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Witness: Gregory E. Macias
Sponsoring Party: MOPSC Staff
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MISSOURI PUBLIC SERVICE COMMISSION
UTILITY SERVICES DIVISION

DIRECT TESTIMONY

OF

GREGORY E. MACIAS

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2007-0216 *et al.*

Jefferson City, Missouri
June 2007

Staff Exhibit No. 13
Case No(s) WR-2007-0216
Date 8-14-07 Rptr PF

STAFF-13

BEFORE THE PUBLIC SERVICE COMMISSION

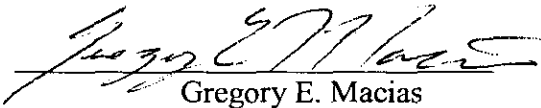
OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water)
Company's request for Authority to) Case No. WR-2007-0216, *et al*
Implement a General Rate Increase for)
Water Service provided in Missouri)
Service Areas)

AFFIDAVIT OF GREGORY E. MACIAS

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Gregory E. Macias, of lawful age, on his oath states: that he has participated in the preparation of the foregoing Direct Testimony in question and answer form, consisting of 11 pages to be presented in the above case; that the answers in the foregoing Direct Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true and correct to the best of his knowledge and belief.


Gregory E. Macias

Subscribed and sworn to before me this 4th day of June, 2007.



ASHLEY M. HARRISON
My Commission Expires
August 31, 2010
Cole County
Commission #06898978


Notary Public

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DIRECT TESTIMONY
OF
GREGORY E. MACIAS
MISSOURI-AMERICAN WATER COMPANY
CASE NO. WR-2007-0216

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1 Q. Have you previously filed testimony before this Commission?

2 A. Yes. See Schedule 1, attached to my testimony, for a list of cases in which I
3 have previously filed testimony.

4 Q. What matters will you address in your testimony?

5 A. I will address the Commission Staff's (Staff's) recommendation regarding
6 depreciation rates.

7 Q. What knowledge, skill, experience, training and education do you have in these
8 matters?

9 A. In addition to my Bachelor of Science degree in Civil Engineering from the
10 University of Missouri-Columbia, I have made on-site visits to the operating facilities of
11 several Missouri-regulated electric, natural gas, telecommunications, water, and sewer
12 companies. I have gained work-related experience and training from the Engineering and
13 Management Services Department's engineering staff regarding concepts of depreciation. I
14 have completed the National Association of Regulatory Utility Commissioners (NARUC)
15 Utility Rate School administered by the University of Florida and the NARUC Water
16 Committee. I have also completed the New Mexico State University Basic NARUC Course.
17 I have reviewed prior Commission decisions and portions of the testimony regarding
18 depreciation issues in previous cases.

19 **EXECUTIVE SUMMARY**

20 Q. What is the purpose of your testimony?

21 A. The purpose of my testimony is to recommend depreciation rates for Missouri-
22 American Water Company (MAWC or Company). Staff's proposal in this case is:

1 1. The depreciation rates, as well as the associated average service life and net
2 salvage percentage, presented in Schedule 2 become effective for MAWC on the date of the
3 Commission's order in this case; and

4 2. The Company be ordered to record the amount of annual depreciation accrual
5 segregated by the amounts for return of investment (life portion) and collection for net
6 salvage/cost of removal.

7 Q. Please summarize your Direct testimony in this proceeding.

8 A. The Staff conducted a depreciation study of MAWC's capital assets and has
9 recommended depreciation rates which, when applied to the plant-in-service as of December
10 31, 2006, generated the depreciation expense used in the Staff's Accounting Schedules
11 (revenue requirement run) to determine the Staff's revenue requirement recommendation.
12 The depreciation rates determined in this study would increase the currently-ordered annual
13 depreciation accrual by approximately \$4 million.

14 Staff is recommending the use of straight-line, whole-life depreciation rates to
15 determine MAWC's depreciation expense. The depreciation rates are based on Staff's
16 estimate of average service life and future net salvage for each capital plant account, and are
17 calculated by the following equation:

18
$$\text{Depreciation Rate} = (100\% - \text{Net Salvage}) \div \text{Average Service Life}$$

19 Staff is recommending that MAWC keep separate accounting of its amounts accrued
20 for recovery of its initial investment in plant from the amounts accrued for net salvage.

21 Staff is not recommending an adjustment to MAWC's accumulated reserve for
22 depreciation at this time.

1 **DEPRECIATION ISSUES**

2 Q. When were depreciation rates for the Company last adopted by a Commission
3 Order?

4 A. Depreciation rates were last ordered for MAWC in Case No. WR-2003-0500,
5 effective April 16, 2004. The ordered depreciation rates were the result of a stipulation and
6 agreement between the parties.

7 Q. Has there been a change in the Staff's approach to determining depreciation
8 rates since MAWC's last rate case proceeding?

9 A. Yes. The Staff's recommendation in this case is in conformance with the
10 guidelines set forth in the *Commission's Third Report and Order in Case No. GR-99-315*,
11 *Laclede Gas Company*, and the *Report And Order in Case No. ER-2004-0570, The Empire*
12 *District Electric Company*, concerning the treatment of salvage costs and cost of removal in
13 depreciation expense.

14 Q. Did you conduct a depreciation study of MAWC's capital plant accounts?

15 A. Yes. The recommended depreciation rates, associated average service lives,
16 and net salvage percentages are presented in Schedule 2. The recommended depreciation
17 rates would increase the currently-ordered depreciation accrual by approximately \$4 million
18 per year. In addition, the Staff recommends that the Company be required to record the
19 depreciation accrual separated into its components, i.e. a life accrual and a net salvage
20 accrual, consistent with the Commission's decisions concerning depreciation expense in its
21 January 11, 2005, Third Report and Order in Case No. GR-99-315.

22 **DEPRECIATION STUDY**

23 Q. What is the definition of "depreciation?"

1 A. Depreciation is the loss of service value of capital assets, not restored by
2 current maintenance, which is due to all factors causing ultimate retirement of the property.
3 These factors include wear and tear, decay, inadequacy, obsolescence, changes in the art, and
4 requirements of public authorities.

5 The purpose of depreciation in a regulatory setting is to recover the investment in
6 capital assets allocated rationally over the assets' useful lives (return of investment). Annual
7 depreciation expense, when distributed over the life of each asset, yields the recovery of all
8 costs determined to be associated with the utility's assets.

9 Q. Please describe the depreciation study that Staff conducted in this case.

10 A. Staff performed a broad group-average life depreciation study, where all units
11 of plant within a particular depreciation category are considered to be one group when
12 analyzing mortality data to determine average service lives. The average service life (ASL),
13 expressed in years, is the expected period of useful service of all units of the group, or
14 account, regardless of placement date.

15 Q. How did Staff evaluate the retirement experience of the Company's plant
16 accounts?

17 A. Staff used the retirement rate method of analysis. Using the retirement rate
18 method, Staff analyzed historical plant data by calculating the ratio of retirements to
19 exposures by age, then solving for the percent surviving by age to develop an original
20 survivor curve for an account.

21 Q. What data are required?

22 A. The required data are plant additions in dollars by year, or vintage, and
23 retirements from each vintage in dollars by year.

24 Q. How is this data used to develop an original survivor curve?

1 A. The exposures at a given age are the dollars remaining from the various
2 vintages that have lived to that age. The dollars retired during an age interval divided by the
3 exposures at the beginning of that interval is the retirement ratio for the age interval. The
4 retirement ratio is subtracted from one to get the survivor ratio for the age interval.
5 Multiplying each successive survivor ratio by the percent surviving of the previous age will
6 generate a life table which can be plotted as a survivor curve. This original survivor curve
7 can then be smoothed or fitted to an empirically developed statistical model known as the
8 Iowa-type curves.

9 Q. What are the Iowa-type curves?

10 A. The Iowa-type curves are widely accepted models of the life characteristics of
11 utility property. The system of Iowa curves is a family of curve shapes empirically derived
12 from analyses of mortality data of 176 types of utility and industrial property. The curves
13 were developed at the Iowa Engineering Experiment Station at what is presently known as
14 Iowa State University. The Iowa curves were first published in 1935 and reconfirmed in
15 1980.

16 Q. How do the Iowa-type curves help determine an accounts average service life?

17 A. Smoothing the original survivor curve by fitting it to an Iowa-type curve
18 eliminates irregularities and extrapolates stub curves to zero percent. The original survivor
19 curve is mathematically and visually matched with various Iowa-type curves to determine
20 which has the most appropriate fit. The average service life of an account's original survivor
21 curve is estimated as the area under the selected Iowa-type curve.

22 Q. What can cause an account's average service life to change over time?

23 A. Current developments such as technological changes, environmental
24 regulations, regulatory requirements or accounting changes can all affect the average service

1 life of property in an account. Different vintages of plant being manufactured from different
2 materials, changes in installation practice or the development of a life-extending maintenance
3 procedure are some examples.

4 Q. Are there any other elements factored into the depreciation rate calculation?

5 A. Yes. Consideration was given to the future net salvage that an account may
6 experience.

7 Q. What is net salvage?

8 A. Net salvage is gross salvage, or recovered marketable value of retired plant,
9 less cost of removal, or the cost associated with the retirement from service and disposition of
10 plant. Negative net salvage occurs when the cost of removal exceeds gross salvage; this is
11 sometimes referred to as net salvage expense or net cost of removal.

12 Q. How were net salvage rates calculated in your depreciation study?

13 A. To implement Commission policy, the experienced net salvage amount was
14 divided by the original cost of plant retired to calculate the net salvage rate realized by the
15 Company. Annual net salvage rates and five year moving averages were calculated to help
16 identify trends. The realized net salvage rates were used as the basis for the estimation of
17 future net salvage requirements.

18 Q. How did you calculate depreciation rates for MAWC's various plant accounts?

19 A. Using the straight line method, average life procedure and whole life
20 technique, the annual depreciation accrual rate for an account is calculated as follows:

21
$$\text{Depreciation Rate} = (100\% - \text{Net Salvage}) \div \text{Average Service Life}$$

22 where, generally:

23
$$\text{Net Salvage \%} = (\text{Gross Salvage} - \text{Cost of Removal}) \div \text{Original Cost of Plant Retired}$$

1 This depreciation rate is designed to recover the original cost of an account's assets,
2 less any estimated scrap value, plus an estimate of any cost of removal, over the useful
3 average service life of the assets.

4 Q. What are the results of Staff's depreciation study?

5 A. The depreciation rates determined in this study would increase the currently
6 ordered annual depreciation accrual by approximately \$4 million based on December 31,
7 2006, plant in service balances. December 31, 2006, is the end of the Staff's test year update
8 period in this case.

9 Q. What is the total amount of depreciation expense included in Staff's revenue
10 requirement?

11 A. The Staff's revenue requirement includes annual depreciation expense of
12 approximately \$23 million.

13 Q. How much of Staff's annual depreciation expense is for reimbursing the
14 Company's initial investment in plant?

15 A. Staff's depreciation expense recommendation includes plant in service
16 reimbursement of approximately \$19 million annually.

17 Q. How much of Staff's annual depreciation expense is for future net salvage?

18 A. Staff's depreciation expense recommendation includes an accumulation for
19 future net salvage costs of approximately \$4 million annually.

20 Q. Is Staff recommending a continuation of different depreciation rates for several
21 of the Company's districts?

22 A. No. Staff is proposing a composite set of depreciation rates for all water
23 districts and a composite set of depreciation rates for all sewer districts. Staff believes
24 composite depreciation rates are appropriate because the same management team operates all

1 districts, which results in consistent construction and maintenance practices and policies being
2 applied across all districts. Additionally, the type of equipment used throughout the Company
3 is not varied enough to warrant different depreciation rates.

4 Q. How did Staff determine depreciation rates for the Company's sewer plant
5 accounts?

6 A. Staff used its standard small sewer company depreciation rates for MAWC's
7 sewer plant accounts.

8 Q. Please summarize Staff's recommendation for depreciation rates for the
9 Company's plant accounts.

10 A Staff's recommended average service lives, net salvage percentages, and
11 depreciation rates are summarized in Schedule 2. A comparison of Staff's depreciation
12 recommendation to the Company's proposed annual accrual and the existing ordered annual
13 accrual is provided in Schedule 3.

14 **DEPRECIATION RESERVE ANALYSIS**

15 Q. Did Staff analyze the Company's accumulated provision for depreciation?

16 A. Yes. The revised estimates of average service life and selected Iowa-type
17 curve are used to compute the calculated accumulated depreciation, or theoretical reserve.
18 The theoretical reserve is the amount that would be in the accumulated provision for
19 depreciation, or book depreciation reserve, if the depreciation rate corresponding to the
20 revised estimates had been applied from the original placement of plant to the date of the
21 study. The theoretical reserve can be thought of as the difference between the original cost of
22 plant currently in service and the summation of annual depreciation expense that is to be
23 collected from the study date until the date of final retirement of the account.

Direct Testimony of
Gregory E. Macias

- 1 1. Order the composite depreciation rates proposed in Schedule 2 for all
- 2 districts of MAWC; and
- 3 2. Order MAWC to keep a separate accounting of its amounts accrued for
- 4 recovery of its initial investment in plant from the amounts accrued for
- 5 net salvage, consistent with the Commission's Third Report and Order
- 6 in Case No. GR-99-315.
- 7 Q. Does this conclude your Direct testimony?
- 8 A. Yes, it does.

WR-2007-0216
Missouri-American Water Company

Schedule 1. Case Proceeding Participation
Staff Witness Gregory E. Macias

<u>Company Name</u>	<u>Case Number</u>	<u>Testimony Filed</u>	<u>Issue(s)</u>
Missouri-American Water Company	WR-2003-0500	Direct, Rebuttal, Surrebuttal	Depreciation
Osage Water Company	ST-2003-0562 WT-2003-0563	Direct	Depreciation
Fidelity Telephone Company	IR-2004-272	Direct	Depreciation
The Empire District Electric Company	ER-2004-0570	Direct, Rebuttal, Surrebuttal	Depreciation
Aquila Networks, Inc.	ER-2005-0436 HR-2005-0450	Direct	Depreciation
Missouri Gas Energy	GR-2006-0422	Direct, Rebuttal, Surrebuttal	Depreciation

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Missouri-American Water Company

Schedule 2. Depreciation Rate Recommendation

Account Number	Description	Depreciation Rate	ASL (Years)	Net Salvage	Life Only Rate	Net Salvage Rate
303.00	Misc. Intangible Plant	0.00%	30	0%	0.00%	0.00%
311.00	S&I - Source of Supply	2.45%	55	-35%	1.82%	0.63%
312.00	Collecting and Impounding Reservoirs	1.25%	80	0%	1.25%	0.00%
313.00	Lake, River and Other Intakes	1.77%	65	-15%	1.54%	0.23%
314.00	Wells and Springs	1.67%	60	0%	1.67%	0.00%
315.00	Infiltration Galleries and Tunnels	1.67%	60	0%	1.67%	0.00%
316.00	Supply Mains	1.60%	75	-20%	1.33%	0.27%
317.00	Misc. Source of Supply - Other	4.00%	25	0%	4.00%	0.00%
321.00	S&I - Power and Pumping	1.73%	75	-30%	1.33%	0.40%
322.00	Boiler Plant Equipment	2.00%	50	0%	2.00%	0.00%
323.00	Power Generation Equipment	2.00%	50	0%	2.00%	0.00%
325.00	Electric Pumping Equipment	2.44%	45	-10%	2.22%	0.22%
331.00	S&I - Water Treatment	1.63%	80	-30%	1.25%	0.38%
332.00	Water Treatment Equipment	2.78%	45	-25%	2.22%	0.56%
332.00	Misc. Water Treatment - Other	3.33%	30	0%	3.33%	0.00%
341.00	S&I - Transmission and Distribution	2.67%	45	-20%	2.22%	0.45%
341.63	S&I - Special Crossing	0.00%		0%	0.00%	0.00%
342.00	Distribution Reservoirs and Standpipes	2.25%	60	-35%	1.67%	0.58%
343.00	Mains - Transmission and Distribution	1.50%	90	-35%	1.11%	0.39%
344.00	Mains - Fire	1.50%	90	-35%	1.11%	0.39%
345.00	Services	3.08%	65	-100%	1.54%	1.54%
346/347	Meters and Meter Installations	2.43%	40	3%	2.50%	-0.07%
348.00	Fire Hydrants	1.92%	65	-25%	1.54%	0.38%
349.00	Misc. Trans. & Distr. - Other	2.00%	50	0%	2.00%	0.00%
351.00	WW - Structures & Improvements	2.50%	40	0%	2.50%	0.00%
352.10	WW - Collection Sewers Forced	2.00%	50	0%	2.00%	0.00%
352.20	WW - Collecting Mains	2.00%	50	0%	2.00%	0.00%
353.00	WW - Service to Customers	2.00%	50	0%	2.00%	0.00%
363.00	WW - Electric Pumping Equipment	10.00%	10	0%	10.00%	0.00%
372.00	WW - Treatment & Disposal Equipment	5.00%	20	0%	5.00%	0.00%
374.00	WW - Outfall Sewer Lines	2.00%	50	0%	2.00%	0.00%
390.00	S&I - Shop and Garage	2.40%	50	-20%	2.00%	0.40%
390.10	S&I - Office Building	2.40%	50	-20%	2.00%	0.40%
390.10	S&I - Leasehold	5.00%	20	0%	5.00%	0.00%
390.30	S&I - Miscellaneous	2.40%	50	-20%	2.00%	0.40%
391.00	Office Furniture	4.00%	25	0%	4.00%	0.00%
391.20	Computer Hardware	14.29%	7	0%	14.29%	0.00%
391.25	Computer Software	14.29%	7	0%	14.29%	0.00%
391.30	Other Office Equipment	6.67%	15	0%	6.67%	0.00%
392.11	Transportation Equipment - Light Trucks	0.00%	8	25%	0.00%	0.00%
392.12	Transportation Equipment - Heavy Trucks	8.33%	9	25%	11.11%	-2.78%
392.20	Transportation Equipment - Autos	0.00%	5	25%	0.00%	0.00%
392.30	Transportation Equipment - Other	0.00%	15	0%	0.00%	0.00%
393.00	Stores Equipment	2.86%	35	0%	2.86%	0.00%
394.00	Tools, Shop and Garage Equipment	5.00%	20	0%	5.00%	0.00%
395.00	Laboratory Equipment	4.00%	25	0%	4.00%	0.00%
396.00	Power Operated Equipment	6.82%	11	25%	9.09%	-2.27%
397.00	Communication Equipment - Non-telephone	5.00%	20	0%	5.00%	0.00%
397.20	Communication Equipment - Telephone	6.67%	15	0%	6.67%	0.00%
398.00	Miscellaneous Equipment	5.00%	20	0%	5.00%	0.00%
399.00	Other Tangible Property	5.00%	20	0%	5.00%	0.00%

Note: MAWC is required to keep separate accounting of its amounts accrued for recovery of its initial investment in plant from the amounts accrued for the cost of removal/ net salvage.

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Missouri-American Water Company
Schedule 3. Depreciation Comparison

Account Number	Description	Plant 12/31/2006	Staff Proposed				Company Proposed	Current Composite	Book Reserve 12/31/2005	Staff Theoretical Reserve
			Iowa Curve ASL	Type	Net Salvage	Depreciation Rate	Annual Accrual	Annual Accrual		
303.00	Misc. Intangible Plant	340,285	30		0%	0.00%	0	0	648,245	81,170
311.00	S&I - Source of Supply	10,604,137	55	- R4	-35%	2.45%	259,801	244,956	2,820,674	3,211,111
312.00	Collecting and Impounding Reservoirs	111,066	80	- R2.5	0%	1.25%	1,388	1,688	81,867	50,733
313.00	Lake, River and Other Intakes	447,399	65	- R2	-15%	1.77%	7,919	47,335	-604,013	75,716
314.00	Wells and Springs	6,659,423	60	- R1.5	0%	1.67%	111,212	77,118	810,213	1,043,624
315.00	Infiltration Galleries and Tunnels	1,804	60	- R2.5	0%	1.67%	30	16		71
316.00	Supply Mains	16,787,471	75	- R2.5	-20%	1.60%	268,600	270,204	4,191,425	3,072,643
317.00	Misc. Source of Supply - Other	1,730	25		0%	4.00%	69	37	0	104
321.00	S&I - Power and Pumping	15,485,562	75	- R2.5	-30%	1.73%	267,900	457,243	3,968,095	3,622,535
322.00	Boiler Plant Equipment	348	50	- R3	0%	2.00%	7	19	0	282
323.00	Power Generation Equipment	332,106	50	- R2.5	0%	2.00%	6,642	8,070	59,650	73,620
325.00	Electric Pumping Equipment	44,110,325	45	- R1.5	-10%	2.44%	1,076,292	871,966	711,751	13,322,075
331.00	S&I - Water Treatment	74,982,361	80	- R3	-30%	1.63%	1,222,212	1,379,719	832,391	23,830,651
332.00	Water Treatment Equipment	78,571,131	45	- R1.5	-25%	2.78%	2,184,277	1,673,565	1,453,566	28,503,931
332.00	Misc. Water Treatment - Other	1,481,666	30		0%	3.33%	49,339	17,780	0	79,970
341.00	S&I - Transmission and Distribution	6,974,157	45	- R3	-20%	2.67%	186,210	148,551	126,933	2,648,782
341.63	S&I - Special Crossing	267,357				0.00%	0	16,630	26,736	322,127
342.00	Distribution Reservoirs and Standpipes	24,064,310	60	- R3	-35%	2.25%	541,447	531,420	444,394	8,081,500
343.00	Mains - Transmission and Distribution	662,856,945	90	- R2	-35%	1.50%	9,942,854	9,410,318	9,143,607	137,857,396
344.00	Mains - Fire	529,359	90	- R2	-35%	1.50%	7,940	7,411	6,882	68,565
345.00	Services	23,175,266	65	- R2.5	-100%	3.08%	713,798	628,050	463,505	4,724,555
346/347	Meters and Meter Installations	56,297,901	40	- R2	3%	2.43%	1,368,039	1,440,092	1,337,621	15,981,347
348.00	Fire Hydrants	48,675,649	65	- R1.5	-25%	1.92%	934,572	764,246	657,198	14,850,351
349.00	Misc. Trans. & Distr. - Other	35,406	50	- R3	0%	2.00%	708	871	460	7,494
										12,300

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Missouri-American Water Company
Schedule 3. Depreciation Comparison

Account Number	Description	Plant 12/31/2006	Staff Proposed				Company Proposed	Current Composite	Book Reserve 12/31/2005	Staff Theoretical Reserve
			Iowa Curve ASL Type	Net Salvage	Depreciation Rate	Annual Accrual	Annual Accrual	Annual Accrual		
351.00	WW - Structures & Improvements	44,004	40	0%	2.50%	1,100	0	1,100		
352.10	WW - Collection Sewers Forced	13,401	50	0%	2.00%	268	335	335		
352.20	WW - Collecting Mains	517,180	50	0%	2.00%	10,344	11,169	11,169		
353.00	WW - Service to Customers	49,429	50	0%	2.00%	989	1,196	1,196		
363.00	WW - Electric Pumping Equipment	12,173	10	0%	10.00%	1,217	487	487		
372.00	WW - Treatment & Disposal Equipment	1,017,340	20	0%	5.00%	50,867	43,007	43,007		
374.00	WW - Outfall Sewer Lines	33,433	50	0%	2.00%	669	669	669		
390.00	S&I - Shop and Garage	600,046	50 - R3	-20%	2.40%	14,401	32,541	8,378	29,803	163,739
390.10	S&I - Office Building	905,852	50 - R1	-20%	2.40%	21,740	23,824	22,646	201,133	313,140
390.10	S&I - Leasehold	345,524	20	0%	5.00%	17,276	25,468	34,697	204,161	195,343
390.30	S&I - Miscellaneous	3,695,334	50 - R2	-20%	2.40%	88,688	52,703	26,465	1,087,918	713,248
391.00	Office Furniture	2,466,458	25 - L1	0%	4.00%	98,658	87,246	46,527	2,390,596	1,943,162
391.20	Computer Hardware	5,633,417	7 - R3	0%	14.29%	805,015	1,506,787	170,388	377,695	2,125,465
391.25	Computer Software	9,076,240	7 - R5	0%	14.29%	1,296,995	1,987,677	1,013,801	2,173,175	3,585,231
391.30	Other Office Equipment	782,418	15 - L3	0%	6.67%	52,187	48,745	34,035	104,748	158,967
392.11	Transportation Equipment - Light Trucks	786,265	8 - L1.5	25%	0.00%	0	49,142	98,283	1,435,526	358,900
392.12	Transportation Equipment - Heavy Trucks	4,163,904	9 - L2	25%	8.33%	346,853	305,631	520,488	3,219,493	2,172,273
392.20	Transportation Equipment - Autos	538,518	5 - L2.5	25%	0.00%	0	32,040	64,081	660,198	265,203
392.30	Transportation Equipment - Other	78,242	15 - S4	0%	0.00%	0	3,249	3,249	316,553	26,436
393.00	Stores Equipment	333,911	35 - L2	0%	2.86%	9,550	25,110	7,580	-262,638	85,492
394.00	Tools, Shop and Garage Equipment	6,719,170	20 - L1	0%	5.00%	335,959	289,123	308,415	3,120,035	2,005,628
395.00	Laboratory Equipment	2,030,288	25 - L1	0%	4.00%	81,212	164,318	56,345	871,321	632,212
396.00	Power Operated Equipment	1,226,159	11 - L1	25%	6.82%	83,624	76,635	136,226	828,838	513,711
397.00	Communication Equipment - Non-telephone	1,342,169	20 - L2	0%	5.00%	67,108	77,175	63,887	606,690	417,961
397.20	Communication Equipment - Telephone	133,396	15 - L2.5	0%	6.67%	8,898	4,924	3,605	95,027	49,740
398.00	Miscellaneous Equipment	1,815,067	20 - L1.5	0%	5.00%	90,753	139,472	126,888	181,126	223,636
399.00	Other Tangeble Property	<u>927,075</u>	20	0%	5.00%	<u>46,354</u>	<u>289,115</u>	<u>42,196</u>	<u>202,100</u>	<u>845,325</u>
TOTAL DEPRECIABLE PLANT		<u>1,118,079,577</u>				<u>22,681,981</u>	<u>23,275,092</u>	<u>18,863,845</u>	<u>284,575,822</u>	<u>254,243,972</u>