

PENNSYLVANIA COMPENSATION RATING BUREAU  
F CLASS FILING

INTERNAL RATE OF RETURN MODEL

The attached pages present exhibits and a description of the internal rate of return model used in deriving the Bureau's loss ratio (including loss adjustment expenses and loss based assessments) and provision for profit and contingencies.

## **PENNSYLVANIA COMPENSATION RATING BUREAU**

### **PENNSYLVANIA “F” CLASS FILING**

#### **Internal Rate of Return Analysis**

The following pages present results of an economic analysis establishing the following items:

- The appropriate rate of return for writing workers compensation business, and
- The loss ratio (including loss adjustment expenses and loss-based assessments) which will allow the realization of that target rate of return in current economic conditions, based on current expense needs for stock carriers and cash flows for losses and expenses attendant with Pennsylvania workers compensation insurance.

Internal Rate of Return Table I shows Inputs, Assumptions and Outputs underlying the analysis.

Internal Rate of Return Tables II - VII show the various cash flows projected for the underwriting of Pennsylvania workers compensation “F” class business based on the inputs to the Internal Rate of Return model, assuming a base standard premium at Bureau level of \$1 million.

Exhibits titled “Pennsylvania Pre & Post Tax Returns” and “Pennsylvania Cost of Capital” present the derivation of the appropriate current target rate of return, which is 10.72 percent. Both Capital Asset Pricing Model (“CAPM”) and Discounted Cash Flow (“DCF”) analyses have been applied to the derivation of this target rate, producing results of 10.48 and 10.96 percent respectively. The selected target rate of return, 10.72 percent, is the average of these two separate indications.

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE I: INPUTS, ASSUMPTIONS & OUTPUTS

| Section 1: Inputs & Assumptions  |                            |           |
|--|----------------------------|-----------|
| (1) Commissions *  |                            | 5.74      |
| (2) Other Expenses   |                            | 6.97      |
| (2A)   | Other Acquisitions *       | 2.66      |
| (2B)   | General Expenses *         | 3.91      |
| (2C)   | Other Tax **               | 0.40      |
| (3) State Premium Taxes  |                            |           |
| (3A)   | Tax1 - Premium Tax **      | 2.00      |
| (3B)   | Tax2 - None                | 0.00      |
| (3C)   | Tax3 - Security Fund **    | 0.86      |
| (4) Premium Discount ***   |                            | 9.79      |
| (5) Deviations   |                            | 0.00      |
| (6) Dividends to Policyholders   |                            | 0.00      |
| (7) Premium Written  |                            | 1,000,000 |
| (8) Premium Collected  |                            | 902,100   |
| Investment Income  |                            |           |
| (9A)   | Pre-Tax Return on Assets   | 6.18      |
| (9B)   | Investment Income Tax Rate | 1.45      |
| (9C)   | Post-Tax Return on Assets  | 4.73      |
| (10) Reserve to Surplus Ratio  |                            | 2.94      |
| (11) Internal Rate of Return (Cost of Capital)                                       |                            | 10.72     |
| * Applies to standard premium at Bureau level (before premium discount)              |                            |           |
| ** Applies to net premium at company level ( after deviations and premium discounts) |                            |           |
| *** Applies to standard premium at company level (after deviations)                  |                            |           |

| Section 2: Outputs  |       |
|---|-------|
| (1) Loss Ratio - including loss adjustment expense & loss based assessments | 79.49 |
| (2) Profit & Contingencies  | -4.85 |

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE II: CASH FLOW PATTERNS**

|            |   |
|------------|---|
| Column (1) | Premium Collection pattern provided by PCRB based on Pennsylvania workers compensation data.  |
| Column (2) | Policy Year Loss Payout pattern provided by PCRB based on Pennsylvania workers compensation data.   |
| Column (3) | Other Expense payout pattern as follows: All expenses except Commission and 1/2 General Expense flowing with earned premium. Commission flows with collected premium, and 1/2 General Expense flows with written premium. |
| Column (4) | Tax 1 flow assumes even quarterly payment of state premium taxes.   |
| Column (5) | No tax 2 provision is included in this IRR model.   |
| Column (6) | Tax 3 flow assumes even quarterly payment of Security Fund assessments.   |
| Column (7) | No dividend provision is included in this IRR model.  |

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING

TABLE II: CASH FLOW PATTERNS

|               |         | (1)       | (2)    | (3)      | (4)  | (5)    | (6)       | (7) |
|---------------|---------|-----------|--------|----------|------|--------|-----------|-----|
|               |         | POLICY YR |        |          |      |        |           |     |
| TIME INTERVAL | PREMIUM | LOSS      | OTHER  | TAX1     | TAX2 | TAX3   | DIVIDENDS |     |
| FROM          | TO      | COLLECTED | PAYOUT | EXPENSES |      |        | PAID      |     |
| -1.00         | -0.75   | 0.0000    | 0.0000 | 0.0000   | 0    | 0.0000 | 0         | 0   |
| -0.75         | -0.50   | 0.0000    | 0.0000 | 0.0000   | 0    | 0.0000 | 0         | 0   |
| -0.50         | -0.25   | 0.0000    | 0.0000 | 0.0000   | 0    | 0.0000 | 0         | 0   |
| -0.25         | 0.00    | 0.1900    | 0.0000 | 0.0000   | 0    | 0.0000 | 0         | 0   |
| 0.00          | 0.25    | 4.5000    | 0.5000 | 5.6613   | 25   | 0.5000 | 25        | 0   |
| 0.25          | 0.50    | 10.6000   | 1.0000 | 26.0497  | 25   | 1.0000 | 25        | 0   |
| 0.50          | 0.75    | 15.5900   | 1.5000 | 16.9093  | 25   | 1.5000 | 25        | 0   |
| 0.75          | 1.00    | 20.1400   | 2.0000 | 37.3553  | 25   | 2.0000 | 25        | 0   |
| 1.00          | 1.25    | 19.1300   | 6.3325 | 6.1357   | 0    | 6.3325 | 0         | 0   |
| 1.25          | 1.50    | 14.1300   | 6.3325 | 4.3826   | 0    | 6.3325 | 0         | 0   |
| 1.50          | 1.75    | 9.3900    | 6.3325 | 2.6296   | 0    | 6.3325 | 0         | 25  |
| 1.75          | 2.00    | 4.3900    | 6.3325 | 0.8765   | 0    | 6.3325 | 0         | 25  |
| 2.00          | 2.25    | 1.0000    | 3.3425 | 0.0000   | 0    | 3.3425 | 0         | 25  |
| 2.25          | 2.50    | 0.0600    | 3.3425 | 0.0000   | 0    | 3.3425 | 0         | 25  |
| 2.50          | 2.75    | -0.1200   | 3.3425 | 0.0000   | 0    | 3.3425 | 0         | 0   |
| 2.75          | 3.00    | 0.1000    | 3.3425 | 0.0000   | 0    | 3.3425 | 0         | 0   |
| 3.00          | 3.25    | 0.1300    | 3.8250 | 0.0000   | 0    | 3.8250 | 0         | 0   |
| 3.25          | 3.50    | -0.0200   | 3.8250 | 0.0000   | 0    | 3.8250 | 0         | 0   |
| 3.50          | 3.75    | -0.0300   | 3.8250 | 0.0000   | 0    | 3.8250 | 0         | 0   |
| 3.75          | 4.00    | 0.1100    | 3.8250 | 0.0000   | 0    | 3.8250 | 0         | 0   |
| 4.00          | 4.25    | 0.2300    | 2.4225 | 0.0000   | 0    | 2.4225 | 0         | 0   |
| 4.25          | 4.50    | 0.2200    | 2.4225 | 0.0000   | 0    | 2.4225 | 0         | 0   |
| 4.50          | 4.75    | 0.1700    | 2.4225 | 0.0000   | 0    | 2.4225 | 0         | 0   |
| 4.75          | 5.00    | 0.0800    | 2.4225 | 0.0000   | 0    | 2.4225 | 0         | 0   |
| 5.00          | 6.00    | 0.0100    | 6.4600 | 0.0000   | 0    | 6.4600 | 0         | 0   |
| 6.00          | 7.00    | 0.0000    | 4.5800 | 0.0000   | 0    | 4.5800 | 0         | 0   |
| 7.00          | 8.00    | 0.0000    | 3.4000 | 0.0000   | 0    | 3.4000 | 0         | 0   |
| 8.00          | 9.00    | 0.0000    | 2.6300 | 0.0000   | 0    | 2.6300 | 0         | 0   |
| 9.00          | 10.00   | 0.0000    | 2.0800 | 0.0000   | 0    | 2.0800 | 0         | 0   |
| 10.00         | 11.00   | 0.0000    | 1.7000 | 0.0000   | 0    | 1.7000 | 0         | 0   |
| 11.00         | 12.00   | 0.0000    | 1.5800 | 0.0000   | 0    | 1.5800 | 0         | 0   |
| 12.00         | 13.00   | 0.0000    | 1.3300 | 0.0000   | 0    | 1.3300 | 0         | 0   |
| 13.00         | 14.00   | 0.0000    | 1.1400 | 0.0000   | 0    | 1.1400 | 0         | 0   |
| 14.00         | 15.00   | 0.0000    | 0.9900 | 0.0000   | 0    | 0.9900 | 0         | 0   |
| 15.00         | 16.00   | 0.0000    | 0.8600 | 0.0000   | 0    | 0.8600 | 0         | 0   |
| 16.00         | 17.00   | 0.0000    | 0.7400 | 0.0000   | 0    | 0.7400 | 0         | 0   |
| 17.00         | 18.00   | 0.0000    | 0.6800 | 0.0000   | 0    | 0.6800 | 0         | 0   |
| 18.00         | 19.00   | 0.0000    | 0.6000 | 0.0000   | 0    | 0.6000 | 0         | 0   |
| 19.00         | 20.00   | 0.0000    | 0.5300 | 0.0000   | 0    | 0.5300 | 0         | 0   |
| 20.00         | 21.00   | 0.0000    | 0.4800 | 0.0000   | 0    | 0.4800 | 0         | 0   |
| 21.00         | 22.00   | 0.0000    | 0.4400 | 0.0000   | 0    | 0.4400 | 0         | 0   |
| 22.00         | 23.00   | 0.0000    | 0.4100 | 0.0000   | 0    | 0.4100 | 0         | 0   |
| 23.00         | 24.00   | 0.0000    | 0.3600 | 0.0000   | 0    | 0.3600 | 0         | 0   |
| 24.00         | 25.00   | 0.0000    | 0.3200 | 0.0000   | 0    | 0.3200 | 0         | 0   |
|               |         | 100       | 100    | 100      | 100  | 100    | 100       | 100 |

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE III: CASH FLOW FOR LOSS AND UNEARNED PREMIUM RESERVES**

Column (1) Premium Collected based on collection pattern from Table II, Column (1).

Example:  $\$902,100 \times .0019 = \$1,713.99$

Column (2) Agents' Balances reflects the difference between Written Premium and Collected Premium. Written Premium pattern provided by PCRB for Pennsylvania workers compensation insurance.

Example: Written Premium, First Quarter =  $.25 \times \$902,100 = \$225,525.00$   
Collected Premium =  $(.0019 + .0450) \times \$902,100 = \$42,308.49$   
Written - Collected =  $\$183,216.51$

Column (3) Overdue Agent's Balances are all Agents' Balances due after the end of the 24-month period in which earnings of policy year premium occurs.

Column (4) Admitted Agents' Balances reflect all Agents' Balances due prior to the end of the 24-month period in which earnings of policy year premium occurs.

Column (5) Losses Incurred is computed by applying the loss ratio for the business to earned premiums at Bureau level (i.e., before premium discounts). Premium earning pattern provided by PCRB for Pennsylvania workers compensation insurance.

Example:  $.7948 \times \$1,000,000 \times .03125 = \$24,837.50$

Column (6) Unearned Premiums is computed as Collected Premiums plus Agents' Balances (either Admitted or Unadmitted) less Premium Earned.

Example:  $\$42,308.49 + \$183,216.51 - (\$902,100 \times .03125) = \$197,334.38$

Column (7) Total Premium Net of Reserves is computed as Collected Premium plus Admitted Agents' Balances less Losses Incurred less Unearned Premium Reserves.

Example:  $\$42,308.49 + 183,216.51 - 24,837.50 - 197,334.38 = \$3,353.12$

Column (8) Premium Net of Reserves is the periodic change in Column (7).

Example:  $\$13,412.50 - 3,353.13 = \$10,059.37$  (round)

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE III: CASH FLOW FOR LOSS AND UNEARNED PREMIUM RESERVES

| TIME INTERVAL |       | (1)               | (2)             | (3)                    | (4)                      | (5)             | (6)               | (7)                        | (8)                     |
|---------------|-------|-------------------|-----------------|------------------------|--------------------------|-----------------|-------------------|----------------------------|-------------------------|
| FROM          | TO    | PREMIUM COLLECTED | AGENTS BALANCES | OVERDUE AGENTS BALANCE | ADMITTED AGENTS BALANCES | LOSSES INCURRED | UNEARNED PREMIUMS | TOTAL PREM NET OF RESERVES | PREMIUM NET OF RESERVES |
| -1.00         | -0.75 | 0.00              | 0.00            | 0.00                   | 0.00                     | 0.00            | 0.00              | 0.00                       | 0.00                    |
| -0.75         | -0.50 | 0.00              | 0.00            | 0.00                   | 0.00                     | 0.00            | 0.00              | 0.00                       | 0.00                    |
| -0.50         | -0.25 | 0.00              | 0.00            | 0.00                   | 0.00                     | 0.00            | 0.00              | 0.00                       | 0.00                    |
| -0.25         | 0.00  | 1713.99           | -1713.99        | 0.00                   | -1713.99                 | 0.00            | 0.00              | 0.00                       | 0.00                    |
| 0.00          | 0.25  | 42308.49          | 183216.51       | 0.00                   | 183216.51                | 24840.63        | 197334.38         | 3350.00                    | 3350.00                 |
| 0.25          | 0.50  | 137931.09         | 313118.91       | 0.00                   | 313118.91                | 99362.50        | 338287.50         | 13400.00                   | 10050.00                |
| 0.50          | 0.75  | 278568.48         | 398006.52       | 0.00                   | 398006.52                | 223565.63       | 422859.38         | 30150.00                   | 16750.00                |
| 0.75          | 1.00  | 460251.42         | 441848.58       | 0.00                   | 441848.58                | 397450.00       | 451050.00         | 53600.00                   | 23450.00                |
| 1.00          | 1.25  | 632823.15         | 269276.85       | 0.00                   | 269276.85                | 571334.38       | 253715.63         | 77050.00                   | 23450.00                |
| 1.25          | 1.50  | 760289.88         | 141810.12       | 0.00                   | 141810.12                | 695537.50       | 112762.50         | 93800.00                   | 16750.00                |
| 1.50          | 1.75  | 844997.07         | 57102.93        | 0.00                   | 57102.93                 | 770059.38       | 28190.63          | 103850.00                  | 10050.00                |
| 1.75          | 2.00  | 884599.26         | 17500.74        | 0.00                   | 17500.74                 | 794900.00       | 0.00              | 107200.00                  | 3350.00                 |
| 2.00          | 2.25  | 893620.26         | 8479.74         | 8479.74                | 0.00                     | 794900.00       | 0.00              | 98720.26                   | -8479.74                |
| 2.25          | 2.50  | 894161.52         | 7938.48         | 7938.48                | 0.00                     | 794900.00       | 0.00              | 99261.52                   | 541.26                  |
| 2.50          | 2.75  | 893079.00         | 9021.00         | 9021.00                | 0.00                     | 794900.00       | 0.00              | 98179.00                   | -1082.52                |
| 2.75          | 3.00  | 893981.10         | 8118.90         | 8118.90                | 0.00                     | 794900.00       | 0.00              | 99081.10                   | 902.10                  |
| 3.00          | 3.25  | 895153.83         | 6946.17         | 6946.17                | 0.00                     | 794900.00       | 0.00              | 100253.83                  | 1172.73                 |
| 3.25          | 3.50  | 894973.41         | 7126.59         | 7126.59                | 0.00                     | 794900.00       | 0.00              | 100073.41                  | -180.42                 |
| 3.50          | 3.75  | 894702.78         | 7397.22         | 7397.22                | 0.00                     | 794900.00       | 0.00              | 99802.78                   | -270.63                 |
| 3.75          | 4.00  | 895695.09         | 6404.91         | 6404.91                | 0.00                     | 794900.00       | 0.00              | 100795.09                  | 992.31                  |
| 4.00          | 4.25  | 897769.92         | 4330.08         | 4330.08                | 0.00                     | 794900.00       | 0.00              | 102869.92                  | 2074.83                 |
| 4.25          | 4.50  | 899754.54         | 2345.46         | 2345.46                | 0.00                     | 794900.00       | 0.00              | 104854.54                  | 1984.62                 |
| 4.50          | 4.75  | 901288.11         | 811.89          | 811.89                 | 0.00                     | 794900.00       | 0.00              | 106388.11                  | 1533.57                 |
| 4.75          | 5.00  | 902009.79         | 90.21           | 90.21                  | 0.00                     | 794900.00       | 0.00              | 107109.79                  | 721.68                  |
| 5.00          | 6.00  | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 90.21                   |
| 6.00          | 7.00  | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 7.00          | 8.00  | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 8.00          | 9.00  | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 9.00          | 10.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 10.00         | 11.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 11.00         | 12.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 12.00         | 13.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 13.00         | 14.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 14.00         | 15.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 15.00         | 16.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 16.00         | 17.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 17.00         | 18.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 18.00         | 19.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 19.00         | 20.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 20.00         | 21.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 21.00         | 22.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 22.00         | 23.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 23.00         | 24.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |
| 24.00         | 25.00 | 902100.00         | 0.00            | 0.00                   | 0.00                     | 794900.00       | 0.00              | 107200.00                  | 0.00                    |

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS  
PAGE 1**

Column (1) The net written premium underlying the model, i.e., \$1 million less premium discounts, or \$902,100.

Column (2) The periodic change in the Unearned Premium Reserve shown in Table III, Column (6).

Example:  $\$414,050.00 - 0 = \$414,050.00$

Column (3) The sum of the products of the expense flows shown in Table II and their associated expense provisions as shown on Table I, multiplied times the premium base.

Example:

| Item              | Provision (%) | Year 1 Expense Flow | Year 1 Expense Ratio % | Premium Base | Year 1 Expense \$ |
|-------------------|---------------|---------------------|------------------------|--------------|-------------------|
|                   | (a)           | (b)                 | (c)=(a)*(b)            | (d)          | (e)=(c)*(d)       |
| Commission        | 5.74          | 0.5083              | 2.9176                 | 1,000,000    | 29,176.42         |
| General Expense   | 3.91          | 0.7500              | 2.9325                 | 1,000,000    | 29,325.00         |
| Other Acquisition | 2.66          | 1.0000              | 2.6600                 | 1,000,000    | 26,600.00         |
| Other Tax         | 0.40          | 1.0000              | 0.4000                 | 902,100      | 3,608.40          |
| Tax 1:            | 2.00          | 1.0000              | 2.0000                 | 902,100      | 18,042.00         |
| Tax 3:            | 0.87          | 1.0000              | 0.8700                 | 902,100      | 7,848.27          |
| Total             |               |                     |                        |              | 114,600.09        |

Column (4) & Column (5) The Losses Paid for Accident Years 1 and 2, respectively, are based on payout patterns provided by the PCRB for Pennsylvania workers compensation insurance. Each Accident Year is assigned one-half the total policy year payout.

Example: Accident Year 1, Year 2 Payout

$$.1000 \times .7948 \times \$1,000,000 / 2 = \$39,740.00$$



**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS  
PAGE 2**

Column (6) The IRS Discount Factors are a tabulation of discount factors published for carriers by the Internal Revenue Service.

Column (7) & Column (8) The Losses Discounted for Accident Years 1 and 2, respectively, are the change in discounted reserves for each accident year implied by the loss ratio, premium earnings pattern and IRS discount factors incorporated into the model.

Example: Accident Year 1, Year 2 Losses Discounted

Accident Year 1 incurred at End of Year 2: \$397,400.00

Accident Year 1 Paid Through Year 2:

$\$39,740.00 + 110,715.64 = \$150,455.64$

Accident Year 1 Undiscounted Reserve, Year 2:

$\$397,400.00 - 150,445.64 = \$246,944.36$

IRS Discount Factor: .8098

Accident Year 1 Discounted Reserve, Year 2:

$\$246,944.36 \times .8098 = \$199,975.54$

Accident Year 1 Incurred at End of Year: \$397,400.00

Accident Year 1 Paid Through Year 1: \$39,740.00

Accident Year 1 Undiscounted Reserve, Year 1:

$\$397,400.00 - 39,740.00 = \$357,660.00$

IRS Discount Factor: .8214

Accident Year 1 Discounted Reserve, Year 1:

$\$357,660.00 \times .8214 = \$293,781.92$

Change in Discounted Reserves, Year 1 to 2:

$\$199,975.54 - 293,781.92 = (\$93,806.38)$  (round)

Column (9) Tax Credits are computed as follows:

Underwriting Tax Rate x

( - Written Premium  
+ 0.8 x Change in Unearned Premium  
+ Expenses Paid  
+ Losses Paid  
+ Change in Discounted Loss Reserve )

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS

| YEAR | (1)                        | (2)                        | (3)       | (4) LOSSES PAID |                 | (5)             | (6)      | (7) LOSSES DISCOUNTED |                 | (8)         | (9)       |
|------|----------------------------|----------------------------|-----------|-----------------|-----------------|-----------------|----------|-----------------------|-----------------|-------------|-----------|
|      | PREMIUM WRITTEN (POST-DEV) | CHANGE IN UNEARNED PREMIUM | EXPENSES  | ACCIDENT YEAR 1 | ACCIDENT YEAR 2 | DISCOUNT FACTOR | IRS      | ACCIDENT YEAR 1       | ACCIDENT YEAR 2 | TAX CREDITS |           |
| -1   | 0.00                       | 0.00                       | 109.06    | 0.00            | 0.00            |                 | 0        | 0.00                  | 0.00            |             | 38.17     |
| 1    | 902100.00                  | 451050.00                  | 114509.88 | 39745.00        | 0.00            |                 | 0.821437 | 293832.12             | 0.00            |             | -32610.55 |
| 2    | 0.00                       | -451050.00                 | 36775.96  | 110729.57       | 90618.60        |                 | 0.8098   | -93834.88             | 252042.66       |             | 12422.17  |
| 3    | 0.00                       | 0.00                       | 596.96    | 42527.15        | 63750.98        |                 | 0.8048   | -35452.36             | -55199.54       |             | 5678.11   |
| 4    | 0.00                       | 0.00                       | 109.06    | 54212.18        | 67407.52        |                 | 0.7642   | -49741.07             | -55457.35       |             | 5785.62   |
| 5    | 0.00                       | 0.00                       | 401.80    | 36883.36        | 40142.45        |                 | 0.7140   | -33866.11             | -37819.36       |             | 2009.75   |
| 6    | 0.00                       | 0.00                       | 5.74      | 22058.48        | 29292.07        |                 | 0.6787   | -18977.75             | -27708.59       |             | 1634.48   |
| 7    | 0.00                       | 0.00                       | 0.00      | 15977.49        | 20428.93        |                 | 0.6657   | -11819.85             | -17620.31       |             | 2438.19   |
| 8    | 0.00                       | 0.00                       | 0.00      | 12082.48        | 14944.12        |                 | 0.6740   | -7520.19              | -11060.82       |             | 2955.95   |
| 9    | 0.00                       | 0.00                       | 0.00      | 9499.06         | 11406.82        |                 | 0.7069   | -4636.73              | -7101.64        |             | 3208.62   |
| 10   | 0.00                       | 0.00                       | 0.00      | 7591.30         | 8942.63         |                 | 0.7426   | -3716.09              | -4367.48        |             | 2957.62   |
| 11   | 0.00                       | 0.00                       | 0.00      | 6279.71         | 7233.59         |                 | 0.7813   | -3122.24              | -3565.56        |             | 2388.92   |
| 12   | 0.00                       | 0.00                       | 0.00      | 6001.50         | 6557.93         |                 | 0.8231   | -3271.51              | -3450.24        |             | 2043.18   |
| 13   | 0.00                       | 0.00                       | 0.00      | 5087.36         | 5484.81         |                 | 0.8685   | -2881.95              | -2977.63        |             | 1649.41   |
| 14   | 0.00                       | 0.00                       | 0.00      | 4292.46         | 4769.40         |                 | 0.9178   | -2522.19              | -2724.82        |             | 1335.20   |
| 15   | 0.00                       | 0.00                       | 0.00      | 3736.03         | 4133.48         |                 | 0.9713   | -2318.04              | -2489.82        |             | 1071.58   |
| 16   | 0.00                       | 0.00                       | 0.00      | 3259.09         | 3577.05         |                 | 0.9713   | -3165.51              | -2278.52        |             | 487.24    |
| 17   | 0.00                       | 0.00                       | 0.00      | 2821.90         | 3060.37         |                 | 0.9713   | -2740.87              | -2972.49        |             | 59.12     |
| 18   | 0.00                       | 0.00                       | 0.00      | 2583.43         | 2821.90         |                 | 0.9713   | -2509.24              | -2740.87        |             | 54.32     |
| 19   | 0.00                       | 0.00                       | 0.00      | 2305.21         | 2464.19         |                 | 0.9713   | -2239.02              | -2393.43        |             | 47.93     |
| 20   | 0.00                       | 0.00                       | 0.00      | 2027.00         | 2185.98         |                 | 0.9713   | -1968.79              | -2123.21        |             | 42.34     |
| 21   | 0.00                       | 0.00                       | 0.00      | 1828.27         | 1987.25         |                 | 0.9713   | -1775.77              | -1930.19        |             | 38.35     |
| 22   | 0.00                       | 0.00                       | 0.00      | 1709.04         | 1788.53         |                 | 0.9713   | -1659.96              | -1737.17        |             | 35.15     |
| 23   | 0.00                       | 0.00                       | 0.00      | 1589.80         | 1669.29         |                 | 0.9713   | -1544.15              | -1621.36        |             | 32.75     |
| 24   | 0.00                       | 0.00                       | 0.00      | 1391.08         | 1470.57         |                 | 0.9713   | -1351.13              | -1428.34        |             | 28.76     |
| 25   | 0.00                       | 0.00                       | 0.00      | 1232.10         | 1311.59         |                 | 0.9713   | -1196.72              | -1273.92        |             | 25.56     |
|      | 902100.00                  |                            | 152508.46 | 397450.00       | 397450.00       |                 |          |                       |                 |             |           |

SOURCES: COL. 1: TABLE IV

COL. 2: COL. 1

COL. 3: COLS. 3, 4, 5, 6 & 7, TABLE III; AND TABLE IV

COLS. 4 & 5: WEIGHTS FOR ACCIDENT YEAR DISTRIBUTION:

SEE ACCIDENT YEAR DISTRIBUTION

COL. 6: U. S. INTERNAL REVENUE SERVICE DISCOUNT FACTORS

COLS. 7 & 8: CHANGE IN DISCOUNTED OUTSTANDING USING IRS FACTORS

COL. 9: .35 x (COL. 1 - (.8 x COL. 2) - COL. 4 - COL. 5 - COL. 7 - COL. 8)

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE V: NET CASH FLOWS FROM UNDERWRITING**

- Column (1) The Premium Flow Net of Reserves is Column (8) of Table III.
- Column (2) Tax Credits from Underwriting is a quarterly flow of those credits in Column (9) in Table IV.
- Column (3) Expenses show a quarterly flow of Expenses prepared in the same fashion as the annual flows in Column (3) of Table IV.
- Column (4) Dividends are not used in this model as no provision has been made for dividends in this analysis.
- Column (5) Net Cash Flow from Underwriting is computed by adding Column (1) and Column (2) and subtracting Column (3)

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE V: NET CASH FLOWS FROM UNDERWRITING

| TIME INTERVAL |       | (1)                                | (2)                                 | (3)       | (4)       | (5)                                   |
|---------------|-------|------------------------------------|-------------------------------------|-----------|-----------|---------------------------------------|
| FROM          | TO    | PREMIUM<br>FLOW NET OF<br>RESERVES | TAX CREDITS<br>FROM<br>UNDERWRITING | EXPENSES  | DIVIDENDS | NET CASH<br>FLOW FROM<br>UNDERWRITING |
| -1.00         | -0.75 | 0.00                               | 9.54                                | 0.00      | 0.00      | 9.54                                  |
| -0.75         | -0.50 | 0.00                               | 9.54                                | 0.00      | 0.00      | 9.54                                  |
| -0.50         | -0.25 | 0.00                               | 9.54                                | 0.00      | 0.00      | 9.54                                  |
| -0.25         | 0.00  | 0.00                               | 9.54                                | 109.06    | 0.00      | -99.52                                |
| 0.00          | 0.25  | 3350.00                            | -8152.64                            | 12952.89  | 0.00      | -17755.52                             |
| 0.25          | 0.50  | 10050.00                           | -8152.64                            | 30563.59  | 0.00      | -28666.22                             |
| 0.50          | 0.75  | 16750.00                           | -8152.64                            | 27116.30  | 0.00      | -18518.94                             |
| 0.75          | 1.00  | 23450.00                           | -8152.64                            | 43877.11  | 0.00      | -28579.74                             |
| 1.00          | 1.25  | 23450.00                           | 3105.54                             | 15257.18  | 0.00      | 11298.36                              |
| 1.25          | 1.50  | 16750.00                           | 3105.54                             | 11165.31  | 0.00      | 8690.24                               |
| 1.50          | 1.75  | 10050.00                           | 3105.54                             | 7222.67   | 0.00      | 5932.87                               |
| 1.75          | 2.00  | 3350.00                            | 3105.54                             | 3130.80   | 0.00      | 3324.75                               |
| 2.00          | 2.25  | -8479.74                           | 1419.53                             | 574.00    | 0.00      | -7634.21                              |
| 2.25          | 2.50  | 541.26                             | 1419.53                             | 34.44     | 0.00      | 1926.35                               |
| 2.50          | 2.75  | -1082.52                           | 1419.53                             | -68.88    | 0.00      | 405.89                                |
| 2.75          | 3.00  | 902.10                             | 1419.53                             | 57.40     | 0.00      | 2264.23                               |
| 3.00          | 3.25  | 1172.73                            | 1446.40                             | 74.62     | 0.00      | 2544.51                               |
| 3.25          | 3.50  | -180.42                            | 1446.40                             | -11.48    | 0.00      | 1277.46                               |
| 3.50          | 3.75  | -270.63                            | 1446.40                             | -17.22    | 0.00      | 1192.99                               |
| 3.75          | 4.00  | 992.31                             | 1446.40                             | 63.14     | 0.00      | 2375.57                               |
| 4.00          | 4.25  | 2074.83                            | 502.44                              | 132.02    | 0.00      | 2445.25                               |
| 4.25          | 4.50  | 1984.62                            | 502.44                              | 126.28    | 0.00      | 2360.78                               |
| 4.50          | 4.75  | 1533.57                            | 502.44                              | 97.58     | 0.00      | 1938.43                               |
| 4.75          | 5.00  | 721.68                             | 502.44                              | 45.92     | 0.00      | 1178.20                               |
| 5.00          | 6.00  | 90.21                              | 1634.48                             | 5.74      | 0.00      | 1718.95                               |
| 6.00          | 7.00  | 0.00                               | 2438.19                             | 0.00      | 0.00      | 2438.19                               |
| 7.00          | 8.00  | 0.00                               | 2955.95                             | 0.00      | 0.00      | 2955.95                               |
| 8.00          | 9.00  | 0.00                               | 3208.62                             | 0.00      | 0.00      | 3208.62                               |
| 9.00          | 10.00 | 0.00                               | 2957.62                             | 0.00      | 0.00      | 2957.62                               |
| 10.00         | 11.00 | 0.00                               | 2388.92                             | 0.00      | 0.00      | 2388.92                               |
| 11.00         | 12.00 | 0.00                               | 2043.18                             | 0.00      | 0.00      | 2043.18                               |
| 12.00         | 13.00 | 0.00                               | 1649.41                             | 0.00      | 0.00      | 1649.41                               |
| 13.00         | 14.00 | 0.00                               | 1335.20                             | 0.00      | 0.00      | 1335.20                               |
| 14.00         | 15.00 | 0.00                               | 1071.58                             | 0.00      | 0.00      | 1071.58                               |
| 15.00         | 16.00 | 0.00                               | 487.24                              | 0.00      | 0.00      | 487.24                                |
| 16.00         | 17.00 | 0.00                               | 59.12                               | 0.00      | 0.00      | 59.12                                 |
| 17.00         | 18.00 | 0.00                               | 54.32                               | 0.00      | 0.00      | 54.32                                 |
| 18.00         | 19.00 | 0.00                               | 47.93                               | 0.00      | 0.00      | 47.93                                 |
| 19.00         | 20.00 | 0.00                               | 42.34                               | 0.00      | 0.00      | 42.34                                 |
| 20.00         | 21.00 | 0.00                               | 38.35                               | 0.00      | 0.00      | 38.35                                 |
| 21.00         | 22.00 | 0.00                               | 35.15                               | 0.00      | 0.00      | 35.15                                 |
| 22.00         | 23.00 | 0.00                               | 32.75                               | 0.00      | 0.00      | 32.75                                 |
| 23.00         | 24.00 | 0.00                               | 28.76                               | 0.00      | 0.00      | 28.76                                 |
| 24.00         | 25.00 | 0.00                               | 25.56                               | 0.00      | 0.00      | 25.56                                 |
|               |       |                                    |                                     | 152508.46 | 0.0000    |                                       |

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE VI: DERIVATION OF FUNDS IN SURPLUS ACCOUNT**

Column (1) Loss and Loss Adjustment Reserves is the difference between Losses Incurred (Column (5), Table III) and Losses Paid (Columns (4) and (5), Table IV).

$$\text{Example: } \$397,400.00 - 39,740.00 = \$357,660.00$$

Column (2) Unearned Premium Reserves is Column (6) of Table III.

Column (3) Admitted Agents Balances is Column (4) of Table III.

Column (4) Cash Level is computed by adding Columns (1) and (2) and subtracting Column (3).

$$\text{Example: } \$357,660.00 + 451,050.00 - 441,848.58 = \$366,861.42$$

Column (5) Funds in Surplus Account is derived by adding Columns (1) and (2) and dividing that total by the reserve-to-surplus ratio used in the model, in this case 2.94.

$$\text{Example: } (\$357,660.00 + 451,050.00) / 2.94 = \$275,071.43$$

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE VI: DERIVATION OF FUNDS IN SURPLUS ACCOUNT

| TIME INTERVAL |       | (1)                               | (2)                             | (3)                            | (4)           | (5)                            |
|---------------|-------|-----------------------------------|---------------------------------|--------------------------------|---------------|--------------------------------|
| FROM          | TO    | LOSS AND<br>LOSS ADJ.<br>RESERVES | UNEARNED<br>PREMIUM<br>RESERVES | ADMITTED<br>AGENTS<br>BALANCES | CASH<br>LEVEL | FUNDS IN<br>SURPLUS<br>ACCOUNT |
| -1.00         | -0.75 | 0.00                              | 0.00                            | 0.00                           | 0.00          | 0.00                           |
| -0.75         | -0.50 | 0.00                              | 0.00                            | 0.00                           | 0.00          | 0.00                           |
| -0.50         | -0.25 | 0.00                              | 0.00                            | 0.00                           | 0.00          | 0.00                           |
| -0.25         | 0.00  | 0.00                              | 0.00                            | -1713.99                       | 1713.99       | 0.00                           |
| 0.00          | 0.25  | 20866.13                          | 197334.38                       | 183216.51                      | 34983.99      | 74217.86                       |
| 0.25          | 0.50  | 87439.00                          | 338287.50                       | 313118.91                      | 112607.59     | 144804.93                      |
| 0.50          | 0.75  | 199718.63                         | 422859.38                       | 398006.52                      | 224571.48     | 211761.22                      |
| 0.75          | 1.00  | 357705.00                         | 451050.00                       | 441848.58                      | 366906.42     | 275086.73                      |
| 1.00          | 1.25  | 481252.33                         | 253715.63                       | 269276.85                      | 465691.11     | 249989.10                      |
| 1.25          | 1.50  | 555118.42                         | 112762.50                       | 141810.12                      | 526070.80     | 227170.38                      |
| 1.50          | 1.75  | 579303.25                         | 28190.63                        | 57102.93                       | 550390.94     | 206630.57                      |
| 1.75          | 2.00  | 553806.83                         | 0.00                            | 17500.74                       | 536306.09     | 188369.67                      |
| 2.00          | 2.25  | 527237.30                         | 0.00                            | 0.00                           | 527237.30     | 179332.41                      |
| 2.25          | 2.50  | 500667.77                         | 0.00                            | 0.00                           | 500667.77     | 170295.16                      |
| 2.50          | 2.75  | 474098.23                         | 0.00                            | 0.00                           | 474098.23     | 161257.90                      |
| 2.75          | 3.00  | 447528.70                         | 0.00                            | 0.00                           | 447528.70     | 152220.65                      |
| 3.00          | 3.25  | 417123.78                         | 0.00                            | 0.00                           | 417123.78     | 141878.84                      |
| 3.25          | 3.50  | 386718.85                         | 0.00                            | 0.00                           | 386718.85     | 131537.02                      |
| 3.50          | 3.75  | 356313.93                         | 0.00                            | 0.00                           | 356313.93     | 121195.21                      |
| 3.75          | 4.00  | 325909.00                         | 0.00                            | 0.00                           | 325909.00     | 110853.40                      |
| 4.00          | 4.25  | 306652.55                         | 0.00                            | 0.00                           | 306652.55     | 104303.59                      |
| 4.25          | 4.50  | 287396.10                         | 0.00                            | 0.00                           | 287396.10     | 97753.77                       |
| 4.50          | 4.75  | 268139.64                         | 0.00                            | 0.00                           | 268139.64     | 91203.96                       |
| 4.75          | 5.00  | 248883.19                         | 0.00                            | 0.00                           | 248883.19     | 84654.15                       |
| 5.00          | 6.00  | 197532.65                         | 0.00                            | 0.00                           | 197532.65     | 67187.98                       |
| 6.00          | 7.00  | 161126.23                         | 0.00                            | 0.00                           | 161126.23     | 54804.84                       |
| 7.00          | 8.00  | 134099.63                         | 0.00                            | 0.00                           | 134099.63     | 45612.12                       |
| 8.00          | 9.00  | 113193.76                         | 0.00                            | 0.00                           | 113193.76     | 38501.28                       |
| 9.00          | 10.00 | 96659.84                          | 0.00                            | 0.00                           | 96659.84      | 32877.50                       |
| 10.00         | 11.00 | 83146.54                          | 0.00                            | 0.00                           | 83146.54      | 28281.14                       |
| 11.00         | 12.00 | 70587.12                          | 0.00                            | 0.00                           | 70587.12      | 24009.22                       |
| 12.00         | 13.00 | 60014.95                          | 0.00                            | 0.00                           | 60014.95      | 20413.25                       |
| 13.00         | 14.00 | 50953.09                          | 0.00                            | 0.00                           | 50953.09      | 17330.98                       |
| 14.00         | 15.00 | 43083.58                          | 0.00                            | 0.00                           | 43083.58      | 14654.28                       |
| 15.00         | 16.00 | 36247.44                          | 0.00                            | 0.00                           | 36247.44      | 12329.06                       |
| 16.00         | 17.00 | 30365.18                          | 0.00                            | 0.00                           | 30365.18      | 10328.29                       |
| 17.00         | 18.00 | 24959.86                          | 0.00                            | 0.00                           | 24959.86      | 8489.75                        |
| 18.00         | 19.00 | 20190.46                          | 0.00                            | 0.00                           | 20190.46      | 6867.50                        |
| 19.00         | 20.00 | 15977.49                          | 0.00                            | 0.00                           | 15977.49      | 5434.52                        |
| 20.00         | 21.00 | 12161.97                          | 0.00                            | 0.00                           | 12161.97      | 4136.72                        |
| 21.00         | 22.00 | 8664.41                           | 0.00                            | 0.00                           | 8664.41       | 2947.08                        |
| 22.00         | 23.00 | 5405.32                           | 0.00                            | 0.00                           | 5405.32       | 1838.54                        |
| 23.00         | 24.00 | 2543.68                           | 0.00                            | 0.00                           | 2543.68       | 865.20                         |
| 24.00         | 25.00 | 0.00                              | 0.00                            | 0.00                           | 0.00          | 0.00                           |

## INTERNAL RATE OF RETURN ANALYSIS EXPLANATORY NOTES

### TABLE VII: NOMINAL CASH FLOWS TO INVESTORS

- Column (1) Net Cash Flow Underwriting is Column (5) of Table V.
- Column (2) Cash Pre-Tax Income is computed by multiplying the pre-tax investment yield rate times the periodic average Cash Level from Column (4), Table VI.
- Example:  $(\$224,546.36 + 366,861.42) / 2 = \$295,703.89$   
 $\$295,703.89 \times .061774 / 4 = \$4,564.49$  (round)
- Column (3) Cash Income Taxes is computed by multiplying the investment income tax rate times the periodic average Cash Level from Column (4), Table VI.
- Example:  $(\$224,546.36 + 366,861.42) / 2 = \$295,703.89$   
 $-\$295,703.89 \times .014508 / 4 = -\$1,072.52$  (round)
- Column (4) Net Flow from Surplus is the periodic change in Surplus Balance posted in Column (5) of Table VI.
- Example:  $\$211,752.68 - 275,071.43 = (\$63,318.75)$
- Column (5) Surplus Pre-Tax Income is computed by applying the pre-tax investment yield to average periodic surplus balance computed from Column (5) of Table VI.
- Example:  $(\$211,752.68 + 275,071.43) / 2 = \$243,412.06$   
 $\$243,412.06 \times .061774 / 4 = \$3,759.13$  (round)
- Column (6) Surplus Income Taxes is the product of the investment income tax rate and the average periodic surplus balance computed from Column (5) of Table VI.
- Example:  $(\$211,752.68 + 275,071.43) / 2 = \$243,412.06$   
 $\$243,412.06 \times .014508 / 4 = \$882.86$  (round)
- Column (7) Net Cash Flow is the sum of Columns (1) through (6) and represents the net flows to investors which result in a rate of return of 10.72 percent to investors in the insurance company as required by the Internal Rate of Return Model.
- Example:  $-\$28,576.20 + 4,566.73 - 1,072.51 - 63,318.75 + 3,759.16 - 882.85 =$   
 $-\$85,524.42$  (round)

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
TABLE VII: NOMINAL CASH FLOWS TO INVESTORS

| TIME INTERVAL |       | (1)                                   | (2)                       | (3)                     | (4)                                | (5)                          | (6)                        | (7)                 |
|---------------|-------|---------------------------------------|---------------------------|-------------------------|------------------------------------|------------------------------|----------------------------|---------------------|
| FROM          | TO    | NET CASH<br>FLOW FROM<br>UNDERWRITING | CASH<br>PRE-TAX<br>INCOME | CASH<br>INCOME<br>TAXES | NET FLOW<br>FOR SURPLUS<br>ACCOUNT | SURPLUS<br>PRE-TAX<br>INCOME | SURPLUS<br>INCOME<br>TAXES | NET<br>CASH<br>FLOW |
| -1.00         | -0.75 | 9.54                                  | 0.00                      | 0.00                    | 0.00                               | 0.00                         | 0.00                       | 9.54                |
| -0.75         | -0.50 | 9.54                                  | 0.00                      | 0.00                    | 0.00                               | 0.00                         | 0.00                       | 9.54                |
| -0.50         | -0.25 | 9.54                                  | 0.00                      | 0.00                    | 0.00                               | 0.00                         | 0.00                       | 9.54                |
| -0.25         | 0.00  | -99.52                                | 13.24                     | -3.11                   | 0.00                               | 0.00                         | 0.00                       | -89.39              |
| 0.00          | 0.25  | -17755.52                             | 283.37                    | -66.55                  | -74217.86                          | 573.10                       | -134.59                    | -91318.06           |
| 0.25          | 0.50  | -28666.22                             | 1139.67                   | -267.65                 | -70587.07                          | 1691.25                      | -397.19                    | -97087.23           |
| 0.50          | 0.75  | -18518.94                             | 2603.63                   | -611.47                 | -66956.29                          | 2753.33                      | -646.63                    | -81376.37           |
| 0.75          | 1.00  | -28579.74                             | 4567.27                   | -1072.64                | -63325.51                          | 3759.34                      | -882.89                    | -85534.17           |
| 1.00          | 1.25  | 11298.36                              | 6429.15                   | -1509.90                | 25097.63                           | 4054.53                      | -952.22                    | 44417.55            |
| 1.25          | 1.50  | 8690.24                               | 7658.18                   | -1798.54                | 22818.72                           | 3684.53                      | -865.32                    | 40187.80            |
| 1.50          | 1.75  | 5932.87                               | 8312.22                   | -1952.15                | 20539.81                           | 3349.72                      | -786.69                    | 35395.78            |
| 1.75          | 2.00  | 3324.75                               | 8391.25                   | -1970.71                | 18260.90                           | 3050.11                      | -716.33                    | 30339.97            |
| 2.00          | 2.25  | -7634.21                              | 8212.46                   | -1928.72                | 9037.26                            | 2839.32                      | -666.82                    | 9859.29             |
| 2.25          | 2.50  | 1926.35                               | 7937.27                   | -1864.09                | 9037.26                            | 2699.75                      | -634.04                    | 19102.50            |
| 2.50          | 2.75  | 405.89                                | 7526.94                   | -1767.72                | 9037.26                            | 2560.18                      | -601.27                    | 17161.29            |
| 2.75          | 3.00  | 2264.23                               | 7116.61                   | -1671.35                | 9037.26                            | 2420.62                      | -568.49                    | 18598.87            |
| 3.00          | 3.25  | 2544.51                               | 6676.67                   | -1568.03                | 10341.81                           | 2270.98                      | -533.34                    | 19732.59            |
| 3.25          | 3.50  | 1277.46                               | 6207.11                   | -1457.75                | 10341.81                           | 2111.26                      | -495.84                    | 17984.06            |
| 3.50          | 3.75  | 1192.99                               | 5737.55                   | -1347.48                | 10341.81                           | 1951.55                      | -458.33                    | 17418.10            |
| 3.75          | 4.00  | 2375.57                               | 5267.99                   | -1237.20                | 10341.81                           | 1791.83                      | -420.82                    | 18119.19            |
| 4.00          | 4.25  | 2445.25                               | 4884.51                   | -1147.14                | 6549.81                            | 1661.40                      | -390.18                    | 14003.65            |
| 4.25          | 4.50  | 2360.78                               | 4587.12                   | -1077.30                | 6549.81                            | 1560.25                      | -366.43                    | 13614.23            |
| 4.50          | 4.75  | 1938.43                               | 4289.73                   | -1007.45                | 6549.81                            | 1459.09                      | -342.67                    | 12886.94            |
| 4.75          | 5.00  | 1178.20                               | 3992.34                   | -937.61                 | 6549.81                            | 1357.94                      | -318.92                    | 11821.77            |
| 5.00          | 6.00  | 1718.95                               | 13788.53                  | -3238.27                | 17466.17                           | 4689.98                      | -1101.45                   | 33323.90            |
| 6.00          | 7.00  | 2438.19                               | 11077.96                  | -2601.69                | 12383.14                           | 3768.01                      | -884.93                    | 26180.69            |
| 7.00          | 8.00  | 2955.95                               | 9118.69                   | -2141.55                | 9192.72                            | 3101.60                      | -728.42                    | 21499.00            |
| 8.00          | 9.00  | 3208.62                               | 7638.20                   | -1793.85                | 7110.84                            | 2598.03                      | -610.15                    | 18151.68            |
| 9.00          | 10.00 | 2957.62                               | 6481.79                   | -1522.26                | 5623.78                            | 2204.69                      | -517.78                    | 15227.84            |
| 10.00         | 11.00 | 2388.92                               | 5553.71                   | -1304.30                | 4596.36                            | 1889.02                      | -443.64                    | 12680.07            |
| 11.00         | 12.00 | 2043.18                               | 4748.40                   | -1115.17                | 4271.91                            | 1615.10                      | -379.31                    | 11184.11            |
| 12.00         | 13.00 | 1649.41                               | 4033.93                   | -947.38                 | 3595.98                            | 1372.08                      | -322.24                    | 9381.78             |
| 13.00         | 14.00 | 1335.20                               | 3427.49                   | -804.95                 | 3082.27                            | 1165.81                      | -273.79                    | 7932.02             |
| 14.00         | 15.00 | 1071.58                               | 2904.53                   | -682.14                 | 2676.70                            | 987.93                       | -232.02                    | 6726.59             |
| 15.00         | 16.00 | 487.24                                | 2450.31                   | -575.46                 | 2325.22                            | 833.44                       | -195.74                    | 5325.01             |
| 16.00         | 17.00 | 59.12                                 | 2057.48                   | -483.20                 | 2000.77                            | 699.82                       | -164.35                    | 4169.62             |
| 17.00         | 18.00 | 54.32                                 | 1708.83                   | -401.32                 | 1838.54                            | 581.24                       | -136.50                    | 3645.11             |
| 18.00         | 19.00 | 47.93                                 | 1394.57                   | -327.52                 | 1622.24                            | 474.34                       | -111.40                    | 3100.17             |
| 19.00         | 20.00 | 42.34                                 | 1117.13                   | -262.36                 | 1432.98                            | 379.97                       | -89.24                     | 2620.83             |
| 20.00         | 21.00 | 38.35                                 | 869.15                    | -204.12                 | 1297.80                            | 295.63                       | -69.43                     | 2227.37             |
| 21.00         | 22.00 | 35.15                                 | 643.27                    | -151.07                 | 1189.65                            | 218.80                       | -51.39                     | 1884.40             |
| 22.00         | 23.00 | 32.75                                 | 434.57                    | -102.06                 | 1108.53                            | 147.81                       | -34.71                     | 1586.90             |
| 23.00         | 24.00 | 28.76                                 | 245.52                    | -57.66                  | 973.35                             | 83.51                        | -19.61                     | 1253.87             |
| 24.00         | 25.00 | 25.56                                 | 78.57                     | -18.45                  | 865.20                             | 26.72                        | -6.28                      | 971.32              |
|               |       |                                       |                           |                         | 0.00                               |                              |                            |                     |



**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**PENNSYLVANIA PRE & POST TAX RETURNS  
PAGE 1**

- Column (1) Invested Assets  
Categories taken from 2000 Best's Aggregates and Averages
- Column (2) 12/31/00 Market Values  
Treasuries, Exempt Bonds, Bonds for Unaffiliated and Affiliated Companies, Preferred Stock for Unaffiliated and Affiliated Companies and Common Stock for Unaffiliated and Affiliated Companies all taken from 2000 Best's Aggregates and Averages, Industry Total Schedule D.
- Column (3) Pre-Tax Return  
Treasuries based on yields published in Federal Reserve Statistical Release (June 24, 2002) H. 15 (519), weighted by loss payout pattern provided by PCRB for Pennsylvania workers compensation insurance.
- Exempt Bonds based on yields published in Federal Reserve Statistical Release (June 24, 2002) H. 15 (519).
- Bonds based on yields published in Federal Reserve Statistical Release (June 24, 2002) H. 15 (519).
- Preferred stock yields based on Moody's Bond Record (May 2002 Book) p. 644.
- Common Stock Yield based on three month Treasury Bill rate (from Federal Reserve) plus Ibbotson Differential (from 2001 Ibbotson Yearbook).
- Mortgages & Real Estate Yield based on three month Treasury Bill rate (from Federal Reserve) plus Ibbotson Differential (from Ibbotson & Seigel, AREUA Journal, Vol 12, No. 3, 1984).
- Cash & Short Term Investment yield based on short-term treasury yield as published in Federal Reserve (June 24, 2002) M. 15 (519).
- Column (4) Investment Gain  
Product of 12/31/00 Market Value times Pre-Tax Return expressed as a decimal value by asset type.

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**PENNSYLVANIA PRE & POST TAX RETURNS  
PAGE 2**

Column (5) Percent Taxable  
Term Treasuries, Unaffiliated Bonds, Mortgages & Real Estate and Cash & Short

Investments all assumed to be 100 percent taxable.

Exempt Bonds, Bonds in Affiliated Companies and Preferred Stock in Affiliated Companies all assumed to be tax-free.

Preferred Stock in Unaffiliated Companies: 30 percent of dividend income taxable per Tax Reform Act of 1986; all income attributed to dividends for preferred stock.

Common Stock of Unaffiliated Companies: 30 percent of dividend income plus 100 percent of capital gains income taxable per Tax Reform Act of 1986.  $(.30 \times .3550) + (.6450) = .7515$ . Portions of common stock income attributable to dividend and capital gains from 2000 A. M. Best's data.

Common Stock of Affiliated Companies: 100 percent of capital gains in affiliated companies subject to income tax per Tax Reform Act of 1986. Portion of common stock income (.6450) attributed to capital gains from 2000 A. M. Best's data.

Column (6) Tax Rate  
 $(\text{Percent Taxable} \times .35) + ((1.0 - \text{Percent Taxable}) \times .15 \times .35)$

Column (7) Post Tax Return  
 $\text{Pre-Tax Return} \times (1.0 - \text{Tax Rate})$

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
PRE & POST TAX RETURNS

| Invested Assets<br>(1) | Assets<br>(2) | Pre Tax<br>Return<br>(3) | Investment<br>Gain<br>(4) | Portion<br>Taxable<br>(5) | Tax Rate<br>(6) | Post Tax<br>Return<br>(7) |
|------------------------|---------------|--------------------------|---------------------------|---------------------------|-----------------|---------------------------|
| Treasuries             | 96906662      | 3.59                     | 3480556                   | 1.00000                   | 0.35000         | 2.334578                  |
| Exempt Bonds           | 240152968     | 5.04                     | 12103710                  | 0.00000                   | 0.05250         | 4.775400                  |
| Bonds (Unaffil)        | 174039138     | 6.55                     | 11399564                  | 1.00000                   | 0.35000         | 4.257500                  |
| Bonds (Affiliated)     | 1249981       | 6.55                     | 81874                     | 0.00000                   | 0.05250         | 6.206125                  |
| Prefer Stk (Unaff)     | 9837357       | 7.27                     | 715176                    | 0.30000                   | 0.14175         | 6.239478                  |
| Prefer Stk (Affil)     | 826114        | 7.27                     | 60058                     | 0.00000                   | 0.05250         | 6.888325                  |
| Common Stk (Unaff)     | 143064883     | 10.85                    | 15522540                  | 0.75150                   | 0.27607         | 7.854630                  |
| Common Stock (Affil)   | 40421003      | 10.85                    | 4385679                   | 0.64500                   | 0.24439         | 8.198390                  |
| Mortgage Loans         | 1634429       | 6.63                     | 108363                    | 1.00000                   | 0.35000         | 4.309500                  |
| Real Estate            | 9545284       | 5.67                     | 541218                    | 1.00000                   | 0.35000         | 3.685500                  |
| Cash and ST Invest     | 41866117      | 1.73                     | 724284                    | 1.00000                   | 0.35000         | 1.124500                  |
| Average or Total       | 759543936     |                          | 49123020                  |                           |                 | 4.915150                  |

1. Assets, courtesy NCCI, are from the latest Best's A&A, Market Value Dec 31, 2000

2. Yields are from:

- a) Treasuries, Exempt Bonds, Other Bonds, Cash & Short Term Invest  
are from: Federal Reserve H.15(519), June 24, 2002
- b) Preferred Stocks are from: Moody's Bond Record, May 2002,  
Vol. 69, No. 5, p. 644.
- c) Common Stock: 3 month Treasury (1.73) + Ibbotson Differential (9.12%)  
Bill rate from Fed Reserve; Differential from 2001 Ibbotson Yearbook
- d) Real Estate: 3 month Treasury + Ibbotson Differential (3.94)  
Differential from: Ibbotson & Seigel, AREUA Journal, Vol 12,  
No. 3, 1984

PRETAX WEIGHTED PORTFOLIO YIELD - INVEST EXPENSE = 6.177436259

POST TAX WEIGHTED YIELD - POST TAX EXPENSE = 4.726649889

## INTERNAL RATE OF RETURN ANALYSIS EXPLANATORY NOTES

### PENNSYLVANIA COST OF CAPITAL

- All data taken from Value Line Investment Survey of March 29, 2002 and May 31, 2002.
- All Property/Casualty Companies Selected with limited exceptions such as reinsurers and carriers without any workers compensation insurance writings
- Individual carrier inclusions/exclusions from selected list noted as having limited effect on indicated results.
- DCF FORECAST COST OF CAPITAL
  - =  $.0158 \times (1.0 + 0.5 \times .1023) + .1023$
  - =  $.0166 + .1023 = .1189$  (round)
- DCF HISTORICAL COST OF CAPITAL
  - =  $.0158 \times (1.0 + 0.5 \times .0857) + .0857$
  - =  $.0165 + .0857 = .1022$
- DCF DIVIDENDS ONLY COST OF CAPITAL
  - =  $.0158 \times (1.0 + 0.5 \times .0913) + .0913$
  - =  $.0165 + .0913 = .1078$
  - Note:  $.0913 = \text{Average } (.0688, .1138)$

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
COST OF CAPITAL

| COMPANY     | BETA | YIELD | DIVIDEND EARNINGS |              | EARNINGS FORECAST | DIVIDEND FORECAST | RETAINED TO EQUITY FORECAST |
|-------------|------|-------|-------------------|--------------|-------------------|-------------------|-----------------------------|
|             |      |       | PAST 5 YEARS      | PAST 5 YEARS |                   |                   |                             |
| Ace Ltd     | 1.35 | 1.5   | 28.0              | 17.5         | 12.5              | 13.0              | 10.0                        |
| AIG         | 1.25 | 0.3   | 12.5              | 14.0         | 15.5              | 13.5              | 13.5                        |
| Allstate    | 1.05 | 2.3   | 14.5              | 20.0         | 2.0               | 9.5               | 9.5                         |
| Amer Fnl    | 0.95 | 1.8   | 2.0               | -10.5        | 17.0              | -9.5              | 13.5                        |
| Berkley     | 0.75 | 0.9   | 11.5              | -15.0        | 39.5              | 1.5               | 12.0                        |
| Chubb       | 1.10 | 2.0   | 7.0               | 6.0          | 8.0               | 5.0               | 9.0                         |
| Cinc Fnl    | 0.80 | 2.1   | 12.5              | 0.0          | 13.5              | 8.5               | 4.0                         |
| Merc Gen    | 1.05 | 2.7   | 19.0              | 10.5         | 7.0               | 10.0              | 10.0                        |
| Ohio Cas    | 0.75 | 0.0   | 1.5               | -18.0        | 31.0              | 27.0              | 8.5                         |
| Old Rep     | 0.95 | 2.0   | 18.0              | 10.5         | 7.5               | 7.5               | 8.5                         |
| Progressive | 1.20 | 0.2   | 4.5               | 2.5          | 16.5              | 3.0               | 12.0                        |
| RLI Corp    | 0.70 | 1.3   | 8.0               | 36.5         | 10.0              | 6.0               | 9.5                         |
| Safeco      | 1.05 | 2.2   | 8.5               | -10.0        | 12.5              | 0.5               | 7.0                         |
| St Paul     | 1.05 | 2.6   | 7.0               | 5.0          | 11.5              | 3.5               | 14.5                        |
| Select      | 0.70 | 2.3   | 1.0               | 2.0          | 12.0              | 3.0               | 8.5                         |
| Trans Atl   | 0.70 | 0.5   | 15.0              | 15.0         | 8.0               | 11.0              | 12.0                        |
| XL Cap      | 0.90 | 2.1   | 23.0              | 12.0         | 9.5               | 4.0               | 9.0                         |
|             | 0.96 | 1.58  | 11.38             | 5.76         | 13.74             | 6.88              | 10.06                       |

SOURCE: VALUE LINE INVESTMENT SURVEY, MAR 29 & MAY 31, 2002

DCF COST OF CAPITAL

FORECAST

|              |       |
|--------------|-------|
| A. EARNINGS  | 13.74 |
| B. DIVIDEND  | 6.88  |
| C. FUNDAMENT | 10.06 |

FORECAST = (A+B+C)/3 10.23

FORECAST COST OF CAPITAL = 11.88 PERCENT

HISTORICAL

|             |       |
|-------------|-------|
| A. EARNINGS | 5.76  |
| B. DIVIDEND | 11.38 |

HISTORICAL = (A+B)/2 8.57

HISTORICAL COST OF CAPITAL = 10.22 PERCENT

DIVIDENDS ONLY (GROWTH & HISTORICAL)

10.78 PERCENT

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA F CLASSIFICATION FILING  
COST OF CAPITAL (continued)

|                         |                             |               |
|-------------------------|-----------------------------|---------------|
| A) CAPM COST OF CAPITAL | $1.73 + 0.96(9.12) =$       | 10.48 PERCENT |
| B) DCF COST OF CAPITAL  | $(11.88+10.22+10.78) / 3 =$ | 10.96 PERCENT |
| C) COST OF CAPITAL      | $(A +B)/2 =$                | 10.72 PERCENT |

SOURCES:

A: CAPM: BETA - VALUE LINE INVESTMENT SURVEY MAR 29 & MAY 31, 2002

RF - 3 MONTH BILL RATE WEEK ENDED JUNE 24, 2002. FEDERAL RESERVE H. 15 (519)  
(1.73%)

RM - RF = IBBOTSON DIFFERENTIAL (STOCK MARKET TO 3 MONTH BILL  
RATE, 1926 TO 2000 AVERAGE) = 9.12

B: DCF:  $K = Y (1+0.5G) + G$

Y IS THE CURRENT DIVEND YIELD (FROM VALUE LINE)  
G IS THE DIVIDEND GROWTH RATE (FROM VALUE LINE)