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ISSUE BRIEF

AMERICAN ACADEMY *of* ACTUARIES

Current Issues in Asbestos Litigation

American Academy of Actuaries Mass Torts Subcommittee

Asbestos litigation is complex and full of uncertainties. The number of historical claims (and how much they cost) is difficult to determine, making predictions of future asbestos costs even more challenging.¹

The purpose of this document is to provide insight into some of the major issues that should be considered when evaluating possible legislative responses.² This document

- *provides a brief overview of asbestos litigation;³*
- *summarizes some of the available data measuring the litigation; and*
- *highlights some of the recent changes in the litigation environment.*

Brief Overview

Asbestos was widely used in thousands of products for decades and is still used in some products in the United States today. At least 27.5 million people had significant occupational exposure in industries traditionally associated with asbestos (e.g., shipbuilding, construction) and tens of millions more were exposed in other industries. Asbestos

1. Many actuaries are currently involved in the estimation of such costs.
2. The American Academy of Actuaries is the public policy organization for actuaries practicing in all specialties within the United States. A major purpose of the Academy is to act as the public information organization for the profession. The Academy is non-partisan and assists the public policy process through the presentation of clear and objective actuarial analysis. The Academy regularly prepares testimony for Congress, provides information to federal elected officials, comments on proposed federal regulations, and works closely with state officials on issues related to insurance. The Academy also supports the development and enforcement of actuarial practice standards, qualification requirements, and the Code of Professional Conduct for all actuaries practicing in the United States.
3. A more comprehensive discussion can be found in the American Academy of Actuaries public policy monograph: Overview of Asbestos Issues and Trends, published December 2001.

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exposure is conclusively linked to several medical conditions, ranging from pleural changes with no signs of impairment to fatal malignant diseases, including lung cancer and asbestos' signature disease, mesothelioma. Average latency periods vary by disease, ranging from 10 to 50 years. Although occupational exposure to asbestos was significantly reduced following the establishment of Occupational Safety and Health Administration (OSHA) requirements in the early 1970s, asbestos diseases are expected to manifest at least through 2050 in the United States, and longer in several other countries where high exposure levels continued longer.

An individual victim's disease is typically attributed to exposure to multiple asbestos products over decades of use, and it is virtually impossible to isolate a specific exposure causing the disease. As a result, a single claimant typically files suit against 60 or more defendants. The majority of claims are filed in state rather than federal courts and the mix of claims by state has varied dramatically over time.

In spite of the magnitude of asbestos litigation, there is not a single registry for asbestos disease incidence and claim filing information. This lack of information makes analyses of future claim emergence and costs more challenging and can lead to divergent views.

While the Centers for Disease Control and Prevention (CDC) now publishes statistics regarding asbestosis and mesothelioma deaths,⁴ this information is incomplete before 1999 and it does not consider non-fatal conditions.

Thousands of companies have been named as defendants in asbestos litigation. Some were major producers, while others had more peripheral involvement.⁵ Publicly traded companies are required by the U.S. Securities and Exchange Commission (SEC) to disclose information regarding asbestos litigation only to the extent that it is material; for many, however, the potential liabilities are fully insured or insignificant relative to their net worth. As a result, the level of detail included in the corporate defendant disclosures varies markedly and is complicated by a labyrinth of changes in corporate names and legal structures (including mergers, acquisitions, and divestitures). Therefore, many use data from the Manville Personal Injury Trust to gauge industry claim filing activity, since it includes information regarding the number of claims by disease.

The most uniform source of asbestos information is provided by U.S. property / casualty insurers regarding their aggregate calendar-year asbestos payments and the liability estimates they establish to pay for pending and future claims (i.e., reserves). However, insurers' statutory annual statement disclosures do not provide details, such as the number of claims, diseases, or defendants underlying the payments and reserves. Similar disclosures are not required for non-U.S. insurers or for non-U.S. affiliates of U.S. insurers.

One of the most comprehensive studies of asbestos litigation is the RAND Corporation's May 2005 report.⁶ RAND concludes that at least 730,000 asbestos claimants filed lawsuits through 2002 against more than 8,400 defendant companies. Further, the RAND report states that the number of claims filed annually increased sharply beginning in the mid-to-late 1990s. Claimants with nonmalignant injuries account for most of the growth, and some evidence suggests that most nonmalignant claimants are currently unimpaired. The volume of claims has heightened concerns regarding the depletion of funds available to pay future claimants and the burdens placed on the courts. (The Congressional Budget Office estimates that there are 322,000 pending claims.) According to the RAND study, at least half of the \$70 billion of asbestos claims paid by defendants and their insurers were related to nonmalignant conditions. The RAND study does not include information beyond 2002 and there have been notable changes since that time, including:

4. Attachment 1 shows mesothelioma, asbestosis, and silicosis deaths by year.

5. Peripheral defendants include companies that manufactured products where asbestos was encapsulated, distributed products containing asbestos, or owned premises containing asbestos.

6. RAND Institute for Civil Justice, "Asbestos Litigation" by Stephen Carroll, Deborah Hensler, Jennifer Gross, Elizabeth M. Sloss, Matthias Schonlau, Allan Abrahamse, J. Scott Ashwood. 2005. <http://www.rand.org/publications/>

- more efforts to direct scarce resources to the sickest claimants, including changes to the Manville Trust Distribution Process (TDP) and state reforms imposing medical criteria to bring a claim;
- a decrease in claim filings during 2004 - 2005 for less severe medical conditions;
- additional bankruptcies, but at a lower annual rate as pre-packaged bankruptcies are challenged and other potential solutions are pursued;
- continued federal and state reform efforts; and
- heightened scrutiny of potentially fraudulent claims.

Available Data Sources

Manville Information

The Johns-Manville Corporation, the largest manufacturer of asbestos-containing products and the largest supplier of asbestos in the U.S. filed for bankruptcy in August 1982 as a result of asbestos litigation. The Manville Personal Injury Trust (Manville Trust), which was formed to distribute limited assets among current and future asbestos claimants who were exposed to Manville products, was approved and began paying claims in 1988.

Historically, information regarding claims filed against the Manville Trust as well as conclusions from expert reports projecting future claims against the Manville Trust have been publicly available. Manville Trust claims experience through Dec. 31, 2005 is summarized in Attachment 2.

At first glance, the Manville Trust data shows some curious aberrations. The total number of claims spikes to more than 100,000 in 2003, followed by significantly lower levels in 2004 - 2005. When interpreting the Manville Trust data it is important to recognize changes in the TDP and other factors that have influenced claim filing rates over time. Background information regarding the Manville Trust summarized in Attachment 2, coupled with a more refined review of the claim filing data, provides context for these abrupt changes.

When reviewing the Manville Trust claim filing data by disease type, it is apparent that mesothelioma claims have increased steadily since 1998. The spike in 2003 is attributable to the change in the TDP effective during that year. However, even setting 2003 aside, there is clearly an increasing trend. Many believe that the increase in mesothelioma claims reflects greater medical awareness and diagnoses of mesothelioma cases as well as an increase in claimants' propensity to sue, rather than an increase in disease incidence. Even adjusting for the TDP-related spike in 2003, it does not appear that the number of mesothelioma claims has begun to decline, as they eventually will due to reductions in significant occupational exposure in the 1970s. Similarly, asbestos-related lung and other cancer claims generally increased from 1998 to 2003.

Historical nonmalignant claim levels have shown more variation over time. Medical criteria and occupational exposure thresholds as well as identification of claimants who currently show no signs of impairment have influenced claim filing activity.

The Manville Trust obtains projections of its future claims experience periodically; the most recent projections indicate that 1.2 million to 2.1 million claims will ultimately be filed.

Projections of Future Asbestos Claims Against the Manville Trust – U.S. Exposure (thousands)			
<i>Disease Type</i>	<i>Filed Through 2004</i>	<i>Projected 2005+</i>	<i>Estimated Ultimate Claims</i>
Malignant	79	107 (range: 86-128) ⁷	186 (range: 165-207)
<u>Nonmalignant</u>	<u>568</u>	<u>743 (range: 487-1,276)⁸</u>	<u>1,311 (range: 1,055-1,844)</u>
TOTAL	647 ⁹	850 (range: 573-1,404)	1,497 (range: 1,220-2,051)

Future mesothelioma claims are considered estimable based on epidemiological factors such as the population exposed, the timing of the exposure, and disease latency. Future asbestos-related cancer claims are more difficult to predict since there are several other causes of cancer, notably tobacco use.

Asbestosis is dose-dependent, so serious asbestosis claims might decline in the future, reflecting lower occupational exposure. While some nonmalignant claims are life threatening (e.g., severe asbestosis), most claimants with nonmalignant conditions do not exhibit signs of impairment. Epidemiological considerations are less useful for predicting future nonmalignant claims than malignant claims. Nonmalignant claims are generally influenced more by factors affecting litigiousness, such as recruitment efforts through media advertising and mass screenings.

The claims experience of the Manville Trust is substantial, and most asbestos claimants have sought compensation from the Manville Trust. However, the timing of claims against the Manville Trust often differs from that of claims filed against solvent defendants in federal or state courts; Manville claims are often delayed until the court cases are resolved in order to avoid an offset to court awards. In the future, the medical and exposure criteria specified in Manville’s 2002 TDP might cause more of a divergence between Manville Trust and court-based claim experience, since other forums might not have similar criteria for payment.¹⁰

Like the Johns-Manville Corporation, many of the other major asbestos producers have declared bankruptcy, affecting their ability to pay the full value of claims made against them and delaying payments until bankruptcy plans are approved and operational. Although the Scheduled Value of nonmalignant claims was reduced under the Manville Trust’s 2002 TDP, and the recent filing of nonmalignant claims dropped dramatically, the incentive to pursue these claims might be restored once several of the more recent bankruptcy plans are confirmed. As long as payments to unimpaired claimants are not eliminated, even if they are small,¹¹ it might be worthwhile for claimants to pursue these small payments across multiple trusts, especially if the trusts establish efficient on-line mechanisms to process the claims.

Corporate Defendant Bankruptcies

There are varying lists of companies that have sought bankruptcy protection as a result of asbestos litigation. The Academy list currently contains 78 companies and is shown in Attachment 3. While the rate of bankruptcies increased significantly during 2000-2002, it has slowed in the past few years, as “pre-packaged” bankruptcies¹² have

7. The malignant count reduces to 79,000 (range: 66,000 – 107,000) excluding Manville Level 6 lung cancer claims without underlying asbestos disease that would not be compensated under S.852.

8. http://www.mantrust.org/FILINGS/Q2_05/000457B4.pdf and “Asbestos: The Times They are A-Changin’” a Tillinghast and Claims Resolution Management Corporation Seminar, 9/29/2005. Given changes in the legal process, including state reforms and the recent heightened scrutiny of mass screening practices, care must be taken when using or comparing various projections of future nonmalignant claims.

9. Excludes 14,000 denied/unknown claims.

10. For example, only a few state courts have enacted medical criteria or require occupational exposure.

11. The Manville Trust currently pays \$600 to those claimants with the lowest levels of impairment and those not meeting significant occupational exposure requirements. Level 1 cash discount payments are \$600 and the Level 2 Scheduled Value of \$12,000 multiplied by the current 5% pro rata share also equals \$600.

12. Several “pre-packaged” bankruptcies have been filed in the past few years, with an objective of reducing the time until the plan is confirmed by negotiating the plan with claimants before filing and scheduling a combined hearing for disclosure and confirmation of the plan within a few months of filing.

been challenged and several companies have awaited the outcome of federal and state legislative efforts.

As numerous corporate defendants have entered bankruptcy, there has been upward pressure on claim settlements demanded from remaining solvent defendants.

Experience of U.S. Insurers/Reinsurers

Based on data filed with state insurance regulators by U.S. property / casualty insurers, the insurance industry has paid approximately \$31.8 billion in asbestos loss and expense through Dec. 31, 2004, net of re-insurance.¹³ Additionally, these U.S. insurers and reinsurers held \$22.7 billion in net reserves to pay pending and anticipated future claims over the next several decades.

Asbestos liabilities recognized by the U.S. property / casualty insurance industry are summarized in the table below. The difficulties associated with estimating these liabilities are demonstrated by the significant increases in incurred¹⁴ loss and expense over the past few years.

U.S. Property / Casualty Asbestos Loss and Expense Net of Reinsurance (\$billions)					
<i>Year</i>	<i>Incremental Net Paid</i>	<i>Cumulative Net Paid</i>	<i>Year-End Net Paid</i>	<i>Cumulative Incurred</i>	<i>Change in Incurred</i>
2000	1.39	22.20	10.53	32.73	1.41
2001	1.54	23.74	13.02	36.76	4.03
2002	2.08	25.82	18.96	44.78	8.01
2003	2.66	28.48	22.33	50.81	6.04
2004	3.29	31.77	22.68	54.45	3.64

Expenses

The asbestos litigation system has been an inefficient mechanism for providing compensation to victims of asbestos disease. According to the RAND study, defense transaction costs consumed approximately 30 percent of total payments through 2002. RAND estimates that remaining payments (i.e., gross compensation to claimants) are split, 29 percent to cover plaintiff attorney fees and other legal costs, and only 41 percent of total spending reached the claimants as net compensation.

Defense costs could increase in the future, at least temporarily, since:

- more defendants are now involved in the litigation and defense is no longer routinely handled on a joint basis;
- many defendants have abandoned settlement strategies;
- newer defendants are incurring significant discovery costs as they work to understand their exposure and potential defenses; and
- coverage disputes between defendants and their insurers, as well as between insurers and their reinsurers, might increase (e.g., proof of coverage for newer defendants, operations claims, etc.).

13. The National Association of Insurance Commissioners (NAIC) requires that U.S. property casualty insurers disclose information regarding asbestos and environmental payments and liability reserves in Note 33 of their statutory annual statements. Composite industry data as of Dec. 31, 2005 will not become available until mid-2006.

14. Annual incurred amounts equal the change in paid loss and expense plus the change in estimated liability reserves for future payments on pending and unreported claims.

Recent and Proposed Changes in the Litigation Environment

Proposed Federal Legislation – S.852

The U.S. Senate has considered various solutions to the ongoing asbestos litigation crisis over the past few years. Of several bills introduced, the trust fund approach has been pursued most vigorously. The Senate Judiciary Committee approved the latest version of the Fairness in Asbestos Injury Resolution, or FAIR Act (S.852) on May 26, 2005; and as of press time, was hopeful of bringing the legislation before the full Senate in early 2006. This legislation would establish a no-fault trust from which claimants meeting asbestos exposure and medical criteria would be compensated for their injuries. The proposed trust would be funded with \$140 billion of contributions from corporate defendants, insurers, and existing bankruptcy trusts. If the funding ultimately proves to be insufficient, claims could return to the courts.

The proposed legislation has been subject to considerable open debate, revolving around several questions, such as:

- How many claims of various disease types will be filed? Mesothelioma and severe asbestosis cases are considered predictable based on epidemiological factors; however, there are differing projections of future claims for cancers and nonmalignant pleural conditions.
- Will the medical criteria appropriately identify victims of asbestos disease?
- Are the proposed awards appropriate?
- Is the proposed funding adequate?
- Will the allocation of funding from the various classes of contributors be viable and fair?
- Will the fund be operated efficiently?
- Will the new statute withstand constitutional challenges?
- Will corporate defendants and their insurers / reinsurers support legislation that does not provide finality?¹⁵

State Reforms

As potential federal reform has been debated, several states have implemented judicial and legislative reforms affecting the tort claim process. These reforms focus the courts' resources on the claims of the most seriously injured.

Judicial reforms such as inactive dockets (which preserve the right to sue for those who do not currently meet the specific medical criteria)¹⁶ have been established in several jurisdictions, including:

- Illinois: Chicago, St. Clair County, Madison County, and Cook County
- Maryland: Baltimore
- Massachusetts: Boston

15. Insurers / reinsurers have expressed concern that they could be required to make significant front-ended contributions to the trust (comparable to their total current liability reserves), yet additional payments could be required from them if it is determined that the fund is insufficient to pay its obligations (including potential borrowing costs) and claims revert to the court system.

16. Some individuals on inactive dockets might eventually develop qualifying medical conditions. Future incidence of mesothelioma is included within future disease projections based on the timing of exposure and disease latency.

- Minnesota
- New York: New York City and Syracuse
- Virginia: Portsmouth
- Washington: Seattle and King County.

Additionally, Florida, Georgia, Ohio, and Texas have passed legislation that requires asbestos claimants to satisfy medical criteria in order to bring a claim.

As a result of these reforms, asbestos litigation in these states will likely change to a more individualized process involving single-plaintiff claims by the most severely injured. The more individualized process is likely to increase expenses for claimants and defendants as well as the average compensation for malignant claims. Additionally, the limited number of mesothelioma claims might cause more plaintiff attorney focus on other cancer claims.

Some jurisdictions, notably Mississippi, Texas, and West Virginia, have revised laws relating to case consolidation and forum, tightening restrictions regarding the connection between a plaintiff and the venue of the case. Other state reforms relate to innocent sellers, successor liability, and caps on non-economic and punitive damages.

The majority of pending asbestos litigation is in states that have now enacted some type of legislative or judicial reform, but a key question is whether new forums will emerge. Historically, the distribution of claims by state has changed dramatically, as shown in the graph in Attachment 4.

Scrutiny of Potentially Fraudulent Claims

Plaintiff attorneys in asbestos and silica lawsuits have tended to combine large numbers of claimants in a single lawsuit, making it difficult and costly for defendants to assess the validity of each claimant's case. Many of these claimants have been diagnosed through mass screening programs. Recent events have cast considerable doubt on these diagnoses.

A 2004 Johns Hopkins Medical Institutions study¹⁷ published in *Academic Radiology* called the diagnoses of some physicians into question. In the study, independent radiologists reviewed approximately 500 chest x-rays that had previously been entered into evidence in asbestos lawsuits and examined by physicians retained by plaintiff attorneys. The independent radiologists found abnormalities in 4.5 percent of the films, as compared to the original readings where 96 percent of the films supposedly showed evidence of asbestos disease.

Physician depositions in the Silica Multi-District Litigation (MDL) hearings¹⁸ held by U.S. District Judge Janis Graham Jack in Corpus Christi, Texas in February 2005, cast considerable doubt on the silicosis diagnoses for 10,000 claimants. Although it is highly unlikely for someone to have both silicosis and asbestosis, it was found that some doctors had diagnosed individual claimants with asbestosis at one time and then silicosis at a later date. More than 50 percent of the silica claimants had previously filed asbestos claims with the Manville Trust. Judge Jack concluded, "These diagnoses were driven by neither health nor justice: they were manufactured for money." While Judge Jack's decision is not binding on the state judges to whom the silica

17. "Comparison of 'B' Readers' Interpretations of Chest Radiographs for Asbestos Related Changes" by Joseph N. Gitlin, DPH, Leroy L. Cook, BA, Otha W. Linton, MSJ, Elizabeth Garrett-Mayer, PhD *Acad Radiol* 2004; 11:843-856

18. In re Silica Products Liability Litigation, MDL-1553, Southern District of Texas

19. http://www.celotrust.com/news_details.asp?nid=22; Eagle-Picher Personal Injury Settlement Trust memo to Claimants' Counsel, 10/19/2005; and Claims Resolution Management Corporation memo Re: Suspension of Acceptance of Medical Reports, 9/12/2005.

20. Jonathan D. Glater, Civil Suits Over Silica in Texas Become a Criminal Matter in New York, *NY Times*, 5/18/2005, B1.

MDL cases are returned, many believe that her decision is likely to lead to higher medical evidentiary standards for silica as well as asbestos claims. For example, the Celotex, Eagle Picher, and Manville bankruptcy trusts recently suspended acceptance of claims from certain medical screening companies and/or physicians, citing questions regarding their reliability.¹⁹ Additionally, a federal grand jury in New York is investigating the situation.²⁰

The impact of this heightened scrutiny in conjunction with stricter medical criteria adopted by some states in the form of inactive dockets or legislation might lead to fewer mass settlements of pending claim inventories and will likely affect whether and how mass screening activities are conducted in the future.

Conclusions

There have been numerous cries for reform to the asbestos litigation process, including pleas from the U.S. Supreme Court for a federal legislative solution,²¹ and some state reforms have occurred. However, development and evaluation of the proposed federal reform is challenging. Those involved in drafting potential legislation in the form of a trust fund have found that there are many opposing views to balance; there is “no easy fix” and they need to be aware of potential unintended consequences.²²

Analytic evaluations of the economic costs associated with various proposals are not certain, because sources of information regarding asbestos claims are limited and the time horizon for the projections spans 50 years. Apparent trends in the available data are often affected simultaneously by several factors in this complex litigation environment and might or might not be predictive of the future. Simple extrapolation of historical and recent experience without knowledge and appropriate interpretation of the underlying influential factors could result in misleading conclusions. The available information requires informed and objective analysis. Such analysis will not lead to certainty regarding predictions of future events; however, meaningful information can be provided regarding potential outcomes to inform the public policy debate.

21. In *Amchem Products, Inc. et al. v. Windsor et al.*, 96 Sup. Ct. 270 (1997) the court observed that “the argument is sensibly made that a nationwide administrative claims processing regime would provide the most secure, fair, and efficient means of compensating victims of asbestos exposure. Congress, however, has not adopted such a solution.” and in *Ortiz v. Fibreboard*, 97 Sup. Ct. 1704 (1999) the Supreme Court said asbestos litigation is an “elephantine mass . . . that calls for national legislation.”

22. For example, the Workers’ Compensation Subcommittee of the American Academy of Actuaries provided a letter to Senators Specter and Leahy dated September 8, 2005 regarding the potential for significant increases in workers’ compensation claims relating to asbestos disease. Section 135 of S.852 would extinguish subrogation rights, likely resulting in more asbestos workers compensation claims due to new financial incentives (i.e., the potential for double recovery).

Summary of Attachments

Attachment 1 - CDC Deaths - Mesothelioma, Asbestosis, and Silicosis

Attachment 2 - Claims Filed Against the Manville Personal Injury Trust

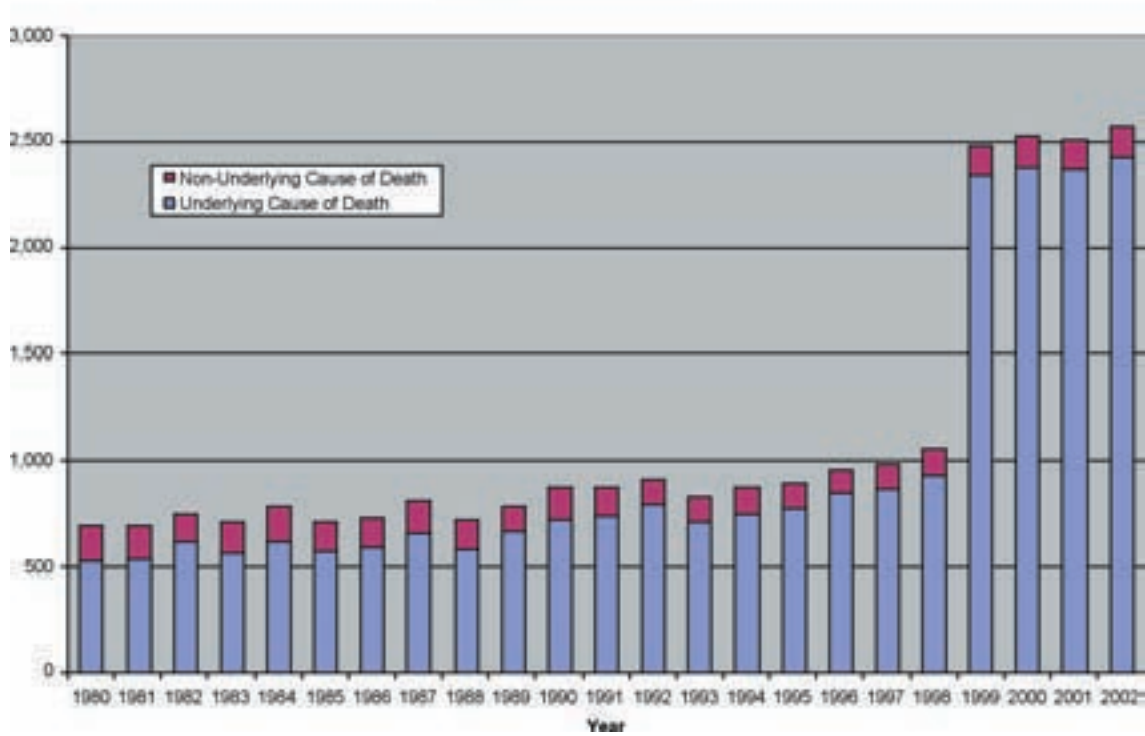
Attachment 3 - Sheet 1, Asbestos Defendants Declaring Bankruptcy

Attachment 3 - Sheet 2, Number of Asbestos Related Bankruptcies per Year

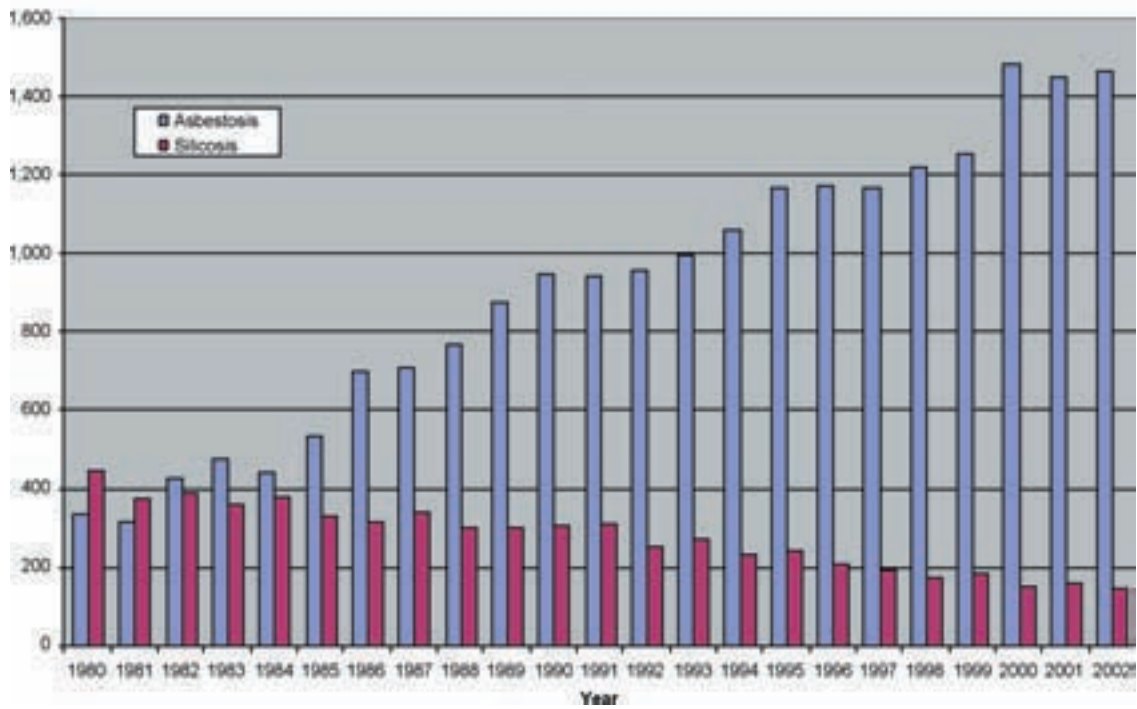
Attachment 4 - Percentage of Claims Filed in State Courts by State

Attachment 1
CDC Deaths²³ – Mesothelioma²⁴, Asbestosis, and Silicosis

Malignant Mesothelioma



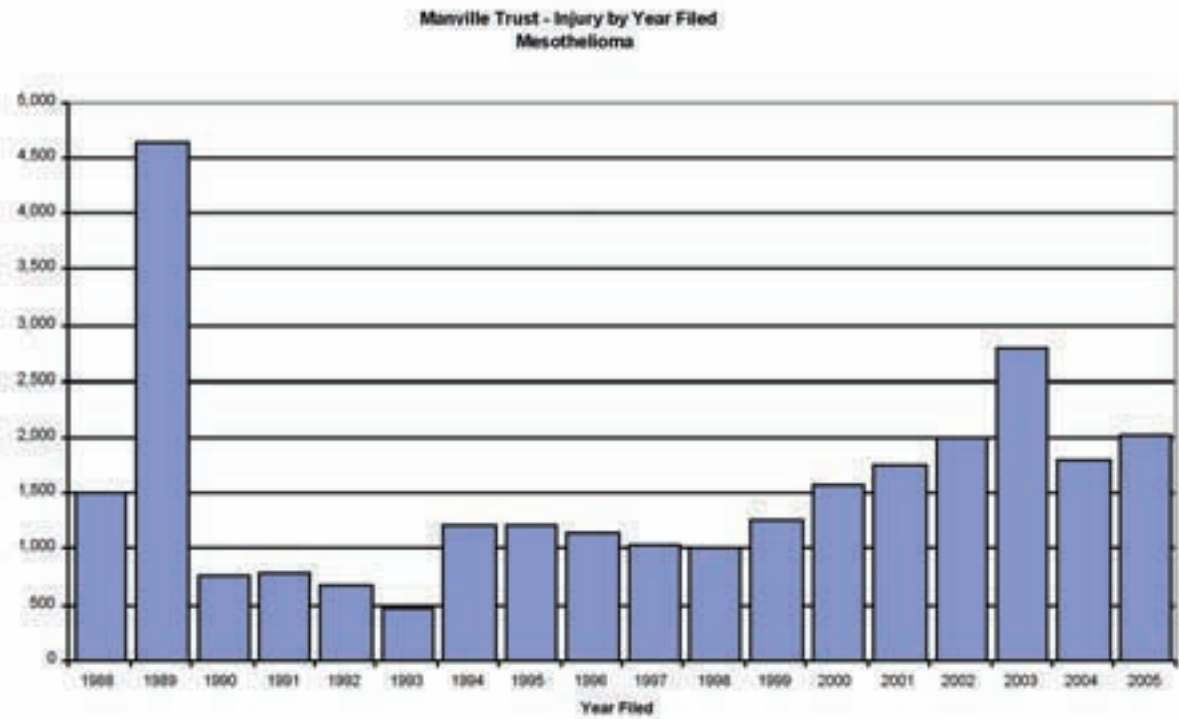
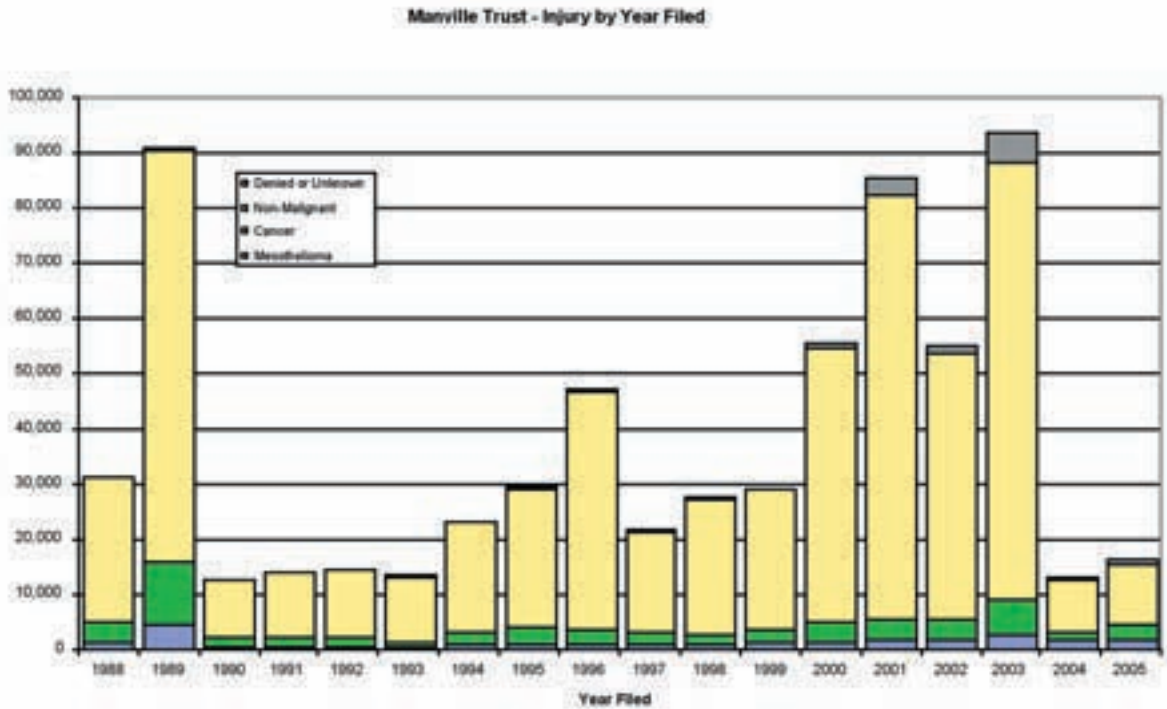
CDC Asbestosis vs Silicosis Deaths



23. [ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Health_US/hus04tables/](http://ftp.cdc.gov/pub/Health_Statistics/NCHS/Publications/Health_US/hus04tables/)

24. Prior to the introduction of ICD-10 codes in 1999, there was no disease code for malignant mesothelioma; a crude estimate was based on the sum of ICD-9 categories malignant neoplasm of peritoneum and malignant neoplasm of pleura.

Attachment 2
Claims Filed Against the Manville Personal Injury Trust²⁵

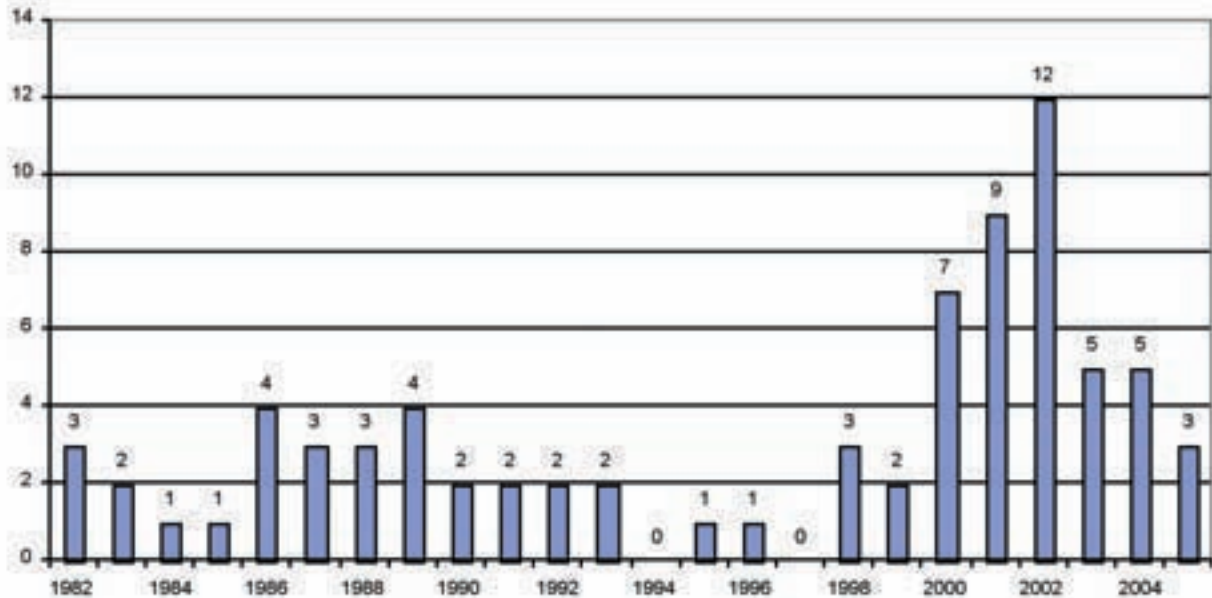


25. Although Johns-Manville sought bankruptcy protection in 1982, the Manville Trust did not become operational until 1988. The claim filing statistics show a backlog of claims filed in 1989. Claim filing rates quickly exceeded initial expectations, and payments were essentially stayed from 1991 – 1994. In 1995 payments resumed at 10% of scheduled values. In 2001 the pro-rata payment was reduced to 5% and a new TDP was introduced in 2002. The high level of filings in 2003 was influenced by a deadline to file claims under the criteria from the 1995 TDP. The revised 2002 TDP applies more stringent medical and exposure criteria, shifting compensation toward claimants with more severe injuries.

Attachment 3, Sheet 1
Asbestos Defendants Declaring Bankruptcy¹
 (*denotes pre-packaged bankruptcies)

Company	Year of Bankruptcy	Company	Year of Bankruptcy
1. A.P. Green	2002	40. *J.T. Thorpe	2002
2. API Inc.	2005	41. Johns-Manville ¹⁰	1982
3. A-Best	2002	42. Kaiser Aluminum and Chemical	2002
4. *AC&S	2002	43. Keene Corp. ¹¹	1993
5. Amatex Corporation	1982	44. Kentile Floors	1992
6. American Shipbuilding	1993	45. Lone Star Steel	1989
7. Armstrong World Industries ²	2000	46. Lykes Brothers Steamship	1995
8. Artra Group, Inc. (Synkoloid)	2002	47. M.H. Detrick	1998
9. Asbestec Industries	1988	48. *MacArthur Companies ¹²	2002
10. Asarco	2005	49. Muralo Co. ¹³	2003
11. Atlas Corporation	1998	50. National Gypsum ¹⁴	1990
12. Babcock & Wilcox ³	2000	51. Nicolet	1987
13. Bethlehem Steel	2001	52. North American Asbestos Corporation ¹⁵	1976
14. Brauer Supply	2005	53. North American Refractories (NARCO)	2002
15. Brunswick Fabrications	1988	54. Owens Corning Fiberglas ¹⁶	2000
16. Burns & Roe Enterprises	2000	55. Pacor (Philadelphia Asbestos Corporation)	1986
17. Cassiar Mines	1992	56. Pittsburgh Corning	2000
18. Celotex ⁴	1990	57. Plibrico	2002
19. C.E. Thurston	2003	58. Porter Hayden	2002
20. Chemetron Corp.	1988	59. Prudential Lines	1986
21. *Combustion Engineering	2003	60. *Quigley ¹⁷	2004
22. *Congoleum	2003	61. Raytech Corporation ¹⁸	1989
23. Crane Co. ⁵	2004	62. Rock Wool Manufacturing	1996
24. Delaware Insulations	1989	63. Rutland Fire & Clay	1999
25. E.J. Bartells	2000	64. *Shook & Fletcher	2002
26. Eagle Picher Industries	1991	65. Skinner Engine Company	2001
27. Eastco Industrial Safety Corporation	2001	66. Special Electric	2004
28. Federal Mogul	2001	67. Standard Insulations Inc. ¹⁹	1986
29. Flintkote	2004	68. Stone & Webster	2000
30. Forty-Eight Insulations	1985	69. Swan Transportation	2001
31. *Fuller-Austin Insulation	1998	70. Todd Shipyards	1987
32. Gatke Corp.	1987	71. U.S. Gypsum ²⁰	2001
33. G-I Holdings	2001	72. U.S. Mineral (Isolatek International)	2001
34. H&A Construction ⁶	1983	73. United States Lines ²¹	1986
35. H.K. Porter Co. ⁷	1991	74. *Utex Industries	2004
36. *Halliburton subsidiaries ⁸	2003	75. UNR Industries ²²	1982
37. Harbison Walker	2002	76. W.R. Grace	2001
38. Harnischfeger Industries	1999	77. Wallace & Gale	1984
39. Hillsborough Holdings ⁹	1989	78. Waterman Steamship Corp.	1983

Attachment 3, Sheet 2
Number of Asbestos Related Bankruptcies per Year

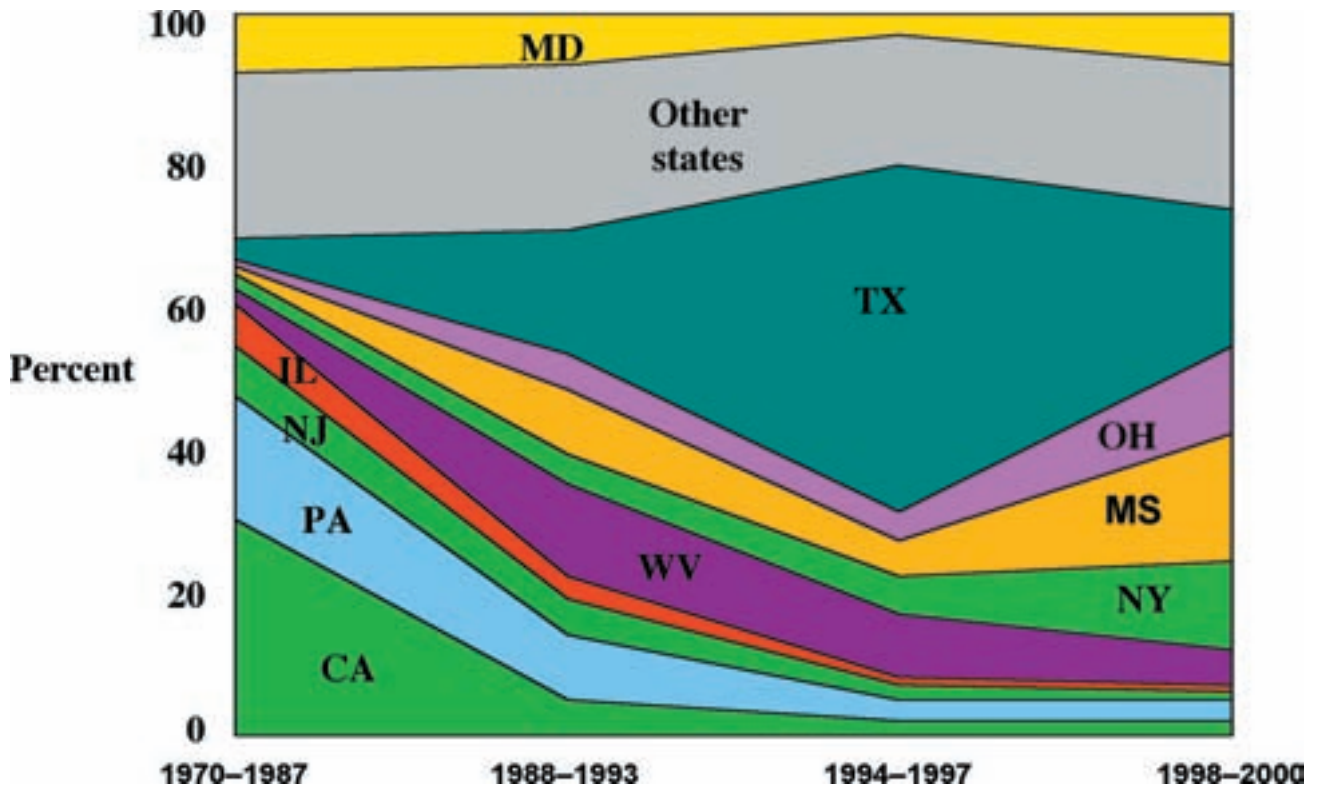


It is likely that the lower rate of bankruptcy petitions from 2003 – 2005 results from challenges to “pre-packaged” bankruptcies and consideration of potential federal and state reforms.

Notes to Attachment 3, Sheet 1:

1. Most (but potentially not all) of these asbestos defendants filed bankruptcy as a result of asbestos. We have attempted to include each corporation once (rather than counting multiple subsidiaries). The list does not include Washington Group International (2001) or Oglebay Norton (2004) because they were not caused by asbestos, or SGL Carbon (1998) because the filing was dismissed.
2. Including subsidiaries Desseaux Corporation and Nitram Liquidators, Inc.
3. Including Americon, B&W Construction and Diamond Power International.
4. Including Carey Canada, Panacon, Phillip Carey Company, and Smith & Kanzler.
5. Prepackaged bankruptcy Chapter 11 filing anticipated in March 2005. Includes subsidiary, MCC Holdings Inc. and MCC's U.S. fluid handling subsidiaries.
6. Acquired Asbestospray and Spraycraft.
7. Including Southern Textile, formerly known as Southern Asbestos Company.
8. Including Kellogg Brown & Root, Inc. (KBR), DII Industries (formerly Dresser Industries), Mid-Valley, Inc., KBR Technical Services Inc., Kellogg Brown & Root Engineering Corp., Kellogg Brown & Root International Corp. (a Delaware Corporation), Kellogg Brown & Root International Inc. (a Panamanian corporation), and BPM Minerals.
9. Other Celotex entities later filed for bankruptcy in 1990.
10. Including Advocate Mines of Canada.
11. Including Baldwin Ehret Hill.
12. Including MacArthur Co., Western MacArthur Co., and Western Asbestos.
13. Includes affiliate Norton and Son; claims arise from purchase of Synkoloid assets from parent, Artra Group.
14. Including parent Aancon Holdings Inc. as well as Asbestos Claims Management Corp. (New National Gypsum Co.), which filed bankruptcy in 2002.
15. Including Continental Producers Corp.
16. Including subsidiary Fibreboard.
17. Channeling injunction and trust will relate to both Pfizer and Quigley claims.
18. Including Raymark Industries (successor of Raybestos Manhattan) and Raymark Corp.
19. Including Standard Asbestos Manuf. & Insulation.
20. Includes USG Interiors, L&W Supply Corp., and Beadex Manufacturing Co.
21. Including McLean Industries and First Colony Farms.
22. Including Union Asbestos & Rubber (Unarco).

Attachment 4
Percentage of Claims Filed in State Courts by State



Source: RAND, January 2003

According to RAND, initial asbestos cases were filed equally between federal and state courts, and state cases were heavily concentrated in areas of high asbestos exposure (e.g., shipyards). Over time, fewer cases were filed in federal courts as the federal MDL transferred cases to Judge Charles Weiner of the Eastern District of Pennsylvania, and medical criteria and an inactive docket were effectively imposed. Additionally, cases in state courts shifted significantly. More than 60 percent of state claims were filed in California, Illinois, New Jersey and Pennsylvania from 1970 to 1987. However, from 1998-2000, nearly two-thirds of claims were filed in five different states: Texas, Mississippi, New York, Ohio, and West Virginia. Filings in Texas increased steadily until 1997 when tort reform restricting claims from other jurisdictions was enacted. RAND concludes that the change is more reflective of “the (perceived) attractiveness (or lack thereof)” of the legal doctrine and procedural rules of the jurisdictions than changes in the epidemiology of asbestos disease. It is noteworthy that the five states with the highest proportion of claims from 1998-2000 have subsequently enacted various reforms. A key question is whether new forums of choice will emerge.



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