSTER PUMP SHP	2003	15	10	\$1,129.29	15.50	1.50	0.00	0.00	\$0.00	\$1,129.29	\$117.33	5	\$0.00		
6463	Water	311 BOOSTER PUMPS ABOVE 5 HP	2003	15	10	\$1,171.93	15.50	1.50	0.00	0.00	\$0.00	\$1,171.93	\$112.36	5	\$0.00		
6464	Water	311 NEW BOOSTER PUMP SHP	2003	15	10	\$1,150.32	15.50	1.50	0.00	0.00	\$0.00	\$1,150.32	\$115.63	5	\$0.00		
6465	Water	311 BOOSTER PUMPS SHP OR LESS	2003	15	10	\$1,271.98	15.50	1.50	0.00	0.00	\$0.00	\$1,271.98	\$17.72	15	\$0.00		
6466	Water	311 BOOSTER PUMPS SHP OR LESS	2003	15	10	\$1,248.08	15.50	1.50	0.00	0.00	\$0.00	\$1,248.08	\$128.51	5	\$0.00		
6467	Water	311 NEW BOOSTER PUMPS SHP OR LESS	2003	15	10	\$1,045.00	15.50	1.50	0.00	0.00	\$0.00	\$1,045.00	\$81.18	15	\$0.00		
6468	Water	311 BOOSTER PUMPS ABOVE 5 HP	2003	15	10	\$1,538.54	15.50	1.50	0.00	0.00	\$0.00	\$1,538.54	\$146.62	15	\$0.00		
6469	Water	311 WELL PUMPS ABOVE SHP	2003	15	10	\$1,791.94	15.50	1.50	0.00	0.00	\$0.00	\$1,791.94	\$88.06	15	\$0.00		
6470	Water	311 REARVED PUMP RAILROAD	2003	15	10	\$1,347.48	15.50	1.50	0.00	0.00	\$0.00	\$1,347.48	\$158.73	5	\$0.00		
6471	Water	311 BOOSTER PUMPS SHP OR LESS	2003	15	10	\$1,301.24	15.50	1.50	0.00	0.00	\$0.00	\$1,301.24	\$183.17	5	\$0.00		
6472	Water	311 NEW MONOIC PUMP 200HP	2003	15	10	\$1,259.00	15.50	1.50	0.00	0.00	\$0.00	\$1,259.00	\$117.83	15	\$0.00		
6473	Water	311 NEW GEARBOX BOOSTER PUMP SHP	2003	15	10	\$1,189.94	15.50	1.50	0.00	0.00	\$0.00	\$1,189.94	\$121.13	15	\$0.00		
6476	Water	311 NEW BOOSTER PUMP SHP	2003	15	10	\$1,810.00	15.50	1.50	0.00	0.00	\$0.00	\$1,810.00	\$193.05	5	\$0.00		
6477	Water	311 WELL PUMP SHP	2003	15	10	\$1,653.90	15.50	1.50	0.00	0.00	\$0.00	\$1,653.90	\$105.37	5	\$0.00		
6478	Water	311 NEW BOOSTER PUMP 20HP	2003	15	10	\$1,558.29	15.50	1.50	0.00	0.00	\$0.00	\$1,558.29	\$115.81	5	\$0.00		
6479	Water	311 BOOSTER PUMPS ABOVE SHP	2003	15	10	\$1,227.91	15.50	1.50	0.00	0.00	\$0.00	\$1,227.91	\$127.29	5	\$0.00		
6480	Water	311 WELL PUMP 2HP	2003	15	10	\$1,354.87	15.50	1.50	0.00	0.00	\$0.00	\$1,354.87	\$145.49	5	\$0.00		
6482	Water	311 WELL PUMP SHP	2004	15	10	\$1,621.45	15.50	1.50	0.00	0.00	\$0.00	\$1,621.45	\$142.19	-5	\$0.00		







# Attachment DAW-4R

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Asset No.	Type	Asset Class	Asset Description	Vintage Yr	Current Yrs	Proposed Yrs	Plant	Age	Remaining Life Current CFS	Current Exp	Proposed Expense	Annualized Expenses Avg. Proposed CFS	Annualized Depreciation Avg. Proposed CFS	Net Present Value Annualized Expenses Avg. Proposed CFS	Annualized Depreciation Avg. Proposed CFS	Annualized Depreciation Avg. Proposed CFS	Change in life difference (Annualized Avg. Proposed CFS)	Service life does not change but requires life expense charges
8724	Water	120 Distribution System		2008	10	15	\$3,015.16	11.50	1.50	0.00	0.00	\$0.00	\$1,015.16	\$20.24	5	\$0.00		
8725	Water	120 Distribution Systems		2008	9	15	\$3,713.72	11.50	1.50	0.00	0.00	\$0.00	\$1,713.72	\$24.59	5	\$0.00		
8710	Water	120 Distribution Systems		2008	10	15	\$4,117.15	11.50	1.50	0.00	0.00	\$0.00	\$1,417.15	\$29.44	5	\$0.00		
8712	Water	120 Distribution Systems		2008	10	15	\$4,485.53	11.50	1.50	0.00	0.00	\$0.00	\$1,485.53	\$12.57	5	\$0.00		
8713	Water	120 Distribution Systems		2008	10	15	\$4,767.25	11.50	1.50	0.00	0.00	\$0.00	\$1,767.25	\$17.35	5	\$0.00		
8714	Water	120 Water Treatment Plant Equipment		2008	10	15	\$40,236.99	11.50	1.50	0.00	0.00	\$0.00	\$14,236.99	\$26,116.67	5	\$0.00		
8748	Water	120 Chlorine Pump Works 182		2009	10	15	\$185.78	10.50	-0.50	0.00	0.00	\$0.00	\$185.78	\$12.43	5	\$0.00		
8712	Water	120 Chemical Pumping Equipment SOW 41058		2009	10	15	\$1,612.70	10.50	-0.50	0.00	0.00	\$0.00	\$1,612.70	\$14.49	0	\$0.00		
8713	Water	120 Chemical Pumping Works SOW 45571		2009	6	10	\$1,345.92	10.50	-0.50	0.00	0.00	\$0.00	\$1,345.92	\$10.71	5	\$0.00		
8755	Water	120 Chemical Dispenser SOW 20215		2009	10	15	\$2,669.18	10.50	-0.50	0.00	0.00	\$0.00	\$2,669.18	\$17.01	5	\$0.00		
8759	Water	120 E&I ROCK FILTER TRADE COSTS		2009	10	15	\$1,040.70	10.50	-0.50	0.00	0.00	\$0.00	\$1,040.70	\$20.21	5	\$0.00		
8761	Water	120 Import Water Treatment Plant Electrical Work		2009	10	15	\$14,482.21	10.50	-0.50	0.00	0.00	\$0.00	\$14,482.21	\$14.83	5	\$0.00		
8764	Water	120 Rock Filter Insulation		2009	10	15	\$3,631.08	0.50	0.50	0.00	0.00	\$0.00	\$3,631.08	\$3,857.81	5	\$0.00		
8775	Water	120 Chlorinators S & P Steamer		2011	5	15	\$161.09	8.50	1.50	0.00	0.00	\$0.00	\$161.09	\$56.97	10	\$0.00		
8779	Water	120 Chlorinators S & P Steamer		2011	5	15	\$161.12	8.50	1.50	0.00	0.00	\$0.00	\$161.12	\$56.97	10	\$0.00		
8780	Water	120 Chlorinators S & P Steamer		2011	5	15	\$161.19	8.50	1.50	0.00	0.00	\$0.00	\$161.19	\$56.97	10	\$0.00		
8781	Water	120 Chlorinators S & P Steamer		2011	5	15	\$161.21	7.50	2.50	0.00	0.00	\$0.00	\$161.21	\$56.97	10	\$0.00		
8782	Water	120 Chlorinators S & P Steamer		2011	5	15	\$161.28	8.50	1.50	0.00	0.00	\$0.00	\$161.28	\$56.91	10	\$0.00		
8797	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.32	7.50	2.50	0.00	0.00	\$0.00	\$161.32	\$56.97	10	\$0.00		
8798	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.42	7.50	2.50	0.00	0.00	\$0.00	\$161.42	\$56.95	10	\$0.00		
8799	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.52	7.50	2.50	0.00	0.00	\$0.00	\$161.52	\$56.97	10	\$0.00		
8800	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.63	7.50	2.50	0.00	0.00	\$0.00	\$161.63	\$56.95	10	\$0.00		
8801	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.63	7.50	2.50	0.00	0.00	\$0.00	\$161.63	\$56.95	10	\$0.00		
8802	Water	120 Chlorinators S & P Steamer		2012	5	15	\$161.64	7.50	2.50	0.00	0.00	\$0.00	\$161.64	\$56.95	10	\$0.00		
8828	Water	120 Chlorinators Steamer		2013	5	15	\$161.40	6.50	1.50	0.00	0.00	\$0.00	\$161.40	\$14.09	10	\$0.00		
8829	Water	120 Chlorinators Steamer S & P		2013	5	15	\$161.40	6.50	1.50	0.00	0.00	\$0.00	\$161.40	\$58.09	10	\$0.00		
8830	Water	120 Chlorinators S & P Steamer		2013	5	15	\$161.34	6.50	1.50	0.00	0.00	\$0.00	\$161.34	\$55.18	10	\$0.00		
8831	Water	120 Chlorinators Steamer S & P		2013	5	15	\$161.34	6.50	1.50	0.00	0.00	\$0.00	\$161.34	\$55.15	10	\$0.00		
8832	Water	120 Chlorinators S & P Steamer		2013	5	15	\$161.41	6.50	1.50	0.00	0.00	\$0.00	\$161.41	\$62.99	10	\$0.00		
8834	Water	120 Chlorinators Steamer		2013	5	15	\$161.41	6.50	1.50	0.00	0.00	\$0.00	\$161.41	\$62.99	10	\$0.00		
8835	Water	120 Chlorinators Steamer S & P		2013	5	15	\$161.41	6.50	1.50	0.00	0.00	\$0.00	\$161.41	\$62.99	10	\$0.00		
8836	Water	120 Chlorinators Steamer		2013	5	15	\$160.94	6.50	1.50	0.00	0.00	\$0.00	\$160.94	\$56.94	10	\$0.00		
8851	Water	120 Chlorinators Steamer NCL		2014	5	15	\$160.44	7.00	-0.50	0.00	0.00	\$0.00	\$160.44	\$45.39	10	\$0.00		
9001	Water	110 Storage Tanks #250 gal Concrete (NCL)		1964	50	50	\$1,054.45	5.50	5.50	0.00	0.00	\$0.00	\$1,054.45	\$24.09	0	\$0.00		
9002	Water	110 Pressure Tank No. 1 Steel 5000		1968	50	10	\$1,639.94	5.50	1.50	0.00	0.00	\$0.00	\$1,639.94	\$55.03	20	\$0.00		
9003	Water	110 Storage Tank 1 Steel 5000 gal		1968	50	10	\$2,311.92	5.50	1.50	0.00	0.00	\$0.00	\$2,311.92	\$109.56	0	\$0.00		
9004	Water	110 Storage Tanks 20,000 gal Steel (NCL)		1969	50	50	\$3,301.02	5.50	-0.50	0.00	0.00	\$0.00	\$3,301.02	\$34.00	0	\$0.00		
9005	Water	110 Storage Tanks 1 Rebuilt 5 gal 20000gal		1969	50	50	\$5,809.05	5.50	-0.50	0.00	0.00	\$0.00	\$5,809.05	\$117.18	0	\$0.00		
9018	Water	120 Pressure Tank 1 Steel 1000 gal		1971	15	50	\$1,563.92	4.50	1.50	0.00	0.00	\$0.00	\$1,563.92	\$34.59	15	\$0.00		
9058	Water	110 Pressure Tank 3000 gal		1975	30	30	\$1,513.00	4.50	4.50	0.00	0.00	\$0.00	\$1,513.00	\$104.57	0	\$0.00		
9101	Water	110 Pressure Tank 315 gal Galvanized		1984	30	30	\$4,800.00	3.50	3.50	0.00	0.00	\$0.00	\$4,800.00	\$11.31	0	\$0.00		
9125	Water	110 Pressure Tanks 500 gal Steel (NCL)		1988	30	30	\$2,391.00	3.50	3.50	0.00	0.00	\$0.00	\$2,391.00	\$9.70	0	\$0.00		
9145	Water	110 Pressure Tank 2 Steel 1000 gal		1991	15	30	\$1,139.00	2.50	1.50	0.00	0.00	\$0.00	\$1,139.00	\$47.10	15	\$0.00		
9195	Water	110 Ground Storage Tank Piping		1995	20	30	\$1,516.00	2.50	4.50	0.00	0.00	\$0.00	\$1,516.00	\$51.20	10	\$0.00		
9202	Water	110 200 gal holding tank		1996	20	30	\$4,002.00	2.50	3.50	0.00	0.00	\$0.00	\$4,002.00	\$19.40	10	\$0.00		
9229	Water	110 Holding tanks 15' x 30' x 8'		1998	15	50	\$1,848.00	2.50	-4.50	0.00	0.00	\$0.00	\$1,848.00	\$176.94	15	\$0.00		
9239	Water	110 Pressure Tanks 40 gal Helder		1999	10	30	\$2,000.00	2.50	10.50	0.00	0.00	\$0.00	\$2,000.00	\$56.67	20	\$0.00		
9260	Water	120 Chlorine Pump Works 182		2000	10	30	\$1,782.07	1.50	9.50	0.00	0.00	\$0.00	\$1,782.07	\$62.63	20	\$0.00		
9261	Water	120 CRANE REVERSAL FALL KING 10000LDS STORAGE TANK		2002	15	30	\$2,871.00	1.50	-4.50	0.00	0.00	\$0.00	\$2,871.00	\$95.93	15	\$0.00		
9279	Water	Pressure Tanks 1200 gal Master		2002	15	30	\$1,012.00	1.50	7.50	0.00	0.00	\$0.00	\$1,012.00	\$21.10	10	\$0.00		
9859	Water	110 Distribution System 3 Valves 6 ft		1968	50	15	\$1,237.02	5.50	1.50	0.00	0.00	\$0.00	\$1,237.02	\$55.92	5	\$0.00		
9890	Water	110 Distribution System 4 x 1000 liters		1971	40	15	\$1,040.00	5.50	-0.50	0.00	0.00	\$0.00	\$1,040.00	\$17.60	15	\$0.00		
9898	Water	110 Distribution System 4x1000 liters		1971	40	15	\$109.95	4.50	20.50	0.00	0.00	\$0.00	\$109.95	\$13.91	5	\$0.00		
9900	Water	110 Distribution System 2 Valves 21 ft		1971	20	15	\$2,213.49	4.50	20.50	0.00	0.00	\$0.00	\$2,213.49	\$13.45	65	\$0.00		
9901	Water	110 Distribution System 2 Valves 21 ft		1971	20	15	\$601.97	4.50	20.50	0.00	0.00	\$0.00	\$601.97	\$13.18	-5	\$0.00		
10123	Water	110 Distribution System 2 Valves 10 ft		1995	20	15	\$793.14	3.50	14.50	0.00	0.00	\$0.00	\$793.14	\$19.50	5	\$0.00		
10127	Water	110 Distribution System 3 Valves 6 ft		1995	20	15	\$1,079.10	3.50	14.50	0.00	0.00	\$0.00	\$1,079.10	\$81.94	-5	\$0.00		
10267	Water	110 Distribution System 4 x 1000 liters		1996	20	65	\$4,195.78	1.50	13.50	0.00	0.00	\$0.00	\$4,195.78	\$64.40	45	\$0.00		
10288	Water	110 Distribution System 2 Valves 21 ft		1971	20	20	\$9,656.51	3.50	20.50	0.00	0.00	\$0.00	\$9,656.51	\$11.11	0	\$0.00		
10453	Water	110 4 inch flow Meter		1994	20	20	\$815.49	3.50	15.50	0.00	0.00	\$0.00	\$815.49	\$41.77	0	\$0.00		
10454	Water	4.2" PVC Distribution Box Valves		1996	20	20	\$128.44	3.50	13.50	0.00	0.00	\$0.00	\$128.44	\$15.71	5	\$0.00		
10455	Water	7" Distribution System 4x1000 liters		1996	20	15	\$191.17	3.50	13.50	0.00	0.00	\$0.00	\$191.17	\$25.07	5	\$0.00		
10457	Water	4.2" 4 inch flow Meter		1991	20	20	\$1,050.85	3.50	9.50	0.00	0.00	\$0.00	\$1,050.85	\$50.52	0	\$0.00		
10458	Water	3" 3 inch flow Meter		1990	20	20	\$1,639.27	3.50	9.50	0.00	0.00	\$0.00	\$1,639.27	\$82.96	0	\$0.00		
10459	Water	4.2" 4 inch 2 inch flow Meter		1991	20	20	\$1,203.79	2.50	9.50	0.00	0.00	\$0.00	\$1,203.79	\$96.57	0	\$0.00		
10460	Water	1 inch flow Meter 1000 liters		1995	20	20	\$241.94	2.50	-4.50	0.00	0.00	\$0.00	\$241.94	\$17.40	0	\$0.00		
10461	Water	3" 1 inch flow Meter		1995	20	20	\$170.82	2.50	-4.50	0.00	0.00	\$0.00	\$170.82	\$16.29	0	\$0.00		
10462	Water	2" 1 inch flow Meter		1995	20	20	\$1,110.71	2.50	-4.50	0.00								

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Asset No.	Type	Asset Class	Asset Description	Storage #	Current life	Proposed life	Rate	Age	Remaining life Current Life	Current Exp.	Proposed Expense	Accumulated Depreciation Age/Proposed life	Allocation Depreciation Age/Current life	New Price & Rent Accumulated Depreciation from Current Expense	Average Depreciation for Service Proposed Using remaining Assets	Change in life difference Proposed life (current life)	Service life start date change life depreciation expense change
13661	Water	334	1.125 inch flow Meter	1997	20	20	\$605.77	23.50	2.50	0.00	0.00	\$0.00	\$795.21	\$79.75	0	\$0.00	
13665	Water	334	1. 3/2 inch flow Meter (Master)	1998	20	20	\$1,051.53	23.50	1.50	0.00	0.00	\$0.00	\$1,019.53	\$59.18	0	\$0.00	
13669	Water	334	DECREMENTAL 1/2 INCH 100 MM RD3300 METER	1999	15	20	\$101.00	19.50	-4.50	0.00	0.00	\$0.00	\$118.00	\$26.90	5	\$0.00	
13672	Water	334	Meters and Services 2 Water Master Meter	2001	5	20	\$109.45	18.50	1.50	0.00	0.00	\$0.00	\$99.45	\$19.87	17	\$0.00	
13675	Water	334	10 Meter Premeter	2002	5	20	\$104.43	18.50	1.50	0.00	0.00	\$0.00	\$104.43	\$19.72	15	\$0.00	
13679	Water	334	Brass Main Plugage	2002	5	20	\$104.11	17.50	2.50	0.00	0.00	\$0.00	\$104.11	\$52.24	15	\$0.00	
13685	Water	334	Meters and Services 5/8 Meters (S)	2003	10	20	\$150.08	18.50	1.50	0.00	0.00	\$0.00	\$114.08	\$35.39	20	\$0.00	
13686	Water	334	METER REPAIR	2003	15	20	\$805.82	16.50	1.50	0.00	0.00	\$0.00	\$800.82	\$49.04	5	\$0.00	
13688	Water	334	Meters and Services 5/8 Meters (S)	2004	10	20	\$124.74	15.50	3.50	0.00	0.00	\$0.00	\$124.74	\$6.34	10	\$0.00	
13690	Water	334	Meters and Services 5/8 Meters (S)	2004	10	20	\$105.90	15.50	5.50	0.00	0.00	\$0.00	\$115.90	\$5.25	10	\$0.00	
13695	Water	334	Meters and Services 5/8 Meters (S)	2004	10	20	\$104.74	15.50	5.50	0.00	0.00	\$0.00	\$104.74	\$54.74	10	\$0.00	
13696	Water	334	Meters and Services 5/8 Meters	2004	10	20	\$109.59	15.50	5.50	0.00	0.00	\$0.00	\$109.59	\$37.48	10	\$0.00	
13697	Water	334	Meters and Services 5/8 Meters (S)	2004	10	20	\$121.48	15.50	5.50	0.00	0.00	\$0.00	\$121.48	\$19.68	10	\$0.00	
13700	Water	334 Meters and Services 5/8 Meters (S)		2005	10	20	\$100.63	14.50	4.50	0.00	0.00	\$0.00	\$100.63	\$5.64	10	\$0.00	
13707	Water	334 Meters and Services 1/2 Meters (S)		2005	10	20	\$136.11	14.50	4.50	0.00	0.00	\$0.00	\$136.11	\$14.83	10	\$0.00	
13731	Water	334	Meters and Services Meter Boards (S)	2005	10	20	\$1,210.30	14.50	-4.50	0.00	0.00	\$0.00	\$1,210.30	\$61.03	10	\$0.00	
13741	Water	334 Meters and Services 1/2 Meter (S)		2005	10	20	\$67.46	13.50	3.50	0.00	0.00	\$0.00	\$67.46	\$3.37	13	\$0.00	
13745	Water	334 Meter and Services 1.1/2 Meter		2006	5	20	\$109.29	13.50	8.50	0.00	0.00	\$0.00	\$109.29	\$14.46	15	\$0.00	
13747	Water	334 Meters and Services 1.1/2 Meter		2006	10	20	\$109.79	13.50	5.50	0.00	0.00	\$0.00	\$109.79	\$14.46	10	\$0.00	
13750	Water	334 Meters and Services 2/0 Meters (S)		2006	5	20	\$847.21	13.50	7.50	0.00	0.00	\$0.00	\$147.21	\$32.89	13	\$0.00	
13751	Water	334 Meters and Services 1.1/2 Meter (S)		2007	5	20	\$118.30	13.50	7.50	0.00	0.00	\$0.00	\$118.30	\$15.56	15	\$0.00	
13757	Water	334 Meters and Services 1.1/2 Meter (S)		2008	5	20	\$150.00	13.50	6.50	0.00	0.00	\$0.00	\$150.00	\$5.00	15	\$0.00	
13759	Water	334 Meters and Services 1/4 Meter (S)		2008	10	20	\$172.95	13.50	1.50	0.00	0.00	\$0.00	\$172.95	\$8.65	10	\$0.00	
13762	Water	334 Meters and Services 1.1/2 Meters (S)		2008	5	20	\$104.87	13.50	6.50	0.00	0.00	\$0.00	\$104.87	\$35.20	15	\$0.00	
13784	Water	334 Meters and Services 1.1/2 Meters (S)		2008	5	20	\$107.94	13.50	6.50	0.00	0.00	\$0.00	\$107.94	\$17.85	15	\$0.00	
13785	Water	334 Meters and Services 2 Meter (S)		2008	5	20	\$121.30	13.50	6.50	0.00	0.00	\$0.00	\$121.30	\$21.06	15	\$0.00	
13860	Water	334 Meters and Services 1.1/2 Meters (S)		2008	10	20	\$1,267.47	11.50	1.50	0.00	0.00	\$0.00	\$1,267.47	\$54.42	10	\$0.00	
13778	Water	334 Meters and Services 1/4 Meter (S)		2009	10	20	\$100.00	10.50	-0.50	0.00	0.00	\$0.00	\$100.00	\$10.00	10	\$0.00	
13829	Water	334 Meters and Services 1.1/2 Water Meter		2009	5	20	\$106.78	10.50	5.50	0.00	0.00	\$0.00	\$106.78	\$14.84	15	\$0.00	
13830	Water	334 Meters and Services 1/4 Meter (S)		2009	10	20	\$107.95	10.50	1.50	0.00	0.00	\$0.00	\$107.95	\$17.85	10	\$0.00	
13832	Water	334 Meters and Services 1.1/2 Meters (S)		2009	5	20	\$104.87	10.50	6.50	0.00	0.00	\$0.00	\$104.87	\$35.20	15	\$0.00	
13834	Water	334 Meters and Services 1.1/2 Meters (S)		2009	5	20	\$107.94	10.50	6.50	0.00	0.00	\$0.00	\$107.94	\$17.85	15	\$0.00	
13835	Water	334 Meters and Services 2 Meter (S)		2009	5	20	\$121.30	10.50	6.50	0.00	0.00	\$0.00	\$121.30	\$21.06	15	\$0.00	
13860	Water	334 Meters and Services 1.1/2 Meters (S)		2009	10	20	\$1,267.47	11.50	1.50	0.00	0.00	\$0.00	\$1,267.47	\$54.42	10	\$0.00	
13779	Water	334 Meters and Services 1/4 Meter (S)		2009	10	20	\$100.00	10.50	-0.50	0.00	0.00	\$0.00	\$100.00	\$10.00	10	\$0.00	
13882	Water	334 Meters and Services 1.1/2 Water Meter		2010	5	20	\$847.32	9.50	4.50	0.00	0.00	\$0.00	\$107.50	\$45.85	10	\$0.00	
14091	Water	334	Meters and Services 2 Water Master	2001	5	20	\$166.80	8.50	1.50	0.00	0.00	\$0.00	\$163.82	\$19.97	15	\$0.00	
14269	Water	334	Meters and Services 1.1/2 Water Meter	2003	5	20	\$141.28	7.50	4.50	0.00	0.00	\$0.00	\$112.24	\$17.06	17	\$0.00	
14270	Water	334	Meters and Services 2 Meter	2012	5	20	\$109.44	7.50	4.50	0.00	0.00	\$0.00	\$109.44	\$20.19	17	\$0.00	
14271	Water	334	Meters and Services 2 Meter (West #3)	2013	5	20	\$108.03	7.50	2.50	0.00	0.00	\$0.00	\$110.03	\$20.80	15	\$0.00	
14315	Water	334 Meters and Services 2 Meter (West #3)		2014	5	20	\$743.89	5.50	-0.50	0.00	0.00	\$0.00	\$711.19	\$37.18	15	\$0.00	
14554	Water	335	Fuel Hydrants	1993	50	65	\$13,741.70	5.50	8.50	0.00	0.00	\$0.00	\$11,741.70	\$24.72	35	\$0.00	
14555	Water	335	Fuel Hydrants	1994	50	65	\$172.95	5.50	5.50	0.00	0.00	\$0.00	\$172.95	\$2.45	15	\$0.00	
14556	Water	335	Fuel Hydrants	1995	50	65	\$109.99	5.50	4.50	0.00	0.00	\$0.00	\$109.99	\$1.75	35	\$0.00	
14557	Water	335	Fuel Hydrants	1996	50	65	\$174.95	5.50	5.50	0.00	0.00	\$0.00	\$174.95	\$2.88	15	\$0.00	
14558	Water	335	Fuel Hydrants	1996	50	65	\$120.50	5.50	3.50	0.00	0.00	\$0.00	\$120.50	\$4.92	35	\$0.00	
14598	Water	335	Other Fuel and Water	1995	20	20	\$105.00	20.50	10.50	0.00	0.00	\$0.00	\$104.00	\$1.00	10	\$0.00	
14599	Water	336	Furniture & Fixtures	1971	15	20	\$1,359.00	45.50	31.50	0.00	0.00	\$0.00	\$1,174.00	\$24.22	35	\$0.00	
14600	Water	336	Furniture & Fixtures	1975	15	20	\$195.00	45.50	28.50	0.00	0.00	\$0.00	\$205.00	\$10.10	5	\$0.00	
14601	Water	336	Furniture & Fixtures	1976	15	20	\$170.00	45.50	28.50	0.00	0.00	\$0.00	\$180.00	\$21.50	5	\$0.00	
14602	Water	336	Furniture & Fixtures	1978	15	20	\$154.00	45.50	24.50	0.00	0.00	\$0.00	\$164.00	\$15.75	5	\$0.00	
14603	Water	336	Furniture & Fixtures	1979	15	20	\$149.00	45.50	25.50	0.00	0.00	\$0.00	\$154.00	\$5.70	5	\$0.00	
14604	Water	336	Furniture & Fixtures	1984	15	20	\$1,651.00	35.50	20.50	0.00	0.00	\$0.00	\$1,451.00	\$27.65	5	\$0.00	
14605	Water	336	Furniture & Fixtures	1987	15	20	\$5,261.00	32.50	27.50	0.00	0.00	\$0.00	\$5,171.00	\$93.15	5	\$0.00	
14606	Water	336	Furniture & Fixtures	1999	25	20	\$208.00	19.50	15.50	0.00	0.00	\$0.00	\$207.00	\$1.00	5	\$0.00	
14607	Water	336	Furniture & Fixtures	1999	25	20	\$151.00	25.50	14.50	0.00	0.00	\$0.00	\$151.00	\$7.55	5	\$0.00	
14608	Water	336	Furniture & Fixtures	1999	25	20	\$2,355.00	28.50	14.50	0.00	0.00	\$0.00	\$2,156.00	\$124.10	5	\$0.00	
14609	Water	336	Furniture & Fixtures	1991	15	20	\$172.00	28.50	13.50	0.00	0.00	\$0.00	\$172.00	\$11.85	5	\$0.00	
14610	Water	336	Furniture & Fixtures	1991	15	20	\$407.00	28.50	13.50	0.00	0.00	\$0.00	\$407.00	\$20.95	5	\$0.00	
14671	Water	340	Computers & Software	1992	5	5	\$50,079.00	27.50	22.50	0.00	0.00	\$0.05	\$45,079.00	\$1,711.60	0	\$0.00	
14672	Water	340	Furniture & Fixtures	1992	15	20	\$1,183.00	27.50	12.50	0.00	0.00	\$0.00	\$1,173.00	\$109.40	5	\$0.00	
14673	Water	340	Furniture & Fixtures	1991	15	20	\$2,318.00	26.50	11.50	0.00	0.00	\$0.00	\$2,118.00	\$114.90	5	\$0.00	
14674	Water	340	Furniture & Fixtures	1994	15	20	\$196.00	27.50	10.50	0.00	0.00	\$0.00	\$196.00	\$19.85	5	\$0.00	
14675	Water	340	Furniture & Fixtures	1994	15	20	\$2,139.00	25.50	10.50	0.00	0.00	\$0.00	\$2,139.00	\$106.65	5	\$0.00	
14676	Water	340	Furniture & Fixtures	1994	15	20	\$2,518.00	25.50	10.50	0.00	0.00	\$0.00	\$2,518.00	\$125.90	5	\$0.00	
14677	Water	340	Furniture & Fixtures	1994	15	20	\$1,491.00	25.50	20.50	0.00	0.00	\$0.00	\$1,471.00	\$114.80	0	\$0.00	
14678	Water	340	Computers & Software	1995	5	5	\$543.70	24.50	18.50	0.00	0.00	\$0.00	\$542.00	\$108.50	0	\$0.00	
14679	Water	340	Computers & Software	1995	5	5	\$5,099.00	24.50	19.50	0.00	0.00	\$0.00					

Attachment DAW-4R  
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Asset No	Type	Asset Class	Asset Description	Vintage Yr	Current Blk	Proposed Use	Phase	Age	Remaining Life Current	Current Exp	Proposed Exp	Amount of Depreciation	Remaining Depreciation	Residual Value	Point At which Depreciation from Current Year	Annual Depreciation	Remaining Depreciation Using Average Depreciation Factor	Change in Fair Value	Service life does not change Proposed Depreciation
14653	Wt, sr	340	Computer & Software	1997	5	5	\$97.00	21.50	17.50	0.00	0.00	\$0.00	\$0.00	\$97.00	\$14.49	0	\$0.00		
14654	Wt, sr	340	Computer & Software	1997	5	5	\$4,639.00	21.50	17.50	0.00	0.00	\$0.00	\$4,639.00	\$176.60	0	\$0.00			
14655	Wt, sr	340	Computer & Software	1997	5	5	\$1854.00	21.50	17.50	0.00	0.00	\$0.00	\$1854.00	\$1,150.80	0	\$0.00			
14656	Wt, sr	340	Computer & Software	1998	5	5	\$64.00	21.50	16.50	0.00	0.00	\$0.00	\$64.00	\$12.80	0	\$0.00			
14657	Wt, sr	340	Computer & Software	1998	5	5	\$212.00	21.50	16.50	0.00	0.00	\$0.00	\$212.00	\$41.49	0	\$0.00			
14658	Wt, sr	340	Computer & Software	1998	5	5	\$71.75	21.50	16.50	0.00	0.00	\$0.00	\$71.75	\$14,655.00	0	\$0.00			
14659	Wt, sr	340	Computer & Software	1999	5	5	\$107.00	20.50	15.50	0.00	0.00	\$0.00	\$107.00	\$61.40	0	\$0.00			
14660	Wt, sr	340	Computer & Software	1999	5	5	\$1,168.00	20.50	15.50	0.00	0.00	\$0.00	\$1,168.00	\$426.00	0	\$0.00			
14662	Wt, sr	340	Computer & Software	1999	5	5	\$4,691.00	21.50	15.50	0.00	0.00	\$0.00	\$4,691.00	\$9,518.20	0	\$0.00			
14693	Wt, sr	340	Computer & Software	1999	5	5	\$125.00	21.50	15.50	0.00	0.00	\$0.00	\$125.00	\$12.80	0	\$0.00			
14694	Wt, sr	340	AEROMARINE MODEL 7000C/0050	2000	5	20	\$128.00	19.50	14.50	0.00	0.00	\$0.00	\$128.00	\$14,372.26	\$179.51	\$0.00			
14695	Wt, sr	340	AEROMARINE Model 7000C/0050	2000	5	20	\$1,001.00	17.50	12.50	0.00	0.00	\$0.00	\$1,001.00	\$400.20	0	\$0.00			
14708	Wt, sr	340 1499.0-Airline Weather Comm/Storage		2000	10	76	\$9,837.76	13.50	9.50	0.00	0.00	\$0.00	\$9,837.76	\$497.99	10	\$0.00			
14709	Wt, sr	340 Office Equipment-DAT Mirror Readers		1996	5	5	\$6,019.00	19.50	14.50	0.00	0.00	\$0.00	\$6,019.00	\$1,627.00	0	\$0.00			
14711	Wt, sr	340 Office Equipment-Charger Base		1997	5	5	\$125.00	21.50	15.50	0.00	0.00	\$0.00	\$125.00	\$85.00	0	\$0.00			
14716	Wt, sr	340 Office Equipment-Disk Duplex 560		1998	5	5	\$1,339.00	9.50	4.50	0.00	0.00	\$0.00	\$1,339.00	\$1,119.60	\$267.92	0	\$0.00		
14717	Wt, sr	340 SLC95 PROCESSOR - INTEL PENTIUM		2010	5	5	\$2,681.40	9.50	4.50	0.00	0.00	\$0.00	\$2,681.40	\$1,788.68	0	\$0.00			
14720	Wt, sr	\$10,000.00 FOR OFFICE FENCE ROOM		1991	2	50	\$9,712.30	8.50	8.50	0.00	0.00	\$0.00	\$9,712.30	\$194.26	48	\$0.00			
14721	Wt, sr	340 AD- INTELIGENT		2011	2	10	\$4,131.91	1.51	4.50	0.00	0.00	\$0.00	\$4,131.91	\$413.19	0	\$0.00			
14723	Wt, sr	340 Other ADC Unit		2012	5	5	\$161.00	7.50	2.50	0.00	0.00	\$0.00	\$161.00	\$126.50	0	\$0.00			
14724	Wt, sr	340 Office Equipment-Golf Laptop + Printer		2012	5	5	\$718.05	2.50	2.50	0.00	0.00	\$0.00	\$718.05	\$143.61	0	\$0.00			
14725	Wt, sr	340 PC Upgrade/Peripherals		2012	5	5	\$1,066.00	7.50	2.50	0.00	0.00	\$0.00	\$1,066.00	\$215.35	0	\$0.00			
14726	Wt, sr	340 PC Upgrade/Peripherals		2013	5	5	\$1,064.82	7.50	2.50	0.00	0.00	\$0.00	\$1,064.82	\$215.35	0	\$0.00			
14727	Wt, sr	340 Office Equipment-Lawtech Software		2013	5	5	\$2,751.75	7.50	2.50	0.00	0.00	\$0.00	\$2,751.75	\$553.35	0	\$0.00			
14760	Wt, sr	341 Printer Oki A4-1100		1998	15	15	\$2,145.00	29.50	24.50	0.00	0.00	\$0.00	\$2,145.00	\$1,345.00	0	\$0.00			
14761	Wt, sr	341 Recycling Master Program		1998	15	15	\$4,145.00	29.50	24.50	0.00	0.00	\$0.00	\$4,145.00	\$749.27	0	\$0.00			
14762	Wt, sr	341 Heavy Duty Winter Gloves MT-32		1998	15	15	\$4,245.00	30.50	15.50	0.00	0.00	\$0.00	\$4,245.00	\$314.20	0	\$0.00			
14763	Wt, sr	341 Other Heavy Duty Winter Gloves 2M		2002	10	10	\$1,397.72	17.50	7.50	0.00	0.00	\$0.00	\$1,397.72	\$139.72	0	\$0.00			
14764	Wt, sr	341 2002 Ford F250		2002	5	7	\$1,281.54	27.50	12.50	0.00	0.00	\$0.00	\$1,281.54	\$455.35	2	\$0.00			
14766	Wt, sr	341 1998-01 Lemon Yellow Trailor unit 10000kg		2004	1	30	\$36.00	35.50	14.50	0.00	0.00	\$0.00	\$36.00	\$56.00	9	\$0.00			
14767	Wt, sr	341 1998-01 Vans and minivan 8.8 ft wide		2004	1	10	\$120.00	15.50	14.50	0.00	0.00	\$0.00	\$120.00	\$10.00	9	\$0.00			
14768	Wt, sr	341 1998-01 Low body 2.5 cubic meter trailer		2004	1	10	\$200.00	15.50	14.50	0.00	0.00	\$0.00	\$200.00	\$20.00	9	\$0.00			
14769	Wt, sr	341 1998-01 Sperry Gyro Gyro (2002-V)		2004	7	10	\$1,000.00	15.50	10.50	0.00	0.00	\$0.00	\$1,000.00	\$100.00	8	\$0.00			
14770	Wt, sr	341 FI-145-01-01-1000 kg 4x4 truck 2012-08		2004	4	10	\$10,000.00	15.50	11.50	0.00	0.00	\$0.00	\$10,000.00	\$1,000.00	6	\$0.00			
14772	Wt, sr	M1-2011 for Ranger		2011	5	7	\$1,214.40	8.50	3.50	0.00	0.00	\$0.00	\$1,214.40	\$4,744.91	2	\$0.00			
14773	Wt, sr	M1-2011 for Ranger		2012	5	7	\$1,339.30	7.50	2.50	0.00	0.00	\$0.00	\$1,339.30	\$771.34	2	\$0.00			
14777	Wt, sr	343 Air Compressor Gmt U3 1/2		1978	15	10	\$96.00	46.50	31.50	0.00	0.00	\$0.00	\$96.00	\$64.00	5	\$0.00			
14778	Wt, sr	343 Air Compressor Gmt 3/8 1/2		1974	15	10	\$799.00	45.50	30.50	0.00	0.00	\$0.00	\$799.00	\$23.90	5	\$0.00			
14779	Wt, sr	343 Air Comp 1/2		1977	15	10	\$251.00	42.50	27.50	0.00	0.00	\$0.00	\$251.00	\$15.00	5	\$0.00			
14780	Wt, sr	343 Air Comp 1/2		1979	15	10	\$179.00	41.50	26.50	0.00	0.00	\$0.00	\$179.00	\$17.90	5	\$0.00			
14781	Wt, sr	343 Air Comp 1/2		1982	15	10	\$565.00	37.50	22.50	0.00	0.00	\$0.00	\$565.00	\$15.50	5	\$0.00			
14782	Wt, sr	343 Air Compressor 1/2 hp		1991	15	10	\$464.00	35.50	21.50	0.00	0.00	\$0.00	\$464.00	\$46.40	5	\$0.00			
14783	Wt, sr	343 Air Compressor Gmt U3 1/2		1994	15	10	\$472.00	35.50	20.50	0.00	0.00	\$0.00	\$472.00	\$47.20	5	\$0.00			
14784	Wt, sr	343 Air Compressor USA 1/2		1994	15	10	\$442.00	35.50	20.50	0.00	0.00	\$0.00	\$442.00	\$44.20	5	\$0.00			
14785	Wt, sr	343 Air Compressor 1/2		1995	15	10	\$1,831.00	34.50	19.50	0.00	0.00	\$0.00	\$1,831.00	\$193.70	5	\$0.00			
14787	Wt, sr	343 Air Compressor 8/10 L Tank		1981	15	10	\$749.00	32.50	17.50	0.00	0.00	\$0.00	\$749.00	\$47.00	5	\$0.00			
14788	Wt, sr	343 Air Compressor Wre 1/2		1999	15	10	\$483.00	29.50	14.50	0.00	0.00	\$0.00	\$483.00	\$48.00	5	\$0.00			
14789	Wt, sr	343 Maintenance equipment		1990	15	10	\$908.00	29.50	14.50	0.00	0.00	\$0.00	\$908.00	\$90.00	5	\$0.00			
14790	Wt, sr	343 Air Compressor 2 hp		1992	15	10	\$476.00	27.50	12.50	0.00	0.00	\$0.00	\$476.00	\$47.60	5	\$0.00			
14791	Wt, sr	343 Air Compressor 2 hp		1992	15	10	\$476.00	27.50	12.50	0.00	0.00	\$0.00	\$476.00	\$47.60	5	\$0.00			
14792	Wt, sr	343 Air Compressor Gmt U3 1/2		1994	15	10	\$748.00	25.50	10.50	0.00	0.00	\$0.00	\$748.00	\$21.60	5	\$0.00			
14793	Wt, sr	343 Air Compressor		1994	15	10	\$515.00	25.50	10.50	0.00	0.00	\$0.00	\$515.00	\$51.70	5	\$0.00			
14794	Wt, sr	343 Air Compressor Gmt U3 1/2		1995	15	10	\$541.00	24.50	9.50	0.00	0.00	\$0.00	\$541.00	\$54.10	5	\$0.00			
14795	Wt, sr	343 Air Compressor Gmt U3 1/2		1995	15	10	\$541.00	24.50	9.50	0.00	0.00	\$0.00	\$541.00	\$54.10	5	\$0.00			
14796	Wt, sr	343 Air Compressor		1996	15	10	\$535.00	25.50	8.50	0.00	0.00	\$0.00	\$535.00	\$55.50	5	\$0.00			
14797	Wt, sr	343 Air Compressor 1/2 hp		1996	15	10	\$1,128.00	27.50	7.50	0.00	0.00	\$0.00	\$1,128.00	\$112.80	5	\$0.00			
14802	Wt, sr	343 Air Compressor 1/2 hp 2		1997	15	10	\$534.00	27.50	7.50	0.00	0.00	\$0.00	\$534.00	\$53.40	5	\$0.00			
14803	Wt, sr	343 Air Compressor 1/2 hp		1998	15	10	\$534.00	27.50	6.50	0.00	0.00	\$0.00	\$534.00	\$53.40	5	\$0.00			
14804	Wt, sr	343 Air Compressor 1/2 hp		1998	15	10	\$534.00	27.50	6.50	0.00	0.00	\$0.00	\$534.00	\$53.40	5	\$0.00			
14805	Wt, sr	343 Air Compressor 1/2 hp		1998	15	10	\$538.00	27.50	6.50	0.00	0.00	\$0.00	\$538.00	\$53.80	5	\$0.00			
14806	Wt, sr	343 Air Compressor 1/2 hp		1998	15	10	\$521.00	27.50	6.50	0.00	0.00	\$0.00	\$521.00	\$52.10	5	\$0.00			
14807	Wt, sr	343 Air Compressor Campion 1/2 hp tank		1998	15	10	\$570.00	21.50	6.50	0.00	0.00	\$0.00	\$570.00	\$57.60	5	\$0.00			
14808	Wt, sr	343 Air Compressor Gmt 3/2 hp tank		1998	15	10	\$574.00	21.50	6.50	0.00	0.00	\$0.00	\$574.00	\$57.40	5	\$0.00			
14809	Wt, sr	343 Air Compressor Gmt 3/2 hp		1998	15	10	\$576.00	21.50	6.50	0.00	0.00	\$0.00	\$576.00	\$57.60	5	\$0.00			
14810	Wt, sr	343 Air Compressor Gmt		1998	15	10	\$584.00	20.50	5.50	0.00	0.00	\$0.00	\$584.00	\$58.40	5	\$0.00			
14811	Wt, sr	343 Air Compressor 1/2 hp		1998	15	10	\$584.00	20.50	5.50	0.00	0.00	\$0.00	\$584.00	\$58.40	5	\$0.00			





Attachment DAW-5R is  
**VOLUMINOUS** and being  
provided in native file-format  
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**SOAH DOCKET NO. 473-20-4709.WS  
PUC DOCKET NO. 50944**

**MONARCH'S RESPONSE TO  
COMMISSION STAFF'S SEVENTH RFI**

For Question Nos. Staff 7-3 and 7-5, please refer to Dane Watson's Depreciation Rate Study at Attachment DAW-2, page 11 of 349.

**Staff 7-4** It is stated that the annual accrual amounts for each asset were computed and validated to ensure no item was over-accrued in the annual computation. Please explain how over-accrual was prevented in the computation of the new annual accrual amount and provide an example of the computation and validation.

**RESPONSE:** The calculations specifically set the accrual to zero for any asset that was fully accrued at December 31, 2019. In reviewing the validation calculations for responding to this question, it was determined that the process did not recognize some assets that became overaccrued during 2020. Columns were added to the detailed tab of the calculation spreadsheet (being provided as *voluminous* Attachment Staff 7-4) to explicitly show the validation and correct the accrual as necessary. An additional column was added to compare net book value for each asset at the end of the accounting period with the plant amount. In the detail tab, Column X provides the ending reserve at the end of 2020, by computing Column N - Column T. The Net book value at the end of 2020 is computed by adding Column M and Column X. Column T was modified to ensure no asset was overaccrued. The revision reduces Monarch's requested depreciation expense by roughly \$33,000. See the blue highlighted cells provided in Column W that show values that changed from Monarch's filing.

Prepared by: Dane A. Watson, Alliance Consulting Group

Sponsored by: Dane A. Watson, Alliance Consulting Group

Attachment Staff 7-4 is  
**VOLUMINOUS** and being  
provided in native file-format  
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