THE CURRENT STATE OF BENZENE LITIGATION

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Benzene litigation has largely been clustered in Texas and California, although new cases are now being reported all over the country.[1] The vast majority of benzene cases involve allegations of occupational exposure. There are also many cases involving environmental exposure (e.g., contamination of groundwater), some of which are founded solely on property damage claims and some on personal injury claims. Examples of occupational and environmental exposure cases are discussed in more detail below.

A very small percentage of benzene cases involve allegations of exposure from consumer products. While few cases currently exist dealing with consumer products, there may soon be an influx of litigation in this area. Several class actions have been filed in 2006 against consumer product manufacturers, including PepsiCo., Kraft Foods and Safeway, alleging that excessive exposure of their products to heat and light could put consumers at risk of ingesting dangerous levels of benzene.[2] For example, class actions filed against Polar Beverages in April of 2006, allege that Polar's Diet Orange Dry soda contains dangerous levels of benzene. The soda contains less than 1 part per billion of benzene, below the federal safe drinking water standard of 5 parts per billion. To reach the level asserted in the lawsuits (9.1 ppb), "the beverage had to be heated to a temperature high enough to cause a chemical reaction between ascorbic acid (Vitamin C) and the preservative benzoate salt." Many see lawsuits such as this as part of an accelerating trend involving suits against manufacturers of consumer products.

Benzene – Basic Facts

Benzene is a clear, colorless liquid used in numerous industrial processes. The principal risk of harm from benzene comes from the inhalation of vapors: "When these vapors are inhaled, the benzene diffuses through the lungs and is quickly absorbed into the blood."[3] OSHA's current standard for benzene sets the permissible exposure limit at 1 part per million for an eight-hour time-weighted average and a short-term exposure limit of 5 parts per million over a fifteen minute period.[4] The National Institute of Occupational Safety & Health (NIOSH) sets the permissible exposure even lower, recommending an exposure limit of 0.1 parts per million on an

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[1] Cameron Turner, et al, *Benzene: A Litigation Perspective* (2006).
[2] Lori Calabro, *Problem Solvent: Get ready for a wave of class-action lawsuits linked to benzene*, CFO Magazine (Aug. 1, 2006).
[3] *Indus. Union Dept, AFL-CIO v. American Petroleum Inst.*, 448 U.S. 607, 611 (1980) (citing 43 Fed. Reg. 5918 (1973); 43 Fed. Reg. 5921 (1978)).
[4] 29 CFR 1910.1028(c) (1987).

eight-hour time-weighted average and a short-term limit of 1 part per million over a fifteen-minute exposure.[5] The consequences of benzene exposure depend on the level of exposure:

> Exposure to high concentrations produces an almost immediate effect on the central nervous system. Inhalation of concentrations of 20,000 [ppm] can be fatal within minutes; exposures in the range of 250 to 500 [ppm] can cause vertigo, nausea, and other symptoms of mild poisoning. Persistent exposures at levels above 25 to 40 [ppm] may lead to blood deficiencies and diseases of the blood-forming organs, including aplastic anemia, which is generally fatal.[6]

Specific diseases which have been alleged to be attributed to benzene exposure include:

- Acute myeloid leukemia (AML);
- Acute lymphocytic leukemia (ALL);
- Non-Hodgkin's lymphoma (NHL);
- Multiple myeloma (MM);
- Myelodysplasia;[7]
- Aplastic anemia;
- Chronic myelogenous leukemia (CML); and
- Chronic lymphocytic leukemia (CLL).

Defending the Benzene Case

In cases other than those involving AML, the defense should attempt to show the lack of a statistically significant relationship between benzene exposure and the particular disease.[8] "For example, recent articles suggest that there is no association between benzene and non-Hodkins lymphoma and multiple myeloma."[9] However, studies show a stronger connection between AML and benzene than they do with other diseases. Accordingly, if the lawsuit involves AML, the defense should focus on the low levels of exposure, if possible, as the scientific literature has consistently reported data indicating AML is related only to cumulative exposure greater than 40 ppm/years.[10] Additionally, if the exposure involves a benzene-containing product or a trace benzene exposure, the defense may be able to rely on the fact that the exposure is below OSHA's permissible exposure limits.[11] Further, "[p]laintiffs might be barred from asserting a failure to warn case, as both OSHA and ANSI standards require warnings for benzene only if the benzene content is greater than 0.1%"[12]

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[5] NIOSH Pocket Guide to Chemical Hazards: Benzene.
[6] *American Petroleum Inst.*, 448 U.S. at 611 (citing 43 Fed. Reg. 5918 (1973); 43 Fed. Reg. 5921 (1978)).
[7] *Toxicological Profile for Benzene* (Draft for Public Comment), Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Public Health Service, U.S. Department of Health & Human Services (2005).
[8] Turner, *supra* note 1 (citing Glass, "Leukemia Risk Associated with Low-level Benzene Exposure", *Epidemiology*, Vol. 14, No. 5 (Sept. 2003)).
[9] *Id.*
[10] *Id.*
[11] *Id.*; *see Wright v. Mobil Oil Corp.*, 1994 WL 672594, at *2 (Tex. App.—Beaumont 2003, no writ) (exposure level within OSHA's permissible level); *Laico v. Chevron U.S.A., Inc.*, 20 Cal. Rptr. 3d 307, 309 (Cal. App. 2004) (exposure exceeded standards under California Occupational Safety & Health Act).
[12] Turner, *supra* note 1.

1. Scientific Reliability under *Havner*

Most benzene cases involving personal injury claims are resolved, often on summary judgment, based on the adequacy of the plaintiff's experts. Causation in toxic tort cases requires both general and specific causation. General causation is whether a substance is capable of causing a particular injury or condition, while specific causation is whether a substance actually caused a particular individual's injury.[13] Plaintiffs' experts largely rely on epidemiological studies for proof of general causation. These studies "examine existing populations to attempt to determine if there is an association between a disease or condition and a factor suspected of causing that disease or condition."[14] Although these studies cannot establish specific causation, they may provide sufficient evidence of general causation if they meet the requirements under *Merrell Dow Pharmaceuticals v. Havner*. To be considered reliable scientific evidence of general causation, epidemiological studies must, at a minimum, (1) reflect that the risk of an injury or condition in the exposed population is more than double that in the unexposed or control population and (2) have a confidence level of 95%.[15]

(a) Occupational Exposure

In ***Frias v. Atlantic Richfield Co.***, plaintiff died of aplastic anemia, allegedly caused by exposure to benzene-containing products at the refinery where he worked.[16] The trial court granted the defendants' no-evidence motion for summary judgment due to lack of evidence of causation. While it was undisputed that, at some level and length of exposure, benzene causes aplastic anemia, defendants argued there was no evidence that the levels to which plaintiff was allegedly exposed were sufficient to cause aplastic anemia.

The court determined that the studies relied upon by plaintiff's expert did not meet the 95% confidence level requirement under *Havner* and therefore were not scientifically reliable evidence of general causation regarding the level and period of exposure necessary to cause aplastic anemia.[17] Further, the only evidence attempting to quantify plaintiff's exposure stated that plaintiff "was *consistently* exposed to benzene levels in the 10 to 20 ppm range . . . and that he had *regular* exposures above 100 ppm . . . . *Occasional* peak exposures of hundreds of ppm and, in some cases, approaching 1000 ppm were experienced. . . ." The court determined that the use of such indefinite terms left the frequency and duration of exposure "subject to wide variance and thus largely open to speculation." Accordingly, plaintiff's evidence of specific causation, as well as general causation, was legally insufficient.

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[13] *Merrell Dow Pharms. v. Havner*, 953 S.W.2d 706, 714 (Tex. 1997).

[14] *Daniels v. Lyondell-Citgo Refining Co., Ltd.*, 99 S.W.3d 722, 727 (Tex. App.—Houston [1st Dist.] 2003, no pet.).

[15] *Havner*, 953 S.W.2d at 717–24. "Confidence level" reflects the percentage of instances in which the numerical results of a study would fall within a particular range of relative risk (the "confidence interval") if the study were repeated numerous times. *Id.* at 723.

[16] 104 S.W.3d 925 (Tex. App.—Houston [14th Dist.] 2003, pet. denied).

[17] *See also Daniels v. Lyondell-Citgo Refining Co., Ltd.*, 99 S.W.3d 722 (Tex. App.—Houston [1st Dist.] 2003, no pet.) (no evidence of general causation because studies relied on by experts did not show a statistically significant link between benzene and lung cancer); *Knight v. Kirby Inland Marine, Inc.*, 363 F. Supp. 2d 859 (N.D. Miss. 2005) (no evidence of general causation for Hodgkin's lymphoma because studies relied upon by expert categorized workers broadly and failed to provide specific exposure data).

In ***Austin v. Kerr-McGee Refining Corp.***, the plaintiff developed CML, allegedly due to his work in the pipe inspection industry, and died within four months of the diagnosis.[18] His family sued various manufacturers and distributors of cleaning solvents used by the decedent in the course of his job, claiming that such products contained benzene and caused the decedent's CML. The court determined that the plaintiffs were unable to prove general or specific causation. The studies relied on by the plaintiffs' expert failed to show that benzene causes CML specifically. The expert's theory of general causation was that exposure to benzene increases the risk for all types of leukemia; CML is a type of leukemia; therefore, benzene causes CML. However, no sufficient evidence existed to support the contention that all types of leukemia are interchangeable, and thus no sufficient evidence existed regarding general causation. The court further found that the plaintiffs failed to prove specific causation because they did not show the decedent was exposed to benzene at all, or if he was, the level of such exposure, and also failed to exclude radiation exposure as a plausible alternative cause of the decedent's CML.[19]

In ***Curtis v. M&S Petroleum, Inc.***, several refinery workers sued M&S Petroleum, the owner of the refinery where they worked, and DuPont Specialty Chemicals, the manufacturer of Heavy Aromatic Distallate (HAD), a product that was processed at the refinery which contains 25–35% benzene.[20] Almost immediately after the refinery began processing HAD, the plaintiffs began to experience headaches, nausea, dizziness, diarrhea, and a lack of energy. At the close of plaintiffs' case at trial, the district court granted the defendants' motion for judgment as a matter of law. With respect to general causation, the plaintiffs' expert testified that exposure to benzene at levels of 200–300 ppm would cause the injuries suffered by plaintiffs. Support for this opinion included the MSDS provided by DuPont, the OSHA benzene standard, a toxicological profile published by the U.S. Department of Health and Human Services, and the strong temporal connection between the plaintiffs' exposure and the onset of their symptoms. The district court determined this was sufficiently reliable evidence to show general causation. However, the court excluded the expert's testimony on specific causation grounds because the expert failed to quantify the amount of benzene to which plaintiffs were exposed and also failed to eliminate other possible causes of the plaintiffs' symptoms.

On appeal, the Fifth Circuit reversed the district court's specific causation conclusion, noting that "the law does not require plaintiffs to show the precise level of benzene to which they were exposed." The court concluded that the plaintiffs presented sufficient evidence in support of their expert's finding that the plaintiffs were exposed to benzene levels several hundred times higher than the permissible exposure level. This evidence included the symptoms experienced by the plaintiffs, the results of Draeger tube tests conducted at the refinery, the plaintiffs' testimony that they often became soaked in HAD when required to perform certain tasks, and the fact that the refinery was not designed to process HAD, which enabled benzene vapors to freely escape into the air.

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[18] 25 S.W.3d 280, 283 (Tex. App.—Texarkana 2000, no pet.).

[19] *See also Marsch v. Exxon Mobil Corp.*, 2005 WL 2246006 (E.D. Mo. 2005) (no evidence of specific causation for thrombocytopenia because experts could not quantify the level of plaintiff's exposure); *Parker v. Mobil Oil Corp.*, 16 A.D.3d 648 (N.Y. App. Div. 2005) (no evidence of specific causation for AML because experts could not quantify plaintiff's level of exposure).

[20] 174 F.3d 661, 665 (5th Cir. 1999).

(b) Environmental Exposure

In ***City of San Antonio v. Pollock***, the Pollock's backyard abutted a landfill owned by the City of San Antonio.[21] After their three-year-old daughter, Sarah, was diagnosed with ALL, the Pollocks sued the City for negligence, nuisance, and trespass, alleging that benzene from the landfill leaked into their home and backyard while Mrs. Pollock was pregnant with Sarah. The jury found for the Pollocks on their negligence and nuisance claims, and further found that the City had acted with malice. It awarded $7 million in personal injury damages to Sarah, $6,111,000 for past and future medical care, $10,000 for loss of use and enjoyment of property, $19,000 for difference in market value, and $10 million in exemplary damages. The trial court reduced the $6 million award of future medical care to $500,000, but rendered judgment in conformity with the verdict in all other respects.

On appeal, the City argued that it was immune from the plaintiffs' nuisance claim because it was not brought as a takings claim and because there was no legally sufficient evidence that the City committed "non-negligent acts" (i.e., acts which go beyond negligence and amount to grossly negligent or intentional conduct), as required to trigger the City's waiver of immunity. The court disagreed, first concluding that the allegations in the nuisance claim showed it was brought "in the nature of a takings claim." The court further determined that the evidence was legally sufficient to show that the City committed non-negligent acts. Experts testified that migration of landfill gas containing benzene and other toxins is inherent in the operation of landfills. There was also evidence that the City knew of the gas migration problem and intentionally failed to act.

With respect to causation, the City first argued that the jury was improperly allowed to stack inference upon inference in order to find that benzene caused Sarah's leukemia. Evidence showed that the Pollocks were chronically exposed to a benzene concentration of 40 to 160 parts per billion or higher. The plaintiffs' expert testified that exposure to benzene at the range of 146 to 160 parts per billion can cause ALL, and that, based on Sarah's abnormal chromosomal markings, he believed that benzene exposure caused Sarah's leukemia. Based on this evidence, the court determined there was legally sufficient evidence to establish that benzene from the landfill caused Sarah's leukemia. The City also attempted to attack causation under *Havner*, but because it failed to object to the reliability of the plaintiffs' scientific evidence before trial or when the evidence was offered, it waived the argument.

The court did, however, reverse the jury's award of exemplary damages, holding that a property owner is not entitled to recover exemplary damages against a municipality for a constitutional takings claim. It should be noted that the Supreme Court granted the petition for review in this case in May of 2006; a final decision is pending.

In ***Exxon Corp. v. Makofski***, residents of the Three Lakes subdivision, two minors and four adults, sued Exxon, alleging an oilfield leak that occurred over 50 years earlier contaminated the subdivision's water well and caused them various health problems.[22] The jury

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[21] 155 S.W.3d 322, 326 (Tex. App.—San Antonio 2004, pet. granted).
[22] 116 S.W.3d 176, 179 (Tex. App.—Houston [14th Dist.] 2003, pet. denied).

found Exxon negligent and grossly negligent, and awarded a total of almost $7 million in actual and punitive damages. The trial court reduced the judgment for the two minors and rendered take-nothing judgments against the four adults.

The first of the two minor children, James, was diagnosed with ALL. On appeal, the court determined that the studies relied upon by the plaintiffs' experts regarding the link between benzene and ALL were not statistically significant. Further, although the plaintiffs' experts testified that benzene causes ALL, they had never published their opinion in a scientific journal or subjected it to peer review. Thus, the court held that the evidence was legally insufficient to support the jury's award for James.

The second minor, John, was diagnosed with anemia shortly after his birth, but had not been similarly diagnosed since that time. He also suffered from recurrent nosebleeds, asthma, and skin rashes. The plaintiffs' expert testified that he believed John's anemia was caused by benzene, but did not establish the type of his anemia, and thus did not exclude other plausible causes with reasonable certainty. The court further determined that no reliable scientific evidence connected benzene to any of John's other ailments. The plaintiffs' counsel attempted to argue that John's symptoms were similar to those that preceded James's ALL diagnosis. However, "Texas law prohibits recovery for future diseases unless there is a reasonable medical probability the disease will occur." Because no expert could say that John would probably develop ALL in the future, he could not recover based on that possibility.

The four adult plaintiffs asserted a wide range of medical problems, but the jury awarded $0 for every claim except mental anguish. Although there was substantial evidence that the plaintiffs suffered mental anguish, all of the evidence related to their fears about what benzene exposure might mean for their health. Because Texas law does not allow for such a recovery, the court reversed the jury's mental anguish award.

2. Failure to Warn

A product manufacturer has a duty to warn if it knows or should know of potential harm to a user because of the nature of its product.[23] Additionally, a manufacturer has a duty to instruct others on the safe use of its product.[24]

(a) *Mobil Oil Corp. v. Ellender*

Mobil Oil Corporation v. Ellender is a notable case involving the failure to warn.[25] Ellender developed AML, allegedly due to benzene exposure while working as a contract worker at Mobil. His family brought suit, claiming that Mobil failed to warn Ellender about his exposure to benzene and the risks from such exposure and failed to protect him from those risks. The jury found Mobil's conduct was grossly negligent and malicious and awarded plaintiff over $600,000 in compensatory damages and $6 million in punitive damages.

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[23] *Wood v. Phillips Pet. Co.*, 119 S.W.3d 870, 873 (Tex. App.—Houston [14th Dist.] 2003, pet. denied).
[24] *Id.*
[25] 968 S.W.2d 917 (Tex. 1998).

The Texas Supreme Court determined there was legally sufficient evidence of gross negligence to uphold the punitive damages award. Evidence showed that Mobil monitored its *employees* for exposure, furnished them with benzene protective gear, and instructed them on proper benzene handling. Mobil did not, however, do the same for its *contract* workers, and in fact had an unwritten policy not to monitor the contract workers' exposure. This evidence was sufficient to establish that Mobil was aware of the extreme risk from benzene exposure, but nevertheless proceeded in conscious indifference to the welfare of Ellender and other contract workers. Accordingly, the Court upheld the jury's finding of gross negligence and affirmed the punitive damages award.

(b) Learned Intermediary or Bulk Supplier Defense

Product manufacturers may be able to assert the learned intermediary or bulk supplier defense to defeat a failure-to-warn allegation. This defense "allows a manufacturer to discharge its duty to warn by providing necessary information about the dangers of the product to a third person upon whom it can reasonably rely to communicate the information to the ultimate users of the product."[26]

In ***Wood v. Phillips Petroleum Co.***, the plaintiff contracted AML and brought suit against the manufacturers who supplied benzene to the plaintiff's employer for failure to warn the plaintiff of the product's dangers.[27] The manufacturers were able to successfully rely on the bulk supplier defense. Because the danger from benzene exposure and the need to take precautions to protect against such danger was well understood by the plaintiff's employer, the court held that the manufacturers had no duty to instruct plaintiff's employer on such matters and therefore, any failure by the employer to protect plaintiff from benzene exposure was not caused by the manufacturers.

Similarly, in ***Curtis v. M&S Petroleum*** (partially discussed above regarding causation), the district court dismissed DuPont, the HAD manufacturer, holding that it did not owe the plaintiffs a legal duty.[28] Based on the learned intermediary defense, the Fifth Circuit affirmed, concluding that DuPont discharged its duty to warn because it provided the refinery (an independent intermediary) with extensive information on the dangers of HAD and benzene and even required the refinery to take certain actions relating to safety before it delivered its product to the refinery.

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[26] *Curtis*, 25 S.W.3d at 676 (citing Restatement (Second) of Torts § 388, cmt. n). *See also Alm v. Aluminum Co. of America*, 717 S.W.2d 588, 591–92 (Tex. 1986).
[27] 119 S.W.3d at 872.
[28] 25 S.W.3d at 667.