PROPANE EXPLOSIONS IN SNOW COUNTRY: 
HIGH TIME TO ABANDON OWNERSHIP AS THE 
TOUCHSTONE OF LIABILITY

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INTRODUCTION

Since at least the mid-1980s, snow and ice have been known to damage outdoor propane piping and equipment and lead to deadly explosions. In March of 1985, the Goldminer’s Daughter Lodge in Alta, Utah exploded after heavy ice and snow ruptured outdoor propane lines, allowing gas to leak out, migrate through the snow, and accumulate in the lodge.1 Similarly deadly explosions continue to occur in mountainous and snowy regions. In 2008 alone, California,2 Colorado,3 Maine,4 Michigan,5 New Hampshire,6

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3. See Melinda Dudley, Propane Safety Stressed: Keeping Equipment Free of Snow, Ice Crucial in Winter, STEAMBOAT PILOT & TODAY, Feb. 16, 2008 (describing fatal house explosion in Steamboat Springs caused by accumulation of snow on propane feed line); Incident Report, Colo. Dep’t of Labor and Employment, Explosion at Good Times Adventures, Breckimridge, Colorado (Sept. 15, 2008) (on file with author) (describing April 19, 2008 propane explosion at offices of dog sled and touring business, concluding the explosion was probably caused by accumulated snow/ice sliding from roof striking plywood covers over propane regulators, allowing gas to migrate inside structure and explode).
5. See Ruth A. Butler, Lake Ann Man Suffers Burns in Propane Explosion, GRAND RAPIDS
New Mexico, Oregon, Vermont, Wyoming, and Utah all experienced fiery and devastating propane blasts caused by snow and ice damage to outdoor propane piping and equipment.

Consumers may blithely assume that their gas providers are responsible for any mishaps resulting from defects in outdoor propane equipment. But in Vermont, and elsewhere, the liability of propane companies may well hinge on who owns the equipment at issue, based on case law now decades old. As the Vermont Supreme Court stated in Lewis v. Vermont Gas Corp., "As to its lines, a gas company is not an insurer, but if the gas company fails to exercise care and injury results therefrom, it is liable." In contrast, a "gas company generally is under no duty to keep in repair or inspect lines and appliances owned privately, and not thereby chargeable with defects and results unless it has notice of such defects."

Unlike indoor appliances, such as boilers and stoves, ownership of propane piping and equipment is often dictated by non-negotiated, non-waivable terms. For example, the Vermont regulation and licensing department concludes that although cause of fire undetermined at time of incident report, investigation by experts for property owners concluded that weight of snow shed from roof damaged second stage propane regulator.

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11. See KSL.COM, Home Explosion Sends Two People to the Hospital, http://www.ksl.com/index.php?nid=481&sid=2650999 (last visited Mar. 3, 2010) (describing propane explosion, which destroyed a cabin in Sanpete County, Utah, on February 12, 2008; investigators said the explosion was caused by falling ice and snow from the roof, which damaged propane lines from the tank to the house).
13. Id. at 182, 151 A.2d at 306 (emphasis added).
14. Id. (emphasis added).
boilerplate contracts or service agreements, drafted by the gas companies and infrequently read by the customer. Frequently, a bifurcated system of ownership arises, whereby the propane company owns a portion of the piping and equipment and, at some point in the supply system, the customer’s ownership begins. The point at which gas company ownership leaves off and the customer’s begins varies depending on specific contract terms, installation designs, and company policies and practices. Despite common-sense appeal, the law does not currently recognize any bright lines to define ownership, such as outside versus the inside of a building. In Lewis, for example, the gas supplier’s ownership of the lines and equipment ended at the gas meter, which was inside the customer’s building. As a result, the point in the propane system where ownership passes from company to customer varies wildly between types of installations and from supplier to supplier.

Moreover, the Uniform Commercial Code (UCC) may even trump written agreements, as the Vermont Bankruptcy Court recently held in In re Rome Family Corp. In that case, despite clear contract terms to the contrary, the court held that the UCC placed ownership of the propane equipment with the customer/debtor rather than the propane company/creditor, and ruled that the system was properly conveyed as part of the bankruptcy estate. In dicta, the court noted that “ownership of propane tanks could create dire safety and/or liability issues in Vermont. While that is an important policy matter, it is one that the state legislature, rather than the courts, must address . . . .”

This Article asserts that a gas company’s duty to discover and correct defects that render outdoor propane lines and equipment vulnerable to ice and snow damage should not turn on technical issues of ownership, which may well vary from case to case. In the decades since Lewis, the dangers of ice and snow damage to outdoor propane equipment have become so well

15. Id. at 172, 151 A.2d. at 300.
17. Id. at 68–70. In Rome, the propane company’s agreement with its commercial customers required payment for propane at the time of delivery and payment for any installed equipment at the end of the service and supply contract. Id. at 68–69. After the propane customer, a motel complex, went bankrupt, the disputed propane system was sold as a fixture of the debtor’s property. Id. at 68–70. The court found that the customer/debtor, not the propane company/creditor, owned the outdoor propane equipment, and therefore it was properly conveyed. Id. at 78. In a case of first impression in Vermont, the Court analyzed the transaction and ruled that, under 9A V.S.A. § 2-401, title passed to the customer upon delivery of the equipment. Id. The bankruptcy court adhered to the majority rule around the country that, under the UCC, title does not remain with the seller after the buyer takes possession of the goods. Id. Therefore, the propane company’s interest was limited to a reservation of a security interest, notwithstanding the parties’ contractual agreement to the contrary.
18. Id. at 81.
known within the industry as to establish a duty of care and, consequently, constructive knowledge of this important safety issue. Moreover, developing regulatory standards now impose duties on companies to inspect and correct defects in their customers’ outdoor lines and equipment. Therefore, rather than allowing courts to get mired in technical issues of ownership, sound public policy dictates the assignment of liability for defects in outdoor propane equipment to the entity best equipped to ensure its safe operation—the propane supplier.

I. A PRIMER ON PROPANE

Propane is stored under pressure. In most residential settings, it is delivered by tanker truck to a 500- or 1,000-gallon tank installed by the company on the customer’s property. The storage tank may be above ground or buried. As it is used by the customer, the gas exits the tank and passes through a company-installed first-stage regulator. This regulator lowers the gas pressure from the tank to a level safe for passage through the outdoor iron piping. Depending on the distance from the tank to the house, this company-installed iron piping is either above or under ground. Somewhere on or near the exterior of the house, the gas passes through a second-stage regulator, also company-installed, which further lowers the gas pressure to a level safe for combustion by gas appliances. Entry into the house may occur immediately downstream of the second-stage regulator or several feet away. Where the entry point is located away from the second-stage regulator, additional iron piping may run along the exterior of the house. Eventually, the iron piping passes into the house through a hole drilled in the wall or foundation. Once inside, the iron pipe gives way to lighter, flexible copper tubing that runs to the furnace, hot water heater, stove, dryer, and other gas appliances.¹⁹

Regardless of who owns what, outdoor above-ground propane piping and equipment is uniquely vulnerable to physical damage, especially from the forces of snow and ice. The weight of accumulated snowpack, or that of snow and ice shed from roofs, can weaken and crack pipes at their joints and unions, especially after piping has been exposed to the elements for several winters. Even tiny cracks or fissures in the outdoor lines and equipment allow the pressurized propane gas to escape. Escaping propane gas then follows the path of least resistance. In winter conditions, escaping propane gas can migrate through the snow and into adjacent buildings.

Heavier than air, propane typically travels to lower levels and pools in buildings until it reaches just the right concentrated mix of air and gas, known as the flammability limit. Once propane reaches the flammability limit, it can readily ignite on any available ignition source, including the tiny spark which occurs inside an electric switch when it is energized. Thus, propane explosions do not require human intervention. Explosions often occur when propane pools unnoticed in the lower level of a home and ignites when the furnace, hot water heater, or refrigerator switches on. The resulting gas explosion is devastating.  

II. OWNERSHIP-BASED LEGAL LIABILITY

Historically, common law developed in most jurisdictions to hold the supplier responsible only for negligence in inspecting and maintaining its own equipment. Typically, the gas company retains ownership of the tank, regulators, and at least some of the outdoor piping, while the customer is charged with ownership of all indoor piping and gas-fired appliances.

20. Id.
21. One could argue that the sale of propane is an inherently hazardous or abnormally dangerous activity and, therefore, a gas supplier should be strictly liable for damages resulting from a propane explosion. Courts across the country, however, have almost uniformly rejected this legal standard. See St. Cyr v. Flying J Inc., 2006 WL 2175662, at *4 (M.D. Fla. July 31, 2006) ("[T]he danger involved in the sale of propane can easily be eliminated by the exercise of reasonable care by use of proper handling and dispensing procedures such as employing properly trained attendants and performing routine inspections."); Travelers Ins. Co. v. Chrysler Corp., 845 F. Supp. 1122, 1125 (M.D. N.C. 1994) (holding that a product using propane fuel is not an ultrahazardous material, therefore industries using propane cannot be held strictly liable); Blueflame Gas, Inc. v. Van Hoose, 679 P.2d 579, 589 (Colo. 1984) (en banc) ("Liability depends on the defective character of the product and not on the fault or culpability of a defendant in introducing the product into the stream of commerce."); Daum v. Stamford Propane, 2000 WL 1657970, at *6 (Conn. Super. Ct. Sept. 29, 2000) ("There are substantial state and federal regulations for the sale and storage of propane gas. If the product is handled properly, in accordance with these regulations, it is not a danger and thus would appear not to be an ultrahazardous activity."); Apodaca v. AAA Gas Co., 73 P.3d 215, 226–27 (N.M Ct. App. 2003) ("The handling of liquid propane is heavily regulated by a nationally recognized regulatory code that was adopted by state law and city ordinance at the time of the accident. . . . Propane is relatively safe if it is handled in accordance with these regulations."); Searle v. Suburban Propane, 263 A.D.2d 335, 339 (N.Y. App. Div. 2000) ("[T]he installation or maintenance of a propane gas storage tank, transmission system and fixtures does not constitute an ultrahazardous activity so as to impose absolute liability . . . ."); Ellis v. Ferrellgas, L.P., 156 P.3d 136, 139 (Or. Ct. App. 2007) ("[A] dangerous activity is not an abnormal hazard, even though its intrinsic dangers cannot be prevented, if it is a “common usage.”") (quoting Koos v. Roth, 293 Or. 670, 682 (1982)); see also L.S. Tellier, Annotation, Liability of Gas Company for Injury or Damage Due to Defects in Service Lines on Consumer’s Premises, 26 A.L.R.2d 136 (1952). But see Zero Wholesale Gas Co. v. Stroud, 571 S.W.2d 74 (Ark. 1978) (finding that jury could find delivery of propane to propane storage yard was ultra-hazardous activity); Nat’l Steel Serv. Ctr., Inc. v. Gibbons, 319 N.W.2d 269 (Iowa 1982) (accepting defendant’s concession that rail transportation of liquid propane is abnormally dangerous activity).

22. Robert A. Shapiro, Annotation, Liability of One Selling or Distributing Liquid or Bottled
Where a utility supplies gas through an area-wide distribution system, ownership of the utility usually ceases after the gas meter (which could be located inside or outside the building). As to customer-owned piping and equipment, the company is not liable unless it has actual or constructive notice of such defects.

As to service lines owned by a gas company, the company is under a duty to make proper inspection to insure an absence of defects which might cause an escape of gas. The same is true where, although the lines are owned by the consumer, the gas company has control over them, it then being the duty of the gas company to make proper inspection, and it being responsible for their condition and subject to liability as though it owned the lines. But where the service lines are the property of the consumer and are under his control, the gas company is in no way responsible for their condition, and so is not liable for injuries or damage caused by a leak therein of which it had no knowledge, and, generally, is not required to make inspection except where it has notice, express or implied, of the existence of a defect.

Such is the law in Vermont: absent actual or constructive knowledge of safety defects in the customer’s piping or equipment, the propane company owes the customer no duty of care. In Lewis, the gas company, acting as a utility, distributed its product to customers through an integrated distribution system. The service line ran from the main distribution pipe at the curb, across the homeowner’s property, into the cellar to a meter, and then to the furnace.

At some point, the homeowners contacted their gas company about problems with the heating system, and the company replaced the gas meter. About six weeks later, gas, which had leaked out and pooled in the cellar, ignited when the homeowner tried to relight the furnace’s burner flame. In post-explosion inspections, no defects were found in the service

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*Fuel Gas, for Person Injury, Death, or Property Damage*, 41 A.L.R.3d 782, 786–87 (1972).


24. Shapiro, supra note 22, at 790.

25. Tellier, supra note 21, at 141 (citations omitted).


27. Id. at 171, 151 A.2d at 300.

28. Id. at 172, 151 A.2d at 300.

29. Id. at 177, 151 A.2d at 303.

30. Id. at 177–78, 151 A.2d at 304.
line, the meter, the line to the furnace, or the furnace itself.\textsuperscript{31} During trial, plaintiffs established that an unstable or inconsistent flow of gas could extinguish the gas burner, which would enable unburned gas to pass through the burner and pool in the cellar.\textsuperscript{32} The jury found the gas company responsible for the explosion, and the company appealed, asserting the absence of any actionable negligence on its part.\textsuperscript{33}

The Vermont Supreme Court noted that, “[t]o a large extent this case centers around the nature and character of the complaints made by [plaintiffs] to the [gas company] and its failure to act thereon.”\textsuperscript{34} Although the plaintiffs did not “ask that the line and the appliance be inspected, . . . their complaints were of such nature and character as to apprise the [gas company] that something was wrong.”\textsuperscript{35} The Court articulated the heightened duty of care owed by a gas supplier, due to the propensity of the gas to escape its confines, and the extreme danger presented when it does so:

\begin{quote}
[T]hose who distribute a dangerous article or agent owe a degree of protection to the public proportionate to and commensurate with the dangers involved. . . . [A] company which produces and furnishes gas is bound to use such skill and diligence in its operations as is proportionate to the delicacy, difficulty and nature of the particular business.\textsuperscript{36}
\end{quote}

Elsewhere the Court stated: “In view of the dangerous properties of propane air gas a duty devolved upon the [supplier] to make an examination [of the line and the furnace].”\textsuperscript{37}

The Court acknowledged that “[a]s to its lines a gas company is not an insurer, but if the gas company fails to exercise care and injury results therefrom it is liable.”\textsuperscript{38} Further, “[i]n using the degree of care to prevent damage commensurate to the danger which it is its duty to avoid, generally this requires an efficient system of inspection, oversight and superintendence of its lines and equipment.”\textsuperscript{39} Finally, “[t]he duty of proper installation, maintenance and inspection of a meter furnished, owned and exclusively controlled by a [supplier of] natural gas, and all of the fittings by which [the

\textsuperscript{31} Id.
\textsuperscript{32} Id.
\textsuperscript{33} Id. at 170, 151 A.2d at 299.
\textsuperscript{34} Id. at 179, 151 A.2d at 304.
\textsuperscript{35} Id. at 180, 151 A.2d at 304–05.
\textsuperscript{36} Id. at 182, 151 A.2d at 306 (internal citations omitted).
\textsuperscript{37} Id. at 180, 151 A.2d at 305.
\textsuperscript{38} Id. at 182, 151 A.2d at 306.
\textsuperscript{39} Id. (emphasis added).
In stark contrast to a company’s duties regarding its own pipe and equipment is the virtual absence of a duty of care for piping and equipment owned by the customer: “As to conditions arising from defects in the lines of customers, the responsibilities of the gas company are different from those where the company owns the pipe, etc., for there it is the duty of the consumer to see that his lines and equipment are maintained in serviceable condition.”

“A gas company generally is under no duty to keep in repair or inspect lines and appliances owned privately, and is not thereby chargeable with defects and results unless it has notice of such defects.”

Thus, Vermont common law, in keeping with that of other states, established a legal regime where the technicalities of ownership of the gas supply system and the point of transition from supplier to customer serve as primary battlegrounds for liability. Further, propane suppliers are in almost complete control over propane installations, as well as the terms of propane supply contracts, and are therefore uniquely positioned to shift the risks of explosions to consumers.

III. OWNERSHIP EXCEPTION: ACTUAL OR CONSTRUCTIVE NOTICE OF DEFECT

Lewis, however, did not render the gas company’s duty of care
dependent solely upon ownership.\textsuperscript{44} With respect to lines and appliances owned privately by the customer, the gas supplier nevertheless becomes “chargeable with defects and results,” when “it has notice of such defects.”\textsuperscript{45} Given the dangerous nature of propane gas, the Vermont Supreme Court explained: “[T]he company knows that it is dealing with a dangerous agency, and if it knows, or should have known, that the consumer’s lines and equipment are unsafe, it is its duty to require the lines to be repaired or else to shut off the gas at the curb.”\textsuperscript{46} Therefore, regardless of ownership and in order to prevent harm, a legal duty arises to repair such lines and equipment or to shut off the gas whenever a propane supplier knows, or should know, that a customer’s lines or equipment are unsafe.

Numerous other courts have recognized this exception. “While other jurisdictions . . . declined to hold suppliers of gasoline or propane liable for accidents caused by use of these substances in defective equipment that the suppliers do not own or control, courts have made an exception if the suppliers have actual or constructive notice of the defective condition.”\textsuperscript{47} An early federal court summarized the exception this way:

On receipt of notice from a customer of defects in the customer’s service installation, the gas distributor may discharge the duty which the law imposes upon it by shutting off the supply of gas until such time as the owner of the defective pipes or appliances may have corrected the defects in them. But, if the distributor on receipt of such notice from a customer undertakes to inspect the service installation on the property of the customer and to discover and correct the leaks or other defects permitting the escape of gas on the owner’s premises, the distributor is obligated to exercise a degree of care commensurate with the known dangerous character of gas to discover and repair the defects in the customer’s installations.\textsuperscript{48}

\textsuperscript{44} Lewis, 121 Vt. 168, 183, 151 A.2d 297, 306.
\textsuperscript{45} Id.
\textsuperscript{46} Id. (emphasis added).
\textsuperscript{48} Skelly Oil Co. v. Holloway, 171 F.2d 670, 674 (8th Cir. 1948); see also, S. Ind. Gas Co. v. Tyner, 97 N.E. 580, 585 (Ind. Ct. App. 1912). The court held that if gas company obtains information regarding safety of gas piping owned by consumer it then becomes the duty of such company to make such inspection or investigation as a person of ordinary care and prudence similarly situated, and handling such dangerous agency, would make to ascertain the safety of such pipes before it furnishes, or continues to furnish, such gas through them; and, failing so to do, if it furnishes, or continues to furnish, such gas through such pipes, it does so at its risk, and becomes liable for an injury resulting therefrom . . . .

Id.; Nw. Ohio Natural Gas Co. v. First Congregational Church of Toledo, 184 N.E. 512, 520 (Ohio
Nevertheless, while an exception exists where a company is proven to have actual or constructive knowledge of a defect in a customer’s lines or equipment, such proof is often elusive and difficult to establish. Where the plaintiff fails in such proof, the gas company escapes liability.

IV. INDUSTRY DEVELOPMENTS SINCE LEWIS
RENDER OWNERSHIP OBSOLETE

Despite established common law which limits gas industry liability, courts have expanded such legal responsibility where the industry becomes aware of particular safety issues and fails to take appropriate action.\(^{49}\) Such was the case with the so-called “Cobra” gas connector, a brand-name, flexible metal tubing, manufactured and installed in homes in the 1950s and 1960s, to connect the internal gas line to kitchen ranges.\(^{50}\) After a series of explosions, the gas industry came to understand that a constituent of the gas caused the union between the Cobra connector and the appliance to deteriorate and crack, thereby allowing gas to escape.\(^{51}\) Safety alerts led to recall notices and other industry-wide warnings.\(^{52}\)

When faced with claims seeking to impose liability on the gas companies for explosions caused by faulty Cobra connectors, courts looked past the customers’ clear ownership of the internal gas line, stove, and

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1933) (finding where ice-covered ground over corroded, buried service line, and gas escaped and seeped into church basement resulting in explosion, court did not “regard it necessary that the gas company be shown to be the owner of the service line. . . . The essence of the claim of negligence is that the gas company might have discovered the defects in the line being used by it if ordinary care had been exercised”). See generally Shapiro, supra note 22, at 790. Shapiro states:

> Although a supplier or distributor of liquid bottled fuel gas is not required to examine or inspect the plumbing or pipes belonging to the owner of a building to which it furnishes gas, it is quite generally recognized that if the seller or distributor knows at the time it turns on the gas, or, after turning on the gas, becomes aware, that there are defects in the pipes, or is in the possession of facts that would suggest to a person of ordinary care and prudence that the pipes are leaking or otherwise unsafe for the transportation of gas, it then becomes the duty of the supplier or distributor to make such an inspection or investigation as a person of ordinary care and prudence, similarly situated, would make to ascertain the safety of the pipes before it furnishes gas.

Id.


51. Adams, 774 N.E.2d at 855; Lemke, 502 N.W.2d at 84.

52. See, e.g., Halliburton, 804 P.2d at 215 (describing warning issued to customers regarding faulty connectors); Adams, 774 N.E.2d at 855 (explaining how warning notices were sent to the American Gas Association); Lemke, 502 N.W.2d at 84 (detailing how the American Gas Association warned its member utility companies).
Cobra connector to focus on the companies’ knowledge of these dangers and the customers’ relative lack of knowledge thereof.\(^{53}\) As one court acknowledged:

“It is well-settled in Illinois that ‘where a gas company does not install the pipes or fixtures and does not own them and has no control over them it is not responsible for their condition or for their maintenance, and as a result is not liable for injuries caused by a leak therein of which it has no knowledge.’\(^{54}\)

Nevertheless, “a utility company that has actual knowledge of a dangerous condition associated with the use of its product has a responsibility to its customers to warn them of that danger.”\(^{55}\)

This Article argues that, given developments in the propane industry regarding the risks posed by heavy snow loads, a similar expansion of legal liability should occur with regard to explosions caused by such damage to outdoor propane piping and equipment, regardless of technical issues of ownership. For over 20 years now, industry-wide publications and safety code provisions have highlighted the risks of ice and snow damage to outdoor propane piping and equipment.\(^{56}\) The propane industry has also transmitted this information to its field personnel through industry-

\(53\) Lemke, 502 N.W.2d at 89.

\(54\) Adams, 774 N.E.2d at 854 (quoting Pioneer Hi-Bred Corn Co. of Ill. v. N. Ill. Gas Co., 329 N.E.2d 228, 231 (Ill. 1975)).

\(55\) Id. at 857; see also Halliburton, 804 P.2d at 215–16 (holding that the gas company had the additional duty to check and, if necessary, to correct its customers’ connectors, despite the company’s widespread campaign to warn customers of the connector’s defects). The court in Lemke described that when [the gas utility] became aware that the distribution of gas through a Cobra connector presented a risk of injury to customers, [the utility] had the duty to use due care, such as issuance of a warning, to protect customers during its distribution of natural gas through its own system and through a customer’s service line for a gas appliance.

promoted, mandatory safety training programs.\textsuperscript{57} Given that the propane industry has now developed specialized knowledge of this significant safety hazard in snow country, and designed protocols to detect and alleviate the risks, the time is ripe to extend its duty of care to all outdoor lines and equipment where snow and ice damage leads to an explosion.

V.  \textsc{Industry Codes and Safety Standards Giving Rise To Constructive Notice}

Although a violation of industry codes or customs does not constitute negligence \textit{per se}, evidence of such industry standards is clearly relevant to whether a company has satisfied its duty of care in a particular case. For decades, propane industry codes and other publications have highlighted the importance of protecting outdoor propane piping and equipment against snow and ice damage.\textsuperscript{58} Whether propane industry codes and standards have been codified and adopted in a particular jurisdiction varies greatly from state to state.\textsuperscript{59} Nevertheless, even voluntary industry standards are admissible evidence of the requisite standard of care. As the First Circuit Court of Appeals observed, “[m]any cases involve voluntary industry standards that do not have the force of law in the relevant jurisdiction. The overwhelming majority of such cases are negligence actions where the industry standard is offered as evidence of the appropriate standard of care.”\textsuperscript{60}

These voluntary standards do not irrefutably establish the standard of care in a negligence case. Rather, they constitute:

“[O]ne more piece of evidence upon which the jury could decide whether the defendant acted as a reasonably prudent person in the circumstances of the case.” The defendant is free to argue that the standard is unduly demanding, either in general or in the particular instance, and that it does not reflect industry practice or the standard that a reasonably prudent person would employ. After all, voluntary standards are not law; in essence, they are simply recommendations written by experts who may not themselves be available for cross-examination. In short, the

\textsuperscript{57} \textsc{Nat’l Propane Gas Ass’n, Certified Employee Training Program: Propane Delivery § 2.3 (2001) [hereinafter Certified Employee Training Program].}

\textsuperscript{58} Safety Bulletin #142-87, \textit{supra} note 56.

\textsuperscript{59} In New Mexico, the nationally recognized propane code, National Fire Protection Association of the American Gas Association’s (NFPA’s), Liquefied Petroleum Gas Code, known as NFPA 58, has been adopted by state law and city ordinance. Apodaca \textit{v.} AAA Gas Co., 73 P.3d 215, 226 (N.M. Ct. App. 2003). In Vermont, NFPA 58 has been adopted, along with numerous other codes, as part of the Vermont Fire and Building Safety Code.

\textsuperscript{60} Getty Petroleum Mktg., Inc. \textit{v.} Capital Terminal Co., 391 F.3d 312, 326 (1st Cir. 2004).
merits of the standard are “for the jury’s consideration like any other evidence in the case.”

A. NPGA Safety Bulletin #142-87

After its formation in 1931, the National Propane Gas Association (NPGA), a national trade association representing the U.S. propane industry, issued hundreds of safety bulletins highlighting safe industry practices. In the late 1980s, the NPGA turned its attention to the dangers that snow and ice loads presented to outdoor propane lines and equipment. In 1987, NPGA issued Bulletin #142-87, entitled LP-Gas Installations Subject to Heavy and Deep Snow Conditions (NPGA #142-87).

NPGA #142-87 states, in part:

LP-gas containers and piping systems are sometimes installed in locations where they may be subjected to heavy snow fall. They may even be completely buried under several feet of snow, such as in many mountainous areas. Heavy icicles or large accumulations of snow falling from eaves can severely damage regulators, piping, tubing, relief valves, etc., if they are not properly protected. It is recommended that gas equipment be installed at gable ends of buildings, if possible. Protection against icing over or plugging of regulator vents is most important. In some cases it may be advisable to have a protective cover over regulators.

Thus, since as early as 1987, the propane industry has been aware of the vulnerability of outdoor equipment to snow and ice damage, and warned its members of this important danger.

61. Id. at 326–27 (quoting Boston & Me. R.R. v. Talbert, 360 F.2d 286, 290 (1st Cir. 1966)) (second alteration by court); see also Dickie v. Shockman, No. A3-98-137, 2000 WL 33339623, at *3 (D.N.D. July 17, 2000) (stating that in a personal injury action, NFPA “standards and other codes applicable within the propane industry” are properly offered to establish standard of care).

62. The NPGA subsequently “withdrew” its safety bulletins, and no longer publishes them, although many are still available online. See National Propane Gas Association, Publications, http://www.npga.org/i4a/pages/index.cfm?pageid=578 (last visited Jan. 22, 2010). Nevertheless, prior to their withdrawal, state and regional propane gas trade associations regularly mailed copies of these NPGA safety bulletins to their member companies in order to advise of seasonal risks, such as in wintertime to warn against snow and ice damage. Moreover, many propane employees received and retained copies of these bulletins as sources of valuable safety information.

63. Safety Bulletin #142-87, supra note 56.

64. Id.
B. National Fire Protection Association Codes 54 and 58


The National Fire Protection Association publishes two safety codes for the propane industry. The first, known variously as the National Fuel Gas Code, ANSI Z223.1, or NFPA 54, outlines the standards for installation of gas piping and appliances in residential and commercial buildings, from the point of delivery (at a customer’s structure), to connections with gas-powered appliances in the home. NFPA 58, also known as the Liquefied Petroleum Gas Code, addresses highway transportation of LP-gas, and outlines the industry standards governing the design, construction, installation, and operation of LP-gas systems (except those governed by NFPA 54). Versions of these national codes have been in existence since the 1930s.

Although both codes have long contained general provisions requiring outdoor piping and equipment to be protected against physical damage, it took a series of unusually deadly snowstorms in the Sierra Nevadas to cause the addition of a specific code provision regarding snow and ice damage in NFPA 58.

2. Sierra Nevadas Propane Explosions and Industry Response

In 1993, heavy snowfall in the Sierra Nevadas of California created deep snow conditions which damaged propane pipes and tanks, resulting in numerous propane explosions and dozens of deaths. The propane industry and its government regulators issued a series of press releases, safety bulletins, and journal articles discussing this danger, and eventually revised...
NFPA 58 to address specifically the safety of propane piping in areas of heavy snow.\textsuperscript{71}

In January 1993, the U.S. Consumer Product Safety Commission and NPGA jointly issued a press release warning that deep snow poses a risk to propane pipes and tanks, and issuing “safety tips,” including a warning to keep all propane piping free from snow and ice.\textsuperscript{72} In February 1993, the U.S. Department of Transportation published the following warning in the Federal Register: “Damage can result to propane tanks, piping, and regulators from snow or ice falling from roofs as well as actions taken to protect dwellings from abnormal snow accumulation by shoveling snow from roofs.”\textsuperscript{73}

In May 1993, the first of a series of high-profile news articles about these events—and the industry’s responses—appeared in the \textit{Butane-Propane News}, a national trade journal published monthly to industry members since the 1930s. An excerpt from the May 1993 article states:

In more than one incident that was apparently unprecedented, the sheer volume and weight of snow bearing down on propane equipment outdoors caused several tragic accidents. Out of these occurrences came a series of emergency meetings, discussions, technical research, and written proposals that will hopefully prevent any repetition of snow-related mishaps in the future.\textsuperscript{74}

The June 1993 issue of the \textit{Butane-Propane News} contained two cover articles. One announced the drafting of \textit{Model Deep Snow Regulations} by the Western Regional Propane Gas Association. The article noted that “[t]hese codes would not replace NFPA 58 but merely supplement it.”\textsuperscript{75} Because the subject of propane safety in areas affected by heavy snow was “so important,” the magazine decided to publish the proposed regulations “in almost their entirety . . . .”\textsuperscript{76} The draft regulations specified how to cover regulators and piping to keep them free of snow, how to locate and

\begin{itemize}
  \item \textsuperscript{71} \textit{LIQUEFIED PETROLEUM GAS CODE, supra} note 66, § 3-2.11.
  \item \textsuperscript{73} Pipeline Safety Advisory Bulletin: Snow Accumulation on Gas Pipeline Facilities, 58 Fed. Reg. 21,7034 (Feb. 3, 1993).
  \item \textsuperscript{74} \textit{California Safety Experts Review Proposed Guidelines for Deep Snow, BUTANE-PROPANE NEWS}, May 1993, at 33, 33.
  \item \textsuperscript{75} \textit{Procedures Moving Rapidly on Adoption of Deep Snow Regulations, BUTANE-PROPANE NEWS}, June 1993, at 23, 23.
  \item \textsuperscript{76} \textit{Id.}
\end{itemize}
secure them properly to the sides of buildings for adequate protection from ice and snow loads, and how to inspect and maintain such installations to ensure their safe use over time.77

The June 1993 Butane-Propane News article also stated, in part, as follows: “In a related development, the Federal Emergency Management Agency (FEMA) has put forth comprehensive new safety recommendations in a publication entitled ‘Interagency Hazard Mitigation Team Report.’ The recommendations are designed to prevent or protect against a variety of disasters including snow-related propane accidents . . .”78 The journal also contained an article entitled, The Feds Put In Their (Worthwhile) Two Cents, which stated, in part, as follows:

As disturbing as the propane accidents in the Sierra Nevadas may have been, it appears likely that something positive may actually come out of them. Far-reaching safety recommendations have been put forth, not only by experts in the LP-gas industry, but also by the Federal Emergency Management Agency (FEMA) in an important document.

The FEMA recommendations call for stricter installation standards, additional training for firefighters, and the development of an LP-gas advisory committee under the auspices of the California State Fire Marshal’s Office. The suggestions are described in a lengthy publication entitled “Interagency Hazard Mitigation Team Report.” The purpose of the report is “to identify practical measures that can be taken to reduce vulnerability to similar disasters in the future.”

In the introduction, it is pointed out that “at higher elevations, the exceptionally heavy snowfall caused roofs to collapse and [break] liquid petroleum gas lines . . . over 20 deaths were reported as a result of the storms due to drowning, traffic accidents, and fires caused by gas leaks.”79

The March 1994 issue of the Butane-Propane News contained an article entitled: Western Marketers Don’t Wait for Official Acceptance to Follow Deep Snow Regulations.80 That article stated, in part: “Even though the model deep snow regulations submitted to California regulatory agencies are in

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77. Id. at 23–27.
78. Id. at 23.
limbo, marketers are following them on a voluntary basis.”\textsuperscript{81} The article went on: “By coming up with its own set of guidelines, the industry has taken a leadership role, and has once again shown its concern for safety by following the guidelines even before they are officially adopted.”\textsuperscript{82}

The March 1994 journal also contained a special Propane Safety Alert flier, for distribution to propane customers, which graphically identified the dangers of heavy snow on propane piping. One side of the flyer, entitled “HEAVY SNOW ALERT PROPANE SAFETY,” stated:

\begin{quote}
IF YOU THINK YOU SMELL PROPANE:
A. Evacuate the building NOW.
B. Leave the door open, DO NOT TURN ON OR OFF ANY LIGHT SWITCHES!
C. IF POSSIBLE, turn propane off at tank.
D. Call your propane supplier from a nearby phone.
E. Call the Fire Department from a nearby phone.
KEEP SNOW OFF THE PROPANE TANK & ALL PIPING TO PREVENT DAMAGE.\textsuperscript{83}
\end{quote}

The other side of the flyer, entitled “PROPANE SAFETY ALERT,” stated, in part:

\begin{quote}
ADDITIONAL SAFETY TIPS:
\begin{enumerate}
\item 2. ALL propane tanks should be kept free of any snow accumulation. The weight of the snow could eventually snap the line at the tank which could release gas vapor into the surrounding snow. The gas could then find its way into a home with serious consequences should a source of ignition be present.
\item 3. ALL exposed gas lines, regulators and meters located directly alongside the outside wall of a structure should also be cleared of any snow for the reasons stated above.
\item 4. Special care should be taken when removing snow from roofs and driveways NOT TO COVER propane tanks, regulators meters and any exposed piping, as this could create a hazardous situation.\textsuperscript{84}
\end{enumerate}
\end{quote}

\textsuperscript{81} Id.
\textsuperscript{82} Id.
\textsuperscript{83} Id.
\textsuperscript{84} Id.
3. 1993 Amendment to NFPA 58

As a result of the western propane explosions, the drafters of NFPA 58 issued a Tentative Interim Amendment, or TIA, effective August 20, 1993, which added, *inter alia*, § 3-2.11.1. That section provided:

In areas where heavy snowfall can be expected, piping, regulators, meters, and other equipment installed in the piping system shall be protected from the forces anticipated as a result of accumulated snow.\(^5\)

The amendment was incorporated into the 1995 edition of NFPA 58, and has been a part of all subsequent editions of this national code.\(^6\) Notably, the code provision is still somewhat general and fails specifically to prescribe how such protection should be accomplished. A companion handbook to NFPA 58, *The Liquefied Petroleum Gases Handbook*, adds the following explanation:

This requirement was added in the 1995 edition . . . as a result of failures of LP-Gas systems in the Sierra Mountains during a period of exceptionally heavy snowfall. This added requirement recognizes that piping, meters, and regulators outside of buildings can be damaged by the force of falling snow. Specific protection requirements have not been provided by the Technical Committee as they don’t believe they are in a position to make one rule to cover all potential snowfalls. In the Sierra Mountain area, a model law to cover this subject has been proposed, and several municipalities have enacted specific rules in this area.\(^7\)

Thus, expert testimony is likely required to establish that specific installations in particular cases are defective, and that the failure to inspect, detect, and correct the installation constitutes negligence.

3. NPGA’s Certified Employee Training Program

The Certified Employee Training Program (CETP), a now mandatory propane industry training program, clearly establishes the propane

\(^{5}\) *LIQUEFIED PETROLEUM GAS CODE*, supra note 66, § 3-2.11.1.
\(^{6}\) *Id*, § 3-2.11.
supplier’s duty to inspect the customers’ outdoor propane piping and equipment with every gas delivery regardless of the ownership of any component and to determine with each such inspection whether repairs are warranted.\textsuperscript{88} Thus, where snow and ice damage outdoor propane lines and equipment leading to an explosion, litigation over ownership of the damaged component should no longer ensue.

In 1988, the NPGA launched the comprehensive, nationwide training program now known as CETP.\textsuperscript{89} CETP provides a formal training and testing structure “to assure that workers in the propane industry have the necessary knowledge and skills to perform their work safely and effectively.”\textsuperscript{90} CETP certification is required by NPGA 54 and 58 and by the U. S. Department of Transportation (USDOT).\textsuperscript{91} Since 1991, CETP has been mandatory for all Vermont propane employees.\textsuperscript{92} All propane industry service personnel must be certified in one or more sections, or modules, of CETP; the number of required courses varies with their job.\textsuperscript{93}

Propane delivery drivers, who transport propane in bulk tanks to customers’ residences, are required by CETP to inspect various portions of the customer’s exterior above-ground propane system, whenever a delivery is made.\textsuperscript{94} Therefore, before proceeding with the delivery, CETP mandates that the delivery driver visually check the customer’s exterior above-ground propane system, and must include in this visual inspection the customer’s “gas piping.”\textsuperscript{95} Although CETP does not specifically reference inspecting

\begin{flushright}

\textsuperscript{89} NPGA.org, supra note 88.

\textsuperscript{90} CERTIFIED EMPLOYEE TRAINING PROGRAM, supra note 57, at 7.

\textsuperscript{91} Id.

\textsuperscript{92} Effective July 1, 1991, the State of Vermont amended its 1989 Fire Prevention and Building Code to include, inter alia, the following provision: “Section 2500.4.1 Fuel gas installation: Effective July 1, 1991, all fuel gas installations, repair and maintenance governed by this Code shall be accomplished by persons who have successfully completed the American Gas Association course of study including 'The Fundamentals of Combustion, Gas Appliance Venting, Electricity, Gas Controls, and Gas Appliances.'” As a consequence, since at least 1991 propane gas safety training has been mandatory in Vermont, by means of the Certified Employee Training Program or CETP.

\textsuperscript{93} NPGA.org, supra note 88.

\textsuperscript{94} CERTIFIED EMPLOYEE TRAINING PROGRAM, supra note 57, at 31. The CETP states: “Inspect the Customer’s Exterior Aboveground Propane System. The delivery person is required by various regulations and industry standards, including DOT, and NFPA 58, to check various portions of the propane system whenever a delivery is made. Therefore, before proceeding with the delivery, visually check the customer’s exterior aboveground propane system.”

\textsuperscript{95} Id. at 31–33. The CETP states: “The visual check should ensure the following conditions are met: . . . (e) Gas
dangers to piping posed by snow and ice, during every such pre-delivery inspection the driver must, *inter alia*, ensure that the propane “regulator is located so that it will not be affected by the elements (freezing rain, sleet, snow, ice, mud, or debris),”\(^96\) and that “gas piping is protected from physical damage,” is adequately “supported with pipe hooks or hangers suitable for the size of pipe, of adequate strength and quality, and located at intervals so as to prevent damage or excessive vibration[,]” and is free from corrosion.\(^97\)

Since a customer’s propane tank requires refilling several times annually, and more frequently during the winter months, the CETP required that inspections of a customer’s exterior above-ground system with every delivery must be conducted several times every year, including during times of heavy snow and ice accumulation.\(^98\) In conjunction with the relevant code provisions and NPGA safety bulletins warning of the need to protect outdoor equipment and piping from snow and ice damage, CETP inspections provide ample legal basis for imposing a duty of care upon propane suppliers to inspect outdoor lines and equipment for potential harm from snow and ice, without regard to ownership of the various components of the propane system.

VI. **Title Ownership Has Become Obsolete As Basis For Liability**

In *Lewis*, the Vermont Supreme Court articulated the heightened duty of care owed by a gas supplier to its customers due to the propensity of gas to escape its confines and the extreme danger presented when it does so.\(^99\) Nevertheless, the Court made ownership dispositive of liability, unless the injured customer could prove that the propane supplier had actual or constructive notice of a safety problem in a portion of the customer’s lines or equipment.\(^100\) The *Lewis* Court recognized that, under the right circumstances, liability would attach to the propane supplier “if it knows, or should have known, that the consumer’s lines and equipment are unsafe . . . .”\(^101\)

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\(^96\) *Id.* at 32.

\(^97\) *Id.* at 33.

\(^98\) *Id.* at 31.


\(^100\) *Id.*

\(^101\) *Id.* (emphasis added).
The day has now come, however, to banish issues of ownership entirely where ice- and snow-damaged outdoor propane lines and equipment cause an explosion. The industry’s accumulated knowledge, the adoption of code provisions outlining the duty to guard against the risks of snow and ice damage, and the development of the CETP-based industry standards requiring inspections of all outdoor propane systems with each and every delivery, should give rise to a new duty of care on the part of the propane supplier in which ownership plays no role.

Vermont courts, therefore, should no longer base a propane company’s duty of care for outdoor propane lines and equipment on confounding and irrelevant issues of ownership. Rather, Vermont law should clearly and simply impose a duty of care upon the propane supplier to protect outdoor lines and equipment against snow and ice damage, without regard to ownership. As a consequence of this duty of care, the propane supplier will have constructive notice of safety defects that render outdoor lines and equipment at risk of damage from snow and ice. Such result is the logical extension of Vermont law’s longstanding and well-reasoned policy to hold the propane industry to the highest “degree of protection to the public proportionate to and commensurate with the dangers involved.”

Consequently, a finding of liability in cases where the propane supplier fails to inspect and require the repair of unsafe outdoor lines and equipment should be the rule, rather than the exception.

CONCLUSION

A propane company’s duty to discover and correct defects in outdoor propane equipment should no longer turn on technical and outdated issues of ownership. In the decades since Lewis, the dangers of ice and snow damage to outdoor propane equipment have become so well known as to establish a duty of care upon the propane industry regarding this safety issue. Regulatory standards and mandatory training now impose duties on propane companies to inspect and correct defects in their customers’ outdoor lines. Constructive knowledge of any such safety defects necessarily follows. Therefore, rather than allowing courts to get mired in technical issues of ownership, sound public policy dictates assigning liability for defects in outdoor propane equipment to the company supplying the propane and maintaining and servicing required equipment. This will insure that liability for harms resulting from the use of this dangerous commodity are placed squarely on the entity best equipped to ensure its safe use.

102. Id. at 182, 151 A.2d at 306.