AUGUST 31, 2003

ACTUARIAL VALUATION REPORT



FOR PLAN YEAR BEGINNING SEPTEMBER 1, 2003

AND

FISCAL YEAR ENDING AUGUST 31, 2003

DECEMBER 10, 2003

ACTUARIAL VALUATION REPORT

PREPARED AS OF AUGUST 31, 2003

This report describes the results of an actuarial valuation of the Law Enforcement and Custodial Officer Supplemental Retirement Fund, one of the funds of the Employees Retirement System of Texas. The Employees Retirement System of Texas retained Towers Perrin to perform this actuarial valuation for the purposes of determining (1) the funding status for the plan year September 1, 2003 through August 31, 2004; and (2) financial statement disclosure and reporting information for the fiscal year ending August 31, 2003.

The consulting actuaries are members of the Society of Actuaries and other professional actuarial organizations and meet their "General Qualification Standard for Prescribed Statements of Actuarial Opinions" relating to pension plans.

The calculations were made as of August 31, 2003. In preparing the results presented in this report, we have relied upon information provided to us regarding plan provisions, plan participants, and plan assets as of August 31, 2003. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonabless but have not audited it. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information.

The actuarial assumptions and the accounting policies and methods employed in this report have been selected by the plan sponsor, with the concurrence of Towers Perrin.

The funding determination portion of this actuarial valuation has been conducted in accordance with principles of practice prescribed by the Actuarial Standards Board and the requirements of the Texas Government Code.

The financial statement disclosure portion of this actuarial valuation has been conducted according to our understanding of Statements No. 25 and 27 of the Government Accounting Standards Board. The Government Accounting Standards Board requires the use of reasonable assumptions. The actuarial assumptions used are identical to the assumptions used for the funding determination portion of the valuation.

The results shown in this report are reasonable actuarial results. However, a different set of results could also be considered reasonable actuarial results, since the Actuarial Standards of Practice describe a "best-estimate range" for each assumption, rather than a single best-estimate value. Thus, reasonable results differing from those presented in this report could have been developed by selecting different points within the best-estimate ranges for various assumptions.

The information contained in this report was prepared for the internal use of the Employees Retirement System of Texas and its auditors in connection with our actuarial valuation of the pension plan. It is not intended nor necessarily suitable for other purposes.

Towers Perrin

Leslie P. Finertie, F.S.A., E.A., M.A.A.A., F.C.A.

Steven R. Rusher, F.S.A., E.A., M.A.A.A.

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FUNDING DETERMINATION

A. ACTUARIAL VALUATION RESULTS

The key results from the current valuation, along with comparable figures from the prior valuation, are as follows:

| | August 3 Valua | | August 31, 2002 Valuation |
|--|-------------------|-----------------|------------------------------|
| | After | Before | |
| | Changes | Changes | |
| Total Contribution Rate | | | |
| current biennium | 0.000% | 0.000% | 0.000% |
| — thereafter (assumed) | 1.607% | 1.762% | 1.753% |
| Normal Cost | | | |
| percent of payroll | 1.607% | 1.762% | 1.753% |
| — dollars | \$20,530,863 | \$22,483,378 | \$22,761,576 |
| Actuarial Value of Assets (AV) | \$666,588,289 | \$666,588,289 | \$655,978,723 |
| Actuarial Accrued Liability (AAL) | \$597,914,188 | \$560,945,677 | \$526,204,753 |
| Funded Ratio (AV/AAL) | 111.5% | 118.8% | 124.7% |
| Net Asset Balance (AV – AAL) | \$68,674,101 | \$105,642,612 | \$129,773,970 |
| Amortization Period in Years | 0.0 | 0.0 | 0.0 |
| Valuation Payroll | \$1,277,894,221 | \$1,275,676,869 | \$1,298,593,196 |
| Reported Payroll | \$1,265,791,324 | \$1,265,791,324 | \$1,288,932,850 |
| Contributing Members | 40,335 | 40,335 | 40,926 |

B. DETERMINATION OF FUNDED STATUS AND AMORTIZATION PERIOD

The current valuation has been determined based on the actuarial assumptions summarized in Appendix D and the actuarial cost method described in Appendix E.

The actuarial assumptions are used to predict the likelihood of various benefits becoming payable from the plan, the size of those benefits, and the estimated value today of those future benefits. Actual experience may deviate from these assumptions, resulting in actuarial gains and losses.

The actuarial cost method is a budgeting technique, used to allocate total estimated plan liabilities over past, current and future years. Thus, the choice of the cost method does not affect the overall long-term plan costs, but only the incidence of when those costs are reflected. The cost method is designed to give plan costs as a relatively level percentage of payroll if characteristics of the member group do not change significantly.

An actuarial valuation is the process by which the actuarial assumptions and cost method are applied to actual plan provisions, assets, and member data, to develop a funding level sufficient to provide for future benefit payments, the actual ultimate value of which is not now known.

C. CHANGES SINCE LAST VALUATION

Since the prior valuation, there were no changes in actuarial cost methods or actuarial procedures. There were changes in plan provisions from HB 2359 and other legislation, but these plan changes had no material impact on the actuarial valuation results. An experience study was completed in 2003 that examined the actuarial experience of the System for the five-year period ending August 31, 2002. As a result of this experience study, several changes in actuarial assumptions have been recommended to the Board for the August 31, 2003 actuarial valuation.

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D. PLAN EXPERIENCE

For fiscal year 2003, the rate of investment return on the market value of assets was approximately 8.8% net of administrative expenses. The actuarial value of assets is a smoothed value that recognizes only 20% of outstanding investment gains and losses. The rate of investment return on the actuarial (smoothed) value of assets was approximately 5.2% for fiscal year 2003, which was less than the 8.0% assumed rate. As of August 31, 2003, the market value of assets was \$72 million less than the actuarial value. Unless the market value earns significantly more than 8% over the next few years (on the average), unrecognized investment losses will gradually be reflected in the actuarial value of assets and the funded ratio may fall below 100%.

The net asset balance of \$129.8 million as of the August 31, 2002 actuarial valuation decreased by approximately \$61.1 million to \$68.7 million as of August 31, 2003 valuation. The following table shows the components of this change for 2003 (all amounts in millions of dollars):

| Expected change in net asset/(liability) balance: Interest on net asset/(liability) balance | \$10.4 |
|--|---------------|
| State contribution greater/(less) than normal cost | (23.7) |
| Total | (\$13.3) |
| Actuarial gain/(losses) from: Service retirements, disability Retirement, death-in-service | |
| Benefits, and withdrawal payments | (3.7) |
| Across-the-board salary increases | 12.6 |
| Death after retirement | (1.6) |
| Investment Income | <u>(18.1)</u> |
| Total actuarial gains/(losses) | (\$10.8) |
| Change in net asset/(liability) balance due to changes in actuarial assumptions | <u>(37.0)</u> |
| Change in net asset/(liability) balance: | (\$61.1) |

The net actuarial loss of \$10.8 million indicates that actual experience since the last valuation was less favorable than expected. The most significant factor was the investment return loss (on the actuarial value of assets), which offset net actuarial gains from across-the-board pay increases.

E. <u>DISTRIBUTIONS OF NORMAL COST</u>

| Type of Benefit | Percent of Payroll | | I |
|---|---------------------|--------------------|---------------------|
| _ | August 31 | , 2003 | August 31, 2002 |
| <u>-</u> | After Changes | Before Changes | |
| Retirement | 1.463% | 1.667% | 1.659% |
| Death | 0.018 | 0.037 | 0.037 |
| Occupational Disability | 0.026 | 0.058 | 0.057 |
| Expenses | <u>0.100</u> | 0.000 | 0.000 |
| Total | 1.607% | 1.762% | 1.753% |
| ACTUARIAL BALANCE SHEET | | | |
| | August 3 | 31, 2003 | August 31, 2002 |
| | After | Before | |
| | Changes | Changes | |
| Actuarial Assets: | | | |
| Actuarial Value of | | | |
| Tangible Assets | \$666,588,289 | \$666,588,289 | \$655,978,723 |
| - | | | |
| Actuarial Present | | | |
| Value of Future Normal Costs | <u> 171,401,218</u> | 222 417 017 | 225 402 002 |
| Normal Costs | <u> 171,401,210</u> | 233,417,017 | 235,482,803 |
| Total | \$837,989,507 | \$900,005,306 | \$891,461,526 |
| Actuarial Liability: | | | |
| Actuarial Present Value of Benefits | | | |
| Active members | | | |
| - service retirement | \$539,159,560 | \$553,170,677 | \$556,032,471 |
| - death benefit plan | 6,533,875 | 12,103,901 | 12,254,925 |
| occupational disability | 4,154,665 | 9,658,158 | <u>9,738,113</u> |
| - total | \$549,848,100 | \$574,932,736 | \$578,025,509 |
| Inactive vested members | 1,160,853 | 1,160,853 | 891,475 |
| Supplemental payments and COLAS | 0 | 0 | 0 |
| Annuitants | <u>218,306,453</u> | <u>218,269,105</u> | <u> 182,770,572</u> |
| | | | |
| Total | \$769,315,406 | \$794,362,694 | \$761,687,556 |
| Net Asset/(Liability) Balance: | \$68,674,101 | \$105,642,612 | \$129,773,970 |

Refer to Appendix B for additional detail regarding assets.

F.

APPENDIX A

SUMMARY OF PLAN PROVISIONS

A. MEMBERSHIP

- A "law enforcement officer" who has been commissioned by the Department of Public Safety, Texas Alcoholic Beverage Commission, State Purchasing and General Services Commission Capital Area Security Force, Parks and Wildlife Department and commissions recognized by the Commission on Law Enforcement Officers Standards and Education.
- A "custodial officer" employed by the Texas Department of Corrections and certified by the department as having normal duties of supervising and having direct contact with inmates.

B. SERVICE RETIREMENT BENEFITS

Service Retirement Eligibility:

Last day of any month following attainment of:

- age 50 and 20 years of service as a law enforcement or custodial officer or,
- the sum of age and service is at least 80.

Standard Service Retirement Annuity:

Monthly annuity payable for life equal to a percentage of final average compensation, multiplied by years and months of service. Final average compensation is the highest 36 months average paid while a law enforcement or custodial officer. The percentage is the sum of the percentage factor for a standard service retirement under ERS plus 0.5%.

The monthly annuity payable shall be reduced by retirement benefits payable for service as a law enforcement or custodial officer under the regular employee provisions of ERS.

Early Service Retirement Eligibility:

Last day of the month following completion of 20 years of service.

Reduced Early Service Retirement Annuity:

Standard service retirement benefit reduced by an early retirement factor if the sum of age and service is less than 80.

| Age at <u>Retirement</u> | Percentage of Normal Retirement Benefit |
|-----------------------------|--|
| 38 | 33.0% |
| 39 | 36.1 |
| 40 | 39.5 |
| 41 | 43.2 |
| 42 | 47.3 |
| 43 | 51.8 |
| 44 | 56.7 |
| 45 | 62.2 |
| 46 | 68.3 |
| 47 | 75.0 |
| 48 | 82.5 |
| 49 | 90.8 |

The monthly benefit is further reduced by the amount of the monthly benefit that the retiree is entitled to receive at age 50 for service as a law enforcement or custodial officer according to the regular retirement benefit provisions of ERS.

Optional Service Retirement Benefits:

Five optional forms plus partial lump sum option assumed actuarially equivalent to life annuity. Member must choose the same form under ERS and this Fund.

C. <u>DISABILITY RETIREMENT BENEFITS</u>

Occupational Disability Retirement:

Standard service retirement benefit percentage, with a minimum of 50%, times member's final average compensation, without reduction for age. Maximum benefit is 100% of salary. If the member's condition makes the person incapable of gainful occupation and is considered total disability under federal Social Security law, the standard disability retirement annuity is 100% of the member's final average Benefit is offset by compensation. payment from ERS under the standard disability provisions applicable to regular employees.

Nonoccupational Disability Retirement:

None from this Fund.

Optional Disability Retirement Benefits: Five optional forms assumed actuarially

equivalent to standard annuity. Member must choose the same form under ERS and

this Fund.

D. DEATH BENEFITS

Before Retirement with 20 or More

Years of Service:

Death benefit plan filed by member, beneficiary or estate payable as a lifetime annuity or 10-year certain annuity, offset by the death benefit payable from ERS under provisions for regular employees.

After Retirement: Based on optional form selected.

E. VESTED BENEFITS AFTER TERMINATION OF EMPLOYMENT

Service Retirement Benefit: Deferred retirement benefit with 20 or more

years of service, forfeitable if regular employee contributions from ERS are

withdrawn.

Death Benefit: Vested in death benefit plan with 20 years

of service. Forfeitable if regular employee contributions are withdrawn from ERS

before death.

F. WITHDRAWAL BENEFITS None from this Fund.

G. CONTRIBUTIONS

Members: None.

State of Texas: For fiscal year 2004 there is no State

contribution.

H. CHANGES IN PLAN PROVISIONS

There were changes in plan provisions since the prior valuation from HB 2359 and other legislation, but these plan changes had no material impact on the actuarial valuation results.

I. REFERENCES

For a complete description of all of the provisions of the law which describe the Commissioned Law Enforcement and Custodial Officer Supplemental Retirement Fund, see Texas Government Code, Title 8, Subtitle B. Alternatively, the staff of the Employees Retirement System of Texas can provide more of the details of the provisions.

APPENDIX B

SUMMARY OF ASSETS

A. SOURCE OF INFORMATION

Towers Perrin used the plan asset data provided without audit.

B. VALUES

| | August 31, 2003 | August 31, 2002 |
|---------------------------------|-----------------|-----------------|
| Market Value of Plan Assets | \$594,093,643 | \$567,934,041 |
| Actuarial Value of Total Assets | \$666,588,289 | \$655,978,723 |

The calculation of the actuarial value of assets is based on the market-related value of plan assets, with five-year smoothing of unexpected returns. The market-related value is equal to the value of net assets held in trust for pension benefits (fair value of investments plus the carrying value (net of depreciation) of other assets and liabilities) as of the valuation date.

Specifically, the actuarial value of assets is determined as the expected value of plan assets as of the valuation date plus 20% of the difference between the market-related value and the expected value. The expected value equals the actuarial value of plan assets as of the prior valuation date, plus contributions, less benefit payments and administrative expenses, all accumulated at the assumed rate of interest to the current valuation date.

\$666,588,289

C. ASSET RECONCILIATION

(5)+(8)

| | 1. | Value of Plan Net Assets, August 31, 2002: | \$567,934,041 |
|----|------------|---|---------------|
| | 2. | Contributions | 0 |
| | 3. | Benefits paid | 22,831,798 |
| | 4. | Administrative expenses | 700,262 |
| | 5. | Investment return | 49,691,662 |
| | 6. | Value of Plan Net Assets, August 31, 2003: (1)+(2)-(3)-(4)+(5) | \$594,093,643 |
| D. | <u>DE\</u> | /ELOPMENT OF ACTUARIAL VALUE OF PLAN ASSETS | |
| | 1. | Actuarial Value of Plan Assets, August 31, 2002: | \$655,978,723 |
| | 2. | Contributions | 0 |
| | 3. | Benefits paid | 22,831,798 |
| | 4. | Expected investment return at 8% | 51,565,026 |
| | 5. | Expected Value of Plan Assets, August 31, 2003: (1)+(2)-(3)+(4) | \$684,711,951 |
| | 6. | Market-related Value of Plan Assets, August 31, 2003: | 594,093,643 |
| | 7. | Difference: (6)-(5) | (90,618,308) |
| | 8. | Adjustment to expected value: 20% x (7) | (18,123,662) |
| | | | |

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APPENDIX C

SUMMARY OF MEMBER DATA AND RELATED LIABILITIES

A. MEMBER DATA AS OF AUGUST 31, 2003

The employee data provided to Towers Perrin by the Employees Retirement System of Texas was reviewed for reasonableness but no attempt was made to audit the data. All actuarial computations performed by Towers Perrin are directly dependent on the accuracy and completeness of the information provided.

Member data collected as of August 31, 2003 has been used as the basis for performing this valuation.

Section B contains a summary of currently contributing members used in the current valuation. The summary is based on age on the last birthday and completed years of service as of August 31, 2003, and pay determined from reported ERS contributions for August 2003.

Section C contains a summary of annuitant data used in the current valuation. The annuitant summary is based on the monthly benefit reported as of August 31, 2003.

B. SUMMARY DATA ON CONTRIBUTING AND NONCONTRIBUTING MEMBERS

| | August 31, 2003 | August 31, 2002 |
|---|-----------------------------------|-----------------------------------|
| Contributing Members | | |
| Number Contributing: Male Female Total | 25,981 <u>14,354</u> 40,335 | 26,280 <u>14,646</u> 40,926 |
| Average Annual Rate of Salary: | \$31,382 | \$31,494 |
| Average Years of Service Credit: | 7.5 | 7.4 |
| Average Age: | 39.8 | 39.7 |
| Noncontributing Members | | |
| Vested: Male Female Total | 18 <u>1</u> 19 | 14 <u>1</u> 15 |

These figures exclude those who retired August 31, because they were included as retirees in the valuation. The average annual rate of salary is based on the member ERS contributions for the month of August.

The following table shows additional detail for currently contributing members.

ANALYSIS OF PARTICIPANT DATA AS OF SEPTEMBER 1, 2003

ACTIVE PARTICIPANT DISTRIBUTION BY AGE AND COMPLETED YEARS OF SERVICE

| 1.00 | Age Last Birthday | st 3V | 0 | 1 | 2 |]3 | 4 | Completed 5-9 | eted Years of | Service | 20-24 | 25-29 | 30-34 | Over 34 | Total |
|--|----------------------|----------------------|-------|-------------|------------|---|-------------|------------------|---|---|-------------|------------|-----------|----------|---------------|
| Number 1, 194 et al. 1971 | | | | i | , | , | • | , | , | | , | | | , | |
| Number 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | 15-19 | Number | | 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 395 |
| Number 15, 458 2, 120, 22, 22, 22, 22, 22, 23, 23, 23, 23, 23 | | Tot Pay | | 1,590,402 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,924,224 |
| Windley Late Columbia | | Avg Pay | | 22,720 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20,061 |
| Multiple 7.2 2. | | Mismboso | 000 | | 000 | u d | | | c | ć | c | c | c | c | |
| Number: 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | ¥7-07 | Number Mark Paris | | | 000 | 000 | 771 | 101 | | > 0 | o 6 | > 0 | | > 0 | .C |
| Number | | TOT Pay | | 26,356,036 | 15,0/1,840 | 10, /I/, 18U | מינים מינים | 3,006,500 | 0 | o , | . | . | 0 | 0 | 83,939,140 |
| Number 7.0 5.65 5.65 5.65 6.0 6.0 | | Avg Pay | | 24,158 | 25,852 | 27,132 | 28,353 | 29,767 | 0 | 0 | 0 | 0 | 0 | 0 | 24,295 |
| TOTE PM 15, 4645,586 15, 646,586 15, 646,586 15, 646,586 15, 646,586 15, 646,586 15, 646,586 15, 646,586 15, 646,586 15, 14, 98 0 <t< td=""><td>25-29</td><td>Number</td><td>702</td><td>879</td><td>009</td><td>594</td><td>496</td><td>1,457</td><td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>4,754</td></t<> | 25-29 | Number | 702 | 879 | 009 | 594 | 496 | 1,457 | | 0 | 0 | 0 | 0 | 0 | 4,754 |
| Number | | Tot Pay | | | 16,300,208 | 17,013,992 | 14,711,250 | 46,212,020 | 9,606 | 0 | 0 | 0 | 0 | 0 | 133,913,744 |
| Number Pay 1, 21, 615, 618, 618, 618, 618, 618, 618, 618, 618 | | Avg Pay | | | 27,167 | 28,643 | 29,660 | 31,717 | 34,988 | 0 | 0 | 0 | 0 | 0 | 28,169 |
| Prop. Exp. Prop. 12, 815, 038 19, 511, 246 15, 614, 866 14, 066, 642 91, 655, 248 646, 612 14, 066, 642 91, 655, 248 646, 612 14, 066, 642 91, 655, 248 94, 611, 268 14, 066, 642 91, 155, 248 14, 066, 648 91, 156, 248 92, 21, 2 | 30-34 | Number | 564 | 750 | 445 | 522 | 465 | | 71 | 18 | 0 | 0 | 0 | 0 | 6.245 |
| Number | | TOT DOS | | 10 501 | 12 221 082 | 75 044 886 | 14 086 642 | 01 | | 002 303 | c | c | _ | | 070 071 |
| Number Nu | | Avg Pay | | | 27,463 | 28,822 | 30,294 | 7 | 34,911 | 35,362 | 0 | 0 | 0 | 0 | 30,571 |
| Number S2,752 12,478,410 1,713,21 1,131,31 1,131,31 1,31 | | • | | | | | | | | | | | | | |
| TOC Pay 10,081,572 12,478,410 9,773,212 10,511,288 9,571,014 69,608,474 44,228,680 28,411,952 1,868,990 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | 35-39 | Number | | | 357 | 371 | 324 | 2,132 | | | 48 | 0 | 0 | 0 | 6,132 |
| Number 22,762 26,166 27,376 28,534 29,649 36,350 38,289< | | Tot Pay | | 12,4 | 9,773,212 | 10,511,928 | 9,571,014 | 69,608,474 | 44,928,680 | 28,471,952 | 1,868,990 | 0 | 0 | 0 | 197,296,232 |
| Number Nu | | Avg Pay | | 26,160 | 27,376 | 28,334 | 29,540 | 32,649 | 36,350 | 38,269 | 38,937 | 0 | 0 | 0 | 32,175 |
| Avy Pay 2.2, 762 2.5, 45.7 2.4, 49.5, 732 36, 499, 538 45, 435, 742 21, 094, 168 799, 200 0 Avy Pay 2.2, 762 2.5, 63.9 2.2, 762 2.5, 46.5 36, 607 40, 173 43, 137 49, 950 0 Number 2.2, 762 2.5, 633 2.2, 76 2.6, 46.5, 902 2.5, 701, 454 2.8, 850, 802 2.6, 701, 454 2.8, 850, 802 2.6, 701, 454 2.8, 850, 802 2.7, 184 3.1, 86, 618 3.1, 186, 618 <th< td=""><td>40-44</td><td>Number</td><td>357</td><td>421</td><td>339</td><td>303</td><td>288</td><td>1.749</td><td></td><td>1.131</td><td>489</td><td>16</td><td>o</td><td>С</td><td>6.105</td></th<> | 40-44 | Number | 357 | 421 | 339 | 303 | 288 | 1.749 | | 1.131 | 489 | 16 | o | С | 6.105 |
| Number 23,752 2, 565 2, 57,094 28,081 28,713 32,283 36,067 3,191 40,173 49,180 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | | Tot Day | | 10 794 112 | 9 184 756 | 8 601 486 | 8 554 576 | 56 463 092 | 36 40 | 45 435 742 | 21 094 168 | 799 200 | | , с | 205 552 788 |
| Number 22, 76 2 5, 55 9 2 2, 56 9 2 2, 57 0 3 3 2, 57 0 3 3 2, 57 0 3 3 2, 57 0 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | | 100 | | 244,440 | 200 200 | 000000000000000000000000000000000000000 | | 100,000 | 000000000000000000000000000000000000000 | 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 004,470,444 | 004.00 | | | 20, 400, 000 |
| Number Avg 1 1 1 713 566,618 1 259 259,01 259 1 1 713 566,458 13,656,618 229,222 20,701,444 20,800,022 28,701,318 7,184 71,845 13,666,618 229,222 26,701,444 20,850,022 28,701,318 27,924 47,184 21,934 47,184 71,846 51,897 45,618 45,189 45,199 40,267 47,184 10,927 40,267 47,184 10,926 47,184 10,926 47,196 46,267 46,287 | | Avg Fay | | 25,639 | 4/,034 | 28,388 | 29, 703 | 32,283 | 36,067 | 40,173 | 43,137 | 47,950 | o | 5 | 33,6/0 |
| Tot Pay (2.14,184 7,880,125 5,958,022 8,084,1178 7,146,522 50,701,454 28,800.022 28,710,318 27,366,452 13,856,618 229,222 | 45-49 | Number | 284 | 305 | 221 | 289 | 249 | 1,578 | | 713 | 580 | 267 | Ŋ | 0 | 5,302 |
| Number 15 1 25,972 26,966 27,973 28,701 35,573 40,267 47,184 51,897 45,652 Number 227 249 168 220 21,972 43,038,216 27,830,444 21,935,760 6,629,990 5,651,588 1,970,342 Avg Pay 25,675 4,544,118 6,175,340 6,34,720 43,038,216 780,444 21,935,760 6,629,990 5,651,588 1,970,342 Avg Pay 22,015 25,675 27,048 28,770 32,214 35,171 39,674 44,797 5,621,588 1,970,342 Number 25,675 27,048 3,620,062 32,214 31,307,768 18,134,562 14,797 5,621,588 1,970,342 Number 25,685 27,696 28,379 31,947 35,628 44,797 52,514 52,514 Avg Pay 25,499 26,499 26,499 26,499 26,494 44,797 44,797 44,997 52,514 Avg Pay 25,492 | | Tot Pay | | 7,880,156 | 5,958,082 | 8,084,178 | 7,146,522 | 50,701,454 | 28,850,022 | 28,710,318 | 27,366,452 | 13,856,618 | 229,262 | 0 | 185,017,248 |
| Number 5.065,560 6,393,192 4,544,118 6,175,340 6,374,720 43,038,216 27,890,444 21,939,760 6,629,990 5,651,588 1,970,342 Avg Pay 22,315 25,665 6,393,192 4,544,118 6,175,340 6,374,720 43,038,216 27,890,444 21,939,760 6,629,990 5,651,588 1,970,342 57,951 Number 159 26,69 3,622,082 3,490,612 31,307,768 18,134,506 2,457,976 1,312,840 1,055,464 Avg Pay 21,385 25,499 26,69 3,690,612 31,307,768 18,134,506 10,475,606 2,457,976 1,312,846 40,755,606 2,457,976 1,312,846 40,755,606 2,457,976 1,312,846 40,755,409 41,661 52,514 62,674 Number 61 1,341,612 1,880,060 21,592,808 1,121,366 6,634,960 45,660 2,457,976 1,312,840 1,065,062 32,401 49,762 48,904 Avg Pay 21,944 22,486 1,212,366 | | Avg Pay | | 25,837 | 26,960 | 27,973 | 28,701 | 32,130 | 35,573 | 40,267 | 47,184 | 51,897 | 45,852 | 0 | 34,896 |
| Avg Pay 5,065,560 6,393,192 4,544,118 6,175,340 6,374,720 43,038,216 27,099,44 21,939,760 6,629,990 5,621,588 1,970,342 Avg Pay 22,315 25,675 4,544,118 6,175,340 6,374,720 43,038,216 35,171 39,674 44,797 54,342 57,951 Number 150 1,400,256 3,748,386 3,679,706 3,822,082 3,490,612 31,307,768 18,134,506 10,475,606 2,457,976 1,312,840 1,065,464 47,797 1,312,840 1,065,464 48,004 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,464 48,797 1,112,840 1,065,444 1,112,840 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 1,114,797 | 50-54 | Number | 700 | 249 | 1,88 | 220 | 215 | 7 5 1 | | n n | 148 | 104 | 34 | c | 4 047 |
| Avg Pay 22,315 25,675 27,048 28,070 29,650 32,214 35,171 39,674 44,797 54,342 57,951 1770,742 Number 159 1,341,612 1,818,036 1,165,752 1,822,082 27,944 32,167 38,573 1,148 41,757 1,312,840 1,065,464 Number 4,227 4,99 2,566,100 114,340,788 78,217,05 29,465 27,856 1,313,301 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,035,136 1,034,134 1,035 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,136 1,034,134 1,035 1,034,136 1,035,134 1,035 | , | TOT 100 | | 201 202 3 | 011 773 7 | 075 340 | 000 000 9 | 310 000 61 | 000 10 | 020 000 10 | 000 000 0 | 661 600 | CAC 070 1 | | 050 050 301 |
| Number 159 147 137 138 123 980 599 282 59 25 55 17 Tot Pay 3,400,256 3,748,386 3,679,706 3,822,082 31,307,768 18,134,506 10,475,606 2,457,976 1,312,840 1,065,464 Avg Pay 21,385 26,859 27,696 28,379 31,307,768 18,134,506 10,475,606 2,457,976 1,312,840 1,065,644 Number 61 70 44 67 57 439 18,134,506 10,475,606 2,457,976 1,312,840 1,065,464 Avg Pay 1,341,612 1,880,052 14,221,366 6,634,960 4,550,042 716,804 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,060 38,889 42,165 49,762 48,904 Avg Pay 18,702 28,396 493,146 3,500,534 1,464,316 1,044,316 24,006 35,826 39,870 | | Avg Pay | | 25,675 | 27,048 | 28,070 | 29,650 | 32,214 | 35,171 | 39,674 | 44,797 | 54,342 | 57,951 | 00 | 33,524 |
| TOT Pay 3.400,256 3,748,386 3,679,706 3,490,612 31,307,768 18,134,506 10,475,606 2,457,976 1,312,840 1,065,464 Avg Pay 21,385 25,499 26,859 27,696 28,379 31,947 35,628 37,148 41,661 52,514 62,674 Number 61 70 44 67 52,724 1,592,808 14,121,366 6,634,660 4,550,042 716,804 49,762 48,904 Avg Pay 21,994 25,972 1,592,806 49,164 32,167 36,060 38,889 42,165 49,762 48,904 Avg Pay 25,972 26,494 28,066 27,944 32,167 36,060 38,889 42,165 49,762 48,904 Avg Pay 25,972 26,494 28,060 27,944 37,616 36,060 38,889 42,165 39,870 Avg Pay 317,942 33,616 33,636 24,266 36,060 38,393 24,006 35,826 39,870 <td>55~59</td> <td>Number</td> <td>159</td> <td></td> <td>137</td> <td>138</td> <td>123</td> <td>086</td> <td></td> <td>282</td> <td>65</td> <td>25</td> <td>17</td> <td>Ŋ</td> <td>2.581</td> | 55~59 | Number | 159 | | 137 | 138 | 123 | 086 | | 282 | 65 | 25 | 17 | Ŋ | 2.581 |
| Avg Pay 21,385 25,499 26,859 27,696 28,379 31,947 35,628 37,148 41,661 52,514 62,674 Number 10.44 25,972 26,494 28,060 1,592,808 14,121,366 6,634,960 4,550,042 716,804 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,660 318,889 42,165 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,660 318,889 42,165 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 31,464,316 1,034,186 42,165 49,762 48,904 Avg Pay 11,7942 33,640 33,640 35,826 39,870 39,876 35,826 39,870 Avg Pay 22,905 2,905 2,905 2,906 2,942 2,334,270 2,425 2,344 2,425 2,344 | | Tot Pav | 3.400 | 3.748. | 3.679.706 | 3.822.082 | 3.490.612 | 31.307.768 | 18.134. | 10.475.606 | 2.457.976 | 1.312.840 | 1.065.464 | 276.682 | 83.171.884 |
| Number 61 70 44 67 57 439 184 117 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,060 38,889 42,165 49,762 48,904 4 Number 17 2 26,494 28,060 27,944 32,167 36,060 38,889 42,165 49,762 48,904 4 Number 1 | | Avg Pay | | | 26,859 | 27,696 | 28,379 | 31,947 | m | | 41,661 | 52,514 | 62,674 | 55,336 | 32,225 |
| TOC Pay 1,341,612 1,818,036 1,165,752 1,880,052 1,592,808 14,121,366 6,634,660 4,550,042 716,804 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,060 38,889 42,165 49,762 48,904 Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,060 36,060 38,889 42,165 49,762 48,904 Tot Pay 317,942 640,174 318,296 493,146 337,042 3,630,534 1,464,316 1,034,186 24,006 35,826 39,870 Avg Pay 18,702 23,710 28,936 2,955 30,640 33,616 5,323 35,856 11,342 44,867 2,956,100 114,340,788 78,217,052 22,948 2,556,100 114,340,788 78,217,052 28,234 29,744,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Avg Pay 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | 60-64 | Nimber | 19 | 7 | 4 | 67 | 57 | 439 | | 117 | 17 | · | | F | |
| Avg Pay 21,994 25,972 26,494 28,060 27,944 32,167 36,060 38,889 42,165 49,762 48,904 64 Number 17 27 11 19 11 10 10 37,042 36,610 114,340,788 78,256,100 114,340,788 78,2573 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 39,401 | 5 | Tot Day | | 350 919 1 | 1 165 752 | 1 890 052 | 1 500 000 | 335 101 11 | | 711 | 716 917 | 4 0 7 0 7 | 1 20 | 7 00 101 | 00011 |
| 64 Number 17 27 11 19 11 108 37 27 1 1 1 19 11 108 37 27 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | Avg Pay | | 25,935 | 26,494 | 28,050 | 27,944 | 32,167 | | 38,889 | 42,165 | r 41 | 48,904 | 105,480 | 32,130 |
| TOT Pay 317,942 640,174 318,296 493,146 337,042 3,630,534 1,464,316 1,034,186 24,006 35,826 39,870 Avg Pay 18,702 23,710 28,936 25,955 30,640 33,616 39,576 38,303 24,006 35,826 39,870 Number 4,227 4,486 2,905 2,918 2,425 12,646 5,323 3,585 1,342 414 58 Tot Pay 92,566,100 114,340,788 78,217,052 82,344,270 71,450,732 409,744,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Avg Pay 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | Over 64 | 4 Number | 17 | 27 | 11 | 19 | 11 | 108 | 37 | 27 | п | 1 | 1 | 0 | 260 |
| Avg Pay 18,702 23,710 28,936 25,955 30,640 33,616 39,576 38,303 24,006 35,826 39,870 Number 4,227 4,486 2,905 2,918 2,425 12,646 5,333 3,585 1,342 414 58 Tot Pay 92,566,100 114,340,788 78,217,052 82,344,270 71,450,732 409,744,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Avg Pay 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | | Tot Pav | | 640.174 | 318.296 | 493.146 | 337.042 | 3,630,534 | 1.464.316 | 1.034.186 | 24.006 | 35.826 | 39.870 | C | 8.335.338 |
| Number 4,227 4,486 2,905 2,918 2,425 12,646 5,323 3,585 1,342 414 58 Tot Pay 92,566,100 114,340,788 78,217,052 82,344,270 71,450,732 409,744,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Tot Pay 92,566,100 114,340,788 78,217,052 82,344,270 71,450,732 400,734,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Avg Pay 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | | Avg Pay | | 23,710 | 28,936 | 25,955 | 30,640 | 33,616 | 39,576 | 38,303 | 24,006 | · (*) | 39,870 | 0 | 32,059 |
| Tot Pay 92,566,100 114,340,788 78,217,052 82,344,270 71,450,732 409,744,672 190,273,360 141,254,126 60,158,386 21,705,834 3,353,842 Avg Pay 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | Total | Number | 4,227 | 4,486 | | 2,918 | 2,425 | 12,646 | 5,323 | 3,585 | | | 28 | 9 | 40,335 |
| 21,899 25,488 26,925 28,219 29,464 32,401 35,746 39,401 44,827 52,430 57,825 | | Tot Pay | | 114.340.788 | | 82,344,270 | 71,450,732 | 409,744,672 | 190.273,360 | 141,254,126 | 60.15 | 21.705. | 3.353.842 | 382,162 | 1.265.791.324 |
| | | Avg Pay | | 25,488 | 26,925 | 28,219 | 29,464 | 32,401 | 35,746 | 39,401 | | | 57,825 | 63,694 | 31,382 |
| | | | | | | | | | | | | | | | |

C. ANNUITANT BENEFITS AS OF AUGUST 31, 2003

| | Number of | Monthly |
|--|--------------|------------------|
| Type of Annuity | Accounts | Payment |
| Service Retirements and Beneficiaries: | | |
| Male Annuitants: | | |
| Straight Life | 1,346 | \$657,014 |
| Joint & Full | 700 | 318,905 |
| Joint & One-Half | 792 | 387,972 |
| Life With 60 Months Certain | 43 | 23,969 |
| Life With 120 Months Certain | 66 | 30,900 |
| Joint & Three-Fourths | 509 | 256,964 |
| Annuity Certain | 5 | <u>1,619</u> |
| Male Total | 3,461 | \$1,677,343 |
| Female Annuitants: | | |
| Straight Life | 515 | \$177,138 |
| Joint & Full | 19 | 6,482 |
| Joint & One-Half | 14 | 6,700 |
| Life With 60 Months Certain | 10 | 2,564 |
| Life With 120 Months Certain | 5 | 1,299 |
| Joint & Three-Fourths | 4 | 1,341 |
| Annuity Certain | 1 | 65 |
| Female Total | <u>568</u> | <u>\$195,589</u> |
| Total Service Retirements | 4,029 | \$1,872,932 |

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| Type of Annuity | Number of Accounts | Monthly Payment |
|--|--------------------------|--------------------|
| Disability Retirements: | | |
| Male Annuitants: | | |
| Straight Life | 77 | \$62,133 |
| Joint & Full | 9 | 7,509 |
| Joint & One-Half | 7 | 6,015 |
| Life With 60 Months Certain | 0 | 0 |
| Life With 120 Months Certain | 0 | 0 |
| Joint & Three-Fourths | 4 | 3,307 |
| Annuity Certain | 0 | 0 |
| Male Total | 97 | \$78,964 |
| Female Annuitants: | | |
| Straight Life | 42 | \$30,039 |
| Joint & Full | 0 | 0 |
| Joint & One-Half | 2 | 932 |
| Life With 60 Months Certain | 0 | 0 |
| Life With 120 Months Certain | 2 | 1,764 |
| Joint & Three-Fourths | 1 | 252 |
| Annuity Certain | 0 | 0 |
| Female Total | <u>47</u> | <u>\$32,987</u> |
| Total Disability Retirements | 144 | \$111,951 |
| TOTAL SERVICE AND DISABILITY RETIREMENTS | 4,173 | \$1,984,883 |

D. AVERAGE AGE, SERVICE AND BENEFIT OF ANNUITANTS AS OF AUGUST 31, 2003

| | | | Av | erage | |
|---------------------------------|-------------------------|--------------------|----------------------|-------------------|--------------------------|
| | Number of Annuitants | Monthly Benefit | Age at Retirement | Age at 08/31/2003 | Service at Retirement |
| All Annuitants in Pay Status | 4,173 | \$475.65 | 54.10 | 61.98 | 27.15 |
| Service Retirees | 3,607 | \$484.79 | 54.11 | 60.77 | 27.60 |
| Disability Retirees | 144 | \$777.44 | 44.09 | 56.10 | 7.85 |
| Beneficiaries | 422 | \$294.56 | 57.45 | 74.41 | 29.85 |

E. RETIREMENT MEMBERS BY TYPE OF BENEFIT AS OF AUGUST 31, 2003

| | | Type of F | <u>Retirement</u> | Option Selected | | | | | |
|-----------------|-------------------|----------------|-------------------|-----------------|----------|----------|----------|----------|----------|
| Amount of | Number of | | | | | | | | |
| Monthly Benefit | <u>Annuitants</u> | <u>Service</u> | <u>Disability</u> | <u>Life</u> | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 |
| 0 - 200 | 267 | 266 | 1 | 148 | 67 | 29 | 3 | 1 | 19 |
| 200 – 400 | 1,510 | 1,445 | 65 | 825 | 294 | 214 | 26 | 32 | 119 |
| 400 – 600 | 1,569 | 1,537 | 32 | 658 | 225 | 397 | 10 | 29 | 250 |
| 600 – 800 | 538 | 538 | 0 | 204 | 82 | 136 | 6 | 6 | 104 |
| 800 – 1,000 | 127 | 127 | 0 | 53 | 25 | 29 | 3 | 2 | 15 |
| 1,000 – 1,200 | 43 | 42 | 1 | 17 | 16 | 2 | 2 | 1 | 5 |
| 1,200 – 1,400 | 37 | 26 | 11 | 22 | 8 | 3 | 1 | 0 | 3 |
| 1,400 – 1,600 | 34 | 19 | 15 | 25 | 5 | 2 | 0 | 1 | 1 |
| 1,600 – 1,800 | 17 | 9 | 8 | 11 | 3 | 0 | 2 | 1 | 0 |
| 1,800 – 9,999 | <u>31</u> | 20 | <u>11</u> | 23 | 3 | 3 | _0 | <u>0</u> | 2 |
| Total | 4,173 | 4,029 | 144 | 1,986 | 728 | 815 | 53 | 73 | 518 |

F. RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ANNUITY PAYROLLS

| | Number of | Benefit <i>i</i> | Amount | Average Annual |
|---------------------|------------|------------------|--------------|-------------------|
| | Annuitants | Monthly | Annually | Benefit |
| August 31, 2002 | 3,502 | \$1,657,733.12 | \$19,892,797 | \$5,680 |
| Added to Rolls | 701 | 377,275.81 | 4,527,310 | |
| Removed from Rolls | (56) | (38,238.60) | (458,863) | |
| Other Beneficiaries | <u>26</u> | (11,887.16) | (142,646) | |
| August 31, 2003 | 4,173 | \$1,984,883.17 | \$23,818,598 | \$5,708 |

APPENDIX D

SUMMARY OF RECOMMENDED ACTUARIAL ASSUMPTIONS

A. ACTUARIAL ASSUMPTIONS

Investment Rate of Return: 8.0% per year, compounded annually.

Administrative Expenses: 0.1% of payroll per year.

Salary Increases: Salary increase rates include 4.0% annual

increase for inflation plus increases for merit, promotion and longevity (MPL). See sample

rates.

Payroll Growth: 4.0% per year, compounded annually.

Mortality:

Active Lives: Tables based on LECOSRF experience; see

sample rates.

Service Retirees and Beneficiaries: 1994 Group Annuity Mortality, male and female

tables.

Disability Retirees: Tables based on ERS and LECOSRF

experience; see sample rates.

Disability Retirement:

Rates of Disability Retirement: Graded tables based on LECOSRF experience.

Option Selection Percentage: Standard Option 1 Option 4

Male Members 50% 40% 10%

Female Members 75% 15% 10%

Beneficiary Characteristics:

Male Members Member is three years older than female

beneficiary.

Female Members Member is same age as male beneficiary.

Termination of Employment: Graded tables based on LECOSRF experience;

see sample rates.

Service Retirement:

Rates of Service Retirement: Graded tables based on LECOSRF experience;

see sample rates.

Form of Payment: Standard Annuity (Life Annuity).

Credited Service: Assumed one year earned in each future year

employed. Service credit upon service retirement is assumed to be increased by 4.6%

for accumulated leave.

Death Benefit Plan:

Option Selection Percentage:Option 1Option 4Male Members75%25%Female Members60%40%

Beneficiary Characteristics:

Male Members Member is three years older than female

beneficiary.

Female Members Member is same age as male beneficiary.

Missing Data: Entry age is assumed to be age 30 and sex is

assumed to be male if data is missing.

B. <u>SAMPLE RATES</u>

Annual Salary Increases for Merit, Promotion and Longevity – LECO Members:

| Male and | Female - | - Based on | ı Years | of Service |
|----------|----------|------------|---------|------------|

| Age | 0 | 1 | 2+ |
|-----|-------|------|------|
| 20 | 10.0% | 4.5% | 2.0% |
| 25 | 10.0 | 4.5 | 2.0 |
| 30 | 10.0 | 4.5 | 2.0 |
| 35 | 10.0 | 4.5 | 2.0 |
| 40 | 10.0 | 4.5 | 2.0 |
| 45 | 10.0 | 4.5 | 2.0 |
| 50 | 10.0 | 4.5 | 2.0 |
| 55 | 10.0 | 4.5 | 2.0 |
| 60 | 10.0 | 4.5 | 2.0 |

Annual Rates of Termination – LECO Members:

| مادا/\ | and | Fema | _ ما | Based | l on ' | Vaare | of 9 | Sarv | /ice |
|--------|-----|-------|------|-------|--------|--------|-------|-------|-------|
| viaic | anu | ı ema | 15 - | Daseu | | 1 5019 | () (| JCI 1 | ,,,,, |

| <u>Age</u> | <u>0</u> | <u>_1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>10-14</u> | <u>15-19</u> | <u>20+</u> |
|------------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|------------|
| 20 | 29% | 25% | 18% | 18% | 17% | 17% | 16% | 11% | 11% | 11% | 0% | 0% | 0% |
| 25 | 25 | 20 | 16 | 16 | 15 | 14 | 14 | 10 | 10 | 10 | 10 | 0 | 0 |
| 30 | 24 | 19 | 15 | 15 | 11 | 10 | 10 | 10 | 9 | 9 | 9 | 0 | 0 |
| 35 | 24 | 15 | 13 | 13 | 10 | 10 | 9 | 8 | 8 | 7 | 6 | 2 | 0 |
| 40 | 23 | 14 | 10 | 10 | 10 | 10 | 9 | 7 | 7 | 7 | 6 | 2 | 0 |
| 45 | 21 | 13 | 9 | 9 | 9 | 9 | 8 | 7 | 7 | 7 | 5 | 2 | 0 |
| 50 | 19 | 10 | 8 | 8 | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 2 | 0 |
| 55 | 18 | 10 | 8 | 8 | 6 | 5 | 5 | 4 | 4 | 4 | 4 | 2 | 0 |
| 60 | 25 | 22 | 10 | 10 | 6 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 0 |

Active Mortality Rates – LECO Members:

| | <u>Occupational</u> | | Nonoccu | pational |
|-----|---------------------|--------|---------|----------|
| Age | Females | Males | Females | Males |
| 20 | 0.001% | 0.003% | 0.034% | 0.044% |
| 25 | 0.001 | 0.003 | 0.035 | 0.058 |
| 30 | 0.001 | 0.003 | 0.042 | 0.071 |
| 35 | 0.001 | 0.003 | 0.057 | 0.076 |
| 40 | 0.001 | 0.003 | 0.085 | 0.097 |
| 45 | 0.001 | 0.003 | 0.117 | 0.144 |
| 50 | 0.001 | 0.003 | 0.171 | 0.237 |
| 55 | 0.001 | 0.003 | 0.275 | 0.408 |
| 60 | 0.001 | 0.003 | 0.533 | 0.739 |
| 65 | 0.001 | 0.003 | 1.036 | 1.349 |

Disability Retirement Rates-LECO Members:

| | Occupational (I | emales & Males) | Nonoccupational |
|-----|-----------------|-----------------|-----------------|
| Age | Total | Non-Total | Females & Males |
| 20 | 0.0002% | 0.0008% | 0.000% |
| 25 | 0.0002 | 0.0008 | 0.000 |
| 30 | 0.0006 | 0.0024 | 0.016 |
| 35 | 0.0012 | 0.0048 | 0.054 |
| 40 | 0.0018 | 0.0072 | 0.101 |
| 45 | 0.0028 | 0.0112 | 0.169 |
| 50 | 0.0040 | 0.0160 | 0.284 |
| 55 | 0.0048 | 0.0192 | 0.424 |
| 60 | 0.0054 | 0.0216 | 0.000 |
| 65 | 0.0052 | 0.0208 | 0.000 |

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Service Retirement Rates – LECO Members:

First Year Eligible to Retire

| Age | Females | Males |
|-------|---------|-------|
| 36-44 | 1% | 1% |
| 45-49 | 3 | 3 |
| 50 | 39 | 25 |
| 51-54 | 16 | 12 |
| 55 | 16 | 12 |
| 56-59 | 16 | 12 |
| 60 | 31 | 21 |
| 61-64 | 31 | 11 |
| 65 | 46 | 37 |
| 66-69 | 23 | 18 |
| 70+ | 100 | 100 |

After First Year Eligible to Retire

| _ | | Females | i | | | | | Male | es | | | | |
|------------|------------|---------------|------------|-----|---------------|---------------|-------|-----------|--------------|-----------|-----------|--------------|------------|
| <u>Age</u> | <u>0-9</u> | <u> 10-19</u> | <u>20+</u> | 0-9 | <u> 10-14</u> | <u> 15-19</u> | 20-23 | <u>24</u> | <u>25-26</u> | <u>27</u> | <u>28</u> | <u>29-34</u> | <u>35+</u> |
| 36-44 | 0% | 0% | 1% | 0% | 0% | 0% | 1% | 1% | 1% | 1% | 1% | 1% | 1% |
| 45-49 | 0 | 0 | 2 | 0 | 0 | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 50 | 0 | 0 | 30 | 0 | 0 | 26 | 29 | 30 | 45 | 47 | 50 | 50 | 60 |
| 51-54 | 0 | 0 | 12 | 0 | 0 | 13 | 14 | 15 | 11 | 12 | 12 | 14 | 14 |
| 55 | 0 | 12 | 24 | 0 | 12 | 13 | 30 | 30 | 22 | 24 | 25 | 30 | 30 |
| 56-59 | 0 | 12 | 12 | 0 | 12 | 13 | 14 | 13 | 11 | 12 | 12 | 14 | 14 |
| 60 | 24 | 24 | 24 | 21 | 24 | 26 | 43 | 45 | 45 | 47 | 50 | 50 | 60 |
| 61-64 | 24 | 24 | 24 | 11 | 24 | 26 | 29 | 30 | 28 | 29 | 31 | 36 | 36 |
| 65 | 35 | 35 | 35 | 37 | 41 | 45 | 50 | 50 | 40 | 40 | 43 | 50 | 50 |
| 66-69 | 18 | 18 | 18 | 18 | 20 | 22 | 24 | 25 | 19 | 20 | 21 | 24 | 24 |
| 70+ | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Towers Perrin ______ 12/10/03

Mortality Rates - Retirees and Beneficiaries:

| Service Retirees & | |
|--------------------------|--|
| Beneficiaries (1994 GAM) | |

Disability Retirees*

| | Beneficiaries | (1994 GAM) | Disability | Disability Retirees* | | | |
|-----|---------------|------------|------------|----------------------|--|--|--|
| Age | Females | Males | Females | Males | | | |
| 15 | 0.0216% | 0.0345% | 2.50% | 3.38% | | | |
| 20 | 0.0284 | 0.0507 | 2.50 | 3.38 | | | |
| 25 | 0.0291 | 0.0661 | 2.50 | 3.38 | | | |
| 30 | 0.0351 | 0.0801 | 2.25 | 2.53 | | | |
| 35 | 0.0478 | 0.0851 | 2.03 | 1.95 | | | |
| 40 | 0.0709 | 0.1072 | 1.99 | 1.97 | | | |
| 45 | 0.0973 | 0.1578 | 2.13 | 2.25 | | | |
| 50 | 0.1428 | 0.2579 | 2.44 | 2.68 | | | |
| 55 | 0.2294 | 0.4425 | 2.80 | 3.37 | | | |
| 60 | 0.4439 | 0.7976 | 3.14 | 4.42 | | | |
| 65 | 0.8636 | 1.4535 | 3.52 | 5.09 | | | |
| 70 | 1.3730 | 2.3730 | 3.90 | 5.91 | | | |
| 75 | 2.2686 | 3.7211 | 4.67 | 7.16 | | | |
| 80 | 3.9396 | 6.2027 | 7.09 | 10.15 | | | |
| 85 | 6.7738 | 9.7240 | 10.72 | 15.98 | | | |
| 90 | 11.6265 | 15.2931 | 16.82 | 25.25 | | | |
| 95 | 18.6213 | 23.3606 | 25.25 | 37.89 | | | |
| 100 | 27.6427 | 31.7238 | 37.89 | 56.84 | | | |
| 105 | 38.3597 | 40.7224 | 56.84 | 85.27 | | | |
| 110 | 48.2325 | 48.6745 | 100.00 | 100.00 | | | |
| 115 | 50.0000 | 50.0000 | 100.00 | 100.00 | | | |
| 120 | 100.0000 | 100.0000 | 100.00 | 100.00 | | | |
| | | | | | | | |

^{*} For females, assumption is 95% of PBGC disabled mortality grading to 100% from age 85 to 90. For males, assumption is 70% of PBGC disabled mortality grading to 100% from age 60 to 90.

C. CHANGES IN ACTUARIAL ASSUMPTIONS

The expected rate of termination, rate of salary increases, rate of active member mortality, rates of disability, rate of retirement and rate of disabled mortality have been updated to reflect recent plan experience. Option selection, beneficiary characteristics, administrative expense and accumulated leave assumptions were also updated.

APPENDIX E

DESCRIPTION OF ACTUARIAL METHODS AND PROCEDURES

A. ACTUARIAL COST METHOD - NORMAL COST AND ACTUARIAL ACCRUED LIABILITY

The method used to determine the normal cost and actuarial accrued liability is the entry age actuarial cost method, described below:

Entry age is determined as the member's age on the valuation date minus years of service credit as of the valuation date.

On the actuarial valuation date, the actuarial present values of projected benefits and valuation earnings for each active employee included in the actuarial valuation whose attained age is less than the assumed latest retirement age are determined at the individual's entry age. For each such individual, the individual normal cost is the actuarial present value of projected benefits at entry age, divided by the actuarial present value of valuation earnings at entry age, multiplied by the individual's valuation earnings for the valuation year. The sum of all individual normal costs is the normal cost for the valuation year.

The excess on the actuarial valuation date of the actuarial present value of projected benefits for all individuals included in the actuarial valuation over the sum of the actuarial present values of future individual normal costs is the actuarial accrued liability. The excess of the actuarial accrued liability over the actuarial value of plan assets is the unfunded actuarial accrued liability. If the unfunded actuarial accrued liability is negative, the excess of the actuarial value of plan assets over the actuarial accrued liability is called the net asset balance.

The actuarial gain (loss) is a measure of the difference between actual experience and that expected based upon the actuarial assumptions between two actuarial valuation dates. Under this actuarial cost method, the actuarial gains (losses) are directly calculated and reduce (increase) the unfunded actuarial accrued liability.

Adjustments to the unfunded actuarial accrued liability can result from changes in actuarial assumptions and plan provisions. Such adjustments are determined by calculating, as of the actuarial valuation date, the increase or decrease in the unfunded actuarial accrued liability resulting from the change.

B. ACTUARIAL VALUE OF PLAN ASSETS

The actuarial value of plan assets is based on the market-related value of plan assets, with five-year smoothing of unexpected returns. The market-related value is equal to the value of net assets held in trust for pension benefits (fair value of investments plus the carrying value (net of depreciation) of other assets and liabilities) as of the valuation date.

Specifically, the actuarial value of assets is determined as the expected value of plan assets as of the valuation date plus 20% of the difference between the market-related value and the expected value. The expected value equals the actuarial value of plan assets as of the prior valuation date, plus contributions, less benefit payments and administrative expenses, all accumulated at the assumed rate of interest to the current valuation date.

C. OTHER ACTUARIAL VALUATION PROCEDURES

No provision was made in this actuarial valuation for the limitations of Internal Revenue Code Section 415.

Valuation payroll (earnings applied to the current valuation year) is the expected payroll for the fiscal year following the valuation date. It is based on reported payroll determined from August member contributions increased to reflect the across-the-board salary increase percentage effective on or after September 1 and projected according to the actuarial assumptions for the upcoming fiscal year.

D. CHANGES IN ACTUARIAL METHODS AND PROCEDURES

No changes in the actuarial cost method or actuarial valuation procedures have been adopted since the prior actuarial valuation.

APPENDIX F

GASB 25 AND 27 REPORTING

A. DISCLOSURE OF PENSION INFORMATION

Actuarial calculations under Statement No. 25 of the Governmental Accounting Standards Board (GASB 25) are for purposes of providing the required supplementary information to the financial statement of the plan. The calculations and disclosures reported in this section have been made on a basis consistent with our understanding of GASB 25.

Beginning with the fiscal year ending August 31, 1996, the System has prepared the plan's financial statements in accordance with GASB 25, which supersedes GASB 5 for the plan's financial reporting. Effective with the fiscal year ending August 31, 1998, the State has prepared financial Statements in accordance with Statement No. 27 of the Governmental Accounting Standards Board (GASB 27), which supersedes GASB 5 for the employer's financial reporting.

B. <u>SCHEDULE OF FUNDING PROGRESS</u>

| | | Actuarial Valuation Date | |
|----|---|--------------------------|---------------------|
| | | August 31, 2003 | August 31, 2002 |
| 1. | Actuarial Value of Assets | \$666,588,289 | \$655,978,723 |
| 2. | Actuarial Accrued Liability (AAL) | \$597,914,188 | \$526,204,753 |
| 3. | Unfunded AAL (UAAL): (2)-(1) | (\$68,674,101) | (\$129,773,970) |
| 4. | Funded Ratio: (1)÷(2) | 111.5% | 124.7% |
| 5. | Covered Payroll (Valuation Payroll as of the Actuarial Valuation Date) | \$1,277,894,221 | \$1,298,593,19 6 |
| 6. | UAAL as a Percentage of Covered Payroll (3)÷(5) | (5.4%) | (10.0%) |

C. SCHEDULE OF EMPLOYER CONTRIBUTIONS

| | | Year Ended August 31 | | |
|----|--|----------------------|-----------------|--|
| | | 2004 | 2003 | |
| 1. | Actuarial Valuation Date | August 31, 2003 | August 31, 2002 | |
| 2. | Annual Required Contribution (ARC) | | | |
| | a. Employer's Normal Cost | \$20,530,863 | \$22,761,576 | |
| | b. UAAL | (\$68,674,101) | (\$129,773,970) | |
| | c. Amortization of UAAL | (\$20,530,863) | (\$22,761,576) | |
| | d. ARC: (a)+(c) | \$0 | \$0 | |
| 3. | Employer Contributions | \$0 | \$0 | |
| 4. | Percentage Contributed: $(3) \div (2)(d)$ | 100% | 100% | |
| 5. | Excess Contributions/Contribution Deficiencies: (3)-(2)(d) | \$0 | \$0 | |

D. <u>ANNUAL PENSION COST AND NET PENSION OBLIGATION</u>

The State's annual pension cost and net pension obligation for the current and prior year were as follows:

| | _ | Year Ended August 31 | |
|----|---|----------------------|------|
| | | 2004 | 2003 |
| 1. | Annual required contribution (ARC) | \$0 | \$0 |
| 2. | Interest on net pension obligation | 0 | 0 |
| 3. | Adjustment to annual required contribution | 0 | 0 |
| 4. | Annual pension cost, APC (1)+(2)-(3) | 0 | 0 |
| 5. | Contributions made | 0 | 0 |
| 6. | Increase/(decrease) in net pension obligation (4)+(5) | 0 | 0 |
| 7. | Net pension obligation beginning of year | 0 | 0 |
| 8. | Net pension obligation end of year (6)+(7) | 0 | 0 |

E. NOTES TO TREND DATA

| | Year Ended August 31 | |
|---|----------------------------|----------------------------|
| | 2004 | 2003 |
| Actuarial Cost Method | Entry Age | Entry Age |
| Amortization Method | Level Percent Open | Level Percent Open |
| Remaining Amortization Period (Years)** | 3.7 | 6.6 |
| Asset Valuation Method | 5-year smoothed market | 5-year smoothed market |
| Actuarial Assumptions: | | |
| Investment Rate of Return* Projected Salary Increases* *Includes inflation at | 8.0% 6.0%-14.0% 4.0% | 8.0% 5.5%-17.5% 4.0% |
| Cost-of-Living Adjustments | None | None |

^{**} For the Law Enforcement Supplemental Fund there is no unfunded actuarial accrued liability. This period represents the number of years the fund is projected to remain actuarially sound at the current contribution rate.

F. <u>SOLVENCY TEST</u>

| Active Member Contributions | Actuarial Accrued Liabilities \$0 | Valuation Assets \$0 | Portion of AAL Covered by Valuation Assets |
|--|-----------------------------------|----------------------------|---|
| Retirees and Beneficiaries | 218,306,453 | 218,306,453 | 100.0% |
| Active Members (Employer Financed Portion) | 379,607,735 | 448,281,836 | 118.1% |
| Total | \$597,914,188 | \$666,588,289 | |

APPENDIX G

ACTUARIAL METHODOLOGY AND PENSION TERMINOLOGY

A. ACTUARIAL METHODOLOGY

This section summarizes the conceptual methodology used in preparing the Actuarial Balance Sheet in this valuation.

Actuarial Methodology

The actuarial valuation of a defined benefit plan is comprised of two separate processes.

First, the actuarial present value, as of the actuarial valuation date, of both current and projected benefits to be paid under the plan is determined. In determining the actuarial present value of these benefits, actuarial assumptions must be made as to the number of members eventually receiving benefits, the amount of benefits to be paid, and the portion of the benefit obligation to be covered by future investment earnings.

Second, the financing of these benefit obligations on an advance basis is established. An actuarial cost method is applied to determine the Actuarial Accrued Liability, which is the amount of the eventual cost that has accrued as of the actuarial valuation date. The actuarial cost method also establishes the Normal Cost, which is the rate at which future costs will accrue annually after the actuarial valuation date.

Actuarial Assumptions

The true cost of a member's pension benefit is not known until the final benefit payment has been made. Consequently, the exact cost of plan benefits for the current employee group will not be determinable for 50 to 75 years. Since provision for this cost must be made prior to the exact determination, a model is established that will estimate the future cost of plan benefits. The model utilizes parameters which require assumptions as to the future occurrences of various events affecting the demographic profile of the employee group and the assets of the pension fund. Such actuarial assumptions include death, retirement, termination, disability, salary increases and investment return. Current and long-term economic factors, the nature of the covered workforce, and significant features of the plan must be considered in the selection of a set of actuarial assumptions to assure the reasonableness of the results predicted by the actuarial assumptions.

While care is taken in the selection of actuarial assumptions, actual experience is expected to deviate from these actuarial assumptions over the short term. The suitability of the actuarial assumptions is measured by how closely the experience of the plan, on a long-term basis, conforms to projected results. Deviations from projected results are called actuarial gains and losses. Periodic actuarial valuations will measure the extent of these gains and losses as of an actuarial valuation date. If either actuarial gains or losses predominate, then it is possible that one or more of the actuarial assumptions is no longer appropriate. Thus, actuarial assumptions must be continually monitored for reasonableness and subsequent cost estimates may be modified accordingly. While individual actuarial assumptions are intended to be representative, it is the aggregate effect of all actuarial assumptions working together that determines their appropriateness.

Actuarial Liabilities

Actuarial liabilities include the actuarial present value of all future benefits and expenses. To determine the actuarial present value of all future benefits, the probability of future events which establish benefit payments is forecast utilizing the actuarial assumptions. The plan provisions and current employee data are used to forecast the amount of benefits to be paid. Actuarial assumptions for survival among retired members are used to estimate the duration of these benefit payments. Each probable benefit payment is then discounted to the actuarial valuation date using the actuarial assumption for investment return. These discounted payments are then summed to arrive at the total actuarial present value of benefits.

Assets

The assets at any time are equal to the sum of present assets in the pension fund plus future assets. Future assets will result from future contributions and future investment return on all assets.

Actuarial Balance Sheet

The actuarial balance sheet of a retirement plan displays the fundamental financial status of the plan on the actuarial valuation date. As stated previously, the actuarial liabilities are the sum of the actuarial present value of all future projected benefit payments to current active and inactive plan members. Current assets in the pension fund plus the actuarial present value of future contributions comprise the total assets of the plan.

Actuarial Cost Method

To determine the funding requirements of the plan, it is necessary to adopt an actuarial cost method. The choice of the actuarial cost method does not affect the actuarial balance sheet financial status, which is a function only of the plan provisions, actuarial assumptions, employee data and assets. However, the actuarial cost method has a direct impact on the incidence of the funding requirements. The actuarial cost method

allocates the actuarial present value of future employer contributions between the past and future, and thus establishes the Unfunded Actuarial Accrued Liability and Normal Cost, respectively.

The funding requirements for each plan year equal the Normal Cost for that year plus an amortization payment in respect of the Unfunded Actuarial Accrued Liability.

B. <u>PENSION TERMINOLOGY</u>

The following terms are defined in accordance with standard pension terminology adopted by the actuarial profession.

Accumulated Plan Benefit

The amount of an individual's benefit (whether or not vested) as of a specified date, determined in accordance with the terms of a pension plan and based on compensation (if applicable) and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation and Social Security benefits; rates of investment earnings and asset appreciation or depreciation; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

Actuarial Value of Plan Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

<u>Unfunded Actuarial Accrued Liability</u>

The Excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

C. ACCOUNTING TERMINOLOGY

The following terms are defined in accordance with accounting profession terminology.

<u>Actuarial Present Value of Total Projected Benefits</u>

The value as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Total projected benefits include all benefits estimated to be payable to all plan members as a result of their service through the valuation date and their expected future service.

Amortization Period (Closed or Open Basis)

A closed amortization period is a specific number of years that is counted from one date and, therefore, declines to zero with the passage of time. An open amortization period is one that begins again or is recalculated at each actuarial valuation date.

Annual Pension Cost

A measure of the periodic cost of an employer's participation in a defined benefit pension plan.

Annual Required Contributions of the Employer (ARC)

The employer's periodic required contributions to a defined benefit pension plan, calculated in accordance with the parameters.

Contribution Deficiencies (Excess Contributions)

The difference between the annual required contributions of the employer (ARC) and the employer's actual contributions in relation to the ARC.

Employer's Contribution

Contributions made in relation to the annual required contributions of the employer (ARC).

Funded Ratio

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Investment Return Assumption (Discount Rate)

The rate used to adjust a series of future payments to reflect the time value of money.

Level Dollar Amortization Method

The amount to be amortized is divided into equal dollar amounts to be paid over a given number of years; part of each payment is interest and part is principal (similar to a mortgage payment on a building). Because payroll can be expected to increase as result of inflation, level dollar payments generally represent a decreasing percentage of payroll.

Level Percentage of Projected Payroll Amortization Method

Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level.

Market-Related Value of Plan Assets

A term used with reference to the actuarial value of assets. A market-related value may be market value (or estimated market value) or a calculated value that recognizes changes in market value over a period of, for example, three to five years.

Net Pension Obligation (NPO)

The cumulative difference since the effective date of GASB Statement between annual pension cost and the employer's contributions to the plan, including the pension liability (asset) at transition, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to pension-related debt.

Normal Cost

For GASB Statements 25 and 27, the term refers to employer normal cost.

Parameters

The set of requirements for calculating actuarially determined pension information included in financial reports.

Payroll Growth Rate

An actuarial assumption with respect to future increases in total covered payroll attributable to inflation; used in applying the level percentage of projected payroll amortization method.

Pension Expenditures/Expense

The amount recognized by an employer in each accounting period for contributions to a pension plan.