

United States Court of Appeals For the First Circuit

No. 07-2676

SUZANNE GENEREUX, Individually and as Parent and Natural
Guardian to minor children A.G. and K.G.; BARRY
GENEREUX, Individually and as Parent and Natural
Guardian to minor children A.G. and K.G.,

Plaintiffs, Appellants,

v.

AMERICAN BERYLLIA CORP.; BRUSH WELLMAN, INC.; HARDRIC
LABORATORIES, INC.,

Defendants, Appellees,

BRUSH WELLMAN CERAMICS, INC.; BRUSH WELLMAN CERAMIC
PRODUCTS, INC.; KYOCERA AMERICA, INC.; KYOCERA
INDUSTRIAL CERAMICS CORP.; RAYTHEON COMPANY,

Defendants.

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

[Hon. Joseph L. Tauro, U.S. District Judge]

Before

Torruella, Baldock*, and Lipez, Circuit Judges.

Ruben Honik, with whom Stephan Matanovic, Golomb & Honik,
P.C., Leo V. Boyle, and Meehan, Boyle, Black and Bogdanow, P.C.
were on brief, for appellants.

* Of the Tenth Circuit, sitting by designation.

William F. Ahern, Jr., with whom Jeremy Y. Weltman and Clark, Hunt & Embry were on brief, for appellee American Beryllia Corp.

Robert M.A. Nadeau, with whom Nadeau Law, LLC was on brief, for appellee Hardric Laboratories, Inc.

Jeffery D. Ubersax, with whom Robert S. Faxon, Jones Day, Alan M. Spiro, and Edwards Angell Palmer & Dodge LLP were on brief, for appellee Brush Wellman, Inc.

July 29, 2009

LIPEZ, Circuit Judge. Suzanne Genereux, her husband Barry Genereux, and their children brought suit against various manufacturers of beryllium products, alleging that their products caused injury to Suzanne Genereux when she came into contact with them at her workplace. The complaint asserted negligence, breach of warranty, failure to warn, violation of Massachusetts General Laws chapter 93A, and other claims. The district court granted summary judgment for the defendants on all of the plaintiffs' claims, concluding that the common-law claims were time-barred and that the defendants were relieved of liability under chapter 93A by Massachusetts's "sophisticated user" defense. Plaintiffs appealed.

After a careful review of the record, we conclude that a reasonable jury could find that the plaintiffs' common-law claims were timely and that the sophisticated user defense did not relieve the defendants of liability. We therefore vacate and remand.

I.

On appeal from summary judgment, we take the facts in the light most favorable to the non-moving party and draw all reasonable inferences in its favor. CMI Capital Mkt. Inv., LLC v. González-Toro, 520 F.3d 58, 61 (1st Cir. 2008).

A. The Raytheon Company and Beryllium

Suzanne Genereux ("Genereux") worked for Raytheon Company ("Raytheon"), a major defense contractor, from 1982 to 1990. She was employed at the company's Waltham, Massachusetts plant, where

its Microwave and Power Tube Division was then headquartered. Genereux spent seven years in the plant's Backward Wave Oscillator Lab and one year as a quality assurance technician.¹ In the Backward Wave Oscillator Lab, Genereux assembled components, known as "subassemblies," for incorporation into radar tubes. She spent most of her time working on two subassemblies: the "ARCO window" and the "Tall Man." Both subassemblies contained beryllium.

Beryllium is a silver-grey non-magnetic metal that is exceptionally light, stiff, and able to disperse heat rapidly. When alloyed with other metals, such as copper, beryllium tends to pass on its properties to the alloy. This is also true of beryllium oxide ceramics, or "beryllia," which can withstand extreme temperatures and rapidly disperse heat. These features make beryllium ideal for many specialized applications, including x-ray windows, transistors, jet brake pads, ceramic jet engine blades and rocket covers, nuclear reactors, and nuclear weapons. Unfortunately, however, beryllium dust and fumes are hazardous to human health. In some individuals, inhaling beryllium dust triggers an immune response, causing inflammation and the formation of granulomas in the lung tissue. This disease is known as "chronic beryllium disease," and it gives rise to a number of

¹ Genereux also worked in quality assurance at Raytheon's Northborough plant, but only for a short time. She did not work with beryllium in this position. She also worked briefly as a production coil winder, which did not involve beryllium.

symptoms, such as coughing, shortness of breath, fatigue, weight loss, fevers, and night sweats. The beryllium industry has long known of the disease and implemented various hygienic controls to prevent it.

Brush Wellman, Inc. ("Brush"), American Beryllia Corp. ("American Beryllia"), and Hardric Laboratories, Inc. ("Hardric") manufacture beryllium ceramic and beryllium alloy parts and supply these parts for use in some of the applications discussed above. Brush is the largest domestic producer of beryllium-containing products, including beryllium oxide ceramics, and sometimes supplies beryllium to other beryllium manufacturers for further processing. Brush is also one of the oldest producers of beryllium products; it has been in existence since 1931 (incorporated as "Brush Beryllium Company"), and its facilities hosted one of the earliest major studies of beryllium exposure and beryllium disease, carried out in the late 1940's by the United States Atomic Energy Commission. American Beryllia was incorporated in 2002 after purchasing the assets of General Ceramics, which had manufactured beryllium products since the 1950's, initially under the name National Beryllia Corporation. General Ceramics, Brush, and Hardric manufactured beryllium parts that Genereux worked with in the Waltham Backward Wave Oscillator Lab.²

² Appellees dispute this point. See infra section III(C) (2).

Raytheon used both beryllium ceramics and beryllium metals in the Backward Wave Oscillator Lab. Blueprints used by Genereux identified several subassembly parts containing beryllium. For example, the ARCO window contained two beryllium parts: a beryllium copper sleeve and a cylindrical beryllium oxide ceramic. The Tall Man contained a rectangular beryllium oxide ceramic. Genereux performed a number of operations on these parts that produced respirable dust. She filed, sanded, smoothed (using a Dremel rotary tool), and polished beryllium copper and possibly other beryllium metals.³ These processes removed small amounts of material from the metal, some of which were so small that they would become airborne and remain suspended in the air as respirable dust.

Genereux also spent considerable time sandblasting various beryllium ceramics -- between two hours a day and eight hours a day, towards the end of the month or when a shipping deadline approached.⁴ She used a pencil grit blaster, which worked by expelling grit from a nozzle controlled by the operator. This process removed small amounts of ceramic material from the

³ Appellees dispute that Genereux polished beryllium metals. See infra section III(B)(2).

⁴ Genereux was sometimes asked to sandblast beryllium oxide ceramics in addition to those contained in the ARCO window and the Tall Man subassemblies.

beryllia. Although sandblasting took place under a hood,⁵ the ceramic material and some of the grit would become airborne, producing white dust that settled on Genereux's clothes and shoes. In addition to these activities, Genereux was also designated to handle, store, and track all the beryllium parts used in the Backward Wave Oscillator Lab.⁶

Raytheon took steps to control employees' exposure to beryllium dust, and Brush, along with other beryllium producers, provided Raytheon with information about appropriate hygienic controls and exposure rates. We discuss aspects of Raytheon's industrial hygiene program and Brush's input to it below.

B. Diagnosis of Chronic Beryllium Disease

Genereux became ill many times during her employment at Raytheon. Sometime in 1983 or 1984, she developed a cough and shortness of breath. The symptoms were attributed to asthma, and physicians prescribed a treatment regimen of steroids and inhalers. Sometime later, Genereux was hospitalized for five days and

⁵ Genereux described two sandblasting machines. The first machine was equipped with a plexiglass shield or sash. The operator would put on protective gloves and lower the sash over the gloves, operating the pencil blaster behind the sash. A year after Genereux arrived, this machine was replaced. The second machine may have been equipped with a complete sandblasting enclosure and local exhaust ventilation. It still emitted dust.

⁶ As the district court noted in its Memorandum & Order, Genereux also "alleges that she was exposed to airborne beryllium dust generated elsewhere in the plant that spread through the ambient air."

diagnosed with "recurrent asthma." Physicians again prescribed inhalers, and supplemented them with prednisone. Genereux returned to work, but after a period of three to four months she developed an upper respiratory infection. Exacerbation of asthma symptoms required Genereux to be hospitalized several times during the year. Throughout this period and afterwards, Genereux regularly sought emergency care. According to the report of a pulmonologist treating her, "she has gone to the emergency room approximately three times a year for respiratory complaints."

In November 1990, Genereux took a medical leave of absence from Raytheon due to a high-risk pregnancy. After her pregnancy, Genereux developed carpal tunnel syndrome and required surgery on both of her hands. Unable to work, she went on "extended sick leave" from Raytheon and ultimately did not return. Genereux began to receive long-term disability benefits through Raytheon during this time. However, in 1994 the insurance company discontinued benefits on the grounds that Genereux was no longer disabled. Genereux repeatedly sought reinstatement of the benefits, arguing that she remained completely disabled and was entitled to benefits until age sixty-five.

Meanwhile, Genereux was formally diagnosed in 1997 with vascular Parkinson's disease in her right side, where she suffered from tremors, pain, and muscle weakness. In late 2000 or early 2001, finding that she was unable to pay her expenses, Genereux

wrote United States Senator Jack Reed, seeking his assistance in obtaining reinstatement of the long-term disability benefits and securing a pension. In her letter, Genereux stated that she suffered from Parkinson's disease and was "totally disabled."

Genereux then wrote:

I am told that the causes of Parkinson's Disease are still being researched, I am told that environment may be a cause, but it may not be found out in my lifetime. While working for Raytheon, I worked in rooms with asbestos ceilings (which left dust on the benches and other items) I was forced to sandblast beryllium ceramics with no masks, open sandblasting units, no protective clothing. I also used alot [sic] of acetone and other degreasing agents and worked in a small room off of a large plating room.

She did not mention asthma, lung disease, or pulmonary symptoms of any kind.

After receiving a written response to her letter in late 2001 or early 2001, Genereux called Senator Reed's office. During the ensuing conversation, a staff member asked Genereux "whether she had ever been tested for CBD [chronic beryllium disease]." According to Genereux, this was the first time she had ever heard of chronic beryllium disease. Senator Reed's office advised Genereux to call the Department of Labor.⁷ Officials at the

⁷ On January 22, 2001, Senator Reed's office mailed Genereux a letter that stated, "Pursuant to your request for information concerning compensation for Beryllium [sic] exposure, you should contact 1-877-447-9756 and leave your name and address for further information."

Department of Labor told Genereux about National Jewish Medical Center ("National Jewish"), a Colorado facility experienced in the treatment of chronic beryllium disease, and instructed her to call. Genereux contacted National Jewish sometime in early 2001.

National Jewish recommended to Genereux that she take a blood test, known as the BeLPT test, to determine whether she was sensitized to beryllium. National Jewish also provided her with a booklet explaining the causes, symptoms and treatment of chronic beryllium disease. As the booklet explained,

Beryllium sensitization often leads to disease, even in people who are no longer working with beryllium. Most people with beryllium sensitization have granuloma scars in their lungs, and sometimes in other organs also. . . . Once a person has been exposed to beryllium, there is a lifelong risk of developing the disease.

The booklet quantified this risk, stating that "[o]nly 1-6% of exposed people will develop beryllium disease," but noted that "certain work tasks have been associated with disease rates as high as 16%." Those who were sensitized, it said, but did not develop the disease, "do not need treatment" but "need to be checked by a doctor regularly for signs of disease."

On June 8, 2001, Genereux met with her primary care physician, Dr. David Ashley. Notes from the meeting indicate that Genereux again raised concerns about "[p]otential exposure [to] Acetone, Berrilium [sic], Asbestos." Genereux provided Dr. Ashley with the National Jewish booklet on chronic beryllium disease, an

illness previously unfamiliar to him. According to Dr. Ashley, Genereux then connected beryllium exposure to her lung disease:

Q. And did she suggest that there was some kind of problems that she was encountering that she thought was related to potential Beryllium exposure?

A. Her breathing problems. I mean, she had childhood asthma that basically reoccurred as an adult, and she was labeled as an asthmatic, and she was wondering whether this, you know, could be something other than asthma

On June 19, 2001, Genereux again met with Dr. Ashley. Notes from the meeting indicate that Dr. Ashley and Genereux discussed her exposure to beryllium during her employment at Raytheon, as well as the BeLPT test. Dr. Ashley's office ordered a BeLPT test kit from National Jewish. On June 20, 2001, Genereux had blood drawn at the laboratory in Dr. Ashley's office for use in a number of tests, including the BeLPT test. Dr. Ashley's office sent the completed BeLPT test kit to National Jewish in Colorado, where it was analyzed on June 23, 2001. Test results were classified as "abnormal." Genereux had a second BeLPT test analyzed on February 2, 2002, whose results were also abnormal. In late August 2002, Genereux traveled to Colorado for further testing, where she was diagnosed with chronic beryllium disease.⁸

⁸ When Genereux returned from Colorado, she initially sought treatment from a local pulmonologist who had seen her prior to the diagnosis. It seems that questions persisted about the diagnosis; the local pulmonologist, Dr. Corrao, was "not convinced" that Genereux had chronic beryllium disease. Genereux eventually left Dr. Corrao's care.

II.

On June 22, 2004, Genereux, her husband Barry Genereux, and their two children filed suit in Massachusetts Superior Court against Brush, several other beryllium manufacturers, and Raytheon. On September 7, 2004, plaintiffs amended their complaint, naming American Beryllia and Hardric as additional defendants. In the amended complaint, Genereux asserted seven causes of action against the defendants: negligence; breach of warranty; failure to warn; strict liability for ultrahazardous or abnormally dangerous activities; breach of Massachusetts's consumer protection statute, Massachusetts General Laws chapter 93A; fraudulent concealment; and conspiracy. Barry Genereux and the Genereux children asserted six additional counts, based on liability for medical monitoring, loss of consortium, and breach of chapter 93A.

On October 8, 2004, Brush and another defendant removed the case to federal district court, asserting jurisdiction under the Federal Officer Removal Statute, 28 U.S.C. § 1442(a)(1).⁹

⁹ Under the Federal Officer Removal Statute,

A civil action . . . commenced in a State court against any of the following may be removed by them to the district court of the United States for the district and division embracing the place wherein it is pending: (1) The United States or any agency thereof or any officer (or any person acting under that officer) of the United States or of any agency thereof, sued in an official or individual capacity for any act under color of such office or on account of any right, title or authority claimed under any Act of Congress for the apprehension or punishment of criminals or the collection

Subsequently, the district court dismissed the sole count against Raytheon, a claim of liability for medical monitoring. It also dismissed counts based on theories of strict liability and conspiracy, and all defendants other than Brush, American Beryllia, and Hardric. Nine counts remained: (1) negligence; (2) breach of warranty; (3) failure to warn; (4) breach of chapter 93A towards Genereux; (5) fraudulent concealment; (6) loss of consortium based on negligence; (7) loss of consortium based on breach of warranty; (8) loss of consortium based on failure to warn; and (9) breach of chapter 93A towards Barry Genereux and the Genereux children.

After the parties conducted discovery, the three remaining defendants moved for summary judgment. Defendants made four arguments in common: (A) that the plaintiffs' claims were barred by the statute of limitations; (B) that the plaintiffs' claims were barred by the sophisticated user doctrine and the bulk supplier doctrine; (C) that Genereux did not work with their products; and (D) that the defendants were not the proximate cause of the plaintiffs' injuries. American Beryllia also argued that it

of the revenue.

28 U.S.C. § 1442(a)(1). Here, Brush's removal was based on its assertion that it was a "person acting under" an officer of the United States, because the beryllium-containing products it supplied to Raytheon were used in manufacturing "military hardware." See Camacho v. Autoridad de Telefonos de P.R., 868 F.2d 482, 486-87 (1st Cir. 1989). Removal under this statute does not require that all defendants agree to removal. Ely Valley Mines, Inc. v. Hartford Acc. & Indemn. Co., 644 F.2d 1310, 1315 (9th Cir. 1981).

was entitled to summary judgment because under Massachusetts law, it was not subject to successor liability as a purchaser of assets.

Taking the facts in the light most favorable to Genereux, the district court concluded that Genereux had "performed activities on products that contained beryllium," such as "sandblasting, welding, filing, and brazing," which had "generat[ed] airborne beryllium dust that Genereux inhaled." It also concluded that the defendants had each supplied Raytheon with products containing beryllium, including windows, pins, collectors, rectangular plates, discs, rods, tubes, and "beryllium metal emitter rings." The court assumed, without deciding, that American Beryllia was subject to successor liability for injuries caused by products produced by General Ceramics, noting, "[t]he factual record on the issue of successor liability is not sufficiently for resolution [sic]."

The district court then granted the motion for summary judgment on all nine remaining counts. The court held that the plaintiffs' common-law claims (remaining counts (1)-(3) and (5)-(8)) were time-barred. It noted that the common-law claims were subject to a three-year statute of limitations, but that under Massachusetts's "discovery rule," the limitations period only began to run when Genereux knew or had sufficient notice that she had been harmed, and knew or had sufficient notice of the cause of the harm. After describing Genereux's appointments with Dr. Ashley in

June 2001, the court concluded that by June 19, 2001, at the latest, Genereux was aware that she might have chronic beryllium disease and that she was exposed to beryllium while at Raytheon. Thus, "[b]y June 19, 2001, she was sufficiently aware of the possibility that she contracted the disease through exposure to beryllium at Raytheon to start the statute of limitations." Based on that start date, the court held that limitations period ended on June 19, 2004, three days before Genereux filed suit.

The court held that the plaintiffs' statutory claims under chapter 93A (remaining counts (4) and (9)), which were subject to a four-year statute of limitations, were timely filed but barred by the sophisticated user doctrine. Plaintiffs' theory of liability under chapter 93A turned on the defendants' failure to warn of the dangers of their products.¹⁰ The court noted that the sophisticated user doctrine relieves a manufacturer of liability for failing to warn when the "end user" knows or reasonably should know of a product's dangers. After determining that Raytheon was the end user, the court concluded that Raytheon "had substantial knowledge of the dangers of beryllium exposure, manifest in three

¹⁰ In motions to the district court, plaintiffs asserted that defendants' failure to warn constituted an "unfair or deceptive act" within the meaning of chapter 93A, section 2(a). See Mass. Gen. Laws ch. 93A, § 2(a) (declaring unlawful "unfair or deceptive acts or practices in the conduct of any trade or commerce"); ch. 93A, § 2(c) (granting Massachusetts attorney general the authority to make rules and regulations interpreting section 2(a)); 940 Mass. Code Regs. 3.05 (defining "general misrepresentations").

ways: knowledge held by employees; Raytheon's own policies and internal memoranda; and warnings provided to Raytheon by its suppliers." In addition, "Raytheon was a sophisticated company," which "ranked fifty-third in Fortune Magazine's Top 100 List of American Companies," and had a "keen appreciation of the dangers of beryllium, for which it ordained prophylactic procedures decades before Genereux's employment."

Plaintiffs timely appealed and now ask us to reverse. They contend that the district court erred in determining that the statute of limitations expired before they filed suit and that the sophisticated user doctrine relieves the defendants from liability. Defendants argue that the district court properly resolved the issues it addressed, and raise as alternative grounds for upholding summary judgment the bulk supplier doctrine, plaintiffs' failure to show that Genereux was exposed to any products manufactured by the defendants, and the fact that defendants were not the proximate cause of Genereux's injuries. American Beryllia also argues that it is not subject to successor liability for injuries caused by exposure to General Ceramics's products.

III.

We review de novo a district court's award of summary judgment. Arroyo-Audifred v. Verizon Wireless, Inc., 527 F.3d 215, 217 (1st Cir. 2008). "Summary judgment is appropriate when 'the pleadings, depositions, answers to interrogatories, and admissions

on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law.'" Mass. Eye & Ear Infirmary v. QLT Phototherapeutics, Inc., 412 F.3d 215, 239 (1st Cir. 2005) (quoting Fed. R. Civ. P. 56(c)). There exists a "genuine" issue of fact when "the evidence about the fact is such that a reasonable jury could resolve the point in favor of the nonmoving party." S.E.C. v. Ficken, 546 F.3d 45, 51 (1st Cir. 2008) (internal quotation marks and citation omitted).

A. Statute of Limitations

Under Massachusetts law, "actions of tort" and "actions of contract to recover for personal injuries" are subject to a three-year statute of limitations. Mass. Gen. Laws ch. 260, § 2A. The counts in the amended complaint of negligence, breach of warranty, failure to warn, and fraudulent concealment fall into these categories and are all governed by this statute. Fidler v. Eastman Kodak Co., 714 F.2d 192, 196 (1st Cir. 1983) (failure to warn); Olsen v. Bell Tel. Labs., Inc., 445 N.E.2d 609, 611 (Mass. 1983) (negligence and breach of warranty); Noble v. Cournoyer, No. CA 946043, 1996 WL 1329385, at *2 (Mass. Super. Ct. Aug. 13, 1996) (fraudulent concealment). Claims for loss of consortium are also subject to the three-year limitations period under section 2A. Olsen, 445 N.E.2d at 613. In contrast, claims under chapter 93A

are subject to a four-year statute of limitations. Mass. Gen. Laws ch. 260, § 5A.

1. Negligence, breach of warranty, failure to warn, fraudulent concealment

The limitations period specified in section 2A commences "after the cause of action accrues." Mass. Gen. Laws ch. 260, § 2A. Normally, a cause of action for personal injury will accrue at the time of injury. Koe v. Mercer, 876 N.E.2d 831, 836 (Mass. 2007); Riley v. Presnell, 565 N.E.2d 780, 784 (Mass. 1991). However, under the discovery rule, "a cause of action does not accrue until the plaintiffs know or reasonably should have known that they were injured as a result of the defendant's conduct." Cornell v. E.I. Du Pont de Nemours & Co., 841 F.2d 23, 24 (1st Cir. 1988) (citing Olsen, 445 N.E.2d at 611-12). Actual knowledge is not the standard, but "what a reasonable person in [the plaintiff's] position would have known or on inquiry would have discovered." Bowen v. Eli Lilly & Co., 557 N.E.2d 739, 743 (Mass. 1990). The Supreme Judicial Court has analyzed this rule as having two components: "a plaintiff [must] have (1) knowledge or sufficient notice that she was harmed and (2) knowledge or sufficient notice of what the cause of harm was." Bowen, 557 N.E.2d at 742; see also Fidler, 714 F.2d at 198 ("Such notice [to start the statute of limitations] includes not only knowledge that one has been injured but knowledge of its cause -- that plaintiff

'has been harmed as a result of the defendant's conduct.'" (quoting Olsen, 445 N.E.2d at 611)); Riley, 565 N.E.2d at 784-85.

Application of the discovery rule ordinarily involves questions of fact and therefore "'in most instances will be decided by the trier of fact.'" In re Mass. Diet Drug Litig., 338 F. Supp. 2d 198, 204 (D. Mass. 2004) (quoting Riley, 565 N.E.2d at 783); see also Wolinetz v. Berkshire Life Ins. Co., 361 F.3d 44, 49 (1st Cir. 2004) (same). In particular, application of the discovery rule involves determining "what the plaintiff knew or should have known[, which] is a factual question that is appropriate for the trier of fact." Koe, 876 N.E.2d at 836; see also Borden v. Paul Revere Life Ins. Co., 935 F.2d 370, 376 (1st Cir. 1991) (characterizing the determination of whether the plaintiff should have known of an injury as "a fact-dominated enterprise"); Castillo v. Mass. Gen. Hosp., 649 N.E.2d 788, 790 (Mass. App. Ct. 1995). Determining when a plaintiff had notice of the likely cause of her injury is one example of such a determination. See Riley, 565 N.E.2d at 786 ("A reasonable fact finder . . . could find that Riley did not make the causal link").

Appellants argue that the district court erred in determining that the limitations period began to run on June 19, 2001, because Genereux did not know by this date that she had chronic beryllium disease, and thus lacked notice that she was injured. Appellees counter that under Massachusetts law, a disease

diagnosis is not necessary to trigger the statute of limitations. However, this case does not require us to decide whether a disease diagnosis is ever necessary for a plaintiff to have notice that she has been injured. Genereux has long exhibited symptoms associated with chronic beryllium disease. Her knowledge "that she had sustained substantial physical harm" is not at issue. See Bowen, 557 N.E.2d at 741. Rather, the question is when Genereux had sufficient notice that her lung disease was caused by the appellees' conduct.

In Bowen, the Supreme Judicial Court considered for the first time the case of a plaintiff who was "well aware that she had sustained substantial physical harm," but may have lacked "sufficient[] . . . notice as to the cause of her physical harm." Bowen, 557 N.E.2d at 741. The plaintiff in Bowen developed a malignant tumor and required extensive surgery to remove it. Many years earlier, her mother had taken the drug diethylstilbestrol during pregnancy. Id. at 740. The question before the court was when the plaintiff had sufficient notice that her tumor was caused by diethylstilbestrol to trigger the statute of limitations. Id. at 741. Citing the plaintiff's possession of materials suggesting "the prospect of a significant causal connection" between diethylstilbestrol and her "exceedingly rare" condition, the court concluded that the plaintiff acquired sufficient notice of the cause of her injury outside the limitations period. Id. at 743.

Construing Massachusetts law, this court has previously characterized the level of notice of cause sufficient to trigger the statute of limitations as notice of "likely cause." Fidler, 714 F.2d at 199; see also Cornell, 841 F.2d at 24 ("[T]he level of notice required to start the statute running has been defined as likely cause." (internal quotation marks and citation omitted)). Massachusetts courts, including the Supreme Judicial Court, have repeatedly cited this language in their own decisions. See Bowen, 557 N.E.2d at 742; see also Demoulas v. Demoulas Super Mkts., Inc., 677 N.E.2d 159, 175 n.27 (Mass. 1997); Krasnow v. Allen, 562 N.E.2d 1375, 1379 (Mass. App. Ct. 1990); Lear-Heflich v. Schwartz, 485 N.E.2d 692, 694 (Mass. App. Ct. 1985); Murphy v. Novartis Consumer Health, Inc., No. 01-1702-A, 2005 WL 2319157, at *3 (Mass. Super. Ct. Aug. 10, 2005); Locke v. Jones, No. 022579B, 2005 WL 1009494, at *2 (Mass. Super. Ct. Mar. 23, 2005).

Appellants argue, as they did below, that Genereux's asthma diagnosis is relevant to determining when she had sufficient notice that her lung disease was "related" to beryllium exposure.¹¹ The district court did not mention asthma in its analysis of the

¹¹ Appellee Brush contests that appellants made this argument below. In appellants' Memorandum of Law in Opposition to Brush's Motion for Summary Judgment, they argued: "The facts show that Suzanne too [sic] all reasonable steps to diagnose her condition, but it was not until 2002, less than three years before she commenced this action, that she learned the true cause of her lung problems." Shortly thereafter, appellants discussed Genereux's asthma diagnosis.

limitations issue. Nor have appellees addressed the matter, outside a footnote, in their briefing to this court.¹² We agree with the appellants that Genereux's asthma diagnosis is significant. At the time Genereux first learned of chronic beryllium disease, she had long suffered from asthma symptoms. In fact, Genereux was diagnosed with asthma as a child, years before she was exposed to beryllium. This diagnosis was confirmed on repeated occasions when Genereux was an adult. She was treated for asthma during her employment at Raytheon and afterwards, at times by a specialist. In light of these facts, we cannot say, as we must to affirm, that no reasonable jury could conclude that Genereux lacked notice, even after June 19, 2001, that her symptoms were "likely caused" not by asthma, but by another disease. A reasonable jury could conclude that Genereux's common-law claims were timely. Thus there exists a genuine issue of material fact about the timeliness of those claims.¹³

Close attention to the record supports the view that a material issue exists in this case about when Genereux had notice that the likely cause of her breathing problems was exposure to

¹² In the footnote, Brush argues that Genereux's asthma diagnosis does not affect the statute of limitations because she was never told by a physician that beryllium was unrelated to her condition. In fact, the record belies this contention. See supra note 9; infra note 15.

¹³ A reasonable jury could also conclude that Genereux's common-law claims were untimely.

beryllium. Sometime before June 8, 2001, National Jewish provided Genereux with the booklet on chronic beryllium disease. According to the booklet, only 1-6% of people exposed to beryllium contract chronic beryllium disease, and "certain work tasks" are "associated with disease rates as high as 16%." Even if Genereux believed she had a 16% chance of having chronic beryllium disease, she had been told since she was a child that she had asthma, and might have reasonably concluded that while there was a chance her symptoms were caused by exposure to beryllium, it was not the likely cause of her injury. This conclusion is fully consistent with Dr. Ashley's testimony that during Genereux's June 8 appointment, she "was wondering whether [her condition], you know, could be something other than asthma."¹⁴

Genereux's decision, on June 19, 2001, to take the BeLPT test does not compel the conclusion, as the summary judgment standard requires, that she then had notice beryllium was the likely cause of her injury. On the contrary, a reasonable juror could view the BeLPT test as merely an initial step in exploring the possibility of chronic beryllium disease. It was described

¹⁴ Moreover, the local pulmonologist who treated Genereux was apparently confident enough in the asthma diagnosis that he did not believe Genereux had chronic beryllium disease even after she was diagnosed at National Jewish in 2002. Physicians at National Jewish also expressed uncertainty about which of Genereux's medical events were attributable to chronic beryllium disease. They wrote, "it is difficult to determine if her hospitalizations for respiratory problems were truly due to asthma, or whether she was, in fact, suffering symptoms of chronic beryllium disease"

this way in the National Jewish booklet. Thus, while we agree with the district court that "[a]ctual knowledge" of cause is "not the triggering event for the statute of limitations," we disagree that Genereux's decision to take the BeLPT test to explore the mere possibility that her symptoms were not caused by asthma, but by beryllium, shows as a matter of law that she was "sufficiently aware of the possibility that she contracted the disease through exposure to beryllium at Raytheon to start the statute of limitations."

However, on June 23, 2001, Genereux's BeLPT test was analyzed at National Jewish and the results were classified as abnormal. The record does not indicate when National Jewish apprised Genereux of the results of her test. Whatever that date, it was arguably at this point that Genereux had notice not simply that beryllium might have caused her lung disease, but that it was the likely cause. If the limitations period did begin to run on June 23, 2001, then Genereux's common-law claims, filed on June 22, 2004, were timely filed.

We need not decide whether the statute of limitations on Genereux's common-law claims actually began to run on June 23, 2001. Instead, we hold that, on this record, a reasonable juror could conclude that Genereux first had sufficient notice of the cause of her injury after June 22, 2001. In light of Genereux's asthma diagnosis and the low probability of developing chronic

beryllium disease, deciding when Genereux had notice that her symptoms were likely caused by beryllium "involves a decisional process fraught with resolution of factual issues," Castillo, 649 N.E.2d at 790, such as how confident a reasonable person would have been during June 2001 of Genereux's previous asthma diagnosis, see Bowen, 557 N.E.2d at 743. Resolution of such factual issues is "peculiarly within the province of the trier of fact."¹⁵ Castillo, 649 N.E.2d at 790. The district court should not have resolved the statute of limitations issue against Genereux on this summary judgment record.

Applying the "likely cause" standard, we came to the same conclusion in Cambridge Plating Co. v. Napco, Inc., 991 F.2d 21, 29 (1st Cir. 1993), where, on facts similar to this case, we reversed the district court's entry of summary judgment in favor of the defendant. The plaintiff, Cambridge Plating, purchased a wastewater treatment system from the defendant, Napco. Cambridge Plating became aware early on that the system did not sufficiently

¹⁵ Our holding does not excuse plaintiffs previously diagnosed with a disease from being "willful[ly] ignoran[t]" of the possibility that their condition was caused instead by the defendant's conduct. See In re Mass. Diet Drug Litig., 338 F. Supp. 2d at 203-04. Willful ignorance does not toll the statute of limitations. Id. But neither does Massachusetts law require plaintiffs to have "the gift of prophecy" or to investigate every "speculati[on]" about their health. See Gore v. Daniel O'Connell's Sons, Inc., 461 N.E.2d 256, 259 (Mass. App. Ct. 1984). We acknowledge that it can be difficult to separate willful from reasonable ignorance, and speculation from inevitable inference. It is for just this reason, we believe, that on this summary judgment record this matter should go to the jury.

clean its wastewater to meet regulatory requirements. However, during the initial "debugging" of the system and afterwards, analysis of the problem focused on operation and not possible defects. The question before the court was when Cambridge Plating had sufficient notice that the system's problems were caused by manufacturing defects to trigger the statute of limitations. We reasoned:

When the problems persisted despite Napco's announcement that debugging was complete, two explanations theoretically were available. Either the system itself was defective, or it was being operated improperly. At this point, however, the two possibilities were not equally weighted. Cambridge Plating knew that the system was technically complex and required sensitive operation. And Napco's only response to Cambridge Plating's inquiries was to suggest ways to improve operation.

In these circumstances, we do not believe Massachusetts law requires a finding that Cambridge Plating was on notice of the system's defects. A plaintiff is sufficiently aware of her cause of action, and thus should have discovered it, once she has received "notice of likely cause," Fidler, 714 F.2d at 199 (quoted in Bowen, 408 Mass. at 207-08, 557 N.E.2d 739).

Id. at 29. As we then explained, the "likely cause" standard does not require knowledge that the defendant is "the culprit," but a basis for identifying it as a "suspect." Where Cambridge Plating could not choose between the two possible explanations for the system's failure, it lacked such a basis and a material issue existed for the jury to resolve.

2. Loss of consortium

Like claims of negligence, breach of warranty, failure to warn, and fraudulent concealment, actions for loss of consortium are subject to the three-year statute of limitations under Mass. Gen. Laws chapter 260, section 2A. Olsen, 445 N.E.2d at 613. Under Massachusetts law, loss of consortium is independent from the underlying claim of negligence brought by the injured spouse. Id. at 612. For this reason, the date of accrual of a loss of consortium claim and the underlying claim "must be determined separately." Id. at 613; see also Lareau v. Page, 39 F.3d 384, 390 (1st Cir. 1994); Angelini v. OMD Corp., 575 N.E.2d 41, 43 n.6 (Mass. 1991). While loss of consortium and the underlying claim will usually accrue at the same time, this may not always be true. Olsen, 445 N.E.2d at 613. A consortium action may be timely even though the spouse's underlying negligence action is time-barred. See id.; Fidler v. E.M. Parker Co., 476 N.E.2d 595, 603-04 (Mass. 1985) (discussing this possibility).

In its Memorandum & Order granting summary judgment, the district court did not determine separately the date of accrual of the loss of consortium claims and the underlying claims brought by Genereux. Rather, it denied all the "common law claims" on the basis of one date of accrual. This was error. We make no determination here about the date of accrual of the loss of consortium claims brought by Barry Genereux and the Genereux

children, and leave this matter to be determined in the district court.

B. Sophisticated User Doctrine

1. Legal principles

Under Massachusetts law, a manufacturer of a product has a duty to warn foreseeable users of dangers in the use of that product of which the manufacturer knows or reasonably should know. Bavuso v. Caterpillar Indus., Inc., 563 N.E.2d 198, 201 (Mass. 1990). However, under the sophisticated user doctrine, a manufacturer has no duty to warn of a product's latent characteristics or dangers when the end user knows or reasonably should know of those dangers. See Carrel v. Nat'l Cord & Braid Corp., 852 N.E.2d 100, 108-09 (Mass. 2006); Hoffman v. Houghton Chem. Corp., 751 N.E.2d 848, 854-55 (Mass. 2001); Restatement (Second) of Torts § 388, cited in Carrel, 852 N.E.2d at 109. "[T]he relevant inquiry turns on the end user's level of sophistication." Hoffman, 751 N.E.2d at 854.

The sophisticated user doctrine is sometimes explained as a corollary of the "open and obvious" doctrine. See, e.g., Carrel, 852 N.E.2d at 109 (citing Koken v. Black & Veatch Constr., Inc., 426 F.3d 39, 45-46 (1st Cir. 2005) (applying Maine law)). Under the open and obvious doctrine, a manufacturer has no duty to warn when the danger presented by a product is obvious. Bavuso, 563 N.E.2d at 201. A warning under those circumstances would not

reduce the likelihood of injury. Id. Similarly, the sophisticated user defense applies where a warning is unlikely to have a deterrent effect. See Hoffman, 751 N.E.2d at 855. The end user already perceives the danger because of his sophistication. Restatement (Second) Torts § 388 cmt. k (1965) ("[T]he condition [is] . . . one which only persons of special experience would realize to be dangerous").

Significantly, Massachusetts recognizes a sophisticated user defense when the end user knows or reasonably should know of the particular danger posed by the product. For example, in Carrel a camper was injured when he pulled on the end of a bungee cord, causing a knot in the cord to unwind and the cord to suddenly retract, striking him in the eye. Carrel, 852 N.E.2d at 103. At trial on the camper's claim for failure to warn, the jury was instructed on the sophisticated user defense, and the defendant prevailed. The Supreme Judicial Court upheld the instruction on appeal. It noted that it was the practice of the cord's distributor (not the manufacturer) to include in its shipments a document warning against using the bungee cord in a zip-line course in the precise manner that the camp had used it. The court also pointed out that a consultant had visited the camp, learned of the bungee cord's use, and disapproved, specifically instructing a camp employee to use a different kind of knot than the one which later unwound, causing the injury. Id. at 111-12. These warnings proved

that the end user knew "of the particular danger to be guarded against, in which case an additional warning [from the manufacturer] would have been superfluous." Id. at 112.

Conversely, where there is a lack of proof that the end user knew of the particular danger, courts have upheld a jury's verdict of liability against a manufacturer for failure to warn against a sophisticated user defense.¹⁶ Similarly, in Koken, 426 F.3d at 39, we held that, under Maine law, a welder was not a sophisticated user of fire blankets despite his awareness that welding created a fire hazard, since a reasonable fact-finder could have found that he was unaware of the limitations of the particular fire blanket he was using.¹⁷ We agreed with the district court that

¹⁶ See Gillespie v. Sears, Roebuck & Co., 386 F.3d 21, 29 (1st Cir. 2004) (applying Massachusetts law) ("Gillespie admitted that the still-spinning blade was visible and audible, and that he 'understood' that blades coasted, as any experienced user would assuredly know The jury might have concluded from Gillespie's further testimony . . . that he was not 'fully aware' . . . of the duration of the danger and that a more explicit or conspicuous warning would have heightened his awareness and prevented the accident." (citations omitted)); Knowlton v. Deseret Med., Inc., 930 F.2d 116, 122 (1st Cir. 1991) (applying Massachusetts law) (concluding that a reasonably prudent heart surgeon might not have appreciated the danger of puncture posed by a particular catheter-threading technique despite understanding the need to thread the catheter with "great care" and being warned by the manufacturer that the needle could cut the catheter); see also Marois v. Paper Converting Mach. Co., 539 A.2d 621, 624 (Me. 1988) ("[T]he jury could have rationally found that, although generally aware of the inherent danger of the operation, the specific danger of the machine's design and clearing process was not obvious to, or known by, the Plaintiff." (emphasis added)).

¹⁷ See also Gray v. Badger Mining Corp., 676 N.W.2d 268, 277 (Minn. 2004) (affirming district court's denial of defendant's

the fire hazard posed by welding was obvious "to both laymen and experienced welders." Id. at 45. We disagreed, however, that an awareness of the general hazard sufficed to make the welder a sophisticated user of the defendants' fire blankets:

[I]n holding that the duty to warn was precluded by the known hazard of fire in torch cutting, we think that the district court gave too broad a scope to the open and obvious and sophisticated user doctrines. The fact that the risk of accident is well known does not preclude a duty to warn of particular risks, different from the general risk, if those risks are not open and obvious or known by a reasonable sophisticated user. For example, the risk of vehicle accidents on the highway is well known, and drivers of commercial trucks are sophisticated users of their equipment. There is no duty to warn of the general risk of an accident . . . But there may be a duty to warn that loading a particular kind of truck in a particular way could increase the risk of rollover (if that risk is not generally appreciated). In each case the analysis must focus on the particular risk and whether that risk is open or obvious or known to the sophisticated user.

Id. at 45-46. We then observed that "the necessity of . . . a particularized analysis" makes it important to "defin[e] the claimed risk and the warning so that the issues of duty to warn and causation can be addressed intelligently." Id. at 46.

summary judgment motion and noting, "[plaintiff's] general knowledge of the risk was little more than the intuitive sense of danger from experiencing dust in the foundry environment. More specifically, there is no evidence that he knew that disposable respirators were ineffective in preventing silicosis in a foundry environment.").

Although these general principles are relevant here, we must emphasize a distinctive feature of this case. For the purpose of analyzing the sophisticated user defense, the plaintiff Genereux is not the end user whose sophistication is at issue. The district court concluded that Raytheon was the end user of appellees' products. Appellants did not challenge this determination. Although Genereux relies on the duty to warn in her claims against the appellees, it follows that Brush, American Beryllia, and Hardric had no duty to warn Genereux of the dangers associated with using their beryllium products if they prevail on their sophisticated user defense -- that is, if they establish that Raytheon knew or reasonably should have known of those dangers. See Kenneth M. Willner, Note, Failures to Warn and the Sophisticated User Defense, 74 Va. L. Rev. 579, 590 (1988) ("Under the duty approach [to the sophisticated user defense], a seller has no duty to warn an ultimate user when intermediate purchasers are knowledgeable.").¹⁸

¹⁸ It appears unsettled under Massachusetts law whether an intermediate party, such as Raytheon, is always the end user for purposes of the sophisticated user defense in these employer/employee cases. See, e.g., Barbosa v. Hopper Feeds, Inc., 537 N.E.2d 99, 102 (Mass. 1989) (observing, in a case where the plaintiff sued the manufacturer of a product purchased by her employer, "It is true that a manufacturer has no duty to warn a plaintiff who is fully aware of the hazards posed by a product. This is not such a case." (internal citations omitted)); Slate, 510 N.E.2d at 252 (noting that "the plaintiffs failed to present evidence that Bethlehem [the defendant supplier] knew of a danger that Slate [the plaintiff employee of the purchaser] did not appreciate.").

Normally, the existence of a duty of care is a question of law decided by a judge, not a jury. Cottam v. CVS Pharmacy, 764 N.E.2d 814, 819 (Mass. 2002); W. Page Keeton et al., Prosser & Keeton on the Law of Torts 236 (5th ed. 1984) ("[W]hether, upon the facts in evidence, such a relation exists between the parties that the community will impose a legal obligation upon one for the benefit of the other . . . is entirely a question of law, . . . and it must be determined only by the court."). However, in the case of the sophisticated user doctrine, as applied in Massachusetts, the existence of a duty to a plaintiff such as Genereux depends on the sophistication of the intermediary employer, which is a factual matter that may be resolved by the jury. See Hoffman, 751 N.E.2d at 855 ("[T]he sophisticated user doctrine allows a fact finder to determine that no such duty was owed.").

In this case, the focus of the sophisticated user defense is the knowledge of the intermediary in the three-party situation involving Genereux as an employee, Raytheon as an employer, and appellees as manufacturers of products for use in Raytheon's manufacturing operations. Generally, an intermediary's knowledge may come from many sources. Sometimes the analysis will focus on what the intermediary already knows, and sometimes it will depend on what the manufacturer tells the intermediary. Here, appellees have placed the focus on themselves by introducing into the record, and relying on, evidence of warnings they provided Raytheon.

Nevertheless, we are not making a determination of whether the appellees exercised due care in warning Raytheon about their beryllium products; the question is what Raytheon knew, or reasonably should have known, as a result of the warnings. See Willner, supra, at 592 ("[T]he defense focuses on the actual knowledge of a purchaser or user, rather than . . . the reasonableness of the sellers' conduct in warning or in failing to warn.").

2. The particular dangers and Raytheon's knowledge of those dangers

Appellees argue that the particular danger to be guarded against was chronic beryllium disease. The record is clear that Raytheon knew that exposure to beryllium dust or fumes could cause chronic beryllium disease. However, on the facts of this case, that proposition is stated too broadly. Following Carrel and Koken, we must analyze "the particular danger[s] to be guarded against" in use of the appellees' beryllium products. Carrel, 852 N.E.2d at 112.

Appellants argue that Raytheon was unaware of five particular dangers:

- (1) Raytheon believed that beryllium operations should be air-sampled¹⁹ to ensure

¹⁹ Air sampling is a method of evaluating the concentration of airborne beryllium in a particular area. There are several different methods for air sampling, which produce divergent measures of beryllium exposure. In one method, a "high volume sampler" is used to draw air through a filter placed in the

compliance with the Occupational Health and Safety Administration's "Permissible Exposure Limit" ("PEL") only when they produced visible amounts of dust, while in fact all beryllium operations should be periodically air-sampled, and a workspace may be dangerous to human health even though no dust is visible;

(2) Raytheon believed that local exhaust ventilation²⁰ was required only for operations that produced visible dust, while in fact other beryllium operations should also be carried out under local exhaust ventilation;

(3) Raytheon was unaware that beryllium dust can contaminate work clothing, which, if worn home, can cause injury to family members;

(4) Raytheon was unaware that polishing beryllium metals without protective measures is unsafe; and

(5) Raytheon was unaware that occupational exposures to an airborne concentration of 2 µg/m³ of beryllium dust is unsafe.²¹

breathing zone of a worker. The filter is then analyzed for beryllium contaminants. Another method is referred to as "personal sampling," and aims to determine the amount of beryllium to which each individual worker is exposed.

²⁰ Local exhaust ventilation is a means of ventilating a workspace to remove contaminants. It is sometimes accomplished by vacuuming out the dust generated by an operation through a hood placed over the workspace. In contrast, "general ventilation" is accomplished by an "air handling device" that circulates and conditions air in a defined area. General ventilation can enhance the risk posed by uncontrolled beryllium dust by circulating it throughout the area serviced by the air handling device, thereby increasing the number of individuals exposed to the dust.

²¹ In their argument to this court, appellees do not contest that any of these practices or standards are in fact dangerous to human health.

We agree with the district court that Raytheon's awareness of the dangers posed by the beryllium products it used can be gleaned from the knowledge of its employees, its policies as evidenced by internal memoranda, and warnings provided by suppliers. We also agree with the district court that these categories of evidence establish that (1) Raytheon was aware that beryllium was toxic; (2) Raytheon was aware that exposure to beryllium could cause chronic beryllium disease; (3) Raytheon knew that exposure to beryllium dust, in particular, was hazardous; and (4) because of its concern about beryllium dust, Raytheon created safety policies for opening packages containing beryllium and for sandblasting beryllium oxide ceramics (even if these latter policies were not followed). However, we disagree with the district court that this evidence establishes, as a matter of law, that Raytheon was a sophisticated user with respect to all of the particular dangers identified by the appellants.

Instead, the record leads us to conclude that Raytheon knew, or should have known, of the following particular dangers: the need to air-sample all beryllium operations, the need to provide local exhaust ventilation for operations besides those that produced visible dust, and the risk to family members posed by work clothing contaminated with beryllium dust. In each case, undisputed record evidence proves that Raytheon knew or should have known of the particular danger, often because it was informed of

the danger by the appellees, principally Brush.²² The sophisticated user defense is dispositive for these particular dangers. However, we also conclude that there are genuine issues of fact about whether Raytheon knew or should have known of the last two particular dangers identified above: (a) polishing beryllium metals without protective measures, and (b) exposing workers to airborne concentrations of 2 $\mu\text{g}/\text{m}^3$ of beryllium dust.

a. Polishing beryllium metals

Appellants assert that Genereux polished beryllium metals while working in the Waltham plant's Backward Wave Oscillator Lab. They further assert that appellees failed to warn Raytheon of the need for hygienic controls during polishing, and that this caused Genereux injury.

There are two genuine issues of material fact about appellants' claim that make the summary judgment disposition

²² For example, Brush recommended that Raytheon air-sample "all operations where beryllium exposures exist" in a letter sent June 7, 1984. This recommendation corroborated "Toxicity of Beryllium," a document contained in Raytheon's files, which recommended air sampling to determine the need for hygienic controls on "any operation." On the matter of local exhaust ventilation, Brush sent several letters to Raytheon during the 1980s stating that "[t]he preferred method of achieving [the 2 $\mu\text{g}/\text{m}^3$] standard is by local exhaust ventilation." Early Raytheon policies required local exhaust ventilation for operations that did not produce visible dust, such as opening packages from beryllium suppliers. Finally, the record is replete with warnings about the danger posed to family members by beryllium-contaminated work clothing. Documents containing such warnings include "Toxicity of Beryllium," "Beryllium," "Beryllium and its Compounds," and the 1990 Brush Material Safety Data Sheet.

inappropriate. The first issue relates to Genereux's exposure to beryllium dust generated by polishing. Appellee Brush asserts that Genereux "simply made up" the fact that she polished beryllium. However, Al Broadbent, Genereux's "direct supervisor" at Raytheon, stated in his deposition that his team "would polish" finished subassemblies. Whether Genereux herself was involved in this stage of the process is ambiguous. Appellants' expert witness, John Martyny, described Genereux's use of a Dremel tool and sandpaper on beryllium metal parts as "polish[ing]." For purposes of summary judgment, on this record, a reasonable fact-finder could conclude that Genereux polished beryllium metals and was therefore exposed to beryllium dust generated by polishing.

Second, there is a genuine issue of material fact about when Raytheon knew or should have known that uncontrolled polishing posed a danger to the health of exposed workers. Only a handful of documents in the record expressly discuss polishing. First, on April 19, 1989, Brush provided Raytheon with a report entitled "Potential Beryllium Exposure While Processing Beryllia Ceramics for Electronic Applications," dated September 1988. The report states that "wet polishing" could possibly result in exposures above $2 \mu\text{g}/\text{m}^3$. Second, Brush included a Material Safety Data Sheet ("MSDS") in every shipment of beryllium to Raytheon. The 1990 version of the MSDS stated, "[a]irborne exposure to [beryllium] in excess of the occupational standards can occur when sintering,

machining, grinding, sanding, polishing, laser scribing and trimming, chemical etching, crushing, or otherwise abrading the surface of this material in a manner which generates finely divided particles."²³ (Emphasis added.)

Brush provided both of these warnings near the end of Genereux's employment. It is possible that before April 1989, when Brush sent Raytheon the "Potential Beryllium Exposure" report, Raytheon was unaware of the danger posed by polishing, and that during this time Genereux was exposed to beryllium dust generated by polishing.²⁴

Although the record does not show that Raytheon knew of the dangers posed by polishing before April 1989, it is possible that it should have known. Descriptions of polishing in the record suggest that "polishing" may denote a wider array of operations than the ordinary use of the term suggests. For example, appellant's expert characterizes operations with sandpaper and a Dremel tool as "polishing." If "polishing" includes sanding and the use of a Dremel tool, then arguably there were earlier warnings

²³ We note that Brush's 1992 MSDS warned that beryllium exposure may occur during polishing, and Hardric's 2003 MSDS warned of the need for local exhaust ventilation "or other controls designed to prevent exposure" for polishing. Both warnings were provided after Genereux left Raytheon.

²⁴ In fact, since Genereux worked as a quality assurance technician during her last year in the Waltham plant, the warnings provided in 1990 may have been received when Genereux was no longer exposed to beryllium dust produced by uncontrolled polishing processes.

about polishing that Raytheon should have understood. In a letter sent August 29, 1983, Brush warned Raytheon that "[a] potential health risk can occur when grinding, machining, sanding, drilling, brazing, welding, or otherwise abrading or treating the surface in such a manner as to generate finely divided airborne particulate."

(Emphasis added.)

However, the record is far from clear about what activities constitute "polishing." On the record developed thus far, a reasonable jury could reject the conclusion that warnings about sanding or abrasion were sufficient to warn about polishing as well. Brush's practice was to warn users about specific operations that posed a danger: "grinding, machining, sanding, drilling, brazing, welding." Although Brush also warned users against "otherwise abrading the surface in a manner which generates finely divided particles," it later decided to include polishing in the list of specific operations. We conclude that there is a genuine issue of fact about whether Raytheon knew or should have known of the dangers posed by uncontrolled polishing, at least before April 1989.

b. Occupational exposure to $2 \mu\text{g}/\text{m}^3$

Appellants assert that Raytheon was unaware that exposures of $2 \mu\text{g}/\text{m}^3$ or less could cause its employees to develop chronic beryllium disease. They assert that appellees knew that there might be a danger posed by such exposures to their products,

but that they failed to warn Raytheon. In response, appellees point to evidence that Raytheon already knew of the danger posed by exposures at 2 $\mu\text{g}/\text{m}^3$.

There is a genuine issue of material fact as to whether Raytheon was aware that exposures of 2 $\mu\text{g}/\text{m}^3$ or less could cause its employees to develop chronic beryllium disease. The record contains evidence that Raytheon was aware that exposures at the 2 $\mu\text{g}/\text{m}^3$ level were dangerous. Crucially, however, the record also contains evidence that Raytheon distinguished between occupational exposures and non-occupational (or "out-plant," or "neighborhood") exposures, and believed that only non-occupational exposures at the 2 $\mu\text{g}/\text{m}^3$ level posed a danger of chronic beryllium disease. Non-occupational exposures may occur among individuals who live in the vicinity of a plant where beryllium is processed. According to "Beryllium Project," a Raytheon memorandum, non-occupational exposures could cause disease at lower exposure levels because the beryllium particles involved were smaller, and thus possessed "greater reactivity." The same document stated that occupational exposures of 2 $\mu\text{g}/\text{m}^3$, in contrast, were "considered safe." Not only did Raytheon's own documents expressly distinguish non-occupational and occupational beryllium exposures, the record contains multiple letters from Brush stating that no occupational cases of chronic beryllium disease had been reported where plants observed the 2 $\mu\text{g}/\text{m}^3$ standard. In light of this evidence, a

reasonable jury could conclude that during the time of Genereux's employment, Raytheon did not believe that workplace exposures of 2 $\mu\text{g}/\text{m}^3$ or less posed a threat to its employees, such as Genereux.²⁵

We excerpt the relevant evidence below. For purposes of clarity, we have divided the evidence into two categories: (i) internal Raytheon documents, and (ii) information provided by Brush to Raytheon concerning hazards posed by beryllium.²⁶

i. Internal Raytheon documents

Of particular relevance among Raytheon's internal documents are those from a file maintained by Walter Hartford, McCarthy's predecessor and a Raytheon Safety Manager from 1970-1989. The most important of these documents, "Beryllium Project," a Raytheon memo dated November 16, 1960, expressly states that 2 $\mu\text{g}/\text{m}^3$ exposures are safe: "In view of the many unknowns in beryllium pathology, the only possible preventative has been to reduce the atmospheric concentrations to within safe limits,"

²⁵ _____ Scientists studying chronic beryllium disease have long distinguished occupational and non-occupational exposures. See Morgan v. Brush Wellman, Inc., 165 F. Supp. 2d 704, 710-11 (E.D. Tenn. 2001) (discussing the early study of non-occupational exposure to beryllium). In this case, appellants' claim is that Raytheon was unaware that it was dangerous to expose Genereux to 2 $\mu\text{g}/\text{m}^3$ of beryllium in the work setting.

²⁶ Although we focus on materials provided by Brush to Raytheon, we have also examined warnings provided by Hardric and General Ceramics, which appellants argue is the predecessor of appellee American Beryllia. Except for MSDSs, warnings provided by Hardric and General Ceramics contain no information that arguably informed Raytheon of the particular dangers identified by appellants.

namely, "[t]he in-plant atmospheric concentration of beryllium should not exceed 2 µg/m³ averaged over an 8 hour day." (Emphasis added.) The document goes on to distinguish between safe exposure levels for "in-plant" and "out-plant" areas. The basis for the distinction is the "greater reactivity" of beryllium dust particles in the non-occupational setting.

The 2 µg/m³ allowed . . . for an average daily exposure is considered to be well within the concentrations necessary for causing the chronic disease. It should be noted that the "in-plant" concentration of 2 µg/m³ is considered safe whereas 40-50 cases have been reported in the neighborhood of beryllium processing plants where monitoring indicated only .01 µg/m³. One reason proposed for the higher incidence of chronic beryllium poisoning with these relatively low concentrations of beryllium is the smaller particle size and thus greater reactivity of beryllium in the "out-plant" area.

(Emphasis added.)

Another document in Raytheon's files, "Toxicity of Beryllium," a 1962 report authored by the Air Force, reinforces this distinction by stating that chronic beryllium disease has not been reported at plants observing the 2 µg/m³ standard: "To date no case of either acute or chronic beryllium disease has been reported in connection with plant operations at which these standards [exposures at 2 µg/m³] have not been exceeded."

ii. Materials provided by Brush

Brush provided Raytheon with a considerable number of documents about the safety of beryllium products. These materials

almost uniformly corroborate the impression that occupational exposures at the 2 µg/m³ level are safe. For example:

- Brush published MSDSs in 1983, 1985 and 1990, and provided them to Raytheon throughout Genereux's employment. All of the MSDSs identify the beryllium PEL or TLV as 2 µg/m³. MSDSs provided by American Beryllia also identify the 2 µg/m³ value.
- On May 24, 1979, Brush mailed Raytheon a letter, to which it attached a paper entitled "Beryllium and Its Compounds," authored by the American Industrial Hygiene Association, and dated 1964. The paper identifies a "Recommended Maximal Atmospheric Concentration" of 2 µg/m³.
- Letters mailed to Raytheon on June 7, 1984, October 24, 1984, August 8, 1986, and March 3, 1989, state, "[d]aily weighted average exposure over an eight-hour day may not exceed 2.0 micrograms beryllium per cubic meter of air."

In addition, Brush mailed its customers material that impugned prior evidence that exposures at the 2 µg/m³ level were dangerous and stated that occupational exposures at that level had never produced chronic beryllium disease. On April 18, 1989, Brush mailed Raytheon a letter, to which it attached several documents discussing beryllium exposure levels. Included among those documents was its own paper, "Safe Handling of Beryllia Ceramics," dated November 1983.

- The paper's introduction explained, "[u]ntil a few years ago almost all beryllium oxide production and fabrication was performed in a limited number of facilities. . . . Because of the integrated nature of early beryllium operations, much of the literature concerning the health and safety aspects of beryllium is quite general in nature and not applicable to simple beryllium operations. Accordingly, a good deal of confusion still exists concerning the relative hazards of handling beryllia. The purpose of this document is to answer the questions

most often posed by those engaged in the handling of beryllia and thereby to summarize the health considerations involved in this aspect of beryllium activity." (Emphasis added.)

- The 1983 "Safe Handling" paper included a number of questions and answers, such as, "Q. What are the health hazards associated with the handling of beryllia? A. The only potential problem of any significance associated with the handling of beryllia is the inhalation of excessive amounts of respirable beryllium. Q. What is an excessive amount? A. . . . The majority of people, perhaps as much as 99%, apparently do not seem to react adversely to beryllium exposures at any level. A small percentage of people do develop an immunological response. . . . Opinion varies as to what level of exposure is apt to produce a reaction in a hypersensitive person but we do know that there has never been an illness recorded where exposures were kept at, or below, the threshold limit values originally recommended by the U.S. Atomic Energy Commission in 1949 and subsequently established by the U.S. Occupational Safety and Health Administration" (Emphasis added.)
- The 1983 "Safe Handling" paper also explained, "Q. If these recommended standards have been so effective in controlling beryllium illness, what about the hundreds of cases one hears about? A. Hygienic controls were established in the late 1940s. Prior to that time . . . [people] were exposed to massive doses of beryllium under completely uncontrolled conditions. In many cases people exposed in the early 1940s did not develop symptoms of illness until years afterward. Thus, we still hear occasionally of a 'new' beryllium illness due to those old exposures. Q. Does this mean that there have been no cases of beryllium disease as a result of exposures in recent years? A. No. New cases of beryllium disease, although relatively infrequent, still occur as a result of accidental or negligent exposures in excess of the permissible concentration levels." (Emphasis added.)

The point that occupational exposures at the 2 µg/m³ level pose no danger to employees was repeated in subsequent materials from Brush.

- Also attached to Brush's April 18, 1989 letter were two versions of a paper entitled, "Potential Beryllium Exposure While Processing Beryllia Ceramics for Electronic Applications." The first version of the paper was authored by Martin Powers, a Brush employee, and published in 1982. It states: "There has not been a nonoccupational case of beryllium disease as a result of exposure since the 1940's and the acute disease, which is only found in beryllium producer plants, has not been seen in the past decade." (Emphasis in original.)
- The second version of "Potential Beryllium Exposure," authored by Marc Kolanz and Richard Davis, and published in September 1988, states: "No one is able to define the dividing line between safe and unsafe concentration of beryllium with any precision. Therefore, the AEC-recommended levels [2 $\mu\text{g}/\text{m}^3$], which are now OSHA standards, incorporate a margin of safety. Although the exact margin of safety is not known, we do know that there has never been an occupational case of [chronic beryllium disease] when the exposure was at or even near the 2 $\mu\text{g}/\text{m}^3$ level" (Emphasis in original.)
- In a July 19, 1989 letter sent by Brush to its beryllia customers, Brush physician Dr. Thomas Markham states, "[t]he fact that no beryllium disease cases have been reported where the standard has been met provides immutable testimony to its effectiveness."

Taken together, we think that this evidence establishes a genuine issue of material fact about whether Raytheon knew, or reasonably should have known, that exposures to beryllium at the 2 $\mu\text{g}/\text{m}^3$ level could cause employees like Genereux to develop chronic beryllium disease. To be sure, the record contains some evidence suggesting that Raytheon was aware that exposures at 2 $\mu\text{g}/\text{m}^3$ could be dangerous.²⁷ However, the "Beryllium Project" memo clearly

²⁷ James McCarthy, who became a Raytheon safety engineer in 1989, testified that he understood in the 1980's that it was possible for a person to develop chronic beryllium disease from exposures below 2 $\mu\text{g}/\text{m}^3$. However, McCarthy described such exposure

distinguishes between occupational exposures and "out-plant" exposures, expressly stating that the 2 µg/m³ standard is "considered safe" in the occupational setting. According to the Raytheon memo "Beryllium Project," Raytheon believed that non-occupational exposures at or below the 2 µg/m³ level were dangerous due to the "greater reactivity" of the beryllium particles involved. That occupational exposures at that level were safe would have been corroborated by multiple documents, including the "Safe Handling" paper, the "Potential Beryllium Exposure" papers, and the Markham letter, all of which asserted that no chronic beryllium disease had ever been discovered in an occupational setting where the 2 µg/m³ standard was observed. On this basis, a reasonable fact-finder could conclude that Raytheon reasonably believed workplace exposures of 2 µg/m³ or less posed no danger to its employees.

levels as being "lower than those that are appropriate for general manufacturing populations, certainly." It is unclear whether McCarthy believed that such exposures put workers, such as Genereux, at risk. (McCarthy also testified that his knowledge of Raytheon during the period that Genereux worked in the Backward Wave Oscillator Lab was "[n]othing more than anecdotal," and that he remembered nothing "specific.") In addition to McCarthy's testimony, an undated memo entitled "Beryllium" surmises that "'safe' levels of beryllium may ultimately be set below one microgram per cubic meter of air." Brush allegedly provided this memo to Raytheon, possibly attached to its April 18, 1989 letter. Attached to the same letter was the "Potential Beryllium Exposure" report, which stated that there had not been a single nonoccupational case of chronic beryllium disease in plants observing the 2 µg/m³ limit. At best, this evidence creates a genuine issue of material fact about whether Raytheon was aware of the danger posed to workers such as Genereux by 2 µg/m³ exposures.

Moreover, we cannot ignore the evidence of Brush's effort to persuade its customers that occupational exposures to beryllium at the 2 $\mu\text{g}/\text{m}^3$ level do not cause chronic beryllium disease. In light of this evidence, a reasonable jury could conclude that even if Raytheon did suspect, at one time, that exposures at the 2 $\mu\text{g}/\text{m}^3$ level were dangerous to their workers, Brush convinced it that this suspicion was unreasonable.²⁸ While Raytheon is a sophisticated company, the record reveals that Brush is much more sophisticated in its understanding of beryllium, the dangers posed by beryllium, and how best to implement hygienic controls. Brush is the leading producer of beryllium, has been involved in beryllium research for sixty years, was recognized as an expert on beryllium by Raytheon's employees, and held itself out to Raytheon as a beryllium expert -- which it was.

3. Conclusion

This record does not entitle appellees to summary judgment on the sophisticated user defense. There are genuine issues of material fact about whether Raytheon knew, or reasonably should have known, of the particular dangers posed by polishing beryllium metals and by exposing its workers to concentrations of beryllium at the 2 $\mu\text{g}/\text{m}^3$ level. Therefore, we cannot conclude, for purposes of summary judgment, that Genereux's employer was

²⁸ Evidence in the record supports the conclusion that Raytheon would adjust its hygienic controls in light of input from Brush. See infra section III(C)(3).

sufficiently knowledgeable of the dangers she faced to relieve the appellees of their duty to warn Genereux of those dangers. See Willner, supra, at 590-92 (discussing this version of the sophisticated user defense).

Of course, the record leaves little question that Raytheon was, generally speaking, as the district court noted, a sophisticated company, and that it knew a considerable amount about beryllium. Still, it would be speculative to infer, on these grounds alone, that Raytheon knew or should have known of the polishing and two-microgram-level dangers. There is simply no basis in the record from which a reasonable fact-finder could draw such an inference. Cf. Johnson v. Am. Standard, Inc., 179 P.3d 905, 916-17 (Cal. 2008) (record contained evidence about what plaintiff's profession "could reasonably be expected to know"); Humble Sand & Gravel v. Gomez, 146 S.W.3d 170, 175 (Tex. 2004) (record contained testimony about what one would expect a person in the plaintiff's profession to know). The district court was wrong to conclude otherwise.

C. Appellees' Alternative Grounds for Affirmance

1. Bulk supplier doctrine

As the Massachusetts Supreme Judicial Court has made clear, the bulk supplier doctrine is a "separate, conceptually discrete" defense from the sophisticated user doctrine. Hoffman, 751 N.E.2d at 854 (citing Donahue v. Philips Petroleum Co., 866

F.2d 1008, 1012 (8th Cir. 1989)). Under the bulk supplier doctrine, a supplier of bulk products "discharge[s] its duty to warn end users of a product's hazards by reasonable reliance on an intermediary" to transmit an appropriate warning. Id. The Supreme Judicial Court has stated that "[f]or the bulk supplier doctrine to apply, a product must be delivered in bulk to an intermediary vendee." Id. This requirement reflects two rationales for the doctrine: that products delivered in bulk are often reformulated and repackaged by an intermediary, making it unlikely that the supplier could provide a warning that would reach end users; and that bulk supplies are often put to "multitudinous commercial uses," making it unduly burdensome to require the supplier to warn all foreseeable end users. Id. at 856-57.

If the bulk supplier doctrine applies, a supplier discharges its duty to warn only if it has reasonably relied on the intermediary to transmit its warnings. Id. at 854. "The reasonableness inquiry is fact intensive," id. at 856, and factors that may determine whether reliance was reasonable are:

- (1) the dangerous condition of the product;
- (2) the purpose for which the product is used;
- (3) the form of any warnings given;
- (4) the reliability of the third party as a conduit of necessary information about the product;
- (5) the magnitude of the risk involved; and
- (6) the burden imposed on the supplier by requiring that he directly warn all users.

Id.; see also Tilton v. Union Oil Co. of Cal., 831 N.E.2d 391, 394 (Mass. App. Ct. 2005).

The district court held that whether the bulk supplier doctrine applied to the appellees "raises at least one question of material fact." We agree. For the bulk supplier doctrine to apply, a supplier must supply its products in bulk to an intermediary vendee. In Hoffman, the Supreme Judicial Court stated that "[b]ulk products are often delivered in tank trucks, box cars, or large industrial drums." 751 N.E.2d at 856. As explained, the characteristics of this method of supply justify permitting a supplier to discharge its duty to warn by reasonably relying on an intermediary to transmit its warnings. See id. at 856-57. The record does not show whether appellees supplied their products in box cars or by comparable means, and appellees do not argue in their briefing to this court that the summary judgment record permits a resolution of this question. For that reason alone, this alternative ground of decision is not available to the appellees.

2. Genereux did not work with appellees' products

Taking the facts in the light most favorable to the appellants and resolving all inferences in their favor, the district court below concluded that appellees had supplied Raytheon "with a wide variety of products containing beryllium." It stated that American Beryllia had supplied Raytheon with beryllium oxide components, including windows, pins and collectors; that Brush had supplied Raytheon with rectangular plates, discs, rods and tubes;

and that Hardric had supplied "beryllium metal emitter rings" made from raw materials supplied to Hardric by Brush.

Appellees argue that we should affirm summary judgment on the ground that the appellants have produced no evidence that Genereux ever worked with their products. We disagree. Taken in the appropriate light, the record supports the conclusion that Genereux worked with beryllium products manufactured by appellees. As to Brush, the record contains invoices showing that Brush shipped beryllium oxide components, including "windows" (discs) and rectangles, to Raytheon's Waltham plant. Genereux testified that she worked with beryllium oxide discs and rectangles in the Backward Wave Oscillator Lab. The record also contains evidence that Brush supplied beryllium to intermediate fabricators, who altered the pieces and sold them to Raytheon. For example, Brush supplied Hardric with beryllium metal tubes, which it made into "emitter rings" and delivered to the Waltham plant. Lastly, as to American Beryllia, invoices included in the record show that its predecessor, General Ceramics, supplied beryllium oxide "windows" to Raytheon's Waltham plant throughout the 1980s.

Taken in the light most favorable to the appellants and resolving all inferences in their favor, the record supports the conclusion that Genereux worked with beryllium products manufactured by appellees.

3. Proximate causation

Appellees argue that even if they breached their duty to warn Genereux, summary judgment should be affirmed because their conduct was not the proximate cause of Genereux's injury. In support of this argument, appellees point to record evidence that Raytheon removed the warnings that appellees did provide and failed to heed warnings about controlling beryllium exposures, particularly in connection with the sandblasting of beryllium ceramics. These practices, appellees argue, show that Raytheon was the proximate cause of Genereux's injury.²⁹

Under Massachusetts law, a "defendant is liable for the foreseeable intervening conduct of a third party whether that conduct is negligent or not." Wilborg v. Denzell, 268 N.E.2d 855, 859 (Mass. 1971) (collecting cases); Jones v. Cincinnati, Inc., 589 N.E.2d 335, 338 (Mass. App. Ct. 1992). "'[O]nly unusual, extraordinary negligence of a third party will excuse an original tortfeasor's liability.'" Jones, 589 N.E.2d at 338 (quoting A.L.

²⁹ There is a close relationship, in this case, between the proximate cause arguments and the sophisticated user defense. Both focus on Raytheon, the intermediary between the appellees and Genereux. The thrust of the proximate cause arguments is that Raytheon's conduct in removing warnings and failing to heed warnings implies that any warnings the appellees did provide would have been insufficient to prevent injury to Genereux. In similar fashion, the sophisticated user defense argues, in effect, that any failure of the appellees to warn did not proximately cause injury to Genereux because Raytheon, who controlled her workspace and owed her a duty of care as well, knew or should have known of the dangers in question but failed to protect her.

v. Commonwealth of Mass., 521 N.E.2d 1017, 1023 (Mass. 1988)). Whether conduct meets this standard depends on the "character [of intervening events], and . . . the natural and probable connection between the wrong done and the injurious consequence." Solimene v. B. Grauel & Co., 507 N.E.2d 662, 666 (Mass. 1987) (internal quotation marks and citation omitted). Proximate causation is normally a jury question. Id. at 665 ("Generally, questions of causation, proximate and intervening, present issues for the jury to decide.").

In this case, the record provides some support for appellees' claim that Raytheon did not pass on their warnings to employees.³⁰ However, the record also shows that Raytheon created warnings of its own to accompany beryllium parts throughout the Waltham plant. These warnings were roughly similar in content to appellees' warnings, stating that beryllium was "toxic," and that employees should avoid operations that generated dust. Raytheon's practice of issuing its own warnings distinguishes this case from the authority cited by the appellees, in which an employer transferred a hazardous product from drums, which bore a warning, to a small container "with no label or warnings thereon of any type." Whitehead v. Dycho Co., 775 S.W.2d 593, 595 (Tenn. 1989);

³⁰ For example, although appellees included warnings in every shipment of beryllium products to Raytheon, Genereux testified that she never saw any warnings accompanying beryllium parts in the Backward Wave Oscillator Lab.

cf. Cohen v. Steve's Ice Cream, 737 F. Supp. 8, 8-9 (D. Mass. 1990) (similar). In contrast to such a practice, we cannot conclude that Raytheon's act of replacing manufacturer warnings with its own warnings was unforeseeable intervening conduct, or that it constituted "unusual, extraordinary negligence." Jones, 589 N.E.2d at 338 (internal quotation marks omitted). A reasonable fact-finder could conclude that by issuing its own, roughly similar warnings, Raytheon exercised some care in protecting the health and safety of its employees.

Whether Raytheon heeded appellees' warnings presents a slightly different issue. Like most jurisdictions, Massachusetts presumes that a user will follow a warning if it is given. Knowlton, 930 F.2d at 123; Wolfe v. Ford Mtr. Co., 376 N.E.2d 143, 147 (Mass. App. Ct. 1978); Restatement (Second) of Torts § 402A cmt. j (1965). As we explained the presumption in Knowlton, "'where no warning is given, or where an inadequate warning is given, a rebuttable presumption arises, beneficial to the plaintiff, that the failure to adequately warn was a proximate cause of the plaintiff's [injury].'" Knowlton, 930 F.2d at 123 (quoting Seley v. G.D. Searle & Co., 423 N.E.2d 831, 838 (Ohio 1981)); see also Garside v. Osco Drug, Inc., 976 F.2d 77, 81 (1st Cir. 1992). While no court has yet stated what must be proved to defeat this presumption under Massachusetts law, the authority discussed in Knowlton held that the defendants had surmounted the

presumption by proving that "an adequate warning would have made no difference" in preventing injury to the plaintiff. Seley, 423 N.E.2d at 838.

In this case, there is indeed record evidence that Raytheon failed to implement and enforce hygienic controls necessary to maintain beryllium exposure levels of 2 $\mu\text{g}/\text{m}^3$, particularly in the context of sandblasting beryllium ceramics. However, there is also record evidence that Raytheon had strict hygienic controls, including controls of sandblasting operations; that Raytheon repeatedly sought out Brush's advice about what controls were necessary; and that Raytheon was inclined to adjust hygienic practices in response to input from Brush. James McCarthy, a Raytheon Safety Engineer, testified:

Brush Wellman provided a variety of information that Raytheon considered to be reliable. We certainly considered that and compared that information against the controls that were in place and the configuration of those controls, certainly considered it in constructing the -- both the allowances and the prohibitions that were incorporated into the control programs at Raytheon Company
. . . .

In light of the conflicting evidence about the hygienic practices at Raytheon and Raytheon's reliance on Brush, we cannot conclude, for purposes of summary judgment, that a warning about the danger posed by polishing or occupational exposures to beryllium at the 2 $\mu\text{g}/\text{m}^3$ level would have gone unheeded.

4. Successor liability as to American Beryllia

American Beryllia argues that we should affirm summary judgment as to it on the grounds that it is not subject to successor liability for injury caused by products manufactured by General Ceramics. American Beryllia advances three arguments in support of this conclusion: (1) that it purchased General Ceramics's assets at a bankruptcy sale pursuant to an Asset Purchase Agreement that rendered the assets "free and clear of all . . . claims and interests of any nature whatsoever"; (2) that the July 9, 2001, Bankruptcy Court order confirming the Amended Plan of Orderly Liquidation prohibited any distributions to creditors other than distributions pursuant to the Plan; and (3) that under Massachusetts law, which applies to this case, American Beryllia did not assume the liabilities of General Ceramics because it was a purchaser of assets. In response, appellants argue that this case is governed by New Jersey law, and that under New Jersey law American Beryllia is liable for injuries caused by General Ceramics even though it is a purchaser of assets, because it fits under the (1) "continuation" and (2) "product line" exceptions to the general rule.

The arguments raised by American Beryllia and appellants are of considerable complexity, involving federal bankruptcy law, state choice-of-law principles, state law of corporations, and the relationships between these doctrines. The district court below

declined to reach the matter, stating that the record was insufficient to resolve it. The matter should be resolved in the first instance by the district court on an appropriate record.

IV.

For the foregoing reasons, the judgment of the district court granting summary judgment to the defendants is vacated. We remand for further proceedings consistent with this opinion. Costs are awarded to appellants.

So ordered.