

*SERFF Tracking Number:*      *WSST-125753647*                      *State:*                      *Arkansas*  
*Filing Company:*              *Columbus Life Insurance Company*              *State Tracking Number:*      *39812*  
*Company Tracking Number:*      *CL 83 0405 - INFO*  
*TOI:*                      *L04I Individual Life - Term*                      *Sub-TOI:*                      *L04I.103 Renewable - Single Life -  
Fixed/Indeterminate Premium*  
  
*Product Name:*              *Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL*  
*Project Name/Number:*      *Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL/CL 83 0405*

## Filing at a Glance

Company: Columbus Life Insurance Company

Product Name: Info Filing - CL 83, CL 83- U/2001 CSO/CLIC/NDL      SERFF Tr Num: WSST-125753647 State: ArkansasLH

TOI: L04I Individual Life - Term      SERFF Status: Closed      State Tr Num: 39812

Sub-TOI: L04I.103 Renewable - Single Life - Fixed/Indeterminate Premium      Co Tr Num: CL 83 0405 - INFO      State Status: Filed-Closed

Filing Type: Form      Co Status:      Reviewer(s): Linda Bird  
Authors: Elaine Greer, Nikki Lape, Ramona Piercefield      Disposition Date: 08/05/2008

Date Submitted: 07/31/2008      Disposition Status: Accepted For Informational Purposes

Implementation Date Requested: On Approval

Implementation Date:

State Filing Description:

## General Information

Project Name: Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL

Project Number: CL 83 0405

Requested Filing Mode: Informational

Explanation for Combination/Other:

Submission Type: New Submission

Overall Rate Impact:

Filing Status Changed: 08/05/2008

State Status Changed: 08/05/2008

Corresponding Filing Tracking Number:

Filing Description:

RE: 2001 CSO REQUIRED COMPLIANCE CHANGES

INFORMATIONAL FILING

CL 83 0405 AR Renewable and Convertible Term Life Insurance

Status of Filing in Domicile: Pending

Date Approved in Domicile:

Domicile Status Comments: We have filed concurrently with our domicile state, Ohio.

Market Type: Individual

Group Market Size:

Group Market Type:

Deemer Date:

SERFF Tracking Number: WSSST-125753647 State: Arkansas  
 Filing Company: Columbus Life Insurance Company State Tracking Number: 39812  
 Company Tracking Number: CL 83 0405 - INFO  
 TOI: L041 Individual Life - Term Sub-TOI: L041.103 Renewable - Single Life -  
 Fixed/Indeterminate Premium  
 Product Name: Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL  
 Project Name/Number: Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL/CL 83 0405

CL 83-U 0405 AR Renewable and Convertible Term Life Insurance  
 Columbus Life Insurance Company – NAIC Code # 99937

This filing is being submitted for information only. These forms were approved for use by your Department on February 12, 2004.

Enclosed please find actuarial memorandums for these products which have been updated to use 2001 CSO ultimate mortality rates as the basis for calculating reserves, cash values, and reduced paid-up benefits.

We look forward to receiving your acknowledgment of this informational filing.

## Company and Contact

### Filing Contact Information

Nikki Lape, Product & State Filing Analyst Nikki.Lape@wslife.com  
 400 Broadway (800) 446-0795 [Phone]  
 Cincinnati, OH 45202 (513) 357-4123[FAX]

### Filing Company Information

Columbus Life Insurance Company CoCode: 99937 State of Domicile: Ohio  
 400 East Fourth Street Group Code: 836 Company Type: Life  
 Cincinnati, OH 45202 Group Name: West-Southern State ID Number:  
 Group  
 (800) 446-0795 ext. [Phone] FEIN Number: 31-1191427  
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## Filing Fees

Fee Required? No  
 Retaliatory? No  
 Fee Explanation:  
 Per Company: No

SERFF Tracking Number: WSST-125753647 State: Arkansas  
Filing Company: Columbus Life Insurance Company State Tracking Number: 39812  
Company Tracking Number: CL 83 0405 - INFO  
TOI: L041 Individual Life - Term Sub-TOI: L041.103 Renewable - Single Life -  
Fixed/Indeterminate Premium  
Product Name: Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL  
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COMPANY	AMOUNT	DATE PROCESSED	TRANSACTION #
Columbus Life Insurance Company	\$0.00	07/31/2008	
Columbus Life Insurance Company	\$50.00	08/04/2008	21756335

SERFF Tracking Number: WSSST-125753647 State: Arkansas  
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Project Name/Number: Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL/CL 83 0405

## Correspondence Summary

### Dispositions

Status	Created By	Created On	Date Submitted
Accepted For Informational Purposes	Linda Bird	08/05/2008	08/05/2008

*SERFF Tracking Number:*      *WSST-125753647*                      *State:*                      *Arkansas*  
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*Project Name/Number:*      *Info Filing - CL 83, CL 83-U/2001 CSO/CLIC/NDL/CL 83 0405*

## **Disposition**

Disposition Date: 08/05/2008

Implementation Date:

Status: Accepted For Informational Purposes

Comment:

Rate data does NOT apply to filing.



*SERFF Tracking Number:*      *WSST-125753647*                      *State:*                      *Arkansas*  
*Filing Company:*              *Columbus Life Insurance Company*              *State Tracking Number:*      *39812*  
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## **Rate Information**

Rate data does NOT apply to filing.

SERFF Tracking Number: WSST-125753647 State: Arkansas  
Filing Company: Columbus Life Insurance Company State Tracking Number: 39812  
Company Tracking Number: CL 83 0405 - INFO  
TOI: L041 Individual Life - Term Sub-TOI: L041.103 Renewable - Single Life -  
Fixed/Indeterminate Premium  
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## Supporting Document Schedules

**Review Status:**  
**Bypassed -Name:** Certification/Notice 07/30/2008  
**Bypass Reason:** Not applicable to informational filing.  
**Comments:**

**Review Status:**  
**Bypassed -Name:** Application 07/30/2008  
**Bypass Reason:** Not applicable to informational filing.  
**Comments:**

**Review Status:**  
**Satisfied -Name:** Life & Annuity - Acturial Memo 07/30/2008  
**Comments:**  
**Attachments:**  
ActMemo CL 83 0405 .pdf  
ActMemo CL 83-U 0405.pdf

**COLUMBUS LIFE INSURANCE COMPANY  
STATEMENT OF THE METHOD OF CALCULATING  
NONFORFEITURE VALUES AND VALUATION FACTORS**

**RENEWABLE AND CONVERTIBLE TERM POLICY  
POLICY FORM SERIES CL 83 0405**

**BENEFIT:**

The death benefit is level to age 96.

**PREMIUM:**

Premiums are payable to age 96. They are guaranteed for the level premium period. Beyond that, premiums are guaranteed at the yearly renewable premium. The premiums include a policy fee of \$50.

**PRODUCT:**

The policy form is for a product of level term insurance. The product has an initial level premium period followed by a period with annually increasing premiums. The level term period can be 10, 20, or 30 years as stated in the policy specification page.

During the initial level premium period, the policy allows conversion before age 71 to a permanent product offered by the company.

The product will be offered on a non-tobacco and tobacco user basis. Within each of these, the Company uses underwriting criteria that creates one (or more) preferred class(es) and a standard class.

**ASSUMPTIONS:**

(a) Interest: Cash Values --- Maximum rate allowed by Standard Nonforfeiture Law (currently 5.00%).

Reserves --- Maximum rate allowed by Standard Valuation Law (currently 4.00%).

(b) Mortality: 2001 CSO age last birthday, Male/Female/Smoker/Nonsmoker tables

(c) Death claims paid at time of death.

(d) Premium paid at the beginning of the policy year.

**METHOD:**

Cash Values

Cash values are calculated by the Nonforfeiture Net Level Premium Method described in the Standard Nonforfeiture Law for Life Insurance, as amended in 1980. The resulting cash values are rounded to the next higher whole dollar. These cash values satisfy the minimum cash value requirement in the law. According to this method no cash values are generated.

Reserves

The reserves are calculated by the Commissioners Reserve Valuation Method and based on the Valuation of Life Insurance Policies Model Regulation. The reserves satisfy the minimum reserves required by the Law.

The formulas used to calculate cash values and reserves are attached.

*David P. Farmer*

7/17/08

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David P. Farmer, F.S.A., M.A.A.A

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Date

## CASH VALUES:

### Notation

$b_t$	=	Death benefit for policy year t.
$v^j$	=	Interest discount factor.
${}_j p_x$	=	Probability of survival.
$q_x$	=	Probability of death.
$G_t$	=	Gross premium (excluding the policy fee) for policy year t+1.
$P_x^{nfl}$	=	Nonforfeiture net level premium.
AAI	=	Average amount of insurance.
E	=	Nonforfeiture first year expense allowance.
${}_t P_x^a$	=	Nonforfeiture adjusted premium for policy year t.
${}_t CV_x$	=	Cash value at end of policy year t.

### Formulas

$$AAI = \frac{\sum_{i=0}^9 b_{i+1}}{10}$$

$$P_x^{nfl} = \frac{\sum_{j=0}^{95-x} b_{j+1} v^{j+1} {}_j p_x q_{x+j}}{\sum_{j=0}^{95-x} v^j {}_j p_x}$$

$$E = \text{Minimum of } [.06 \times AAI] \text{ or } [(1.25 \times P_x^{nfl}) + (.01 \times AAI)]$$

$${}_t P_x^a = G_t \times \left( \frac{E + \sum_{j=0}^{95-x} b_{j+1} v^{j+1} {}_j p_x q_{x+j}}{\sum_{j=0}^{95-x} G_{j+1} v^j {}_j p_x} \right)$$

$${}_t CV_x = \sum_{j=0}^{95-x-t} b_{t+j+1} v^{j+1} {}_j p_{x+t} q_{x+t+j} - \sum_{j=0}^{95-x-t} {}_t P_x^a v^j {}_j p_{x+t}$$

## RESERVES:

### Base Reserves

The basic reserve is equal to the greater of the reserves calculated by the unitary method or the segmented method.

#### Notation

$b_t$	=	Death benefit for policy year t.
$k$	=	Segment length
$v^j$	=	Interest discount factor.
${}_j p_x$	=	Probability of survival.
$q_x$	=	Probability of death.
$G_t$	=	Gross premium for policy year t+1.
$PVFP_x$	=	Present value of future gross premiums at age x.
$PVFB_x$	=	Present value of future benefits at age x.
${}_{19}P_{x+1}$	=	19-pay whole life premium at age x+1.
ELRA	=	Equivalent Level Renewal Amount.
E	=	CRVM first year expense allowance.
B	=	Valuation net premium as a percentage of gross premium.
$NP_t$	=	Valuation net premium for policy year t+1.
${}_t V_x$	=	Terminal reserve for policy year t.

### Unitary Reserves

#### Formulas

$$ELRA = \frac{\sum_{j=0}^{94-x} b_{j+2} v^{j+1} {}_j p_{x+1} q_{x+1+j}}{\sum_{j=0}^{94-x} v^{j+1} {}_j p_{x+1} q_{x+1+j}}$$

$$PVFP_x = \sum_{j=0}^{95-x} G_j v^j {}_j p_x$$

$$PVFB_x = \sum_{j=0}^{95-x} b_{j+1} v^{j+1} {}_j p_x q_{x+j}$$

E = maximum of (0 and minimum of (a) and (b)).

$$(a) = \left[ G_0 \times \frac{PVFB_x - b_1 v q_x}{PVFP_x - G_0} \right] - b_1 v q_x$$

$$(b) = (ELRA \times {}_{19}P_{x+1}) - b_1 v q_x$$

$$B = \frac{E + PVFB_x}{PVFP_x}$$

$$NP_0 = PVFB_x - B (PVFP_x - G_0) \text{ because } b_1 v q_x = NP_0$$

$$NP_t = B \times G_t \text{ (for } t > 0)$$

$${}_tV_x = \sum_{j=0}^{95-x-t} b_{t+j+1} v^{j+1} {}_j p_{x+1} q_{x+t+j} - \sum_{j=0}^{95-x-t} NP_{t+j} v^j {}_j p_{x+t}$$

### Segmented Reserves

Determine Segment lengths.

Find the minimum value of  $M$  for which  $\text{gross}_m$  is greater than  $R_m$ , where  $\text{gross}_m$  and  $R_m$  are defined as follows:

$$1. \text{ gross}_m = \frac{G_{x+k+m}}{G_{x+k+m-1}}$$

where  $x$  = original issue age  
 $k$  = number of years from date of issue to the beginning of each segment.  
 $m = 1, 2, \dots$  and  $m$  is reset to 1 at the beginning of each segment.  
 $G_{x+k+m-1}$  = gross premium for policy year  $m$  of the segment.

$$2. R_m = \frac{q_{x+k+m}}{q_{x+k+m-1}}$$

where  $x$ ,  $k$ , and  $m$  as above

$q_{x+k+m-1}$  = valuation mortality rate for deficiency reserves in policy year  $k+m$ .

## Formulas

$$\sum_{j=0}^{k-2} b_{j+2} v^{j+1} {}_j p_{x+1} q_{x+1+j}$$

$$\text{ELRA} = \frac{\sum_{j=0}^{k-2} b_{j+2} v^{j+1} {}_j p_{x+1} q_{x+1+j}}{\sum_{j=0}^{k-2} v^{j+1} {}_j p_{x+1} q_{x+1+j}}$$

$$\sum_{j=0}^{k-2} v^{j+1} {}_j p_{x+1} q_{x+1+j}$$

$$\text{PVFP}_x = \sum_{j=0}^{k-1} G_j v^j {}_j p_x$$

$$\text{PVFB}_x = \sum_{j=0}^{k-1} b_{j+1} v^{j+1} {}_j p_x q_{x+j}$$

E = maximum of (0 and minimum of (a) and (b)), for the first segment only. For all later segments, E=0.

$$(a) = \left[ G_0 \times \frac{\text{PVFB}_x - b_1 v q_x}{\text{PVFP}_x - G_0} \right] - b_1 v q_x$$

$$(b) = (\text{ELRA} \times {}_1 p_{x+1}) - b_1 v q_x$$

$$B = \frac{E + \text{PVFB}_x}{\text{PVFP}_x}$$

$$\text{NP}_0 = \text{PVFB}_x - B (\text{PVFP}_x - G_0)$$

$$\text{NP}_t = B \times G_t \quad (\text{for } t > 0)$$

$${}_t V_x = \sum_{j=0}^{k-1} b_{t+j+1} v^{j+1} {}_j p_{x+1} q_{x+t+j} - \sum_{j=0}^{k-1} \text{NP}_{t+j} v^j {}_j p_{x+t}$$

## Deficiency Reserves

Using the previous formulas, recalculate the reserves with two adjustments: (1) Multiply the probability of death by the "x-factor", and (2) Substitute the gross premium whenever it is smaller than the net premium for that duration.

Deficiency reserves are equal to the excess of the recalculated reserves over the base reserves.

The x-factors shall be an array of percentages that:

- are not less than 20% in any year.
- do not decrease in any successive years.
- when the valuation interest rate is used, the actuarial present value of future death benefits for mortality rate using the x factor is greater than or equal to the actuarial present value of death benefits calculated using anticipated mortality experience without mortality improvement.
- for each of the first 5 years, the x-factor mortality is at least as great as the anticipated mortality experience.

**COLUMBUS LIFE INSURANCE COMPANY  
STATEMENT OF THE METHOD OF CALCULATING  
NONFORFEITURE VALUES AND VALUATION FACTORS**

**RENEWABLE AND CONVERTIBLE TERM POLICY  
POLICY FORM SERIES CL 83-U 0405**

- BENEFIT:** The death benefit is level to age 96.
- PREMIUM:** Premiums are payable to age 96. They are guaranteed for the level premium period. Beyond that, premiums are guaranteed at the yearly renewable premium. The premiums include a policy fee of \$50.
- PRODUCT:** The policy form is for a product of level term insurance. The product has an initial level premium period followed by a period with annually increasing premiums. The level term period can be 10, 20, or 30 years as stated in the policy specification page.
- During the initial level premium period, the policy allows conversion before age 71 to a permanent product offered by the company.
- The product will be offered on a non-tobacco and tobacco user basis.
- ASSUMPTIONS:**
- (a) Interest: Cash Values --- Maximum rate allowed by Standard Nonforfeiture Law (currently 5.00%).  
Reserves --- Maximum rate allowed by Standard Valuation Law (currently 4.00%).
  - (b) Mortality: 2001 CSO Table B (80% Male / 20% Female) age last birthday  
Smoker and Nonsmoker tables
  - (c) Death claims paid at time of death.
  - (d) Premium paid at the beginning of the policy year.
- METHOD:** Cash Values
- Cash values are calculated by the Nonforfeiture Net Level Premium Method described in the Standard Nonforfeiture Law for Life Insurance, as amended in 1980. The resulting cash values are rounded to the next higher whole dollar. These cash values satisfy the minimum cash value requirement in the law. According to this method no cash values are generated.
- Reserves
- The reserves are calculated by the Commissioners Reserve Valuation Method and based on the Valuation of Life Insurance Policies Model Regulation. The reserves satisfy the minimum reserves required by the Law.
- The formulas used to calculate cash values and reserves are attached.



7/17/08

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David P. Farmer, F.S.A., M.A.A.A

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Date

## CASH VALUES:

### Notation

$b_t$	=	Death benefit for policy year t.
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AAI	=	Average amount of insurance.
E	=	Nonforfeiture first year expense allowance.
${}_t P_x^a$	=	Nonforfeiture adjusted premium for policy year t.
${}_t CV_x$	=	Cash value at end of policy year t.

### Formulas

$$AAI = \frac{\sum_{i=0}^9 b_{i+1}}{10}$$

$$P_x^{nfl} = \frac{\sum_{j=0}^{95-x} b_{j+1} v^{j+1} {}_j p_x q_{x+j}}{\sum_{j=0}^{95-x} v^j {}_j p_x}$$

$$E = \text{Minimum of } [.06 \times AAI] \text{ or } [(1.25 \times P_x^{nfl}) + (.01 \times AAI)]$$

$${}_t P_x^a = G_t \times \left( \frac{E + \sum_{j=0}^{95-x} b_{j+1} v^{j+1} {}_j p_x q_{x+j}}{\sum_{j=0}^{95-x} G_{j+1} v^j {}_j p_x} \right)$$

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## RESERVES:

### Base Reserves

The basic reserve is equal to the greater of the reserves calculated by the unitary method or the segmented method.

### Notation

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#### Formulas

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E = maximum of (0 and minimum of (a) and (b)).

$$(a) = \left[ G_0 \times \frac{PVFB_x - b_1 v q_x}{PVFP_x - G_0} \right] - b_1 v q_x$$

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### Segmented Reserves

Determine Segment lengths.

Find the minimum value of  $M$  for which  $\text{gross}_m$  is greater than  $R_m$ , where  $\text{gross}_m$  and  $R_m$  are defined as follows:

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$$2. R_m = \frac{q_{x+k+m}}{q_{x+k+m-1}}$$

where  $x$ ,  $k$ , and  $m$  as above

$q_{x+k+m-1}$  = valuation mortality rate for deficiency reserves in policy year  $k+m$ .

## Formulas

$$\sum_{j=0}^{k-2} b_{j+2} v^{j+1} {}_j p_{x+1} q_{x+1+j}$$

$$ELRA = \frac{\sum_{j=0}^{k-2} b_{j+2} v^{j+1} {}_j p_{x+1} q_{x+1+j}}{\sum_{j=0}^{k-2} v^{j+1} {}_j p_{x+1} q_{x+1+j}}$$

$$\sum_{j=0}^{k-2} v^{j+1} {}_j p_{x+1} q_{x+1+j}$$

$$PVFP_x = \sum_{j=0}^{k-1} G_j v^j {}_j p_x$$

$$PVFB_x = \sum_{j=0}^{k-1} b_{j+1} v^{j+1} {}_j p_x q_{x+j}$$

$E$  = maximum of (0 and minimum of (a) and (b)), for the first segment only. For all later segments,  $E=0$ .

$$(a) = \left[ G_0 \times \frac{PVFB_x - b_1 v q_x}{PVFP_x - G_0} \right] - b_1 v q_x$$

$$(b) = (ELRA \times {}_{19}P_{x+1}) - b_1 v q_x$$

$$B = \frac{E + PVFB_x}{PVFP_x}$$

$$NP_0 = PVFB_x - B (PVFP_x - G_0)$$

$$NP_t = B \times G_t \quad (\text{for } t > 0)$$

$${}_t V_x = \sum_{j=0}^{k-1} b_{t+j+1} v^{j+1} {}_j p_{x+1} q_{x+t+j} - \sum_{j=0}^{k-1} NP_{t+j} v^j {}_j p_{x+t}$$

## Deficiency Reserves

Using the previous formulas, recalculate the reserves with two adjustments: (1) Multiply the probability of death by the "x-factor", and (2) Substitute the gross premium whenever it is smaller than the net premium for that duration.

Deficiency reserves are equal to the excess of the recalculated reserves over the base reserves.

The x-factors shall be an array of percentages that:

- are not less than 20% in any year.
- do not decrease in any successive years.
- when the valuation interest rate is used, the actuarial present value of future death benefits for mortality rate using the x factor is greater than or equal to the actuarial present value of death benefits calculated using anticipated mortality experience without mortality improvement.
- for each of the first 5 years, the x-factor mortality is at least as great as the anticipated mortality experience.