

**NEBRASKA HOSPITAL-MEDICAL LIABILITY ACT  
EXCESS LIABILITY FUND**



**ANNUAL REPORT  
As of December 31, 2015**

## INTRODUCTION

The Excess Liability Fund (the Fund) is one of several Enterprise Funds maintained by Nebraska to account for operations that are financed and operated in a manner similar to private business enterprises—where the costs of providing goods and services to users are financed primarily through user charges.

The Fund is administered by the Nebraska Department of Insurance, as required by the Nebraska Hospital-Medical Liability Act (adopted in 1976). Revenues are mainly from surcharges paid by Nebraska health care providers participating voluntarily in the Excess Liability Fund. A small revenue stream comes from Nebraska health care providers unable to buy primary coverage from a licensed insurer. Expenses include administrative costs and payments to cover malpractice judgments or settlements against Fund members.

For health care providers that participate in the Fund, malpractice damages are statutorily capped at \$2.25 Million per plaintiff, per occurrence. In order to participate in the Fund, providers pay a premium (“the surcharge”) and submit proof of financial responsibility in the form of an underlying professional liability policy that pays \$500,000 per occurrence, with annual aggregate limits of \$3 Million for hospitals and \$1 Million for other health care providers. For each plaintiff, the Fund provides excess coverage above the underlying \$500,000, up to the \$2.25 Million cap.

The body of the report focuses on the Fund’s 2015 assets, operating results, liabilities and operating reserve. In this report, the terms “estimated” or “expected” refer to actuarially derived averages of possible future outcomes. The future may turn out to be significantly better or worse than our best current estimates and expectations. Supporting commentary and history are in Appendices A (on the Fund’s Reserves and Risks), B (the Fund’s limits and underlying coverage requirements) and C (historical surcharge rates).

## FINANCIAL POSITION- Assets and Operations

The Fund began 2015 with assets of \$92.95 Million, and ended the year with \$92.69 Million. On a cash basis, the Fund received \$4.77 Million revenue, paid \$5.96 Million loss and loss adjustment expense, and paid \$0.25 Million administrative expenses. Underwriting cash flow (revenue minus the sum of paid losses and expenses) was minus \$1.45 Million. Investment Activity provided \$1.19 Million relief, and the Fund’s assets decreased this year by \$0.26 Million.

**Table 1. Assets and Operations of the Fund -- Cash Basis**

|               | (1)                              | (2)          | (3)                        | (4)                     | (5)                           | (6)                 | (7)                     | (8)                             |
|---------------|----------------------------------|--------------|----------------------------|-------------------------|-------------------------------|---------------------|-------------------------|---------------------------------|
| Calendar Year | Beginning Cash & Invested Assets | Cash Revenue | Paid Loss and Loss Expense | Administrative Expenses | Direct Underwriting Cash Flow | Investment Activity | Annual Change in Assets | Year End Cash & Invested Assets |
| 2006          | 60,348,010                       | 12,466,351   | 11,394,986                 | 188,193                 | 883,172                       | 2,593,113           | 3,476,285               | 63,824,295                      |
| 2007          | 63,824,295                       | 10,407,093   | 8,491,084                  | 171,892                 | 1,744,117                     | 2,581,239           | 4,325,356               | 68,149,651                      |
| 2008          | 68,149,651                       | 9,495,284    | 14,808,033                 | 165,652                 | (5,478,401)                   | (497,649)           | (5,976,050)             | 62,173,601                      |
| 2009          | 62,173,601                       | 9,298,293    | 5,857,305                  | 185,933                 | 3,255,054                     | 9,681,857           | 12,936,912              | 75,110,513                      |
| 2010          | 75,110,513                       | 8,485,764    | 5,483,546                  | 218,014                 | 2,784,204                     | 8,340,686           | 11,124,890              | 86,235,403                      |
| 2011          | 86,235,403                       | 5,313,025    | 4,355,554                  | 188,727                 | 768,744                       | 2,868,206           | 3,636,951               | 89,872,354                      |
| 2012          | 89,872,354                       | 4,769,655    | 9,100,443                  | 173,464                 | (4,504,251)                   | 5,960,884           | 1,456,632               | 91,328,986                      |
| 2013          | 91,328,986                       | 4,849,128    | 4,799,715                  | 185,739                 | (136,326)                     | 7,214               | (129,112)               | 91,199,874                      |
| 2014          | 91,199,874                       | 4,490,594    | 6,584,786                  | 180,851                 | (2,275,043)                   | 4,025,164           | 1,750,121               | 92,949,995                      |
| 2015          | 92,949,995                       | 4,768,232    | 5,961,007                  | 254,576                 | (1,447,351)                   | 1,186,121           | (261,229)               | 92,688,766                      |

On a cash basis, 2015 Investment Activity for the Fund netted \$1.19 Million. Components of this were \$538 Thousand short term interest, \$1.204 Million long term interest, minus \$75 Thousand investment expense and minus \$481 Thousand loss on sales of long term investments. As required by statute, the Fund's assets are invested by the Nebraska Investment Council, which publishes investment policies and quarterly reports on its web site at <http://www.nic.ne.gov/>.

## **FINANCIAL POSITION- Liabilities and Operating Reserve**

Table 4 at the end of this section shows the Fund's Operating Reserve, which equals the Fund's Assets minus the Fund's Liabilities. The Fund's 2015 Liabilities include: 1) Claims Known to the Fund, 2) Claims Incurred But Not Reported (IBNR) to the Fund and 3) Unearned Premiums. These Liabilities are described below.

### **Claims-Made Coverage – Claims Known to the Fund at 12/31/2015**

As of 12/31/2015, the actuarially estimated unpaid liability for claims that have been presented to the Fund under Claims-Made coverage is \$11.721 Million. Adjusters' case estimates for the same claims add up to \$17.522 Million. Our best estimate reserve for known claims as of 12/31/2015 is \$15.488 Million (see Table 2, Column (6) below).

**Table 2. Actuarial, Adjusters' and Selected Reserve Estimates (000's)  
Claims Made Coverage as of 12/31/2015 for Indemnity and Claims Expenses**

|             | (1)                                | (2)                                     | (3)                                | (4)                                     | (5)                                | (6)                               | (7)   | (8)   |
|-------------|------------------------------------|---|------------------------------------|---|------------------------------------|-----------------------------------|---|---|
|             |                                    |   |                                    | = (2) - (3)                             |                                    |                                   | = (3) + (6)                                 | = (7) / (1)   |
| Report Year | Claims Made Earned Premium (000's) | Actuarial Ultimate Claims-Made Incurred | Cum. RY Paid Indemnity and Expense | Actuarial Estimated Claims Made Reserve | Adjusters' Estimated Case Reserves | Best Estimate Claims-Made Reserve | Best Estimate Ultimate Claims-Made Incurred | Estimated Ultimate Indemnity and Claims Expense Ratio |
| 2002        | 3,969                              | 13,244                                  | 13,244                             | -                                       | -                                  | -                                 | 13,244                                      | 333.7%  |
| 2003        | 6,843                              | 6,602                                   | 6,602                              | -                                       | -                                  | -                                 | 6,602                                       | 96.5%   |
| 2004        | 9,058                              | 7,651                                   | 7,651                              | -                                       | -                                  | -                                 | 7,651                                       | 84.5%   |
| 2005        | 10,010                             | 11,812                                  | 11,812                             | -                                       | -                                  | -                                 | 11,812                                      | 118.0%  |
| 2006        | 12,108                             | 10,999                                  | 10,999                             | -                                       | -                                  | -                                 | 10,999                                      | 90.8%   |
| 2007        | 10,702                             | 7,276                                   | 7,276                              | -                                       | -                                  | -                                 | 7,276                                       | 68.0%   |
| 2008        | 9,325                              | 3,840                                   | 3,870                              | (30)                                    | -                                  | -                                 | 3,870                                       | 41.5%   |
| 2009        | 8,722                              | 4,509                                   | 4,574                              | (65)                                    | -                                  | -                                 | 4,574                                       | 52.4%   |
| 2010        | 8,769                              | 5,549                                   | 5,620                              | (71)                                    | -                                  | -                                 | 5,620                                       | 64.1%   |
| 2011        | 6,894                              | 9,018                                   | 9,568                              | (550)                                   | -                                  | -                                 | 9,568                                       | 138.8%  |
| 2012        | 4,762                              | 3,627                                   | 3,481                              | 146                                     | 550                                | 388                               | 3,869                                       | 81.3%   |
| 2013        | 4,649                              | 5,742                                   | 2,313                              | 3,429                                   | 5,922                              | 4,925                             | 7,238                                       | 155.7%  |
| 2014        | 4,414                              | 6,916                                   | 2,754                              | 4,162                                   | 5,350                              | 4,875                             | 7,629                                       | 172.8%  |
| 2015        | 4,473                              | 5,350                                   | 650                                | 4,700                                   | 5,700                              | 5,300                             | 5,950                                       | 133.0%  |
| 5 Yrs       | 25,191                             | 30,653                                  | 18,766                             | 11,887                                  | 17,522                             | 15,488                            | 34,254                                      | 136.0%  |
| 10 Yrs      | 74,816                             | 62,826                                  | 51,105                             | 11,721                                  | 17,522                             | 15,488                            | 66,593                                      | 89.0%   |

The difference between Columns (5) (adjusters' reserves) and (6) (best estimate claims-made reserves) means we expect case reserves to provide for Claims-Made claims reported to the Fund as of 12/31/2015, with \$2.03 Million to spare, partially providing for the Fund's IBNR. The supporting actuarial analysis is not published with this report, but Appendix A includes an outline of the actuarial analysis and its uncertainties.

Table 2, Column (8) shows 14 years' ratios of ultimate claims-made paid loss and claims expense to the Fund's Claims-Made earned premium, with five and ten year totals. 2002 includes about \$9.3 Million for numerous claims from a Hepatitis C outbreak that arose at a clinic in Fremont. The 10-year loss ratio is 89.0%, which means a decade's revenue exceeded the Fund's incurred claims and claims expenses. However, the five-year loss ratio is 136.0%, meaning five years' incurred claims and claims expenses exceeded revenue by 36%. This is worse than 2014, when we estimated the five years' incurred claims and claims expenses to have exceeded revenue by 26.6%. The change from 26.6% to 36% was due to increased claims costs. In recent years the Fund has become increasingly dependent on investment results. Annually, in the Fall, we review the surcharge rate for the coming calendar year.

## **Claims Incurred but Not Reported (IBNR) to the Fund**

Table 2 addressed the liability for claims already presented to the Fund through 12/31/2015. The Fund also bears liability for certain claims expected to emerge later:

- 1) Claims-Made IBNR: The Fund's Excess coverage follows participants' primary coverage, which is generally on a claims-made basis. When written by a primary insurer, claims-made coverage by definition should generate no IBNR claims. The Fund, however, will wait while the primary carrier records a claim, investigates it, prepares to defend its policyholder, and in setting case reserves identifies it as one of the few likely to exceed the Fund threshold. At 2015 we estimate this waiting time to average 3 months, and this portion of the Fund's IBNR to be \$1.71 Million.
- 2) Occurrence IBNR: A small volume of occurrence coverage is underwritten by primary insurers including the Fund's Residual Authority. The Fund expects IBNR associated with the Residual Authority's primary business, and also associated with the Fund's occurrence excess business. As of 2015, we estimate the Fund's liability for primary residual losses and adjustment expense to be \$182 Thousand (all IBNR because the case reserve is zero). We estimate the Fund's liability for excess occurrence coverage to be \$257 Thousand (all IBNR because, once again, the case reserve is zero).
- 3) Tail IBNR: "Tail" or "extended reporting endorsement" coverage is provided by the Fund, excess over primary insurers' tail coverage. Typically, the insured pays for tail coverage when switching insurers, but "free tail" coverage is issued when the insured retires, dies or becomes disabled. As of 2015, we estimate the Fund's liability for free tail coverage that's not yet issued to be \$.78 Million, and for already-issued tail coverage to be \$1.24 Million.
- 4) As stated above, we expect adjusters' case reserves to provide for all Claims-Made claims reported to the Fund as of 12/31/2015, with \$2.03 Million extra to partially provide for the Fund's IBNR.

Adding 1), 2) and 3), then subtracting 4), our estimate of the Fund's 2015 IBNR liability is \$2.14 Million. Supporting actuarial exhibits are not published with this report, but Appendix A includes discussion of the IBNR analysis and its uncertainties.

## **Unearned Premiums**

At any given time, about half of the Fund revenue in the past year will be for coverage not yet provided.

|               | (1)                 | (2)                        |               | (1)                 | (2)                        |
|---------------|---------------------|----------------------------|---------------|---------------------|----------------------------|
| Calendar Year | Direct Cash Revenue | Estimated Unearned Premium | Calendar Year | Direct Cash Revenue | Estimated Unearned Premium |
| 2006          | 12,466,351          | 6,233,175                  | 2011          | 5,313,025           | 2,656,512                  |
| 2007          | 10,407,093          | 5,203,546                  | 2012          | 4,769,655           | 2,384,828                  |
| 2008          | 9,495,284           | 4,747,642                  | 2013          | 4,849,128           | 2,424,564                  |
| 2009          | 9,298,293           | 4,649,146                  | 2014          | 4,490,594           | 2,245,297                  |
| 2010          | 8,485,764           | 4,734,385                  | 2015          | 4,768,232           | 2,384,116                  |

### The Fund's Operating Reserve

The operating reserve equals year-end assets minus estimated year-end liabilities. Maintaining a strong operating reserve is one prudent method of addressing future uncertainties such as unanticipated fluctuations in claim costs, operational expenses or investment activity.

At 2015, the Fund's operating reserve is down \$2.85 Million, from \$73.5 Million to \$70.6 Million.

|               | (1)                  | (2)                        | (3)       | (4)               | (5) = (1) - (2) - (3) - (4) | (6)           |
|---------------|----------------------|----------------------------|-----------|-------------------|-----------------------------|---------------|
| Calendar Year | Year End Fund Assets | Unpaid Reported Loss & LAE | IBNR      | Unearned Premiums | Operating Reserve           | Annual Change |
| 2004          | 58,109,769           | 23,870,768                 | 1,836,800 | 5,709,492         | 26,692,708                  | 2,561,829     |
| 2005          | 60,348,010           | 23,908,903                 | 1,890,476 | 6,399,623         | 28,149,007                  | 1,456,300     |
| 2006          | 63,824,295           | 23,730,729                 | 1,362,560 | 6,233,175         | 32,497,830                  | 4,348,822     |
| 2007          | 68,149,651           | 26,035,559                 | 1,027,209 | 5,203,546         | 35,883,336                  | 3,385,506     |
| 2008          | 62,173,601           | 15,346,197                 | 977,241   | 4,747,642         | 41,102,521                  | 5,219,185     |
| 2009          | 75,110,513           | 14,637,643                 | 978,127   | 4,649,146         | 54,845,596                  | 13,743,076    |
| 2010          | 86,235,403           | 14,772,762                 | 1,000,000 | 4,734,385         | 65,728,256                  | 10,882,660    |
| 2011          | 89,872,354           | 20,327,494                 | 2,305,362 | 2,656,512         | 64,582,985                  | -1,145,271    |
| 2012          | 91,328,986           | 19,275,299                 | 1,630,000 | 2,384,828         | 68,038,860                  | 3,455,875     |
| 2013          | 91,199,874           | 17,954,231                 | 1,350,000 | 2,424,564         | 69,471,079                  | 1,432,219     |
| 2014          | 92,949,995           | 15,495,242                 | 1,720,000 | 2,245,297         | 73,489,456                  | 4,018,378     |
| 2015          | 92,688,873           | 17,522,088                 | 2,140,000 | 2,384,116         | 70,642,668                  | -2,846,788    |

The ideal operating reserve for the Fund can be debated, but it clearly must be a significant amount. The operating reserve has been above \$35 Million since 2007, having increased \$37.6 Million from 2005-2010.

Two important forces drove the Fund's operating reserve to this height. First, the Fund's investment activity in 2009-2010 reflected the fact that bond pricing recovered after losses in 2008, and second, the Fund's loss ratios were under 70% from 2007-2010 (see Table 2). These forces no longer operate in the Fund's favor. Bonds now typically produce low yields and their value in the market is vulnerable to increasing interest rates. In 2015, investment activity contributed less than most years, at \$1.19 Million (see Table 1, Column (6)). Second, the Fund's report years 2011-2015, reflecting surcharge rates of 18% to

22%, generated estimated loss ratios averaging 136% (see Table 2). The estimated 2015 report year ultimate loss ratio is 133.0%.

**Questions?** – Contact Gordon Hay, [Gordon.Hay@nebraska.gov](mailto:Gordon.Hay@nebraska.gov), Nebraska Department of Insurance, PO Box 82089, Lincoln, NE 68501-2089.

## **Appendix A. COMMENTARY – Reserves and Risks**

This appendix covers four topics. The first topic is data organization, and how it is refined this year. The second topic is actuarial methods and risks in estimating the Fund’s liability for known claims on Claims-Made coverage. The third topic is actuarial reserving for IBNR claims. The fourth topic is additional actuarial disclosures.

The Department’s actuarial work was performed by Gordon Hay, Senior Casualty Actuarial Examiner within the Department, who is a Fellow of the Casualty Actuarial Society, Member of the American Academy of Actuaries, and Chartered Property and Casualty Underwriter.

### **Data Organization Refined at 12/31/2015**

Previously, the Fund’s entire loss history, including combined Excess and Primary Residual business, was grouped by report-year to estimate the adequacy of case reserves for known claims. This involved an assumption that occurrence coverage (including Primary Residual) always made a negligible contribution to the body of experience. The same data was then regrouped by accident-year for IBNR analysis. That IBNR analysis rested in part on two key assumptions: 1) that 16% of Fund business was due to occurrence coverage and 2) that the actual emergence of historical claims did not depend on whether the claims arose from claims-made versus occurrence coverage. While such underlying assumptions were not unreasonable, it was difficult to validate them and strictly not possible to reconcile them.

The solution was to divide the historical data into three segments: excess claims-made, excess occurrence and residual primary. This data segmentation was possible for premium data as of the current accounting date and loss data for the years 2010, 2011, 2012, 2013, 2014 and 2015. The result is a workable volume of excess claims-made data, but small volumes of excess occurrence and residual primary data. The impact on analysis and methods is as follows:

- For the excess claims-made analysis, the previous years’ fourth method called “15 year least-squares regression method” is deleted. The 2014 Annual Report described this method. Briefly, the method relied on loss evaluations at age 12 months, but the reorganized data does not include loss evaluations at age 12 months for report years 2009, 2008 and so forth.
- For the excess claims-made analysis, the third method called “5 years least-squares method” is modified and renamed “3 years least-squares method.” The credibility complement, which was previously based on a five-year moving average, is now based on a three-year moving average. See the revised description below.
- Estimated IBNR for excess occurrence and primary residual business are calculated separately now, based on their own data from the Fund’s history. See the descriptions below.
- There is an additional source of the Fund’s liability that was previously implicit in the 16% assumption. We will now estimate this explicitly. “Tail” or “Extended Reporting Endorsement” (ERE) coverage arises when a claims-made insured switches insurers, retires, dies, or becomes disabled. The reserve analysis for known claims includes provision for Tail or ERE claims that have already been reported to the Fund. Additional provisions are needed for claims expected to emerge in the future due to 1) “Free Tail” coverage commitments already made (typically issued only when the insured ultimately retires, dies or becomes disabled), 2) “Paid Tail” coverage that has already been issued and 3) “Free Tail” coverage that has already been issued. Please see the descriptions below.

## Known Claims on Claims-Made Coverage

The estimates in Column (2) of Table 2, in the body of the report above, summarize results of applying multiple actuarial methods to Fund data accumulated since July, 1976.

The \$17.522 Million case reserve for known claims is up \$2.027 Million from \$15.495 Million at 2014.

Statistical and predictive challenges are inherent in actuarial analysis of claims data, and estimates of future payouts may turn out to be insufficient. The Fund may suffer from years of bad experience, and did so in 2002. See Report Year 2002 on Table 2 above (loss ratios) or Table 5 below (Col. (8) cumulative paid loss and expense), which include about \$9.3 Million from a Hepatitis “C” outbreak that arose at a clinic in Fremont. The Fund’s most obvious viability concern is one or more many-defendant/many-plaintiff cases.

A stable environment contributes to certainty in actuarial estimates, but the medical malpractice insurance environment has been dynamic and at times very challenging actuarially. During the Fund’s history, claims-made coverage has almost replaced occurrence coverage, reducing the Fund’s exposure to IBNR. Insurance markets are not always healthy, but in recent years Nebraska medical malpractice insurance has been profitable. Ever-changing health care provider practices including risk management improvements should help contain insurance costs. Reversals on any of these fronts could cause increases in cost that erode the adequacy of an actuarial estimate.

Alternative estimates of each report year’s future ultimate payout for known claims appear on Table 5 below. Three actuarial methods shown in Columns (1) to (4) support this year’s actuarial known claims estimates, with Column (5) showing the actuary’s selection based on results from the three methods:

- 1) Traditional paid loss and ALAE development method: This assumes that over time, the future paid loss and ALAE as a report year matures will be similar to historical paid loss and ALAE as previous report years matured. This method’s estimated ultimate loss and expense (‘000’s) by report year are shown in Column (1) of Table 5.
- 2) Traditional reported loss and ALAE development method: Adjusters’ case reserves are added to cumulative paid-to-date data prior to measuring development. This assumes that adjusters’ case reserving practices and estimates have been consistent over time. Case reserving was not consistent over the Fund’s early history, but appears to have been consistent since at least 2006. This method’s estimated ultimate loss and expense (000’s) by report year are shown in Column (2) of Table 5.
- 3) 3 Years Least-squares regression method – primary premium basis: Least-squares estimation (LSE) uses a weighted average of two measures: first an estimated ultimate amount from a traditional loss-and-ALAE development method, and second, an average ultimate amount from previous report years. Both measures are taken in units of loss and ALAE per dollar of Fund participants’ primary written premium. The actuary avoided dividing losses by the Fund’s revenue because that revenue reflects the surcharge rates. The Least-Squares-Estimate of the report year’s ultimate amount is a weighted average of the two measures, with the weight on the first measure being great when there was high correlation between historical report years’ cumulative loss and ALAE at a given age and historical ultimate amounts. This method is applied to three-year histories of the Fund’s paid versus reported loss ratios to primary premium. This method’s estimated ultimate loss and expense (000’s) by report year are shown in Column (3) for paid data and Column (4) for reported data.

**Table 5. Actuarial, Adjusters' and Selected Reserve Estimates (000's)  
Claims Made Coverage Known Claims as of 12/31/2015**

|             | (1)                   | (2)                       | (3)  | (4)  | (5)  | (6)   | (7)  | (8)                                | (9)   |
|-------------|-----------------------|---------------------------|--|--|--|---|--|------------------------------------|---|
|             |                       |                           |  |  | ** See Note.                               |   | = (5) - (6)                                |                                    | *** See Note                                |
| Report Year | Paid LDF Ult. Dollars | Reported LDF Ult. Dollars | 3 Year Paid LSE Method Ult. - Primary Revenue Base | 3 Year Reported LSE Method Ult. - Primary Revenue Base | Selected Ult. Incurred Indemnity & Expense | Cumulative Report Year Paid Indemnity and Expense | Actuarially Estimated Known Claims Reserve | Adjusters' Estimated Case Reserves | Selected Best Estimate Known Claims Reserve |
| 1995        | 2,292                 | 2,292                     |  |  | 2,292                                      | 2,292   | -  | -                                  | -   |
| 1996        | 2,189                 | 2,189                     |  |  | 2,189                                      | 2,189   | -  | -                                  | -   |
| 1997        | 1,868                 | 1,868                     |  |  | 1,868                                      | 1,868   | -  | -                                  | -   |
| 1998        | 3,331                 | 3,331                     |  |  | 3,331                                      | 3,331   | -  | -                                  | -   |
| 1999        | 6,946                 | 6,946                     |  |  | 6,946                                      | 6,946   | -  | -                                  | -   |
| 2000        | 8,477                 | 8,477                     |  |  | 8,477                                      | 8,477   | -  | -                                  | -   |
| 2001        | 7,362                 | 7,362                     |  |  | 7,362                                      | 7,362   | -  | -                                  | -   |
| 2002        | 13,244                | 13,244                    | 13,244   | 13,244   | 13,244                                     | 13,244  | -  | -                                  | -   |
| 2003        | 6,602                 | 6,602                     | 6,602  | 6,602  | 6,602                                      | 6,602   | -  | -                                  | -   |
| 2004        | 7,651                 | 7,651                     | 7,651  | 7,651  | 7,651                                      | 7,651   | -  | -                                  | -   |
| 2005        | 11,812                | 11,812                    | 11,812   | 11,812   | 11,812                                     | 11,812  | -  | -                                  | -   |
| 2006        | 10,999                | 10,999                    | 10,999   | 10,999   | 10,999                                     | 10,999  | -  | -                                  | -   |
| 2007        | 7,276                 | 7,276                     | 7,276  | 7,276  | 7,276                                      | 7,276   | -  | -                                  | -   |
| 2008        | 3,900                 | 3,809                     | 3,900  | 3,809  | 3,840                                      | 3,870   | (30)                                       | -                                  | -   |
| 2009        | 4,610                 | 4,459                     | 4,610  | 4,459  | 4,509                                      | 4,574   | (65)                                       | -                                  | -   |
| 2010        | 5,836                 | 5,447                     | 5,644  | 5,557  | 5,549                                      | 5,620   | (71)                                       | -                                  | -   |
| 2011        | 10,264                | 9,045                     | 9,383  | 8,626  | 9,018                                      | 9,568   | (550)                                      | -                                  | -   |
| 2012        | 4,438                 | 3,168                     | 4,416  | 3,296  | 3,627                                      | 3,481   | 146  | 550                                | 388   |
| 2013        | 4,461                 | 6,820                     | 4,711  | 5,695  | 5,742                                      | 2,313   | 3,429                                      | 5,922                              | 4,925                                       |
| 2014        | 10,198                | 7,349                     | 7,415  | 5,985  | 6,916                                      | 2,754   | 4,162                                      | 5,350                              | 4,875                                       |
| 2015        | 10,416                | 6,055                     | 5,370  | 4,626  | 5,350                                      | 650   | 4,700                                      | 5,700                              | 5,300                                       |
| 10 Years    | 72,398                | 64,426                    | 63,724   | 60,328   | 62,826                                     | 51,105  | 11,721                                     | 17,522                             | 15,488                                      |

Note: The current case reserves total 17.52 Million compared to an estimated ultimate 15.49 Million required. I expect this estimated case reserve redundancy to fund 2.03 Million of the Fund's IBNR liabilities.

\*\* Selected = (2) for Report Years 1994-2007, and average (2), (3) and (4) for Report Years 2008-2015.

\*\*\* Selected = zero for Report Years 1994-2011 (no open claims remain) and 60% (8) vs. 40% (7) for Report Years 2012-2015.

In all cases, the actual ultimate payouts will differ from the estimates. For any given report year, or for all report years combined, it is possible that actual ultimate payouts will exceed, even significantly exceed actuarial estimates, adjusters' case estimates, or both.

Both actuarial and adjusters' estimated reserves, shown in Columns (7) and (8), are reasonable. However, actuarial methods' estimates vary most for report years 2013-2015, reflecting uncertainty when using low-volume data from the least mature report years. In earlier years, it would be prudent to give consideration to adjusters' estimates for any cases still pending. For the least mature report years (2013-2015) adjusters' case estimates have historically been a bit conservative so some credence is due to the lower actuarial estimates for recent years. At 2015, an effective balance is achieved in Column (11) of Table 5, by placing 40% weight on actuarial and 60% weight on adjusters' estimates for historical report years with any unpaid claims.

## **IBNR**

### **Excess Claims-Made Coverage: Lagged reporting to Fund**

Since claims-made coverage by definition responds to claims made within the policy period, there would logically be no IBNR. Assuming this is so at the primary carrier level, the Fund nevertheless waits for claim reports while primary carriers record, investigate, and at some point identify the few cases they present as claims to the Fund. The Fund does not know primary claims-made dates, but I roughly estimate the average delay to be 3 months. At 2015, this amounts to 25% of an average report year's loss or about \$1.71 Million of IBNR liability for claims reported to primary carriers that are not yet reported to the Fund.

### **Excess Occurrence Coverage**

In the absence of sufficient Fund data to support an independent analysis, it is reasonable to assume the Fund's losses will develop similarly to the industry, and I used development history from the six leading Medical Professional Liability insurers in Nebraska to derive estimated industry loss development factors (LDF's). I used traditional paid loss development, traditional reported loss development and Bornhuetter-Ferguson (BF) methods. In the traditional methods, I applied the industry paid LDF's to the Fund's excess occurrence paid-to-date data, and industry reported LDF's to the Fund's occurrence reported-to-date data. The BF methods also apply separately to paid and reported data. To support these methods, I used expected losses that are equal to earned premium times a conservative 60% loss ratio. I also used the industry loss emergence patterns to estimate, for each accident year, the unpaid percent of ultimate for the paid BF method and un-emerged percent of ultimate for the reported BF method. Then, in the Paid BF method, for each accident year the estimated ultimate paid loss equals paid-to-date plus the product of expected losses and the unpaid percent of ultimate. For the Reported BF method, for each accident year the estimated ultimate reported equals reported-to-date plus the product of expected losses and the un-emerged percent of ultimate. For each of these methods (traditional paid LDF, traditional reported LDF, paid BF and reported BF), the estimated IBNR equals estimated ultimate minus reported-to-date. From these multiple methods, a selection must be made. My selected IBNR liability estimate is \$0.26 Million for excess occurrence coverage.

### **Primary Residual (Occurrence) Coverage**

The methods and assumptions for Primary Residual data are identical to those for excess occurrence data, except for the BF methods I used an experience-based 27.7% assumed loss ratio to calculate expected losses. My selected IBNR liability estimate is \$0.18 Million for primary residual occurrence coverage.

### **Extended Reporting Endorsements (Tail Coverage)**

As stated above, "Tail" or "Extended Reporting Endorsement" (ERE) coverage arises when a claims-made insured switches insurers, retires, dies, or becomes disabled. The reserve analysis for known claims includes provision for ERE claims that have already been reported to the Fund. Additional provisions are needed for claims expected to emerge in the future due to 1) "Free Tail" coverage commitments already made but with coverage to be issued only when the insured retires, dies or becomes disabled, 2) "Paid Tail" coverage that has already been issued and 3) "Free Tail" coverage that has already been issued.

The reserving methods are quite specialized. Briefly, for the issued tail policies (combination of 2) and 3)), the liability is estimated by accident year and the accident years' contributions are summed. Each accident year's contribution equals expected losses on issued tail policies times a percent unreported factor. The expected losses are derived by multiplying each accident year's issued tail policy count by an appropriate

estimated pure premium, and the percent unreported factors are derived from industry loss development patterns. My estimated liability for issued tail policies is \$1.24 Million.

For the yet-to-be-issued “Free Tail” policies, the liability is estimated by accident years and the accident years’ contributions are summed. Each accident year’s contribution equals expected losses on an occurrence basis for all providers inforce at the time, multiplied by a percent unreported factor, and further multiplied by the estimated combined frequency of death, disability and retirement. The expected losses are derived by multiplying inforce exposure counts by an appropriate estimated pure premium, and the percent unreported factors are derived from industry loss development patterns. My estimated liability for yet-to-be-issued “Free Tail” policies is \$0.78 Million.

### **IBNR Summary**

The sum of components described above is \$4.17 Million. Please recall that in Tables 2 and 5, we expect adjusters’ estimates to be \$2.03 Million more than needed for our known claims’ ultimate cost. We expect this \$2.03 Million to fund some of the \$4.17 Million liability for unreported claims. The remaining \$2.14 Million is the Fund’s 2015 carried IBNR, which appears in Table 4 Column (3).

This IBNR analysis is subject to uncertainties, including the usual statistical and predictive challenges inherent in actuarial analysis of claims data, dynamic factors in medical malpractice insurance outlined above, plus one specific unknown: primary claim report dates are not captured in the Fund actuarial data, so the Fund cannot measure delays between primary insurers’ report dates and the Fund’s report dates.

### **Actuarial Disclosures**

The Fund’s Annual Report is an Actuarial Report within the definition stated in Section 2.4 of Actuarial Standard of Practice No. 41 *Actuarial Communication*. The findings herein include unpaid claim estimates, so applicable standards include Actuarial Standard of Practice No. 43 *Property/Casualty Unpaid Claim Estimates*. In addition to commentary elsewhere in this Annual Report, the following formal disclosures are required under Actuarial Standards of Practice No. 41 and 43:

I, Gordon Hay, am Sr. Casualty Actuarial Examiner for the Nebraska Department of Insurance. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The actuarial report comprises the following documents:

- This Annual Report
- The excel file “Annual Totals 2015.xlsx”
- The excel file “Residual Primary RY by AY by CY Table as of Dec 2015.xlsx”
- The excel file “CM & OCC Analyses 20160310.xlsx”
- The excel file “Tail Coverage IBNR 20160310.xlsx”

This Annual Report’s intended users are the Director of the Nebraska Department of Insurance, affected Nebraska professional trade associations, medical professionals who are eligible to participate in the Fund, interested legislators, and interested members of the Nebraska general public.

From an actuarial standpoint, the scope and intended purpose is to review the estimated liabilities of the Excess Liability Fund as of December 31, 2015. The Fund’s 2015 Annual Report depends on such actuarially estimated liabilities.

In reviewing the Fund’s estimated liabilities at year end 2015, I relied on the following information:

- Historical premium data for the Fund, from 1998 through 2015 evaluated at 3/1/2016, provided by Mark Peterson, I.S. Analyst, Nebraska Department of Insurance
- Annual claims lists with information dates December 31, 2010, 2011, 2012, 2013, 2014 and 2015 provided by Michael Davlin, claims administrator for the Fund.
- Cash basis accounting summaries for the Fund provided by Randall Willey, Accounting and Finance Manager, Nebraska Department of Insurance

## **Appendix B. History of Underlying Coverage Requirements and the Cap**

To participate in the Fund, a health care provider must submit proof of financial responsibility in the form of an underlying professional liability policy with specified coverage limits and pay a premium (“the surcharge”) to the Fund. Following widespread practice in general liability insurance, the underlying required limits are expressed in two amounts separated by a slash mark. The first applies under a provider’s policy per occurrence, and the second is an annual aggregate limit for two or more occurrences. The Nebraska Hospital-Medical Liability Act also establishes a cap on the damages any single plaintiff could recover from all qualified health care providers. The Legislature has updated the underlying policy limit requirements and the damages cap over the years:

- When the Fund was established in 1976, these limits were set at \$100,000/300,000 for physicians and nurse anesthetists and \$100,000/1,000,000 for hospitals, with a \$500,000 cap on the amount a plaintiff could recover from all qualified health care providers.
- LB 692 passed by the 1984 Legislature raised the cap to \$1,000,000 for incidents occurring after January 1, 1985.
- LB 1005 passed by the 1986 Legislature increased the amount of required underlying insurance to \$200,000/600,000 for physicians or nurse anesthetists and \$200,000/1,000,000 for hospitals effective January 1, 1987.
- LB 1006 passed by the 1992 Legislature then raised the cap to \$1,250,000 for incidents occurring after January 1, 1993.
- LB 146 passed by the 2003 Legislature raised the cap to \$1,750,000 for incidents occurring after January 1, 2004.
- LB 998 in 2004 raised the underlying coverage requirement to \$500,000/\$1,000,000 for all providers other than hospitals, and to \$500,000/\$3,000,000 for hospitals. The effective date of this change was the date of the provider’s first qualification on or after January 2, 2005.
- LB 961 in 2014 raised the cap to \$2,250,000 for any occurrence after December 31, 2014. This increases the Fund’s actuarially estimated future average claim severity by 8.1%.

## Appendix C. History of Surcharge Rates

| <u>Hospital Surcharge</u>       | <u>Time Period</u>     | <u>Surcharge for Physicians &amp; Others</u> |
|---------------------------------|------------------------|--|
| 15%                             | Original               | 50%  |
| 10%                             | 1/1/1981               | 25%  |
| 1%                              | 1-1-82 - 12-31-84      | 1%   |
| 50%                             | 1-1-85 - 12-31-87      | 50%  |
| 50%                             | 1/1/1988               | 45%  |
| 45%                             | 1/1/1989               | 45%  |
| 40%                             | 1/1/1990               | 40%  |
| 35%                             | 1/1/1991               | 35%  |
| 40%                             | 1-1-92 - 12-31-93      | 40%  |
| 30%                             | 1-1-94 - 12-31-94      | 30%  |
| 15%                             | 1-1-95 - 12-31-95      | 30%  |
| 10%                             | 1-1-96 - 12-31-96      | 10%  |
| 5%                              | 1-1-97 - 12-31-00      | 5%   |
| 20%                             | 1-1-01 - 12-31-01      | 20%  |
| 35%                             | 1-1-02 - 12-31-02      | 35%  |
| 50%                             | 1-1-03 – 12-31-05      | 50%  |
| 45%                             | 1-1-06 – 12-31-06      | 45%  |
| 40%                             | 1-1-07 – 12-31-07      | 40%  |
| 35%                             | 1-1-08 – 12-31-10      | 35%  |
| 20% (corrected from 2010 Rep't) | 1-1-11 – 12-31-2012    | 20%  |
| 18%                             | 1-1-13 – 12-31-2014    | 18%  |
| 20%                             | 1-1-15 – 12-31-2015    | 20%  |
| 22%                             | 1-1-16 – until revised | 22%  |

A 50% surcharge, the maximum allowed by the Act, was instituted by the Department when the Act was first put into effect to build a fund to pay claims. The Legislature did not provide any seed money for this purpose. In 1984, the Fund paid its first six claims. As originally written, the Act placed a statutory cap of \$5 million on the Fund's assets, and as the Fund's assets approached \$5 million in 1980, the surcharge for 1981 was reduced. A further reduction to the minimum surcharge of 1% was made for 1982 as the amount in the Fund exceeded \$5 million. LB 692 passed during the 1984 Legislature allowed the Fund's assets to anticipate future claim costs. Following that, the surcharge was raised to 50% (the maximum allowed by the Act) for all categories effective January 1, 1985. The surcharge rate was reduced in succeeding years as experience was favorable and the total assets of the Fund increased. Starting with January 1, 2001 surcharge rates increased as the Fund's losses were increasing significantly, and past loss reserves were developing unfavorably. The surcharge rate rose to the maximum 50% between 2000 and 2003.

LB 998, passed in 2004, increased the underlying coverage requirement to \$500,000 per occurrence from \$200,000 on a phased-in basis during 2005. Reductions to the surcharge rate followed, as low as 18% from 2013-2014. In 2014, LB 961 raised the damages cap per plaintiff to \$2,250,000.

**Table 6. Surcharge Rates and Voluntary Participation**

|               | (1)   | (2)                                      | (3) = (1) + (2)                              | (4)   | (5) = (3) X (4)                              | (5)   | (6) = (5) / (4)                              |
|---------------|---|--|--|---|--|---|--|
| Calendar Year | Medical Professional Direct Premiums Written (excl. Residual Primary) | Residual Primary Direct Written Premiums | Medical Professional Direct Premiums Written | Nebraska Excess Liability Fund Surcharge Rate | Fund Revenue at 100% Participation Would Be: | Actual Nebraska Excess Fund Written Premium | Actual Market Participation (Premium Volume) |
| 2001          | 24,110,258  | 293,656                                  | 24,403,914                                   | 20%   | 4,880,783                                    | 2,991,817                                   | 61.30%                                       |
| 2002          | 26,540,646  | 773,939                                  | 27,314,585                                   | 35%   | 9,560,105                                    | 6,188,339                                   | 64.73%                                       |
| 2003          | 32,008,670  | 725,145                                  | 32,733,815                                   | 50%   | 16,004,335                                   | 9,784,070                                   | 61.13%                                       |
| 2004          | 34,071,147  | 765,999                                  | 34,837,146                                   | 50%   | 17,035,574                                   | 9,564,181                                   | 56.14%                                       |
| 2005          | 36,804,243  | 1,395,503                                | 38,199,746                                   | 50%   | 18,402,122                                   | 13,033,429                                  | 70.83%                                       |
| 2006          | 37,643,926  | 1,229,964                                | 38,873,890                                   | 45%   | 16,939,767                                   | 12,517,340                                  | 73.89%                                       |
| 2007          | 36,964,825  | 705,020                                  | 37,669,845                                   | 40%   | 14,785,930                                   | 10,465,537                                  | 70.78%                                       |
| 2008          | 35,935,098  | 491,138                                  | 36,426,236                                   | 35%   | 12,577,284                                   | 8,768,729                                   | 69.72%                                       |
| 2009          | 36,400,709  | 387,184                                  | 36,787,893                                   | 35%   | 12,740,248                                   | 8,958,452                                   | 70.32%                                       |
| 2010          | 36,885,608  | 488,784                                  | 37,374,392                                   | 35%   | 12,909,963                                   | 9,123,864                                   | 70.67%                                       |
| 2011          | 36,321,600  | 297,420                                  | 36,619,020                                   | 20%   | 7,264,320                                    | 4,994,893                                   | 68.76%                                       |
| 2012          | 35,474,134  | 225,838                                  | 35,699,972                                   | 20%   | 7,094,827                                    | 5,010,312                                   | 70.62%                                       |
| 2013          | 36,601,858  | 197,939                                  | 36,799,797                                   | 18%   | 6,588,334                                    | 4,638,280                                   | 70.40%                                       |
| 2014          | 34,629,414  | 342,975                                  | 34,972,389                                   | 18%   | 6,233,295                                    | 4,345,861                                   | 69.72%                                       |
| 2015          | 33,171,281  | 276,516                                  | 33,447,797                                   | 20%   | 6,634,256                                    | 4,612,989                                   | 69.53%                                       |
|               |   |  |  |   |  |   |  |
| 5 Years       | 176,198,287   | 1,340,688                                | 177,538,975                                  | 19%   | 33,815,032                                   | 23,602,335                                  | 69.80%                                       |
| 15 Years      | 513,563,417   | 8,597,020                                | 522,160,437                                  | 33%   | 169,651,141                                  | 114,998,094                                 | 67.79%                                       |

This table has been refined since the 2014 Annual Report. In particular, we have replaced the Fund’s calendar year cash revenue with written premium (i.e. revenue grouped into calendar years based on policy effective dates). On the cash revenue basis last year, we observed that from 2010 to 2014 participation varied without known reasons between 66% and 74%. It turns out that those apparent variations were due to early and delayed surcharge remissions rather than unstable participation rates.

In comparing the Surcharge Rates in column (4) with the Actual Market Participation rates in column (6), it stands to reason that very low surcharge rates might encourage market participation whereas maximum 50% surcharge rates (2003 to 2005) might have discouraged participation. Since the 2005 implementation of LB 998, the participation rate has settled near 70%. Participation since about 2006 has apparently been not very sensitive to the Department’s selected surcharge rate, in context with the market, primary underlying limits, and excess coverage to be provided by the Fund in the coming year.

Note that in 2015, the cap on recovery per plaintiff increased to \$2.25 Million, and the surcharge rate was 20%. The surcharge rate for 2016 is 22%.