

Exhibit No.:

Issue: Depreciation Expense Rates

Witness: L. W. Loos

Type of Exhibit: Surrebuttal Testimony

Sponsoring Party: The Empire District Electric
Company

Case No.: ER-2001-299

Date Testimony Prepared: May 16, 2001

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

Exhibit No. 31
Date 5/29/01 Case No. ER-2001-299
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**Surrebuttal Testimony
of
L. W. Loos**

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1 Introduction

2 Q. Please state your name and business address.

3 A. L. W. Loos, 8400 Ward Parkway, Kansas City, MO 64114

4 Q. Are you the same L. W. Loos who filed direct and rebuttal testimony in this matter?

5 A. Yes, I am.

6 Q. What is the purpose of your surrebuttal testimony?

7 A. I will respond to the rebuttal testimony of Mr. Paul W. Adam on behalf of the
8 Commission Staff.

9 Q. What issues raised by Mr. Adam will you address?

10 A. I respond to the following issues:

11 1) Mr. Adam's assertion that I have redefined depreciation in order to fit my
12 proposals. I will demonstrate that this is not the case.

13 2) Mr. Adam's assertion that the plant life spans that I have used constitute
14 "early retirement" of certain of the Company's generating units. In
15 connection with my response to this allegation, I will demonstrate the life
16 spans that I use are reasonable. I will also present depreciation expense rates
17 based on extended service lives for certain generating stations.

18 3) Mr. Adam's unsubstantiated assertion that the Company's existing
19 depreciation reserve is sufficient. I will show that Mr. Adam has not
20 presented any reasonable rationale for the conclusion he presents.

21 4) Mr. Adam's unsubstantiated assertion that a portion of the depreciation
22 reserve deficiency that I find is due in part to my inclusion of an allowance for
23 net salvage in my depreciation expense rates. I will demonstrate that my

1 allowance for net salvage tends to reduce the reserve deficiency from the level
2 produced based on the net salvage allowances reflected in the company's
3 existing depreciation rates applicable to generating plant.

4 Q. Do you have any general observations regarding Mr. Adam's rebuttal testimony?

5 A. Yes, I do. In his rebuttal testimony, Mr. Adam refers to my determination of a
6 reserve deficiency of \$24 million (see Page 9, Line 10). I am unable to identify the
7 source of this figure. I show in Table 7-1 (Page 7-3) of Schedule LWL-1, a reserve
8 deficiency associated with the Asbury Plant of \$24.15 million. For all production
9 plant I show a reserve deficiency of \$32.5 million (\$29.5 million excluding the State
10 Line Combined Cycle plant). For all plant, I show a deficiency of \$23 million (\$20
11 million excluding SLCC).

12 Definition of Depreciation

13 Q. At Page 2, Line 23, Mr. Adam claims that you attempt to modify the definition of
14 depreciation as set forth in the Uniform System of Accounts. Do you attempt to
15 modify this definition?

16 A. No, I do not. Mr. Adam's claim can best be characterized as "the pot calling the
17 kettle black." Throughout his direct testimony and now in his rebuttal testimony, Mr.
18 Adam has engaged in what at best can be characterized as "creative reasoning", but
19 perhaps more realistically as sheer fantasy, in order to justify his proposals. At this
20 point in his rebuttal testimony, he has let the trees get in the way of the forest. He has
21 examined the words with no consideration given to the clear context.

22 Q. Please explain.

1 A. Mr. Adam's problem originates with his taking my characterization, that net
2 investment is equated to "gross plant investment less salvage plus cost of removal,"
3 out of context. Mr. Adam reasons that salvage and cost of removal occur in the future
4 and therefore cannot be an investment because the money has not been spent.
5 However as I clearly delineated in the material Mr. Adam quotes, I am examining
6 "net investment" in the context of the expenditures which have been made "over the
7 useful life of the asset." My reference in this regard to "net investment" is to net
8 investment at a time when money has in fact been spent for removal.

9 Q. Do you agree with Mr. Adam's suggestion that "invest" means "to put money into
10 business"?

11 A. Yes, I do. I have no problem with Mr. Adam's definition of "invest" or "investment."
12 Mr. Adam's and my departure is one of perspective. Mr. Adam apparently believes
13 that the original cost (or investment) to be recovered through depreciation is limited
14 to that which has occurred and that if there is any additional investment associated
15 with a particular asset, for example the cost of removing a pole, that additional
16 investment cannot be considered as an original cost to be recovered through
17 depreciation. I believe that depreciation rates should be sufficient to recover all costs
18 associated with a particular asset over its useful life. The cost of removing a pole is
19 every bit as much an element of "loss of service value" as the cost of initially
20 installing that pole.

21 Q. At Page 3, Line 13, Mr. Adam concludes that you and NARUC both found that
22 depreciable plant represents the base plant or only the cost of original plant

1 investment, but that you have added gross salvage and cost of removal into this
2 definition. Do you add gross salvage and cost of removal into depreciable plant?

3 A. No, I do not. Further, I don't believe that I have even remotely suggested that
4 depreciable plant as defined by NARUC include gross salvage and cost of removal.
5 Mr. Adam's statement is absolutely incorrect. I have never suggested that
6 depreciable plant includes gross salvage and cost of removal. I do recommend that
7 depreciation rates which when applied to depreciable plant be sufficient to recover the
8 initial installed cost, as well as monies which are reasonably anticipated to be
9 incurred in connection with the asset's ultimate retirement (net salvage).

10 Plant Life

11 Q. Beginning on Page 4, Line 5, Mr. Adam suggests that depreciation consultants
12 frequently submit studies with life projections that are unreasonably short. Do you
13 agree with this generalization?

14 A. I find it difficult to agree or disagree. This is an example of an allegation made by
15 Mr. Adam that has absolutely no support except, perhaps, that some consultants, with
16 which he is familiar, have submitted studies with deprecation lives higher than what
17 he considers reasonable. I submit that an equally unsupported conclusion is that
18 depreciation consultants preparing studies on behalf of consumer groups or utility
19 commissions and utility commission staff submit studies with life projections that are
20 unreasonably long.

21 Q. Beginning on Page 4, Line 10, Mr. Adam provides an explanation and gives examples
22 of what he characterizes as your "unreasonably short ASLs." Do the points raised by
23 Mr. Adam cause you to question the reasonableness of the life spans you have used?

1 A. No. As I noted in my direct testimony, the life spans that I have used generally
2 correspond to a 45-year life for coal plants and a 35-year life for combustion turbine
3 based technology. Absent other information, I believe that these life spans represent
4 reasonable values for Empire's plants until such time as the individual plant
5 demonstrates capability to continue in service for an additional period or the cost
6 required to extend the plant's life can be reasonably estimated and incorporated in the
7 depreciation rate.

8 Q. In your rebuttal testimony, you criticize Mr. Adam for failing to "distinguish between
9 the controlling characteristics of unit (life span) property versus mass property."
10 Does this difference in perspective contribute to what Mr. Adam might characterize
11 as "unreasonably short ASLs?"

12 A. I believe so. The difference in perspective makes a direct comparison between the
13 life span I use and the average service lives used by Mr. Adam difficult. In some
14 respects, they are two entirely different things. The life spans that I use represent the
15 time period between the date that a plant (or unit) comes on line (becomes of value)
16 and the date of anticipated retirement (is no longer of value). The unit property
17 approach (whole life) that I recommend is based on the concept that the investment
18 made in a plant over its life be recovered in equal annual increments over that life.
19 Mr. Adam's average service life approach is predicated on the concept that all plant
20 investment, whether the initial placement or an interim addition, will have the same
21 average service life. For example, under Mr. Adam's proposal, the 1970 (\$14.5
22 million) initial investment in the Asbury plant boiler is to be recovered over 54 years.
23 He also proposes that the \$18.1 million pollution control equipment investment made

1 in 1990 has an average service life of 54 years. The problem with Mr. Adam's
2 approach is that Empire will be unable to recover investment in the pollution control
3 equipment over this 54-year period, since it is of no value without the boiler.

4 Q. If you use a 45-year life span for coal plants, why then did you use a 35-year life for
5 Iatan?

6 A. The 35 year life corresponds to the life that I understand Kansas City Power & Light
7 uses for depreciating the plant. Further, I consider the "design life" for coal-fired
8 steam generating stations to be on the order of 30 to 35 years. I believe that it is
9 appropriate to use this design life for depreciation purposes until such time as life
10 extending plant investment has been made in the plant or the plant has demonstrated
11 that it will continue to operate beyond its design life. The Iatan Plant is only 21 years
12 old and during 21 years has not experienced any major capital expenditures.

13 The Asbury Plant on the other hand is 31 years old and has undergone
14 extremely significant capital modifications during this period. With its age and the
15 improvements which have been made to the plant, I consider a 45-year life span
16 reasonable at this time.

17 Q. In your example regarding pollution control equipment at Asbury, how would your
18 life span approach work?

19 A. Absent consideration of other additions, in my example, Mr. Adam would depreciate
20 the initial \$14.5 million investment in equal annual amounts from 1970 to 2024, and
21 the \$18.1 million pollution control investment from 1990 to 2044. Under my life
22 span approach, I would depreciate the initial \$14.5 million investment in equal annual
23 amounts based on a 35-year life from 1970 to about 1990. Beginning in about 1990, I

1 would depreciate the unrecovered portion of the initial investment and the \$18.1
2 million pollution control investment over the remainder of the plant's 45-year life.
3 Note that, in this example, as a result of the addition of the pollution control
4 equipment, I have extended the plant's life from 35 to 45 years.

5 Q. Does the 1990, \$18.1 million pollution control investment constitute a life extension?

6 A. No, not in and of itself. The pollution control investment was required for the plant to
7 continue operating to the end of its original design life (35 years). However, due to
8 the magnitude and timing of the investment, the addition of the facilities constituted a
9 commitment to continue operating the plant beyond 2005.

10 Q. How do you respond to Mr. Adam's statement that Company personnel do not
11 support the retirement dates you use?

12 A. Had the Company prepared detailed plans regarding plant additions, upgrades,
13 modifications, and retirements, I would have endeavored to use that information as a
14 primary input into my study. Since this information was not available, I used life
15 spans corresponding to the type and vintage of the equipment involved. In my
16 opinion, the life spans I use are reasonable at this time for the purpose of determining
17 depreciation expense rates.

18 Q. Does the same apply to Mr. Adam's concern that the retirement dates are so near?

19 A. No, the retirement dates which correspond to my life span are a different but related
20 question. The fact that based on my recommended life spans, the Riverton Units
21 would be retired in 2008 (7 years from now) does not concern me since a 7 year
22 period is easily within today's planning horizon. In addition, with the age and size of

1 these units I believe that it is reasonable to characterize the steam units as potentially
2 one major forced outage or major capital improvement away from retirement.

3 All of the other retirement dates resulting from my recommended life spans
4 are at least 13 years away. An awful lot of things can occur in a 13-year period which
5 can affect the reasonableness and cost of continuing to operate resources beyond
6 2014. The magnitude and impact of changes which might occur in the next 13 years
7 are of course not fully known at this time. However, if we examine some of the
8 changes which have occurred in the past 13 years, potential changes over the next 13
9 years can be put into some perspective. Some examples of these changes are:

- 10 1) In 1987, there was no such thing as "open access," "exempt wholesale
11 generators," "non-utility generators," "independent system operators," and
12 "power exchanges."
- 13 2) In the 1980's, throughout the United States, 69,700 MW of coal fired steam
14 generation was installed with only 4,300 MW of CT based generation (simple
15 cycle and combined cycle). In the 1990's (through June 1999), only 9,700
16 MW of coal fired generation was installed compared with 27,700 MW of CT-
17 based generation.
- 18 3) In 1987, the relicensing of a hydroelectric project was considered pretty much
19 a slam-dunk. Today relicensing is potentially very expensive and not always
20 successful.
- 21 4) In 1987, pollution control requirements were considerably lower than today.
22 For example, the Clean Air Act (1990) mandated reduced emissions of SO₂
23 and NO_x and created special challenges to the continued viability of older

1 coal-fired electrical generation facilities. Additional proposals have been
2 made since then to further limit SO₂ and NO_x, as well as, control of Mercury
3 and CO₂ emissions.

- 4 5) The United Nations Kyoto Protocol (1997) which, if ratified, calls for the
5 United States to make a 7 percent reduction of "greenhouse gas" emissions
6 below 1990 levels. This would result in controlling emissions to circa 1987
7 values. This reduction is to be achieved by 2008-2012.

8 In summary, while 13 years seems like a lot of time, in the rapidly changing
9 electric industry a lot can change.

10 Q. Mr. Adam referred to the Clean Air credits the Company enjoys as a result of
11 operating its coal-fired generation. Does the ability to earn Clean Air credits have a
12 bearing on the economics of coal-fired generation?

13 A. Yes, it does. On the other hand, implicit in Mr. Adam's reference is that the
14 environmental requirements in place today will continue along the same lines
15 indefinitely into the future. In line with the above, 13 years ago, there was no such
16 thing as Clean Air credits and few people would have speculated that we would have
17 a system remotely resembling the one in place today. The continued operation of
18 coal-fired generation regardless of current and past environmental efforts and the low
19 cost energy incident to generation from them is certainly something that one cannot
20 assume with absolute certainty.

21 Q. At Page 6, Line 7, Mr. Adam states that the Staff's position is that "estimated future
22 Maintenance Capital expenditures at State Line Plant are not part of current

1 depreciation determination by definition.” Do you have any comment regarding this
2 position?

3 A. Yes, I do. In my rebuttal testimony I addressed the issue of the need to include an
4 allowance for such capitalized major maintenance expenditures if a 35-year life is
5 used for the plant. I do not need to repeat those points.

6 I must, however, challenge Mr. Adam’s conclusion that by “definition” such
7 expenditures can not be a part of the determination of depreciation rates. This is
8 simply not the case. The allowance for expenditures that I include is as much a part
9 of the capital to be recovered through depreciation expense as the original installed
10 cost. If no allowance for such expenditures is reflected in the development of the
11 depreciation expense rate applicable to SLCC, an average service life (ASL) of 20
12 years should be used as contrasted with the 35-year life used by Mr. Adam.

13 Q. How does this 20-year ASL compare with your life span of 35 years?

14 A. The two are essentially the same. Based on my analysis, the effective average life of
15 the initial investment in the plant approximates 20 years ($1 / 4.99\% = 20.0$ years). As
16 I indicated in my rebuttal testimony, a 20-year life absolutely exceeds the actual life
17 of the plant assuming no interim investment is made. This effective ASL of
18 investment corresponds to the 35-year life span I use.

19 Q. How can a 35-year life span correspond to a 20-year ASL?

20 A. Based on the timing and magnitude of the interim investment, I calculate a rate which
21 corresponds to an effective average service life of 20 years. However, I need not
22 forecast interim activity over the entire 35-year life span to demonstrate the
23 reasonableness of my 4.99 percent rate. With no consideration of inflationary

1 impacts on the level of interim additions of net and no consideration of net salvage,
2 the reasonableness of my 4.99 percent rate can be visualized by considering the
3 SLCC plant to consist of three components. These components (without adjustment
4 for inflationary impacts or net salvage) are:

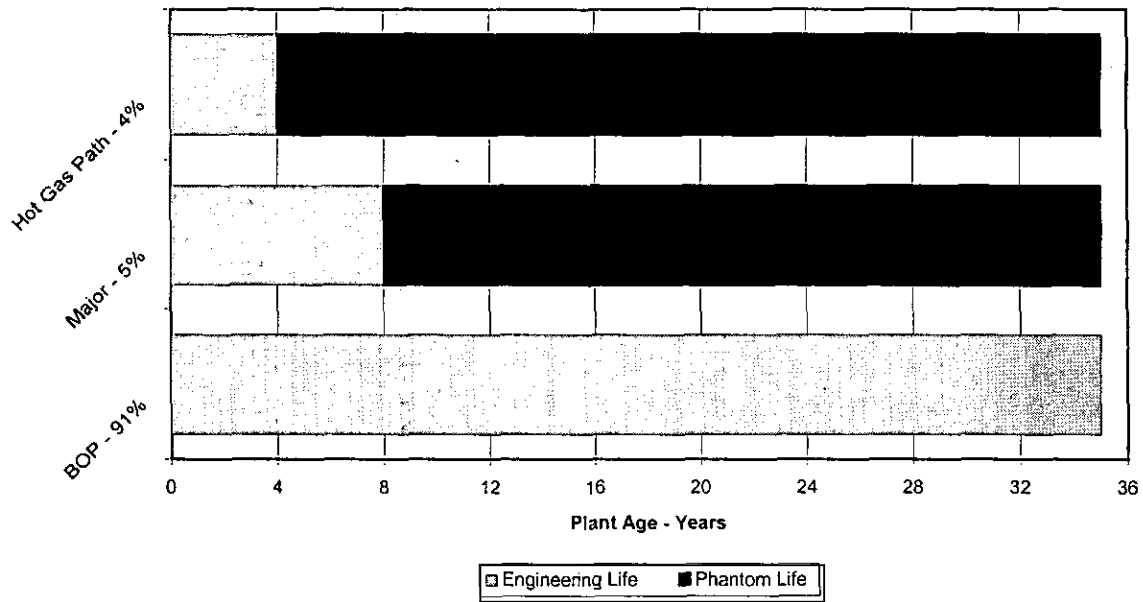
- 5 1) Hot Gas Path Inspection – these are the items which are inspected and
6 replaced during the intermediate level maintenance. These items are
7 estimated to cost on the order of \$10.2 million (in excess of routine
8 maintenance) or about 4 percent of the total cost of the plant.
9 Intermediate maintenance requirements are scheduled at 24,000 hours
10 operation equivalent or approximately four-year intervals (based on a
11 70 percent capacity factor). Thus, 4 percent of the plant investment
12 needs to be depreciated over four years (25 percent per year).
- 13 2) Major C. T. Inspection – these are the items which are inspected and
14 replaced during the major level maintenance. These items are
15 estimated to cost on the order of \$9.3 million (in excess of
16 intermediate and routine maintenance items). Major maintenance
17 requirements are scheduled at 48,000 hours operation equivalent or
18 approximately eight-year intervals. In addition, based on recent
19 experience, the life of control systems is on the order of 8 years.
20 Upgraded control systems cost on the order of \$3.0 million. Thus, 5
21 percent of the plant investment needs to be depreciated over eight
22 years (12.5 percent per year).

3) After consideration of the foregoing, the balance of the plant (BOP) which amounts to 91 percent of the original investment has an estimated life span of 35 years and, therefore, should be depreciated at a rate of about 2.86 percent.

Based on the foregoing, the minimum composite rate may be calculated as follows:

Component	Portion of Original Investment	Required Depreciation Rate	Weighted Rate
Intermediate	4%	25%	0.0100
Major	5%	12.5%	0.0063
BOP	91%	2.86%	0.0260
Total	100%		4.23%

Mr. Adam, on the other hand, concluded that all plant components have an average service life of 35 years. Graphically, this difference can be shown in the following:



1 As shown in the above, the life (engineering life) for the balance of plant
2 investment amounts to 35 years. For the investment related to the Hot Gas Path
3 Maintenance Component, the engineering life amounts to 4 years. By use of a 35-
4 year average service life, Mr. Adam has added 31 years of phantom life. This
5 phantom life represents life Mr. Adam erroneously assumes will be available over
6 which to depreciate investment. This investment, however, will no longer be in
7 service after about 4 years.

8 Mr. Adam and I agree on the 35-year design life of the plant. As shown in the
9 above figure, this life applies to 91 percent of the plant investment. The remaining 9
10 percent of plant investment has a life of 4 to 8 years and should be depreciated
11 accordingly. Mr. Adam's use of a 35-year ASL, however, imputes a 35-year life to
12 all investment.

13 Q. Mr. Adam continues challenging your analysis by noting that you forecast multi-
14 million dollar estimates of future capital spending with an accuracy to the nearest
15 \$100, while being unaware of the \$10 million working budget for later this year at
16 Asbury. Does this cast suspicion concerning your analysis?

17 A. I don't believe so. My forecast of capital expenditures with regard to SLCC was
18 rounded to the nearest \$100 as a matter of convenience. The fact that these figures
19 are so rounded is not intended to imply that level of accuracy. Had I chosen to round
20 these figures to the nearest \$1 million, the result would not be materially different.

21 As for the apparently different treatment of including expenditures for SLCC
22 and not for Asbury, the expenditures referenced by Mr. Adam are not the same. The
23 SLCC expenditures represent relatively normal ongoing activities which I can predict

1 with reasonable accuracy based on manufacturers' maintenance schedules. These
2 expenditures are required in order to achieve the life span I use. In addition to these
3 major maintenance activities, ongoing interim additions and retirements will be
4 required, which I have not included an allowance for at this time. For the Asbury and
5 other plants, I predict these ongoing additions and retirements based on historical
6 experience, excluding major additions and retirements. For the Asbury plant I have
7 historical information which I can use as a basis to predict future activity. Major
8 maintenance items, such as the \$10 million referenced by Mr. Adam, are not,
9 however, so definitively defined so I do not include a separate allowance for them.

10 Q. Had you recognized the \$10 million referenced by Mr. Adam, what would have been
11 the effect?

12 A. Had I recognized this expenditure, my recommended depreciation rates would be
13 higher. The fact that Empire has budgeted a \$10 million expenditure does not in and
14 of itself imply that the plant's life will be extended. Based on the description of the
15 project by Mr. Adam, and as I confirmed with the Company, this is not a life
16 extension project; rather it is the replacement of worn out cyclone burners.
17 Replacement is required in order for the plant to continue economic operation.
18 Whether the plant's life is ultimately extended or not, I believe that it is reasonable to
19 reflect the budgeted capital addition in the development of depreciation expense rates.
20 This inclusion is especially critical if in fact an extended life is used to calculate
21 depreciation expense rates.

22 Q. Have you analyzed the implication of extended lives and this \$10 million capital
23 addition?

1 A. Yes, I have. I believe that the life spans that I have used in the development of my
2 recommended depreciation rates are reasonable and should be used in this matter.
3 However, some may believe that the 45-year (35 year for Iatan) base life I use for
4 most of Empire's steam generation is on the low side. I have therefore calculated
5 depreciation expense rates applicable to production property assuming that the life
6 spans I use are increased by five years. The results of this analysis are set forth in
7 Schedule LWL-5.

8 Schedule LWL-5 is identical in form to Table 7-1 (Page 1 of 2) contained in
9 Schedule LWL-1. The difference between the results set forth in Schedule LWL-5
10 and those in Table 7-1 relate to:

- 11 1) The life span for generating units which have a projected retirement date prior
12 to 2013 (Riverton 7, 8, & 9) is increased so that the projected retirement date
13 is 2013;
- 14 2) The life span for steam generating units (Asbury and Iatan) are increased to 50
15 years;
- 16 3) The life span for all CT based generation (with the exception of Riverton 9) is
17 set equal to 35 years, and
- 18 4) I include in interim additions and retirements applicable to the Asbury Plant,
19 the \$10 million budgeted addition referred to by Mr. Adam along with a
20 corresponding retirement of \$2 million.

21 Q. What are the implications of the changes you made?

22 A. The increase over existing rates applicable to production plant would amount to
23 \$5,161,350 (\$3,997,551 including mass accounts). This increase is \$2,030,674 less

1 than the \$7,192,024 increase I recommend as shown in Table 7-1, Page 1 of Schedule
2 LWL-1.

3 Sufficiency of Reserve

4 Q. At Page 9, Line 23, Mr. Adam concludes that the existing depreciation accrual of
5 37.48% is sufficient and that the "Company is not under recovered and may be over
6 recovered." What is the basis for Mr. Adam's conclusion?

7 A. Mr. Adam provides no studies or other documentation to demonstrate that the 37%
8 level is sufficient at this time. Mr. Adam's conclusion is certainly different from
9 mine where I found a deficiency of about \$23 million (see Table 7-1, Page 2 of
10 Schedule LWL-1). The adequacy of the depreciation accrual can not be evaluated
11 solely on the basis that it stands at 37%, as Mr. Adam apparently does. There are a
12 number of factors which affect whether the existing accrual is sufficient. The
13 implication of none of these factors is mentioned by Mr. Adam. Some of the factors
14 which may have a bearing on the adequacy of reserve at any point in time include the
15 relative age of the property being evaluated, the level of net salvage which should be
16 reserved, the extent to which major capital expenditures have occurred in the past and
17 the need for future capital improvements on life span property, and their impact on
18 plant life and average investment life.

19 Cause of Reserve Deficiency

20 Q. At Page 9, Line 9, Mr. Adam states that the reserve deficiency you calculate results
21 from "shortening of plant life" and including "the future cost of removal" in your
22 depreciation determination. Do you agree that these are the two most significant
23 factors contributing to the reserve deficiency you calculate?

1 A. No, I do not. In my direct testimony and in Schedule LWL-1, I state that the
2 magnitude of reserve deficiency that I found is primarily attributable to the Asbury
3 Plant. Mr. Adam does not challenge my conclusion. Had Mr. Adam actually studied
4 the situation, he would have found that nearly the entire deficiency relates to the
5 failure of the currently effective depreciation expense rate to consider implications of
6 interim additions and retirements; both those which have actually occurred and
7 normal levels anticipated to be experienced in the future.

8 Q. Doesn't your inclusion of an allowance for cost of removal contribute to this reserve
9 deficiency?

10 A. Certainly, it has an impact. However, Mr. Adam apparently did not check to
11 determine if I am proposing an increase in cost of removal from the level included in
12 the existing depreciation expense rate. I am in fact proposing an overall reduction in
13 cost of removal allowances applicable to production property from the level reflected
14 in the existing depreciation expense rates. Since the level that I recommend is less
15 than that imbedded in the existing rate, none of the reserve deficiency I calculate
16 should be considered related to my recommended net salvage allowance.

17 Q. Aren't you recommending lives which are less than those reflected in the existing
18 rates?

19 A. Yes, I am. However, the difference in lives is not of overriding significance. As
20 discussed in Schedule LWL-1 and shown in Table 7-1 of that schedule, the reserve
21 deficiency of \$23.0 million is attributable to the Asbury Plant. While there are
22 deficiencies and surpluses in other plants and accounts, they tend to offset one
23 another. Of the \$23.0 million reserve deficiency I show for Asbury, \$18.3 million

1 relates to Account 312, Boiler Plant Equipment. This \$18.3 million figure is based on
2 a life span of 45 years and an allowance for net salvage somewhere between zero and
3 negative 20 percent. This life span of 45 years is nearly equal to the 46 years life
4 reflected in the existing rate. Further, the 20 percent negative net salvage allowance
5 is considerably less than the 34 percent negative allowance reflected in existing rates.
6 Based on the foregoing, the reserve deficiency is not related to life and net salvage, it
7 results from the implication of interim additions and retirements and how the impact
8 of such activity affects depreciable investment over the life of the plant.

9 Q. Does this conclude your prepared surrebuttal testimony?

10 A. Yes, it does.

Affidavit

State of Missouri)
) ss
County of Jackson)

On the 16th day of May, 2001, before me appeared L. W. Loos, to me personally known, who, being by me first duly sworn, states that he is Vice President of Black & Veatch Corporation and acknowledged that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.

L W Loos
L. W. Loos

Subscribed and sworn to me this 16th day of May, 2001.

Linda K. Mitchell



My Commission Expires

Notary Public
LINDA K. MITCHELL
Notary Public - Notary Seal
STATE OF MISSOURI
Cass County
My Commission Expires June 26, 2002

Table 7-1
Empire District Electric Company
Depreciation Rate Analysis - Indicated Rates
Reserve Analysis at 12/31/1999 (Note 3)
Page 1 of 2

Line No.	Account No.	Description	[A]	[B]	[C]	[D]	[E]	[F]
			Depreciable Plant	Base Accrual Rate	Existing Accrual Rate	Reserve (Surplus) or Deficiency	Total Accrual Rate	Increase (Decrease) Depreciation Expense
			\$	%	%	\$	%	\$
Asbury								
1	311	Struct. & Improv.	8,831,444	4.36	2.15	1,724,709	5.20	269,359
2	312	Boiler Plant Eq.	53,717,466	5.37	2.91	17,856,316	6.67	2,019,777
3	312	Unit Train	5,580,297	3.98	5.67	(124,378)	3.82	(103,235)
4	314	Turbogen. Units	19,559,979	3.20	2.60	1,388,956	3.54	183,864
5	315	Acc. Elect. Equip.	2,328,232	2.55	2.10	(135,376)	2.27	3,958
6	316	Misc. Pwr. Plt. Eq.	2,709,600	5.53	2.10	612,365	6.31	114,074
7		Total Asbury	92,727,018	4.67	2.89	21,322,592	5.58	2,487,796
Riverton								
8	311	Struct. & Improv.	8,098,667	3.77	2.05	2,367,225	5.72	297,221
9	312	Boiler Plant Eq.	19,892,538	3.40	2.77	547,773	3.59	163,119
10	314	Turbogen. Units	6,469,874	2.53	1.79	(763,400)	1.71	(5,176)
11	315	Acc. Elect. Equip.	1,334,120	2.04	1.98	(446,022)	(0.31)	(30,551)
12	316	Misc. Pwr. Plt. Eq.	1,405,029	4.54	2.02	415,393	6.37	61,119
13		Total Riverton	37,200,228	3.32	2.39	2,120,969	3.69	485,731
Iatan								
14	311	Struct. & Improv.	3,789,814	2.90	3.35	(98,550)	2.83	(19,707)
15	312	Boiler Plant Eq.	28,143,993	2.38	4.19	(7,371,909)	1.56	(740,187)
17	314	Turbogen. Units	7,705,139	2.24	3.00	(929,784)	1.86	(87,839)
18	315	Acc. Elect. Equip.	3,494,267	2.14	3.18	(493,033)	1.70	(51,715)
19	316	Misc. Pwr. Plt. Eq.	702,319	3.93	2.94	67,845	4.14	8,428
20		Total Iatan	43,835,532	2.41	3.81	(8,825,432)	1.78	(891,020)
Total Steam Production								
21	311	Struct. & Improv.	20,719,925	3.86	2.33	3,993,384	4.97	546,873
22	312	Boiler Plant Eq.	101,753,997	4.16	3.24	11,032,180	4.65	1,442,709
23	312	Unit Train	5,580,297	3.98	5.67	(124,378)	3.82	(103,235)
24	314	Turbogen. Units	33,734,992	2.85	2.54	(304,229)	2.81	90,849
25	315	Acc. Elect. Equip.	7,156,619	2.25	2.60	(1,074,431)	1.51	(78,309)
26	316	Misc. Pwr. Plt. Eq.	4,816,948	5.01	2.20	1,095,603	6.01	183,621
27		Total Steam Production	173,762,778	3.81	3.02	14,618,129	4.21	2,082,508
Ozark Beach - Hydro								
28	331	Struct. & Improv.	498,456	3.50	1.98	263,617	5.26	16,349
29	332	Res., Dams & W. Ways	1,396,859	1.55	1.90	(50,611)	1.39	(7,124)
30	333	W Wheel, Tur. & Gen.	353,036	1.25	0.00	(147,011)	(0.52)	(1,836)
31	334	Acc. Elect. Equip.	737,339	3.21	1.78	123,656	3.87	15,410
32	335	Misc. Pwr. Plt. Eq.	244,207	4.53	2.10	106,701	5.89	9,255
33		Total Ozark Beach	3,229,897	2.42	1.69	296,352	2.68	32,055
Other Production								
34	(1)	Riverton	11,774,979	3.68	3.41	153,610	3.74	38,857
35	(1)	Energy Center	34,770,564	3.90	3.43	1,377,800	4.18	260,779
36		State Line						
37	(1), (2)	Unit No. 1	35,716,024	4.79	3.38	(1,034,230)	4.70	471,452
38	(3), (4)	Unit No. 2	140,475,204	4.93	3.37	3,044,383	4.99	2,275,698
39		Total Other Production	222,736,771	4.68	3.38	3,541,562	4.75	3,046,786
40		Total Production Plant	399,729,446	4.28	3.21	18,456,043	4.50	5,161,350

(1) Composite for Accounts 341 to 346.

(2) State Line Unit No. 1 plant in service balance at 12/31/99 reflects transfer of common investment from SL 1 to SL 2.

(3) State Line Unit No. 2 combined cycle plant is based on plant in service at 6/1/01. Figures shown include only Empire share of SL Unit No. 2.

(4) Composite for Accounts 310-353.