# 2012 CAS RATEMAKING SEMINAR BASIC RATEMAKING WORKSHOP

## DETERMINATION OF AN OVERALL INDICATION INTERACTIVE EXERCISES

### DATA CATAGORIZATION

POLICY PREMIUM INFORMATION

POLICY LOSS ACTIVITY

12/15/2011

\$5,000

2/15/2012

\$3,000

Policy Effective Date
Policy Term
Annual
Policy Premium
Policy Pre

CALENDAR YEAR				
2011 Written Premium				
2011 Earned Premium				
2011 Incurred Loss @ 12/31/2011				
2011 Incurred Loss @ 12/31/2012				
2012 Incurred Loss				

POLICY YEAR				
2011 Written Premium				
2011 Earned Premium				
2011 Incurred Loss @ 12/31/2011				
2011 Incurred Loss @ 12/31/2012				
2012 Incurred Loss				

ACCIDENT YEAR				
2011 Written Premium				
2011 Earned Premium				
2011 Incurred Loss @ 12/31/2011				
2011 Incurred Loss @ 12/31/2012				
2012 Incurred Loss				

### DATA CATAGORIZATION

POLICY PREMIUM INFORMATION		POLICY LOSS ACTIVITY	
Policy Effective Date	7/1/2011	Accident Date	12/15/2011
Policy Term	Annual	Reserve Amount (est. on date of accident)	\$5,000
Policy Premium	\$1,000	Date of Payment	2/15/2012
		Amount of Payment	\$3,000

CALENDAR Y	EAR	
2011 Written Premium	\$1,000	
2011 Earned Premium	\$500	1/2 of Coverage in-force in 2011
2011 Incurred Loss @ 12/31/2011	\$5,000	2011 Payments + 2011 Changes in Reserves: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$5,000	Fixed at 2011 Year End
2012 Incurred Loss	-\$2,000	2012 Payments + 2012 Changes in Reserves: 3,000 + (-5,000)

POLICY YEAR	R	
2011 Written Premium	\$1,000	
2011 Earned Premium	\$1,000	
2011 Incurred Loss @ 12/31/2011	\$5,000	Payments on Policies Effective in 2011 + Changes in Reserves for Policies Effective in 2011: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$3,000	Payments on Policies Effective in 2011 + Changes in Reserves for Policies Effective in 2011: 3,000 + (5,000 - 5,000)
2012 Incurred Loss	0	Will Never Be Any

ACCIDENT YEA	AR	
2011 Written Premium       \$1,000         2011 Earned Premium       \$500		**Same as CY
		Same as C i
2011 Incurred Loss @ 12/31/2011	\$5,000	Payments on Accidents Occurring in 2011 + Changes in Reserves for Accidents Occurring in 2011: 0 + (+5,000)
2011 Incurred Loss @ 12/31/2012	\$3,000	Payments on Accidents Occurring in 2011 + Changes in Reserves for Accidents Occurring in 2011: 3,000 + (5,000 - 5,000)
2012 Incurred Loss	0	None, Since No Accidents for this Policy occurred in 2012

### Determination of Statewide Rate Level Indication - Loss Ratio Method Comprehensive

1 Indicated Loss and Loss Adjustment Expense Ratio	57.5%
2 Indicated Provision for Fixed Expense	20.0%
3 Variable Permissible Loss Ratio	77.2%
4 Indicated Rate Level Change {[ (1)+(2) }/(3)} - 1 0	0.4 %

#### COMPREHENSIVE

(11)
Experience Year
Weights
35%
65%

				Devel	opment of Loss and LAF	E Ratio			
(1)	(3) Accident Year Non-	(4)	(5) = (3)*(1+(4))	(6)	(7) = (5)*(1+(6))	(8)	(9) = (7)*(8)		
	Cat Ult. Loss +		Accident Year Ult.		Ultimate Loss and		Projected Ult. Los		
Fiscal Year Ending	ALAE	Catastrophe Factor	Loss + ALAE	ULAE Provision	LAE	Trend Factor	+ LAE		Loss and LAE Ratio
12/31/2010	\$9,177,124	0.158	\$10,627,109	0.150	\$12,221,176	1.102	\$13,468,671	\$23,716,490	56.8%
12/31/2011	\$8,750,683	0.158	\$10,133,290	0.150	\$11,653,284	1.092	\$12,730,780	\$21,997,818	57.9%
								Indicated Loss and LAE Ratio	57.5%
				<u>Developn</u>	nent of Provision for Fixe	ed Expense			
	(1)	(2)	(3)	(4) = (1)+(2)+(3)	(7)	(8) =	(6)*(7)		
	License + Fees	Other Acquisition	General	Fixed Expense Ratio	Trend Factor	Desirated Fina	d Expense Ratio		
	0.1%	4.9%	5.4%	10.4%	1.087		.0%	<del></del>	
				Development of F	Projected Average Earned	I Premium @ CRL			
		(1)	(3)	(4)	(5) = (3)*(4)	(6) -	(5)/(2)		
		(1)	(3)	(4)	(3) = (3) (4)	(0) =	(3)/(2)		
			Earned Premium at		Projected Earned				
		Fiscal Year Ending 12/31/2010	CRL \$19,565,248	Trend Factor	Premium @ CRL	Projected Average Ea		<u>-</u>	
		12/31/2010	\$19,365,248 \$19,252,582	1.101 1.069	\$21,541,100 \$20,579,475		16,490 97,818		
		1231/2011	\$17,252,502	1.009	\$20,077,175	<b>421,</b> 2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
				Va	riable Permissible Loss R	tatio			
			(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5) = 1 - (4)		
						Variable Expense			
			Commissions	Taxes	UW Profit	Ratio	Variable PLR	7	
			15.0%	2.8%	5.0%	22.8%	77.2%		

#### Calculation of Loss Development Factors Comprehensive

#### Incurred Loss

		incuited Loss			
Fiscal Accident					
Year Ending	<u>@12 Months</u>	<u>@24 Months</u>	@36 Months	<u>@48 Months</u>	@60 Months
12/31/2006	7,478,144	7,523,188	7,528,572	7,527,823	7,527,
12/31/2007	7,976,481	8,034,730	8,043,895	8,043,111	8,046
12/31/2008	8,053,403	8,112,672	8,124,400	8,120,534	
12/31/2009	9,697,478	9,737,963	9,739,417		
12/31/2010	9,102,321	9,169,647			
12/31/2011	8,687,507				
		Link Ratios			
Development	<u>12-24</u>	<u>24-36</u>	<u>36-48</u>	<u>48-60</u>	
4th Prior					
3rd Prior					
2nd Prior					
1st Prior					
Latest					
Straight Average					

Fiscal Accident <u>Year Ending</u>	Incurred Loss &ALAE	Factor <u>to Ultimate</u>	Ultimate <u>Loss &amp; ALAE</u>
12/31/2010	9,169,647		
12/31/2011	8,687,507		

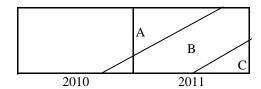
#### Calculation of Loss Development Factors Comprehensive

Fiscal Accident		Incurred Loss			
Year Ending	@12 Months	@24 Months	@36 Months	@48 Months	@60 Months
12/31/2006	7,478,144	7,523,188	7,528,572	7,527,823	7,527,583
12/31/2007	7,976,481	8,034,730	8,043,895	8,043,111	8,046,213
12/31/2008	8,053,403	8,112,672	8,124,400	8,120,534	
12/31/2009	9,697,478	9,737,963	9,739,417		
12/31/2010	9,102,321	9,169,647			
12/31/2011	8,687,507				
		Link Ratios			
<b>Development</b>	<u>12-24</u>	24-36	<u>36-48</u>	<u>48-60</u>	
4th Prior	1.006	1.001	1.000	1.000	
3rd Prior	1.007	1.001	1.000	1.000	
2nd Prior	1.007	1.001	1.000		
1st Prior	1.004	1.000			
Latest	1.007				
Straight Average	1.006	1.001	1.000	1.000	
	<u>12-ULT</u>	<u>24-ULT</u>			
ss Development Factor:	1.007	1.001			
Fiscal Accident	Incurred	Factor	Ultimate		
Year Ending	Loss &ALAE	to Ultimate	Loss & ALAE		
12/31/2010	9,169,647	1.001	9,177,124		
12/31/2011	8,687,507	1.007	8,750,683		

### **Calculation of Earned Premium @ CRL**

#### Rate History

<u>Date</u>	%Change
9/15/2010	5.0%
7/1/2011	7.0%



<u>Area</u>	<u>% of 2011</u>	Rate Index	
A			
В			
C			2011 FCRL
2011			

2011 Earned Premium \$17,935,560 2011 Earned Premium @ CRL

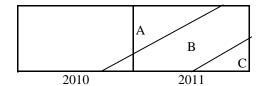
<u>Area</u>	<u>% of 2010</u>	Rate Index	_
A			
В			2010 FCRL
2010			

2010 Earned Premium \$16,272,086 2010 Earned Premium @ CRL

### **Calculation of Earned Premium @ CRL**

#### Rate History

<u>Date</u>	%Change
9/15/2010	5.0%
7/1/2011	7.0%



<u>Area</u>	% of 2011	Rate Index	
A	25.1%	1.000	
C	12.5%	1.124	
В	62.4%	1.050	2011 FCRL
 2011	100.0%	1.047	1.073

2011 Earned Premium	\$17,935,560
2011 Earned Premium @ CRL	\$19,252,582

<u>Area</u>	<u>% of 2010</u>	Rate Index	
A	95.7%	1.000	
В	4.3%	1.050	2010 FCRL
2010	100.0%	1.002	1.121

2010 Earned Premium \$17,451,587 2010 Earned Premium @ CRL \$19,565,248

### **Calculation of Trend Factors**

Annual Policy Term	F	Tr.	
Rates In Effect for Policies Written Exposure Period	From 10/1/2012 10/1/2012	<u>To</u> 9/30/2013 9/30/2014	
Projection Date			
Loss Trend	Factor Calculation		
Midpoint of Experience Period Midpoint of Most Recent Year Experince Period Projection Date Trend Period Projection Period	2010	2011	
Selected Historical Annual Trend Selected Prospective Annual Trend	<u>Frequency</u> -3.0% 0.0%	<u>Severity</u> 4.0% 4.0%	Pure Premium 0.9% 4.0%
Loss Trend Factor	<u>2010</u>	<u>2011</u>	]
Fixed Expense 7	Trend Factor Calculation	<u>n</u>	
Experience Period	<u>From</u> 1/1/2009	<u>To</u> 12/31/2011	
Midpoint of Experience Period Projection Date Trend Period			
Selected Historical Annual Trend Fixed Expense Trend Factor	2.6%		
Premium Tre	nd Factor Calculation		
Midpoint of Experience Period Projection Date Trend Period	2010	2011	]
Selected Historical Annual Trend Fixed Expense Trend Factor	3.0%	3.0%	]

### **Calculation of Trend Factors**

Annual Policy Term			
	<u>From</u>	<u>To</u>	
Rates In Effect for Policies Written	10/1/2012	9/30/2013	
Exposure Period	10/1/2012	9/30/2014	
Projection Date	10/1/2013		
Loss Treno	l Factor Calculation		
Midneigt of Eugeniege Devied	<u>2010</u>	<u>2011</u>	
Midpoint of Experience Period Midpoint of Most Recent Year Experince Period	7/1/2010 7/1/2011	7/1/2011 7/1/2011	
Projection Date	10/1/2013	10/1/2013	
Trend Period	1.00	0.00	
Projection Period	2.25	2.25	
.,			
	<u>Frequency</u>	<b>Severity</b>	Pure Premium
Selected Historical Annual Trend	-3.0%	4.0%	0.9%
Selected Prospective Annual Trend	0.0%	4.0%	4.0%
	2010	2011	
Loss Trend Factor	2010 1.1021	2011 1.0925	7
Loss Trend Pactor	1.1021	1.0923	
Fixed Expense	Trend Factor Calculatio	<u>n</u>	
	From	To	
Experience Period	1/1/2009	12/31/2011	
•			
Midpoint of Experience Period	7/1/2010		
Projection Date	10/1/2013		
Trend Period	3.25		
Selected Historical Annual Trend	2.6%		
Fixed Expense Trend Factor	1.087		
Thea Expense Tiena Lactor	1.007		
Premium Tre	and Factor Calculation		
	and I deter ediculation		

2010

7/1/2010

10/1/2013

3.25

3.0%

1.101

Midpoint of Experience Period

Selected Historical Annual Trend

Fixed Expense Trend Factor

Projection Date

Trend Period

2011

7/1/2011

10/1/2013

2.25

3.0%

1.069

### Determination of Statewide Rate Level Indication - Pure Premium Method Comprehensive

1 Indicated Provision for Loss and Loss Adjustment Expense	\$66
2 Indicated Provision for Fixed Expense	\$14
3 Variable Permissible Loss Ratio	77.2%
4 Indicated Average Premium [ (1) + (2) ] / [ (3) ]	\$104
5 Projected Average Earned Premium at Current Rate Level	\$103
6 Indicated Rate Level Change [ (4) / (5) - 1.0 ]	0.4 %

#### COMPREHENSIVE

Development of Provision for Loss and LAE										
(1)	(2)	(3) Accident Year Non-	(4)	(5) = (3)*(1+(4))	(6)	(7) = (5)*(1+(6))	(8)	(9) = (7)*(8)	(10) = (9)/(2)	(11)
Fiscal Year Ending	Earned Exposure	Cat Ult. Loss + ALAE	Catastrophe Factor	Accident Year Ult. Loss + ALAE	ULAE Provision	Ultimate Loss and LAE	Trend Factor	Projected Ult. Loss + LAE	Projected Pure Premium	Experience Year Weights
12/31/2010	193,370	\$9,177,124	0.158	\$10,627,109	0.150	\$12,221,176	1.102	\$13,468,671	\$70	35%
12/31/2011	199,284	\$8,750,683	0.158	\$10,133,290	0.150	\$11,653,284	1.092	\$12,730,780	\$64	65%
							Indicated I	Provision for Loss and LAE	\$66	
				<u>Developm</u>	ent of Provision for Fixe	ed Expense				
	(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5)	(6) = (4)*(5)	(7)	(8) = (6)	5)*(7)	
	License + Fees	Other Acquisition	General	Fixed Expense Ratio	3Yr Average Earned Premium	Dollar Provision for Fixed Expense	Trend Factor	Indicated Provision		
	0.1%	4.9%	5.4%	10.4%	\$125.37	\$13.04	1.087	\$1	4	
				Development of P	rojected Average Earned	l Premium @ CRL				
		(1)	(2)	(3)	(4)	(5) = (3)*(4)	(6) =	(5)/(2)		
		Fiscal Year Ending 12/31/2011	Earned Exposure 199,284	Earned Premium at CRL \$19,252,582	Trend Factor 1.069	Projected Earned Premium @ CRL \$20,579,475		arned Premium @ CRL		
				<u>Var</u>	iable Permissible Loss R	<u>tatio</u>				
			(1)	(2)	(3)	(4) = (1)+(2)+(3)	(5) = 1 - (4)			
			Commissions	Taxes	UW Profit	Variable Expense Ratio	Variable PLR			
			15.0%	2.8%	5.0%	22.8%	77.2%			