18. (2 points)

The table below provides the actual loss history for 10 similar risks:

	Sum of Losses Under $200,000 per Accident	Individual Accidents Greater Than $200,000	
Risk		Accident 1	Accident 2
1	$300,000		
2	$400,000		
3	$500,000		
4	$600,000		
5	$700,000		
6	$800,000		
7	$900,000		
8	$1,000,000	$300,000	
9	$1,100,000	$600,000	
10	$1,200,000	$200,000	$1,400,000
Total	$7,500,000	$1,100,000	$1,400,000

Construct Table L charges for a loss limit of $500,000 at entry ratios of 1.10, 1.30, 1.60, 1.90 and 2.10.

CONTINUED ON NEXT PAGE

Question 18:

Model Solution 1

Avg Loss = E = (7,500,000 +1,100,000+1,400,000)/10 = 1M

r	Charge = % capped losses eliminated by Agg + LER
1.1	(1300-1100+1600-1100+1900-1100)/(10*1,000,000)+0.1 = 0.25
1.3	(1600-1300+1900-1300)/(10*1,000,000)+0.1 = 0.19
1.6	(1900-1600)/(10*1,000,000)+0.1 = 0.13
1.9	0.1
2.1	0.1

Risk	Agg Losses limited at 500K per occurrence	loss eliminated
8	1000+300=1300	0
9	1100+500=1600	100K
10	1200+200+500=1900	900K
		1000K

LER = (1,000,000/10)/1,000,000 = 0.1

Model Solution 2

Risk	Total unlimited loss	Lim to 500K per occurrence	r=1.1	1.3	1.6	1.9	2.1
1	300	300	300	300	300	300	300
2	400	400	400	400	400	400	400
3	500	500	500	500	500	500	500
4	600	600	600	600	600	600	600
5	700	700	700	700	700	700	700
6	800	800	800	800	800	800	800
7	900	900	900	900	900	900	900
8	1300	1300	1300	1300	1300	1300	1300
9	1700	1600	1100	1300	1600	1600	1600
10	2800	1900	1100	1300	1600	1900	1900

Average unlimited = 1,000 Average limited = 900

K = 0.1

So charges including per occurrence are:

r	charge

1.1 (1-7500/9000)(1-0.1)+.1 = 0.25 (modified, see below)
1.3 0.19
1.6 0.13
1.9 0.1
2.1 0.1
[1-(total limited to r & 500K per occ/total limited to 500K per occ)](1-k)+k

Examiner's Comments:

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Full credit was given for candidates who got all of the correct charges for each entry ratio.

Common errors that resulted in partial credit:

- Multiplying the percent eliminated by 1-LER when the denominator was total losses rather than limited losses (Skurnick Page 127 states that adjustment factor of 1-k is needed only when the charge is represented as a ratio to expected limited losses)
- Limiting losses to 200K rather than 500K resulted in an LER of 0.17 rather than the correct 0.10
- Using total losses of 7.5M instead of 10M (candidates did not add in the columns for the individual accidents greater than 200K). This resulted in an LER of 0.1333.
- Some candidates for entry ratios of 1.9 and 2.1 calculated an erroneous charge rather than just using the LER

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