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2007 ATLANTIC SUBROGATION SEMINAR

SUBROGATION STRATEGIES: INCREASING YOUR BATTING AVERAGE

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SUBROGATION STRATEGIES: INCREASING YOUR BATTING AVERAGE

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AREAS OF EXPERIENCE

- Construction Defect
- Products Liability
- Property Subrogation
- Subrogation & Recovery

EDUCATION

- J.D. Widener University School of Law, 1983
- B.A. New York University, 1980

MEMBERSHIPS

- American Bar Association
- Pennsylvania Bar Association
- Philadelphia Bar Association
- Moot Court Honor Society

Paul R. Bartolacci joined the firm's Philadelphia office in 1989 and practices in the Subrogation and Recovery Department. He advises his clients on complex issues involving defective products, fire loss litigation and structure failures.

Paul is a member of the American, Pennsylvania and Philadelphia bar associations, as well as the Moot Court Honor Society. Admitted to practice in Pennsylvania in 1983, he practices in all federal courts in Pennsylvania. Paul is also admitted to the U.S. Court of Appeals for the Third and Fourth Circuits. Paul routinely litigates cases in multiple jurisdictions throughout the country and has tried numerous cases to verdict.

He received his bachelor of arts degree from New York University in 1980. He earned his law degree at Delaware Law School of Widener University in 1983, where he was the associate editor of the *Delaware Law School Law Review* from 1982-1983.

He served as a law clerk to the Hon. William R. Toal, Jr., Delaware County Court of Common Pleas from 1983-1984.

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AREAS OF EXPERIENCE

- Subrogation & Recovery

EDUCATION

- J.D. Cleveland Marshall College of Law, *magna cum laude,* 1995
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MEMBERSHIPS

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Georgia S. Foerstner joined the firm in June 1998 and practices in the Subrogation and Recovery Department. Prior to joining Cozen O'Connor, she was an associate with Ulmer and Berne LLP, located in Cleveland, Ohio, where she concentrated her practice in insurance defense litigation and immigration.

Georgia earned her Bachelor of Arts degree at Juniata College in 1989 and her law degree, *magna cum laude*, at Cleveland State University, Cleveland-Marshall College of Law, in 1995 where she was an editor of the *Cleveland State Law Review* and a member of the Moot Court Board of Governors. Her law review note titled, "Employee Dishonesty and the After-Acquired Evidence Doctrine: Why Honesty is the Best Policy," was published in the 1994 edition of the *Cleveland State Law Review.*

Georgia is a member of the Pennsylvania Bar Association and is admitted to practice before the Supreme Court of the Commonwealth of Pennsylvania, the Supreme Court of Ohio, and several United States District Courts. She was named a 2005 Pennsylvania Rising Star by *Law & Politics.*

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COURT ADMISSIONS

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MEMBERSHIPS

- Pennsylvania Bar Association
- New Jersey Bar Association

Dan Hessel is Vice-Chair of the firm's Workers' Compensation Subrogation Group. Dan's practice is limited exclusively to representing those injured due to the negligence of others. His cases typically involve defective products, construction accidents, premises liability, or negligent security issues. Dan handles cases around the country, having handled cases in more than fifteen states over the past few years. As lead trial counsel, Dan has had numerous seven figure and six figure verdicts and/or settlements. Many of these cases have been featured in journals such as *The Legal Intelligencer, Yahoo! Biz, New Jersey Verdict Reporter, Pennsylvania Damages, Pennsylvania Verdict Reporter* and the *Florida Verdict Reporter.* Dan was selected to represent a mayoral candidate in a nationally spotlighted election, and Dan argued numerous cases on behalf of that candidate. Dan also served as treasurer on behalf of a Philadelphia judge who successully ran for judicial office.

In 2005 and 2006, Dan was recognized as a "Rising Star" in Philadelphia magazine. This award goes to only 2.5 percent of all Pennsylvania attorneys, and is based upon ethics, experience and reputation.

Dan is on the board of directors of the Legal Clinic for the Disabled, Inc., a non-profit corporation dedicated to providing free legal services to low-income persons with physical disabilities in Philadelphia and the surrounding counties.

Dan earned his bachelor's degree in law and justice, with honors, at the College of New Jersey. While in college, Dan won the New Jersey State Mock Trial Competition, sponsored by the New Jersey Bar Association. Dan earned his law degree from William & Mary School of Law in Williamsburg, Virginia, where he was selected for membership to *The William and Mary Law Review,* the mock trial team and the moot court team.

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AREAS OF EXPERIENCE

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EDUCATION

- J.D. Memphis State University School of Law, 1987
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MEMBERSHIPS

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- New Jersey State Bar Association
- Philadelphia Bar Association
- County Bar Association

MEMBERSHIPS

- President – Hatboro-Horsham School Board

Mark E. Opalisky joined the firm in September 1988 and practices in the Philadelphia office's Subrogation and Recovery Department. Prior to joining Cozen O'Connor, Mark served as a law clerk to the Hon. A. Joe Fish, Judge of the U.S. District Court, District of Texas.

Mark specializes in insurance subrogation litigation. During his career he has successfully litigated federal and state court cases throughout the United States, including the District of Columbia.

Mark earned his bachelor of arts degree at Indiana University of Pennsylvania in 1984 and his law degree at Memphis State University in 1987, where he was an editor on the *Law Review.* Mark also was a member of the school's National Mock Trial team. He was admitted to practice in Pennsylvania in 1987 and in New Jersey in 1989.

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AREAS OF EXPERIENCE

- Complex Torts & Products Liability
- London Subrogation & Recovery
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EDUCATION

- J.D. Temple University School of Law, 1980
- B.A. Pennsylvania State University, 1975

PUBLICATIONS

- Voir Dire Considerations and the Property Damage Subrogation Case

Peter G. Rossi joined Cozen O'Connor in July 1988 as a Member of the firm and practices in the Philadelphia office's Subrogation and Recovery Department.

Mr. Rossi earned his Bachelor of Arts degree at The Pennsylvania State University in 1975 and his law degree at Temple University James E. Beasley School of Law in 1980.

Mr. Rossi was admitted to practice in Pennsylvania state and federal courts in 1980 and in New York in 1997. He is also admitted to practice before the New York Supreme Court and U.S. District Courts for the Northern, Southern, Eastern and Western Districts of New York as well as the United States Courts Of Appeal For the Second and Third Circuits and the United States Supreme Court.

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AREAS OF EXPERIENCE

- Appellate
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- General Liability
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- Insurance Coverage Claims/Litigation
- Premises & Security Liability
- Products Liability
- Products Liability
- Property Insurance
- Property Subrogation
- Subrogation & Recovery
- Toxic & Other Mass Torts
- Trucking Litigation
- Worker's Compensation Subrogation

EDUCATION

- J.D., Temple University, *cum laude,* 1984
- B.A., LaSalle University, *magna cum laude,* 1980

MEMBERSHIPS

- American Bar Association
- Defense Research Institute
- ABA Tort & Insurance Practice Section

Daniel C. Theveny began his career with Cozen O'Connor in 1984, and he has concentrated his practice in insurance defense, insurance coverage and insurance subrogation matters. Dan has also spent a considerable part of his career in Cozen O'Connor's Northwest Regional Office in Seattle. Dan served as both the Office Managing Partner and Northwest Region Subrogation Practice Group Chair while in the Seattle office.

Dan has experience in all aspects of insurance related issues, including first party insurance coverage disputes and property subrogation matters. He has litigated numerous first-party coverage claims and subrogation claims, including claims involving complex product liability issues and advanced theories of recovery. His extensive litigation experience includes numerous jury trials, mediations and arbitrations. Dan has also been a frequent lecturer on insurance-related coverage, liability and recovery issues.

Dan graduated *magna cum laude* from LaSalle University in 1980, and earned his law degree, *cum laude*, at Temple University School of Law in 1984.

Publications/Seminar Presentations

- From the Defense: Why Your Subrogation Claims Are Paid or Denied
- Sovereign Immunity in the Midwest
- When You Claim 'It's the State's Fault' – Subrogation Claims Against Governmental Entities
- Emerging Subrogation Topics: Catastrophic Losses, Natural Disasters, Acts of God, Acts of Terrorism
- Crisis Management: The Latest Developments in Crisis Response and Management Preparedness When Terrorism or Other Catastrophe Strikes
- The Evolving Issue of Recovery and Product Liability Claims and Economic Loss Doctrine Implications
- Limitation of Liability of Carriers by Sea and Land
- Recovery Against Municipalities and Other Governmental Agencies

FINDING WORKERS' COMPENSATION SUBROGATION IN CRIMINAL ASSAULT CASES

written and presented by:

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Introduction

Workplace violence is an unfortunate reality in today's society. Workers' compensation insurers pay out countless millions of dollars every year in benefits to employees who are injured due to the criminal acts of others. Finding subrogation in cases such as these is often a challenge – but not an insurmountable one. Recent events have shown that the responsibility for injuries caused by criminal acts does not always end at the feet of the criminals. Liability can also be imposed on other parties if two things can be shown: the criminal act was (1) predictable and (2) preventable. Allowing tort liability in such circumstances will incentive responsible parties to take pro-active measures to prevent, or at least deter, criminal acts.

Historically, the general legal rule has been that "a person cannot be liable for the criminal acts of third parties." *Feld v. Merriam*, 485 A.2d 742, 746 (Pa. 1984). "The criminal can be expected anywhere, any time, and has been a risk of life for a long time. He can be expected in the village, monastery and the castle keep." *Id.* Over the years, however, exceptions have been created allowing liability to be imposed in certain situations. This article explores the circumstances under which liability may be imposed on certain parties for the criminal actions of another person.

Target Defendants and Theories of Liability

The criminal actor is an obvious target of liability. But only in rare cases will that person have sufficient assets to subrogate against. Even if the person happens to have a liability policy, all policies exclude harm caused by intentional acts. As a result, it is necessary to find another target to subrogate against.

A common target of liability is the employer of the criminal actor. In cases where an employer places an employee in a position of trust, and that employee abuses that trust by assaulting another, the employer can be held vicariously liable to the same extent the employer would be vicariously liable for the negligence of its employee. For example, in cases involving overzealous security officers or bouncers, courts have not hesitated to hold the employers liable, even if the criminal conduct was unauthorized.

In contrast, it is difficult to establish vicarious liability on an employer when the employee's use of force was totally unexpected given the normal day-to-day job duties. Such an act will be deemed "outside the course and scope" of employment and cut-off liability to the employer. The critical fact in making the determination of whether an employee is "within the course and scope" of his employment is whether the employee was intending to serve the interests of the employer at the time the crime was committed. It is not necessary to prove that the actual assault was done on behalf of the employer. As long as the assault arose out of some other act that was intended to benefit the employer, liability may attach. The public policy behind this principal is that an employer who benefits from the actions of its employees must also be held accountable when that same employee crosses the line. Other factors to be considered in determining the scope of employment question include: (1) whether the conduct is authorized; and (2) whether it occurs substantially within the authorized time and space limits of the employment. *Restatement (Second) of Agency*, § 228. *See also*, *Brumfield v. Sanders*, 232 F.3d 376, 380 (3d Cir. 2000).

Another common theory of liability against an employer is negligent hiring of the employee who committed the criminal act. This theory is based on the employer's own independent negligence, rather than on vicarious liability for the employee's negligence. An emerging question in these cases is whether the employer has an obligation to perform a background check on potential employees before hiring them. If the employer fails to do so, and the employee has a violent history, it can be successfully argued that the employer was negligent for failing to do so. Most states have laws mandating background checks in particular fields of employment. From a plaintiff's perspective, it is not enough to establish merely that the employer failed to conduct a background check. Rather, it must also be shown that the background check would have revealed that the employee had a propensity to commit an act similar to the act at issue in the case.

A similar theory to negligent hiring is negligent training and/or supervision of the employee. This theory does not depend so much upon the employee's criminal record, but rather it depends upon the employee's general behavior during his term of employment. If it can be shown that the employee had violent propensities, and the employer knew or should have known about those propensities, liability may attach on the employer for negligently failing to train and/or supervise the employee. *American Guarantee and Liability Ins. Co. v. 1906 Co.*, 273 F.3d 605 (5th Cir. 2001).

Liability can also attach outside of the employer-employee context. For example, a property owner that leases a building to another company can be held liable for failing to provide adequate security. The level of security depends upon the nature of the business and the prevalence of crime in the neighborhood. For example, a bank in a crime ridden neighborhood should be equipped with cameras, security officers, and protective glass. In contrast, a manufacturing plant in a crime-free area may not need that level of security. A forensic security expert can often assist in making this determination based upon a review of a crime grid of the area.

A landlord may also be held liable for the acts of a third-person if the landlord fails to maintain the property. Allowing a property to fall into a state of disrepair invites the criminal element. This, in turn, exposes the landlord to tort liability.

Another target is the security company employed to protect the property on which the crime occurred. From a legal standpoint, one who undertakes to render services to another which he should recognize as necessary to protect the other's person or things is subject to liability if he fails to exercise reasonable care. *Restatement (Second) of Torts*, § 323. Although a security company cannot altogether prevent crime, it can significantly deter crime by making its presence known on a property. The failure to take "reasonable measures" to deter crime can lead to liability.

Hurdles to Recovery

The biggest obstacle to recovery in a case arising out of the criminal conduct of a third-party is proving that the crime was foreseeable and preventable. "Foreseeability" is an implicit component of the proximate causation element necessary in every negligence based case. Foreseeability essentially means that the criminal act was predictable. Needless to say, defendants in cases involving criminal acts always argue that the crime itself was not foreseeable, and therefore no liability can attach. The key to overcoming this argument is establishing at least some history of prior criminal acts that are similar in nature and place to the subject act. This often requires obtaining police records, crime grids, other similar lawsuits from the same jurisdiction, and the defendant's own records to establish a pattern of crime. The more of a pattern that can be demonstrated, the more likely a judge and/or jury will be to find that the subject criminal act was foreseeable.

Another common hurdle to recovery is the "intervening or superseding" cause defense. A superseding cause is "an act of a third person or other force which by its intervention prevents the actor from being liable for harm to another which his antecedent negligence is a substantial factor in bringing about." *Restatement (Second) of Torts*, § 440. An intervening force is one which "actively operates in producing harm to another after the actor's negligent act or omission has been committed." *Restatement (Second) of Torts*, § 441. These provisions, on their face, would appear to immunize a defendant against liability. However, courts have held that these doctrines do not apply when the negligence asserted against the defendant is based upon the defendants' failure to forsee and prevent the criminal act of a third-party.

One other potential obstacle to recovery is establishing a duty of care on the defendant. As a general rule, there is no duty (i.e., legal obligation) to act to protect another person from a criminal act. In other words, there is no "Good Samaritan Rule." Therefore, it is necessary to show either that: (1) the defendant's negligence facilitated the criminal act by "inviting" the crime to take place; or (2) the defendant stood in a special relationship to the criminal actor (i.e., employer-employee); or (3) the defendant stood in a special relationship with the victim (i.e., landlord-tenant). Otherwise, a plaintiff will be unable to establish a legal duty on the part of the defendant, and the burden of proof cannot be met to go before a jury.

Joint and Several Liability

Before deciding whether to pursue a case involving a criminal assault, research must be done to determine whether the jurisdiction imposes "joint and several" liability on defendants. "Joint and several" liability is a doctrine which allows a plaintiff to recover all of his damages from any defendant found partially responsible. Thus, a plaintiff can recover 100% of the verdict against a

defendant found only 1% at fault. That defendant can then attempt to recover from its co-defendants the 99% of the verdict that it overpaid. This doctrine, of course, only has an impact in those cases where one of the defendants is judgment proof. Otherwise each liable party can and will pay its fair share directly or indirectly to the plaintiff.

In cases involving criminal assaults, the criminal actor will usually be assessed the lion's share of responsibility by the jury, and yet is often judgment proof. But as long as the jury allocates a minimal percentage of liability to the solvent defendant, the plaintiff can still recover all of his damages in a joint and several jurisdiction. Twenty-nine jurisdictions currently have some form of joint and several liability. In those jurisdictions without joint and several liability, serious thought should be given as to whether filing suit will be economically sensible since it is likely only a portion of the judgment will be collectible.

Summary

Subrogation is criminal assault cases is often easier than it appears. In most cases, an accurate determination of the merits of such a case can be made even before suit is filed. This requires an analysis of criminal activity in the neighborhood to determine whether the subject incident was predictable. If so, it must then be determined whether the crime was preventable. This can also be accomplished through the use of a qualified security consultant. If it can be arguably established that the incident was predictable and preventable, there is a good likelihood of making a successful recovery in the subrogation of a workers' compensation loss.

CAN THE OTHER SIDE GET IT: HOW TO PROTECT YOUR EARLY SUBROGATION INVESTIGATION

written and presented by:

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CAN THE OTHER SIDE GET IT; HOW TO PROTECT YOUR EARLY SUBROGATION INVESTIGATION

TO TEST OR NOT TO TEST – WHAT MUST EXPERTS DO?

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HYPOTHETICAL SCENARIO

After a fire, the insurance company hires a consulting engineering firm which sends a cause and origin investigator and electrical engineer to the fire scene. A report is promptly written by the consulting firm and the experts identify arcing damage to an electrical conduit for the main conductor from the meter box to the main circuit breaker panel in the building. The experts, however, cannot rule out a fire starting in the meter, or somewhere else in the building from some unknown cause and attacking the electrical service thereby causing the arcing. They write in their report that careless smoking and even an intentional fire are possibilities. Other electrical devices in the room of origin cannot be eliminated. The report is written before the physical evidence is removed from the fire scene or taken apart for more in-depth investigation.

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HYPOTHETICAL SCENARIO (CONTINUED)

The insurance company also engages counsel to evaluate the potential for subrogation. Counsel reviews the initial report and retains a new consultant who suggests a more in-depth analysis of the evidence. Metallurgists also are engaged to examine the burn pattern and arcing damage on the conduit. Based on the evidence, the new experts conclude that the arcing damage is not a result of fire attacking the electrical service but rather a result of arcing that originated within the conduit, causing the ignition of nearby combustibles. When the conduit was fabricated, the contactor created too many turns in the various pieces of conduit and left sharp edges or "burrs" at those locations where the conduit was joined together. Thus, when the contractor pulled the wires through the conduit, he damaged the insulation and this led to the fire.

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THE PROBLEM

In the subrogation case that follows, the defendant asks for the investigative and adjustment files and reports of all individuals who investigated the cause of the fire.

- The adjuster's notes, based on the original report, say there is no subrogation possibility.
- The report from the forensic consulting firm is part of the insurance company and adjuster's file.

Obviously, the insurance company wants to prevent disclosure of the adjuster's notes, the identity of the original experts and the report prepared by the forensic consulting firm.

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CAN THE "BAD" MATERIAL BE PROTECTED FROM DISCOVERY?

- WORK PRODUCT DOCTRINE
- ATTORNEY CLIENT PRIVILEGE

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WORK PRODUCT DOCTRINE

- The requested information must be a document or tangible thing.
- The material must be prepared in anticipation of litigation.
- The document must be prepared by or for a party or its representative.

Most of the legal analysis involves the "in anticipation of litigation" requirement, as contrasted with the insurance company's normal business operations.

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WHAT CONSTITUTES "IN ANTICIPATION OF LITIGATION":

Courts, however, have found a solution to this dilemma in the very means by which an insurance company conducts its business. In the early stages of claims investigation, management is primarily concerned not with the contingency of litigation, but with deciding whether to resist the claim, to reimburse the insured and seek subrogation of the insured's claim against the third party, or to reimburse the insured and forget about the claim thereafter. At some point, however, an insurance company's activity shifts from mere claims evaluation to a strong anticipation of litigation. This is the point where the probability of litigating the claim is substantial and imminent. The point is not fixed, it varies depending on the nature of the claim, and the type of investigation conducted. The decision whether insurance company investigatory documents were "prepared in anticipation of litigation" turns, therefore, on the facts of each case.

Carver v. Allstate Insurance Company, 94 F.R.D. 131 (S.D.Ga. 1982)

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APPLICATION TO IN-HOUSE AND OUTSIDE ADJUSTERS

Redacted portions of reports prepared by adjusters addressing possible subrogation claim are discoverable. The Court held that even though the file was promptly referred to counsel to evaluate the potential for subrogation, there was no evidence to support a conclusion that the adjuster reports were prepared at the request of counsel or at a point in time when the decision had actually been made to pursue subrogation. American Insurance Co. v. Elgot Sales Corp. 1998 WL 647206 (S.D.N.Y.)

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The retention of a law firm is a significant factor in determining whether an insurer anticipates litigation, but not determinative. Until the insurer makes a specific decision, or counsel recommends pursuit of a subrogation claim, documents created by the insurance company evaluating the investigation and potential for subrogation are discoverable and not protected by the work product doctrine. Weber v. Paduano, 2003 WL 161340 (S.D.N.Y.)

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APPLICATION TO NON-TESTIFYING EXPERTS

Where an insurance company regularly hires expert consultants to investigate causes of a loss and assess coverage, the scope and nature of that investigation is discoverable. Documents created by the experts would have been generated in the absence of any litigation. The insurer claims that it knew from the outset it would pursue a subrogation action. The Court noted that the investigative material revealed that the cause of the fire was unknown and all possibilities were being evaluated. Therefore, the insurance company was not definitely acting in anticipation of litigation. Amica Mutual Insurance Co. v. W.C. Bradley Co., 217 F.R.D. 79 (D.Mass. 2003)

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Even reports prepared after counsel is retained and with the involvement of counsel may be discoverable if the insurance company is unable to demonstrate that the reports were prepared "in furtherance of a sufficiently identifiable resolve to litigate, rather than a more or less routine investigation of a [possible claim]". Fine v. Bellefonte Underwriters Ins. Co., 91 F.R.D. 420 (S.D.N.Y. 1981).

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ATTORNEY CLIENT COMMUNICATIONS

- Communications from the client are protected when advice is sought from an attorney, the advice pertains to matters within the attorney's professional competence and the attorney agrees to give the desired advice; i.e., advice or opinions in matters of law and with relationship to legal rights, duties and obligations.
- Communications from an attorney are protected when the communication is made for purposes of rendering legal advice or services and the communication is predominantly of a legal character; i.e., it must be more than simply a recitation of facts known to third parties.

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ATTORNEY CLIENT COMMUNICATIONS ARE PROTECTED

- Communications between attorneys and clients made for the explicit purpose of obtaining legal advice, including the potential for subrogation, are protected by the attorney client privilege. Amica Mutual Ins. Co.
- Letters from counsel hired to examine the potential for subrogation and providing legal advice or discussing legal opinions are protected on the basis of the attorney client privilege. An investigation conducted by a law firm into the cause of the fire and the potential for subrogation was a component of the lawyer's larger task of analyzing the legal issues in connection with a loss. Weber

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WHAT IS THE EFFECT OF PRODUCTION?

- It doesn't mean defendant can call adjusters or non-testifying experts as witnesses at trial– but it will try.
- Practical effects:
  1. "Shopping" for experts.
  2. Cross-examine testifying experts.
  3. Cross-examine adjuster.
  4. Road map to various defenses (including damages)

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HOW TO PROTECT INVESTIGATION

Rely on Attorney Client Privilege:

- Early retention of counsel
- Counsel retains experts
- Counsel directs experts and channels communications
- Counsel summarizes communications and findings of experts
- Adjuster reports – "Subrogation handled by counsel"

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LESSONS TO BE LEARNED:

- Not that you shouldn't always hire experts quickly.
- Don't just ask for expert reports without review or analysis.
- If do, get counsel involved.
- Recall that what is sought are "documents".
- Anything that is written, email, electronic data, letters, notes, reports, etc. is likely subject to production. So ask yourself; if there is a subsequent case, do I want the other side to see this?

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HYPOTHETICAL SCENARIO (CONTINUED)

The new experts, while they have developed what appears to be a solid forensic theory, have performed no tests. They have done calculations and reviewed treatises to evaluate certain basic electrical engineering principles. They have not done any tests to determine what forces are necessary to damage the insulation on the conductors. They have done no testing to determine the current, voltage and energy that results when the bare conductor contacts the metal conduit. They have not determined how much electrical energy is necessary to burn an arc hole through the conduit. They have not determined whether the molten metal and arcing that results from the short circuit has sufficient heat and energy to ignite nearby combustibles. After the experts are deposed, the defendant files a Daubert motion to preclude their testimony.

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DAUBERT

- The trial judge is the "gatekeeper" of opinion testimony.
- Admission of opinion testimony is based upon its reliability.
- Testing
- Peer Review
- Generally Accepted Principles
- Supported By The Facts

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TESTING IS NOT PER SE REQUIRED

- Workman v. AB Electrolux Corp., 2005 WL 1896246 (D.Kan. 2005)
- Lack of testing goes to the weight of the testimony rather than its admissibility. Travelers Indemnity Co. v. Industrial Paper & Packaging Corp., 2006 WL 3864857 (E.D. Tenn. 2006).

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Plaintiff's expert was permitted to testify in a fire case allegedly resulting from the negligent installation of a kitchen range and range cord set installed by Circuit City at the plaintiff's home. The expert testified that the power cord was abraded by a screw head on the back of the range. No tests were conducted. The Court, however, permitted the testimony primarily because the expert followed the proper methodology set forth in NFPA 921 to eliminate all other potential causes for the fire. Windham v. Circuit City Stores, Inc., 420 F.Supp.2d 1206 (E.D. Kan. 2006).

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Experts were permitted to testify, even without testing, that copper sulfite particles passed through and around a mesh screen and lodged in the safety valve of a gas water heater. This caused a gas leak and subsequent explosion. The Court noted that testing of the theory was not required because it was not "novel" and the chemical characteristics of copper sulfite particles was well established in the literature. Bitler v. A.O. Smith Corp., 400 F.3d 1227 (10th Cir. 2004).

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A case against Coca Cola for defects in a soda vending machine was permitted to move forward even though the expert did not test his theory involving an allegedly improperly crimped connection in a power supply for the soda vending machine. While the expert did not test the amount of electrical resistance that would be created at the crimp connection and whether the resulting energy might cause a fire, he was permitted to provide testimony on those issues. The Court found it significant that the electrical principles relied upon by the expert were well accepted and discussed in basic handbooks. The expert also testified that he complied with NFPA 921. Colony Insurance Co. v. Coca Cola Co., 2007 WL1774406 (N.D. Ga. 2007)

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TESTING REQUIRED

Plaintiffs' experts were precluded from testifying that an allegedly defective thermal fuse design in a copier machine caused a fire in Fireman's Fund Ins. Co. v. Canon, 394 F.3d 1054 (8th Cir. 2005). There, the plaintiffs' experts did conduct limited testing but by-passed a control circuit in order to prove their theory with respect to a defective thermal fuse design. The Court held that a lack of testing to show how the control circuit might have failed was fatal to the plaintiff's theory.

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Experts who claim that a fire was caused by a defect in a heater that led to a hole in the "target wall of the heater" were precluded from testifying in Pro Service Automotive L.L.C. v. Lenan Corp., 469 F.3d 1210 (8th Cir. 2006). The experts argued that hot gases escaping from the combustion chamber caused the hole in the heater and ignited building materials that were not protected by a flame resistant fire brick. The experts did no testing to show how the hole was created, what areas in the heater rising temperature would be found, how much heat would be transferred through the heater or whether it would be sufficient to ignite combustibles. Further, the expert had no opinion or testing in terms of how long the hole existed. Based on this evidence, the experts were precluded.

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LESSONS TO BE LEARNED:

- Follow NFPA 921 for fire investigation purposes.
- Testing, in some form, should be considered in every case.
- Utilize existing industry and technical research.
- The theory and testing must be consistent with objective and known facts.

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THE APPLICATION OF RULE 702 AND DAUBERT CHALLENGES TO EXPERT WITNESSES IN LARGE PROPERTY DAMAGE LITIGATION: GETTING YOUR EXPERTS PAST THE GATEKEEPER AND INTO THE COURTROOM

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Introduction.

Large property losses resulting in substantial subrogation efforts grow from catastrophic damage or destruction to buildings, equipment and the economic injuries that result from those losses. The generic cause of such losses sometimes leads to first party coverage litigation, but pinpointing a specific cause is essential to the pursuit of subrogation claims. Proving third party negligence, or a product defect, as the cause of a covered loss depends on the retention of expert witnesses who are capable of providing the underlying basis for pursuit of subrogation lawsuits.

While major property losses usually arise from fires, subrogation claims can also spring from wind damage, building collapses and sprinkler and plumbing failures. Each theory requires expert testimony from consultants who are under increasing scrutiny to satisfy the evidentiary standards set by the federal courts. Here, we focus on the admissibility of opinion testimony from experts involved in fire investigations and various scientific and engineering principles (for example, electrical, mechanical and chemical) as applied to fire science and fire investigation, and review recent court decisions addressing those issues.

The success or failure of a complex subrogation case depends on the plaintiff's ability to present relevant and admissible scientific evidence. Given the federal court's repeated emphasis on reliability, methodology and testing, an insurance carrier, or its subrogation counsel, cannot simply assign a general fire cause and origin expert and expect that single witness to be permitted to provide opinions with regard to the area of the fire, the cause of the fire, the existence of a product defect, the spread of the fire or the operation of fire suppression systems. Rather, each scientific discipline requires a separate qualified expert and each of these experts are inevitably subjected to challenges by opposing parties.

We have all heard judges, counsel and parties in hotly contested cases involving technical and scientific issues refer to the litigation as a "battle of the experts." More importantly,

however, in order to get the experts onto the "battlefield," counsel and the parties must now be prepared to satisfy trial courts that those experts are properly qualified to present opinions that are reliable and admissible. Understanding the criteria for expert witness testimony will permit the practitioner to retain the proper experts, direct the necessary investigation, fact finding, analysis and testing and then present the expert opinions in a manner to meet those requirements for admissibility.

A. The Daubert Standard.

Until 1993, the admissibility of expert scientific evidence was governed by the Frye test, based on the Supreme Court case of Frye v. United States, 293 F. 1013 (Ct. App. D.C. 1923). The Frye analysis only allowed expert scientific testimony to be admitted if the underlying principles behind the opinion had gained "general acceptance" in the scientific community. The "general acceptance" standard was restrictive in many cases where the underlying theory was novel but otherwise scientifically reliable.

In 1973, the United States Supreme Court adopted the Federal Rules of Evidence, including Rule 702 governing expert testimony. Under Rule 702, the expert testimony must "assist the trier of fact to understand the evidence or to determine a fact in issue." Rule 702 also requires that the expert witness be "qualified as an expert by knowledge, skill, experience, training, or education" and that the testimony be reliable, *i.e.*, supported by "sufficient facts or data" and "reliable principles and methods" that are applied "reliably to the facts of the case." The rule did not require that the principles or methods be generally accepted in the field. Despite the "new" rule, Federal Courts consistently continued to apply the Frye test in deciding the admissibility of expert opinions.

Twenty years after the rule was adopted, the Supreme Court was asked to decide whether Rule 702 superseded the Frye test in the case of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.ED. 2d 469 (1993). Justice Blackmun, who authored the majority opinion in Daubert, held that Rule 702 did supersede the strict Frye standard and required the trial judge to serve as "the gatekeeper" of expert testimony in deciding if it meets the standards of relevance and reliability. The trial court has discretion to conduct a hearing well in advance of trial to determine if the expert's testimony is reliable. "Daubert" hearings now are routine in Federal Court. In fact, many courts include deadlines to complete discovery and motions relating to Daubert issues in standard pretrial scheduling Orders. Parties use Daubert hearings to obtain discovery without having to take a deposition and pay the expert. For example, if the expert attends the hearing, as would be prudent, the challenging party has the right to take live testimony from the expert before the court, gaining valuable information that can then be further explored at a later deposition if the court ultimately deems that the expert may testify at trial.

Rule 702 specifically states:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed. R. Evid. 702

Rule 702, as quoted above, was amended effective December 1, 2000. The advisory committee notes on the amendment point out that "[a] review of the caselaw after Daubert shows that the rejection of expert testimony is the exception rather than the rule." To be sure, "the trial

court's role as gatekeeper is not intended to serve as a replacement for the adversary system." United States v. 14.38 Acres of Land Situated in Leflore County, Mississippi, 80 F.3d 1074, 1078 (5th Cir. 1996). In fact, the courts have frequently described the net effect of Daubert as liberalizing the Rule 702 standard for admissibility of expert testimony. See, Cavallo v. Star Enterprise, 100 F.3d 1150 (4th Cir. 1996), cert. denied, 118 S.Ct. 684 (1998) and United States v. Dorsey, 45 F.3d 809 (4th Cir. 1995), cert. denied, 515 U.S. 1168 (1995). Further, the advisory notes to the 2000 amendment make clear that, in accordance with the Supreme Court's directive in Kumho Tire Co. v. Carmichael, 527 U.S. 137 (1999), Rule 702 is "not intended to provide an excuse for the automatic challenge to the testimony of every expert."

In order to be admissible under Daubert, expert testimony must be based in "valid reasoning and reliable methodology." In re TMI Litig., 193 F.3d 613, 665 (3d Cir. 1999), amended by, 199 F.3d 158, cert. denied sub nom., General Public Util. Corp. v. Abrams, 120 S.Ct. 2238 (2000). An abuse of discretion occurs if a trial court excludes testimony simply because it does not deem the proposed expert to be the best qualified or because the proposed expert does not have the specialization that the court considers most appropriate. Holbrook v. Lykes Bros. S.S. Co., 80 F.3d 777, 782 (3d Cir. 1996). In Kumho Tire, the Supreme Court emphasized that the admissibility inquiry under Rule 702 of the Federal Rules of Evidence and Daubert is a "flexible one." The factors mentioned in Daubert do not constitute a "definite checklist or test." Kumho Tire, 527 U.S. at 141. These factors were meant to be helpful, not definitive, and the factors may or may not be pertinent in assessing reliability, depending upon the nature of the issue in the case, the expertise of the particular witness and the subject of the opinion testimony. Id. at 150.

The focus when assessing the reliability of an expert opinion under Daubert is on the principles and methodology of the expert in arriving at opinions, not on the conclusions that are generated by the expert. Daubert, 509 U.S. at 595. In some cases, the reliability of an expert witness may be based upon his personal knowledge or experience. Kumho Tire, 526 U.S. at 156. The trial court must determine whether the expert's training and qualifications relate to the subject matter of the proposed testimony. Id. This testimony must be supported by appropriate validation – i.e. "good ground" based upon what is known by the evidence. Isely v. Capuchin Province, 877 F.Supp. 1055 (E.D. Mich. 1995). As noted in In re Paoli RR Yard PCB Litigation, 35 F.3d 717 (3d Cir. 1994), proponents of expert testimony:

> do not have to demonstrate to the judge by a preponderance of the evidence that the assessments of their experts are correct, they only have to demonstrate by a preponderance of evidence that their opinions are reliable. . . The evidentiary requirement of reliability is lower than the merits standard of correctness.

Id at 744.

Further, district courts do not have discretionary authority to "accept or reject" expert testimony, as parties often invite the court to do. Acceptance or rejection of expert opinions is part of the jury's fact-finding role:

> Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.

Daubert, supra, 509 U.S. at 596.

One court has pointed out that, in order to avoid encroaching on the jury's function, the court's "gatekeeping" function under Daubert must be regarded as a limited function:

> Trial judges must exercise sound discretion as gatekeepers of expert testimony under Daubert. Fuller, however, would elevate them to the role of St. Peter at the gates of heaven, performing a searching inquiry into the depth of an expert witness's soul – separating the saved from the damned. Such an inquiry would

> inexorably lead to evaluating witnesses' credibility and weight of the evidence, the ageless role of the jury.

McCullock v. H.B. Fuller Company, 61 F.3d 1038, 1045 (2d Cir. 1995).

B. The Role of NFPA 921 and its Methodology in Deciding Daubert Issues.

The most widely used Daubert attack typically centers on the methodology issue. The courts have refined four factors that bear on that analysis: Whether the methodology or technique: (1) has been tested, (2) has been subject to a peer-review process and/or published in the scientific community, (3) has been used with controlled standards and/or has produced a rate of error that is quantifiable and low rate, and/or (4) is generally accepted in the field.

Fire investigators must follow NFPA 921 when formulating their opinions. The methodology used by origin and cause experts has evolved and undergone refinement over the last decade. The National Fire Protection Association, a world-renowned leader in fire safety, publishes a guide for fire and explosion investigations that sets forth a basic methodology, *i.e.*, the "scientific method". See, N.F.PA. 921 Guide For Fire and Explosion Investigations. The American Society of Testing and Materials also publishes guides for the collection and preservation of evidence and collecting and testing information and evaluating technical data. See, ASTME – 1188; ASTME – 860; and ASTME – 678. As is succinctly explained by the National Fire Protection Association itself, NFPA 921 was "designed to produce a systematic, working framework or outline by which effective fire investigation and origin and cause analysis can be accomplished."

This standard has been consistently recognized as the proper methodology for fire cause and origin determination. See, Workman v. AB Electrolux Corporation, 2005 WL 1896246 (D. Kan. 2005); Chester Valley Coach Works v. Fisher-Price, 2001 WL 1160012 (E.D.Pa. 2001); Booth v. Black & Decker, 166 F.Supp.2d 215 (E.D.Pa. 2001). Indeed, in McCoy v. Whirlpool

Corp., 214 F.R.D. 646 (D. Kan. 2003), rev'd. 379 F. Supp. 2d 1187 (D. Kan. 2005), the district court described NFPA 921 as the "gold standard" of methodologies for fire investigation.

Convincing the court that a fire investigator followed the scientific method for fire investigations described in NFPA 921 is crucial to the admissibility of any opinions that are generated from that investigation. In TNT Road Co. v. Sterling Truck Corp., 2004 WL 1626248 (D. Me. 2004), a motion to exclude the testimony of a fire cause and origin investigator in a truck fire case was denied. There, the plaintiff's expert concluded that the fire started spontaneously in the truck's ignition switch and the fire could only have started if the switch was defective. The court found the expert's methodology to be reliable and substantially in compliance with NFPA 921.

The court recounted in detail the nature of the expert's investigation and held that the plaintiffs appropriately presented evidence, demonstrated the reliability of the expert's methodology, and that his investigation of the subject fire did conform with the standards set forth in NFPA 921.

Significantly, the court commented that whether the expert:

> substantially completed his investigation after two hours or whether he kept an open mind and continued to reevaluate his opinion goes to weight. The fact that Adams may have formed his cause and origin opinion quickly might suggest a slipshod investigation or it might suggest that the evidence was relatively easy to interpret and clearly pointed to the ignition switch...[He]continued to evaluate his opinion in light of subsequent testimony by fact witnesses and ... none of that evidence rules out his opinion or exposes his basic methodology as unreliable.

Id. at *5.

The cases of Michigan Millers Mutual Insurance Corporation v. Benfield, 140 F.3d 915 (11th Cir. 1998) and Booth v. Black and Decker, Inc., 2001 WL 366631, Docket No. 98-6352 (E.D. Pa. April 12, 2001) are two of the earliest decisions addressing the evidentiary standard for

allowing or excluding the testimony of a fire investigator who opines on the origin and cause of a fire. Each case struck the testimony of a purported expert whose methodology was determined to be unreliable in that it was not supported by peer review studies or by recognized or generally accepted guidelines in the field of fire science.

In Michigan Millers, supra., the court struck the testimony of plaintiff's origin-and-cause investigator, Bill Buckley, who concluded that a fire had been intentionally set by the homeowner. There was no dispute that the fire had started on the homeowner's dining room table near a plastic lamp oil bottle that—before the fire – had been half-full and sealed by a screw top lid. On the table had also been a pile of the homeowner's laundry. Hanging above the table had been a chandelier. After the fire, the lamp oil bottle was found undamaged and undeformed, but it was empty of its contents with the screw top a few feet away. Mr. Buckley opined that the homeowner emptied the contents of the lamp oil on the laundry and then set it afire based on having eliminated any accidental source of ignition where the fire originated. In striking that opinion, the court noted that fire science is a field of expertise subject to the court's gatekeeper role, and found that Buckley's methodology was unreliable for the following reasons:

> Essentially, the testimony of Buckley reveals that he came to his opinion that the fire was incendiary largely because he was unable to identify the source of ignition of the fire. In determining that the fire was incendiary, Buckley performed no tests and took no samples. At trial, Buckley was unable to describe the chandelier that hung over the table and unable to explain the methodology by which he eliminated the chandelier as a possible ignition source for the fire. After telling the jury on direct that he believed someone poured lamp oil from the lamp oil bottle over the clothes and set the clothes ablaze, on cross-examination Buckley admitted that he did not know even if the lamp oil bottle had contained lamp oil before the fire and that there was no scientific basis for such an opinion.

140 F.3d at 921.

Similarly, in Booth v. Black and Decker, Inc., 2001 WL 366631 (E.D. Pa. 2001), the court granted defendant's motion for summary judgment after disqualifying the testimony of plaintiff's expert, Richard B. Thomas, who was prepared to testify that Black and Decker's toaster oven was defective and caused a fire. Although the court found that Mr. Thomas's professional background would otherwise have made him a qualified expert, it struck his testimony based on his unreliable methodology, beginning the analysis as follows:

> Thomas' qualifications are not at issue, and thus, my focus today is on his methodology. To assess an expert's methodology under Rule 702, Daubert and Kumho Tire, a district court must, according to the Court of Appeals for the Third Circuit, be mindful of the following factors: (1) whether a method consists of a testable hypothesis; (2) whether the method has been subjected to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operations; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness to testify based on the methodology; and (8) the non-judicial uses to which the method has been put.

Booth v. Black & Decker, 2001 WL 366631 at *3 (citations omitted).

The court then closely examined Mr. Thomas' methodology, finding it inadequate for the following reasons:

> Thomas asserted that his method of investigating the cause of the fire was a standard method applied by others in the field, but he produced no persuasive, objective evidence that his method was subject to peer review, had a known or potential rate of error, could be measured against the existing standards, or was generally accepted, as required by Rule 702, Daubert, Kumho Tire, and Oddi [v. Ford Motor Co., 234 F.3d 136 (3d Cir. 2000)].

Id.

The court went on to note that had Thomas relied upon a methodology recognized by National Fire Protection Association 921, Guidelines for Fire and Explosion Investigations, his testimony may have been admissible, but that the expert failed to refer to any provisions or methodologies in NFPA 921 upon which he relied:

> The court was presented with no evidence, aside from Thomas' assurances, that others used the methodology he applied in investigating the cause of this electrical fire. Thomas claimed, only at the prompting of defense counsel, that he followed the general methodology of fire investigation established by the National Fire Protection Association, a lengthy and specific document that contains detailed discussions on investigations of everything from motor vehicles and Molatov cocktails to explosions and electrical fires. . . . Given NFPA 921's comprehensive detailed treatment of fire investigations, it appears that NFPA 921 might have contained a methodology upon which Thomas could have relied, but he failed to state that he applied any specific methodology contained in NFPA 921. In discussing his methodology in his testimony and reports, he did not refer to any specific section in NFPA 921. Furthermore, Thomas pointed to nothing in that document that provided a methodology for investigating the hypothesized cause of the fire in this case; spontaneous welding of contacts, resulting in the overheating of an electrical appliance. Thus, NFPA 921 offers no help to Thomas.
>
> While there is something intuitively appealing about Thomas' method, there is no evidence that the method he applied was subject to peer review, had a known or potential rate of error, could be measured by existing standards, or was generally accepted. Furthermore, there was no establishment of reliability of a relationship between the technique and the methods. Though Thomas may be qualified to testify in these matters, he did not take sufficient care in supporting his credibility or reliability of the methodology he applied, despite the best efforts of counsel to elicit it. Therefore, I conclude that Thomas' testimony that there was a manufacturing defect in the toaster oven is not admissible.

Id. at *4.

The federal courts have continued to rely on NFPA 921 to evaluate the reliability of cause and origin investigations. More recently, the 8th Circuit in Hickerson v. Pride Mobility Products Corporation, 470 F.3d 1252 (8th Cir. 2006) reversed summary judgment in a case alleging that a defect in a wheel chair was the cause of a fire. The court found the origin-and-cause expert, who was offered to testify that the wheelchair was in the fire origin area and was the only potential source of the fire, to be qualified to give that opinion, stating:

> The methodology he used to generate his opinion is sound. He examined burn patterns, examined heat, fire, and smoke damage, considered this evidence in light of testimony regarding the fire, and identified a point of origin. He then considered as possible causes of the fire those devices that contained or were connected to a power source and that were located at the identified point of origin. He eliminated as possible sources those devices that were not in the area of origin or that were not connected to a power source and contained no internal power source. We can find nothing unreliable in this accepted and tested methodology. See, e.g., Weisgram v. Marley Co., 169 F.3d 514, 519 (8th Cir. 1999) ("Now, as a qualified expert in fire investigation, Freeman was free to testify – as he did – that the burn and smoke patterns and other physical evidence indicated that, in his opinion, the fire started in the entryway and radiated to the sofa.").

Id. at 1257.

C. Is Testing Required to Satisfy Rule 702?

By far, the most common argument against the admission of opinion testimony in fire related cases is based upon the failure of the expert to "test" his hypothesis in order to prove the reliability and validity of his theory. Virtually every reported decision addressing Rule 702 and Daubert issues in fire investigation cases contain a discussion with respect to the testing, or lack thereof, by an expert. In some cases, even testing which ostensibly recreates a fire scenario has been found to be unreliable.

As discussed above, following proper methodology while performing a fire investigation is critical. The failure to do so will virtually ensure a fatal result in fire cases. The answer to the "testing" question is not as clear. Rather, the decisions appear to be driven by the specific facts and theories in particular cases. While the courts are admonished to avoid making credibility assessments as to the correctness or soundness of an expert theory, many Daubert decisions are result oriented. When the courts believe that a particular theory is extreme, far fetched or not supported by credible facts, the tendency is to reject the expert opinion based upon Daubert and Rule 702 considerations. The problem, of course, with having consultants perform testing is that it places a party in a "Catch-22" situation. Not every fire scenario can be re-created through testing, although there is often valid scientific and investigative support for the conclusions offered by the expert. Performing tests which do not yield the proper results may, by itself, preclude the expert. Conversely, performing no tests will certainly result in a hard-line Daubert challenge by your opponent.

1. Experts Stricken for Lack of Proper Testing.

In Fireman's Fund Ins. Co. v. Canon, No. 394 F.3d 1054 (8th Cir. 2005), the 8th Circuit affirmed the district court's grant of summary judgment and motion to exclude expert testimony of the plaintiff's origin-and-cause investigator and electrical engineer in a suit alleging Canon's copy machine was the cause of a fire. The Court affirmed the rulings on the basis that the experts' opinions were unreliable because they failed to apply NFPA 921 guidelines to the facts. This, despite three experimental tests conducted on an exemplar copy machine used to support their theory that the copier's upper fixing heater assembly caused the fire.

The plaintiff's theory was that the copier had a defective thermal fuse design and the experts' tests bypassed the copier's heater control circuitry so as to focus on the thermal fuse.

Electrical current was applied directly to the heating element and produced a thin brown scorch line on a sheet of paper fastened to the heating element before the thermal fuse opened to shut off the current. Based on these tests, the experts concluded that the design of the copier was defective and caused the ignition of combustible materials inside the copy machine.

The court found the testing deficient primarily because the experts could not explain how the heater control circuitry allegedly failed (because they bypassed it in the tests) and why such a mystery failure would nonetheless allow an electrical current to flow to the heating element:

> We agree with the district court that this experimental testing did not meet the standards of NFPA 921. Anderson and Wald admitted that to actually start a fire without a bypass of the heater control circuitry and its embedded safety features, the heater control circuitry first would have to malfunction. This undescribed malfunction would have to supply an electrical current to the heating element precisely tailored to generate not just scorching, but also an open flame... Not only did the experimental testing fail to produce an open flame, but the experts were unable to explain the assumed heater control circuitry malfunction in theory or replicate it in any test. In short, the experimental testing of the heating element and thermal fuse in isolation did not establish that the thermal fuse would fail to prevent a fire caused by a heater control circuitry malfunction.
>
> Additionally, examination of the thermal fuse in the burned copier revealed that no electrical current was flowing to the heating element when the fuse opened. In other words, the heating element was not activated when the rising environmental temperatures caused the fuse to open, suggesting that the heating element was not the source of the fire. NFPA 921 § 2-3.6 requires the investigator to "compare his or her hypothesis to all known facts," but Anderson and Wald did not attempt to reconcile this empirical evidence with their theory.

Id. at 1058-1059.

The experts in Pro Service Automotive L.L.C. v. Lenan Corp., 469 F.3d 1210 (8th Cir. 2006) suffered a fate similar to the experts in Fireman's Fund, supra. In that case, the plaintiff presented experts who provided opinions that a fire at the plaintiffs' place of business was

caused by a defect in a heater. Plaintiff's experts concluded that a hole in the "target wall" of the heater resulted in hot gases escaping from the combustion chamber and igniting building materials that were not properly protected by a flame resistant fire brick material.

The heater manufacturer asserted that the cause and origin expert retained by the plaintiff was not qualified to testify as to the cause of the hole in the combustion chamber and further that the product defect expert should be precluded from testifying because he did no testing.

Unfortunately for the plaintiff, the experts were unable to state any definitive theory as to what caused the original hole in the heating chamber. The experts provided no solid opinions with respect to how long the hole had been present prior to the fire. Not surprisingly, the Court of Appeals relied heavily on the lack of testing to affirm the district court's preclusion of the experts:

> Bullerdiek provided no testing or other engineering analysis to support his causation opinion. He relied on his expertise to state that the hole could cause a localized temperature rise at undefined points *inside* the heater but made no attempt to calculate where or how hot these "hot spots" would be, much less identify a known or potential error rate for his analysis. He then theorized that these unlocated and unquantified hot spots could result in a series of radiative or convective transfers of heat through the heater cabinet that eventually would reach the environment in sufficient amounts to ignite nearby combustibles. He provided no testing or mathematical analysis to quantify, even as a rough estimate, how much heat would be transferred through these processes and how it would compare to the heat necessary to ignite the combustibles. The causation problem is further complicated by Bullerdiek's opinion that the internal hole had been present during heater operation for "potentially weeks or months, even" before the fire occurred. Bullerdiek Depo. at 105. In lieu of any analysis or testing to show that the heater, after functioning perhaps for weeks with a hole in the target wall could actually ignite nearby combustibles, Bullerdiek offered only vague theorizing based upon general principles. "Where 'opinion evidence ... is connected to existing data only by the *ipse dixit* of the expert,' a district court 'may conclude that there is simply too great an analytical gap between the data and the opinion proffered.'" *Cangieter,* 462 F.3d

> at 924 (quoting *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997)). Such is the case here.

Id. at 1215-1216.

The 10th Circuit Court of Appeals reached a consistent result in Truck Insurance Exchange v. MagneTek, Inc., 360 F.3d 1206 (10th Cir. 2004). The Truck Insurance case involved a theory described in the fire science literature as "pyrolysis" or "pyrophoric carbonization." The court found that pyrolysis was a novel theory which lacked solid support in the scientific community.

The theory advanced by the plaintiff was that pyrolysis causes a reduction in the initial ignition temperature of various combustible materials. While wood typically has an ignition temperature of 400° F., plaintiffs argued that long term pyrolysis lowered that temperature significantly. The plaintiff's expert provided some limited testing and information that revealed temperatures that could be generated by an allegedly defective light fixture and ballast. They then argued that these elevated temperatures caused pyrolysis of the surrounding combustible materials and led to the fire. The experts produced no tests that showed the temperatures that might result from the alleged defect in the light fixture could reach the ignition temperatures of the wood, and the court found that there was no reasonable scientific basis to accept the pyrolysis theory. Thus, the plaintiffs' experts were precluded under Daubert.

Lack of testing was also the basis to preclude an expert in Indiana Insurance Co. v. General Electric Co., 326 F.Supp.2d 844 (N.D. Ohio 2004). In that case, a fire was alleged to have originated in a General Electric refrigerator and led to a subrogation claim filed by the homeowners' insurance carrier against General Electric. The court detailed the scientific methodology set forth in NFPA 921 and noted that it was the recognized guide for assessing the reliability of opinion evidence in fire investigation cases. Plaintiffs' experts each testified that their investigations were an attempt to comply with NFPA 921. The court found otherwise.

The defense persuaded the court that the cause and origin expert for the plaintiff failed to comply with the requirements of NFPA 921 with respect to documenting and collecting physical evidence. In particular, the criticism was focused on the experts' inability to specifically match the remains of a power cord found at the fire scene to the refrigerator, when there were other electrical devices in the area of origin that could have matched up with that power cord, none of which were effectively eliminated as a match by the expert.

After precluding the cause and origin expert from testifying, the court went further and held that the plaintiff's electrical engineer could not testify either; in part because of his new inability to rely on the critical aspects of the investigation undertaken by the cause and origin expert. While the court noted that the lack of testing is not the determinative factor in ruling on Daubert issues, it was found to be "instructive." In this case, the electrical engineer performed no testing that could provide the basis for any conclusion that the fire was a result of a defect in the refrigerator. The court held that the reliance of the electrical engineer on the suspect cause and origin investigation, "together with his failure to conduct any testing, impugns reliability of his analysis." Id. at 853.

2. Experts Permitted to Testify Despite Absence of Testing.

On the other hand, many courts have rejected the notion that specific testing to recreate a disputed fire cause is always required for the admission of expert testimony. See Cummins v. Lyle Indus., 93 F.3d 362 (7th Cir. 1996) (stating "[w]e do not mean to suggest, of course, that hands-on testing is an absolute prerequisite to the admission of expert testimony). In Workman, 2005 WL 1896246 (D. Kan. 2005), the defendant argued that the plaintiff's expert should be precluded because he failed to test his theory that a wire within the freezer separated and ignited insulation causing the fire. In rejecting that position, the court stated:

> 'Independent testing is not the *sine qua non* of admissibility under Daubert." Where an expert otherwise reliably utilizes scientific

> methods to reach a conclusion, lack of independent testing may 'go to the weight, not the admissibility' of the testimony.

Workman, supra. at *10.

Several recent cases have followed those rulings, holding that full blown testing of causation and product defect issues is not required to satisfy Rule 702 requirements. In fact, not all causation or product defect testimony is the type of opinion that requires testing. See Van Den Eng v. The Coleman Co., 2006 WL 1663714 (E.D. Wis. 2006). Additionally, if an expert is properly qualified and possesses the appropriate education and experience to go along with a clear and complete detailed understanding of the properties of particular materials that he is providing testimony on, the lack of testimony is not fatal; rather, it goes to the weight of the testimony rather than its admissibility. Travelers Indemnity Co. v. Industrial Paper and Packaging Corp., 2006 WL 3864857 (E.D. Tenn. 2006).

The district court in Kansas recently ruled that testing is not a determinative factor. Instead, where an expert has not performed testing, but utilizes accepted scientific methods to reach a conclusion, the lack of such testing does not make his opinions unreliable. Windham v. Circuit City Stores, Inc., 420 F.Supp.2d 1206 (E.D. Kan. 2006). In that case, the plaintiff alleged that a fire started because of the negligent installation of a kitchen range and range cordset installed by the defendant Circuit City at the plaintiff's residence. Plaintiff's expert concluded that the cordset experienced an electrical arcing fault which led to the fire. He then concluded that the installation caused the cordset to be located in a position where it was abraded by a screw head on the back of the kitchen range. Plaintiff's expert did not conduct any tests or experiments to show that a screw head could damage the range cord insulation and lead to the electrical activity that he claimed caused the fire. The court permitted his testimony, primarily because he followed the proper methodology set forth in NFPA 921 to eliminate all other

reasonable potential causes for the fire. Such a process was recognized as a legitimate method to establish causation in a fire case. Id. at 1212-1213.

A similar result was reached in Colony Insurance Co. v. Coca Cola Co., 2007 WL 1774406 (N.D. Ga. 2007) where the court permitted plaintiff's expert to testify regarding an electrical malfunction resulting from an improperly crimped connection in a power supply located within a soda vending machine. The expert was allowed to provide limited opinions despite the absence of any testing on the amount of electrical resistance that would create heat at the crimp connection or the resulting energy that might cause a fire. The court found it significant that the electrical principles relied upon by the expert were well accepted and discussed in basic handbooks. Additionally, the expert bolstered his credibility with the court by establishing that his investigation complied with the scientific methodology set forth in NFPA 921.

Likewise, in Bitler v. A.O. Smith Corp., 400 F.3d 1227 (10th Cir. 2004), the court held that it was not necessary for plaintiff's experts to test their theory that copper sulfide particles passed through and around a mesh screen to lodge on the safety valve seat of a gas water heater, thereby causing a gas leak and subsequent explosion because the scientific phenomenon at issue was established and not novel. Id. at 1236.

The Bitler decision was issued shortly after the 10th Circuit's Decision in Truck Insurance Exchange, supra. The Court distinguished Truck Insurance Exchange because the theory in that case was "novel," whereas in Bitler:

> by contrast, plaintiff's experts propose a theory about how the accident occurred given the known science of copper sulfite particulate contamination as a cause of propane gas leaks. What distinguishes the present case is that the need for testing is not at its highest because the reliability of the science of copper sulfite contamination is not in dispute, and thus the district court did not abuse its discretion in finding that the presence of a screen did not alter the reliability of the fundamental science. Id. at 1236.

Bear in mind that Rule 703 of the Federal Rules of Evidence allows experts to rely on facts and data provided by others in formulating opinions. Rule 703 provides that:

> The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.

Fed. R. EVID. 703. In forming a basis for their opinions or inferences related to their investigation, fire origin and cause investigators regularly rely on facts and data provided by electrical engineers. See, e.g., Moores v. Sunbeam Products, Inc., 425 F.Supp.2d 151, 154 (D. Me. 2006) (fire cause and origin expert sent the remains of a heating pad believed to have been the cause of the fire to an electrical engineer for inspection and analysis); see also U.S. v. Schlesinger, 372 F.Supp. 711, 716-17 (E.D. N.Y. 2005) (fire cause and origin expert hired an electrical engineer to assist in his investigation).

When an expert relies on the opinion of another, such reliance goes to the weight, not to the admissibility of the expert's opinion. Ferrara & DiMercurio v. St. Paul Mercury Ins. Co., 240 F.3d 1, 9 (1st Cir. 2001); Fed. R. Evid. 703. In fact, courts frequently have pointed to an expert's reliance on the reports of others as an indication that their testimony is reliable. See, e.g., Antoine-Tubbs v. Local 513, Air Transp. Div., 50 F.Supp.2d 601, 609 (N.D. Tex. 1998) (citing Moore v. Ashland Chem., Inc., 126 F.3d 679, 690-91 (5th Cir. 1997), rev'd en banc, 151 F.3d 269 (5th Cir. 1998) and cert. denied, 526 U.S. 1064 (1999), aff'd, 190 F.3d 537 (5th Cir. 1999)). It is now "common in technical fields for an expert to base an opinion in part on what a

different expert believes on the basis of expert knowledge not possessed by the first expert; and it is apparent from the wording of Rule 703 that there is no general requirement that the other expert testify as well." Dura Automotive Systems of Indiana, Inc. v. CTS Corp., 285 F.3d 609, 613 (7th Cir. 2002).

In fire cases, the preferred methodology is for cause and origin experts to narrow the suspected cause of a fire and then turn over the relevant evidence to specialists such as electrical and mechanical engineers to assist in confirming or denying the cause and origin expert's findings.

The situation presented to the court in Van Den Eng v. The Coleman Co., 2006 WL 1663714 (E.D. Wis. 2006) illustrates this principle. That case involved a carbon monoxide poisoning situation resulting from a propane heater manufactured by the defendant. The plaintiff presented a series of expert witnesses, none of whom specifically tested their theories with respect to product defect. Interestingly, the court noted that while none of the experts provided testing, taken collectively, and drawing upon each other's opinions and conclusions as foundations, the experts were permitted to testify to their primary opinion despite the lack of specific testing:

> Generally, the plaintiff protests what might be described as Coleman's "divide and conquer" approach to excluding these experts. For example, with respect to each expert, Coleman asserts that the individual did not perform adequate testing to backup his opinions. The plaintiff, however, states that its experts are a sort of package deal and that each is entitled to rely on the observations and experience of the others in forming his opinion. Thus, even if one expert did not perform tests sufficient to found his opinion, the information gleaned from the others, and from other sources, is fair game. For the reasons set forth below, I generally agree with the plaintiff and will not exclude any of the expert's opinions completely.

Id. at 10.

D. Lessons To Be Learned and Guidelines for Satisfying the Foundation Needed for the Admission of Expert Opinion Testimony.

Whether because of substantial issues regarding the methodology for conducting a fire investigation or the absence of appropriate testing to support an expert's opinion, courts will almost invariably preclude an expert from offering opinions that might be considered "speculative," since any such opinions are not reliable under Rule 702 and Daubert. Where those opinions do not "fit" the facts of the case they will not be permitted. Additionally, opinion testimony is often subject to exclusion where the expert cannot reasonably eliminate other potential causes of a fire. The 8th Circuit summed up these concerns in Hickerson, supra. where, commenting on another case, it noted that expert testimony should be excluded where

> too much speculation was required to make the leap from the circumstantial evidence to the conclusion that product defect existed and caused the fire. There was strong evidence to support a theory of causation different from the plaintiff's theory and the plaintiff's theory of causation was speculative and did not enjoy the support of a reliable expert's identification of a point of origin.

Id. at 1260.

Thus, for example, while the plaintiff's expert in Colony Insurance Co. v. The Coca Cola Co., supra., was able to testify regarding the effect of electrical malfunctions in a crimped connection that he believed existed in a product located in the area of origin, he could not testify that it was his opinion that the improper crimp occurred during the manufacturing process.

Another example of a "speculative" opinion being precluded by the Court is found in State Farm Fire and Casualty Co. v. Holmes Products, 165 Fed. Appx. 182, 2006 WL 228617 (3d Cir. 2006). There, the plaintiff alleged that a halogen floor lamp caused a fire when draperies hanging in the home came into contact with the allegedly defective lamp. The plaintiff argued that the lamp should have been equipped with a guard to prevent combustibles from contacting the lamp and being ignited from the heat generated by the high temperature bulb. The issue that the plaintiff's experts had to overcome was the fact that the evidence showed the lamp

was situated two feet away from the draperies. In order to bridge the gap (literally and figuratively) between the lamp and the draperies, the expert concluded that the homeowner's dog must have either knocked over the lamp or brushed past the draperies causing them to come into contact with the lamp. The Third Circuit affirmed the preclusion of the plaintiff's expert, finding that testimony with respect to the dog was speculative since it was not supported by any scientific analysis or methodology, the proposed testimony was stated in terms of possibilities without being sufficiently supported in the evidence and the expert was unable to conclusively state whether the halogen lamp fell over prior to the fire beginning.

Immediate recognition of the roadblocks that lie ahead in the presentation of experts is essential. At a minimum, in order to be in the best position to defeat Daubert arguments in fire cases, each of the following factors should be recognized, deployed and applied wherever appropriate:

A. Pre-screening of experts. Experts should be "cross-examined" concerning their credentials before being retained, to ensure that they have ample experiential and educational background in the specific subject matter of the proposed investigation.

B. Restriction of experts' activities. Resist the temptation to over-extend an expert, perhaps at the urging of the expert, beyond their specific area of expertise. Fire cause and origin experts should not address electrical or mechanical failures; engineering experts should not analyze materials or metallurgical deficiencies.

C. Identify and preserve all pertinent physical evidence. The rules of non-spoliation/preservation of evidence dictate that the instrumentality which caused the loss must be preserved, to the extent possible, in its entirety. All reasonable secondary or alternative causes which have been considered and ruled out similarly must be preserved. All "bridges" between

primary and secondary areas of damage such as fuel sources, wiring, piping, and other similar artifacts should be secured and maintained.

D. Photographic and videographic documentation. The loss site should be thoroughly documented, both from macro as well as micro perspectives, through the use of thirty-five millimeter photography, digital photography and videography. Photographs are the most effective and least expensive form of verifying site conditions, and should be used extensively in every investigation.

E. Identify and follow applicable standards. NFPA 921, Guide for Fire and Explosion Investigations, must be consulted and followed for all relevant investigative purposes. Other applicable standards, including the American Society of Testing and Materials Guideline for Collection and Preservation of Evidence and Evaluating Technical Data also should be consulted and relied upon, where appropriate.

F. Testing - in some form - should be considered in every case. The most effective testing is that which is focused on establishing a single element of proof in the theory of causation. Each hypothesis must be broken down to predicate components, and then tested independently or verified by reliance upon authoritative scientific or industry literature. Testing is not equivalent to examination but analysis and interpretation of evidentiary artifacts can be supported by reference to established industry findings, guidelines and benchmarks.

G. Utilize existing industry research. Consultants should utilize the extensive database of fire science and engineering literature which is available and which effectively can be mined for tests which may support an expert's findings in a given investigation.

H. Utilize objective, not subjective, predicate facts. The expert's analysis, wherever possible, should be grounded on specific facts yielded in the investigative process, and objective

findings resulting from testing in the scientific community at large, for the particular investigation being conducted.

I. Address potential rates or probability of error, and controls to ensure validity of findings. Every expert analysis must face up to obvious vulnerabilities in the methodology utilized, and then explained how their potential impact has been avoided or reduced to being a de-minimus factor. Counsel should focus upon the weakest - not the strongest - aspect of the expert's analysis since that will be the attack launched by an intelligent opponent.

Finally, every step of the expert's investigative process should pay attention to these three factors: the reliability of the investigative procedures used; the reasonableness of the conclusions formulated; and the ability to demonstrate, through repetitive analyses, that the investigative method and resulting opinions are scientifically valid, not speculative and worthy of being presented to the finder of fact.

The ultimate goal of any investigation is to develop reliable opinions that not only answer what caused a loss, but are admissible in court.

WHO'S AFRAID OF GLOBAL WARMING—TURNING UP THE HEAT IN PURSUIT OF RECOVERY IN ACT OF GOD AND CATASTROPHIC LOSS CASES

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Who's Afraid Of Global Warming – Turning Up The Heat In Pursuit Of Recovery In Act Of God And Catastrophic Loss Cases

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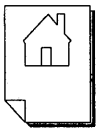

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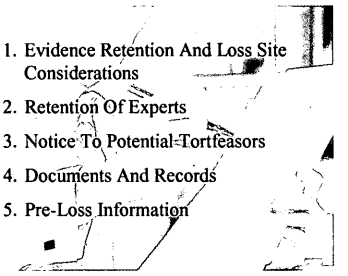

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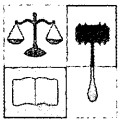

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THE GOOD, THE BAD AND THE UGLY: RECENT DEVELOPMENTS IN THE LAW- *ALLSTATE INSURANCE COMPANY V. HAMILTON BEACH/PROCTOR SILEX, INC.* 473 F.3D 450 (2ND CIR. 2007)

presented by:

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C

Allstate Ins. Co. v. **Hamilton Beach/Proctor Silex**, Inc.
C.A.2 (Vt.),2007.

United States Court of Appeals,Second Circuit.
ALLSTATE INSURANCE COMPANY and Granite Mutual **Insurance Company**, Plaintiffs-Appellants,
v.
HAMILTON BEACH/PROCTOR SILEX, INC., Defendant-Appellee.
Docket No. 04-6282-CV.

Argued: Oct. 12, 2005.
Decided: Jan. 5, 2007.

Background: Insurance companies brought diversity action against manufacturer seeking subrogation for money paid to their insureds for fire allegedly caused by coffee maker. The United States District Court for the District of Vermont, Garvan Murtha, J., adopting the report and recommendation of Jerome J. Niedermeier, United States Magistrate Judge, granted summary judgment for manufacturer. Insurers appealed.

Holdings: The Court of Appeals, Hall, Circuit Judge, held that:

(1) insurers did not engage in spoliation;

(2) proffered expert testimony constituted circumstantial evidence sufficient for conclusion that defect in coffee maker was more probable cause of fire in comparison to all other possible alternate ignition sources;

(3) fact issue existed as to whether insured customer's post-purchase handling and use of coffee maker caused alleged defect that caused fire; and

(4) fact issue existed as to whether alleged defect in coffee maker existed when coffee maker was still in manufacturer's possession and control.

Vacated and remanded.

West Headnotes

[1] Federal Courts 170B ⚿813

170B Federal Courts
170BVIII Courts of Appeals
170BVIII(K) Scope, Standards, and Extent
170BVIII(K)4 Discretion of Lower Court
170Bk813 k. Allowance of Remedy and Matters of Procedure in General. Most Cited Cases

Federal Courts 170B ⚿870.1

170B Federal Courts
170BVIII Courts of Appeals
170BVIII(K) Scope, Standards, and Extent
170BVIII(K)5 Questions of Fact, Verdicts and Findings
170Bk870 Particular Issues and Questions
170Bk870.1 k. In General. Most Cited Cases

A district court's imposition of spoliation sanctions is reviewed under an abuse of discretion standard; in so doing, the district court's factual findings in support of the sanctions are accepted unless they are clearly erroneous.

[2] Products Liability 313A ⚿8

313A Products Liability
313AI Scope in General
313AI(A) Products in General
313Ak8 k. Nature of Product and Existence of Defect or Danger. Most Cited Cases

Products Liability 313A ⚿15

313A Products Liability
313AI Scope in General
313AI(A) Products in General
313Ak15 k. Proximate Cause and Foreseeable Injury; Intended or Foreseeable Use. Most Cited Cases

Sales 343 ⚿427

343 Sales
343VIII Remedies of Buyer
343VIII(D) Actions and Counterclaims for Breach of Warranty
343k427 k. Right of Action. Most Cited Cases
Under Vermont law, proof of a product defect is one of the two elements that is necessary to establish causation with respect to both breach of warranty and strict products liability actions; the second necessary element is proof that a defect existed in the product at the time that it left the possession and control of the defendant.

[3] Sales 343 ⚿441(1)

343 Sales
343VIII Remedies of Buyer
343VIII(D) Actions and Counterclaims for Breach of Warranty
343k438 Evidence
343k441 Weight and Sufficiency
343k441(1) k. In General. Most Cited Cases
In a breach of warranty action involving product defect, Vermont law permits an injured party to establish causation by means of circumstantial evidence.

[4] Federal Civil Procedure 170A ⚿1636.1

170A Federal Civil Procedure
170AX Depositions and Discovery
170AX(E) Discovery and Production of Documents and Other Tangible Things
170AX(E)5 Compliance; Failure to Comply
170Ak1636 Failure to Comply; Sanctions
170Ak1636.1 k. In General. Most Cited Cases
Insurers did not engage in spoliation by discarding range and range hood, and thus district Court abused its discretion in precluding consideration of expert testimony that excluded all possible ignition sources aside from defect in coffee maker, in subrogation action brought by insurers against manufacturer claiming breach of warranty and strict product liability under Vermont law, where manufacturer affirmatively disclaimed any interest in range and range hood after having been provided full opportunity to inspect those items.

[5] Federal Civil Procedure 170A ⚿1636.1

170A Federal Civil Procedure
170AX Depositions and Discovery
170AX(E) Discovery and Production of Documents and Other Tangible Things
170AX(E)5 Compliance; Failure to Comply
170Ak1636 Failure to Comply; Sanctions
170Ak1636.1 k. In General. Most Cited Cases
"Spoliation" is the destruction or significant alteration of evidence, or failure to preserve property for another's use as evidence in pending or reasonably foreseeable litigation.

[6] Evidence 157 ⚿555.5

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.5 k. Cause and Effect. Most Cited Cases
Circumstantial evidence, in form of expert testimony excluding all possible ignition sources aside from defect in coffee maker and opining, based on burn pattern, that coffee maker was the ignition source, was admissible, under Vermont's strict products liability law, to establish that coffee maker was most likely cause of house fire.

[7] Federal Civil Procedure 170A ⚿2515

170A Federal Civil Procedure

170AXVII Judgment
170AXVII(C) Summary Judgment
170AXVII(C)2 Particular Cases
170Ak2515 k. Tort Cases in General. Most Cited Cases
Circumstantial evidence, in form of expert testimony excluding all possible ignition sources aside from defect in coffee maker and opining, based on burn pattern, that coffee maker was the ignition source, raised fact question, precluding summary judgment on breach of warranty and strict products liability claims arising out of house fire.

[8] Federal Civil Procedure 170A ⚿2515

170A Federal Civil Procedure
170AXVII Judgment
170AXVII(C) Summary Judgment
170AXVII(C)2 Particular Cases
170Ak2515 k. Tort Cases in General. Most Cited Cases
Genuine issue of material fact existed as to whether insured customer's post-purchase handling and use of coffee maker caused alleged defect that caused fire, precluding summary judgment in subrogation action brought by insurers against manufacturer claiming breach of warranty and strict product liability under Vermont law. Fed.Rules Civ.Proc.Rule 56, 28 U.S.C.A.

[9] Federal Civil Procedure 170A ⚿2515

170A Federal Civil Procedure
170AXVII Judgment
170AXVII(C) Summary Judgment
170AXVII(C)2 Particular Cases
170Ak2515 k. Tort Cases in General. Most Cited Cases
Genuine issue of material fact existed as to whether alleged defect in coffee maker existed when coffee maker was still in manufacturer's possession and control, precluding summary judgment in subrogation action brought by insurers against manufacturer claiming breach of warranty and strict product liability under Vermont law. Fed.Rules Civ.Proc.Rule 56, 28 U.S.C.A.

Daniel J. Luccaro, Cozen O'Connor, Philadelphia, PA, for Plaintiffs-Appellants.
John T. Sartore, Paul, Frank & Collins, P.C., Burlington, VT, for Defendant-Appellee.

Before WALKER, WESLEY, HALL, Circuit Judges.
HALL, Circuit Judge.
Allstate Insurance Company and Granite Mutual Insurance Company (collectively "Plaintiffs") brought this subrogation action against Hamilton Beach/Proctor Silex, Inc. ("Hamilton Beach" or " Defendant") seeking to recover approximately $97,000 paid to their respective insureds, Joseph Malboeuf and Michael and Gail Leggett, for covered losses sustained in a residential fire in St. Albans, Vermont. Plaintiffs alleged that a defective coffee ***452** maker manufactured by Hamilton Beach caused the fire and asserted claims for products liability and breach of express and implied warranties.[FN1] Hamilton Beach moved for summary judgment arguing that Plaintiffs could not establish a defective condition in the coffee maker, an essential element of both claims.

FN1. Plaintiffs voluntarily withdrew their negligence claim after Defendant moved for summary judgment.

Plaintiffs argued that they had produced sufficient circumstantial evidence to show the coffee maker was defective to preclude summary judgment as to both claims. With respect to their strict products liability claim, Plaintiffs urged the District Court to adopt the Restatement (Third) of Torts: Products Liability § 3 (1998) ("Restatement § 3"), which under certain conditions permits recovery on a strict liability claim where there is only circumstantial evidence of a defect. With respect to their breach of warranty claim, Plaintiffs argued that Vermont law allows recovery where circumstantial evidence establishes that a defect in a product is the most likely cause of injury. Plaintiffs asserted, therefore, that summary judgment on their breach of warranty claim would be inappropriate regardless of whether the District Court adopted the malfunction theory.

In his Report and Recommendation, Magistrate Judge Niedermeier determined Plaintiffs'

circumstantial evidence was not sufficient to show that a defect in the coffee maker was the more probable cause of the fire when compared to all other possible causes. Magistrate Judge Niedermeier declined, therefore, to consider whether the Supreme Court of Vermont would adopt the malfunction theory and recommended granting Hamilton Beach's motion for summary judgment in its entirety. The United States District Court for the District of Vermont (Murtha, *J.*) adopted the Report and Recommendation without modification and dismissed the complaint. Plaintiffs appeal.

BACKGROUND

In May 2002, Malboeuf purchased from Ames Department store a coffee maker manufactured by Hamilton Beach, brought it home and placed it, still packaged, on his kitchen floor. The coffee maker remained there until the night of June 13, 2002, when Malboeuf removed it from its packaging and set it up. The following morning, Malboeuf used the coffee maker for the first time. Before leaving for work, he turned it off, but did not unplug it. Less than three hours later, a neighbor saw flames coming from Malboeuf's home and called the St. Albans fire department. Although the fire department arrived just two minutes later and promptly brought the fire under control, it had caused substantial damage to both Malboeuf' s property and that of his tenants, the Leggetts.

Gary Palmer, St. Albans's fire chief, conducted an initial investigation into the cause of the fire. Based on that investigation, he determined that the fire started to the right of the stove, where Malboeuf claims the coffee maker was located prior to the fire. Palmer ruled out the possibility that the fire was the result of arson or careless smoking. He did not, however, offer any theory of how or why the coffee maker started the fire.

On June 17, 2002, David Eliassen, a cause and origin investigator retained by Allstate, visited the scene to undertake his own investigation. Eliassen noted that the coffee maker had been reduced to very small pieces and there was a very heavy char pattern on the splash board behind ***453** the coffee maker. According to Eliassen, this char pattern-shaped like a "V" with the lowest point of heavy char directly behind the coffee maker-indicated that the fire originated in that area. While Eliassen testified in his deposition that there were three other potential electrical sources of ignition in the area-the electric range, the range hood, and the electric receptacle behind the coffee maker-he did not believe that the burn patterns were consistent with a fire in either the electric range or the range hood. Nonetheless, Eliassen recommended that Allstate retain an electrical engineer to examine each of these alternate sources of ignition so that they could be definitively ruled out.

On June 28, 2002, Eliassen returned to the scene to continue his investigation. He was accompanied by Eric Chaine, the electrical engineer retained by Allstate on Eliassen's recommendation, and Charles King, a fire investigator representing Hamilton Beach. King inspected the scene and spoke with Malboeuf. According to Eliassen, when he explained to King that one of the purposes for the visit was to examine closely the electric range and range hood, King stated that he could see that those items did not cause the fire and did not stay for that examination. Based on that interaction, Eliassen concluded that Hamilton Beach had "no interest in preserving the range or the range hood." Chaine, however, went forward with the examination on site and also took the remnants of the coffee maker back to his laboratory for further study.

Eliassen and Chaine both submitted reports detailing the results of their respective investigations. Eliassen concluded that the "fire had a single point of origin at the ... coffeemaker," but deferred to Chaine to identify a specific failure mode within the coffee maker. Eliassen based his conclusion on the lack of any evidence of arson or accidental ignition, as well as his professional opinion that "all ignition sources, except for the ... coffeemaker ha[d] been considered and ruled out." Chaine's report also ruled out the range, the range hood, and the receptacle as potential causes of the fire. The report noted that the plastic housing of the coffee maker had been consumed completely by

the fire, leaving only "the bottom base plate, the heating element assembly (including the warmer plate), some remnants of the carafe, and pieces of stranded wires." Despite this destruction, Chaine was able to identify the basic components of the coffee maker which were "still in a fair condition, with no signs of failure." Chaine also observed that the wire strands probably came from the power cord and indicated multiple points of electrical arcing. This arcing, he concluded, was likely the result of a cord failure and the most probable cause of the fire.

King died before filing a report or being deposed in connection with this action. To replace King, Hamilton Beach retained Scott Barnhill. Based on his investigation, Barnhill stated that he was " comfortable ruling out the range, the receptacle, [and] the hood...." In an apparent reference to Plaintiffs' disposal of several component parts of these alternate sources following King's site visit, however, Barnhill suggested that his conclusion might have been different had he had an opportunity to examine additional evidence. Barnhill also eliminated the coffee maker as a potential cause of the fire. Disputing Chaine's conclusion, he asserted that any electrical arcing on the coffee maker's power cord would not have been strong enough to ignite the coffee maker's housing.

Hamilton Beach moved to preclude Chaine's testimony regarding the coffee maker's alleged mode of failure. Plaintiffs agreed to limit Chaine's testimony "to his ***454** examination of the range, range hood and receptacle, and his elimination of these items as potential causes of the fire." Thereafter, Hamilton Beach moved for summary judgment, arguing that Plaintiffs could not establish that the coffee maker was defective.

Plaintiffs conceded that they could not identify a specific defect in the coffee maker. Relying on expert reports and testimony eliminating the other possible causes of the fire, however, they argued they had produced sufficient circumstantial evidence that the coffee maker was defective to withstand summary judgment on both claims.

With respect to their strict liability claim, Plaintiffs' argument assumed that the District Court would apply Restatement § 3, often referred to as the " malfunction theory." The Vermont Supreme Court has not yet issued an opinion that adopts the malfunction theory, which allows a plaintiff to use circumstantial evidence to demonstrate that a product was defective where the incident that harmed the plaintiff: "(a) was of the kind that ordinarily occurs as a result of a product defect; and (b) was not, in the particular case, solely the result of causes other than product defect." Restatement § 3. The malfunction theory relieves plaintiffs of the heavier burden of establishing a specific defect in a product.

With respect to its breach of warranty claim, Plaintiffs asserted they had at least created a material issue of fact because existing Vermont law permits a plaintiff to use circumstantial evidence to prove that a defect in a product is the most likely cause of the injury. Thus, Plaintiffs argued that summary judgment was inappropriate even if the District Court declined to adopt the malfunction theory.

In his Report and Recommendation, Magistrate Judge Niedermeier recommended granting Hamilton Beach's motion for summary judgment. The recommendation was supported by two central determinations. First, Magistrate Judge Niedermeier refused to allow Plaintiffs to make use of their evidence that ruled out all sources of ignition aside from the coffee maker, reasoning that due to Plaintiffs' failure to preserve several components of the potential alternate sources of ignition for examination by Hamilton Beach, it would be inequitable for Plaintiffs to make use of such circumstantial evidence or avoid the burden of proving a specific defect in the coffee maker. Second, he found that Plaintiffs had not presented any evidence that the coffee maker could not have been damaged in transit from the store after Malboeuf purchased it, or while it sat on Malboeuf's floor before he used it. On the basis of those findings, Magistrate Judge Niedermeier concluded it was not necessary to consider whether the Vermont Supreme Court would adopt the malfunction theory, because Plaintiffs' evidence could not satisfy it. Therefore, he recommended

dismissing Plaintiffs' strict products liability claim.

With respect to the breach of warranty claim, Magistrate Judge Niedermeier noted that Vermont law permits a plaintiff to establish the existence of a defect through circumstantial evidence by demonstrating that a defect is the more probable cause of the injury when compared to other possible causes. Referring to his earlier finding that Plaintiffs had not produced any evidence that the coffee maker was not damaged after it was purchased by Malboeuf, he concluded that no such showing could be made in this case and recommended the dismissal of the breach of warranty claim as well. Plaintiffs filed timely objections to the Report and Recommendation, and Hamilton Beach filed a timely response. On November 4, 2004, ***455** the District Court (Murtha, *J.*) adopted the Report and Recommendation without modification.

On appeal, Plaintiffs challenge the two determinations underlying the District Court's judgment. Plaintiffs argue here that the District Court erred in finding that they did not provide Hamilton Beach an opportunity to examine the other potential ignition sources and that dismissing their strict products liability claim on that basis constituted an inappropriate spoliation sanction. In addition, Plaintiffs claim that the District Court erroneously drew a factual inference in favor of Hamilton Beach when it held that the coffee maker may have been damaged in transit or while it sat on Malboeuf's floor.

According to Plaintiffs, the record contains circumstantial evidence sufficient to allow a jury reasonably to conclude that an unspecified defect in the coffee maker was the more probable cause of the fire and that the coffee maker was defective while in the possession and control of Hamilton Beach. Plaintiffs argue that the District Court erred by refusing to consider whether the Vermont Supreme Court will adopt some form of the malfunction theory, which would support a recovery on their strict products liability claim. In addition, Plaintiffs argue that Vermont law on breach of warranty requires that those claims be decided by a jury.

We agree that both determinations underlying the District Court's entry of summary judgment were in error. Construing the record in the light most favorable to Plaintiffs, as we must, we find there is circumstantial evidence sufficient to allow a jury reasonably to find: (1) that a defect in the coffee maker was the more probable cause of the fire; and (2) that the coffee maker was in substantially the same condition as it was when last in Defendant's possession and control. We, therefore, hold the District Court erred in dismissing Plaintiffs' breach of warranty claim. For the same reasons, and in light of *Travelers Ins. Cos. v. Demarle, Inc.*, 178 Vt. 570, 574, 878 A.2d 267, 272 (Vt.2005), where the Vermont Supreme Court suggested that under Vermont law a plaintiff may rely on circumstantial evidence to establish causation in strict products liability actions in the same manner as he or she may in breach of warranty actions,[FN2] we hold that the District Court also erred in dismissing Plaintiffs' strict products liability claim.

FN2. In *Travelers Ins. Co.*, the Vermont Supreme Court affirmed the dismissal of, inter alia, breach of warranty and products liability claims with respect to baking mats that the plaintiffs claimed were defective and had contaminated plaintiff Greyston Bakery's food products. In holding that the plaintiffs had failed to adduce evidence from which a jury could reasonably determine that the baking mats caused the contamination that led to the plaintiffs' losses, the Court stated in clear language " we agree with plaintiffs that causation in a products liability or warranty case can be proved through circumstantial evidence." 178 Vt. at 574, 878 A.2d at 272.

DISCUSSION

I. *Standard of Review*

We review a district court's grant of summary judgment *de novo. Bouboulis v. Transp. Workers Union of Am.*, 442 F.3d 55, 59 (2d Cir.2006). " Summary judgment is only warranted upon a

showing '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.' " *Feingold v. New York,* 366 F.3d 138, 148 (2d Cir.2004) (quoting Fed.R.Civ.P. 56(c)); *see also Celotex Corp. v. Catrett,* 477 U.S. 317, 322, 106 S.Ct. 2548, 91 L.Ed.2d 265 (1986). A genuine issue of material fact exists, where "there is sufficient evidence favoring the nonmoving party for a jury to ***456** return a verdict for that party." *Anderson v. Liberty Lobby, Inc.,* 477 U.S. 242, 249, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). "In assessing the record to determine whether there is such an issue, the court is required to resolve all ambiguities and draw all permissible factual inferences in favor of the party against whom summary judgment is sought." *Stern v. Trs. of Columbia Univ.,* 131 F.3d 305, 312 (2d Cir.1997).

[1] We review a district court's imposition of spoliation sanctions under an abuse of discretion standard. *West v. Goodyear Tire & Rubber Co.,* 167 F.3d 776, 779 (2d Cir.1999); *Flury v. Daimler Chrysler Corp.,* 427 F.3d 939, 943 (11th Cir.2005). In so doing, we accept the district court's factual findings in support of the sanctions unless they are clearly erroneous. *West,* 167 F.3d at 779.

II. *Breach of Warranty and Strict Products Liability under Vermont Law*

[2] Under Vermont law, there are two elements necessary to establish causation with respect to both breach of warranty and strict products liability actions. The first is proof of a product defect. *See Hershenson v. Lake Champlain Motors, Inc.,* 139 Vt. 219, 222, 424 A.2d 1075, 1077 (Vt.1981) (breach of warranty action); *see also Webb v. Navistar Int'l Transp. Corp.,* 166 Vt. 119, 126, 692 A.2d 343, 346 (Vt.1996) (stating that in strict liability actions the plaintiff must prove that harm or damages resulted from a "defective product"). The second is "proof that a defect existed in the product at the time that it left the possession and control of the defendant." *Hershenson,* 139 Vt. at 222, 424 A.2d at 1077 (breach of warranty action); *see also Webb,* 166 Vt. at 126, 692 A.2d at 346 (stating that the doctrine of strict products liability renders manufacturers liable "for physical harm or property damages resulting from a defective product that reaches a user without undergoing substantial change").

[3] In a breach of warranty action, Vermont law permits an injured party to establish causation by means of circumstantial evidence. *Hershenson,* 139 Vt. at 223, 424 A.2d at 1078. As the Vermont Supreme Court explained:
"Circumstantial evidence may be resorted to ... if there can be drawn therefrom a rational inference that [a defect in the defendant's product] was the source of the trouble. There must be created in the minds of the jurors something more, of course, than a possibility, suspicion or surmise, but the requirements of the law are satisfied if the existence of this fact is made the more probable hypothesis, when considered with reference to the possibility of other hypotheses."

Hershenson, 139 Vt. at 223-24, 424 A.2d at 1078 (quoting *Patton v. Ballam,* 115 Vt. 308, 314, 58 A.2d 817, 821 (Vt.1948)) (alteration in *Hershenson*). In *Travelers Ins. Cos.,* as previously noted, the Vermont Supreme Court suggested that a plaintiff may rely on circumstantial evidence to establish causation in strict products liability actions in the same manner as he or she may in breach of warranty actions. *See* 178 Vt. at 574, 878 A.2d at 272.[FN3]

FN3. Plaintiffs argue that the Vermont Supreme Court would adopt the malfunction theory and urge us to so predict and then apply that theory to Plaintiffs' strict products liability claim.
As embodied in Restatement § 3, the malfunction theory provides:
It may be inferred that the harm sustained by the plaintiff was caused by a product defect existing at the time of sale or distribution, without proof of a specific defect, when the incident that harmed the plaintiff:
(a) was of a kind that ordinarily occurs as a result of product defect; and
(b) was not, in the particular case, solely the result of causes other than product

> defect existing at the time of sale or distribution.
> It seems likely that the Vermont Supreme Court would adopt the malfunction theory in light of the fact that: (1) circumstantial evidence is treated similarly under both that theory and Vermont's breach of warranty law; (2) the Vermont Supreme Court has suggested that a plaintiff may rely on circumstantial evidence to establish causation in products liability actions in the same way he or she may in a breach of warranty action, *see Travelers Ins. Cos.*, 178 Vt. at 574, 878 A.2d at 272; and (3) the malfunction theory is consistent with the policy considerations that motivated Vermont to adopt strict products liability. *See Webb,* 166 Vt. at 129, 692 A.2d at 348 . We need not and do not decide, however, whether the Vermont Supreme Court would in fact adopt the malfunction theory, because we find under the causation standards already adopted by the Vermont Supreme Court that Plaintiffs have submitted evidence in opposition to Defendant's motion for summary judgment sufficient to defeat that motion with respect to Plaintiffs' breach of warranty and products liability claims.

***457** In sum, under Vermont law Plaintiffs prevail in their opposition to Defendant's summary judgment motion if they can establish that: (1) their evidence would allow a jury reasonably to conclude that a defect in the coffee maker was the more probable cause of the fire; and (2) a jury could reasonably infer that the product was defective while still in the possession and control of Hamilton Beach and the defect was not due to any post-purchase mishandling or misuse. Because we hold the District Court should have taken into consideration Plaintiffs' expert testimony that excluded all possible ignition sources aside from a defect in the coffee maker, and when we then view the record in the light most favorable to Plaintiffs, as we must, we find that the material facts in dispute preclude summary judgment in Defendant's favor on Plaintiffs' breach of warranty and strict products liability claims.

III. *The Exclusion of Plaintiffs' Circumstantial Evidence*

[4] On June 14, 2002, the day of the fire, Allstate sent Hamilton Beach a letter notifying it of the potential subrogation claim and offering to preserve the scene for Hamilton Beach's inspection. Two weeks later, on June 28, 2002, Hamilton Beach sent King as its representative to inspect the fire scene. According to Eliassen's testimony, which Hamilton Beach does not challenge, the only items King indicated he wanted preserved were the coffee maker and the receptacle. King had no interest in even inspecting, much less preserving, the range or range hood. Thus, after Plaintiffs took detailed pictures of the range and the range hood and determined that those appliances had not caused the fire, those items were discarded.

[5] In evaluating Plaintiffs' strict products liability claim, the District Court held that it would be inequitable to allow Plaintiffs to make use of their evidence that ruled out all possible sources of the fire other than the coffee maker. Plaintiffs assert that this holding, though not characterized as such by the District Court, amounts to a spoliation sanction. "Spoliation is the destruction or significant alteration of evidence, or failure to preserve property for another's use as evidence in pending or reasonably foreseeable litigation." *West,* 167 F.3d at 779. While acknowledging that a district court may impose such a sanction in its discretion, Plaintiffs argue that the District Court abused that discretion here because Hamilton Beach was provided a full and fair opportunity to examine the fire scene as ***458** well as the alternate potential ignition sources.

Hamilton Beach argues that Plaintiffs were obliged to preserve the range and range hood despite King's indication that he was not interested in examining them. Citing our decision in *Fujitsu Ltd. v. Fed. Express Corp.,* 247 F.3d 423 (2d Cir.2001), Hamilton Beach asserts that there is a broad duty to preserve evidence irrespective of the absence of a request by the opposing party. *Fujitsu* will not bear such a reading. While we noted that "[t]he obligation to preserve evidence arises when the party has notice that the evidence is relevant to

litigation or when a party should have known that the evidence may be relevant to future litigation," *id.* at 436, we did not hold that such an obligation continues indefinitely. Indeed, we affirmed the district court's refusal to impose sanctions, in part, because the defendant had never asked to inspect the evidence at issue. *Id.*

Here, not only did the defendant not request that Plaintiffs preserve the range and range hood, Hamilton Beach, through its representative, affirmatively disclaimed any interest in the evidence. Hamilton Beach did so, moreover, after being provided a full opportunity to inspect the items. *See Thiele v. Oddy's Auto and Marine, Inc.,* 906 F.Supp. 158, 162-63 (W.D.N.Y.1995) (denying a spoliation sanction requested by the primary defendant who had inspected the evidence before destroying it, while granting a spoliation sanction in favor of a third-party defendant who was not afforded a similar opportunity to inspect the evidence), cited with approval in *Fujitsu,* 247 F.3d at 436; *Howell v. Maytag,* 168 F.R.D. 502, 505-08 (M.D.Pa.1996) (concluding that sanctions more severe than an adverse inference jury instruction were unnecessary where plaintiff destroyed the scene of the fire, including other possible sources of ignition, before it was inspected by the defendant, but preserved the presumptive cause of the fire); *see also Baliotis v. McNeil,* 870 F.Supp. 1285, 1290 (M.D.Pa.1994) (noting that "[t]he scope of the duty to preserve evidence is not boundless," but requires, at a minimum, that the defendant be provided an opportunity for inspection (internal quotation marks omitted)). The District Court, therefore, abused its discretion in precluding consideration of Plaintiffs' evidence offered for purposes of eliminating the possible alternate ignition sources. If allowed to consider such evidence, a jury could reasonably conclude that a defect in the coffee maker was the more probable cause of the fire in comparison to all other possible causes. *See Hershenson,* 139 Vt. at 223-24, 424 A.2d at 1078.

[6][7] Hamilton Beach argues the evidence is nonetheless insufficient to allow the jury to infer that a defect in the coffee maker caused the fire because Plaintiffs have failed positively to establish an actual defect in the coffee maker. The two Vermont cases on which Hamilton Beach relies, however, did not involve breach of warranty or products liability claims, were decided well before Vermont adopted strict products liability, and establish only that expert opinions may properly be excluded when based on conjecture rather than evidence in the record. *See State v. Teitle,* 117 Vt. 190, 206, 90 A.2d 562, 573 (Vt.1952) (upholding exclusion of expert testimony that a malfunction in the motor or wiring of equipment located near the point of origin of a fire possibly caused that fire where the record was devoid of evidence that the wiring or motor was in fact defective, or that such equipment may inherently malfunction even when properly maintained); *Bliss v. Moore,* 112 Vt. 185, 190, 22 A.2d 315, 317 (Vt.1941) (excluding expert testimony that an electrical overload ***459** could have been caused by the motors to an electrical burner, a circulator and an electrical refrigerator coming on simultaneously where there was no evidence in the record on which that opinion was based). Here, in contrast, Plaintiffs' expert testimony that the coffee maker started the fire was based on evidence-the burn pattern, the condition of the coffee maker, and the condition and location of the other possible ignition sources-all of which should have been considered in connection with the summary judgment motion.

While the Vermont Supreme Court has stated that Plaintiffs may rely on circumstantial evidence to prove causation in products liability and breach of warranty actions, it has yet to opine on the kind of circumstantial evidence required to create a jury question regarding the cause of a fire. Cases from other jurisdictions that allow plaintiffs to rely on circumstantial evidence to prove causation lead us to conclude, however, that the evidence Plaintiffs could present, if their case were to go to trial, is sufficient. *See, e.g., Gen. Accident Fire & Life Assurance Corp. v. N. Am. Sys.,* 658 N.Y.S.2d 757, 759-60, 240 A.D.2d 920, 921-23 (3d Dep't.1997) (upholding New York Supreme Court's determination that a coffee maker was defective and the defect was a substantial cause of a fire based on expert testimony that failed to point to a specific defect in the coffee maker but eliminated all possible sources of ignition other than the coffee maker); *Klein v. Gen. Electric Co.,* 714 S.W.2d

896, 899-900 (Mo.Ct.App.1986) (finding expert testimony that failed to point to any specific defect in a coffee maker, but eliminated all other possible sources of ignition was substantial evidence from which the jury could reasonably conclude that a defect in the coffee maker caused the fire); *Cassisi v. Maytag Co.,* 396 So.2d 1140, 1143, 1152-53 (1981) (reversing grant of defendant's motion for summary judgment based on plaintiff's expert's testimony that a clothes dryer was the " 'source from which the fire pattern and heat source eminate[d]' " even though expert failed to point to a specific defect in the clothes dryer and failed to eliminate all other possible ignition sources).

The Vermont Supreme Court's decision in *Webb,* 166 Vt. 119, 692 A.2d 343, suggests that the court would not adopt any stricter approach to the evaluation of circumstantial evidence. There, the court stated that the purpose of the doctrine of strict products liability is to "lessen the burden of proof for plaintiffs injured by defective products" in order to motivate "manufacturers to produce safe products " and because "manufacturers are in the best position to spread the cost of injury resulting from defective products by passing it on to consumers as a cost of doing business." 166 Vt. at 126, 692 A.2d at 346. Those interests would be undermined by an approach to circumstantial evidence that would prevent a plaintiff from recovering where, because a product is damaged so severely by a manufacturer's defect, the plaintiff is unable to identify the specific defect that caused the fire. We find, therefore, that Plaintiffs' expert testimony both eliminating all possible sources of ignition other than the coffee maker and opining that the coffee maker was the ignition source, by way of the burn pattern, constitutes circumstantial evidence sufficient to allow a jury reasonably to conclude that a defect in the coffee maker was the more probable cause of the fire. *See Hershenson,* 139 Vt. at 223-24, 424 A.2d at 1078.

At oral argument, Hamilton Beach argued that Plaintiffs' failure to offer some credible theory of how the coffee maker could have started the fire was fatal to their circumstantial case. Its argument ***460** relied on *Truck Ins. Exch. v. MagneTek, Inc.,* 360 F.3d 1206 (10th Cir.2004), in which the Tenth Circuit, applying Colorado law, held that in order to establish through circumstantial evidence that an allegedly defective appliance "caused a fire, not only must one find that the appliance was in the area of origin," *id.* at 1216, but also one must " ' rule in' " the appliance " 'as a scientifically plausible cause,' " *id.* at 1215 (quoting *Hollander v. Sandoz Pharm. Co.,* 289 F.3d 1193, 1211 (10th Cir.2002)). While *Truck Insurance Exchange* suggests that the evidence Plaintiffs adduced here would, under Colorado law, be insufficient to create a jury question, *Webb* suggests that Vermont would not adopt so strict an approach. Such an approach would conflict, moreover, with what the Vermont Supreme Court has suggested is required of a plaintiff to prove causation in breach of warranty, *see Hershenson,* 139 Vt. at 223-24, 424 A.2d at 1078, and strict products liability cases, *see Travelers Ins. Cos.,* 178 Vt. at 574, 878 A.2d at 272, because it would prevent a plaintiff from surviving a defendant's motion for summary judgment where the plaintiff adduces enough circumstantial evidence from which a jury reasonably could conclude that a defect in a product was the more probable cause of a fire, but fails to adduce evidence ruling in the product as a scientifically plausible cause.

In addition, *Truck Insurance Exchange* is distinguishable from the case at hand. There, the plaintiff's evidence failed to rule out all other possible sources of ignition, and the defendant presented scientific evidence that the fire could not have been caused by the plaintiff's claimed ignition source. 360 F.3d at 1215. Here, in contrast, Plaintiffs' expert ruled out all possible sources of ignition other than the coffee maker and testified, based on the burn pattern, not only that the fire originated in the area where the coffee maker was located, but also that the coffee maker itself was the source of ignition. We, therefore, find more persuasive cases from jurisdictions that have evaluated the sufficiency of circumstantial evidence in situations closer factually to the one presented here, and under a standard more in accord with both the principles that motivated the Vermont Supreme Court to adopt strict products liability and the causation standards already adopted by the Vermont Supreme Court.

IV. *Whether a Jury could Reasonably Infer an Absence of Post-Purchase Misuse or Mishandling*

[8] As an alternate ground for dismissing Plaintiffs' strict products liability claim, the District Court held that Plaintiffs had failed to produce any evidence that the defect in the coffee maker, if any, was not caused by misuse or mishandling after it was purchased. That rationale was the sole basis for the District Court's dismissal of Plaintiffs' breach of warranty claim. Plaintiffs argue that, in reaching that conclusion, the District Court not only ignored Malboeuf's testimony, but improperly resolved on summary judgment a disputed factual issue.

Malboeuf testified that he purchased the coffee maker in mid-to-late May, took it home, and placed it, still in its box, on his kitchen floor. According to Malboeuf, the coffee maker remained on the floor while he finished moving into the house and undertook various renovation projects. On June 13, the day before the fire, he removed the coffee maker from the box, rinsed the glass carafe, and filled the coffee maker with ground coffee. The following morning, Malboeuf plugged in the coffee maker for the first time, brewed a pot of coffee, filled his travel mug, turned off the coffee maker, and left for work. The fire started shortly thereafter. Malboeuf ***461** also asserted that he did not drop the coffee maker before or after setting it up, and he denied dunking the coffee maker in water.

The District Court implied, and Hamilton Beach argues, that the coffee maker could have been damaged while it sat on the floor in the midst of Malboeuf's renovation projects. To be sure, that is an inference that might reasonably be drawn from the evidence. The District Court erred, however, in drawing that inference on summary judgment because it favors the moving party. *See Stern,* 131 F.3d at 312. The error was compounded by the court's disregard of Malbeouf s testimony which, when considered in a light most favorable to Plaintiffs, is sufficient to create a triable issue of fact as to whether his post-purchase handling and use of the coffee maker caused the alleged defect.

V. *Whether a Jury could Reasonably Infer that the Coffee Maker was Defective When in Defendant's Possession and Control*

[9] Hamilton Beach also argues that while Plaintiffs may have produced evidence that the defect was not caused by post-purchase misuse or mishandling, they have nonetheless failed to trace the defect to Hamilton Beach because they have failed to produce any evidence eliminating the possibility that the coffee maker was damaged while in transit from Hamilton Beach to Ames or while in Ames's possession. Hamilton Beach argues that this deficiency precludes recovery under either of Plaintiffs' claims and, with regard to strict liability, that we may affirm the grant of summary judgment without determining whether Vermont would adopt the malfunction theory.

As stated above, under Vermont law "proof that a defect existed in the product at the time that it left the possession and control of the defendant" is a necessary element of both breach of warranty and strict products liability actions. *Hershenson,* 139 Vt. at 222, 424 A.2d at 1077. The Vermont Supreme Court, however, has not had occasion to address what evidence an injured party must produce to trace a defective condition to a defendant where the product, as is often the case, was not transferred directly from the defendant to the injured party. The courts in other jurisdictions that have addressed the issue have reached varied conclusions.

Several courts have required the injured party to produce evidence showing that there was "no reasonable opportunity for the [product] to have been tampered with" and that it "was carefully handled by all those who obtained possession or control over it after it left the hands of the defendant. " *Barbeau v. Roddy Mfg. Co.,* 431 F.2d 989, 991, 994 (6th Cir.1970) (applying Tennessee law); *see also Kerr v. Corning Glass Works,* 284 Minn. 115, 169 N.W.2d 587, 589 (1969).

Most other courts, however, have set a lower bar. For example in *Mondido v. Cory Corp.,* 483 F.Supp. 26 (E.D.N.Y.1979), the plaintiff was injured when the glass carafe from her coffee pot

broke. The carafe itself was manufactured by Corning, but it was converted into a coffee decanter and sold by Cory, a separate company. *Id.* at 27. After both companies were found liable, Corning moved for judgment notwithstanding the verdict arguing that the plaintiff failed to produce evidence sufficient to support the jury's determination that the carafe was defective when it left Corning's plant. *Id.* The court rejected the motion, noting the plaintiff's evidence that Cory converted the Corning carafes into coffee decanters through a regular and orderly process and that this decanter remained in the Cory packaging until shortly before the accident. ***462** *Id.; see also V. Mueller & Co. v. Corley,* 570 S.W.2d 140, 143 (1978) (finding that plaintiff successfully traced the defect to the manufacturer through evidence that the product was stored in the manufacturer's sealed container and appeared to be in good condition when it was removed); *McKisson v. Sales Affiliates, Inc.,* 416 S.W.2d 787, 792 (Tex.1967) ("When it is shown that the product involved comes in a sealed container, it is inferable that the product reached the consumer without substantial change in the condition in which it was sold."); *Shoshone Coca-Cola Bottling Co. v. Dolinski,* 82 Nev. 439, 420 P.2d 855, 858 (1966) (holding that a plaintiff need not prove that there was no reasonable opportunity for tampering, but only introduce evidence suggesting that the defect existed while in the defendant's control which would be sufficient for a jury to find an absence of tampering); *Kroger Co. v. Bowman,* 411 S.W.2d 339, 342 (Ky.1967) (holding that plaintiff had successfully traced the defective condition to the manufacturer where there was no evidence of tampering by the retailer); *Escola v. Coca Cola Bottling Co. of Fresno,* 24 Cal.2d 453, 150 P.2d 436, 439 (1944) ("It is not necessary, of course, that plaintiff eliminate every remote possibility of injury to the [product] after defendant lost control, and the requirement is satisfied if there is evidence permitting a reasonable inference that it was not accessible to extraneous harmful forces and that it was carefully handled by plaintiff or any third person who may have moved or touched it.").

In addition, several courts have held that an unspecified defect may be traced to a manufacturer even after the product has been removed from its original packaging and put to use for a short period of time. For example, in *Cassisi,* 396 So.2d 1140, the plaintiff brought an action based on strict liability, negligence, and breach of implied warranty regarding a fire allegedly caused by a malfunctioning clothes dryer. *Id.* at 1142-43. There, the plaintiff/owner's testimony that the dryer had never been serviced or repaired and had been normally operated during its 19-month use, along with expert testimony that an unspecified defect in the dryer was the cause of the fire, constituted evidence of the dryer's defective condition at both the time of injury and the time of sale sufficient to defeat defendant's motion for summary judgment. *Id.* at 1152-53; *see also Bailey v. Montgomery Ward & Co.,* 6 Ariz.App. 213, 219, 431 P.2d 108, 114 (Ariz.Ct.App.1967) (fact that father took pogo stick out of original packaging to look at it before placing it back in packaging and wrapping it as a Christmas gift did not prevent submission of the case to the jury where product malfunctioned during initial use).

Based on the evidence presented in this case, a jury could reasonably find the following facts: the coffee maker was packed in a box with Styrofoam when Malboeuf purchased it; the coffee maker remained in that box until the night before the fire; the coffee maker appeared to be in good condition when he removed it from the box; the coffee maker in question was packaged and sealed by Hamilton Beach in Mexico; and retailers do not usually open the boxes or alter the products in any way. The packaging itself could be considered evidence that the coffee maker was not tampered with, and its general appearance bolsters that conclusion. *See Mondido,* 483 F.Supp. at 27; *McKisson,* 416 S.W.2d at 792. These facts would allow a jury reasonably to infer that the product defect that caused the fire existed while the coffee maker was still in Defendant's possession and control. Again, for the reasons already stated, we believe that under Vermont law the evidence of record on this ***463** point creates at least a triable issue of fact so as to preclude summary judgment.

VI. *Conclusion*

In sum, Plaintiffs' circumstantial evidence ruling out all possible ignition sources other than a defect in the coffee maker was erroneously excluded. Because that evidence should be available to be considered, it would permit a jury reasonably to infer that an unspecified defect in the coffee maker was the more probable cause of the fire, thus satisfying the causation requirement for strict products liability and breach of warranty actions under Vermont law. When viewing those facts in a light most favorable to Plaintiffs, moreover, a jury could reasonably infer that the defect in the coffee maker was not due to any post-purchase misuse or mishandling and existed when the coffee maker was still in Defendant's possession and control. For the foregoing reasons, we vacate the District Court's entry of summary judgment and remand Plaintiffs' breach of warranty and strict liability claims for further consideration in light of this opinion.

C.A.2 (Vt.),2007.
Allstate Ins. Co. v. Hamilton Beach/Proctor Silex, Inc.
473 F.3d 450, Prod.Liab.Rep. (CCH) P 17,685

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THE GOOD, THE BAD AND THE UGLY: RECENT DEVELOPMENTS IN THE LAW- *TRUCK INSURANCE EXCHANGE V. MAGNETEK, INC.*, 360 F.3D 1206 (10TH CIR. 2004)

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Truck Ins. Exchange v. MagneTek, Inc.
C.A.10 (Colo.),2004.

United States Court of Appeals,Tenth Circuit.
TRUCK INSURANCE EXCHANGE, a Farmers Insurance Company, Plaintiff-Appellant,
v.
MAGNETEK, INCORPORATED, Defendant-Appellee.
No. 03-1026.

Feb. 25, 2004.

Background: Property insurer brought products liability action against fluorescent light ballast manufacturer, alleging that defective ballast caused fire that destroyed insured restaurant, and seeking recovery of over $1.5 million it paid to insured. The United States District Court for the District of Colorado, Robert E. Blackburn, J., excluded testimony of insurer's expert witness, and granted summary judgment in favor of manufacturer. Insurer appealed.

Holdings: The Court of Appeals, Tymkovich, Circuit Judge, held that:

(1) exclusion of property insurer's expert testimony was warranted as unreliable, pursuant to *Daubert*, and

(2) causation of fire could not be established without expert testimony.

Affirmed.

West Headnotes

[1] Evidence 157 ⚿555.2

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.2 k. Necessity and Sufficiency. Most Cited Cases

To determine the reliability of expert testimony, courts assess whether the reasoning or methodology underlying the testimony is scientifically valid. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[2] Evidence 157 ⚿555.2

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.2 k. Necessity and Sufficiency. Most Cited Cases

Under *Daubert*, the court considers factors, including the following, in determining reliability of expert testimony: (1) whether the opinion has been subjected to testing or is susceptible of such testing, (2) whether the opinion has been subjected to publication and peer review, (3) whether the methodology used has standards controlling its use and known rate of error, and (4) whether the theory has been accepted in the scientific community. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[3] Federal Courts 170B ⚿823

170B Federal Courts
170BVIII Courts of Appeals
170BVIII(K) Scope, Standards, and Extent
170BVIII(K)4 Discretion of Lower Court
170Bk823 k. Reception of Evidence. Most Cited Cases

The Court of Appeals reviews the district court's application of *Daubert* to exclude expert testimony for abuse of discretion. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[4] Evidence 157 ⚿555.2

157 Evidence

157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.2 k. Necessity and Sufficiency. Most Cited Cases
The trial court is afforded substantial deference in its application of *Daubert*. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[5] Federal Courts 170B ⚿823

170B Federal Courts
170BVIII Courts of Appeals
170BVIII(K) Scope, Standards, and Extent
170BVIII(K)4 Discretion of Lower Court
170Bk823 k. Reception of Evidence. Most Cited Cases
The Court of Appeals will only disturb the trial court's decision excluding expert testimony under *Daubert* if it has a definite and firm conviction that the lower court made a clear error of judgment or exceeded the bounds of permissible choice in the circumstances. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[6] Evidence 157 ⚿555.5

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.5 k. Cause and Effect. Most Cited Cases

Evidence 157 ⚿556

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k556 k. References to Authorities on Subject. Most Cited Cases
Exclusion of property insurer's expert physics testimony, that fire in insured's restaurant was caused by ignition of wood resulting from long term, low temperature heat from fluorescent light ballast, was warranted as unreliable, pursuant to *Daubert*, in property insurer's products liability action against ballast manufacturer; proposed testimony was not supported by scientific testing, three publications introduced to support theory of long-term, low temperature ignition were either inconclusive, vague, or inapplicable, and expert underscored scientific uncertainty of theory by stating that it depended on a lot of factors, which were not quantitatively identified. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[7] Evidence 157 ⚿555.5

157 Evidence
157XII Opinion Evidence
157XII(D) Examination of Experts
157k555 Basis of Opinion
157k555.5 k. Cause and Effect. Most Cited Cases
Exclusion of property insurer's expert testimony from fire investigator, that only potential source of ignition for fire in insured's restaurant was fluorescent light ballast and that fire was caused by ballast, was warranted as unreliable, pursuant to *Daubert*, in property insurer's subrogation action against ballast manufacturer; there was no evidence that ballast could generate enough heat to ignite fire, and opinion did not meet fire investigation standards that expert professed that he adhered to, requiring him to determine whether heat source was capable of generating ignition temperature. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[8] Products Liability 313A ⚿15

313A Products Liability
313AI Scope in General
313AI(A) Products in General
313Ak15 k. Proximate Cause and Foreseeable Injury; Intended or Foreseeable Use. Most Cited Cases

Sales 343 ⚿427

343 Sales
343VIII Remedies of Buyer
343VIII(D) Actions and Counterclaims for Breach of Warranty
343k427 k. Right of Action. Most Cited Cases
Under Colorado law, claims for strict products liability based on a defective design, negligent

design, breach of implied warranty of merchantability, and breach of implied warranty of fitness for a particular purpose require proof of causation.

[9] Products Liability 313A ⚿83

313A Products Liability
313AII Actions
313Ak82 Weight and Sufficiency of Evidence
313Ak83 k. Particular Products. Most Cited Cases
Causation of restaurant fire by defective fluorescent light ballast could not be established without expert testimony, in products liability action against ballast manufacturer, under Colorado law; in order to find that ballast caused fire, showing was required that ballast could have generated heat sufficient to ignite, and jury could not so find without speculating or rejecting uncontested evidence that ballast temperature could not have exceeded 340 degrees, and that ignition temperature was 400 degrees. Fed.Rules Evid.Rule 702, 28 U.S.C.A.

[10] Products Liability 313A ⚿82.1

313A Products Liability
313AII Actions
313Ak82 Weight and Sufficiency of Evidence
313Ak82.1 k. In General. Most Cited Cases
Under Colorado law, circumstantial evidence may be used to prove causation, in a products liability action.

Clifton J. Latiolais, Jr. (Colin C. Campbell with him on the briefs) Campbell, Latiolais & Ruebel, P.C., Denver, CO, for Plaintiff-Appellant Truck Insurance Exchange.
Brent D. Anderson, Snell & Wilmer, LLP, Denver, CO, for Defendant-Appellee MagneTek, Incorporated.

Before EBEL, BRISCOE, and TYMKOVICH, Circuit Judges.
TYMKOVICH, Circuit Judge.
On November 9, 1998, a fire destroyed Sammy's Restaurant in Lakewood, Colorado. In this subrogation case, plaintiff Truck Insurance Exchange claims that a fluorescent light ballast manufactured by defendant MagneTek, Incorporated, caused the fire, and seeks to recover over $1.5 million paid out to Sammy's. The district court's jurisdiction was based on diversity between Truck, a California corporation, and MagneTek, a Delaware corporation with its principal place of business in Tennessee. *See* 28 U.S.C. §§ 1332, 1446. We have jurisdiction on appeal pursuant to 28 U.S.C. § 1291.

Following the completion of discovery, MagneTek moved to exclude certain opinion testimony of Truck's experts under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). The district court granted MagneTek's *Daubert* motions in part, finding that the experts' conclusions about the cause of the fire were not based on a sufficiently reliable scientific theory. The district court then ruled that without ***1208** such expert testimony a rational trier of fact could not find for Truck, and granted summary judgment in favor of MagneTek.

Truck appeals both of these decisions and we affirm.

Background

The afternoon of November 9, 1998, crews from the West Metro Fire Protection District responded to a report of smoke coming from Sammy's Restaurant. When firemen arrived at the restaurant they encountered heavy smoke, but no open flames. The firemen could not locate the source of the smoke until the fire broke through the kitchen floor and the ceiling of the storage area below. The fire then quickly spread and destroyed the building.

Investigators from the West Metro Fire Protection District and Phoenix Investigations, a private fire inspection company hired by Truck, performed the initial investigation of the fire. They began by sifting through the fire debris to identify burn patterns and other evidence of the fire's origin and cause. The investigators concluded that the fire started in the void space between the basement storeroom ceiling and the kitchen floor.

Amongst the debris in the basement, the investigators found a fluorescent light fixture that had been mounted to the storeroom ceiling. Three investigators, Lt. Dan Pfannenstiel of the West Metro Fire Protection District, and Thomas McAdam and George Hodge of Phoenix Investigations, concluded that the light fixture somehow started the fire because there were no other apparent heat sources in the area of the fire's origin.[FN1] Knowing that fluorescent light fixtures contain a component called a "ballast" that is designed to control the amount of heat the fixture can generate, the investigators then focused on the ballast as a likely cause of the fire.

> FN1. Electrical wiring also ran through the void area, but the investigators did not see any evidence of electrical short or other malfunction and dismissed the wiring as a potential cause of the fire. MagneTek points out that by the time it became involved in this litigation all the physical evidence from the scene, other than the light fixture, had been destroyed.

After their initial examination, Pfannenstiel and McAdam turned the fixture over to Hodge of Phoenix Investigations and Dr. Joe Romig of Ponderosa Associates, another investigation firm hired by Truck, for further analysis. Hodge disassembled the fixture and examined the various parts of the ballast in an effort to determine both its manufacturer and whether it had in fact overheated. Eventually, these analysts determined that the ballast had been manufactured by MagneTek. They also observed oxidation patterns on the fixture and discoloration of the ballast's heating coils that suggested the ballast had shorted, causing internal overheating prior to the external fire.

The ballast contained a device called a thermal protector, which is designed to shut off power running through the fixture if the temperature exceeds 232° Fahrenheit, well below the approximately 400°F generally believed to be the minimum temperature necessary to ignite wood. Once the temperature falls sufficiently, the thermal protector restores power. Both parties agree that the thermal protector in the ballast from Sammy's continued to function properly even after the fire.

Because they had eliminated any other heat source, Truck's experts remained convinced that the ballast was the likely cause of the fire. They therefore began to study how the ballast might have started a fire in spite of the functioning thermal protector.

***1209** Truck's experts conducted a series of simulations, at least one of which showed that a shorted "exemplar" (or test) ballast of a type similar to that found at Sammy's reached temperatures of 340° before the thermal protector began to cycle on and off. The test ballast eventually reached stable temperatures over 300°.

Though both this peak temperature and the stable temperature are significantly below normal wood ignition temperature, Romig proposed to testify that this level of overheating was sufficient to have caused the Sammy's fire. Romig based his conclusion that the shorted ballast could have and, in his opinion, did start the fire on a theory called " pyrolysis," which posits that wood can catch fire at temperatures below 400 if it is exposed to such temperatures over a long enough period of time.[FN2] Pfannenstiel's testimony likewise would have been that in his opinion the ballast caused the fire. His opinion was based not on scientific theory, but on his experience as an investigator and his having eliminated any other possible heat source as a cause.

> FN2. We note that there appears to be some confusion among the parties, the district court, and apparently even the scientific community as to the proper terminology for the theory of long-term, low-temperature wood ignition and the charring it involves. This court is not in a position to decide such questions for the scientific community, but for the purposes of this opinion, we will refer to this *process* as "pyrolysis." To the extent we use the term "pyrophoric carbon," we are talking about the *substance* charred wood.

MagneTek, disagreeing that pyrolysis could be

relied upon to explain the start of the fire, and further disagreeing that the evidence supported the conclusion that there was no other possible source of the fire, moved to exclude the opinions of both Romig and Pfannenstiel and for summary judgment. Applying *Daubert* and its progeny, the trial court granted these motions to the extent the experts expressed opinions about the actual cause of the fire. [FN3] The end result was that Truck had no expert testimony showing that the ballast could have reached temperatures approaching 400° or that wood can catch fire below that temperature. The court then concluded that without any such evidence, Truck could not establish causation, an essential element of all its claims, and granted MagneTek's motion for summary judgment.

FN3. MagneTek's motions also sought to exclude other expert testimony, which the trial court granted in part. On appeal, however, Truck has only asked us to reverse the court's decisions as to Romig and Pfannenstiel.

Discussion

I. Exclusion of Expert Testimony

Rule 702 of the Federal Rules of Evidence states:
If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

Fed.R.Evid. 702. The Supreme Court has laid out a framework for analyzing proffered expert testimony in the so-called *Daubert* trilogy, which consists of *Daubert, General Electric Co. v. Joiner,* 522 U.S. 136, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997), and *Kumho Tire Co., Ltd. v. Carmichael,* 526 U.S. 137, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999).

***1210** Analysis under *Daubert* is intended to ensure that the evidence is both "reliable" and "relevant." *See* 509 U.S. at 589, 113 S.Ct. 2786. In this case, the district court addressed only the first of these requirements, and found that the conclusions of Dr. Romig and Lt. Pfannenstiel were not sufficiently reliable.

[1][2] To determine the reliability of expert testimony, courts assess "whether the reasoning or methodology underlying the testimony is scientifically valid." *Daubert,* 509 U.S. at 592-93, 113 S.Ct. 2786. In *Daubert,* the Court listed four factors that, while not an exclusive list of considerations for a trial court, will often be important in making this assessment: (1) whether the opinion has been subjected to testing or is susceptible of such testing; (2) whether the opinion has been subjected to publication and peer review; (3) whether the methodology used has standards controlling its use and known rate of error; (4) whether the theory has been accepted in the scientific community. *See id.* at 590, 113 S.Ct. 2786.

We have summarized the burden of the plaintiff to show the reliability of proffered expert opinions this way:
The plaintiff need not prove that the expert is undisputably correct or that the expert's theory is " generally accepted" in the scientific community. Instead, the plaintiff must show that the method employed by the expert in reaching the conclusion is scientifically sound and that the opinion is based on facts which sufficiently satisfy Rule 702's reliability requirements.

Mitchell v. Gencorp Inc., 165 F.3d 778, 781 (10th Cir.1999) (citations omitted).

[3][4][5] We review the district court's application of *Daubert* to exclude expert testimony for abuse of discretion. *See Joiner,* 522 U.S. at 143, 118 S.Ct. 512; *Mitchell,* 165 F.3d at 780. The trial court is afforded substantial deference in its application of *Daubert. See Hollander v. Sandoz Pharm. Corp.,*

289 F.3d 1193, 1204 (10th Cir.2002) (citing *Kumho Tire,* 526 U.S. at 152, 119 S.Ct. 1167). Therefore we will only disturb the trial court's decision if we have "a definite and firm conviction that the lower court made a clear error of judgment or exceeded the bounds of permissible choice in the circumstances." *United States v. Ortiz,* 804 F.2d 1161, 1164 n. 2 (10th Cir.1986).[FN4]

> FN4. This court recently outlined the minimal gatekeeping role required of trial courts under the *Daubert* trilogy in *Dodge v. Cotter Corp.,* 328 F.3d 1212 (10th Cir.2003). The extensive review of the proposed testimony, scientific materials, and other evidence reflected in the record and summarized in the court's various orders regarding expert testimony show that the court fulfilled this gatekeeping role.

Dr. Romig

Dr. Romig has advanced degrees in physics from Oxford University and the University of Colorado and has been studying the causes of fires and explosions for over 20 years. There is no question he is qualified to testify as an expert under Rule 702 . Nor is there any question that his opinion as to the cause of the Sammy's fire would have been relevant. After reviewing the reliability requirements of the *Daubert* trilogy, however, the district court concluded that "the hypothesis for long term, low temperature ignition of wood cannot be considered to be a reliable basis for the admission of expert opinion testimony under Rule 702." The court therefore granted MagneTek's motion to strike "as to testimony by Romig that the fluorescent light ballast at issue in this case caused the fire which is the basis for the plaintiff's claims."

***1211** [6] The district court accurately summarized the relevant struck testimony by Romig as follows:
Romig's most crucial opinion in this case is his opinion that heat from the ballast, varying between 180 and 300 degrees Fahrenheit, was sufficient to cause one of the furring strips in the ceiling to catch on fire. Romig would testify that this long term heating of the ceiling and the furring strips caused the formation of so-called pyrophoric carbon or activated carbon in a furring strip. According to Romig, with the formation of pyrophoric carbon, and given otherwise proper conditions, ignition of wood can occur when the wood is exposed to long term heating within the temperature ranges he says the MagneTek ballast produced. Such carbon is said to "self-heat" and thus may cause a fire. This type of ignition, Romig would testify, most likely caused the fire at Sammy's Restaurant.

App. at 28-29 (internal citations to depositions and exhibits omitted). The district court gave two alternative reasons for its decision to exclude this testimony, finding both that the long-term, low-temperature ignition theory was unreliable, and that it had not been reliably applied to the facts of this case. Because we find that the court did not abuse its discretion in finding that the testimony was not "the product of reliable principles and methods," we need not address whether it was or could be reliably applied.[FN5] *See* Fed.R.Evid. 702; *Mitchell,* 165 F.3d at 781.

> FN5. We do note, however, that Truck failed to introduce evidence of actual experiments conducted by its experts showing that furring strips attached in a ceiling to 5/8 inch gypsum board that held a light fixture, as at Sammy's, could ignite at low temperatures due to pyrolysis. Truck consequently failed to address the points raised by the district court in its alternative ruling that pyrolysis had not been reliably applied, including the role played by the size of the wood in question and the flow of oxygen to it and the dissipation of heat as it flowed from the ballast through the intermediate materials, such as metal and drywall, to the wood that allegedly ignited.

Truck introduced three publications to support the pyrolysis theory underpinning Romig's opinion. As the district court noted, all three do indeed posit that pyrolysis could explain the origin of some fires. The district court was also correct, however, when it found that all three cast doubt on the general

scientific acceptance, the methodology, and the adequacy of the experimentation underlying pyrolysis at this time. It was therefore within the district court's discretion to reject the theory as insufficiently reliable to form the basis of expert testimony.

The first article discussed, by John D. DeHaan, reviews two studies that concluded that wood heated to temperatures below 250° could, over "a period of years" or a "very long time," degrade into charcoal, which would eventually ignite. The district court, however, found that both studies gave "only vague parameters" to the conditions required for such an event to occur, and that neither described testing that could have specified those conditions.

The second article, by Vytenis Babrauskas, is even more dubious as a foundation for pyrolysis.[FN6] The Babrauskas article discusses the same materials reviewed by DeHaan, and notes an additional study that found that wood exposed "for a few years" to temperatures between 120° and 150° Celsius (250° -300° Fahrenheit) would char. It also states that other studies "have done nothing to disprove the possibility of long-term, low-temperature ignitions ***1212** of wood." Babrauskas goes on, however, to list "[a] number of things not known about the process," and to state that the question, "while unsolved now, can be solved. It may be many decades before it will be solved by sufficiently improving theory." Also, the studies showing low temperature charring do not find actual ignition of the charred wood. The article concludes that "the phenomenon of long-term, low-temperature ignition of wood has neither been proven nor successfully disproven at this time."

> FN6. We note, though Truck chose not to, that the title of this article is "Pyrophoric Carbon: The Jury Is Still Out."

The final article relied on by Truck, by Bernard R. Cuzzillo and Patrick J. Pagni, is generally supportive of the theory of pyrolysis, and describes one experiment in which an 8-inch cube of solid wood caught fire after nine days in an oven heated to 392°F. The district court noted that Cuzzillo and Pagni, however, did not cite any testing of wood at temperatures closer to the 300-340° at issue in this case. Furthermore, Cuzzillo and Pagni themselves highlight unanswered questions about the interaction of important factors such as "[s]ize, shape, temperature and material characteristics," and state that "[t]he time needed to adequately cook wood to the point of uninhibited self-heating at different temperatures is not well known."

Romig himself underscored the scientific uncertainty about the pyrolytic process. During his deposition he stated that the process "depends on a lot of factors, as yet quantitatively unidentified." He later acknowledged that to understand how the furring strips could ignite at low temperatures, " [y]ou would have to have a good theory of pyrophoric carbon and formation and the chemical kinetics of that; and there isn't one, as Babrauskas points out."

Surveying this evidence, the district court concluded that "when considering the temperatures at issue here, the long term, low temperature ignition of wood is an hypothesis which has not been subjected to sufficient testing. Without such testing, there are few if any reliable principles about the phenomenon and methods to determine when the phenomenon might occur." The court therefore ruled that the hypothesis could not be considered "a reliable basis for the admission of expert testimony under Rule 702."

Given the cautionary statements about the reliability and foundation of pyrolysis from the authors of the articles offered by Truck and from Truck's own expert, we cannot conclude that the district court abused its discretion in excluding Dr. Romig's opinion testimony.[FN7] We are faced with a situation similar to that in *Mitchell,* where this court held that "the analytical gaps in [the experts'] opinions are too broad for their testimony to endure under the strictures of *Daubert* and Rule 702." *Mitchell,* 165 F.3d at 783. As in *Mitchell,* several of the *Daubert* Court's non-dispositive factors support the district court's decision, including the insufficient testing cited***1213** by the district court, as well as a lack of evidence showing how Dr.

Romig's opinion could be tested and his theory's applicable rate of error, and questions about the theory in the scientific community. *See Mitchell,* 165 F.3d at 784. The district court therefore did not abuse its discretion when it ruled that under the *Daubert* trilogy, pyrolysis was not yet a sufficiently reliable scientific theory upon which to base an expert opinion about the cause of the Sammy's fire. *See* 509 U.S. at 592-93, 113 S.Ct. 2786.

> FN7. Truck argues that MagneTek cannot contest the validity of the pyrolysis theory because MagneTek's own expert admitted its reliability. Even to the extent MagneTek's experts did accept that pyrolysis is the subject of scientific study, we note that they too expressed doubts about the theory's reliability, approvingly referring to the title of the Babrauskas article. More importantly, however, the district court's gatekeeper role requires it to examine the basis for challenged expert testimony to determine its reliability looking beyond the testimony of the witnesses before it to the scientific foundation for that testimony. *See Dodge,* 328 F.3d at 1221-22. To the extent MagneTek's experts acknowledged Romig's theory in general, the contrary evidence examined by the trial court and summarized above remains strong enough to convince us that the trial court did not " exceed the bounds of permissible choice in the circumstances." *See Beaird v. Seagate Tech, Inc.,* 145 F.3d 1159, 1164 (10th Cir.1998).

Lt. Pfannenstiel

Lt. Dan Pfannenstiel is an investigator with the West Metro Fire Protection District. He, along with Thomas McAdam of Phoenix Investigations, initially investigated the Sammy's fire and offered testimony on behalf of Truck detailing their findings, as well as expert opinions about the origin and cause of the fire. Pfannenstiel and McAdam concluded that the fire started in the void between the basement ceiling and the kitchen floor, and that the light fixture was both located in the area of ignition and was the only potential source of ignition in the area. They further offered their opinions that the ballast was in fact the cause of the fire. The district court struck both Pfannenstiel's and McAdams's opinion testimony about the ballast.

[7] Truck has appealed only the district court's striking of Pfannenstiel's testimony. As with Dr. Romig, Pfannenstiel's status as an expert and the relevance of his proffered opinion are not in question. The only issue, again, is "whether the reasoning or methodology underlying the testimony is scientifically valid." *Daubert,* 509 U.S. at 592-93, 113 S.Ct. 2786.

In its order, the district court stated that the opinion that the ballast caused the fire was not admissible under Rule 702 because Pfannenstiel did not have " any evidence that the ballast could generate enough heat to ignite combustibles in the ceiling." His conclusion therefore "cannot be said to be based on reliable principles and methods. Rather, th[is] opinion[is] based on assumptions and speculation." We find no abuse of discretion in this ruling.

The district court noted that Pfannenstiel's opinion did not meet the standards of fire investigation Pfannenstiel himself professed he adhered to. According to Pfannenstiel, those standards require that an investigator who suspects an appliance may have started a fire first determine the ignition temperature for the fuel, then determine whether the heat source was capable of generating that temperature. The discussion above regarding Romig's testimony shows that Pfannenstiel's opinion regarding the first prong of the analysis-the ignition temperature-could not be based on the pyrolysis theory of low-temperature ignition. The only evidence Pfannenstiel or the court had about the second prong-the temperature of the ballast-showed in post-fire testing that the ballast could not have reached the temperatures necessary to ignite it under any other theory.

In reaching his conclusion that the ballast started the fire, therefore, Pfannenstiel either was relying on the pyrolysis theory the district court found unreliable, or he was making assumptions about the

temperature of the ballast that were not supported by the evidence. In either case, the district court was within its discretion in not admitting Pfannenstiel's opinion that the ballast was the cause of the fire.

II. Summary Judgment

Truck maintains that even without the excluded expert opinions identifying the ballast as the cause of the fire, the court nevertheless erred in granting summary ***1214** judgment to MagneTek. We review the grant of summary judgment de novo, applying the same standard as the district court. *Simms v. Oklahoma ex rel. Dep't of Mental Health & Substance Abuse Servs.*, 165 F.3d 1321, 1326 (10th Cir.1999). Summary judgment is appropriate "if 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 a judgment as a matter of law." Fed.R.Civ.P. 56(c). "When applying this standard, we view the evidence and draw reasonable inferences therefrom in the light most favorable to the nonmoving party." *Simms,* 165 F.3d at 1326. The nonmoving party, Truck, must nonetheless present "facts such that a reasonable jury could find in [its] favor." *Id.*

[8] Truck argues that the evidence it introduced was sufficient to present a prima facie case under Colorado law.[FN8] Truck's complaint asserted four claims against MagneTek: (1) strict products liability based on a defective design; (2) negligent design; (3) breach of implied warranty of merchantability; and (4) breach of implied warranty of fitness for a particular purpose. Though the elements of these claims vary, one constant is the need for the plaintiff to prove causation. *See* Colorado Jury Instructions Civil 4th (2001) §§ 14:1 (strict liability), 14:10 (warranty of merchantability), 14:13 (warranty of fitness for a particular purpose), 14:17 (negligence).

FN8. In this diversity case, we apply the substantive law of Colorado. *See Erie R.R. v. Tompkins,* 304 U.S. 64, 58 S.Ct. 817, 82 L.Ed. 1188 (1938); *Habermehl v. Potter,* 153 F.3d 1137, 1139 (10th Cir.1998).

The district court ruled that Truck failed to create a genuine dispute as to whether the ballast could have reached the temperatures necessary to start the fire. The court found that question is beyond the experience of the average layperson, and therefore that expert testimony was required to prove causation. This was within the court's discretion. *See Oliver v. Amity Mut. Irrigation Co.,* 994 P.2d 495, 497 (Colo.Ct.App.1999). Because the court had already stricken all expert testimony relating to pyrolysis, it ruled that Truck had failed to provide evidence that would permit a rational trier of fact to find that the MagneTek ballast caused the fire, and thus granted summary judgment on all four of Truck's claims.

Truck argues that it did not need the excluded expert testimony to present sufficient evidence of causation. It claims that jurors could draw from the other available evidence a "reasonable inference" that the ballast caused the fire. Truck quotes our decision in *Weir v. Federal Ins. Co.,* where we said, "An inference need not be justified beyond all doubt and is not precluded by a mere possibility that the contrary may be true." 811 F.2d 1387, 1392 (10th Cir.1987) (quoting *Fain v. GTE Sylvania, Inc.,* 652 S.W.2d 163 (Mo.Ct.App.1983)). Initially, we note that *Weir* and the other cases Truck cites for this proposition relate to the basis for proof of a defect, not for proof of causation. *See, e.g., Werth v. Makita Elec. Works, Ltd.,* 950 F.2d 643 (10th Cir.1991); *Union Ins. Co. v. RCA Corp.,* 724 P.2d 80 (Colo.Ct.App.1986). To the extent those cases discuss a plaintiff's need to use circumstantial evidence and inferences to prove a defect in a product that has been destroyed, they are inapposite, as the product at issue here-the ballast-was recovered from the fire and subjected to testing.

Nevertheless, Truck is correct that causation may also be inferred by a jury if the ***1215** plaintiff has provided evidence that would make the inference reasonable. In this case, however, we agree with

the district court that without the excluded expert testimony regarding pyrolysis, a jury could not reasonably make the necessary inference that the ballast caused the fire.

[9] Viewing the evidence in the light most favorable to Truck, a rational jury could find the following facts about the cause of the fire: (1) The fire started in the void area below the kitchen floor and above the storage room ceiling; (2) the fluorescent light fixture was affixed to the ceiling in the area where the fire started; (3) the ballast shorted; (4) due to the short, the ballast allowed the fixture to overheat despite the presence of a functioning thermal protector; (5) the maximum temperature the ballast could have reached was 340°.[FN9]

FN9. This assumes, as it must given our standard of review of a grant of summary judgment, *see Simms,* 165 F.3d at 1326, that the jury ignored various arguments by MagneTek, including that electrical wiring in the void might have caused the fire, that the discoloration of the ballast was not in fact evidence of a short, that the ballast would not have actually approached the 340° claimed by Truck, and that any heat from the ballast would have been dissipated by the eight-foot light fixture, the ceiling material, and the air in the void space. It also does not take into account the fact that any heat created by the ballast would be dissipated as it flowed from the ballast to the metal casing of the fixture, through the 5/8 inch gypsum board ceiling, and into the wood furring strips that caught fire, as Truck alleges.

The problem for Truck is a sixth fact, which Truck could not contest without relying on pyrolysis: Wood normally will not catch fire until exposed to a heat source of nearly 400°. The district court correctly ruled that the ignition temperature of wood is beyond the experience and understanding of the average layman. That fact then must be proven by expert testimony in circumstances where there is no flame or other heat source approaching 400°. *See* Fed.R.Evid.Rule. 702. Without the excluded expert testimony discussing pyrolysis, the only evidence about the required ignition temperature was that wood will only catch fire at approximately 400° and above. This leaves a gap of over 50° between the maximum possible temperature of the ballast here and the minimum possible temperature of ignition. Without pyrolysis, Truck could not bridge that gap.[FN10]

FN10. Indeed, Dr. Romig's deposition testimony shows that he did not think there was any "viable source of ignition" that did not involve the pyrolytic process.

[10] Truck focuses on arguing that circumstantial evidence may be used to prove causation. Again, we do not disagree with that general proposition. But before a plaintiff can rely on circumstantial evidence or the process of elimination Truck urges on us here, the plaintiff must at least present evidence to show why the defendant's product should not be among the possible causes to be eliminated. *See, e.g., Hollander v. Sandoz Pharm. Co.,* 289 F.3d 1193, 1211 (10th Cir.2002) (requiring plaintiffs' experts to "rule in" the defendant's drug "as a scientifically plausible cause"); *Franklin v. Skelly Oil Co.,* 141 F.2d 568, 570-71 (C.C.A. 10 Cir.1944) ("It is not sufficient to show a set of circumstances bringing the theory of appellants within the realm of possibilities ..."); *Kaiser Found. Health Plan v. Sharp,* 741 P.2d 714, 719 (Colo.1987) (en banc) ("[T]he plaintiff must establish causation beyond mere possibility or speculation.").[FN11]

FN11. Requiring Truck to show that the ballast was capable of causing the harm of which they complain conforms not only with the established law of Colorado and this circuit, but with the investigatory standards of the National Fire Protection Association, *see NFPA Guide for Fire and Explosion Investigation* 921 § 18-4.1 (" Before it can be concluded that a particular appliance has caused the fire, it should first be established how the appliance generated sufficient heat energy to cause ignition.").

***1216** In this case, we agree with Lt. Pfannenstiel that in order to conclude that an appliance like the MagneTek ballast caused a fire, not only must one find that the appliance was in the area of origin, but "you need to show whether or not that appliance is capable of producing ... enough heat to be a competent ignition source." The only admissible evidence in this case showed that the ballast's maximum temperature would have been approximately 50° below that required to start a fire.

Any fact finder that found in Truck's favor on the issue of causation would thus have had to either rely on the pyrolysis theory or believe that the ballast temperature approached 400°. A jury that took the first path would be speculating or relying on a theory that the court found insufficiently reliable even for trained experts. A verdict based on the second rationale would be directly contradictory to the uncontested evidence that the ballast temperature could not have exceeded 340°. Jury verdicts may not be based on speculation or inadmissible evidence or be contrary to uncontested admissible evidence. *See Franklin,* 141 F.2d at 570; *Kaiser,* 741 P.2d at 719. We therefore find that the district court did not err in granting MagneTek's motion for summary judgment.

Conclusion

Though the theory of long-term, low-temperature ignition of wood is an interesting one that eventually may be sufficiently tested and researched to serve as the basis for an expert opinion under Rule 702, the district court's careful analysis of the scientific literature presented in this case convinces us the court did not abuse its discretion in ruling that the foundation for pyrolysis has not yet reached that point. We also hold that the court did not err in granting summary judgment because without the pyrolysis theory, Truck could not produce evidence that would allow a rational trier of fact to find that the ballast could have become hot enough to start the fire at Sammy's Restaurant.

The judgment of the district court is therefore AFFIRMED.

C.A.10 (Colo.),2004.
Truck Ins. Exchange v. MagneTek, Inc.
360 F.3d 1206, 63 Fed. R. Evid. Serv. 948, Prod.Liab.Rep. (CCH) P 16,918

END OF DOCUMENT

MAINS, DRAINS, PIPES AND PUMPS
written and presented by:

Peter Rossi, Esquire

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Potential Subro Claims Might Involve:

- Water distribution systems,
- Sanitary sewage,
- Electricity and gas systems,
- Transportation systems,
- Subways, highways, streets, etc.

COZEN O'CONNOR.

- Failures may be directly related to utilization, age and maintenance protocols.
- Development of systems was piecemeal responding to population and industrial pressures,
- The addition of layers of systems complicate maintenance and upkeep,
  - New York City water mains were laid before highways, subways, electricity or gas utilities,
  - Utilities complicate access to and maintenance of water mains,
  - Access to water pipes and mains working through layer upon layer of subway, electric, gas and sewage facilities.

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Many East Coast Municipal Water Systems Are Hundreds of Years Old

- New York City's first water well was dug in 1677,
- New York City's first water distribution system consisted of hollowed out wooden logs,
- Philadelphia still has wooden mains in service,
- Different materials now utilized including cast iron and ductile steel.

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The Number and Size of Failures is Increasing.

- Because of municipal growth the failures are often catastrophic complicating recoveries,
- While age may be a factor in water main failures, poor maintenance is more significant ("We'll fix it when it breaks!"),
- Older systems require more maintenance,

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Failure Litigation is Complicated:

- Legal defenses available to governmental entities including sovereign immunity, strict notice requirements and shortened statute of limitations and tariff limitations;
- Delay in investigation as a result of the control of loss sites by municipal authority;
- Grand scale of litigation as a result of larger failures; and
- Control of court system by municipality.

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A Case Study

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Water Main Failure Litigation in New York City

- New York City's distribution system is unique by virtue of its size,
- However problems presented by failures in New York City are similar to problems encountered elsewhere,
- Need to obtain information promptly and capitalize on the City's size and relative disorganization.

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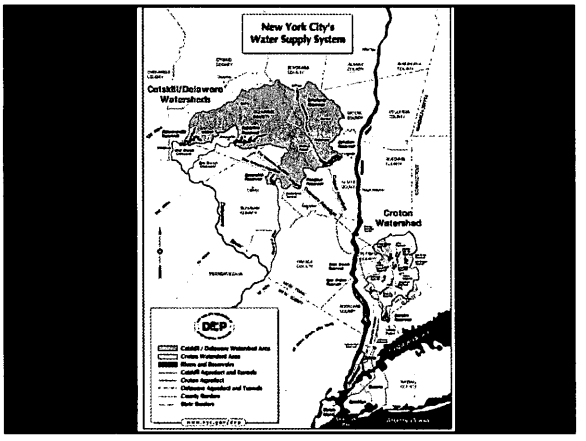
History of New York's Water Distribution System

- New York City water is transported from upstate reservoirs to consumers through three aqueducts, which range in size from 13.5 to 19.5 feet in diameter.
- Two tunnels 11 to 17 feet in diameter conduct the water to New York City (a third is under construction),
- The water distribution system within the city consists of grid network of water mains arranging from 6 to 84 inches in diameter.
- There are approximately 5,700 miles of mains, 88,000 main line valves and 96,000 water hydrants.
- Water flows primarily by gravity through the system and only 5% is pumped.
- The water supply network has a combined storage capacity of 550 billion gallons with a daily yield of 1.29 billion gallons of water.
- Current use in New York City is approximately 1.4 billion gallons of water per day.

COZEN O'CONNOR.



Depending On The Size And Location of the Water Main Break the Results Can Be Spectacular

- The pressure and quantity of water can destroy pavement, move cars and damage buildings and property,
- Nearby utilities such as gas and electric can be adversely affected causing fire and pollution hazards,
- **Property damage, lost profit and business interruption can result.**

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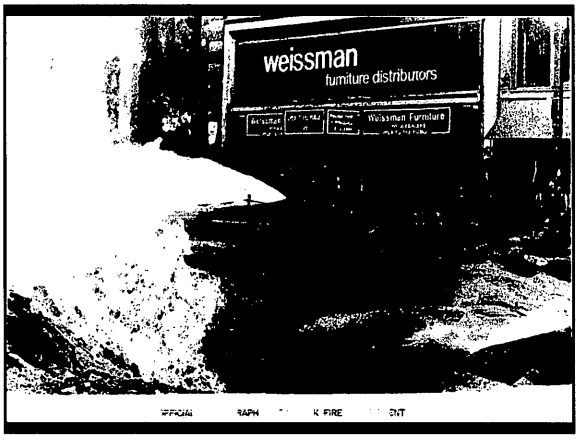
weissman
furniture distributors

Studies of the New York City Water Supply System

- Through discovery we obtained various studies of the New York City water supply system,
- Cooper Union August 1991 report of the New York City Infrastructure including the water supply and distribution system,
- Cooper Union Report concluded that the useful life of water mains is 100 years and that approximately 6% of the New York City water main system are more than 100 years old,
- By the year 2020 more than one-quarter of all water mains will be over 100 years old and by 2040 nearly 40%,
- New York now builds fewer miles of water mains per year than it did in 1870,
- 20th century stresses including vibrations from construction and heavy traffic contribute to water main failures,
- The number of main breaks is significantly rising.
- The break per mile rate is expected to double between 1990 and 2030 from one break per 10 miles to one break per 5 miles of water main.

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Army Corps of Engineers Report

- We obtained a copy of a report prepared by Army Corps of Engineers regarding water main failures in New York City,
- Exhaustive study of all water main breaks in the City of New York between 1955 and 1978,
- Conclusion: water main breaks per mile increased more than 60% in 30 years,
- The New York City water supply system is not wearing out due to age alone,
- Smaller diameter pipes have the highest break rate,
- **Leaks are the most important factor causing main breaks.**
- The study recommended replacing all 6, 8 and 12-inch mains laid prior to 1870 and **implementation of an annual leak detection program as a break prevention measure,**
- Ductile pipe is replacing cast iron pipe in the City.

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TYPICAL LITIGATION

- Typical water main litigation involves multiple plaintiffs, often hundreds, and a few defendants usually government or quasi government organizations such as The City of New York, ConEd, Empire City Subway, phone companies and contractors.
- Plaintiff's claims are typically property claims and might also include Boiler and Machinery coverage,
- Legal theories include claims of negligence,
  - Failure to test, **inspect**, repair and maintain the water mains and failure to hire, train and supervise competent employees,
  - Must prove actual or constructive notice of the condition.

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Because Of The Scope Of Litigation A Plaintiff's Committee Often Handles:

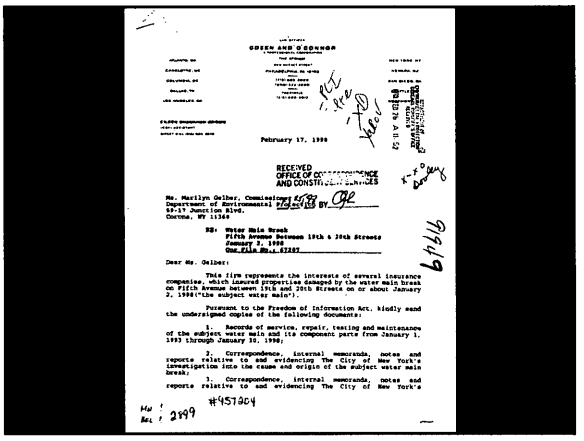
- Usually comprised of several large firms with experience handling such failures,
- We have participated on several of these committees. All but one resulted in favorable pre-trail settlements,
- We participated in the successful trial of the one matter that did not settle.
- The City appealed but we prevailed on appeal as well,
- Typical delay involved in bringing a water main break litigation to fruition is 8 to 9 years in the New York Trial Court although this is improving,
- A co-operative approach among litigants can streamline litigation.

COZEN O'CONNOR.

Documents and Materials Relevant To Water Main Failures Must Be Obtained:

- Utilize Freedom of Information Act to obtain reports and other materials prepared by the City,
- The Freedom of Information Act can provide access to expert reports and other relevant documents during investigation,
- Freedom Of Information can provide access to documents reflecting work done by City crews at the site of the break before, during and after the break,
- Obtaining this information is important because the City dominates the early investigation,
- ***It is <u>essential</u> to prove that the City knew or had reason to know that the water main was in a deteriorated condition and obtaining documentation early on enhances ability to do so,***
- Once litigation begins pursue City relentlessly for discovery and force case to trial as quickly as possible.

COZEN O'CONNOR.



COHEN AND O'CONNOR

February 17, 1998

RECEIVED
OFFICE OF CONSTRUCTION SERVICES
AND CONSTRUCTION SERVICES BY

Ms. Marilyn Gelber, Commissioner
Department of Environmental Protection
59-17 Junction Blvd.
Corona, NY 11368

RE: Water Main Break
Fifth Avenue Between 19th & 20th Streets
January 2, 1998
Our File No.: 67287

Dear Ms. Gelber:

This firm represents the interests of several insurance companies, which insured properties damaged by the water main break on Fifth Avenue between 19th and 20th Streets on or about January 2, 1998("the subject water main").

Pursuant to the Freedom of Information Act, kindly send the undersigned copies of the following documents:

1. Records of service, repair, testing and maintenance of the subject water main and its component parts from January 1, 1993 through January 30, 1998;

2. Correspondence, internal memoranda, notes and reports relative to and evidencing The City of New York's investigation into the cause and origin of the subject water main break;

3. Correspondence, internal memoranda, notes and reports relative to and evidencing The City of New York's

#457804

2899

February 17, 1998
Page 2

investigation into the cause and origin of water main breaks within a ten(10) block vicinity of the subject water main from January 1, 1993 through January 30, 1998;

4. Correspondence to and from the Department of Environmental Protection relative to and evidencing problems with the subject water main from January 1, 1993 through January 30, 1998;;

5. Job logs or reports of persons involved in the service, repair, testing and maintenance of the subject water main and/or its components from January 1, 1993 through January 30, 1998; and

6. Drawings, plans and/or blueprints of the subject water main and/or its component parts;

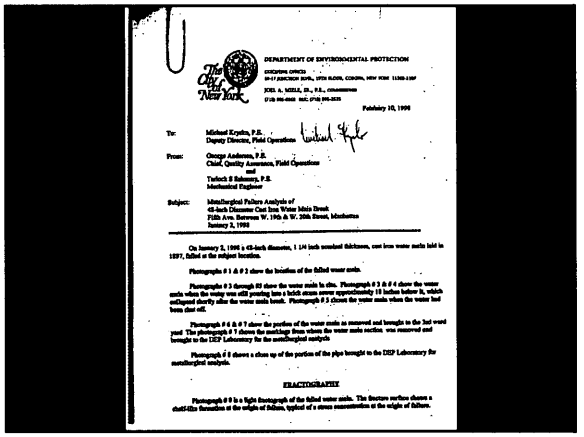
Should you have any questions or concerns regarding this request, please feel free to contact the undersigned at 800-523-2900.

Thank you for your assistance and prompt attention to this request.

Very truly yours,

COHEN AND O'CONNOR

BY: EILEEN SHANAHAN-BROWN
Legal Assistant to
Peter G. Rossi



DEPARTMENT OF ENVIRONMENTAL PROTECTION

February 10, 1998

To: Michael Kryslin, P.E.
Deputy Director, Field Operations

From: George Andersen, P.E.
Chief, Quality Assurance, Field Operations
and
Turlock S Rahmeyer, P.E.
Mechanical Engineer

Subject: Metallurgical Failure Analysis of
48-Inch Diameter Cast Iron Water Main Break
Fifth Ave. Between W. 19th & W. 20th Street, Manhattan
January 2, 1998

On January 2, 1998 a 48-inch diameter, 1 1/4 inch nominal thickness, cast iron water main laid in 1897, failed at the subject location.

Photographs # 1 & # 2 show the location of the failed water main.

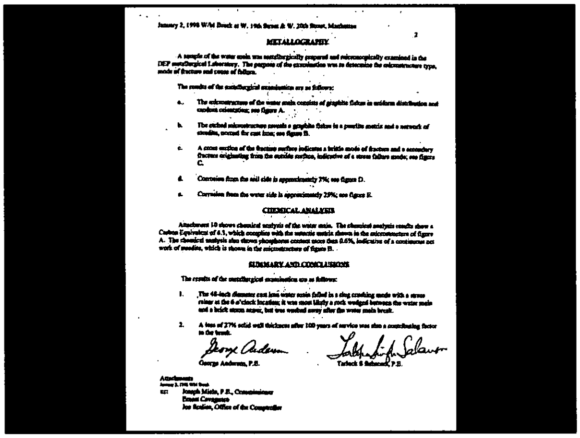
Photographs # 3 through #5 show the water main in situ. Photograph # 3 & # 4 show the water main when the water was still pouring into a brick storm sewer approximately 10 inches below it, which collapsed shortly after the water main break. Photograph # 5 shows the water main when the water had been shut off.

Photograph # 6 & # 7 show the portion of the water main as removed and brought to the 2nd ward yard. The photograph # 7 shows the markings from where the water main section was removed and brought to the DEP Laboratory for the metallurgical analysis

Photograph # 8 shows a close up of the portion of the pipe brought to the DEP Laboratory for metallurgical analysis.

FRACTOGRAPHY

Photograph # 9 is a light fractograph of the failed water main. The fracture surface shows a chevron-like formation at the origin of failure, typical of a stress concentration at the origin of failure.



January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

2

METALLOGRAPHY

A sample of the water main was metallurgically prepared and microscopically examined in the DEP metallurgical Laboratory. The purpose of the examination was to determine the microstructure type, mode of fracture and cause of failure.

The results of the metallurgical examination are as follows:

a. The microstructure of the water main consists of graphite flakes in uniform distribution and random orientation; see figure A.

b. The etched microstructure reveals a graphite flakes in a pearlite matrix and a network of steadite, normal for cast iron; see figure B.

c. A cross section of the fracture surface indicates a brittle mode of fracture and a secondary fracture originating from the outside surface, indicative of a stress failure mode; see figure C.

d. Corrosion from the soil side is approximately 2%; see figure D.

e. Corrosion from the water side is approximately 25%; see figure E.

CHEMICAL ANALYSIS

Attachment 10 shows chemical analysis of the water main. The chemical analysis results show a Carbon Equivalent of 4.3, which complies with the eutectic matrix shown in the microstructure of figure A. The chemical analysis also shows phosphorus content more than 0.6%, indicative of a continuous net work of steadite, which is shown in the microstructure of figure B.

SUMMARY AND CONCLUSIONS

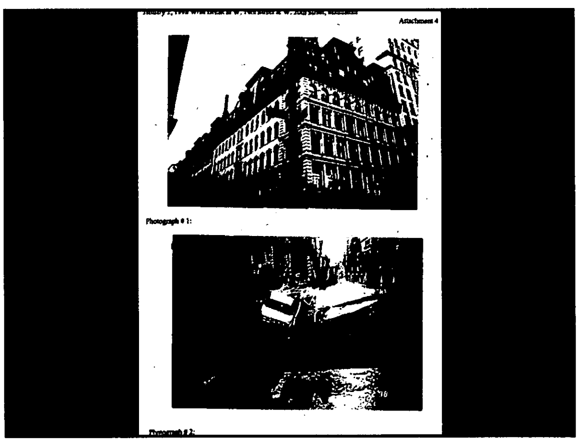
The results of the metallurgical examination are as follows:

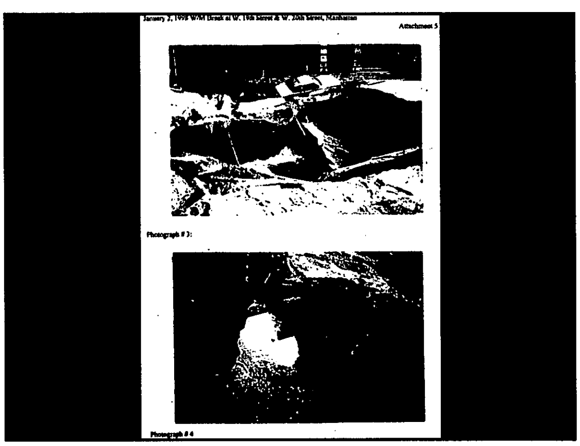
1. The 48-inch diameter cast iron water main failed in a ring crushing mode with a stress raiser at the 6 o'clock location; it was most likely a rock wedged between the water main and a brick storm sewer, but was washed away after the water main break.

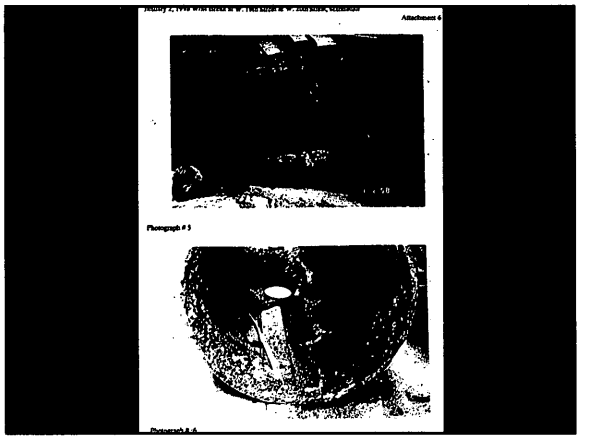
2. A loss of 27% solid wall thickness after 100 years of service was also a contributing factor to the break.

George Anderson, P.E.   Tarlock S Salanand, P.E.

Attachments
January 2, 1998 W/M Break
cc: Joseph Miele, P.E., Commissioner
Ernest Cavaganro
Joe Scalise, Office of the Comptroller

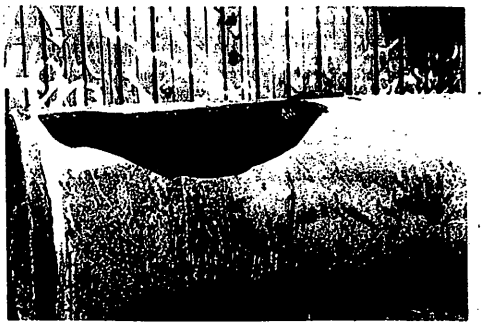




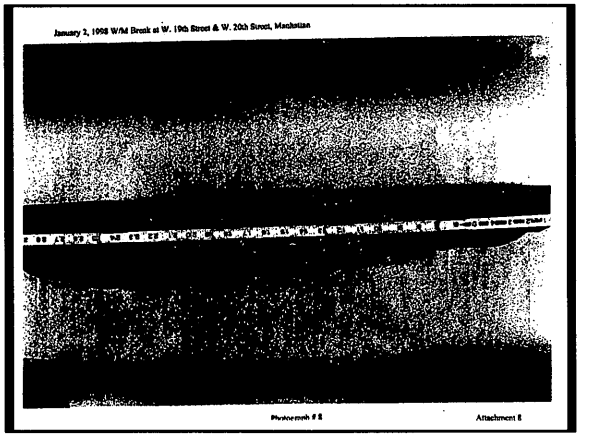


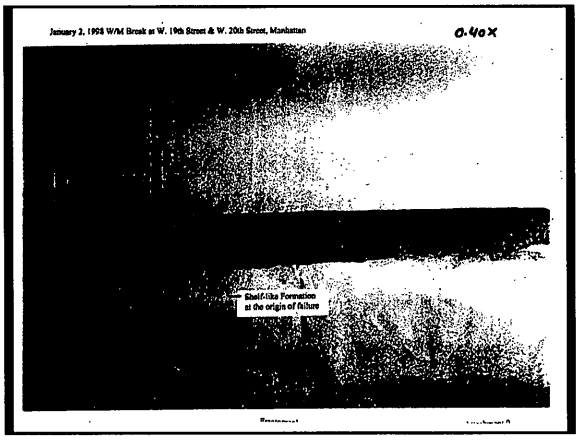
January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

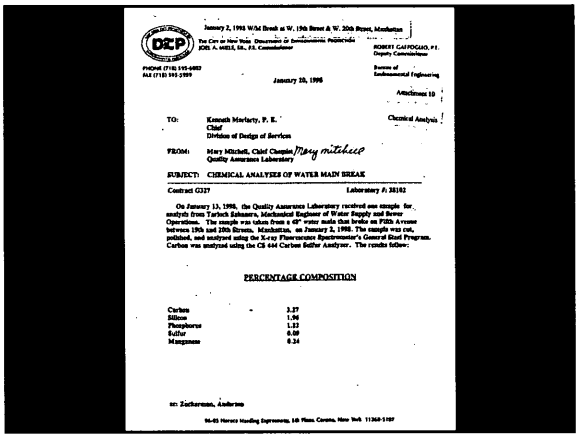
Attachment 7



Photograph # 7






January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

DEP

The City of New York Department of Environmental Protection
JOEL A. MILLS, JR., P.E. Commissioner

ROBERT GAFFOGLIO, P.E.
Deputy Commissioner

PHONE (718) 595-6082
FAX (718) 595-3989

Bureau of Environmental Engineering

January 23, 1998

Attachment 10

Chemical Analysis

TO: Kenneth Moriarty, P. E.
Chief
Division of Design of Services

FROM: Mary Mitchell, Chief Chemist Mary mitchell
Quality Assurance Laboratory

SUBJECT: CHEMICAL ANALYSES OF WATER MAIN BREAK

Contract G327 Laboratory #: 38102

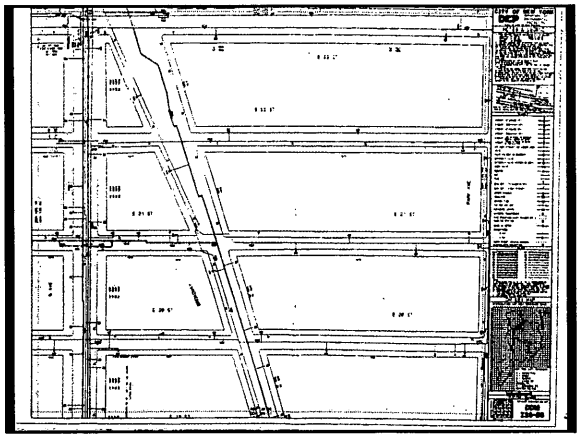
On January 13, 1998, the Quality Assurance Laboratory received one sample for analysis from Farhoh Rahmeto, Mechanical Engineer of Water Supply and Sewer Operations. The sample was taken from a 48" water main that broke on Fifth Avenue between 19th and 20th Streets, Manhattan, on January 2, 1998. The sample was cut, polished, and analyzed using the X-ray Fluorescence Spectrometer's General Steel Program. Carbon was analyzed using the CS 444 Carbon Sulfur Analyzer. The results follow:

PERCENTAGE COMPOSITION

Carbon	3.27
Silicon	1.96
Phosphorus	1.12
Sulfur	0.09
Manganese	0.24

cc: Zacharatos, Anderson

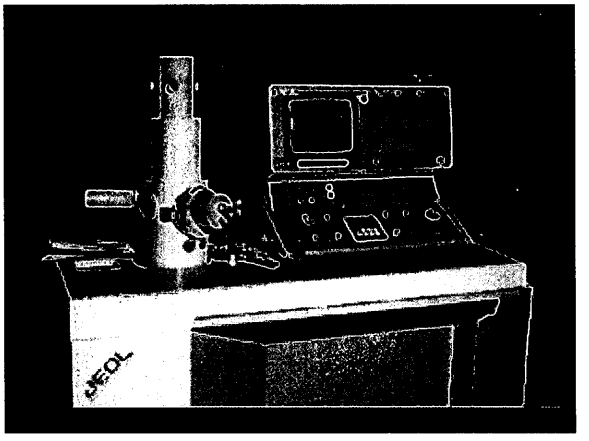
96-05 Horace Harding Expressway, 5th Floor, Corona, New York 11368-5107

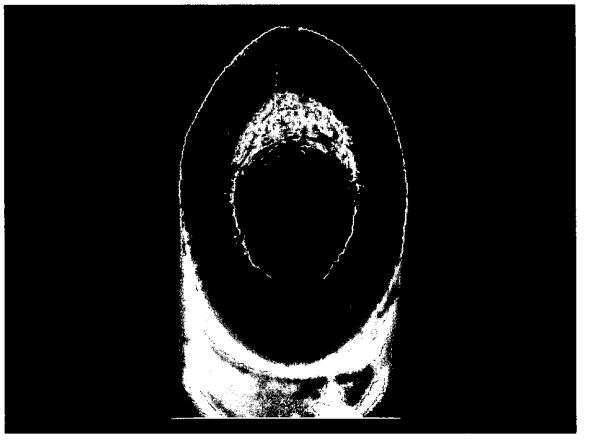


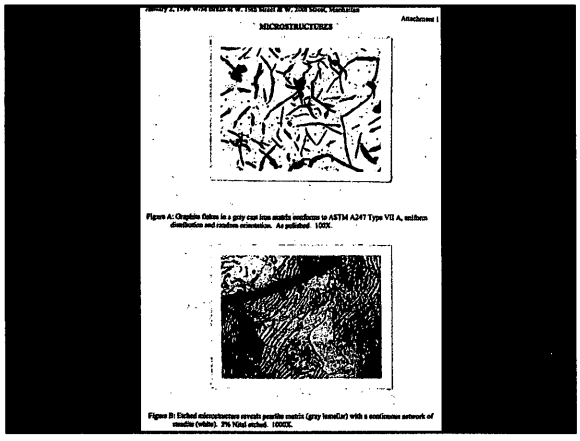
Experts

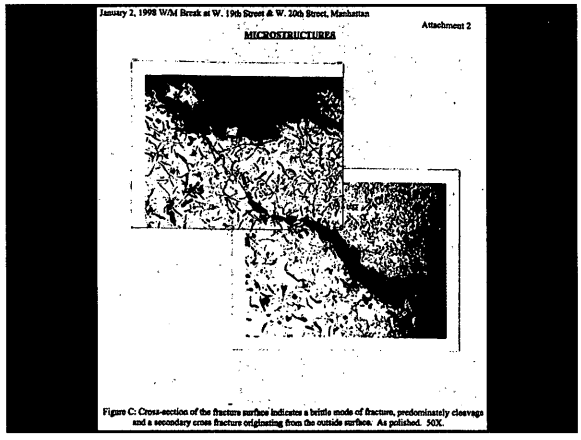
- Necessary to sustain burden of proof,
- Metallurgist;
  - SEM evaluation ,
  - Evaluate mode of failure,
  - Determine where failure started,
  - Determine condition of pipe at time of failure,
- Water system supply experts,
- Damage experts,
- Accountants,
- Daubert,
- Spoliation.

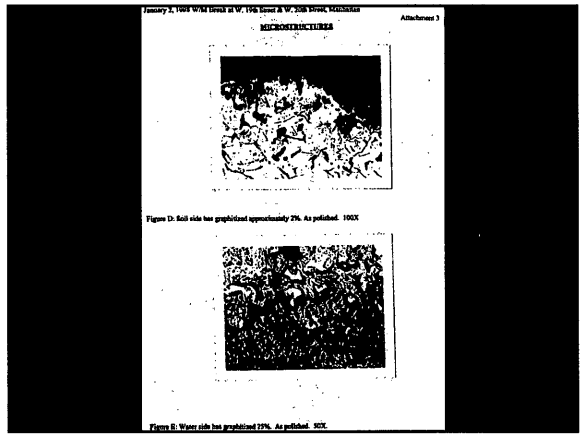
COZEN O'CONNOR.






Attachment 1
MICROSTRUCTURES


January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan
Attachment 2
MICROSTRUCTURES
Figure C: Cross-section of the fracture surface indicates a brittle mode of fracture, predominately cleavage and a secondary cross fracture originating from the outside surface. As polished. 50X.


Attachment 3
MICROSTRUCTURES

January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION
JOEL A. MIELE, SR., P.E. Commissioner

ROBERT GAFFOGLIO, P.E.
Deputy Commissioner

PHONE (718) 595-6902
FAX (718) 595-5999

Bureau of
Environmental Engineering

January 20, 1998

Attachment 10

Chemical Analysis

TO: Kenneth Moriarty, P. E.
Chief
Division of Design of Services

FROM: Mary Mitchell, Chief Chemist *Mary Mitchell*
Quality Assurance Laboratory

SUBJECT: CHEMICAL ANALYSES OF WATER MAIN BREAK

Contract G327 Laboratory #: 38102

On January 13, 1998, the Quality Assurance Laboratory received one sample for analysis from Tarlock Sahansra, Mechanical Engineer of Water Supply and Sewer Operations. The sample was taken from a 48" water main that broke on Fifth Avenue between 19th and 20th Streets, Manhattan, on January 2, 1998. The sample was cut, polished, and analyzed using the X-ray Fluorescence Spectrometer's General Steel Program. Carbon was analyzed using the CS 444 Carbon Solfur Analyzer. The results follow:

PERCENTAGE COMPOSITION

Carbon	3.27
Silicon	1.96
Phosphorus	1.22
Sulfur	0.09
Manganese	0.24

1990 Fifth Avenue Water Main Break

- Catastrophic failure of a 48-inch cast iron water main running north and south along 5th Avenue installed in the 1800's,
- Freedom of Information Act request revealed that the City's expert concluded that the water main cracked (and therefore leaked) several years prior to the 1990 failure,
- **This helped establish that the water main was leaking for several years prior to the failure,**
- City leak detection crew inspected the main just prior to the break and did not find a problem,
- Jury concluded that the City had notice of the problem because either the crew did not inspect the main or it did so improperly,
- Favorable liability verdict in 2000 and favorable appellate decision.

COZEN O'CONNOR.

DEP

February 26, 1996

New York City Department of Environmental Protection

TO: FILE

FROM: George Andersen, P.E.
Acting Deputy Chief, Design

SUBJECT: Metallurgical Failure Analysis of a 48-Inch Cast Iron Water Main 5th Ave., Between 18 &19th Sts. Manhattan January 6, 1990

A 48-inch diameter, 1 5/16-inch thick, cast iron water main laid in 1897, failed at the subject location on the morning of January 6, 1990; see Photo #1. Note that the failed main was near the west side of 5th Ave. and running North and South.

Photo #2 shows water still leaking from the pipe looking South. Photo #3 shows the failed section near the bell end looking East. Photo #4 is a closer view of Photo #3.

Photo #5 was taken on January 8th after the existing support was excavated and replaced with temporary wood piers. From this photo it can be seen that a longitudinal fracture occurred at the bottom or 6 o'clock location of the pipe; the remainder an oval pattern, extended to the 3 o'clock location looking South.

Photo #6 shows the embossed identification of the Pipe. We have not been able to identify the manufacturer, but we are able to tell it was poured in 1897 for the Department of Public Works.

Photo #7 shows the entire failed pipe removed, laying on 5th Avenue. Please note the cut section that was removed for metallurgical examination and testing; it was cut from the longitudally cracked 6 o'clock portion of the pipe shown in Photo #5.

Photo #8 is the longitudual portion of the pipe set up for fractographic examination. Photograph #9 serves as a light fractograph. As shown, a shelf-like formation is present and extends approximately 6 inches. This is characteristic of a stress concentration at the origin of failure.

File 4 February 26, 1996

SUMMARY AND CONCLUSIONS

The results of the metallurgical investigation are as follows:

1. The 48-inch diameter cast iron watermain failed in a ring-crushing mode.

2. A stress concentration that was the origin of failure at the 6 o'clock location initiated a crack a few years ago that was completely through the pipe in one area and partially through from the interior in nearby areas. No sign of a hard object was present.

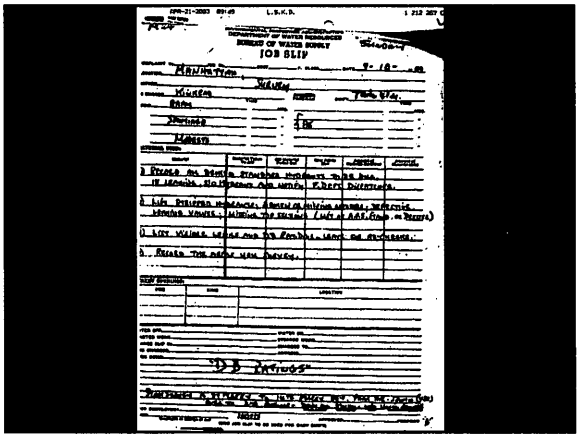
3. The extension of the crack, that caused the major break that occurred on 1/6/90, was most likely caused by (a) Corrosion in the crack (b) frost loading due to the cold weather in the winter and (c) traffic loading.

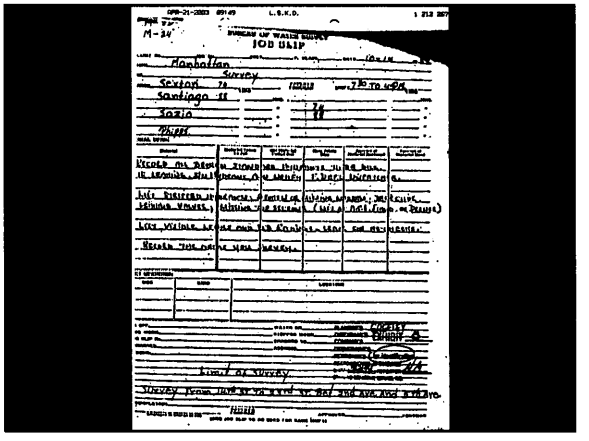
4. An 11% loss of solid metal wall thickness due to corrosion after 103 years of service is only a minor contributor to the watermain failure.

George Andersen

George Andersen, P.E.

GA/kap
Attachments
299





Decided on April 8, 2003
Buckley, P.J., Nardelli, Mazzarelli, Williams, Gonzalez, JJ.
2548

[*1]K&S Realty Co., et al., Plaintiffs-Respondents,

v

The City of New York, Defendant-Appellant, Consolidated Edison Company of New York, Inc., et al. Defendants.

Interlocutory judgments (25 papers), Supreme Court, New York County (Alan Marin, J.), entered June 29, 2000, which, after a single joint jury trial, found for the plaintiffs on the issue of liability, unanimously affirmed, without costs.

In 1990, a 48-inch water main broke at Fifth Avenue between 19th and 20th Streets. Plaintiffs are neighborhood landowners and tenants that allegedly sustained flood damage attributable to the break. Months before the break, the water main had been inspected by a crew that was equipped with, but did not use, ground microphones for detection of leaks by sound. While defendant correctly asserts that the decision not to use ground microphones to inspect the site of the eventual rupture was discretionary and not ministerial (cf. *Boland v State of New York*, 218 AD2d 235, 243), it is nonetheless actionable, even in the absence of a special duty running from the City to plaintiffs, since the decision was made by the City in a proprietary, rather than governmental capacity (see *Leyer v City of Buffalo*, 274 NY 135, 139). Focusing as we must on "the specific act or omission out of which the injury is claimed to have arisen and the capacity in which that act or failure to act occurred" (*Sebastian v State of New York*, 93 NY2d 790, 794 [internal quotation marks omitted]), the conclusion is inescapable under the facts and circumstances adduced that the particular survey of the area where the rupture occurred was prompted principally by the desire to avoid waste of a commodity, i.e., water, and thus was conducted by the City acting proprietarily as a water vendor rather than in its governmental capacity as a protector of the public health and safety (cf. [*2] *County of Nassau v S. Farmingdale Water Dist.*, 62 AD2d 380, affd 46 NY2d 794).

The evidence, fairly considered (see e.g., *Gaston v Vida Realty Co.*, 215 AD2d 174, lv denied 87 NY2d 804, cert denied 517 US 1169), supports the jury's verdict that the City was negligent in failing to detect a leak in the lower Fifth Avenue main, and that defendant did not shut off the flow of flood water within a reasonable time after the rupture. It was the jury's prerogative to resolve the factual issues as it did. It was not obliged to accept the opinions of defendant's experts (see *Chadbourne & Parke, LLP v HGK Asset Mgt.*, 295 AD2d 208), especially since those opinions were given by interested witnesses (see *Miller v Discount Factors*, 1 NY2d 275, 283).

We have considered defendant's remaining arguments and find them unavailing.

THIS CONSTITUTES THE DECISION AND ORDER
OF THE SUPREME COURT, APPELLATE DIVISION, FIRST DEPARTMENT.

ENTERED

CLERK

Leonard J. Romeo, Esq.
SCHIAVETTI, CORGAN, SOSCIA,
DIEDWARDS & NICHOLSON, LLP
1633 Broadway
New York, New York, 10019
(tel) 1 212 641 9100
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1998 "Time Bomb" Litigation

- In 1998 same main broke again, approximately 100 feet away from the 1990 break,
- In 1998 litigation, Detailed Distribution Maps, memos, reports and other documents detailing the methods and means of the City's maintenance protocol were obtained,
- The City denied any connection between the 1990 and 1998 water main breaks however, we suspected a pattern of problems along this water main,
- **The City fought us on this theory, but we pressed our discovery demands and finally received documents indicating that prior to the breaks the City conducted a study of the 5th Avenue water main and concluded that the mains should be replaced referring to them as a** "Time Bomb",
- Settled five years after the event, four years sooner than expected.

COZEN O'CONNOR.

The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION
EXECUTIVE OFFICE
59-17 JUNCTION BLVD., 19TH FLOOR, CORONA, NEW YORK 11368-5107
JOEL A. MIELE, SR., P.E., Commissioner
[illegible]

February 10, 1998

To: Michael Krystkn, P.E.
Deputy Director, Field Operations

From: George Anderson, P.E.
Chief, Quality Assurance, Field Operations
and
Tarlock S Schenery, P.E.
Mechanical Engineer

Subject: Metallurgical Failure Analysis of
48-inch Diameter Cast Iron Water Main Break
Fifth Ave. Between W. 19th & W. 20th Street, Manhattan
January 2, 1998

On January 2, 1998 a 48-inch diameter, 1 1/4 inch nominal thickness, cast iron water main laid in 1897, failed at the subject location.

Photographs # 1 & # 2 show the location of the failed water main.

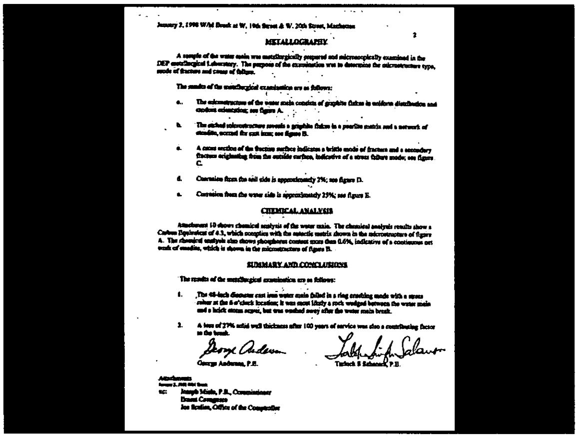
Photographs # 3 through #5 show the water main in situ. Photograph # 3 & # 4 show the water main when the water was still pouring into a brick storm sewer approximately 12 inches below it, which collapsed shortly after the water main break. Photograph # 5 shows the water main when the water had been shut off.

Photograph # 6 & # 7 show the portion of the water main as removed and brought to the 3rd ward yard. The photograph # 7 shows the markings from where the water main section was removed and brought to the DEP Laboratory for the metallurgical analysis.

Photograph # 8 shows a close up of the portion of the pipe brought to the DEP Laboratory for metallurgical analysis.

FRACTOGRAPHY

Photograph # 9 is a light fractograph of the failed water main. The fracture surface shows a shelf-like formation at the origin of failure, typical of a stress concentration at the origin of failure.



January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

2

METALLOGRAPHY

A sample of the water main was metallurgically prepared and microscopically examined in the DEP metallurgical Laboratory. The purpose of the examination was to determine the microstructure type, mode of fracture and cause of failure.

The results of the metallurgical examination are as follows:

a. The microstructure of the water main consists of graphite flakes in uniform distribution and random orientation; see figure A.

b. The etched microstructure reveals a graphite flakes in a pearlite matrix and a network of steadite, normal for cast iron; see figure B.

c. A cross section of the fracture surface indicates a brittle mode of fracture and a secondary fracture originating from the outside surface, indicative of a stress failure mode; see figure C.

d. Corrosion from the soil side is approximately 2%; see figure D.

e. Corrosion from the water side is approximately 25%; see figure E.

CHEMICAL ANALYSIS

Attachment 10 shows chemical analysis of the water main. The chemical analysis results show a Carbon Equivalent of 4.3, which complies with the eutectic matrix shown in the microstructure of figure A. The chemical analysis also shows phosphorus content more than 0.6%, indicative of a continuous net work of steadite, which is shown in the microstructure of figure B.

SUMMARY AND CONCLUSIONS

The results of the metallurgical examination are as follows:

1. The 48-inch diameter cast iron water main failed in a ring crushing mode with a stress riser at the 6 o'clock location; it was most likely a rock wedged between the water main and a brick storm sewer, but was washed away after the water main break.

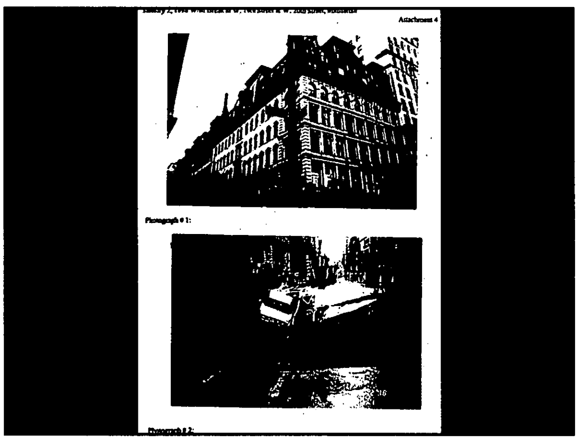
2. A loss of 27% solid wall thickness after 100 years of service was also a contributing factor to the break.

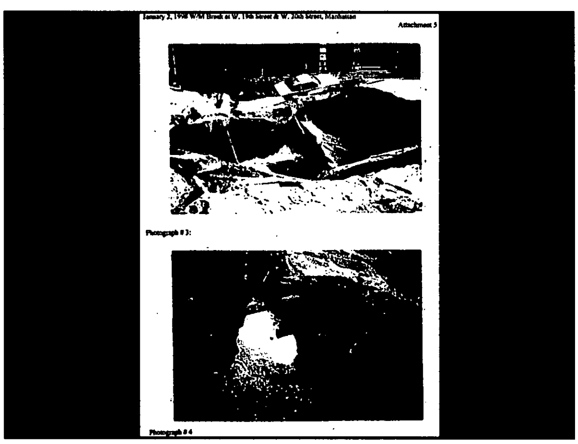
George Anderson, P.E.

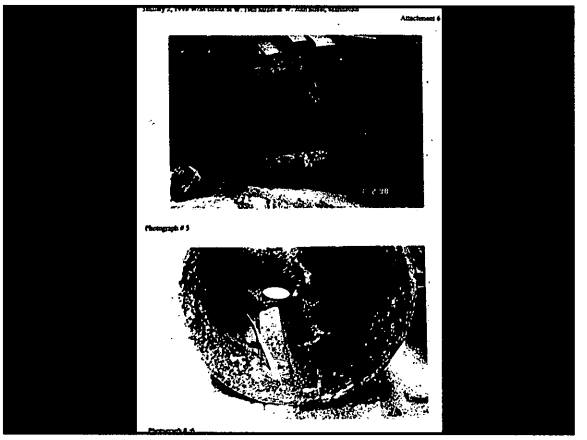
Tarloch S [illegible], P.E.

Attachments

cc: Joseph Miele, P.E., Commissioner
Ernest Cosgrove
Joe Scalise, Office of the Comptroller

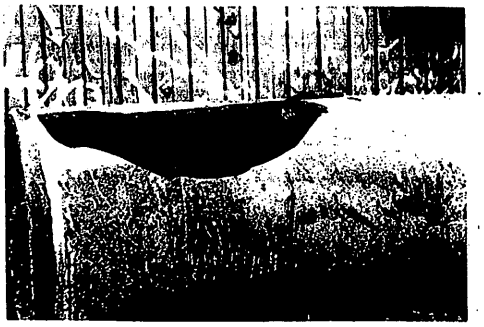




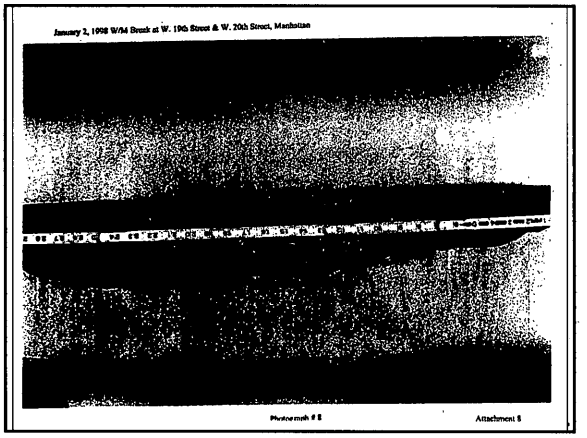


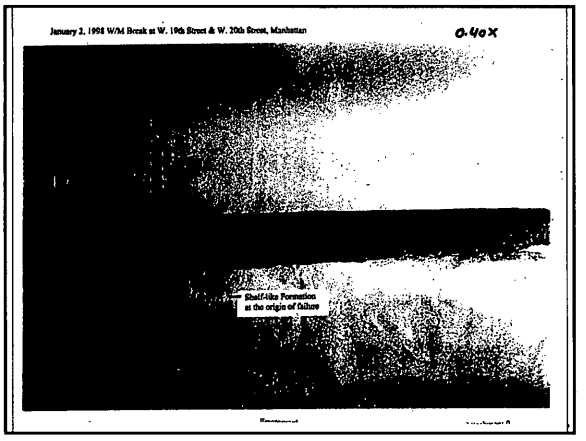
January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

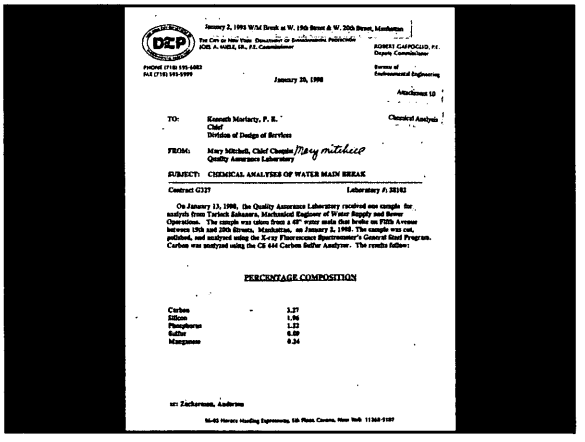
Attachment 7



Photograph # 7






January 2, 1998 W/M Break at W. 19th Street & W. 20th Street, Manhattan

DEP

The City of New York Department of Environmental Protection
JOEL A. MISEL, Sr., P.E. Commissioner

ROBERT GAFFOGLIO, P.E.
Deputy Commissioner

PHONE (718) 595-6083
FAX (718) 595-9999

Bureau of Environmental Engineering

January 20, 1998

Attachment 10

Chemical Analysis

TO: Kenneth Moriarty, P. E.
Chief
Division of Design of Services

FROM: Mary Mitchell, Chief Chemist Mary mitchell
Quality Assurance Laboratory

SUBJECT: CHEMICAL ANALYSES OF WATER MAIN BREAK

Contract G327 Laboratory #: 28182

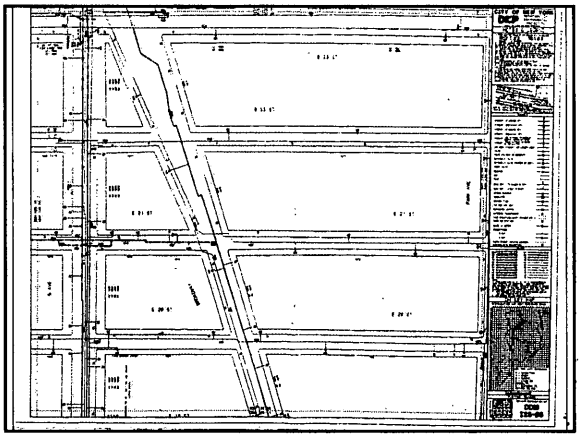
On January 13, 1998, the Quality Assurance Laboratory received one sample for analysis from Turlach Zahasara, Mechanical Engineer of Water Supply and Sewer Operations. The sample was taken from a 48" water main that broke on Fifth Avenue between 19th and 20th Streets, Manhattan, on January 2, 1998. The sample was cut, polished, and analyzed using the X-ray Fluorescence Spectrometer's General Steel Program. Carbon was analyzed using the CS 444 Carbon Sulfur Analyzer. The results follow:

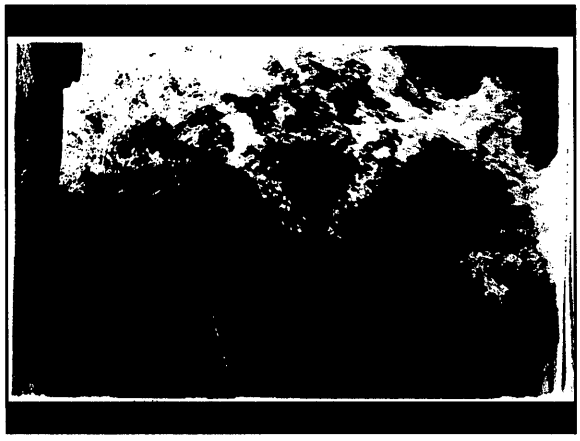
PERCENTAGE COMPOSITION

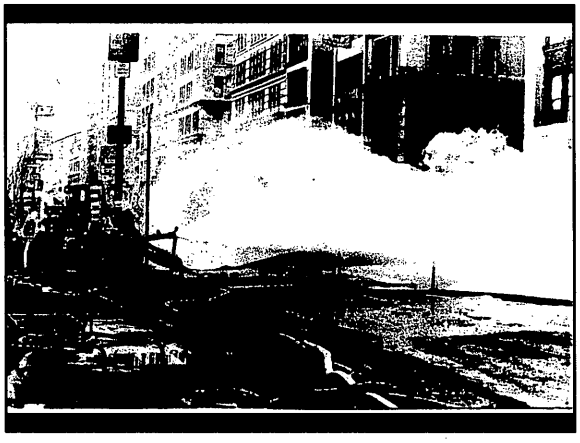
Carbon	3.27
Silicon	1.96
Phosphorus	1.22
Sulfur	0.59
Manganese	0.24

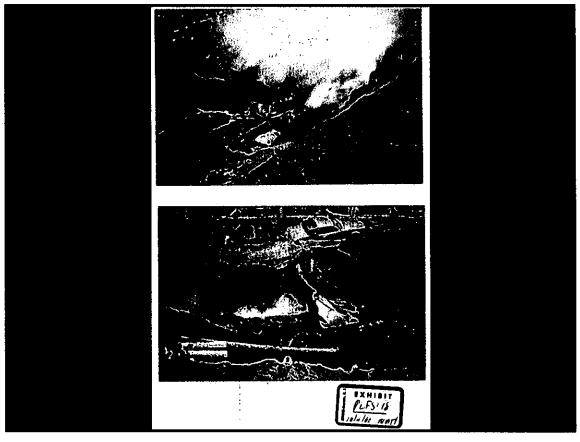
cc: Zacharatos, Andreas

96-05 Horace Harding Expressway, 5th Floor, Corona, New York 11368-5107

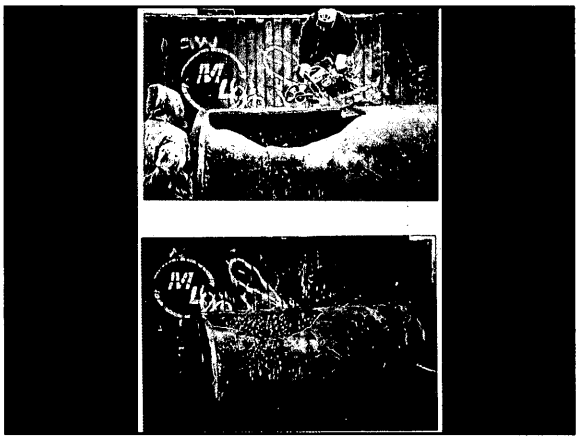


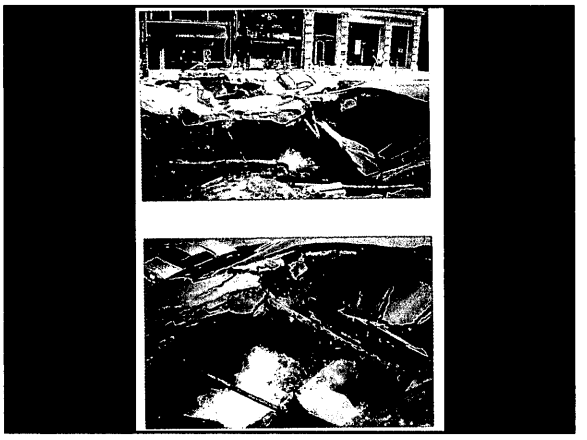






EXHIBIT





City of New York — Bureau of Water Supply

DEPARTMENT OF ENVIRONMENTAL PROTECTION

REPORT ON WATER MAIN PROJECT

BOROUGH: Manhattan DATE: July 3rd '96 NO. M96-05

SKETCH OF PROPOSED MAIN IN: Fifth Avenue

For details see attached documents including comments by William T. Means.

Who proposed: See attached proposal

Reported by: Herbert M. Kass

Recommended: July 3, 1996 — Herbert M Kass

Approved: ____ Deputy Director

Approved: ____ Chief of Design

PROPOSAL FOR NEW 48-INCH MAIN IN FIFTH AVENUE

BACKGROUND

Between 40th Street and 4th Street on Fifth Avenue a number of trunk mains were laid approximately 100 years ago and in recent years have ruptured on occasion and caused serious damage. These mains were laid before Tunnel # 1 was constructed and were presumably designed to supply sufficient water to the lower portion of Manhattan at the time. When Tunnel # 1 was put into service their utility was less obvious. When over the years these pipes have fractured and the adjacent valves were closed until repairs were made, no serious problems arose with regard to maintaining adequate flows to the areas in the vicinity. The latest break occured January 20, 1996, in the 48-inch main on the east side between 26th and 27th Streets. On January 6, 1990, the 48-inch main on the west side between 16th and 17th Streets was the culprit. In addition the 20-inch main between 28th and 29th Streets broke on January 19, 1990, and between 29th and 30th Streets on March 14, 1994. A number of breaks have also occured in the 12-inch pipes along this route. Since the east side 48-inch main is closed at 29th Street its removal or retirement from active service cannot have significant consequences. We propose therefore that of the four old mains from 40th Street Pump Station to Shaft 18, two be taken out of service and abandoned, one of the 48-inch be replaced with a new 48-inch main and the old 20-inch main be replaced with a new 20-inch main.

CONSIDERATIONS

The abandonment or replacement of these mains in Fifth Avenue should be performed without interrupting the distribution of water to any area supplied by these mains. To ensure that a healthy supply can be maintained it is felt that first a new 20-inch regulator should be installed at Shaft # 19. Secondly, that a new 36-inch main replacing the existing 20-inch should be laid from Shaft # 20 down Delancy Street to The Bowery and on 4th Street the existing 20-inch main should be replaced between The Bowery and Lafayette Street. The results of a computer analysis (by Mao Fang) are attached and show that pressures are satisfactory when the system is reinforced by these measures.

PROPOSALS

As stated above we consider that the work be carried out in stages and list below the consecutive steps that might be followed:

1. Install 20-inch regulator at Shaft # 19
2. Lay new 36-inch as stated above from Shaft # 20 to Broadway.
3. Replace west side 48-inch main in Fifth Avenue between 40th Street Pump Station

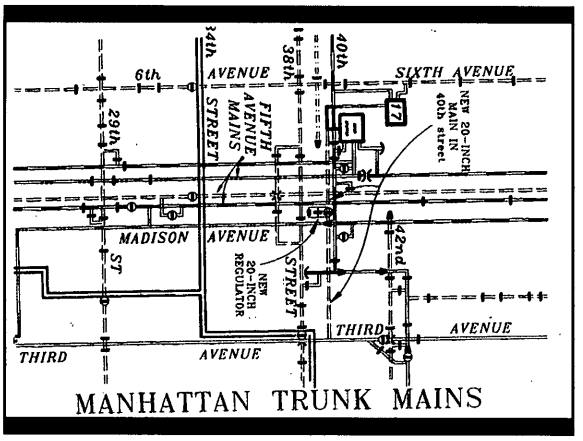
---

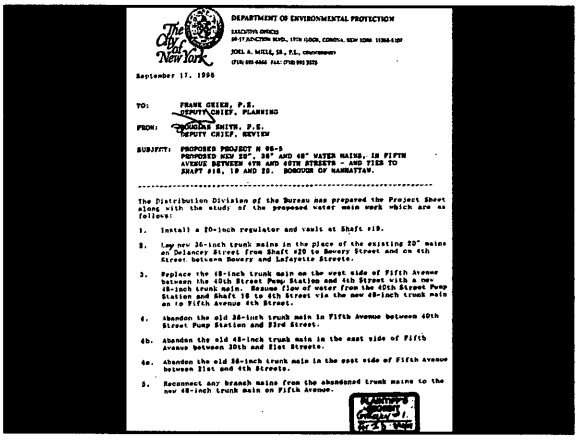
and 4th Street with new 48-inch main.

4. Resume flow of water from Pump Station via new 48-inch main to 4th Street.
5. Introduce water from 40th Street Pumpstation and Shaft 18 into new main.
6. Abandon old 36-inch main in Fifth Avenue between 40th Street Pump Station and 23rd Street.
7. Abandon old 48-inch main in east side of Fifth Avenue between 30th Street and 21st Street.
8. Abandon old 36-inch main in east side of Fifth Avenue between 21st Street and 4th Street.
9. Reconnect any branch mains from abandoned trunks to new 48-inch trunk main.
10. Replace old 20-inch main in east side of Fifth Avenue between 40th Street and 4th Street.
11. Replace any 12-inch mains installed prior to 1935.

ATTACHMENTS

1. Results of computer analysis showing alterations in pressure with various modifications to distribution system.
2. Diagrammatic layout of pipes in section of Fifth Avenue and adjacent streets.





The City of New York

DEPARTMENT OF ENVIRONMENTAL PROTECTION

September 17, 1996

TO: FRANK SKIER, P.E.
DEPUTY CHIEF, PLANNING

FROM: DOUGLAS SMITH, P.E.
DEPUTY CHIEF, REVIEW

SUBJECT: PROPOSED PROJECT M 96-5
PROPOSED NEW 20", 36" AND 48" WATER MAINS, IN FIFTH AVENUE BETWEEN 4TH AND 40TH STREETS - AND TIES TO SHAFT #18, 19 AND 20. BOROUGH OF MANHATTAN.

The Distribution Division of the Bureau has prepared the Project Sheet along with the study of the proposed water main work which are as follows:

1. Install a 20-inch regulator and vault at Shaft #19.
2. Lay new 36-inch trunk mains in the place of the existing 20" mains on Delancey Street from Shaft #20 to Bowery Street and on 4th Street between Bowery and Lafayette Streets.
3. Replace the 48-inch trunk main on the west side of Fifth Avenue between the 40th Street Pump Station and 4th Street with a new 48-inch trunk main. Resume flow of water from the 40th Street Pump Station and Shaft 18 to 4th Street via the new 48-inch trunk main on to Fifth Avenue 4th Street.
4. Abandon the old 36-inch trunk main in Fifth Avenue between 40th Street Pump Station and 33rd Street.

4b. Abandon the old 48-inch trunk main in the east side of Fifth Avenue between 38th and 41st Streets.

4c. Abandon the old 36-inch trunk main in the east side of Fifth Avenue between 41st and 4th Streets.

5. Reconnect any branch mains from the abandoned trunk mains to the new 48-inch trunk main on Fifth Avenue.

Page 2
September 17, 1996
George Cowan, P.E.
Re: PROPOSED PROJECT M 96-5
PROPOSED NEW 20", 36" AND 48" WATER MAINS, IN FIFTH AVENUE BETWEEN 4TH AND 40TH STREETS - AND TIES TO SHAFT #18, 19 AND 20. BOROUGH OF MANHATTAN.

6. Replace, in kind, the old 20-inch main on the east side of Fifth Avenue between 40th and 4th Streets.

7. Replace any 12-inch mains installed prior to 1930 since they are unlined pipe and of cast iron which is subject to replacement.

A project sheet along with sketches of the study showing the proposed water main work is enclosed. This proposal is being forwarded to your office for further action.

DOUGLAS SMITH, P.E.

sc: Fareg, Vokral, Smith, Sharma, Harrison, De Falco, Salmon, Jain (2).
PCJ:js

DEP

New York City Department of Environmental Protection

Bureau of Water Supply and Wastewater Collection

59-17 Junction Blvd
Corona, New York
11368
(718) 595-5330

MARILYN GELBER
Commissioner

Richard D. Gainer, P.E.
Deputy Commissioner
and Director

To: Herbert M. Kass, P.E.
Chief, Distribution

From: William T. Means, P.E.
Area Distribution Engineer (Man/Bx)

Date: June 27, 1996

Subject: Comments on Proposal for new 48 inch Main in Fifth Avenue

---

Transmitted herewith are my comments on the proposal for a new 48 inch main in Fifth Avenue recently submitted by Pelim Quinn.

William T. Means

William T. Means, P.E.
Area Distribution Engineer (Man/Bx)

By HMK

ENCLOSURES

cc: D. Greeley
W. Means
F. Quinn

The Croton Aqueduct first delivered water to Manhattan in 1842 to the original Receiving Reservoir in Central Park and by trunk mains to the Distributing Reservoir at the site of the present day 42nd Street Library. Cast iron mains then carried the water to the population concentrated in lower Manhattan. Larger diameter pipes were installed when the new Central Park Reservoir was completed in 1862. Additional trunk mains were installed in the 1980's with the completion of the New Croton Aqueduct.

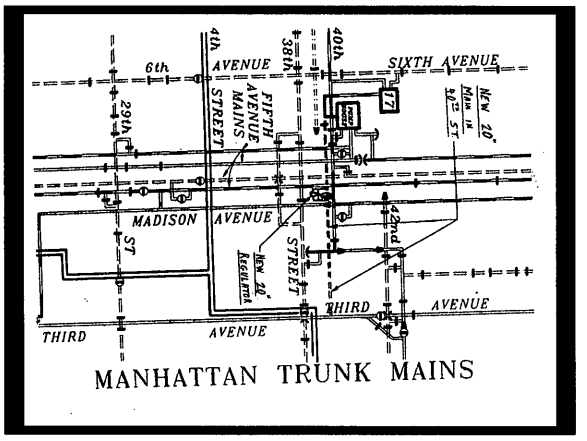
Fifth Avenue has a mixture of these mains and a key shaft (18) on the Catskill Tunnel (1917) was located at 25th Street to take advantage of the existing distribution system. Shaft 18 has two risers - one on either side of the tunnel section valve and four outlets One became an auxiliary supply to the existing High Pressure Fire Service and the others became regulated connections to the three trunk mains in Fifth Avenue (one of which turns down Broadway) Boundary valves were created at 29th Street and the area south of 34th Street became the new South Intermediate Catskill service. (The lower East and West Side continued to receive Croton water by gravity from Central Park Reservoir). Shafts 19, 20 and 21 also supplied this intermediate area, but the greatest capacity was at Shaft 18 and it connected to the heart of the existing distribution system.

An innovative improvement to this area was made in 1940 when the 40th Street Hydraulic Pumping Station was put in service. A 48" main was laid from nearby Shaft 17 carrying Catskill Pressure to a turbine and a cone valve which discharged into the Middle Intermediate system The turbine drives a pump taking its suction from the westerly 48" main and the 36" main southerly to the South Intermediate system. This allowed an increase in Manhattan Croton consumption without electrical energy and reduced the strain on Shaft 18. It became a fifth source of water to the area.

The trunk mains in Fifth Avenue/Broadway were used to carry water from Shaft 18 and the 40th Street Pumping Station because they were there - remnants of the long north-south Croton system. The westerly 48" main and the easterly 48"/36" main in Fifth Avenue were installed in 1897. The 36" main in Fifth Avenue/Broadway was laid prior to 1870. The 20" main in Fifth Avenue was laid in 1876. A replacement system necessitated by age and the consequences of water main breaks need not just duplicate what is there.

Given the relative spacing of the shafts on City Tunnel 1 and the location of the 40th Street Pumping Station, a new design for Fifth Avenue should be a single 48" trunk main (with parallel 20" main liberally cross-connected) and a 36" trunk main from Shaft 18 going south on Broadway. This streamlining of the system would be possible by first increasing the supply from Shafts 19 and 20 (see SK-2 and SK-3 dated 3/1/96) The new 48" main would be laid in the same lane as the existing westerly 48" while the easterly 48"/36" remained in service until the new main is connected SK-1 (3/1/96) shows the new work in the vicinity of Shaft 18.

These are a few elements of the plan. There are many details to be considered. There should be further discussion to see if the Bureau will commit to this proposal. There has not been any major trunk main replacement in the South Intermediate System since 1970 when a 36" steel main was laid in the Bowery replacing a 36" cast iron main installed in 1870 a section of 30" cast iron in South Street was replaced with 48" steel in 1985). The phasing out of these hundred year old time bombs has got to get off the ground.


6th
4th AVENUE
38th
40th
SIXTH AVENUE
29th
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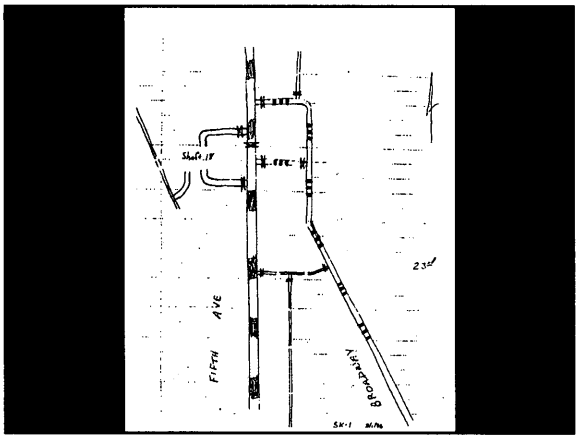
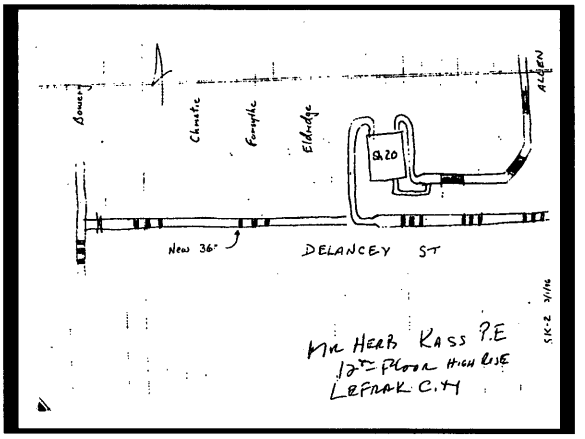
THIRD AVENUE
MANHATTAN TRUNK MAINS


FIFTH AVE
BROADWAY
23rd


Clinton
Forsyth
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ALDEN
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12TH FLOOR HIGH RISE
LEFRAK CITY

LEGAL ISSUES

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New York

- Weiss v. Fote, 7 N.Y.2d 579, 589, 200 N.Y.S.2d 409 qualified immunity to municipalities from liability for acts involving the exercise of judgment or discretion in the performance of a governmental function. Can be rebutted with proof that the infrastructure system is not a governmental function. When a municipality operates a water supply system, they are not immune from tort liability. This is precisely what the Court held in our case K&S Realty, et al. v. The City of New York, et al. Maintenance of the water system was a **proprietary** rather than a **governmental** action.

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New York Damages

- Plaintiffs are not entitled to recover economic losses (such as lost profits) without evidence of physical damage to property. If a business suffers no physical damage but is closed because the surrounding street has been closed by the City, they are not entitled to recover for lost profits.
- Infrastructure litigation often involves inventory loss. Plaintiffs often attempt to recover the retail value of inventory. In New York, the measure of a plaintiff's damages is not the retail selling price of the goods, but the replacement costs and any damages actually sustained by reason of the absence of the inventory. Dubiner's Bootery, Inc. v. General Outdoor Advertising, Inc., 200 N.Y.S.2d 757 (App. Div. 1960). Typically, the wholesale value of the inventory is the measure of damages. Felice Fedder Oriental Art, Inc. v. Scanlon, 708 F. Supp. 551(S.D.N.Y. 1989). The wholesale value represents the merchant's replacement cost. These claims, of course, can be combined with a lost profit analysis if the carrier made such payments and physical damages ensued.

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New York Notice Law

- § 50E of the General Obligation Law provides that a party who intends to file suit against a municipality or one of its agencies, must file a Notice of Claim with the municipality within 90 days of the incident that gives rise to the claim. The statute of limitation with regard to claims against municipalities is 1 year and 90 days from the incident, which is different from the general statute of limitations in New York of 3 years for negligence.

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Virginia

- The general rule in Virginia with regard to Sovereign Immunity is that maintenance and operation of an infrastructure system such as a sewer system is a governmental function for which a municipality is entitled to immunity from tort liability. See, E.G., Gayda v. Gibbs, 45 Va. Cir. 176, 1998. (Va. Cir. Ct. City of Norfolk 1998). There are two cases that distinguish this general rule. In Mjornell v. Town of Front Royal, 41 Va. Cir. 399 (Va. Cir. Ct. Warren County 1997). The Court held that a municipality is immune from liability for the alleged negligent design of a sewer system, but may be liable for damages caused by its negligence with regard to the construction, operation and maintenance of water and sewer systems, which activities are proprietary functions. In addition, the case of Hampton Roads Sanitation District v. McDonnell, 234 Va. 235, 360 S.E.2d 841, (Va. 1987) allowed recovery when a sanitation district discharged sewage onto the plaintiff's property. The Court held that each discharge of sewage was a trespass onto the plaintiff's property for which the City was responsible.

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Pennsylvania

- 42 Pa. C.S. 8541 provides that,
  - Except as otherwise provided in the sub-chapter, no local agency shall be liable for any damages on account of any injury to a person or property caused by any act of the local agency or an employee thereof or any other person. This Act is also known as the Municipal Tort Claims Act. § 8542 of the same Act provides exceptions, including subsection 5 Utility Service Facilities. The exception includes a dangerous condition of the facilities of steam, sewer, water, gas or electric systems owned by the local agency...the claimant must establish that the dangerous condition created a reasonably foreseeable risk of the kind of injury which was incurred and that the local agency had actual notice or it could be reasonably be charged with notice under the circumstances of the dangerous condition... § 8553 of the Act limits damages to $500,000 from the same cause of action and provides for a set-off for all benefits under a policy of insurance. **Also, See, Michael v. Bethlehem, 478 A.2d 164, 165 (1983) holding that the Pennsylvania Tort Claims Act provides no exception to the Sovereign Immunity Doctrine for suits brought by insurance carriers as subrogees of persons injured under circumstances falling within the exceptions. Therefore, it is virtually impossible for an insurance carrier to subrogate against a local municipality in Pennsylvania.**

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Pennsylvania Notice Law

- In Pennsylvania 42 Pa. CSA 522 requires that notice be given by any person who is about to commence any civil action or proceeding against the Commonwealth of Pennsylvania or any governmental unit within the Commonwealth of Pennsylvania. Notice must be provided within 6 months of the date of injury and must include information specific to the cause of action.

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New Jersey

- New Jersey Tort Claims Act (45 S. 59:1-1 et.seq.) was designed to limit not broaden governmental liability and unless there is some exception found in the Act the government is immune from suit. **The general rule in New Jersey is that public entities are immune from suit and that immunity is the norm. Section 59:9-2(e) prohibits subrogation actions against public entities.** Ministerial decisions, which pertain merely to operations, are not immunized. Strauss v. Township of Holmdel, 312 N. J. Super. 610 (1997). Failure to inspect by municipalities (a common infrastructure theme) is absolutely immunized Pinkowski v. Township of Montclair, 299 N.J. Super. 557 (1997). § 59:2-3 provides that discretionary activities are immune from suit specifically, a public entity is not liable for the exercise of discretion in determining whether to seek or whether to provide the resources necessary for the purchase of equipment, the construction or maintenance of facilities, the hiring of personnel and, in general, the provision of adequate governmental services. Private water companies may be treated differently under the statute.

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New Jersey Notice Law

- Notice Requirement: A claim shall be provided within 90 days after accrual of the cause of action. Claimant may file suit in an appropriate court of law after six months from date of notice. All claims must be filed within 2 years of their accrual.

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Common Infrastructure Litigation Themes

- Utility usually owned by large company or government authority,
- Owners do not like to pay claims,
- Owners do not like to provide information particularly about their facilities or methods of operation,
- Owners can be disorganized and slow to respond,
- Owners are accustomed to litigation and will hire top notch defense counsel,
- Owners, particularly municipalities, have court system influence,
- Owners often required to maintain documents regarding construction, repair and maintenance of infrastructure systems.

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CONCLUSION

- Infrastructure Litigation is complicated, time consuming and expensive.
- Infrastructure litigation themes repeat themselves,
- An organized, methodical, relentless approach is best, with cooperation among plaintiffs' counsel,
- Plaintiffs' Committees have been successful,
- Use of early discovery techniques including Freedom Information Act requests have been fruitful.

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written and presented by:

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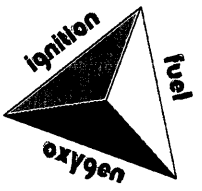
Fire Triangle

Heat
Oxygen
Fuel



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Loss Scenario...

No known cause; Cause is fault of your insured; Cause is fault of uninsured or judgment-proof third party; Act of God

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Consider...

Failure to prevent fire (focusing on ignition source)

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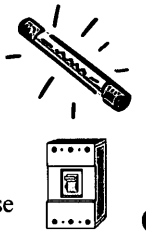
Consider...

Failure of Overcurrent Protective Device

- Circuit Breakers
- Relays
- Improper Setting
  - Calibration
- Design Defects
- Deterioration/Infrequent Use



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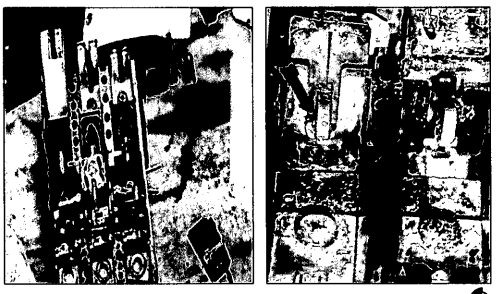
Circuit Breakers



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Consider...

Inadequate Guarding
Distance combustibles from heat source
Limit available fuel
- Clothing
- Combustibles

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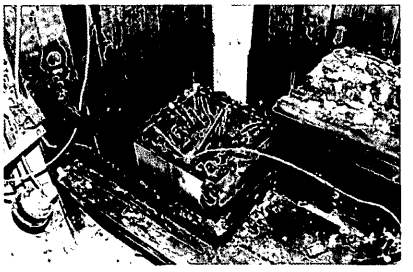
Sauna Heater



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Consider...

Inadequate security guard protection
Delayed response by fire department
Delayed response by utility
- Need to terminate gas and/or electric before starting firefighting activities

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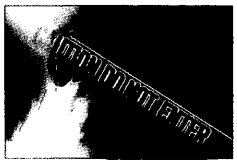
Consider...

Deficient fire safety training of employees by occupancy where fire originated



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Consider...

Inadequate water supply by municipal or private water authority

Defective valves/connections for fire fighting apparatus connect

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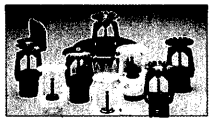
Consider...

Defective valves/connections for firefighting apparatus to connect to sprinkler system



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Consider...

Defectively designed or negligently installed fire detection or suppression system

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Consider...

Defectively designed or negligently installed fire or burglar alarm

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Consider...

Negligent monitoring of central station fire alarm system

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Consider...

Lack of Security

- Access to Building
- Vacant Building
- Broken Windows
- History of Arson

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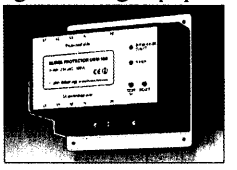
Consider...

Code violative electrical grounding system:

- Voltage Surge Protection
- Lightning Arresting Equipment



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Consider...

Negligent inspection by governmental agency or private entity

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Loss Scenario...

No known cause; cause is fault of your insured; cause is fault of uninsured or judgment-proof third party; and there is no liability for failure to prevent the fire

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Consider...

Next element of fire triangle

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Oxygen

Effect of providing access to oxygen

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Practical Applications of Continued Supply of Oxygen

- Malfunctioning firedoors which fail to close
- Inadequate fire stopping/ compartmentalization
- Improper construction of fire walls

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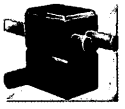
Code Issues

- Code requirements regarding volumetric limitations in unsprinklered storage space
- Code violative openings/chases for pipes, building wire and mechanical systems



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Artificial Elimination of Oxygen

- Defectively designed or installed Ansul System or other chemically based fire suppression system designed to smother fire

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Effect of Depriving Access to Oxygen

- Solvents requiring use with "adequate ventilation"
- Creation of flammable or explosive environment (within LEL and UEL)
- Implicates inadequate warnings/ instructions

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Third Element of Fire Triangle: Fuel

- Unreasonably dangerous flammability characteristics (fire spread)

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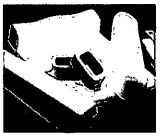
Upholstered Furniture

- Polyurethane foam cushions



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Synthetics

Plastics - displayed in bulk in mercantile occupancy regulated by codes

Artificial flowers

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Materials Intended for Use with Heat Sources

Coffee pot

Pop Tarts

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Flammability Characteristics Implicate

Need for flame retardants (extensive industry standards)

Design issues (internal fire barriers)

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Violation of Industry Standards Regarding Required or Recommended Flame Retardants for:

- Fabrics (cotton, acrylics, wool and synthetic fibers)
- Building materials (wall coverings, floor coverings, insulation, plywood)
- Furnishings (carpeting, carpet padding, beddings, mattresses and textiles)
- Vehicles (passenger cars, trucks, trailers)

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Absence of Approved Thermal Barriers

- Flammable building materials
- Insulation
- Wall cladding

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Creation of Fire Hazardous Conditions

Unsafe/excessive accumulation of trash, waste materials and debris in non-approved containers (attractive nuisance)

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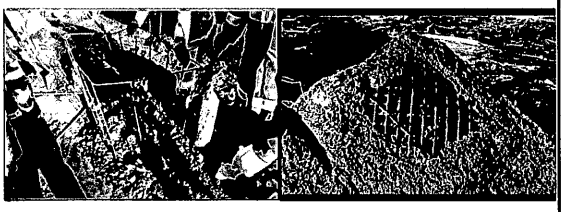
Focus on Course of Damage



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Code Violative Warehousing/ Storage Procedures

Excessive height (above sprinkler heads)

Inadequate aisles (creating "bridge" fore fire to travel

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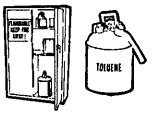
Storage of Flammable Liquids

Non-approved containers

Open cabinets



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Absence of Code Required Fire Detection or Suppression Equipment for

Product storage
Manufacturing materials
Waste/debris

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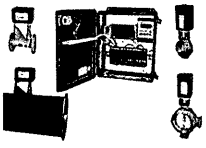
Defectively Designed or Installed Automatic Shut-off Valves for:

Natural gas or liquid propane supply lines or containers
Furnaces, ovens, dryers and heaters



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Inadequate Odorization of Natural Gas or Liquid Propane Gas

Allows excessive or explosive accumulations

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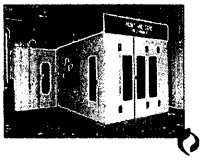
Failure to use spark-proof equipment in special hazardous environments:

Paint spray booth

Grain silo



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Loss Scenario

Act of God

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Consider

Design of Structure

- Snow load
  - Weight of snow exceed minimum design standards
  - Drifting
  - Snow depth

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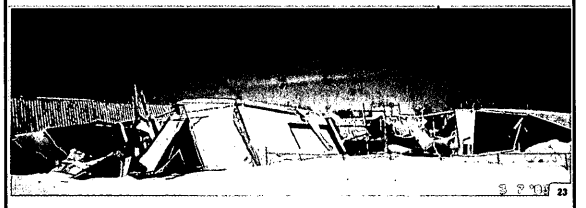
Roof Collapse



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Consider

- Improper load calculations
- Improper location of load wearing walls
- Insufficient number of load bearing walls
- Improper spanning of trusses
- Improper #/size of trusses

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Consider

Negligent Construction

- Missing parts/bracing
- Inadequate connections
- Deficient welds
- Use of improper material

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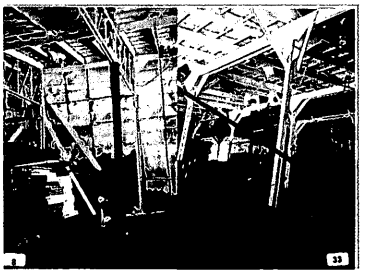
Inadequate Support Columns



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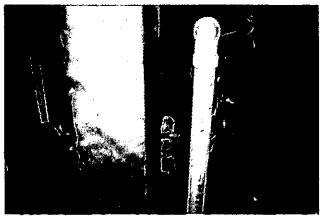
Consider

- Failure to insulate



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Consider

Defective Materials

- Metallurgical defect
- Poor welding
- Bad concrete
- Corrosive agents

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Consider

Failure to protect during construction/repairs

Defective or lack of inspections

Consider

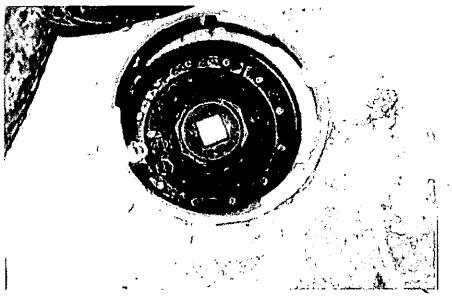
Building codes/standards

Consider

Storm damage system, culverts, down spouts, gutters

Access into structure

Access Through Fuel Fill Port



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