

Response to Navigant Consulting, Inc. Commentary

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Prepared by Bates White, LLC

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Table of contents

I. Summary	3
II. Size of the exposed population.....	5
III. Application of epidemiological models.....	7
IV. Responses to Navigant’s assertions.....	10
IV.1. Navigant assertion—Overestimate of asbestos exposures	11
IV.2. Navigant assertion—Composition of FAIR Act claims should not differ form historical experience	11
IV.3. Navigant assertion—Literature does not support expansion of occupational exposure.	12
IV.4. Navigant commentary—Bates White assumptions are inconsistent with the bill language	13
IV.5. Navigant assertion—Bates White estimates differ from established methodology	13
IV.6. Navigant assertion—Inconsistent mesothelioma estimates	14
IV.7. Navigant assertion—Lung cancer filings are improbable	14
IV.8. Navigant assertion—Bates White estimates almost all men with lung cancer were exposed to asbestos	15
IV.9. Navigant assertion—No basis for mapping lung cancer claimants into FAIR Act categories	15
IV.10. Navigant assertion—Reversing assumptions leads to large decreases in the base case	16

Table of exhibits

Exhibit 1: Manville TDP payments compared to FAIR Act payments..... 12

I. Summary

- (1) A recent Bates White analysis demonstrates that the Fairness in Asbestos Injury Resolution (FAIR) Act is not financially viable under a variety of scenarios.¹ Navigant Consulting, Inc. (“Navigant”) reviewed the Bates White analysis. The majority of Navigant’s commentary rests on two incorrect premises.
- (2) First, Navigant incorrectly asserts that Bates White overestimates the size of the exposed population. The basis of Navigant’s assertion is that the Bates White estimate of the exposed population exceeds the Nicholson *et. al.* (1982) estimate of the exposed population. This observation is correct, but the exposed population is now known to be larger than the population outlined by Nicholson in his study, not the other way around. This is largely attributable to the knowledge that has been developed in the quarter century since Nicholson performed the research resulting in his 1982 publication. In particular, the last 25 years of epidemiological and industrial hygiene research has shown that there were workers in occupations not included Nicholson’s 1982 study that were exposed to asbestos. This fact is consistent with the Manville Trust’s claims experience where about half of recent Manville claimants come from non-Nicholson occupations.
- (3) Second, Navigant incorrectly asserts that Bates White misapplies epidemiological models to forecast cancer incidence in the population of asbestos exposed workers. The basis of Navigant’s assertion is that the Bates White incidence model forecasts more cancers than the Nicholson model. This observation is correct but the difference is not due to our misapplication of epidemiological models. Rather is largely attributable to the fact that the two models answer different questions. Bates White estimates the total incidence of FAIR Act compensable lung and other cancers. In contrast, the Nicholson model estimates the number of cancers that would not have happened but for individuals’ exposure to asbestos (“excess cancer”). The FAIR Act would create an entitlement for all lung and other cancers among occupationally eligible individuals with pleural conditions, not just excess cancers within this population.
- (4) This report first addresses these two broad topics, and then provides a point-by-point response to each Navigant comment.

¹ This analysis is available at http://www.bateswhite.com/news/pdf/2005_Bates_FAIR_Act_Report.pdf.

II. Size of the exposed population

- (5) Bates White identifies occupations and industries in which a substantial number of workers were exposed to asbestos based on the current state of the epidemiological and industrial hygiene literature. Specifically, we start with the list of occupations contained in Cocco and Dosemeci (1999). As part of their research, the authors identify industries and occupations that had asbestos exposure. Where appropriate, we adjust the Cocco and Dosemeci categorizations based upon the epidemiological literature.²
- (6) To quantify the number of workers in each industry and occupational group, we rely on Census data.³ The Census provides occupational information for one or five percent of the U.S. population. Due to the large sample size, these data generate the best estimates currently available of the number of workers in each occupation and industry.
- (7) Our approach produces a larger estimate of the asbestos-exposed population than Nicholson (1982). This difference is largely attributable to the knowledge that has been developed in the quarter century since Nicholson performed the research resulting in his 1982 publication. In particular, the last 25 years of epidemiological and industrial hygiene research has shown that a number of workers in occupations outside of the Nicholson groups were exposed to asbestos. This finding is consistent with the Manville Trust claims experience where about half of Manville claimants come from non-Nicholson occupations.
- (8) To quantify the number of workers, Nicholson relies primarily on Bureau of Labor Statistics (BLS) data to assess the size of the exposed population. BLS is an employer-based survey, which is well known by labor economists to undercount the workforce. For example, Census data record 5.1 million construction workers in 1960. This count is 25 percent greater than the 4.1 million construction workers reported by BLS.

² Other JEM-based articles include:

Burdorf, Ales and Paul Swuste, "An Expert System for the Evaluation of Historical Asbestos Exposure as Diagnostic Criterion in Asbestos-related Diseases," *Annals of Occupational Hygiene*, Vol 43, No. 1, pp. 57-66. 1999.

Kauppinen, K, J. Toikkanen, and E. Pukkala, "From Cross-Tabulations to Multipurpose Exposure Information systems: A New Job Exposure Matrix," *American Journal of Industrial Medicine*, Vol 33, pp. 409-417, 1998.

Rice, C and Ellen F. Heineman, "An Asbestos Job Exposure Matrix to Characterize Fiber Type, Length, and Relative Exposure Intensity," *Applied Occupational and Environmental Hygiene*, Vol 18, pp. 506-512, 2003.

³ Ruggles, Steven and Matthew Sobek *et al. Integrated Public Use Microdata Series: Version 3.0* Minneapolis: Historical Census Projects, University of Minnesota, 2003. <http://www.ipums.org> (June 3, 2004)

III. Application of epidemiological models

- (9) Navigant notes that the Bates White incidence model forecasts more cancers than the Nicholson model. This observation is correct and largely attributable to the fact that the two models answer different questions. Bates White estimates the total incidence of FAIR Act compensable lung and other cancers. In contrast, the Nicholson model estimates the number of cancers that would not have happened but for individuals' exposure to asbestos ("excess cancer"). The FAIR Act would create an entitlement for all lung and other cancers among occupationally eligible individuals with pleural conditions, not just excess cancers within this population.
- (10) Nicholson's model predicts that for each excess other cancer there are more than 50 cases of other cancer caused by factors besides asbestos exposure. Similarly, for each excess lung cancer there are more than 20 cases of lung cancer caused by factors besides asbestos exposure (primarily smoking). However, it is rarely the case that medical science can establish on case-by-case basis which patient's cancer was caused by asbestos. Under the FAIR Act, any of these cancer patients with pleural conditions would qualify to claim benefits
- (11) The Bates White incidence model forecasts the total incidence of FAIR Act compensable lung and other cancer in three steps. First, we apply the overall incidence rates for these cancers (conditional on age, smoking status, and gender) from the epidemiological literature to the asbestos-exposed population. Second, we subtract the number of excess cancers to avoid double counting. Third, we include only those cancer patients with pleural changes (10 percent to 25 percent). Finally, we add excess cancers back in to obtain the total number of cancers that qualify under the FAIR Act.
- (12) Second, the Bates White incidence incorporates 25 years of new research and data into the original Nicholson model. In the early 1990s, Dr. Bates and his colleagues at KPMG worked on incidence models of asbestos-related malignant diseases in consultation with Dr. Nicholson. Over the years, Dr. Bates and his Bates White team have performed ongoing research to improve this model. The improvements include:
- Incorporating Census data
 - Updating excess lung and other cancer risk equations
 - Using occupation-specific age distributions
 - Calibrating to disease incidence recorded by the Surveillance, Epidemiology, and End Result (SEER) data
 - Correcting for distortions in the number of excess cancers related to modeling job tenure

- Updating mortality data
- (13) The Bates White incidence model better fits the SEER data. In particular, observed mortality rates for the past 25 years were lower than what was forecast in 1982. Therefore, a larger fraction of workers exposed to asbestos are alive today than Nicholson forecast.

IV. Responses to Navigant's assertions

- (14) Below, we address each of Navigant's assertions concerning our analysis. These responses are not intended to be self-contained. In particular, the explanation for the size of the exposed population and the application of epidemiological models discussed in the previous section are not repeated here.

IV.1. Navigant assertion—Overestimate of asbestos exposures

- (15) Navigant asserts that the Bates White study places 68 percent of the 1950 United States workforce (including white collar workers) in asbestos exposed occupations. This is incorrect. Bates White estimates 32 percent of workers were employed in asbestos-exposed occupations in 1950, not 68 percent. Our analysis begins with the 1950 cross-section of the U.S. labor force. Within that cross-section, 40 million workers were exposed to asbestos at some point in their working lives, but not necessarily in 1950. Navigant interprets this number as the count of workers exposed to asbestos in 1950. In fact, we estimate that 18.7 million U.S. workers were exposed to asbestos in 1950. This number corresponds to only 32 percent of the working population. An additional 21.3 million workers were exposed either prior to 1950 (such as during World War II) or after 1950.

IV.2. Navigant assertion—Composition of FAIR Act claims should not differ from historical tort experience

- (16) Navigant points out that the lung and other cancer claimants account for 75 percent of the FAIR Act eligible claimants in the Bates White study, while they constitute 8.2 percent of all Manville Trust claimants. This observation is correct and attributable to the weaker medical criteria under the FAIR Act than is present in the tort system.
- (17) Further, Navigant's comparison omits the fact that under the FAIR Act, a claimant would receive substantially greater compensation than the Manville Trust awards. As Exhibit 1 illustrates, under the 2002 Manville TDP, the payment for a lung cancer claimant is \$4,750.⁴

⁴ A Scheduled Value of \$95,000 times a five percent payment percentage equals \$4,750.

In contrast, the FAIR Act would award \$300,000 to \$1,100,000. This increase in award raises the economic incentive to file a claim among the qualified population.

Exhibit 1: Manville TDP payments compared to FAIR Act payments

Disease	Manville 1995 TDP	Manville 2002 TDP	FAIR Act
Lung cancer	\$9,000	\$4,750	\$300,000 to \$1,100,000
Other cancer	\$4,000	\$2,250	\$200,000

IV.3. Navigant assertion—Literature does not support expansion of occupational exposure

- (18) Navigant asserts that the Cocco and Dosemeci article does not contain a sufficient empirical basis for expanding exposure beyond Nicholson’s estimates, particularly because the article did not find higher peritoneal cancer risks for women exposed to asbestos. Cocco and Dosemeci’s finding relating to the risk of peritoneal cancer among women is irrelevant for our study. As part of their research, the authors identify industries and occupations that had asbestos exposure. We adopt their categorization of industries and occupations. Where appropriate, we adjust these categorizations based upon recent epidemiological literature.⁵
- (19) Further, Navigant asserts that Bates White does not distinguish between the exposed population and the eligible population. We use the “exposed population” and “eligible population” interchangeably. Both refer to the population of individuals who satisfy the FAIR Act exposure criteria.

⁵ Other JEM-based articles include:

Burdorf, Ales and Paul Swuste, “An Expert System for the Evaluation of Historical Asbestos Exposure as Diagnostic Criterion in Asbestos-related Diseases,” *Annals of Occupational Hygiene*, Vol 43, No. 1, pp. 57-66. 1999.

Kauppinen, K, J. Toikkanen, and E. Pukkala, “From Cross-Tabulations to Multipurpose Exposure Information systems: A New Job Exposure Matrix,” *American Journal of Industrial Medicine*, Vol 33, pp. 409-417, 1998.

Rice, C and Ellen F. Heineman, “An Asbestos Job Exposure Matrix to Characterize Fiber Type, Length, and Relative Exposure Intensity,” *Applied Occupational and Environmental Hygiene*, Vol 18, pp. 506-512, 2003.

IV.4. Navigant commentary—Bates White assumptions are inconsistent with the bill language

- (20) Navigant asserts that Bates White assumes high transaction costs in the tort system deter most lung and other cancer claims. Bates White does not assume that high transaction costs alone deter most lung and other cancer claims. Specifically, we assume that the economic benefit for most lung and other cancer cases is less than the cost of pursuing those cases. The more relevant factor is the expected benefit.
- (21) The FAIR Act requires claimants to show that asbestos is a “significant contributing factor” to their disease. Many researchers, including Nicholson, have shown that asbestos exposure increases the incidence of lung cancer. We assume that doctors will interpret this finding to mean that asbestos is a significant contributing factor for lung cancer. The medical literature has not reached a consensus regarding other cancers.
- (22) The FAIR Act criteria of a significant contributing factor are weaker than are required in the tort environment. There, a jury must conclude that, more likely than not, asbestos caused the disease. An asbestotic lung cancer claimant who never smoked satisfies the tort criteria. In contrast, a non-asbestotic lung cancer claimant who has been a smoker is unlikely to meet these criteria. As such, the latter claimant is rarely observed in the tort environment.
- (23) Further, Navigant asserts that Bates White fails to account for variation in exposure levels across time. This assertion is incorrect. Bates White explicitly accounts for the variation in exposure levels across time.

IV.5. Navigant assertion—Bates White estimates differ from established methodology

- (24) Navigant asserts that the Bates White estimate of eligible lung and other cancers far exceeds numbers obtained through established methodology. This assertion stems from a fundamental misunderstanding concerning the incidence of disease caused by asbestos exposure and the incidence of disease that occurs within a population that has asbestos exposure. As discussed in Section III, the Nicholson incidence model counts the number of excess lung and other cancers. The FAIR Act would create an entitlement for all lung and

other cancers among occupationally eligible individuals with pleural conditions, not just excess cancers within this population.

IV.6. Navigant assertion—Inconsistent mesothelioma estimates

- (25) Navigant asserts that the Nicholson estimates have been comparable to observed incidence and that the Bates White mesothelioma estimates should not be less than the Nicholson estimates. Both assertions are false.
- (26) The Nicholson model overestimates the observed number of mesothelioma cases. Updated incidence models estimate total mesothelioma incidence after 2001 at 53,000, which is 14,000 lower than Nicholson's estimate of 67,000. Note that these estimates include mesothelioma incidence attributable to environmental or other non-occupational factors. Removing these factors reduces our total estimate of mesothelioma cases after 2001 to 49,000.
- (27) Additionally, total asbestos exposure determines the incidence of mesothelioma, not how that exposure is spread across individuals. Higher turnover in the workforce results in more workers performing the asbestos-related tasks, but does not increase the total asbestos exposure in the population. For example, two individuals with 10 year of exposure produce the same mesothelioma incidence as one individual with 20 years of exposure. Therefore, the total number of mesothelioma cancers remains unchanged. In contrast, the total number of lung and other cancers increases with the size of the exposed population, since factors in addition to asbestos cause these diseases.

IV.7. Navigant assertion—Lung cancer filings are improbable

- (28) Navigant asserts that the Bates White projections of lung cancers in the exposed population are inconsistent with published lung cancer statistics, primarily because asbestos-related lung cancer is overwhelmingly a disease impacting males. We are aware that asbestos-related lung cancer is a disease that primarily affects males. In fact, our projections result in 87 percent of future eligible lung cancer incidence occurring to males.

IV.8. Navigant assertion—Bates White estimates almost all men with lung cancer were exposed to asbestos

- (29) Navigant asserts that Bates White finds 73 percent to 92 percent of all men with lung cancers were occupationally exposed to asbestos. This assertion is incorrect. Bates White finds that only 59 percent of all men with lung cancer in 2000 were occupationally exposed to asbestos. Given the older age profile of the occupationally qualified population and the size of this population, it makes sense that asbestos-exposed workers account for a large fraction of total lung cancer incidence.
- (30) When estimating historical and future incidence of lung cancers, we assume that lung cancer incidence rates (given an individual's gender, smoking history, and age) remain constant at their 2000 levels. This assumption may lead to an underestimate of future lung cancer incidence. Over the past 20 years, lung cancer rates have increased. The reasons for this increase are not fully understood. If the trend were to continue, then we are underestimating future lung cancer incidence. Similarly, keeping cancer incidence rates constant at their 2000 levels overestimates historical lung cancer. As we do not use the historical lung cancer rate in our analysis of the FAIR Act, this does not change our results.

IV.9. Navigant assertion—No basis for mapping lung cancer claimants into FAIR Act categories

- (31) Navigant asserts that the Bates White mapping of lung cancer claimants into FAIR Act categories has no basis. This assertion is false.
- (32) For historical claimants, we principally rely on Manville data, but supplement that data with the 2000 National Health Interview Survey (NHIS) conducted by the Center for Disease Control (CDC). Therefore, it is not possible to replicate our estimates solely with Manville data. We use the NHIS data to determine the smoking history of lung cancer claimants. The FAIR Act divides claimants into three smoking categories: current, former, and never. The FAIR Act defines a former smoker as an individual who quit at least 12 years prior to diagnosis. Manville data record whether or not a claimant smoked in the last 15 years. Consequently, we recalibrate the Manville smoking statistics using the 2000 NHIS smoking survey.

- (33) For future claimants, we explicitly track smoking behavior, lung cancer incidence, and the presence of pleural changes. We assume the number of excess lung cancers equals the number of claimants eligible for Level VIII. We assign the remaining lung cancer incidence among the occupationally exposed population (who also have pleural changes) to Level VII. Within each Level, we determine smoking status based upon the simulated distribution of smoking histories.

IV.10. Navigant assertion—Reversing assumptions leads to large decreases in the base case

- (34) Navigant asserts that reducing the alive exposed population to the Nicholson estimate of 10.5 million in 2000 lowers the base case by \$210 billion. This assertion is based on the false premise that the Nicholson estimate of the exposed population is correct. As has been addressed above, the Nicholson estimate undercounts the exposed population. Further, Navigant erred in its calculation of the impact of this change. The report indicates that increasing the exposed population from 27 million to 34 million increases the entitlement by \$36 billion to \$90 billion. The lower number corresponds to 10 percent pleural changes and the higher number corresponds to 25 percent pleural changes. Navigant computes the cost of an additional one million exposed individuals based on the \$90 billion (25 percent pleural changes) scenario. Then, applies this value to the base scenario, which assumes 10 percent pleural changes. Navigant's exercise is meaningful only if the prevalence of pleural changes is held constant in both sets of calculations. Correcting Navigant's error, reducing the alive exposed population to the Nicholson estimate of 10.5 million in 2000 lowers the base case by \$85 billion, not by \$215 billion.
- (35) Navigant's asserts that reducing the prevalence of pleural changes to four percent in the exposed population (the level observed in the general population) lowers the base case to \$94 billion. Again, this assertion is based on a false premise. Navigant claims that Bates White endorses a four percent prevalence of pleural changes in the general, but still exposed population. This claim is both false and a mischaracterization of our report. The Medical Literature appendix in our report states that studies of occupationally exposed workers find between nine percent and 51 percent of sampled individuals have pleural conditions. In contrast, studies of the general population find a prevalence of pleural conditions ranging from four percent to six percent. More importantly, as stated in our report, these studies

consider samples in which some, but not all, of the individuals were exposed to asbestos. In other words, the sample is closest to the general U.S. population, which is a mixture of individuals with and without asbestos exposure. Applying the findings of these studies to an occupationally exposed population is an invalid exercise.

- (36) Finally, Navigant correctly calculates that if 60 percent of eligible future claimants file against the National Trust, then the payments made by the Trust would be \$192 billion under the conservative scenario. As our report states, for the Trust Fund to be viable only 41 percent of future eligible claimants can file under the conservative scenario, far below the claiming rate of many asbestos torts. Further, depending on the realization of the additional risk factors discussed in our report, the threshold-claiming rate could fall as low as 14 percent.