Flint Inspires Renewed Vigilance for Lead in Drinking Water

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When the City of Flint, Michigan ceased purchasing treated water from Detroit and began drawing raw water from the Flint River in April 2014, it triggered a cascade of consequences that are still being felt throughout the country.

In Flint, increasing concentrations of lead in drinking water, together with the failure of City and state officials to respond honestly and effectively to the problem, resulted in a federally declared public health emergency. Residents consumed water with elevated levels of lead for months without any warning of the danger. Worse, government officials minimized residents' concerns that the water smelled and appeared discolored and assured them the water was safe to drink. A report by the Centers for Disease Control and Prevention (CDC) found that lead levels subsequently measured in the blood of Flint children less than six years of age were "significantly higher" after the City switched to cheaper water.

The Flint Water Advisory Task Force appointed by the Governor concluded in March 2016 that the "Flint water crisis is a story of government failure, intransigence, unpreparedness, delay, inaction, and environmental injustice." The Task Force found state environmental and public health officials, the City's emergency managers, and the Governor himself all owned a share of the blame. In the ensuing few months, the Michigan Attorney General brought criminal charges against a total of nine City and state officials for willful neglect of duty, false statements, and tampering with evidence. Civil suits also have been brought against firms that advised the City in its decision to switch water sources, and in operating its public water treatment and supply system.

If the situation in Flint had been the fault of a private entity seeking to maximize profits by cutting costs and ignoring its compliance obligations, swift and punishing enforcement would have been inevitable. Criminal charges against public officials in analogous circumstances for neglect of duty, however, are unprecedented. The lesson of Flint has not been lost on federal, state and local regulators: failure to act promptly and forcefully in response to an emerging potential risk to human health may have serious public and personal consequences. Flint has become a touchstone for officials who must make discretionary judgments concerning the magnitude and acceptability of uncertain risks.

The crisis in Flint also has caused the media, environmental groups, lawyers, and the public to shine a new spotlight on an old problem – the threat of lead in drinking water. Prior investigations had highlighted elevated lead in several public drinking water systems, most notably Washington, D.C., but also Columbia, South Carolina; Durham and Greenville, North Carolina; and Brick Township, New Jersey. In 2015, lead problems surfaced in new cities, including Jackson, Mississippi and Sebring, Ohio. Investigative reports by the Natural Resource Defense Council and USA Today, among others, claim that the problem is much more widespread, affecting thousands of water systems serving millions of people. Class actions are being brought against municipal water authorities, and lead in drinking water has become a central issue in local elections.

Public debate and concern about lead in drinking water also are making waves in real estate markets. Tenants, buyers, developers, and lenders all are showing renewed interest in the condition of distribution systems inside and outside buildings, and in the quality of the water at the tap. To conduct and respond to diligence, investigate sources of lead, and determine appropriate mitigation strategies, parties involved in real estate investment and management need to have a basic understanding of the regulatory, technical and legal issues. This article provides a summary and analysis of those issues.

Sources of Lead in Drinking Water

Instances of lead contamination in groundwater or surface water from environmental sources are comparatively rare.

In most cases, lead contamination occurs after finished water leaves the treatment plant and comes into contact and reacts with pipes, solder, flux, fittings, or fixtures (such as valves, faucets, or water coolers) that contain lead. Corrosion causes lead to dissolve or leach from these materials into water. The extent to which corrosion may occur will depend on a variety of factors, including water chemistry, amount of lead in the plumbing material, the temperature of the water, the duration of contact between the water and the lead-containing material, and the age and condition of the plumbing. It is important to note, too, that construction improvements that disturb existing pipes and plumbing, including partial replacement of lead-containing service lines and renovation work in older buildings, also can increase levels of lead in drinking water, at least in the short term.

In Flint, USEPA found that the water the City withdrew from the Flint River and treated before sending it to customers did not have unsafe lead levels, but the River's water was corrosive. The City did not have a corrosion plan in place before it switched water supplies, and it failed to implement water quality testing, corrosion control treatment, public outreach, and other measures mandated by the Safe Drinking Water Act when lead levels were measured in residences above applicable action levels. This allowed lead to leach unabated from service lines and plumbing materials into the water. Even after the City switched back to its old Detroit water source, corrosion that had occurred in the distribution system continued to pose a threat of contamination. Congress has provided the City with emergency funding to replace lead-containing service lines, but, notwithstanding these belated remedial measures, many residents say they will never drink the water again.

Risks Associated with Lead in Drinking Water

The greatest risk of lead exposure is to infants, young children, and pregnant women. According to USEPA, a dose of lead that would have little effect on an adult can have a significant effect on a child. In children, USEPA has determined that low levels of exposure may be linked to neurological impairment, impaired formation and function of red blood cells, slowed growth, and kidney damage. The CDC recommends that public health actions be initiated when the level of lead in a child's blood is 5 micrograms per deciliter or more. It is important to note that lead exposures may occur from a variety of environmental sources, including paint, dust, soil, air and food. USEPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead, and that the remaining percentage of lead measured in a person's blood may be due to a combination of other exposures.

The Safe Drinking Water Act (SDWA)

The SDWA, as amended, requires USEPA to establish and enforce standards that public water systems must satisfy, including maximum contaminant levels or treatment techniques and monitoring and reporting requirements. For purposes of the SDWA, a public water system is a water supply and distribution system that provides water for human consumption to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year. USEPA delegates primary enforcement responsibility for public water systems to states if they meet certain requirements, including that they adopt laws and regulations that are at least as stringent as the federal program.

In 1991, USEPA adopted a rule under the SDWA specifically for lead and copper. The Lead and Copper Rule (LCR) applies to two kinds of public water systems: (1) community water systems (a public water system that supplies water to the same population year-round); and (2) non-transient non-community water systems (a public water system that supplies water to at least 25 of the same people at least six months per year; this may include, for example, factories, office buildings and hospitals that have their own water systems). For water supplied by both kinds of systems, the LCR requires testing for lead at least every six months. Samples must be collected from a subset of taps in homes or buildings that are at high risk of lead contamination.

Results of testing must be provided to all people who receive water from the sites tested, regardless of whether results exceed the action level. In addition, community water systems must publish reports of water testing results annually. These reports are publicly available, including to parties conducting diligence.

In response to Flint, EPA issued a Lead and Copper Rule Revisions White Paper ("LCR White Paper") in late October 2016. The LCR White Paper stated that the LCR and "its implementation are in urgent need of an overhaul." Among the problems EPA identified were "the rule's complexity," "the degree of discretion it affords with regard to optimization of corrosion control treatment and compliance sampling practices," and the need to establish more prescriptive requirements that are "more effective and more readily enforceable." Options that EPA is considering for a future LCR revision proposal include how to address replacement of lead service lines for rental properties, particularly where low income residents do not control the property or have the ability to contribute to the cost of replacement.

USEPA has established a Maximum Contaminant Level (MCL) of 15 micrograms per liter (µg/l) for lead in drinking water (some states have established lower maximum limits). USEPA also made the 15 µg/l MCL an "action level" in the LCR. An exceedance of the action level, alone, does not constitute a violation of the SDWA, but such exceedances can trigger other requirements, as they did in Flint. These include additional monitoring, corrosion control treatment, source water monitoring and treatment, public education, and lead service line replacement. Although it is directly enforceable only against public water systems, the LCR action level often is used as a benchmark for drinking water quality in individual buildings, absent more stringent state standards.

Under the 1986 amendments to the SDWA, lead was banned from use in new water system piping. Lead in solder and flux was limited to no more than 0.2%, and lead in faucets and other plumbing fixtures was limited to 8.0%. States were given until 1988 to institute the new limits, and in many jurisdictions they were not enforced until as late as 1991. In 2014, the limit for lead in faucets and other plumbing fixtures was reduced to 0.25%.

The dates on which these lead limits became effective can be used as milestones for evaluating risks in older buildings – lead pipes, fixtures and solder installed prior to 1989 are more likely to contain lead – but the date of installation alone is not conclusive. Pipes and plumbing materials can be examined or tested to determine whether they contain lead. Eight different third-party certification bodies have been accredited in the United States to test and confirm whether manufacturers' products meet the SDWA "lead free" requirement for use in drinking water systems and plumbing applications. These certifiers' marks should be visible on any new plumbing products that are installed, and they may be visible on fixtures installed in buildings after the lead ban went into effect.

Diligence

Diligence policies and practices with respect to lead in drinking water vary widely in the real estate community. Lead in drinking water is listed as a "non-scope consideration" in ASTM Standard Practice E1527-13 for Phase I Environmental Site Assessments. It is the only drinking water concern, in fact, that is listed as a consideration. ASTM E1527-13 states that it is up to the discretion of the user to decide whether to investigate non-scope considerations "based on its own risk tolerance . . . [and] the particular requirements of a specific transaction." The scope and intensity of diligence that may be appropriate in any particular transaction will depend on a number of risk factors, including the drinking water source, building age, renovation history, and intended property use.

It is common practice to request or obtain water supply testing results for sites that have private drinking water systems. For properties connected to public water systems, lenders and other stakeholders may

require verification that the public water supplier is in compliance with the LCR, and that it is not one of the many suppliers recently targeted in investigations or lawsuits. Such information, as well as the prevalence of lead service lines in the area, should be available from public sources. Historical test results, building condition assessments, and other information concerning plumbing systems on the property also may be available from the current owner. Information of this kind should be targeted in diligence requests.

More intensive investigations may be warranted based on the results of initial diligence, or the intended use of the property. Older buildings that have not been extensively renovated since 1989 are more likely to contain lead in the plumbing system. Property condition assessments may confirm the presence of lead or galvanized pipe, brass fixtures, lead solder, or other lead-containing materials in the building, or in the service connection to the building. How the property (and the water) will be used will affect both the nature of the population exposed and the dose they receive which, in turn, will drive the potential risk. Any of these factors may trigger the decision to proceed with water sampling and testing, especially if the property is to be used for residences, daycare, or food preparation.

Testing water for lead is not expensive. Test kits are available at retail stores, and laboratory costs per sample are modest. A full-scale evaluation of all potential sources and exposure points, however, can be substantially more costly and time consuming and should be done only by a qualified consultant. Such an evaluation typically would include water sampling at both point of entry and points of exposure, such as taps and water coolers. Depending on initial results, further sampling may be warranted to narrow down and identify likely lead sources, and to isolate piping or plumbing materials potentially in need of mitigation.

In determining the scope of work and sampling plan, it is important to remember that the impact of lead in piping and plumbing material on drinking water is dependent on many factors, including temperature of the water and duration of contact between the water and the lead-containing material. Typically the “first draw” sample – collected from the system after water has been allowed to sit undisturbed for six to eight hours before a sample is taken – will represent the worst case condition. “Flush” samples, collected from the same outlet after purging the standing water from the piping system, will represent the best case condition. Flush samples sometimes are used to gauge how long water needs to be flushed before lead levels meet acceptable concentrations. Sampling at different times and under different conditions also may help to pinpoint the location of piping and materials that warrant replacement.

Mitigation

Mitigation strategies range from temporary to permanent and from avoidance to removal. Which strategy to choose may depend, among other things, on the exigency of the circumstances, the relative risks posed by exposure, the comparative costs of the remedial options, and the potential impact of the available remedies on the value of the property.

Temporary measures may be appropriate where elevated levels of lead have been identified in an occupied building and exposures otherwise may occur during the time required to implement a permanent solution. Such measures may include disconnecting fixtures, labeling taps as not suitable for drinking or food preparation (e.g., bathrooms and utility sinks), implementing maintenance regimes to ensure taps and pipes are flushed prior to use, and supplying bottled water. All of these measures entail a degree of inconvenience and risk, and none of them actually eliminates the long-term problem.

Measures that permanently control or remove sources of lead generally are preferable, if feasible, because they eliminate or at least reliably mitigate the risk, and they ameliorate potential stigma or impairment of property value. Where vertical risers, horizontal piping, or fixtures in an older building have been identified as lead sources, an obvious solution would be simply to remove and replace, or bypass, those materials. Such an approach, however, may be inordinately expensive. In limited cases, sealing or lining the pipes may be feasible. Water treatment, at the point of entry to make incoming water less corrosive, or at the point of usage, to remove lead from the water immediately prior to consumption, also may be workable alternatives. In its LCR White Paper, EPA reported that sampling from point-of-use filters installed in Flint “verified that these filters are effective in reducing lead levels.” The problem with any treatment alternative, however, is that it requires long-term maintenance and monitoring to ensure it continues to be effective. Ultimately, a mix of strategies may be needed, such as permanently removing pipes and fixtures that are readily accessible or located in higher risk areas, and, elsewhere, capping pipes or installing point of usage treatment.

Disclosure

Federal law requires persons selling or leasing most residential housing built before 1978 to provide purchasers and renters with a federally approved lead hazard information pamphlet and to disclose known lead-based paint and lead-based paint hazards. No such federal disclosure obligation exists for lead in drinking water.

On the state level, some jurisdictions have adopted detailed residential disclosure requirements that include, among other things, information known to the seller about drinking water quality and other environmental risks. Other states – perhaps the majority – continue to rely instead on prevailing common law rights and remedies, which also vary.

As a practical matter, lenders, buyers and investors should inquire specifically about any information that a property owner may have concerning the incidence of lead in drinking water or in pipes or fixtures. By the same token, sellers who have data or knowledge concerning lead in drinking water should consider carefully whether local statutes or ordinances require disclosure of such information, and whether, in any event, they may be held accountable under state common law for failure to disclose.

Conclusion

Lead in drinking water is not a new problem, but it is once again a current market concern. The specter of Flint has caused prospective tenants, buyers, lenders and investors to question the quality of the water supply and the potential that lead may be present in service lines, piping, and fixtures. A basic understanding of lead sources, drinking water standards, and mitigation strategies is necessary to evaluate the likelihood that lead may pose a risk, and to account for that risk as part of the overall deal. ■