Pennsylvania Insurance Department

Report on Review of "One Beacon Insurance Group, LLC. Analysis of Unpaid Loss and LAE as of September 30, 2012, December 31, 2012 and March 31, 2013", as Prepared by Towers Watson

Summary Report

June 20, 2014

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Results…Relationship…Commitment

June 20, 2014

Stephen J. Johnson
Deputy Commissioner
Bureau of Financial Examinations
Pennsylvania Insurance Department
1345 Strawberry Square
Harrisburg, PA 17120

Dear Mr. Johnson,

Please find enclosed Risk and Regulatory Consulting's Report on our review of the Towers Watson Report titled "One Beacon Insurance Group LLC. Analysis of Unpaid Loss and LAE as of September 30, 2012, December 31, 2012 and March 31, 2013".

It was a pleasure to work with you and the Pennsylvania Insurance Department in preparing this Report.

Please do not hesitate to contact us should you have any questions or if we can be of further assistance in this matter.

Sincerely,

Risk & Regulatory Consulting, LLC

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EXECUTIVE SUMMARY

Risk & Regulatory Consulting, LLC (RRC) has been engaged by the Pennsylvania Insurance Department (the Department) to provide actuarial support in the review of a Form A filing and related materials regarding the acquisition of control of One Beacon Insurance Company and Potomac Insurance Company (Potomac), both Pennsylvania domestic insurers, by Armour Group Holdings Limited (Armour), through its subsidiary Trebuchet US Holdings, Inc. Armour also plans to acquire OneBeacon America Insurance Company and The Employers' Fire Insurance Company, both Massachusetts domestics, and these insurers would be redomesticated to Pennsylvania. Collectively these four insurers are referred to as "One Beacon" or the "Run-off Companies". The Department's primary objective is to determine whether or not the Run-off companies, at the time of and following the acquisition by Armour, contain sufficient assets and sufficient liquidity to pay out on a timely basis all amounts due to policyholders and claimants.

The scope of the overall engagement involved the following primary tasks:

1. Review and analyze the Analysis of Unpaid Loss and LAE of the Run-off Companies as of September 30, 2012 and December 31, 2012 (the Reserve Report), prepared by Towers Watson.
2. Analyze stochastic scenario modeling (the Stochastic Model Report) completed by Towers Watson on projected run-off outcomes under a large number of independent projection scenarios.

The scope of our analysis covered within this report involved reviewing for reasonableness the Analysis of Unpaid Loss and LAE of the Run-off Companies as of September 30, 2012 and December 31, 2012, prepared by Towers Watson (Towers). The data underlying this report was provided by One Beacon. This report was transmitted to One Beacon on September 9, 2013.

RRC conducted the analysis of stochastic scenario modeling completed by Towers under a separate report. This report addresses the first task, related to analysis of Unpaid Loss and LAE of the Run-off Companies.

There is considerable interplay among the tasks, particularly with respect to the reserve and modeling reports. We understand that the Stochastic Modeling Report uses the actuarial central estimates from the Towers Reserve Report and expected payment patterns in that report as the basis for modeling expected ultimate payments.

Based upon the scope of our review and our approach, we have the following observations:

1. **The Towers Loss Reserve Report presents actuarial central estimates of ultimate losses using methodologies that are generally accepted and appropriately applied.** However, the endpoints of the range of reasonable ultimate losses must be considered in the context of the purposes for which they may be used. For example, the high reasonable estimates are not meant to encompass all adverse scenarios which might befall One Beacon.

2. In response to a 2012 request from the Department, One Beacon engaged an independent third party to perform a thorough review of its Asbestos and Environmental (A & E) liabilities. The Towers Reserve Report, also covering non-A & E liabilities, is the result of that engagement. Actuarial estimates related to A & E generally contain more inherent uncertainty than other P/C lines. Towers' use of its proprietary reserving model, along with individual policyholder data and

industry benchmarks where appropriate, appears to produce a reliable central estimate. As noted below, however, there are numerous caveats in the Towers report, to which we concur, concerning the inherent uncertainty of quantifying ultimate A & E losses. These caveats are listed in Appendix 1 of this report. New claims, new causes of action, and new judicial precedents will continue to change the landscape. The use of Towers' proprietary model is supplemented with the results of an aggregate loss development approach for pollution Towers notes that One Beacon had engaged in significant pollution claims settlement activity prior to the issuance of the report, and that this activity lent credence to a lower survival ratio than industry. We agree that One Beacon's settlement activity should be taken into account to the extent it is shown to be greater than industry settlement activity, but we expect that, as Towers itself notes, new judicial precedents or other unforeseeable actions could adversely impact this book. Of the many such claims already filed and that will be filed in the future, One Beacon will prevail in some and lose others. The possibility exists that the ultimate cost of these claims will exceed the high end of Towers' range due to the purpose of the high estimate as stated above.

3. There are several key assumptions underlying the conclusions in the Reserve Report which we did not review. For example, a key assumption underlying the discounted unpaid losses is the payout pattern of the losses subject to the NICO treaty, which in turn determines the expected number of years remaining before One Beacon's reinsurance treaty with National Indemnity (NICO treaty) is exhausted. The Towers' report projects this to occur some 15 years in the future. During this period, a robust investment yield on assets is assumed in this report (a figure supplied by One Beacon based on its anticipated mix of assets). If either of these conditions (length of time assets are held or average investment yield) were to fall short, the present value of future payments would exceed the discounted liability estimates in Towers' report, and additional assets could be required to meet liabilities. We note that the asset mix in this report (15% allocated to equities) is consistent with the asset mix in the most recent version of the Stochastic Model Report.

4. Although technically part of our review of the Stochastic Model Report, it is worth noting here that the model output enables us to judge the reasonableness of the high end of the reserve range. For the NICO book (primarily A and E) and the non-NICO book, the high end of the reasonable reserve ranges were both within the highest quintile of the stochastic modeling scenarios. Please note that the high reasonable reserve estimates used to make this comparison were taken from the Reserve Report but rolled forward from March 31, 2013 to June 30, 2014. These model results give us confidence in the high end of the reasonable range from the Reserve Report.

RELIANCES AND LIMITATIONS

Purpose

This Report was prepared for the Department to assist in its review of the Form A filing submitted by Armour.

Variability of Results

Financial results for insurance companies providing property casualty insurance coverage are subject to certain assumptions about the future and to the occurrence or non-occurrence of future contingent events. In particular, a significant portion of our work involved review of analyses prepared by Towers Watson concerning ultimate payments under various scenarios for a book of A & E losses which are highly unpredictable. We share the caveats noted by Towers for this book of business.

Nature of Review

The scope of our review was limited to reviewing the two reports produced by Towers, and holding numerous meetings and conference calls with Towers and One Beacon in order to increase our understanding of their analyses and conclusions. In addition, we searched the trade press and professional literature for articles relevant to the lines of business under review and to the methods used in the Towers' reports. We did not attempt to independently reproduce their results as that was not within the scope of our review. If we had felt it necessary to do so we would have recommended to the Department that we perform an alternative analysis. Had we performed an analysis to independently verify these results, we would have used different models, because of the proprietary nature of the models used by Towers.

Reliance on the Work of Others

During this engagement, we relied on a number of reports and exhibits provided to us by Towers Watson and One Beacon. In addition, we had numerous meetings, telephone conversations, and email exchanges to understand model inputs, assumptions, methodology, and output. Although we reviewed the various data, analyses, and information provided to us for reasonableness, we have not performed an audit or data verification. We have assumed that the data, analyses and information provided to us was complete and accurate.

REVIEW ANALYSIS OF UNPAID LOSS AND LAE OF THE RUN-OFF COMPANIES, AS OF SEPTEMBER 30, 2012 AND DECEMBER 31, 2012, PREPARED BY TOWERS WATSON

We have reviewed the Analysis of Unpaid Loss and LAE of One Beacon (the "Run-off Companies"), transmitted to One Beacon on September 9, 2013, by Towers. The Towers report is based on data provided by One Beacon. We find the methodologies utilized to be generally accepted and appropriately applied for the typical uses of loss reserve estimates, such as yearend loss reporting. We have several observations concerning some assumptions made in the report, as noted below. With regard to Towers' conclusions with respect to One Beacon's outstanding liabilities, we note that the central undiscounted estimates appear to be adequately described. In addition, Towers cites numerous caveats which are necessary to rely on the discounted amounts and on the high and low ends of the reasonable range.

We note that the reserve study is based on One Beacon's own loss experience and claim payment patterns, supplemented as needed with industry data. A change in company ownership has the potential to alter the historical payment patterns underlying the loss reserve study. To the extent that this occurs, ultimate losses can be different from those based on historical data.

FINDINGS – ANALYSIS OF UNPAID LOSS AND LAE OF THE RUN-OFF COMPANIES

Towers presents its results on both a nominal basis and on a discounted basis net of reinsurance. Low, central, and high reasonable estimates are shown for each. Towers cautions that the high reasonable estimate is not meant to encompass all possible adverse events that could affect reserve development. This is an important caveat for users of this report. We agree with Towers that the proper place to consider additional possible, but unlikely, events is within the stochastic model rather than in setting the high end of the reasonable range of reserves. Nevertheless, there will always be a limit to the usefulness of modeling extreme events.

The starting point for the Stochastic Model Report and the focus of our review is the undiscounted actuarial central estimate of unpaid losses. However, the Reserve Report devotes some of its analysis to anticipated investment returns and also to the impact of diversification (ultimate aggregate losses are less than the sum of the ultimates for each reserve segment). These are key considerations in establishing discounted reserves and the end points of the reasonable range. We address these assumptions below in the discussions of the NICO and non-NICO lines.

The Towers Stochastic Model Report is divided into two main sections (NICO Lines and non-NICO lines). Outstanding liabilities for the two sections are calculated separately. "NICO Lines" refers to losses covered by One Beacon's (through Potomac) loss portfolio transfer to National Indemnity Company (NICO) and primarily consists of A & E losses. "Non-NICO Lines" refers to the rest of the runoff book, including some business segments (primarily Workers Compensation involuntary pools) which Towers did not review. For the non-NICO lines, One Beacon has an adverse development cover with General Reinsurance Corp. (Gen Re) covering year-end 2000 reserves (net of NICO cover) up to a nominal limit of $570 million with a maximum economic loss of $28 million. There is a substantial amount of reinsurance with other carriers as well. In general, Towers' reserve analysis is initially performed gross of the NICO and Gen Re treaties, but net of all other reinsurance. Cessions to the NICO and Gen Re treaties are considered as a final step.

A conference call was held to discuss RRC's questions and observations concerning the report. Where relevant, we are referring to that call when we note "we discussed" or "we questioned" in the discussion below.

Review of Unpaid Loss and LAE for NICO Lines of Business

We note that Towers has performed ground-up, exposure-based reviews of One Beacon's A & E liabilities and has used its proprietary models for asbestos and for pollution, along with industry benchmarks, to estimate One Beacon's ultimate losses for those liabilities covered by the NICO treaty. We agree with Towers that their models, along with level of detail of the data inputs, are based on appropriate assumptions. According to Towers, the considerations reflected in the exposure-based study for asbestos include: the long latency period between asbestos exposure and emergence of disease, changes in the litigation environment, and the potential for involvement of multiple policy periods on an individual claim. In

previous work for the Department, RRC examined the Potomac Insurance Company (Potomac, the company that assumed OneBeacon's A & E reserves) as of December 31, 2011. RRC noted in that report: "The Group did not fulfill its commitment to engage an independent actuarial firm to review Potomac's (A & E) reserves every other year." Subsequently, Towers Watson was engaged to meet that commitment to the Department. Given the inherent uncertainty of these liabilities, we are encouraged to see Towers Watson's innovative methodology.

Towers Watson does not employ any other methodology for its asbestos-related work to provide a check on its results. Towers notes:

> "We believe a ground up, exposure-based analysis is greatly superior to traditional actuarial techniques and also to aggregate projection methods. We have therefore not used any of the traditional aggregate projection methods in our review and rely solely on the exposure-based analysis to develop our estimates".

As noted, there is a considerable degree of uncertainty in evaluating asbestos liabilities. Actuaries generally use several reserving methods (as Towers did for the non-NICO lines). We note that Towers did use other methods to supplement its exposure-based model in its pollution review (aggregate loss development, along with a market share benchmark) and could have done so with Asbestos as well, at least on an informational basis. We asked Towers if it was their general practice to rely only on their exposure-based approach for asbestos, and they replied that it was. We observe that it is a reasonable exercise of professional judgment to rely on one method when it is perceived to be clearly superior to other alternatives. We did not attempt to independently reproduce their results as that was not within the scope of our review. If we had felt it necessary to do so we would have recommended to the Department that we perform an alternative analysis. Had we performed an analysis to independently verify these results, we would have used different models, because of the proprietary nature of the models used by Towers. The approach taken appears appropriate.

An important part of the estimate of ultimate losses for asbestos is the provision for incurred but not reported reserves (IBNR). For the purpose of this report, we define IBNR to include known case, miscellaneous and pure components, each defined within the context of the discussion below. Towers has considered in the known case IBNR provision a substantial number of possible causes of future development for known cases, including (as noted in the Towers Reserve Report): settlement negotiations that develop unexpectedly, coverage disputes that result in late clarification of exposure, changes in defendant's litigation profiles, discovery of additional exposed limits, and reopening of closed accounts. To the known case IBNR is added "miscellaneous" IBNR, to "correct for systematic biases in the individual account estimates." Towers notes, perceptively, that:

> "The bias in our account estimates arises because the underlying sources for the development are inherently asymmetric and are more likely to result in upward development than downward development. We observe that unexpected outcomes in coverage litigation or settlement negotiations are more often negative than positive. We also observe that more defendants see unexpected increases than decreases in their litigation profile, as more accounts are promoted to a

> higher tier than demoted to a lower tier. Finally, discovery of new coverage limits and claim re-openings are inherently unidirectional and can only move the estimated liabilities upward"[1].

Towers also estimates an additional loading for pure IBNR accounts, or accounts projected to first report claims after December 31, 2012. On balance, we think Towers did a satisfactory job in considering the inherent uncertainty of asbestos liability.

Evaluation of pollution liabilities involves a similar approach. Traditional actuarial methods often fall short of making reliable predictions of ultimate losses and should be considered along with a method specifically tailored to the unique nature of pollution liabilities. Towers does show the results of other methods, which, although less sophisticated than its own model, provide useful comparisons for that model's results. Towers uses two basic approaches: (1) their proprietary "waste site liability simulation model" (exposure-based method) for sites already known to One Beacon plus an IBNR load based on Towers' industry benchmarks and (2) an aggregate loss development approach. As a reasonableness check, a market share approach is used. Towers displays the results of all three methods for low, central, and high estimates (scenarios). It is worth noting that the exposure-based method was the lowest estimate of ultimate losses of the three. If the other methods turn out to perform better than expected, ultimate losses could be greater than projected by the proprietary method. Towers' selected ultimate loss and ALAE were somewhat higher than the exposure-based results, but below the results of the other two approaches. Towers notes:

> "The differences among the results of the various approaches are typical and indicate the significant uncertainly surrounding the projection of ultimate pollution losses."

As Towers acknowledges, pollution losses, like asbestos, are associated with increased inherent uncertainty. The Reserve Report states:

> "There is substantial disagreement on essentially all of the important variables affecting the level of liabilities that will ultimately be paid by the insurance industry, including how current cost estimates will compare to the actual final cost of remediation, cost relativities between different classes of sites, third-party and litigation costs, and coverage decision trends. The application of reinsurance covers (e.g. basis of aggregation, if any) to these claims frequently remains subject to the arbitration and application of the wording of individual reinsurance contracts."

Towers notes that the future emergence of unknown mass torts is possible, but that such emergence is unlikely enough that the high reasonable reserve estimate need not contemplate unknown mass torts. For pollution, several potential areas for further litigation are mentioned. Towers notes that it has chosen IBNR loads for both pollution and Asbestos which contemplate both known case IBNR and pure IBNR for claims reported after December 31, 2013. For Asbestos, Towers selected a "miscellaneous" IBNR load. For pollution, the IBNR loads reflect report lag, new policies, and new pollution sites. Although there is significant uncertainty in setting these IBNR amounts, we agree that the amounts appear to contemplate considerable future development.

[1] Page 42 of Reserve Report

We note that Potomac is under Department supervision and is required by the Department to have an independent actuarial review its liabilities every two years, in accordance with this language:

> "[Potomac] shall retain an independent actuary to review and analyze the reserves of Potomac, including but not limited to the adequacy of the reserves for reinsurance uncollectibles, at least once every two years. Except that such an actuarial review and analysis will not be necessary for any year in which the Department has retained the services of an independent actuary in conducting a financial examination of Potomac."

In accordance with the Pennsylvania Order, and based on the timing of the most recent review, it is likely that another independent actuarial review may be required in the near future.

Our review focused on the nominal reserves presented in the Towers Watson report, because it is our understanding that these will be used as inputs for the stochastic model. The reserve report does present discounted liabilities as well. We comment more extensively on investment assumptions in our review of that model; however, one brief observation is appropriate here. There is considerable coverage remaining under the NICO treaty ($198.3 million of incurred limit remaining on the NICO cover in excess of One Beacon's carried reserves as of September 30, 2012). Towers Watson estimates that, under its central estimate assumptions, the NICO treaty will not be exhausted for approximately 15 years. This period of time clearly presents a significant investment opportunity before claims will be paid, but we note that the report assumes that an average rate of investment return of 5.92% will be achieved throughout the period. When we asked One Beacon and Towers about the choice of this expected investment return, Towers noted that One Beacon had informed them that this is the rate expected to be achieved on their invested assets.

The report notes that there is interplay between the expected rate of inflation and the rate of return expected on assets. We note, however, that adverse development for Workers' Compensation (the largest of the non-NICO lines) can be due to reasons other than inflation, and investing in equities is a risky strategy to employ to hedge adverse development. Today's inflation rate is very low by historical standards, and medical inflation, as Towers notes, is subject to potentially large errors of estimation.

The investment return, which seems high in today's low interest rate environment, may well seem more reasonable in a higher inflationary environment. We also note that for the high reasonable estimate, Towers used a higher average return, assuming that this yield would be earned in an environment of even higher inflation and higher claim payouts.

Review of Unpaid Loss and LAE for Non-NICO Lines of Business

We note that Towers has reviewed some 25 segments of One Beacon's non-NICO reserves. Selected ultimate losses are based on the results of five projection methods: the reported and paid development methods, the reported and paid Bornhuetter-Ferguson methods, and the IBNR to case method. For most segments, low and high reasonable estimates were projected by varying the payment patterns and reporting patterns. For Workers' Compensation, Towers only varied the tail factors, which it considered to be consistent with varying payment and reporting patterns.

Because many of these segments have been in runoff for a number of years, the development patterns, on the whole, are relatively stable (with the exception of Umbrella and a few others). We find that the selected ultimates are appropriately chosen.

The non-NICO lines are covered by an adverse development treaty with General Reinsurance Corp. (Gen Re).

For the purpose of establishing a range around the central estimate of ultimate losses, Towers has calculated diversification factors to be applied to the low and high estimates (in effect narrowing the reasonable range). This is an appropriate statistical method, but we caution that there is a substantial degree of judgment in the selection of the factors. Diversification is calculated separately for the NICO and non-NICO lines. Towers notes that One Beacon asked it not to display the aggregate liabilities of both NICO and non-NICO lines. When we asked why that was the case, One Beacon noted that at the time the reserve study was being completed, it appeared that calculating the needed diversification factor for the aggregate would be subject to a great deal of uncertainty and judgment. We note that the results of the stochastic model appear to confirm Towers' diversification analysis and in fact indicate that diversification has more of an impact (both within the NICO and non-NICO books individually, and for the liabilities as a whole) than Towers had originally estimated.

Workers' Compensation makes up the largest share of the non-NICO business. There are six different Workers' Compensation segments. We inquired whether these segments could have been combined for analytical purposes. Towers responded that the pre-1997 business appeared to have a different pattern of development. A key part of Towers Watson's analysis of Workers' Compensation ultimate losses involves estimation of tail factors. For the low and high estimate development patterns, only the tail factor was adjusted. We discussed the derivation of the tail factor with Towers Watson. Because these are lifetime cases, they are subject to assumptions with respect to settlement, mortality, and changing practices in claims handling. Towers notes the following caveats:

> "The inherent uncertainty associated with loss and LAE liability estimates for the non-NICO lines is magnified in this case due to the following circumstances:
>
> - Considerable uncertainty exists with respect to the appropriate tail factor for several of the workers compensation classes;
> - Future development on this portfolio will be heavily dependent on future medical inflation, which is very difficult to predict;
> - Changes in the claim department organization and in case reserving for certain lines, particularly workers compensation, means that reported development methods and case based methods are less reliable for forecasting purposes than typical;
> - The timing of the reinsurance recoveries produces some distortions in the net triangle data
> - We understand that over the past 1 to 2 years, greater emphasis has been placed on settling claims. This may distort the paid development patterns. Although we have attempted to address this in our analysis, this adds further uncertainty to the projections; and
> - Complete payment history for the 1997 and prior segments is not available".

Other business segments of note include Auto, where a claim review and an individual case review of unlimited PIP cases was conducted. Similar to Workers' Compensation, these are long-tail liabilities and subject to assumptions involving medical inflation, mortality, and increased utilization. An average future medical trend of up to 6% was used for PIP and Workers' Compensation. We found the analysis to be thorough and to produce a reasonable result.

Review of Non-Modeled Lines of Business

Towers has performed a detailed analysis of One Beacon's liabilities, where the data is available to do so. However, one portion of the One Beacon portfolio consists of segments that were not reviewed in this report. Most of these are quite small, and even in aggregate should not significantly affect the reasonableness of Towers' conclusions. However, One Beacon currently carries a liability of over $70 million for involuntary pools, primarily Workers' Compensation. For the most part, these pools are opined on by a qualified actuary, and Towers is deferring to that opinion. We have not reviewed these pools either. The fact that One Beacon does not control the claim handling process, a normal scenario for an involuntary pool, would seem to add some uncertainty to the ultimate cost of these claims.

Review of Reinsurance

Towers' nominal unpaid loss estimates are net of ceded reinsurance. There is a projection of uncollectable reinsurance, including detail on reinsurance from insolvent carriers. One Beacon has provided a list of all reinsurance treaties taken into account in their analysis.

Roll Forward Calculation

We note that the Towers Watson study was conducted on data through September 30, 2012 (non-NICO) and December 31, 2012 (NICO). These results were rolled forward to March 31, 2013. Ultimate losses as of March 31, 2013 are adjusted based on the change in paid and reported losses for modeled lines from September 30, 2012 to March 31, 2013. We have reviewed the roll forward methodology and found it to be appropriately done. We expect that a thorough study of A & E liabilities will continue to be conducted every two years, as has been the case for Potomac.

CONCLUSION

We find that the Towers Loss Reserve Report presents actuarial central estimates of ultimate losses using methodologies that are generally accepted and appropriately applied. However, we caution that considerable uncertainty exists with respect to the ultimate cost of these liabilities. A & E liabilities are particularly hard to quantify due to great uncertainty. We note that the companion Stochastic Model Report enables us to judge the reasonableness of the high ends of the reserve ranges, and these were within the highest quintile, with estimates rolled forward to June 30, 2014. These model results give us confidence in the high end of the reasonable range from the reserve report.

Summary of Towers Watson Estimates of Outstanding Losses as of September 30, 2012 and December 31, 2012 (includes diversification adjustment) net of NICO and Gen Re treaties and of all other reinsurance (000 omitted)

	Low	Central	High
NICO (12/31/12)			
Undiscounted	$ 0	$ 21,739	$ 240,049
Discounted	0	3,362	58,209
Non-NICO (9/30/12)			
Undiscounted	368,237	473,155	598,425
Discounted	326,854	364,824	385,146

Summary of Towers Watson Estimates of Outstanding Losses as of March 31, 2013 (includes diversification adjustment)

	Low	Central	High
NICO			
Undiscounted	$ 0	$ 21,740	$ 240,050
Discounted	0	3,533	59,070
Non-NICO			
Undiscounted	$ 278,916	$ 382,575	$ 492,339
Discounted	237,615	276,142	289,410