“Untouched by times’ dark captains: rust, rot, and decay” asbestos fibers have been intertwined with the economy of the United States for decades. So begins our history of asbestos and the insurance industry presented in this slide deck. We created this presentation for a subscriber and acknowledge that some points are lost without the color commentary meant to accompany this.

But for those seeking a basic overview of asbestos and insurance litigation, this document should serve a useful purpose. We encourage readers to listen carefully to the short clips introducing the history of asbestos and its uses in our economy. After the eerie music that begins the 1959 video (produced in cooperation with Johns Manville) we learn about the incredible properties of the ‘miracle fiber’ and the myriad industries it permeated during the post WWII economic boom. We then visit each of the major waves of asbestos lawsuits, bankruptcies, litigation, and insurance reserve charges that characterized the decades from the 1980s to the early 2000s.

Drawing from recent work published in New Science and Law in Asbestos Litigation, we bring the reader to the developments happening today. Incredible advancements in science and medicine are expanding our understanding of the toxicity of asbestos fibers. It is not, in our view, a surprise that insurance companies are still taking reserve charges for a toxic tort once characterized as ‘manageable’ by the insurance industry.
History of Asbestos and the Insurance Industry

The United States’ Leading Toxic Tort

William Wilt
Alan Zimmermann

First Presented November, 2016

Research and Analysis for Insurance and Investment Professionals
ABOUT ASSURED RESEARCH LLC

- Assured Research is a research and advisory firm focused exclusively on the property-casualty industry. We offer our services through a combination of a subscription-based research package and selected educational presentations.

- We also offer investment-oriented research through our affiliation with Gordon Haskett Research Advisors.
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Research and Analysis for Insurance and Investment Professionals
TODAY’S DISCUSSION

❖ History of Asbestos: Mining and Uses
❖ Signature Diseases and Industries
❖ Wave 1: Toxic torts emerge over time; The 60s- 80’s
❖ Actuarial Work – A Manageable Toxic Tort; The 90’s
❖ Wave 2: Tumultuous times in the early 2000’s
❖ Wave 3? New Science and Law in Asbestos Litigation; Today
❖ International Exposures
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ASBESTOS USED FOR A LONG TIME IN MANY INDUSTRIES

◆ Roll the video tapes!

- Introduction to Asbestos from 1959 (2 min. 31 sec.)
- Asbestos in Building Construction from 1959 (2 min. 25 sec.)
- Asbestos: A Brief History of its Use and Regulation 1999 (1 min. 12 sec.)
- History of Asbestos Litigation, from 2011. (3 min 1 sec.)
  × Presented for historical content (not advocacy)
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SIGNATURE DISEASES

- **Asbestosis**: scarring of the lungs; 15 year latency
- **Lung Cancer**: 15 year latency
- **Mesothelioma**: cancer of the lung (or abdomen) lining; 30 year latency; about 2,200 new diagnoses annually
- **Pleural plaque/thickening/effusions**: changes in membranes surrounding the lungs; latency 10-30 years
- **New Cancers**: Kidney, gastrointestinal tract...others
SIGNATURE INDUSTRIES

- Wm Nicholson key research in 1980s
  - Research pertaining to quantification of exposures, number of workers, and industries exposed focused on 11 industry groups
    - Insulation, ship building, fireproofing, textile products, bricks/cement, wallboard and roofing materials
  - Part of subsequent research/legal disputes centered on efforts to quantify the exposed population

Over adherence to early work has contributed to negative actuarial surprises
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.
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LAWSUITS ACCUMULATE: TIER 1 & 2 FIRMS 1960S-80S

- What is meant by Tier 1 and 2?
  - Terms tied to Tillinghast/actuarial paper(s): Tiers 1 and 2 denote miners, manufacturers, and suppliers of asbestos products

- Medical links between asbestos and injury date into early 1900s
  - Handled as workers’ compensation exposure in early decades

- Use of asbestos accelerated during WWII and into 1970s
  - With 15-30 year latency, lawsuits accelerated beginning 1960s
TOXIC TORTS EMERGE OVER TIME

- Science definitively links asbestos with lung issues (beginning mid-1960s)
  - Groundbreaking research at Mt. Sinai by Dr. Irving Selikoff, and team
- Case law expands liabilities
  - Borel v Fibreboard (1972)
  - Producers can be held to strict liability on health issues
  - Expands liabilities beyond workers’ compensation
- Insurance liabilities are expanded
  - Keene v INA (1981) develops theory of “triple trigger”
  - When has a loss occurred with a long latency disease
    - Exposure, manifestation, injury-in-fact
    - Triple trigger says all years are exposed.
TOXIC TORTS EMERGE OVER TIME
THE FLOODGATES OPEN

- Johns-Manville files for bankruptcy (1982)
  - Develops the concept of the bankruptcy trust (1986)
    - Covers all present and future claimants
  - Many bankruptcies follow using this approach (Tiers 1 & 2 Defendants)
    - Owens Corning, National Gypsum, Armstrong World Industries
- Courts gets overwhelmed as numerous suits are filed post Manville
  - Wellington Agreement (1985) and then the Center for Claims Resolution (1988) get formed to settle claims based on formulas
    - Insurers and producers participate
- Insurers include “asbestos exclusions” in liability policies;
  - Some don’t hold up in courts
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WHAT IS MANAGEABLE ABOUT ASBESTOS?

- In the 1990s actuaries worried more about environmental reserves; the “E” of A&E
  - By contrast to “E”, asbestos liabilities were considered:
    - Actuarially able to be modelled
    - Quantifiable universe of exposed parties/workers
    - Medical and scientific pathways and latencies understood
    - Asbestos use “banned” in the U.S. from late 70s /early 80s
      - Wrong! Never banned; permissible exposures lowered
WHAT DID THE ACTUARIES GET WRONG?

- With hindsight – many Nicholson-based assumptions require material modification…summarized in subsequent section

- But in early 2000s it was less medical/scientific and more social/legal trends that conspired to impact corporate American and insurers

- With many Tier 1 & 2 defendants bankrupt and policy limits exhausted lawyers began to target Tier 3 and 4 defendants.

- What are Tier 3 and 4? Companies using asbestos in an encapsulated form in their products (Tier 3) or those owning property where asbestos exists (Tier 4)
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A LULL IN THE MID-TO-LATE 1990S

Just the calm before the second wave
TUMULTUOUS TIMES IN EARLY 2000s
THE NET WIDENS TO PERIPHERALS

- With producers in bankruptcy and trusts running out of funds; plaintiffs turn to companies that use asbestos in their products. (Tiers 3& 4)
  - This included major manufacturers—W.R. Grace, Federal Mogul, as well as installers, building contractors etc.
  - Many claims have non-malignancies
    - Number of serious claims overwhelmed by those of dubious value
    - X-ray screenings at union halls, for example

Sources: , Assured Research

Research and Analysis for Insurance and Investment Professionals
Lawsuits accelerated and spread by early 2000s. Rating agencies rattled sabres as did equity analysts.

$8 billion of reserve charges in 2002

Source: SNL Financial, an offering of S&P Global Intelligence, Assured Research
THE INSURERS DIDN’T SEE THIS COMING

Net asbestos losses: 2000-2002

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<th></th>
<th>St. Paul 2002</th>
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<th>Hartford 2002</th>
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<tr>
<td>Open</td>
<td>298</td>
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<tr>
<td>Incurred losses</td>
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<td>110</td>
<td>482</td>
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<td>Reserve additions (a)</td>
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<tr>
<td>Paid losses</td>
<td>-32</td>
<td>-42</td>
<td>-241</td>
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<tr>
<td>Close</td>
<td>299</td>
<td>367</td>
<td>778</td>
</tr>
</tbody>
</table>

(a) Transfers from other operations. Some #s may not foot due to restatement.

Sources: Company Form 10-Ks, Assured Research.

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INSURERS HAVE SETTLED INTO A PAYGO TRANCE

- From 2005-2015 industry asbestos accruals and paid losses have largely offset
  - Net accruals about $2 bil. pa and paid losses about $2.4 bil. pa
  - Reserves have stabilized around $20 billion.
- “A” has been back-burner issue for most constituents
- But with a latency of 15-30 years, shouldn’t it be getting better, not staying the same?
WAVE 3? WHY ARE MESO CLAIMS ALWAYS UNDERESTIMATED?

Actual and Expected Mesothelioma Cases

Actuarial models constructed on research in 1980s are falling behind a revolution in scientific and medical research.

Meso cases are declining, but more slowly than projected!

Source: SEER Data, GNARUS Advisors, Assured Research

For more on these trends see New Science and Law in Asbestos Litigation (2015 and 2016 editions) by LSP Group, Innovative Science Solutions, and Assured Research.
WHY ARE THERE MORE MESOTHELIOMAS THAN MODELLED?

- An understanding lies in the revolution of scientific and medical research possible in past ten (or so) years
  - People living into their asbestos-induced disease
  - Research informing that asbestos diseases can be caused by much lower levels of exposure than previously understood (genetic susceptibility)
  - Studies showing that federally permissible levels were exceeded in many industries
  - Consultant KCIC documents 10.7% increase in mesothelioma cases in 1H16 over 1H15
  - Lawyers and courts are embracing new scientific research!
WHAT ABOUT OTHER CANCERS?

- We believe industry reserves are primarily (exclusively?) for mesothelioma cases and attendant legal expenses.
- But research is linking “other cancers” to asbestos exposure: kidney, bladder, gastrointestinal, ovarian (talc contaminated with asbestos).
- And consider the orders of magnitude difference in annual cancer diagnoses:
  - Lung near 210,000; ovarian near 21,000; bladder near 71,000; kidney near 57,000
  - What if science links 1%, 2%, 3%...of these cancers to asbestos exposure?
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DISEASE INCIDENCE MAY BE GREATER IN OTHER COUNTRIES

- Other countries used asbestos for longer than the U.S.
- Many other countries (esp. UK and Europe) used asbestos mined in Africa (amphibole) which has been shown to be far more toxic than asbestos fibers predominating in the U.S. (chrysotile).
- Peak mesothelioma diagnoses not yet reached in many countries including Australia (2021), Italy (2024), Japan (2027)
- Social reimbursement mechanisms have come under challenge; never underestimate the litigation industry!

For more information on international trends see Horewitz and Hartley: A Global View of Mesothelioma and Asbestos Litigation: Both are Many Years Away from Peaking...February, 2012
Thank you!