

Via Facsimile and U.S. Mail
Mail Stop 6010

August 4, 2006

Mr. John D. Vollaro
Chief Financial Officer and Treasurer
Arch Capital Group Ltd.
Wessex House
45 Reid Street
Hamilton HM 12
Bermuda

Re: Form 10-K for the Fiscal Year Ended December 31, 2005
Filed March 13, 2006
File No. 001-16209

Dear Mr. Vollaro:

We have limited our review of your filing to those issues we have addressed in our comments. In our comments, we ask you to provide us with information so we may better understand your disclosure. Please be as detailed as necessary in your explanation. After reviewing this information, we may raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

Form 10-K for the Fiscal Year Ended December 31, 2005

Management's Discussion and Analysis of Financial Condition and Results of Operations

Critical Accounting Policies, Estimates and Recent Accounting Pronouncements

Reserves for Losses and Loss Adjustment Expenses, page 63

1. We believe your disclosure in the Critical Accounting Estimates section of MD&A regarding the estimation of the reserve for loss and loss adjustment expenses could be improved to better explain the judgments and uncertainties surrounding this estimate and the potential impact on your financial statements. We believe in order to meet

the principal objectives of MD&A this disclosure should enable the investor to understand 1) management's method for establishing the estimate and 2) whether and if so to what extent and why management has adjusted their assumptions used to determine the estimate from the assumptions used in the immediately preceding period. Please keep these points in mind in providing us your responses to comments listed below. Please provide us, in disclosure-type format, the following information for each material line of business and also consider providing any additional information, in disclosure-type format, to achieve this objective.

- a. Please describe the methods you used to determine your reserve for loss and loss adjustment expense. Please ensure this description:
 1. Explains how the methods you use for your short-tail business differ from the methods you use for your long-tail business. We note that you primarily used the expected loss method to establish your loss reserves. Please also describe the actuarial techniques you use in addition to this method, specifically addressing the lines of business and circumstances for which the methods are used. Describe how you use the reserves calculated from the expected loss method and other actuarial techniques to arrive at the ultimate loss reserve estimate.
 2. Identifies the unique development characteristics of each material short-tail and long-tail line of business
 3. Describes the method you use to calculate the IBNR reserve for each material line of business. For example, we understand that some companies may calculate this reserve by estimating the ultimate unpaid liability first and then reducing that amount by cumulative paid claims and by case reserves, but there may be other methods as well.
 4. Describes the extent of your procedures for determining the reserve for loss and loss adjustment expense on both an annual and interim reporting basis.
- b. If management has added an incremental provision to the reserve for loss and loss adjustment expense determined by your actuaries, quantify the incremental provision, describe the method used by management to determine it and the extent to which that method differs from period to period, and identify and analyze the specific underlying reasons that explain why management believes it is necessary.
- c. Please identify and describe those key assumptions that materially affect the estimate of the reserve for loss and loss adjustment expenses. On page F-15, it appears that claims severity and frequency are key factors yet these are not discussed in your Critical Accounting Estimates disclosure. In addition please disclose the following:
 1. For each of your key assumptions quantify and explain what caused them to change from the assumptions used in the immediately preceding period. Please note that this discussion

should supplement, rather than duplicate the disclosure provided responsive to Industry Guide 6.

2. Explicitly identify and discuss key assumptions as of December 31, 2005 that are premised on future emergence that are inconsistent with historical loss reserve development patterns and explain why these assumptions are now appropriate given the inconsistency identified.
2. Please discuss and quantify in disclosure-type format the effect that your ceded reinsurance activities had on financial position, results of operations, and cash flows for the periods presented. Also discuss changes you have made to your past reinsurance strategies in developing your current strategies and the expected effect that those changes may have on your financial position, results of operations and cash flows. Describe any limitations on your ability to cede future losses on a basis consistent with historical results and their expected effect on financial position, operating results and cash flows. Such limitations could relate to changes in reinsurance market conditions, a restructuring of your reinsurance treaties or the absence of remaining limits for specific accident years under existing treaties.
3. We note that you set your claim reserves for assumed reinsurance operations based upon information received from cedants. As this appears to pose a potential for a higher degree of uncertainty in establishing the estimate of assumed loss reserves as compared to direct loss reserves, please provide us, in disclosure-type format, an expanded discussion related to this uncertainty. Please include the following:
 - a. The risks associated with making this estimate and the effects and expected effects this uncertainty has or will have on management's judgments and assumptions in establishing the assumed loss reserve.
 - b. The nature and extent of the information received from cedants related to policies, claims, unearned premiums and loss reserves;
 - c. The time lag from when claims are reported to the cedant to when the cedant reports them to the company and whether, how, and to what extent this time lag effects the loss reserve estimate;
 - d. How management uses the information received from the cedants in its determination of its assumed loss reserves, whether reinsurance intermediaries are used to transact and service reinsurance policies, and how that impacts the loss reserving methodology;
 - e. The amount of any backlog related to the processing of assumed reinsurance information, whether the backlog has been reserved for in the financial statements and, if applicable, when the backlog will be resolved;
 - f. What process management performs to determine the accuracy and completeness of the information received from the cedants;
 - g. How management resolves disputes with cedants, how often disputes occur, and the magnitude of any current, material disputes; and

- h. Whether management uses historical loss information to validate its existing reserves and/or as a means of noticing unusual trends in the information received from the cedants.

Please respond to these comments within 10 business days or tell us when you will provide us with a response. Please furnish a letter that keys your response to our comment and provide the requested information. Detailed letters greatly facilitate our review. Please file your letter on EDGAR under the form type label CORRESP.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes all information required under the Securities Exchange Act of 1934 and that they have provided all information investors require for an informed investment decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

In connection with responding to our comments, please provide, in your letter, a statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in our review of your filing or in response to our comments on your filing.

You may contact Dana Hartz, Staff Accountant, at (202) 551-3648 or Mary Mast, Review Accountant, at (202) 551-3613 if you have questions regarding the comments. Please contact me at (202) 551-3679 with any other questions.

Sincerely,

Jim B. Rosenberg
Senior Assistant Chief
Accountant