**Before the Public Service Commission
of the State of Missouri**

Rebuttal Testimony

of

Dane A. Watson

on behalf of

The Empire District Electric Company

December 2021

TABLE OF CONTENTS
FOR THE REBUTTAL TESTIMONY OF DANE A. WATSON
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2021-0312

SUBJECT   **PAGE**

REBUTTAL TESTIMONY OF DANE A. WATSON
THE EMPIRE DISTRICT ELECTRIC COMPANY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. ER-2021-0312

1 **I.** **INTRODUCTION**

2 **Q.** **Please state your name and business address.**

3 A. My name is Dane A. Watson. My business address is 101 E. Park Blvd, Suite 220,

4 Plano, TX, 75074.

5 **Q.** **Are you the same Dane A. Watson who provided Direct Testimony in this matter**

6 **on behalf of The Empire District Electric Company ("Empire" or the**

7 **"Company")?**

8 A. Yes.

9 **Q.** **What is the purpose of your Rebuttal Testimony in this proceeding before the**

10 **Missouri Public Service Commission ("Commission")?**

11 A. I address the depreciation rates proposed in the Staff Report filed by the Commission

12 Staff ("Staff") filed on October 29, 2021. Since the filing of Staff's testimony, as

13 discussed later, they have communicated changes to their recommendations. This

14 testimony addresses the revised recommendations communicated by Staff.

15 **Q.** **When was the Company's depreciation study provided to Staff and the other**

16 **parties?**

17 A. On October 16, 2020, the Company provided the depreciation study to Staff, Division

18 of Energy and Office of the Public Counsel, in accordance with Commission Rule 20

19 CSR 4240-3.175. It was also filed with my direct testimony in this proceeding in May

20 2021.

1 **Q.** **What information was provided as required by Commission Rule 20 CSR 4240-**

2 **3.175?**

3 A. The rule determines the items that accompany a Company's depreciation study filing.

4 As shown below:

5 *PURPOSE: This rule sets forth the requirements regarding the submission of*

6 *depreciation studies by electric utilizes.*

7 (1) Each electric utility subject to the commission's jurisdiction shall submit a

8 depreciation study, database and property unit catalog to the manager of the

9 commission's energy department and to the Office of the Public Counsel, as

10 required by the terms of subsection (1)(B).

11 (A) The depreciation study, database and property unit catalog shall be

12 compiled as follows:

13 1. The study shall reflect the average life and remaining life of each

14 primary plant account or subaccount;

15 2. The database shall consist of dollar amounts, by plant account or

16 subaccount, representing-

17 A. Annual dollar additions and dollar retirements by vintage year

18 and year retired, beginning with the earliest year of available

19 data;

20 B. Reserve for depreciation;

21 C. Surviving plant balance as of the study date; and

22 D. Estimated date of final retirement and surviving dollar

23 investment for each warehouse, electric generating facility,

1   combustion turbine, general office building or other large

2   structure; and

3   3. The property unit catalog shall contain a description of each

4   retirement unit used by the company.

5   **Q.**   **Did the Company's filings comply with those requirements?**

6   A.   Yes. Most of the files were in Excel format. Some of the files were in Adobe or picture

7   format when giving actuarial analysis results. Two of the folders specifically contained

8   the complete data base for both actuarial analysis and net salvage. The same

9   information was provided in the May filing of the Company's direct case.

10 **II.**   **REBUTTAL TO STAFF'S PROPOSALS**

11 **Q.**   **What positions does Staff recommend?**

12 A.   Staff makes recommendations for alternative life and net salvage parameters for a

13   number of accounts. After reviewing data responses from Empire to Staff with data

14   requests 373 and 374, Staff set up a meeting with the Company to discuss differences

15   in data. Discussions with Staff after their filing pointed to some confusion on the

16   appropriate dataset to use in the analysis. The Company then provided a full and

17   accurate dataset. Subsequently, Staff has communicated some changes to their

18   recommendations. This rebuttal addresses those remaining differences between Staff's

19   recommendations and those of the Company. While the Staff's filing did not provide

20   any specific rationale for their recommendations, it appears that they relied solely on

21   the analytics without factoring any other information into their recommendations. The

22   following discussion will provide some insight into the reasons that the Company's

23   recommendations are different than those of Staff. As provided in **Rebuttal Schedule**

1   **DAW-1**, using Staff's life and net salvage recommendations will result in an increase

2   in depreciation expense of $3.0 million as compared to the Company's request.

3   **Q.   Are there positions on which you and Staff agree?**

4   A.   Yes. Staff and the Company agree on many of the lives and dispersion curves, most of

5   the net salvage recommendations, the retirement dates for most of the Company's

6   generating units, the date to use for the computations (December 31, 2019), and the

7   depreciation system to be used in the case (Straight line, broad group, average service

8   life procedure, remaining life technique).

9   **Q.   Are there positions on which you and Staff disagree?**

10 A.   Yes. Staff and the Company differ on life and net salvage recommendations for a

11 number of accounts. For example, Staff decreased interim retirement pattern lives for

12 many of the generating accounts, increased lives for a several transmission, distribution

13 and general plant accounts and moderated two negative net salvage recommendations.

14 My computations for production net salvage were very conservative, and only included

15 retirement activity through the terminal date of the facility, whereas Staff's proposal of

16 interim retirement percentage was used for the entire plant basis. Additionally, I

17 modeled meters into two groups - those that would retire with AMR meter deployment

18 and meters that would remain in service. Staff did not incorporate any meter

19 deployment scenario in their computations. I reallocated the accumulated provision for

20 depreciation within each function, whereas Staff used per book data. I feel that my

21 recommendations are more appropriate, but some of the Staff's recommendations are

22 also within the realm of reasonableness.

23 **Q.   Did you identify any errors in your depreciation study after your review of Staff's**

24 **documents?**

4

1   A.   Yes. In Staff's original filing, I found small differences in plant in service for accounts:

2   371, 391, 391.3, and 397.   I am correcting these issues in **Rebuttal Schedule DAW-**

3   **2**, which will replace Appendix A-1, A-2 and B of Schedule DAW-2, the depreciation

4   study.   The difference in plant in total is $57 thousand, or 0.22% of the total.   The

5   overall change is de minimus given the proposed depreciation accrual of $79.6 million.

6   **Q.**   **How do your proposed depreciation accrual rates compare to those proposed by**

7   **Staff when considering their revised recommendations?**

8   A.   Staff's proposed depreciation expenses are approximately $3.0 million higher than

9   what the Company is proposing.

Table 1
Depreciation Expense Comparison Company vs Staff

Function	Plant at 12/31/2019	Company Proposed Expense	Staff Proposed Expense	Difference Proposed Expense
Production	506,915,355	13,178,388	15,623,903	2,445,515
Hydro	12,250,897	343,199	704,666	361,467
Other Production	582,396,976	18,222,765	18,762,267	539,502
Transmission	399,899,913	10,208,510	10,219,537	11,026
Distribution	1,052,849,941	31,706,266	32,457,403	751,138
General	89,578,931	5,983,667	4,899,087	(1,084,580)
AR 15 retirement	18,950,552	0	0	0
Total	2,662,842,565	79,642,795	82,666,863	3,024,068

10

11   Notes:

12   1. Distribution - Company models Meters in AMI deployment.   Staff does not consider

13   that model adjustment. The above calculations follow the Staff's calculations in this

14   area.

1   In the next section of my testimony, I will discuss areas where my

2   recommendation varies from Staff's proposal. The first section will address life

3   analysis results, the second will address net salvage results. Finally, I discuss general

4   plant amortization.

5 **Q. Are there issues with Staff's computations for production plant?**

6 A. Initially in their Direct Testimony, yes. However, those were all resolved after Staff

7   communicated their revisions to be filed in rebuttal. Staff witness Mr. Cedric Cunigan,

8   P.E., provided the Company a copy of his Schedule CEC2- Corrected Depreciation

9   Schedule and workpapers. The methodology we used is consistent with Staff's revised

10   calculations in that all generating units have a terminal retirement date. There are

11   differences in interim retirement curves and interim net salvage, but the plant amounts

12   and methodology are identical.   One other remaining difference is that Staff used per

13   book depreciation reserves, and I reallocated the depreciation reserve for each

14   generating units and plant account.

15 **A.   LIFE ANALYSIS**

16 **Q. What source data did Staff use for life analysis?**

17 A. As mentioned earlier, originally, Staff did not have a clear understanding of the dataset

18   to be used in the life analysis. The original database used by Staff was not accurate.

19   After subsequent conversations, the correct database was provided to Staff to update

20   their analysis.

21 **Q. What are your concerns with Staff's specific analyses and methodologies?**

22 A. There are a number of questions related to Staff's analyses and methodologies that

23   make their service life recommendations less predictive of the future use of the

24   Company's assets. As stated in several of the data responses, Staff used a version of

1   Gannett Fleming software to sort the data, plot a stub curve, and fit an Iowa curve to

2   the stub curve. Staff's curve provided a better fit with Staff's data set than the

3   Company's proposed curve.[1]

4   Staff only relied on statistical analysis and disregarded the type and nature of

5   the assets within an account and their operating characteristics. No further explanation

6   was given why information from Company operating personnel (which was provided

7   in my workpapers) was not incorporated in the life selection process. This is

8   inconsistent with sound depreciation methodology, which directly recommends

9   consultation with operators, who are knowledgeable about the operational

10   characteristics of the assets. Their input is invaluable to perform a thorough analysis.

11   In addition, as explained below, Staff's actuarial analyses workpapers show an

12   overall placement and experience band but do not contain calculations for multiple

13   bands (as I employed). Neither is it clear what portion of the curve they focused on in

14   the life selection process or if Staff solely relied upon statistics from one calculation

15   (band).

16 **Q.   What period did you analyze to develop your proposed depreciation life**

17 **parameters for production, transmission, distribution, and general property?**

18 A.   I analyzed Empire assets through December 31, 2019. The depreciation study is shown

19   in Schedule DAW-2 to my direct testimony. I then applied those parameters to

20   investments at December 31, 2019, which is shown in Schedule DAW-2.

21 **Q.   How did you determine the reasonable service lives for Empire's production,**

22 **transmission, distribution, and general plant assets?**

---

[1] Data responses MO PSC DR 0313-0337.

1   A.   As discussed in my Depreciation Study report, Attachment DAW-1 to my direct

2   testimony, I relied on industry-accepted analyses and the guidance included in

3   authoritative texts as well as my 36 years of experience performing depreciation studies

4   for electric utilities across North America. I also relied on Empire's actual historical

5   experience and expectations and the operational characteristics I learned from Empire's

6   Subject Matter Experts ("SMEs"), which is consistent with sound depreciation practice.

7   **Q.**   **Why is it necessary to evaluate all assets within each account to verify the**

8   **reasonableness of the service lives calculated using statistical analysis?**

9   A.   The service lives Staff selected for some accounts at issue vary from what would

10   reasonably be expected operationally by SMEs or by any seasoned depreciation analyst

11   with knowledge of the life characteristics of these assets from years of experience.

12   Different asset types (also called retirement units or "RUs") make up each plant

13   account, and these RUs can have significantly different lives. For example,

14   transformers (with possibly up to a 50-year life) and digital relays (with a much shorter

15   20-year life) are in the same substation account. In some cases, the composite life Staff

16   proposes for an account varies from the reasonable expectations for the life of many or

17   most of the different asset types that make up a plant account.

18   **Q.**   **Please provide an example.**

19   A.   For instance, if most of the balance of an account is associated with assets that have

20   projected lives of between 20 and 40 years, an overall life of 60 years for that account

21   would not be reasonable. This is true even if a particular- mathematical curve match

22   mechanically produces a 60-year overall life. A statistical analysis may suggest a

23   longer life because there may be insufficient retirement data (i.e., the full life cycle of

1   assets are not yet visible in the mathematical calculations)[2] or because there have been

2   recent changes in technology or changes in how the assets are operated that are not

3   adequately reflected in the statistical results.   While the results of the calculations

4   themselves may seem accurate to someone who is not aware of or ignores the actual

5   life cycles exhibited, failure modes and engineering expectations for the various assets

6   in the account, the results are not accurate since they do not accurately reflect the real

7   life expectations of the assets in the account.

8 **Q.   Why is it important to evaluate Empire's specific assets and operating**

9 **characteristics when recommending a service life?**

10 A.   As noted above, the manner in which Empire currently uses its assets provides

11   important indicators as to the expected service life of those assets and reveals flaws in

12   generic statistical assumptions. Specifically, using statistics that examine the life over

13   the full experience available (x years) may be indicative of the average historical life

14   over all of those years, but it may not be indicative of the life when examining more

15   recent experience or current expectations. Under the remaining life technique (which

16   both the Staff and I use), the life estimate is related to future life expectations, not

17   historical. Staff does not appear to take into account Company-specific operational life

18   expectations for a number of these assets and solely relied on the long-term, average,

19   historical analysis.

20 **Q.   Did you incorporate information from the SMES in your depreciation study?**

21 A.   Yes.   The information was extracted from interviews with Empire SMEs and is

22   described in my study and accompanying workpapers.

---

[2] This is the case for Accounts 353. 362, and 390, as discussed more below.

1 **Q.** **How did you validate that the information received from the SMEs is reliable?**

2 A. First, one of the most important pieces of information in understanding the operational

3 characteristics of assets is the input from engineers and operational experts in a

4 company. Also valuable is my reliance on my engineering knowledge from working

5 for 20 years at an electric utility, my training as an Electrical Engineer (as well as being

6 a Professional Engineer), and my research and experience as a depreciation analyst for

7 36 years (which includes several depreciation studies I have previously performed on

8 Empire's assets). This allows further validation of the information from Company

9 SMEs. As an example, if an SME suggests a life for a specific asset or group that is

10 shorter or longer than I would expect from my experience, I conduct further

11 investigation as to why they understand the life expectation to vary from what I would

12 normally expect, conduct my own research of the asset as necessary, and use my

13 judgment to determine how much weight to give the SMEs' feedback.

14 In addition, the actuarial analyses and any trends in life shown by the analysis

15 of various bands provide another check on the operational information. Accordingly,

16 as I noted before, one must consider the operational information, the expectations

17 across the country for similar assets in similar environments and the statistical analysis

18 to verify the reasonableness of the results.

19 **Q.** **Is reliance on information from Empire SMEs consistent with sound depreciation**

20 **practice?**

21 A. Yes. Information provided by SMEs on the specific plant and equipment being studied

22 is of critical importance in the depreciation study process to ensure the statistical

23 analysis accurately reflects the expected service lives of the assets. In its 1996 edition

24 of the publication *Public Utility Depreciation Practices*, the National Association of

1   Regulatory Utility Commissioners ("NARUC") specifically advises against strict

2   reliance on historical data and curve fitting:

3   Depreciation analysts should avoid becoming ensnared in the historical
4   life study and relying solely on mathematical solutions. The reason for
5   making an historic life analysis is to develop a sufficient understanding
6   of history in order to evaluate whether it is a reasonable predictor of the
7   future. The importance of being aware of circumstances having direct
8   bearing on the reason for making an historical life analysis cannot be
9   understated…. The analyst should become familiar with the physical
10   plant under study and its operating environment, ***including talking with***
11   ***the field people who use the equipment being studied***.[3]

12   Staff does not appear to have incorporated any of the information from Empire experts

13   in his life recommendations, contrary to good industry practice and precedent.

14   Accordingly, his analyses lack critical information that he should have considered to

15   verify the reasonableness of his results.

16 **Q.**   **Did Staff present any explicit evidence that any specific information you relied on**

17   **from Company employees was unreliable?**

18 A.   No.

19 **Q.**   **What are the differences in life recommendations between the Company's**

20   **analysis and those of Staff?**

21 A.   The two tables below show the differences in the curves I proposed versus the Staff

22   recommendation. I have separated the accounts into two groups: assets modeled with

23   interim retirements and other transmission, distribution, and general assets.

---

[3] National Association of Regulatory Utility Commissioners ("NARUC"), *Public Utility Depreciation Practices* (1996) at 126 (emphasis added).

1
2
3
4
5

Table DAW-RR-1R
Summary of Approved and Proposed Lives
for Accounts Analyzed via Actuarial Analysis
for Interim Retirements

Account	Description	Empire Proposed Life	Staff Proposed Life
311	Structures	90 R1.5	77 L1.5
312	Boiler Plant	55 R0.5	40 S0.5
314	Turbogenerators	60 L1	52 S1.5
331	Structures	100 R1.5	70 O3
332	Dams	85 R0.5	35 L1.5
334	Access. Electric	70 L2.5	60 L2.5
335	Misc. Equipment	45 R0.5	80 O4
343	Prime Movers	50 R1.5	50 R2
344	Generators	55 R1	50 R1
346	Misc. Equipment	55 R2.5	60 R2.5

6
7
8
9
10
11

Table DAW-RR-2R
Summary of Approved and Proposed Lives
for Transmission, Distribution, and General
Accounts Analyzed via Actuarial Analysis

Account	Description	Empire Proposed Life	Staff Proposed Life
352	Structure and Improvements	70 R2.5	80 R3
353	Station Equipment	50 R1.5	50 S1
356	OH Conductors and Devices	65 R3	70 L3
361	Structures and Improvements	52 R2	55 R1.5
362	Station Equipment	55 R1.5	51 R1.5
370.1	AMI Meters	20 R2	NA
392	Transportation Equipment	11 L3	13 L2
396	Power Operated Equipment	13 L3	17 L3

12

13 **Q.   Did any other party challenge your proposed service lives for these accounts?**

14 A.   No, not at this point in the proceeding.

1 **Q.** **What is involved in performing actuarial analysis for life estimation?**

2 A. Actuarial analysis uses aged data to match Company specific experience to the Iowa

3 curve patterns, using both visual and mathematical curve fitting. Visual matching is

4 my preference in fitting historical data, in part because it allows the analyst to see the

5 underlying data that is used to create the single numerical statistic and better describes

6 how the "fit" is at various points in the life of the curve. I have used this methodology

7 consistently in performing depreciation studies before regulatory bodies across North

8 America over the past 36 years. As I noted before, Staff has not provided any

9 information to explain further the selection process. Based on the limited information

10 I have at this point, I believe Staff's recommendations are overly reliant on

11 mathematical curve-fitting, which results in less accurate recommendations for certain

12 accounts, especially when considering the variety of assets in an account and how they

13 are operated by the Company.

14 **Q.** **How does mathematical fitting compare to visual fitting?**

15 A. Mathematical fitting uses a computer model to minimize the sum of squares differences

16 between the observed data and a proposed survivor curve in order to approximate the

17 most accurate life curve. In real-world applications, theoretical statistical models are

18 not always accurate due to the interrelationship of the data in various years (e.g., storms

19 would trigger common causes of retirement between vintages, inflation would change

20 the unit price from year to year, etc.). Visual matching does not have this issue. Over

21 my approximate 3.5 decades of performing depreciation studies, I believe that visual

22 fitting is a superior approach.

23 **Q.** **Do depreciation experts and authoritative texts address the use of mathematical**

24 **and visual curve fitting?**

1　A.　Yes. *Depreciation Systems* cautions that "blind acceptance of mechanical fitting

2　processes will occasionally but consistently result in poor choices"[4] and that "…the

3　results of mathematical fitting should be checked visually and the final determination

4　of best fit made by the analyst."[5]

5　　　　　Sound depreciation practice and authoritative guidance advise that a curve

6　representing the company-specific data (that is to be compared to the standardized Iowa

7　curve) needs to drop to at least 50% to take into account a statistically valid portion of

8　the assets' life cycle (i.e., 50% of the historical experience) of the account to order to

9　have a fully predictive analysis.[6]

10　　　　　Also, sound depreciation practice and the authoritative texts advise that the

11　analyst focus on retirement experience within the middle section of the life curve (i.e.,

12　80% to 20% surviving) because this portion of the experience is more reflective of the

13　retirement characteristics of the assets in the account:

14　　　　　The weight placed on those points will depend on the size of the
15　　　　　exposures. Often the middle section of the curve (that section ranging
16　　　　　from approximately 80% to 20% surviving) is given more weight than
17　　　　　the first and last sections. This middle section is relatively straight and
18　　　　　is the portion of the curve that often best characterizes the survivor
19　　　　　curve.[7]

20　Since Staff has not provided any workpapers at this point, I cannot determine how the

21　various curve matches were evaluated.

22　**Q.　Do you have other concerns with Staff's actuarial methodology?**

23　A.　Yes. I cannot determine how many bands Staff performed to examine the life

24　characteristics of each account.　Authoritative texts recommend looking at

---

[4] F.K. Wolf and W.C. Fitch, *Depreciation Systems*, Iowa State Press (1994) at p. 47.
[5] *Id*. at p. 48.
[6] NARUC, *Public Utility Depreciation Practices* at 120 ("It is generally desirable to have the stub curve drop below 50%.").
[7] *Depreciation Systems* at pp. 46-47 (emphasis added).

1   combinations of retirement history over different periods of time, so the analyst can

2   discern patterns that may influence the recommendations. The authoritative texts
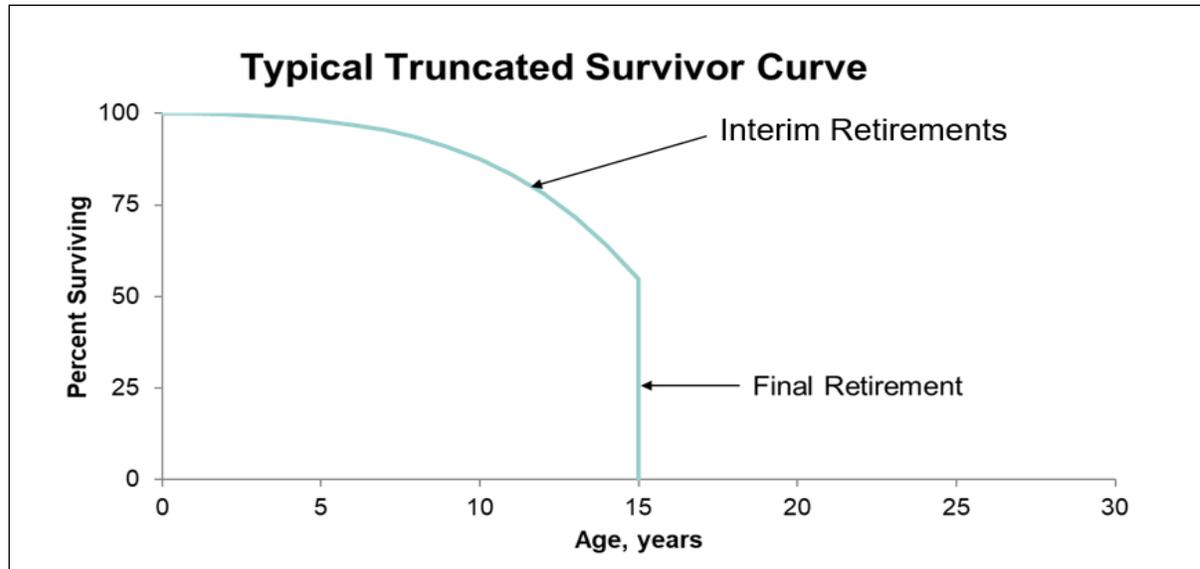
3   provide as follows:

> 4   The ultimate combination of bands is the overall band, which combines
> 5   all individual placement and experience bands into a single, overall
> 6   band. The major attribute of the survivor curve obtained from this band
> 7   is that it uses every available exposure and retirement. On the other
> 8   hand, this grand average obscures the dynamic characteristics of the life
> 9   characteristics of the property…It is difficult to figure out the exact
> 10   meaning of the overall band, and, in spite of the fact it does contain all
> 11   the data points, it should be given limited significance.[8]

12   Until further data is provided, Staff recommendations are unsupported with the

13   exception of a schedule showing their proposed rates and computation of those rates.

14   **Q.   How are various generation assets modeled in the depreciation study?**

15   A.   In my depreciation study, I modeled all generation facilities using the life span

16   procedure. The life span procedure is used for production facilities for which most

17   components are expected to have a retirement date concurrent with the planned

18   retirement date of the generating unit. The terminal retirement date refers to the year

19   that each unit will cease operations. The terminal retirement date, along with the

20   interim retirement characteristics of the assets that will retire prior to the facility ceasing

21   operation, describe the pattern of retirement of the assets that comprise a generating

22   unit. The estimated terminal retirement date of each facility was provided to Alliance

23   by the Company. An example of a life span and interim retirement application is shown

24   below.

---

[8] *Depreciation Systems* at pp. 46-47 (emphasis added).

1

2 **Q.** **What is an interim retirement curve?**

3 A.   An interim retirement curve is a prediction of how assets within each plant account are

4   predicted to retire before the terminal retirement data of a generating unit.   In my

5   depreciation study, I modeled all generation facilities using the life span procedure.

6   Interim retirement curves were used to model the retirement of individual assets within

7   primary plant accounts for each generating unit prior to the terminal retirement of the

8   facility. The life span procedure assumes all assets are depreciated (straight-line) for

9   the same number of periods and retire at the same time (the terminal retirement date).

10   Adding interim retirement curves to the procedure reflects the fact that some of the

11   assets at a power plant will not survive to the end of the life of the facility and should

12   be depreciated (straight-line) more quickly and retired earlier than the terminal life of

13   the facility. The goal of interim retirement curves is to project how many of the assets

14   that are currently in service will retire each year in the future using historical analysis

15   and judgment. By applying interim retirements, recognition is given to the obvious

16   fact that generating units will have retirements of depreciable property before the end

17   of their lives.

1   Although interim retirements have been recognized in the study, interim additions (i.e.,

2   future additions) have been excluded from the study. The estimated amount of future

3   additions might or might not occur. However, there is no uncertainty as to whether the

4   full level of interim retirements will happen. The assets that are being modeled for

5   retirement are already in rate base. Depreciation rates using interim retirements are

6   known and measurable in the same way that setting depreciation rates for transmission

7   or distribution property using Iowa Curves is known and measurable. There is no

8   depreciable asset that is expected to live forever. All assets at a power plant will retire

9   at some point. Interim retirements simply model when those retirements will occur in

10   the same way that is done for transmission or distribution assets.

11   **Q.   Did Staff also use interim retirement curves to model the lives of generation**

12   **facilities?**

13   A.   Yes. In Staff's initial filing, there were certain exceptions which were subsequently

14   resolved. In workpaper DEP18CIP PRODUCTION, there were certain facilities where

15   no terminal retirement data was used: Iatan Common Accounts 311-316. Asbury Wind

16   Center Accounts 341. 342 345. 346. Energy Center Common Account 345, and State

17   Line Common Account 341, 342, 343. 345 346. I modeled all facilities with a terminal

18   retirement date. Our understanding is that when Staff files their rebuttal testimony, our

19   treatment of interim retirement curves will be the same.

20   **Q.   Did you make adjustments to the interim retirement data for production?**

21   A.   Since interim retirements exclude terminal activity, I removed terminal retirements for

22   Riverton (2014-2017).   As stated in Schedule DAW-2, pages 23-24:

23   In performing actuarial analysis on accounts 311-316, the initial data set
24   included all retirements except life span retirements of Riverton and Asbury. After
25   reviewing the results, the interim survivor curves showed a much shorter life than is
26   usually seen in generation assets. We concluded that the retirements near the end of

1   the economic life of those generating units were atypical of the existing steam
2   generation plant at Iatan and Plum Point. It was not possible to remove all life data
3   related to Riverton and Asbury in the history since no segregated source data before
4   2005 was available. Thus, interim net salvage from 2005-2019 was used to estimate
5   net salvage for accounts 311-316.
6
7   After a meeting with Staff to discuss the issue, we supplied Staff with identical data

8   that I analyzed, and this was used in Staff's rebuttal testimony. In the sections below,

9   I will discuss each account where Staff and I have different recommendations on life

10   for each account.

11   Account 311 Structures and Improvements

12 **Q.**   **What are the alternative recommendations for the life of account 311, structures**
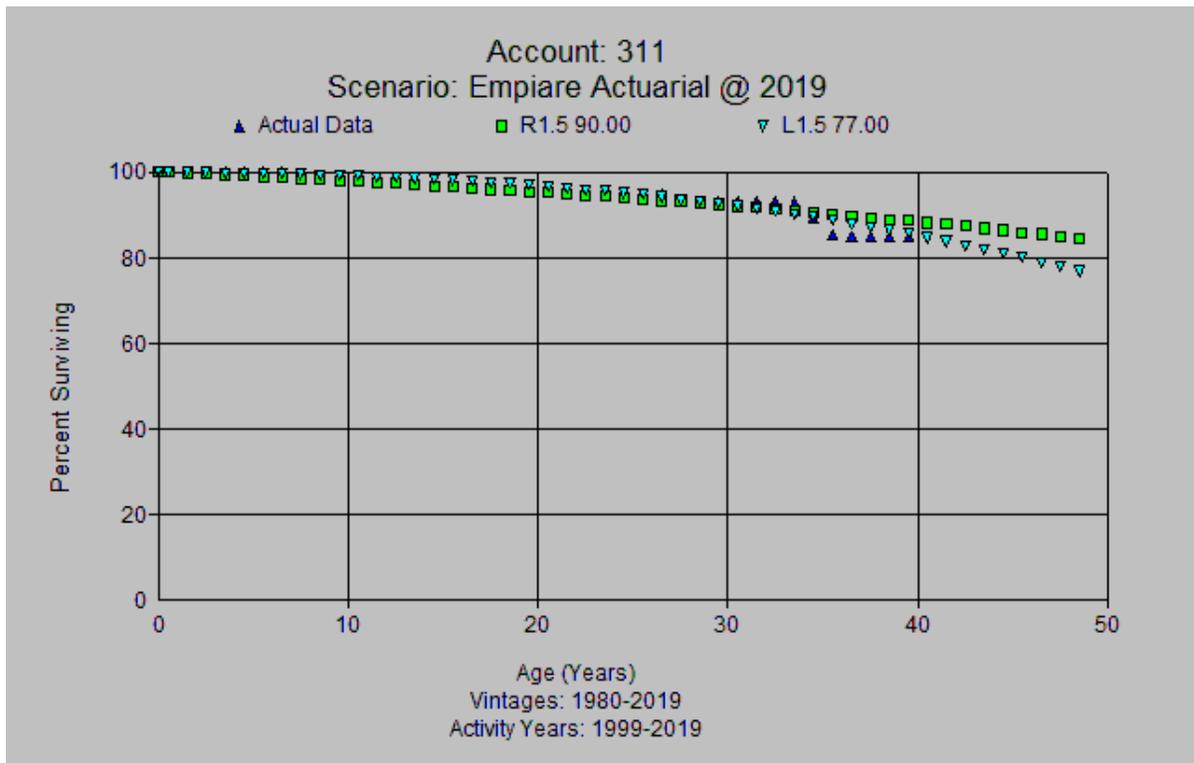
13   **and improvements?**

14 A.   The Company proposal for Account 311 is 90 years with a R1.5 dispersion, as

15   compared to Staff's proposed a 77-year life with an L1.5 dispersion. This account

16   consists of buildings, concrete structures, fences, lighting systems, railroad tracks, and

17   other related assets. The plant balance in this account is $63.9 million. **Rebuttal**

18   **Schedule DAW-3** shows a list of the various retirement units in this account. The

19   investment in this account is 10.64 years old on average, which means that more recent

20   experience is indicative of the future for this account.

21 **Q.**   **How will you display the various curve comparisons?**

22 A.   I will display various graphs from my software to show how the curves compare. The

23   dark blue triangles rectangles represent the actual data, the green rectangles represent

24   the Company's proposed curve, and the light blue triangles show Staff's proposed life

25   for this account. I will use the same format to show each account's visual match.

1 **Q. How does your proposed curve compare to Staff's proposal?**

2 A. Both curves match closely through age 40. Since the experience band goes from 1999-

3 2019, there is not as much history to match. Since the curve does not drop as much

4 with limited data, it is more difficult to differentiate between the competing proposals.

5 However, I think my proposal is more reasonable for assets such as buildings, concrete

6 and other long-lived fixed assets.

7

8 Account 312 Boiler Plant and Equipment

9 **Q. What are the alternative recommendations for the life of Account 312, Boiler**
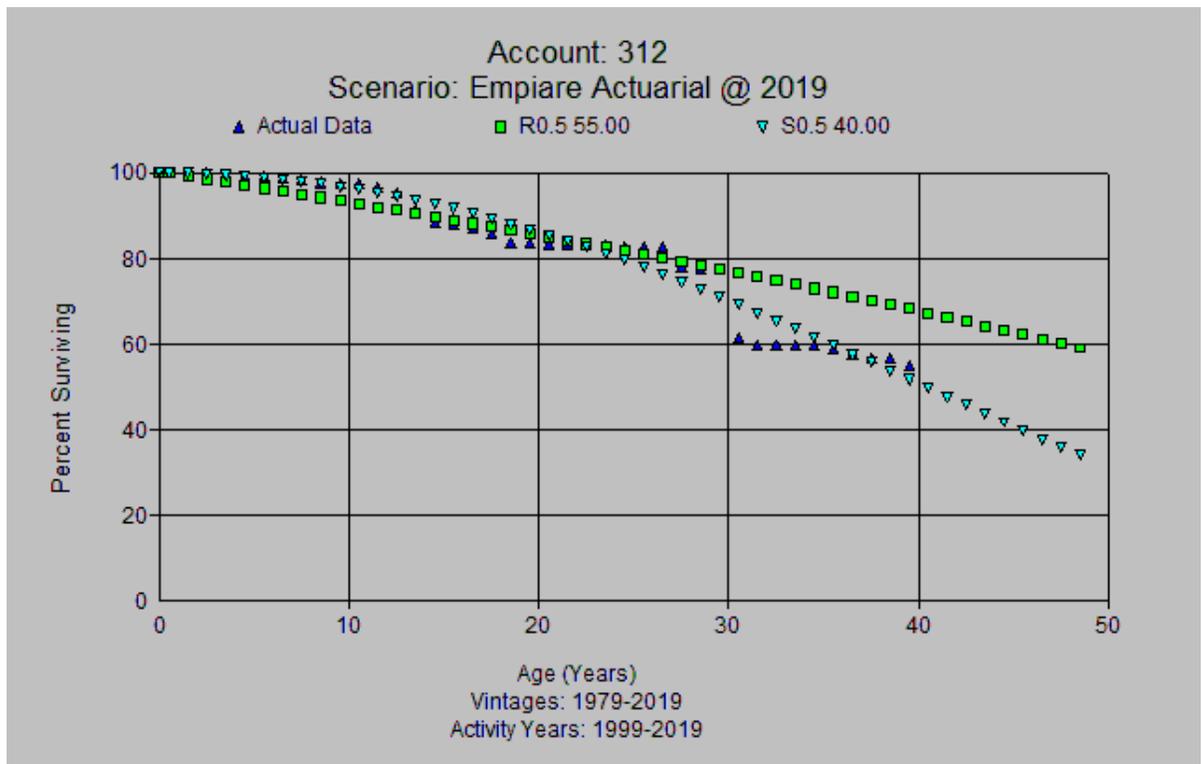
10 **Plant Equipment?**

11 A. The Company proposal for Account 312 is 55 years with a R0.5 dispersion, as

12 compared to Staff's proposed 40-year life with an S0.5 dispersion. This account

13 consists of boiler plant equipment, super heaters, water walls, fuel burning equipment,

14 reheaters. and other related equipment. The balance in this account is $317.9 million.

1   **Rebuttal Schedule DAW-3** shows a list of the various retirement units in this account.

2   The investment in this account is 8.57 years old on average, which means that more

3   recent experience is indicative of the future for this account.

4   **Q.   How does your proposed curve compare to Staff's proposal?**

5   A.   Staff's curve matches better through age 30. However, based on the types of assets in

6   the account, it is difficult to envision that half of the assets in the account would be

7   retired and replaced by age 40. I seldom, if ever, see an interim retirement curve for

8   this account as low as 40 years. I feel my proposal is a better representation of the

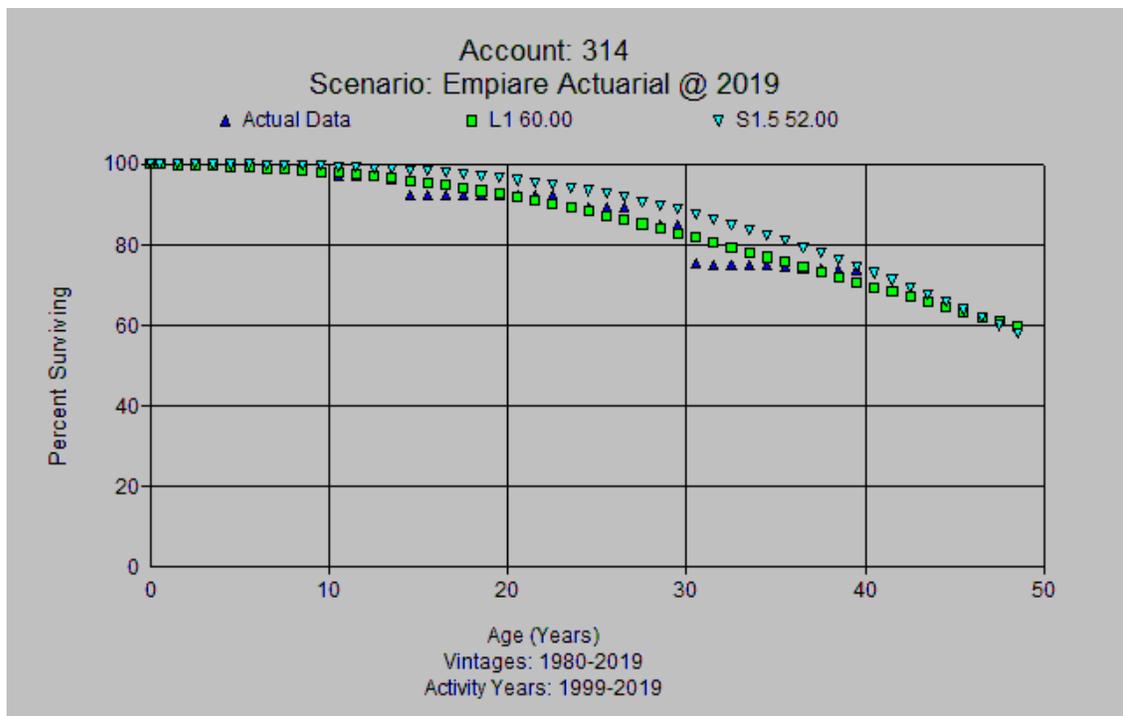9   retirement characteristics of this account.

10

1   Account 314 Turbogenerator Equipment

2   **Q.**   **What are the alternative recommendations for the life of Account 314,**

3   **Turbogenerator Equipment?**

4   A.   The Company proposal for Account 314 is 60 years with a L1 dispersion, as compared

5   to Staff's proposed 52-year life with an S1.5 dispersion. This account consists of turbo-

6   generator main structures, pumps, condensers, rotating blades, and other related assets.

7   The balance in this account is $82.9 million. **Rebuttal Schedule DAW-3** shows a list

8   of the various retirement units in this account. The investment in this account is 11.70

9   years old on average, which means that more recent experience is indicative of the

10   future for this account.

11 **Q.**   **How does your proposed curve compare to Staff's proposal?**

12 A.   My proposal is a much better visual match and is more typical of electric utility

13   property in this account. Staff's proposal does not match the shape of the curve from

14   ages 0 to 40 as well as my proposal does.

15

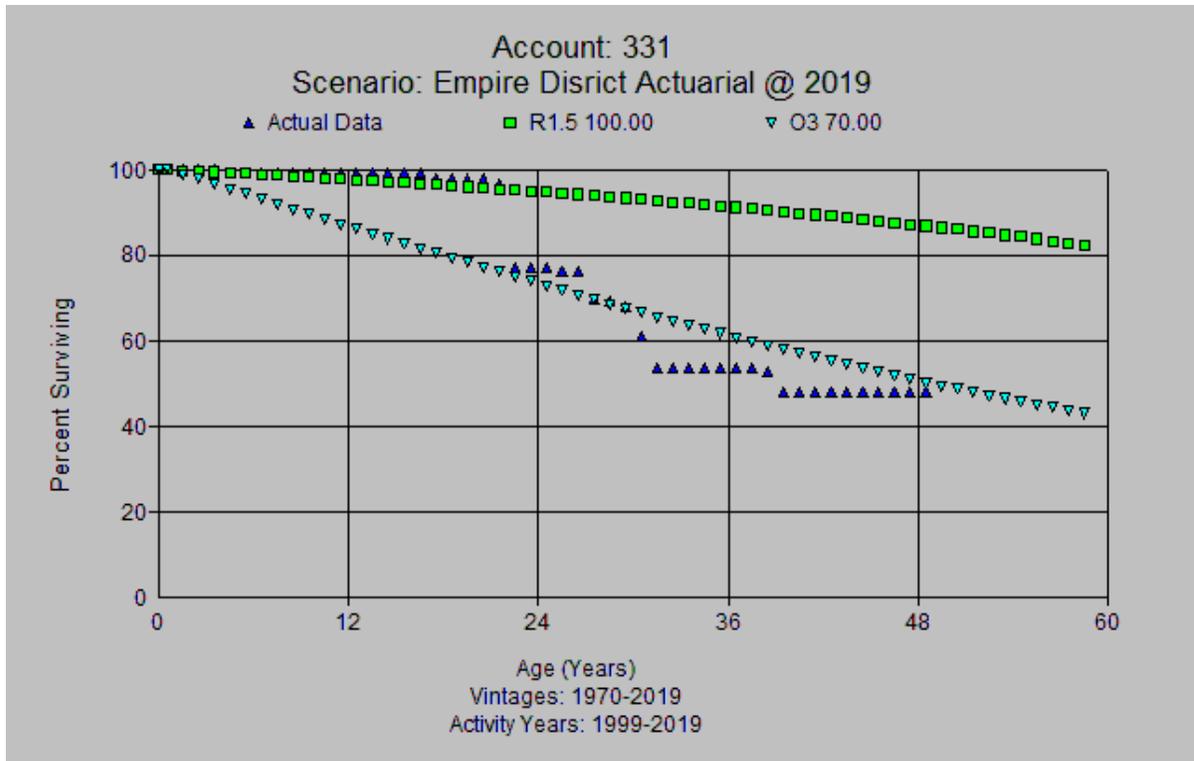1   <u>Account 331- Structures and Improvements</u>

2   **Q.**   **What are the alternative recommendations for the life of Account 331, Structures**

3   **and Improvements?**

4   A.   The Company proposal for Account 331 is 100 years with a R1.5 dispersion, as

5   compared to Staff's proposed 70-year life with a O3 dispersion. This account consists

6   of buildings, structures, fences, lighting systems, and other related assets. The balance

7   in this account is $1.7 million.   **Rebuttal Schedule DAW-R-3** shows a list of the

8   various retirement units in this account.   The investment in this account is 14.43 years

9   old on average, which means that more recent experience is indicative of the future for

10   this account.

11   **Q.**   **How does your proposed curve compare to Staff's proposal?**

12   A.   In this case, Staff's proposal is a superior visual fit.   However, the choice of an O curve

13   is a very unusual one in this case.   O curves are uncommon in utility applications and

14   have very long tails (i.e., when the last asset retires)[9]. Although dam structures can

15   have a long life, it is difficult to envision any of the components in this account as

16   shown in **Rebuttal Schedule DAW-3**, (especially assets such as refrigerators, HVAC

17   equipment, windows, and cabinetry) will last the 270 years a 70 O3 curve would imply.

18   For structures, I believe my proposal is a better one.

---

[9]The O3 curve will last 385 percent of the average service life. (Depreciation Systems, by W C Fitch and F K Wolf, p. 334). This would mean assets modeled with the 70 O3 curve would last as long as 270 years.

Account: 331
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ■ R1.5 100.00   ▽ O3 70.00

Age (Years)
Vintages: 1970-2019
Activity Years: 1999-2019

1
2

3   Account 332 Dams

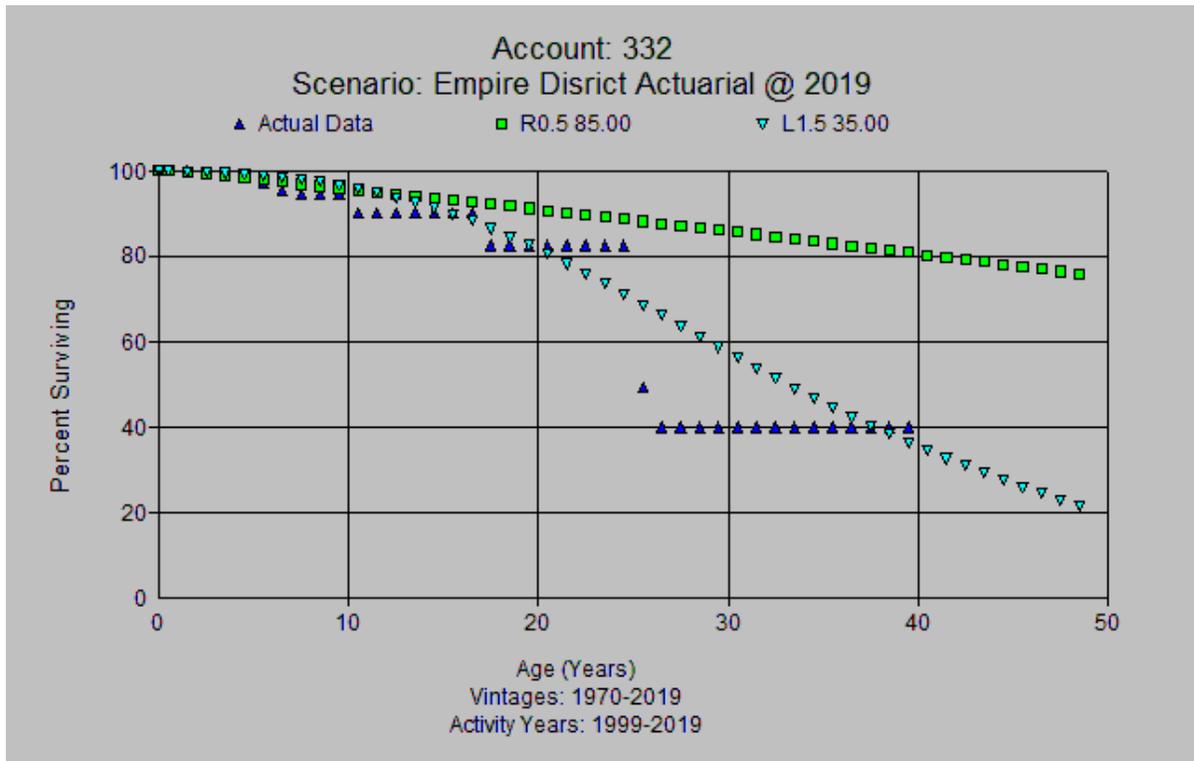4   **Q.**   **What are the alternative recommendations for the life of Account 332, Dams?**

5   A.   The Company proposal for Account 332 is 85 years with a R0.5 dispersion, as

6   compared to Staff's proposed 35-year life with a L1.5 dispersion. This account consists

7   of reservoirs, dams, waterways, and other related assets. The account balance is $3.5

8   million. **Rebuttal Schedule DAW-3** shows a list of the various retirement units in this

9   account. The investment in this account is 41.07 years old on average, which means

10   that more recent experience is indicative of the future for this account.

11   **Q.**   **How does your proposed curve compare to Staff's proposal?**

12   A.   Staff's curve is a closer visual match. However, given that the average age of the assets

13   is already longer than Staff's proposal, I believe my proposal better matches the dams

14   which are made of concrete, steel and similar materials. As stated in Schedule DAW-

15   2, page 37 of 137, in 2011, the crest gate and flashboard were replaced. This could

1   signal in the statistics a shorter life than would be expected for the remaining assets in

2   this account. Given that recent activity, I think it is unlikely the dam will have that

3   type of replacement occurring at such a young age over the remaining life of Ozark

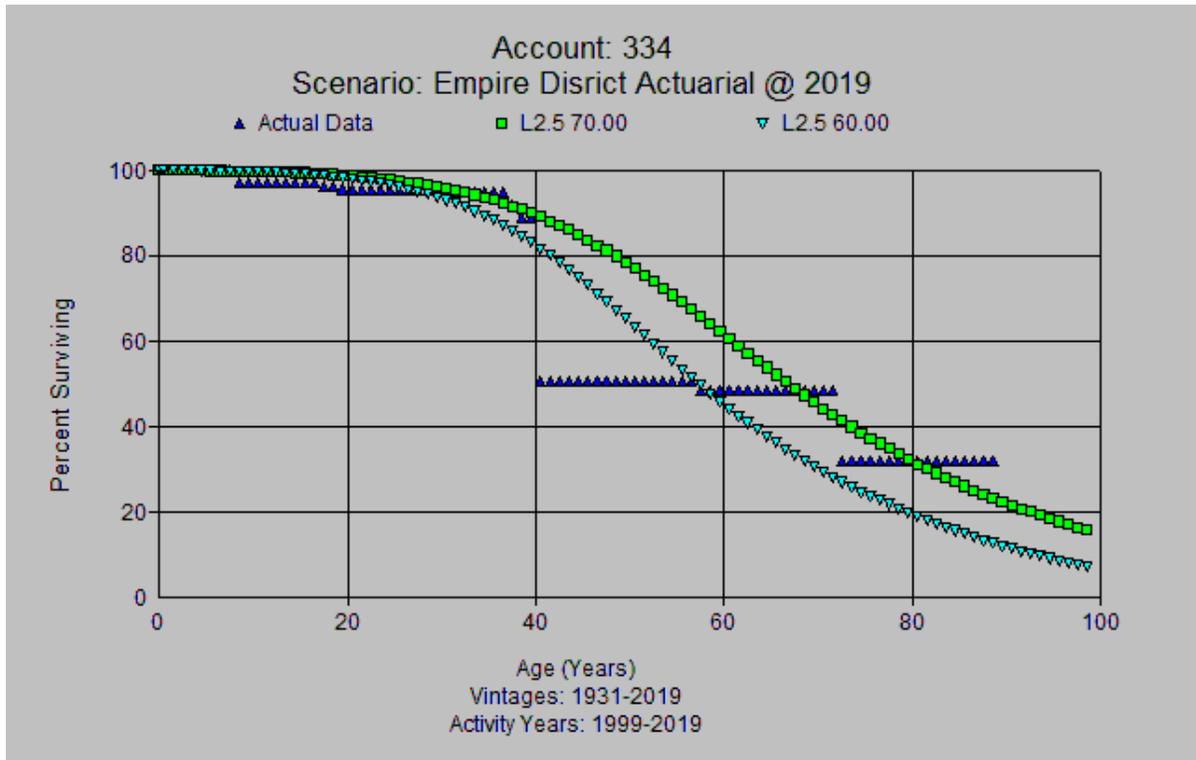4   Beach. I believe the Company proposal is the superior recommendation.

5

6   <u>Account 334 Accessory Electric Equipment</u>

7   **Q.**   **What are the alternative recommendations for the life of Account 334, Accessory**

8   **Electric Equipment?**

9   A.   The Company proposal for Account 334 is 70 years with a L2.5 dispersion, as

10   compared to Staff's proposed 60-year life with a L2.5 dispersion. This account consists

11   of generator controls, bus equipment, and other related assets. The account balance is

12      $1.5 million. **Rebuttal Schedule DAW-3** shows a list of the various retirement units

13   in this account. The investment in this account is 25.19 years old on average, which

14   means that more recent experience is indicative of the future for this account.
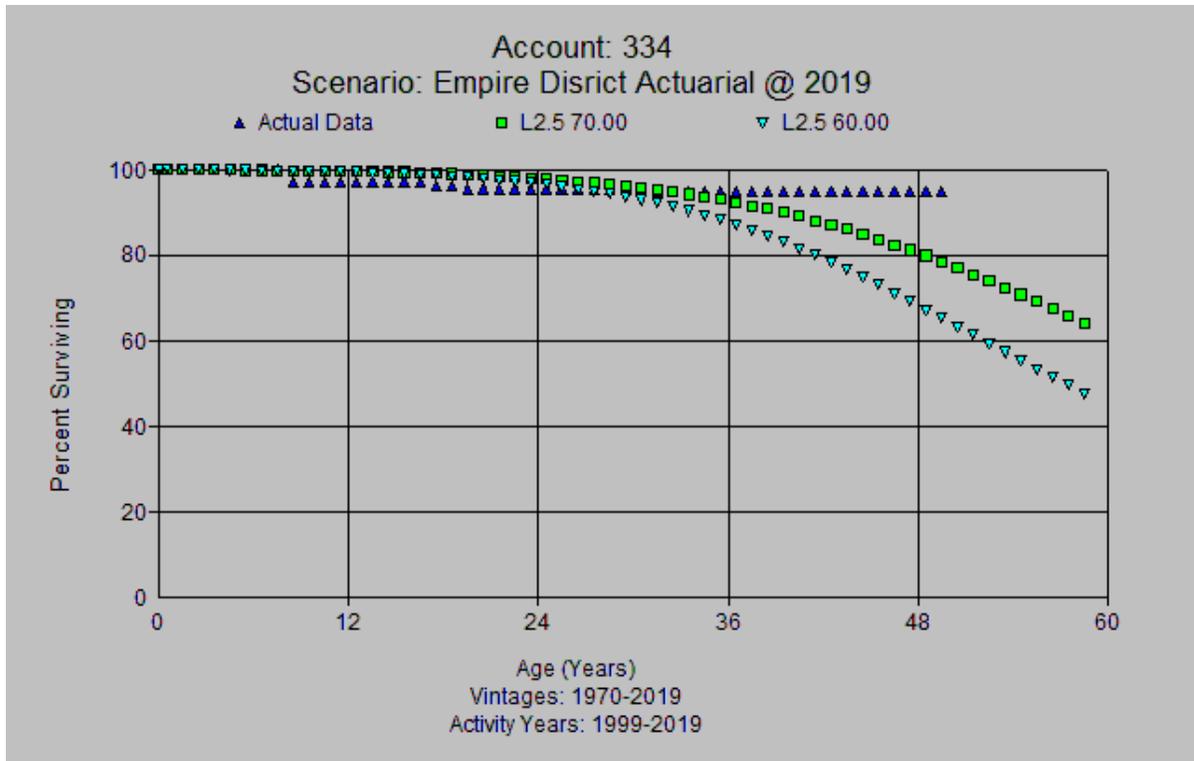
1   **Q.   How does your proposed curve compare to Staff's proposal?**

2   A.   Although the available data does not create a statistical validity to select either life

3   with certainty, in the overall band, Staff's proposal is a closer match.

4

5   However, that changes in a narrower band as shown below, where the Company's life

6   is a slightly better fit.

Account: 334
Scenario: Empire Disrict Actuarial @ 2019

1

2   I believe my proposal is a superior recommendation both from the newer experience

3   and the life expectations for electrical components.
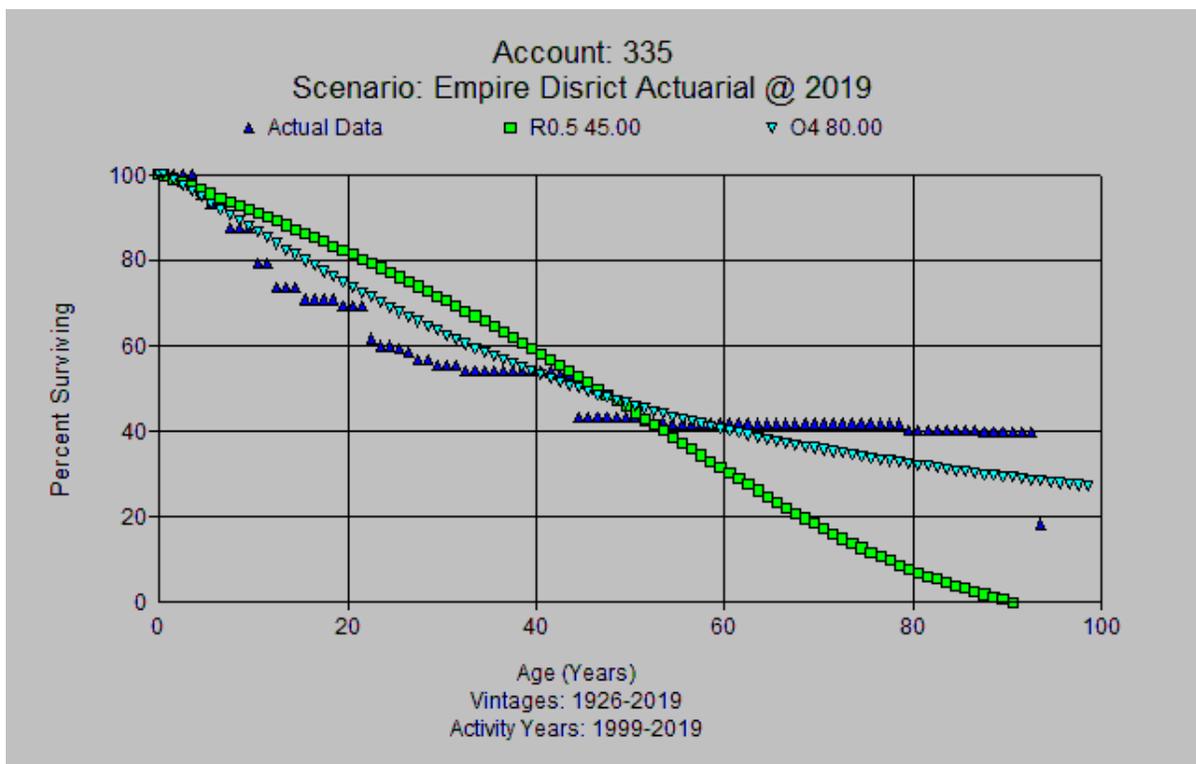
4   Account 335 Misc. Equipment

5 **Q.   What are the alternative recommendations for the life of Account 335,**

6   **Miscellaneous Equipment?**

7 A.   The Company proposal for Account 335 is 45 years with a R0.5 dispersion, as

8   compared to Staff's proposed 80-year life with a O4 dispersion. This account consists

9   of storage tanks, boats, test equipment, and other related assets. The account balance

10   is $1.2 million. **Rebuttal Schedule DAW-3** shows a list of the various retirement units

11   in this account.   The investment in this account is 9.20 years old on average, which

12   means that more recent experience is indicative of the future for this account.
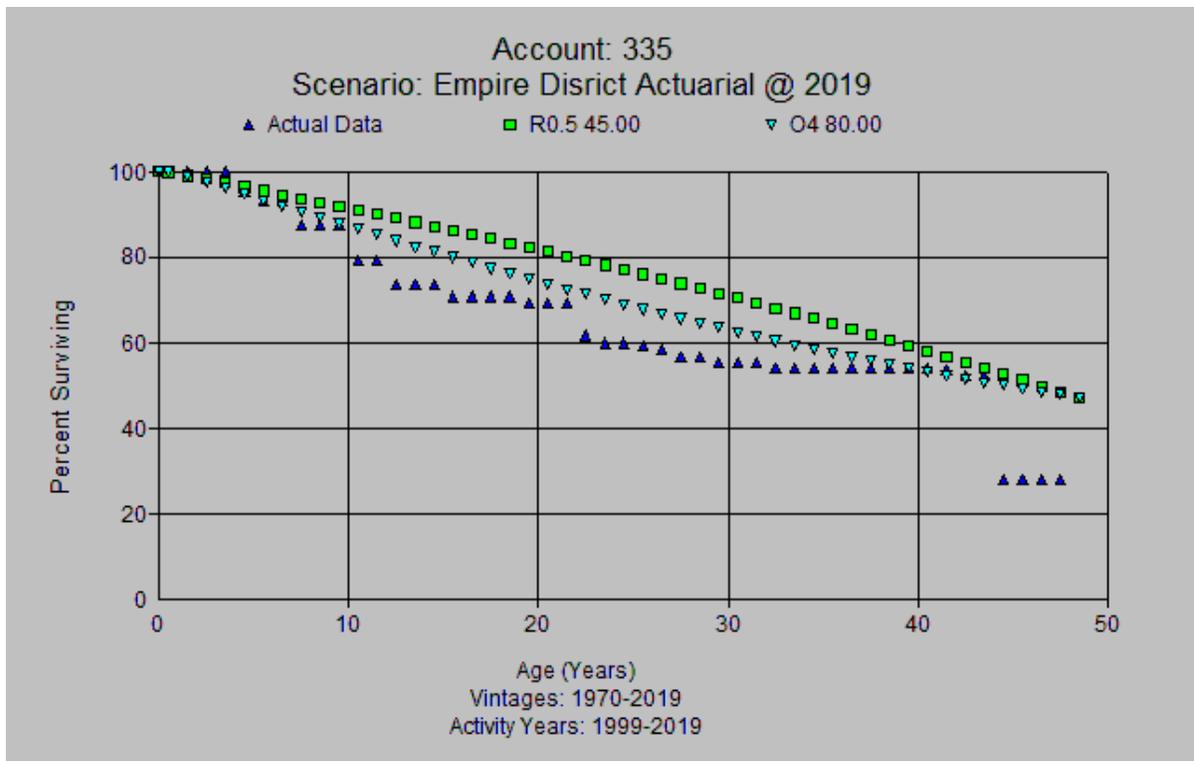
1   Q.   **How does your proposed curve compare to Staff's proposal?**

2   A.   In the overall band, Staff's proposal is a superior visual fit.   However, the choice of

3   an O curve is a very unusual one in this case. O curves are uncommon in utility

4   applications with very long tails.

5   An 80 O4 curve will last as long as 350 years (up to 440 percent of average

6   service life). Staff's proposal would suggest these assets would last longer than the

7   dam itself for Ozark Beach. As shown in **Rebuttal Schedule DAW-3**, the assets in

8   this account are assets such as backhoes, signage, mower, test equipment, pumps, and

9   welding equipment., none of which will have a life of 350 years. (or even 80 years).

Account: 335
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ▪ R0.5 45.00   ▽ O4 80.00

Age (Years)
Vintages: 1926-2019
Activity Years: 1999-2019

10   In a narrower band, the Company's R0.5 curve matches better than Staff's O curve.

Account: 335
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ■ R0.5 45.00   ▽ O4 80.00

Age (Years)
Vintages: 1970-2019
Activity Years: 1999-2019

1

2   I believe my proposal is a superior one for this account. Staff's proposal does not

3   reflect the characteristics of the small tools, pumps, ATVs, and other small assets
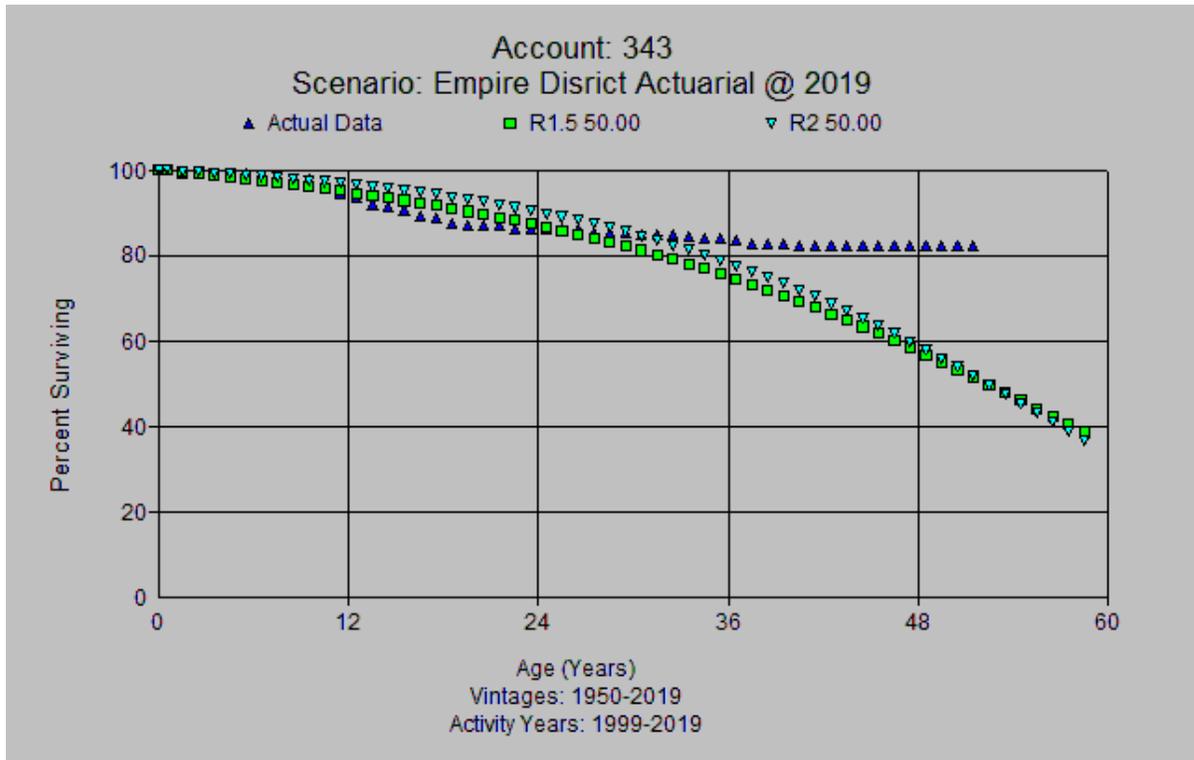
4   booked in account 335.

5   Account 343 Prime Movers

6 **Q.**   **What are the alternative recommendations for the life of Account 343, Prime**

7   **Movers?**

8 A.   The Company proposal for Account 343 is 50 years with a R1.5 dispersion, as

9   compared to Staff's proposed 50-year life with a R2 dispersion. This account consists

10   of foundations, chimneys, demineralizers, fire protection systems, and other related

11   assets at each power plant. The balance in this account is $376.1 million. **Rebuttal**

12   **Schedule DAW-3** shows a list of the various retirement units in this account. The

13   investment in this account is 12.94 years old on average, which means that more recent

14   experience is indicative of the future for this account.

28

1 **Q. How does your proposed curve compare to Staff's proposal?**

2 A. These curves are very close to each other. Given the close curve match and same life,

3 Staff's recommendation is also reasonable.

Account: 343
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ▣ R1.5 50.00   ▽ R2 50.00

Percent Surviving

Age (Years)
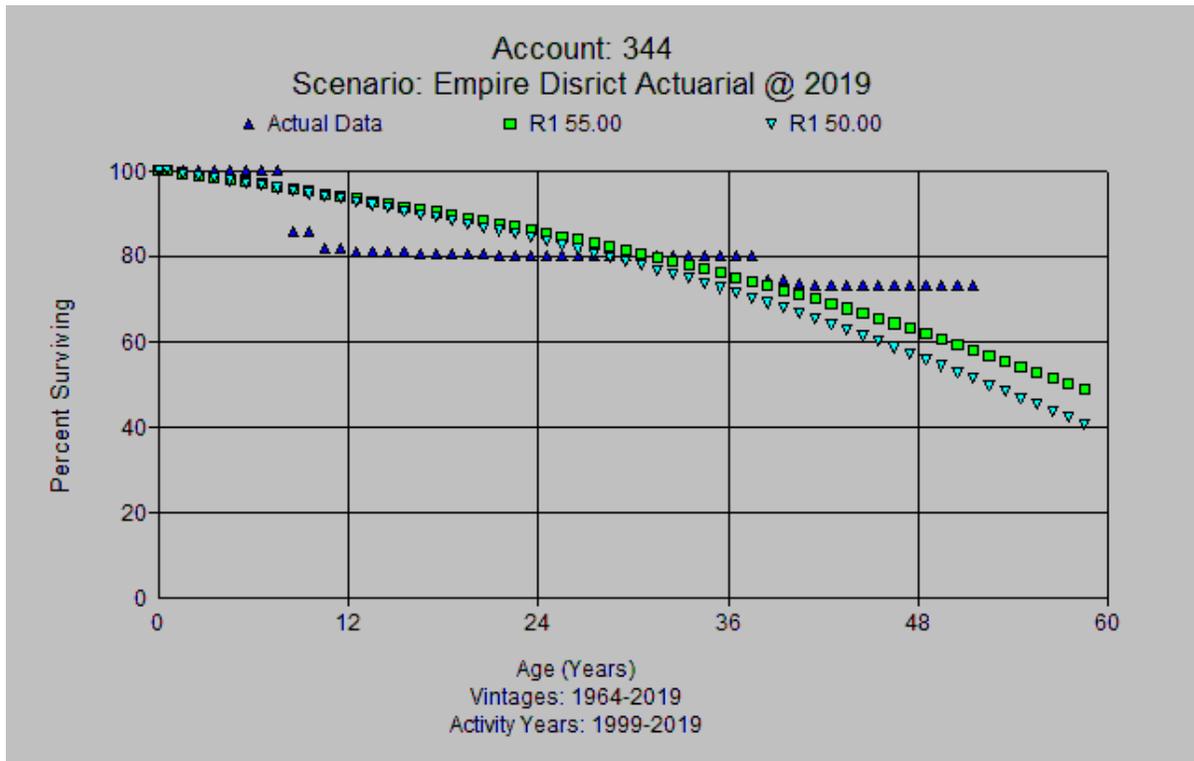Vintages: 1950-2019
Activity Years: 1999-2019

5 Account 344 Generators

6 **Q. What are the alternative recommendations for the life of Account 344,**

7 **Generators?**

8 A. The Company proposal for Account 344 is 55 years with a R1 dispersion, as compared

9 to Staff's proposed 50-year life with a R1 dispersion.   This account consists of

10 generators, turbine equipment, and other related assets. The balance in this account is

11 $73.4 million. **Rebuttal Schedule DAW-3** shows a list of the various retirement units

12 in this account.   The investment in this account is 13.87 years old on average, which

13 means that more recent experience is indicative of the future for this account.

1   **Q.**   **How does your proposed curve compare to Staff's proposal?**

2   A.   Neither curve is a good match given the large drop in the curve that occurs around

3   age 10. Given the fit for both curves and reasonable life, Staff's recommendation is

4   also reasonable.

Account: 344
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ◻ R1 55.00   ▽ R1 50.00

Age (Years)
Vintages: 1964-2019
Activity Years: 1999-2019

5

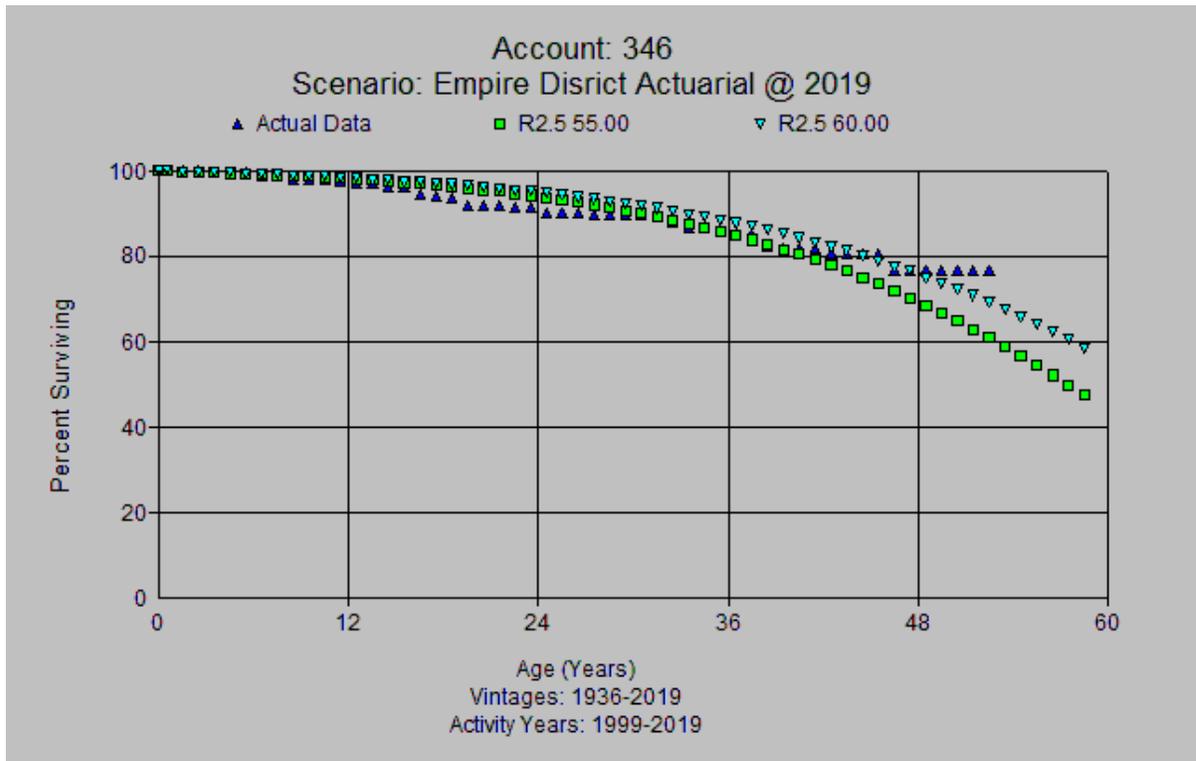6   Account 346 Misc. Equipment

7   **Q.**   **What are the alternative recommendations for the life of Account 346,**

8   **Miscellaneous Equipment?**

9   A.   The Company proposal for Account 346 is 55 years with a R2.5 dispersion, as

10   compared to Staff's proposed 60-year life with a R2.5 dispersion. This account consists

11   of work equipment, pumps, work benches, and other related assets. The balance in this

12   account is $13 million. **Rebuttal Schedule DAW-3** shows a list of the various

13   retirement units in this account. The investment in this account is 13.84 years old on

1   average, which means that more recent experience is indicative of the future for this
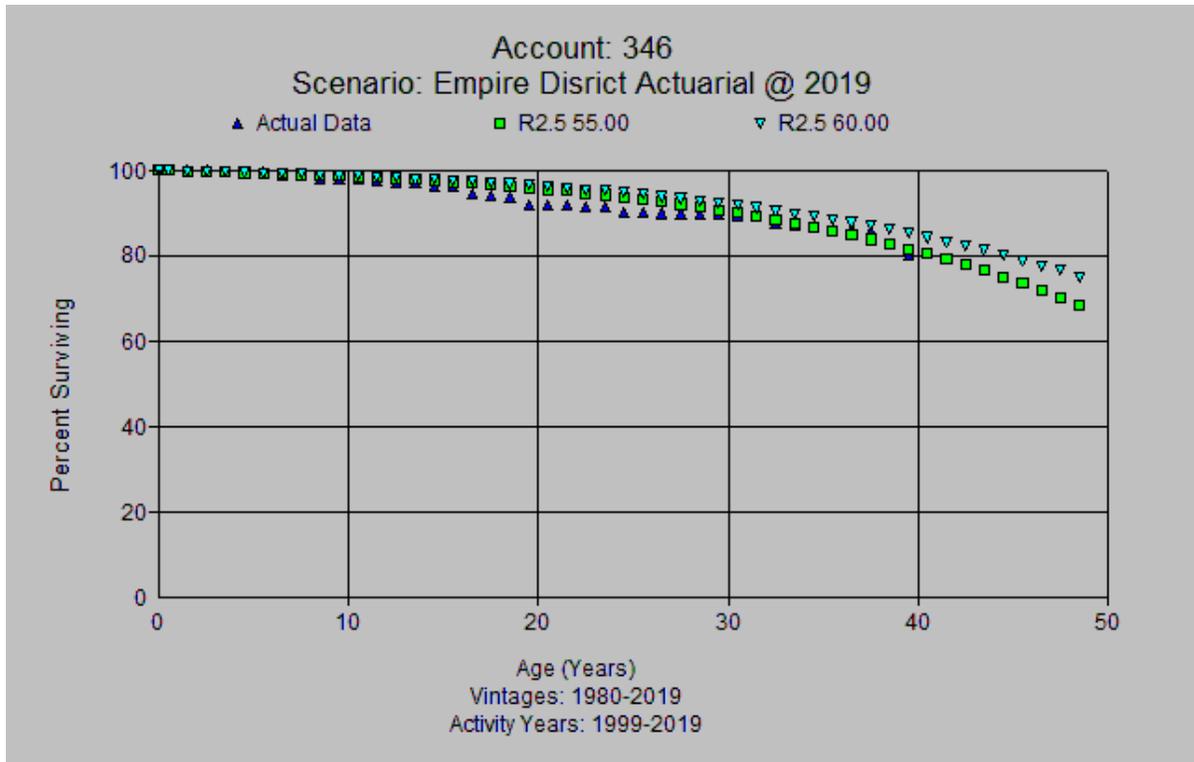
2   account.

3 **Q.   How does your proposed curve compare to Staff's proposal?**

4 A.   In the overall placement experience band, Staff's proposal is a better visual match.

5

6
7
8   In a more recent placment band, my proposal becomes a slightly better fit as

9   shown below.

1

Account: 346
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   □ R2.5 55.00   ▽ R2.5 60.00

Age (Years)
Vintages: 1980-2019
Activity Years: 1999-2019

2
3
4   Neither proposed curve has a very long stub ending with percent surviving of 77

5   percent, making matching an Iowa curve more difficult. Given the average age of the

6   account is less than 14 years, I believe my proposal is the better recommendation but

7   either selection would be a reasonable selection.

8   Account 352 Structures and Improvements

9   Q.   **What are the alternative recommendations for the life of Account 352, Structures**

10   **and Improvements?**

11 A.   The Company proposal for Account 352 is 70 years with a R2.5 dispersion, as

12   compared to Staff's proposed 80-year life with a R3 dispersion. This account consists

13   of buildings, structures, fences, lighting systems, and other related assets related to

14   Transmission Plant. The account balance is $4.7 million. **Rebuttal Schedule DAW-**

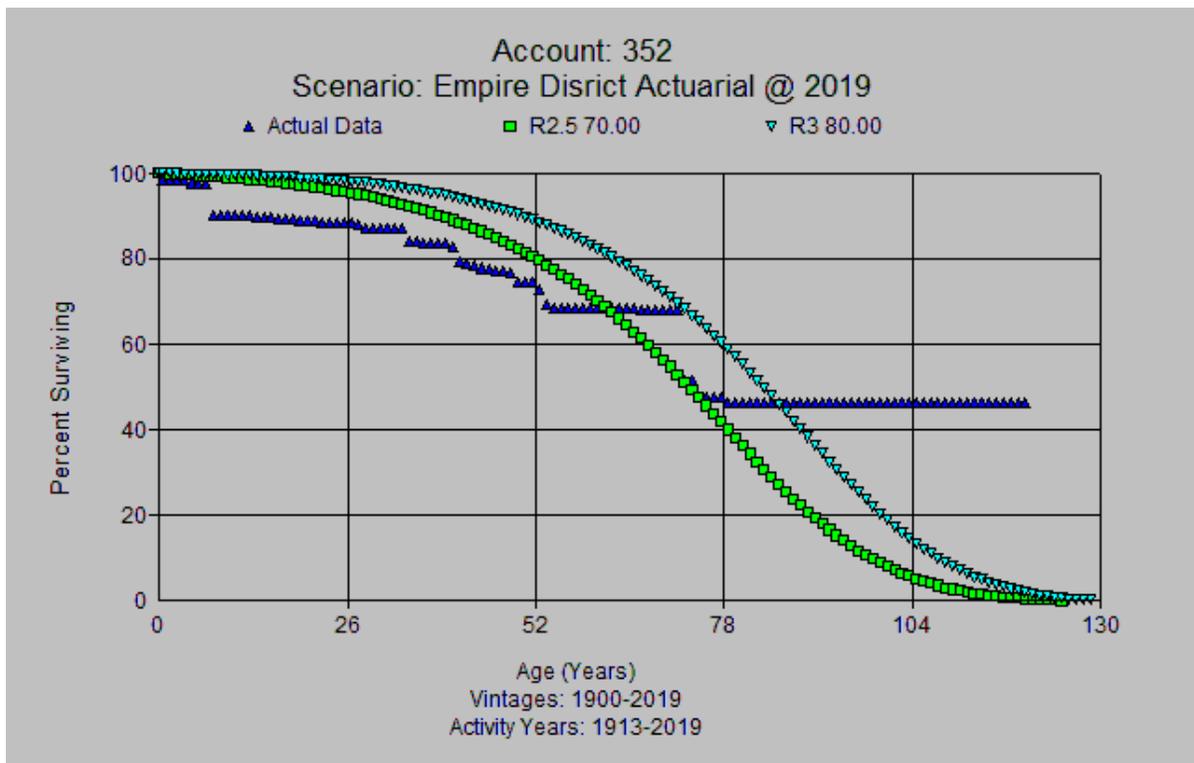15   **3** shows a list of the various retirement units in this account.   The investment in this

1   account is 18.44 years old on average, which means that more recent experience is

2   indicative of the future for this account.

3 **Q.   How does your proposed curve compare to Staff's proposal?**

4 A.   Although neither curve fits well, in the overall placement experience band my

5   proposal is a better visual match.

6

7

8   In a more recent placment band and experieince band, my proposal is a better fit as

9   shown below even though the data is limited only going to 80 percent suriviving.

Account: 352
Scenario: Empire Disrict Actuarial @ 2019

1

2   Account 353 Station Equipment

3 **Q.   What are the alternative recommendations for the life of Account 353, Station**

4   **Equipment?**

5 A.   The Company proposal for Account 353 is 50 years with a R1.5 dispersion, as

6   compared to Staff's proposed 50-year life with a S1 dispersion. This account consists

7   of conductors, switches, relays, grounding systems, panels, breakers, and other assets

8   related to station equipment. The account balance is $189.9 million. **Rebuttal**

9   **Schedule DAW-3** shows a list of the various retirement units in this account. The
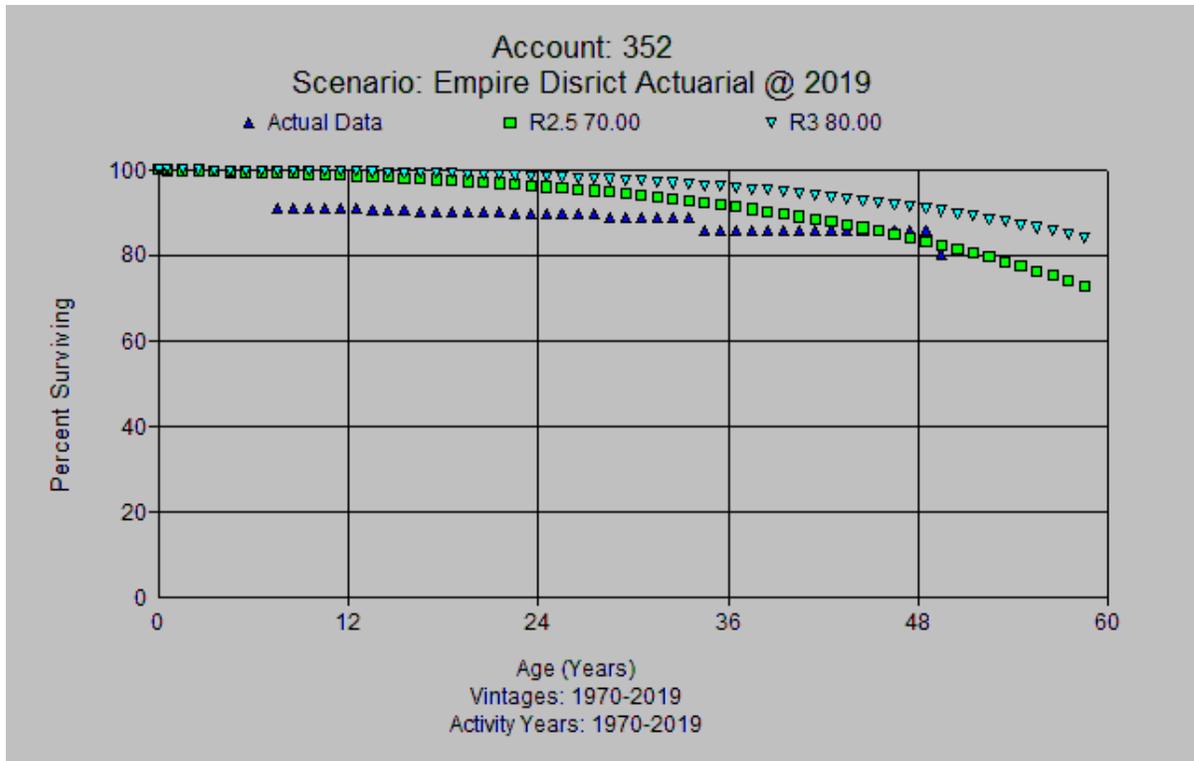
10   investment in this account is 12.77 years old on average, which means that more recent

11   experience is indicative of the future for this account.

12 **Q.   What important information did Company SMES provide regarding this**
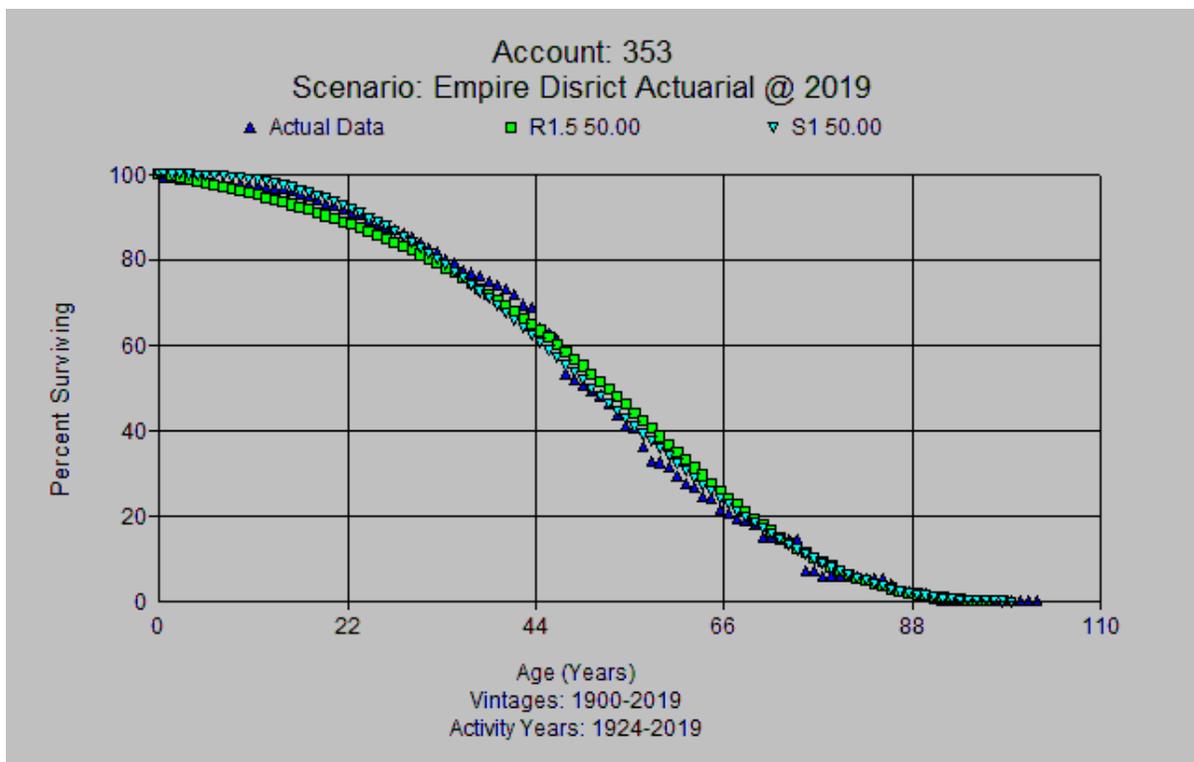
13   **account?**

14 A.   As mentioned in my depreciation study, Schedule DAW-2, page 51 of 137,

1   Discussions with Company personnel indicate they are moving to
2   digital relays. They are in the process of changing out the SF6 with dry
3   air relays. The Company is also moving away from oil breakers. There
4   have not been any big changes related to transformers

5   As I interview utility professionals across North America, many companies are

6   converting to electronic components in this account, which is lowering the life of this

7   account.

8   **Q.   How does your proposed curve compare to Staff's proposal?**

9   A.   In the overall placement experience band the two curves are a very close match.

10

11

12   In a narrower placement and experience band the same comparison holds true. Given

13   the similar match, consistent lives and a small variation in curve pattern, either selection

14   would be reasonable.

Account: 353
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ▫ R1.5 50.00   ▽ S1 50.00

Percent Surviving / Age (Years)
Vintages: 1970-2019
Activity Years: 1970-2019

1

2   Account 356 OH Conductor

3   **Q.   What are the alternative recommendations for the life of Account 356, Overhead**

4   **Conductor?**

5   A.   The Company proposal for Account 356 is 65 years with a R3 dispersion, as compared

6   to Staff's proposed 70-year life with a L3 dispersion. This account consists of

7   conductors, arrestors, switches, and other related devices. The balance in this account

8   is $100.3 million. The investment in this account is 18.03 years old on average, which

9   means that more recent experience is indicative of the future for this account.

10   **Q.   How does your proposed curve compare to Staff's visually?**

11   A.   The graph below compares the actual data to the Company's proposed curve versus

12   Staff's recommendation for the overall placement/ experience band.   The Company's

13   recommendation is a significantly better fit than Staff's.

Account: 356
Scenario: Empire Disrict Actuarial @ 2019
▲ Actual Data   ■ R3 65.00   ▽ L1 70.00

Age (Years)
Vintages: 1900-2019
Activity Years: 1909-2019

1

2 **Q.   What does a different placement experience band show for this account?**

3 A.   For a narrower band of 1970-2019, the observed life table does not go below 90%.

4   surviving. However, the Company's proposal still matches the data of the Company's

5   actual experience better than Staff's recommendation.   Another consideration is that

6   the 70 L1 curve will have assets that last up to 315 percent of average service e life

7   which is 220 years.   In contrast, the Company's proposed 65 R3 will last until age 110

8   years. A maximum life of 110 for conductor is more rational than 220 years from an

9   operational standpoint.

Account: 356
Scenario: Empire Disrict Actuarial @ 2019
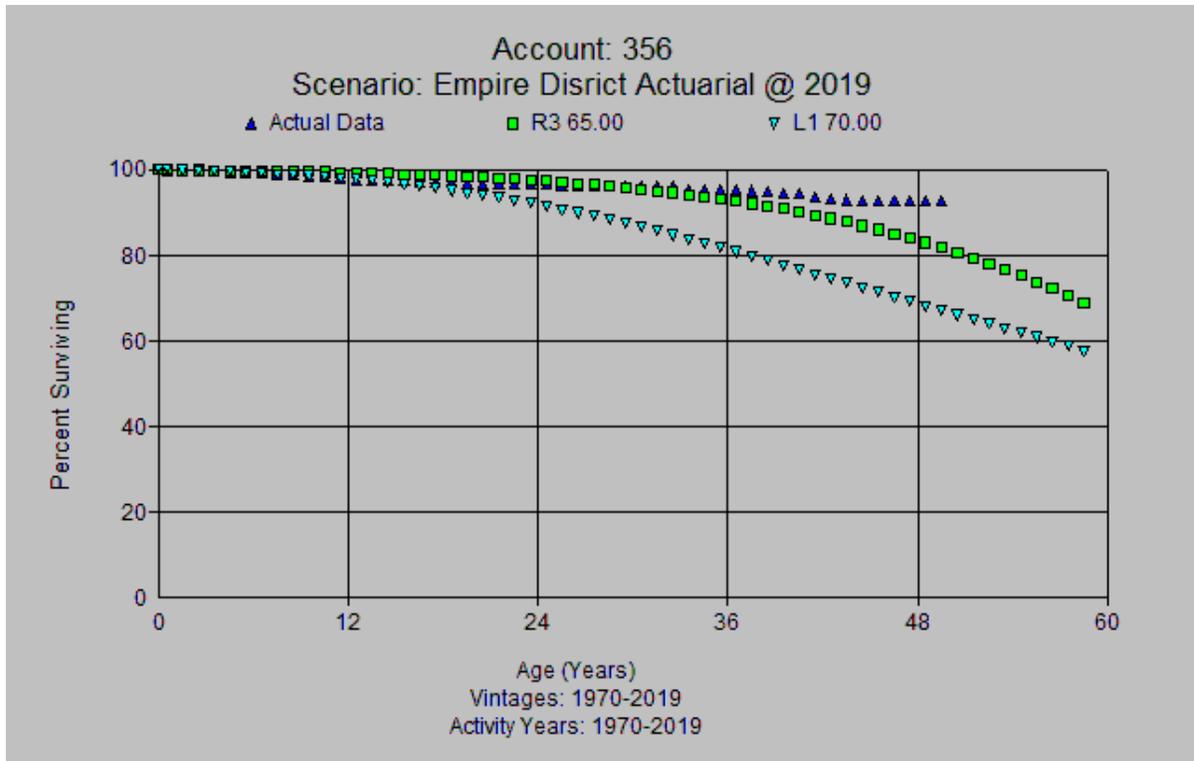
2   Account 361 Structures and Improvements

3   Q.   **What are the alternative recommendations for the life of Account 361, Structures**

4   **and Improvements?**

5   A.   The Company proposal for Account 361 is 52 years with a R2 dispersion, as compared

6   to Staff's proposed 55-year life with an R1.5 dispersion. This grouping contains

7   facilities ranging from landscaping, main building structures, lighting systems, sewer

8   systems, and other improvements. **Rebuttal Schedule DAW-3** shows a list of the

9   various retirement units in this account. The investment in this account is 10.65 years

10   old on average, which means that more recent experience is indicative of the future for
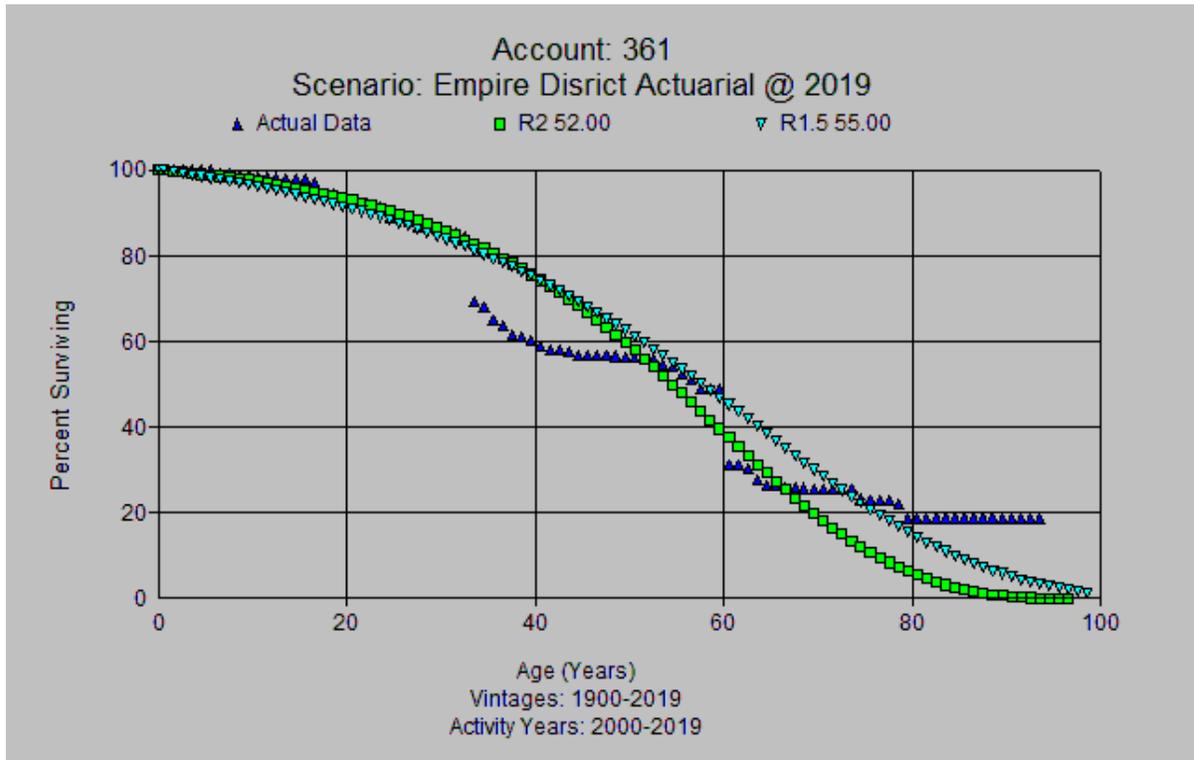
11   this account.

12 Q.   **What important information did Company SMEs provide regarding this**

13   **account?**

14 A.   As mentioned in my depreciation study, Schedule DAW-2, page 55 of 137,

1
2   Discussions with Company personnel indicated that they are no longer
3   using wood in distribution structures, and the change out to steel is
4   ongoing as the Company is focusing on its aging infrastructure. There
5   is a difference in life expectations between transmission and distribution
6   structures, in that transmission structures are stronger and built to last
7   longer. Also, more of these exist on the distribution system than on the
8   transmission system.
9

10   **Q.**   **How does your proposed curve compare to Staff's visually?**

11   A.   The graph below compares the actual data to the Company's proposed curve versus

12   Staff's recommendation for the overall placement/ experience band.   The Company's

13   proposal is a significantly better visual match.

14

15   In a narrower experience band, the Company's proposal is still a better match.

1

2   When narrowing the placement/experience band, the Company's proposal is still a

3   better visual match.

4

1   Account 362 Distribution Station Equipment

2   **Q.   What are the alternative recommendations for the life of Account 362,**

3   **Distribution Station equipment?**

4   A.   The Company proposal for Account 362 is 55 years with a R1.5 dispersion, as

5   compared to Staff's proposed 51-year life with a R1.5 dispersion. This grouping contains

6   switchboards, station wiring, transformers, and a wide variety of other equipment, from circuit

7   breakers to switchgear. The current balance is $157.4 million for this account. **Rebuttal**

8   **Schedule DAW-3** shows a list of the various retirement units in this account.   The

9   investment in this account is 12.73 years old on average, which means that more recent

10   experience is indicative of the future for this account.

11   **Q.   What important information did Company SMEs provide regarding this**

12   **account?**

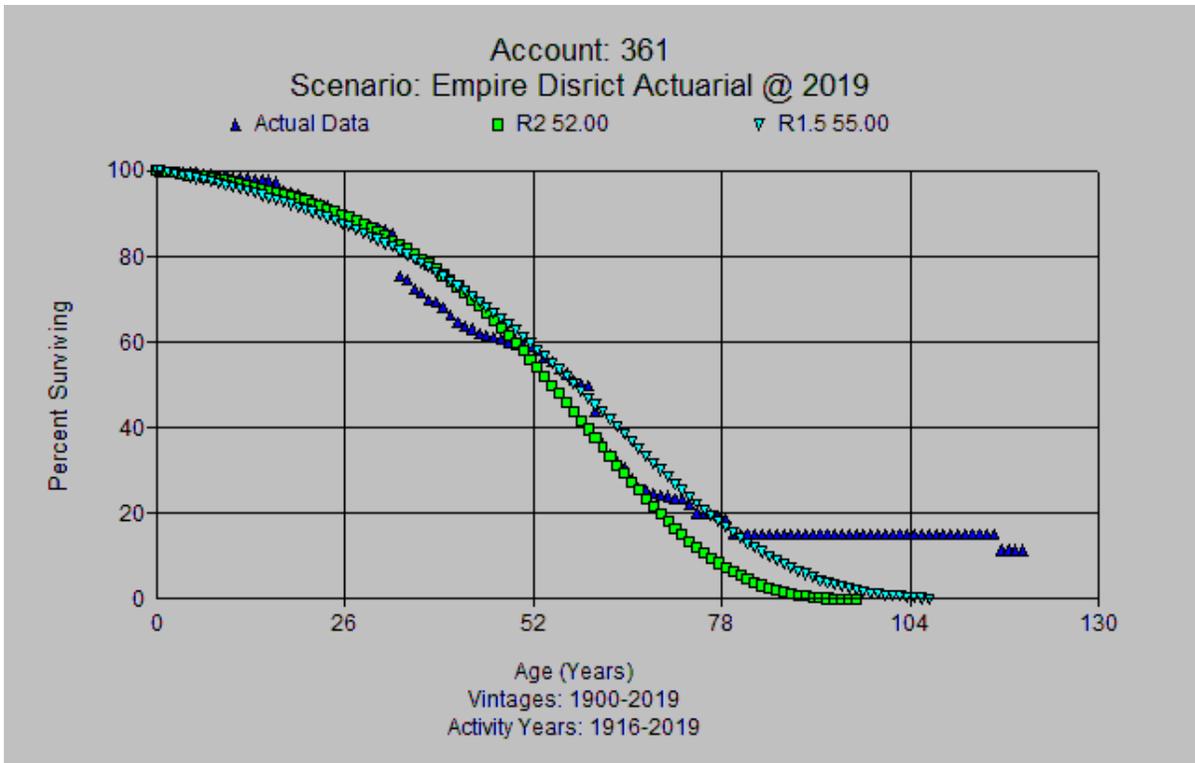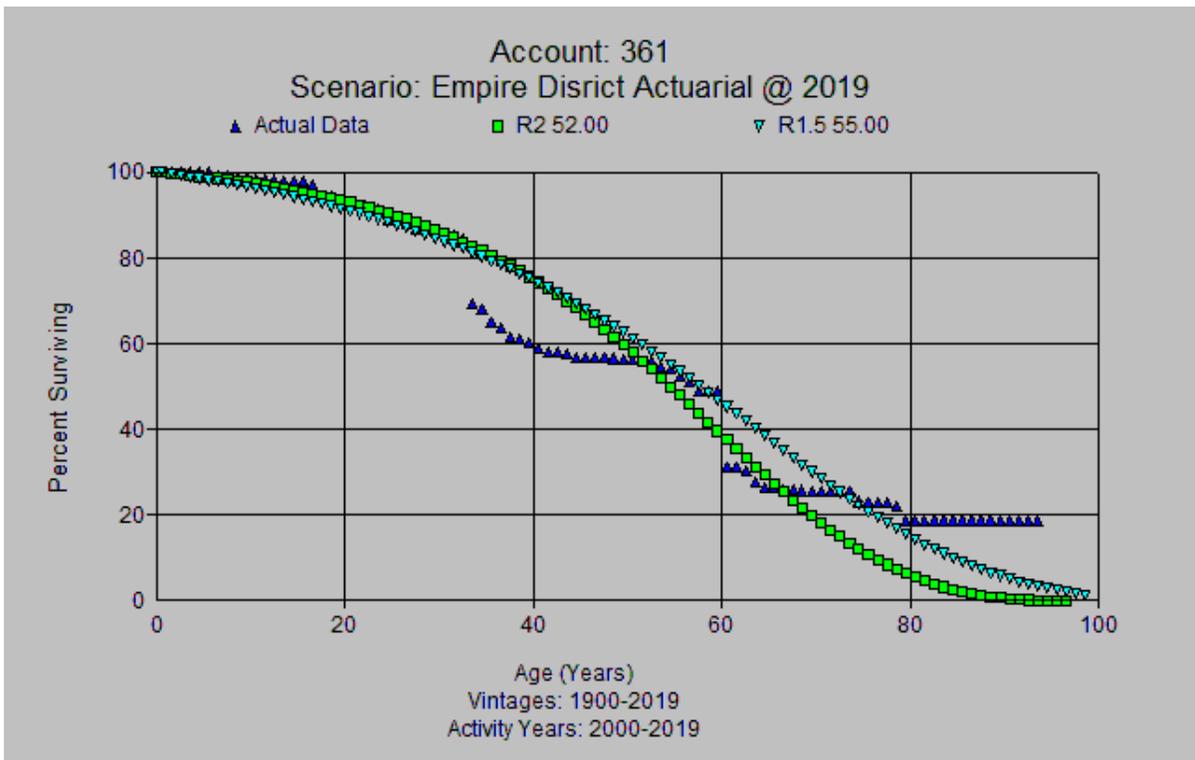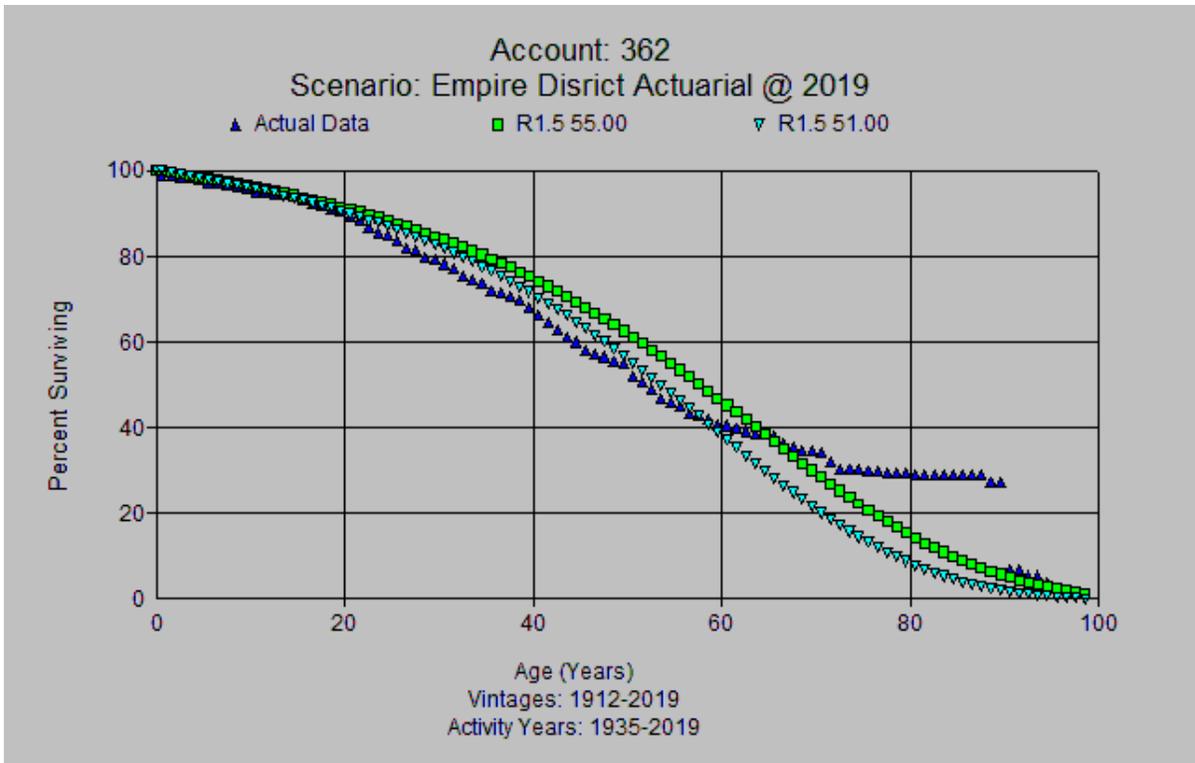13   A.   As mentioned in my depreciation study, Schedule DAW-2, page 57 of 137,

14   Similar to Account 353.00 Transmission Station Equipment, the discussions
15   with Company personnel indicated that they are moving to digital relays
16   and changing out the SF6 with dry air relays. The Company is also moving
17   away from oil breakers. There have not been any big changes related to
18   transformers. In the analysis, the life indications range from low 50s to 60
19   years, but the 51 R1.5 is a good fit across multiple bands.

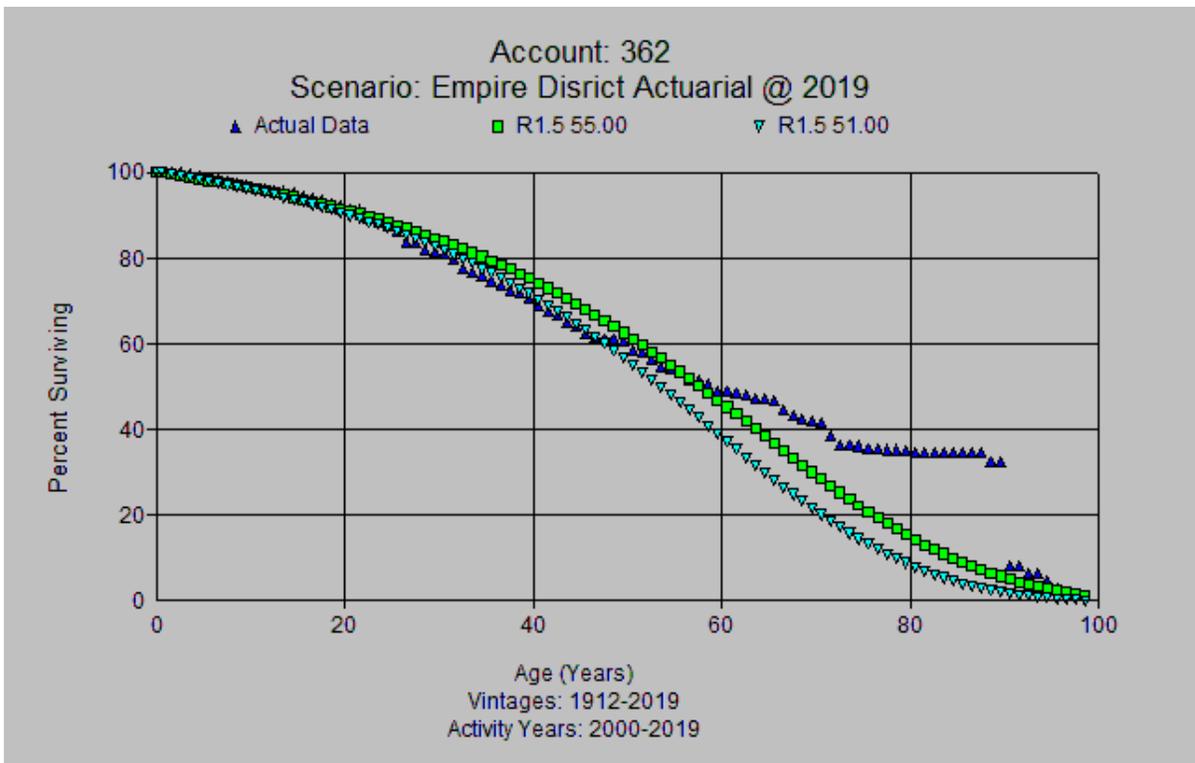21   **Q.   How does your proposed curve compare to Staff's visually?**

22   A.   The graph below compares the actual data to the Company's proposed curve versus

23   Staff's recommendation for the overall placement/ experience band.   In this case,

24   Staff's proposal is a better visual match.

1

2
3   With a narrow experience band, the visual comparison is shown below.
4

5
6

1   In the 1970-2019 placement and experience band, the Staff curve is a better fit.

2   Considering the similarity of the actuarial analysis in this account, Staff's proposal is

3   also reasonable.

4   Account 370.1 AMI Meters

5 **Q.   What are the alternative recommendations for the life of Account 370.1, AMI**

6   **Meters?**

7 A.   The Company proposal for Account 370.1 20 R2, and Staff made no recommendation

8   for this account.

9 **Q.   What are the Company's plans regarding AMI meters?**

10 A.   The Company plans to create a regulatory asset for early retiring meters that will not

11   be used after the AMI deployment. Empire installed AMI meters, beginning in June

12   2020.   The majority of Missouri will complete the transition to AMI in 2021.

13   Discussions with Company personnel indicated they would expect up to a 20-year life.

14   The Company is planning to complete its entire service territory by 2022. This study

15   recommends a 20-year life and the R2 dispersion based on estimated battery life.

16 **Q.   Do any other Missouri electric companies have AMI meters in service?**

17 A.   Ameren does not have any electric meters that are designated as AMI. In its gas case,

18   the Company requested a 15-year life with 0 percent salvage for modules to be added

19   to existing gas meters. The modules are planned to be installed as Ameren retrofits its

20   gas meters in 2023 and 2024.[10]   KCPL has an account 370.02 Meters-AMI

21   Distribution with a 5.00% depreciation accrual rate.   That rate would imply a 20-year

22   life with 0 percent net salvage parameter is being used. They also have load research

23   meters with a depreciation rate of 7.14%.[11]

---

[10] Spanos Rebuttal testimony, p. 14, lines 10-21. GR-2021-0241
[11] MPSC DR 0350 response.   Rates from ER-2016-0156. See also response to Staff interrogatory, 0359.

1 **Q. Do you have any further remarks?**

2 A. I recommend that the Commission segregate AMI meters into a separate account with

3 a specific depreciation accrual rate appropriate to those assets.

4 Account 392 Transportation Equipment

5 **Q. What are the alternative recommendations for the life of Account 392,**

6 **Transportation Equipment?**

7 A. The Company proposal for Account 392 is 11 years with a L3 dispersion, as compared

8 to Staff's proposed 13-year life with a L2 dispersion. This account includes the cost of

9 automobiles used for utility service. There is approximately $20.9 million in this

10 account. **Rebuttal Schedule DAW-3** shows a list of the various retirement units in

11 this account. The investment in this account is 4.70 years old on average, which means

12 that more recent account should be relied upon to determine the life characteristics for

13 this account.

14 **Q. What important information did Company SMEs provide regarding this**

15 **account?**

16 A. As stated in Schedule DAW-2, page 71 of 137.

17 Discussions with Company personnel indicated the refresh cycles are
18 based on usage (hours) and mileage. Small vehicles will turn quicker
19 than a digger derrick truck. Bigger trucks will probably have less
20 mileage but large number of hours. The Company provided the
21 following breakdown: cars (5-7 years), small trucks (7-11 years), heavy
22 trucks (10-15 years), and trailers (15 or more years). They have retired
23 old vehicles in recent years, due to fleet modernization plan.

24 **Q. How does your proposed curve compare to Staff's visually?**

25 A. The graph below compares the actual data to the Company's proposed curve versus

26 Staff's recommendation. The Company's proposal is a better visual match and

27 incorporates important information from Company SMES.

Account: 392
Scenario: Empire Disrict Actuarial @ 2019

▲ Actual Data   □ L3 11.00   ▽ L2 13.00

Percent Surviving

Age (Years)
Vintages: 2000-2019
Activity Years: 2000-2019

2   Account 396 Power Operated Equipment

3   **Q.   What are the alternative recommendations for the life of Account 396, Power**

4   **Operated Equipment?**

5   A.   The Company proposal for Account 396 is 13 years with a L3 dispersion, as compared

6   to Staff's proposed 17-year life with a L3 dispersion. This account consists of

7   bulldozers, forklifts, trenchers, and other power operated equipment that cannot be

8   licensed on roadways. There is approximately $22.7 million in equipment in this

9   account. **Rebuttal Schedule DAW-3** shows a list of the various retirement units in

10   this account. The investment in this account is 6.25 years old on average, which means

11   that more recent experience is indicative of the future for this account.

12   **Q.   What important information did Company SMEs provide regarding this**

13   **account?**

14   A.   My depreciation study provides information from SMEs on page 72 of 137.

45

1

2   Discussions with Company personnel indicate power operated
3   equipment are part of the fleet modernization that has been occurring
4   over the past 2 years. Technology changes in equipment are occurring.
5   The backyard machines are being changed out frequently, as they don't
6   last as long as a digger/derrick. Backyard machines are relatively new
7   assets. The account contains a large variety of assets with different life
8   expectations. The analysis best fits are in the range of 13-15 years with
9   the L and R dispersion patterns across the bands analyzed. The 13 L3
10   is an excellent fit in the most recent placement and experience band
11   (2000-2019).

12 **Q.**   **How does your proposed curve compare to Staff's visually?**

13 A.   The graph below compares the actual data to the Company's proposed curve versus

14   Staff's recommendation.   The Company's proposal is a better visual match and

15   incorporates important information from Company SMES.

16

1   **B.   NET SALVAGE ANALYSIS**

2   **Q.   What data did Staff used for net salvage?**

3   A.   In its Direct case, Staff did not update net salvage estimates from the current authorized

4   level. However, in discussions with Staff in response to DR 373 and 374, Staff

5   reviewed data and is modifying their recommendations to the levels shown in their

6   rebuttal and in my **Rebuttal Schedule DAW-R-1**.

7   **Q.   What are the differences that you and Staff have in net salvage recommendations**

8   **by account?**

9   A.   Those differences are shown in Table DAW-R-3 and DAW-R-4 below.   I have used

10   the net salvage data base provided in my depreciation study to illustrate how these

11   recommendations compare. I have separated the results into two tables as shown

12   below.

13   **Q.   How are you presenting the data comparing the recommendations?**

14   A.   For each account, I show the 3-, 5-, and 10-year moving averages for each account

15   compared to my proposed recommendation.   This data is found in Schedule DAW-2,

16   Appendix E as well as my pre-filed workpapers.

17   **Table DAW-RR-3R**
18   **Summary of Proposed Net Salvage**
19   **for Generation Accounts**
20

Account	Description	Empire Proposed Net Salvage	Staff Proposed Net Salvage
345	Accessory Electric Equipment	0	-5

21

1
2
3
4
5

Table DAW-RR-4R
Summary of Proposed Net Salvage
for Transmission, Distribution,
and General Accounts

Account	Description	Empire Proposed Net Salvage	Staff Proposed Net Salvage
390	Structures and Improvements	-5	-10

6

7 Account 345 Accessory Electric Equipment

8 **Q.** **What are the alternative recommendations for the net salvage parameter for**

9 **Account 345, Accessory Electric Equipment?**

10 A. For this account, I recommend 0% net salvage, and Staff recommends negative 5% net

11 salvage. As can be seen from the graph below, my recommendation is closer to current

12 net salvage characteristics for this account. However, a negative 5% is more widely

13 seen in the industry and could be reasonably expected in the future. Staff's

14 recommendation is also reasonable.

Empire District
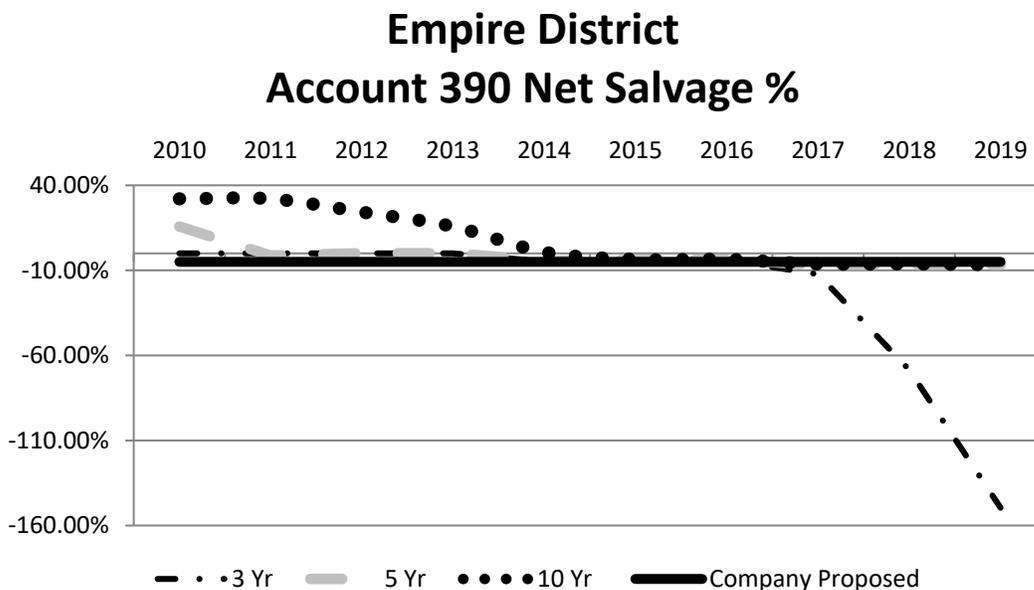Account 345 Net Salvage %

15

1   Account 390 Structures and Improvements

2   **Q.   What are the alternative recommendations for the net salvage parameter for**

3   **Account 390, Structures, and Improvements?**

4   A.   For this account, I recommend negative 5% net salvage, and Staff recommends

5   negative 10% net salvage.   Net salvage has been moving more negative since the last

6   depreciation study. The 5-year average has been near or more negative than negative

7   5% since 2014.   However, the 3- year average over the last couple years has bene

8   significantly more negative than the Company recommended negative 5%. The Staff's

9   recommendation is also reasonable.

Empire District
Account 390 Net Salvage %

10
11   **III.   AR15 IMPLEMENTATION (VINTAGE GROUP AMORTIZATION**

12   **Q.   What is vintage group amortization?**

13   A.   Vintage group amortization (otherwise known as AR15) is an accounting release issued

14   by FERC.   FERC adopted Accounting Release 15 ("AR15") in 1997 using the

15   following criteria:

1.   The individual classes of assets for which vintage year accounting is followed are high volume, low value items;

2.   There is no change in existing retirement unit designations, for purposes of determining when expenditures are capital or expense;

3.   The cost of the vintage groups is amortized to depreciation expense over their useful lives and there is no change in depreciation rates resulting from the adoption of the vintage year accounting;

4.   Interim retirements are not recognized;

5.   Salvage and removal cost relative to items in the vintage categories are included in the accumulated depreciation account and assigned to the oldest vintage first; and

6.   Properties are retired from the affected accounts that, at the date of the adoption of vintage year accounting, meet or exceed the average service life of properties in that account.

A vintage year method of accounting for the general plant accounts that meets all of the foregoing requirements may be implemented without obtaining specific authorization from the Commission to do so.

Q.   **Has Empire been using vintage group amortization?**

A.   No. They propose to adopt vintage group amortization after this proceeding. With the adoption of vintage group amortization, it is no longer necessary to keep track of the location and retirement of specific assets. Annually, assets are retired after reaching the average service life for that account. The retirement amounts for fully accrued assets are shown for each account in Appendix A-2. After those assets are retired, the remaining plant in service for each account will be amortized using the amortization

1   rates shown in Appendix A-1 of Schedule DAW-2. An additional accrual is necessary

2   for each plant account to make up the difference between the book depreciation reserve

3   and the theoretical depreciation reserve. For Empire, there is a small difference

4   between the book and theoretical reserve that needs to be amortized over the remaining

5   life of each plant account. This amount is shown for each account in Appendix A-2.

6   Empire will use caution in implementation of AR15 accounting and will perform

7   physical inspections in addition to determine if assets should retire.

8 **Q.   Did Staff's computations incorporate vintage group amortization?**

9 A.   Yes.   They did not include any computation for those accounts in the rebuttal case, so

10   I assume they are adopting the Company's proposals. I have made that assumption in

11   the numbers shown in Table 1.

12 **Q.   Given that you find some of Staff's life recommendations reasonable what lives**

13   **would you be comfortable with modifying?**

14 A.   Based on the previous discussion, I would be comfortable with modifying my original

15   recommendation and adopt Staff's position for the following accounts.:

16   Table 2

Acct	Description	Original Proposed Life	Staff Proposed Life
343	Prime Movers	50 R1.5	50 R2
344	Generators	55 R1	50 R1
346	Misc. Equipment	55 R2.5	60 R2.5
353	Station Equipment	50 R1.5	50 S1
362	Station Equipment	55 R1.5	51 R1.5

17

1   **Q.**   **Given that you find Staff's net salvage recommendations reasonable, would you**

2   **be comfortable accepting Staff's net salvage recommendations?**

3   **A.**   Yes, I would be comfortable with modifying my original recommendation and adopt

4   Staff's two differing position for the following accounts.:

5   Table 3

Acct	Description	Original Net Salvage %	Staff Proposed Net Salvage %
345	Accessory Electric Equip	0	-5
390	Structures and Improvements	-5	-10

6

7   I can also accept Staff's treatment of net salvage for production plant. In my filed

8   depreciation study, I did not include any dismantling cost for production, computing

9   removal cost only on the interim retirement activity. Staff's proposed net salvage

10   parameters applied to all plant in service is reasonable.

11   **Q.**   **Do these position changes impact only the accounts listed above?**

12   **A.**   No. Any change for a parameter within a function changes the computation for all

13   assets in the function, since I have performed reserve reallocation for each functional

14   group.

15   **Q.**   **What impact would this have on proposed depreciation expense?**

16   **A.**   My detailed computations are provided in **Rebuttal Schedule DAW-4**. All

17   workpapers are provided with this testimony with formulae intact. To summarize the

18   results, the Table below compares the difference depreciation amounts.

Table 4

Function	Company Original Proposed Expense	Staff Proposed Expense	Company Revised Proposed Expense
Production	13,178,388	15,623,903	14,309,729
Hydro	343,199	704,666	376,368
Other Production	18,222,765	18,762,267	18,687,103
Transmission	10,208,510	10,219,537	10,319,271
Distribution	31,706,266	32,457,403	31,706,266
General	5,983,667	4,899,087	6,029,041
AR 15 retirement	0	0	0
Total	79,642,795	82,666,863	81,427,778

Note (1)	Company proposes regulatory asset for meters to be retired with AMI Deployment Staff makes no proposal for AMI meters, so their proposed accrual is computed on total plant balance for account 370.

1 **IV.** **CONCLUSION**

2 **Q.** **Please summarize your recommendations.**

3 A.   I conducted a complete depreciation study using standard depreciation processes and

4   methodologies that resulted in the recommended parameters and depreciation rates.

5   My recommended life and net salvage parameters are reasonable and specific to

6   Empire's unique circumstances.   The depreciation rates, as shown in **Rebuttal**

7   **Schedule DAW-2**, Appendices A, A-1, and B to my Direct Testimony, should be

8   applied to Empire's plant in service. My depreciation rates, when applied to Empire's

9   plant in service balances provide fair and reasonable recovery to both Empire and its

10   customers and should be adopted by this Commission. The alternative shown in

1   **Rebuttal Schedule DAW-4** would also be an acceptable and reasonable result in my

2   opinion.

3 **Q.**   **Does this conclude your Rebuttal Testimony?**

4 A.   Yes.

VERIFICATION

I, Dane A. Watson, under penalty of perjury, on this 20th day of December, 2021,

declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Dane A. Watson