

The Politics of Perchlorate

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Perchlorate, a substance found in rocket fuel, munitions, and fireworks, has recently begun to make big news—especially in the southwestern United States, where its discovery in the Colorado River and drinking water wells has prompted well closures, lawsuits, and more than a fair amount of finger-pointing. A known thyroid inhibitor, perchlorate has been the subject of increasingly intense scrutiny and debate since the late 1990s, when improved analytical methods began to allow the detection of very low levels of perchlorate in water. Although questions remain concerning the real risks associated with perchlorate in the environment, the issue has become highly politicized, with elected officials at all levels pressing for increased scrutiny and expedited regulation. The potential result is the premature and burdensome regulation of perchlorate, based on perceived risk rather than sound scientific basis.

Perchlorate (ClO_4^-), a naturally occurring and man-made inorganic salt, is the main component of solid rocket fuel, and has been widely used in rocket and munitions manufacturing and testing for more than forty years. In addition, perchlorate is used in the manufacture of such products as fireworks, matches, flares, air bag inflators, and leather-tanning solutions. Perchlorate has also been detected near grain silos in Iowa, indicating that certain grain fumigants may have also contained perchlorate. At high concentrations, perchlorate is known to affect thyroid function by blocking the uptake of iodide, and has been used clinically for years in the treatment of thyroid disorders such as Graves' disease. Studies have failed to definitively establish, however, a threshold exposure level at which perchlorate would likely become toxic to adults, children and pregnant women, and its effect on human health at lower levels is currently unclear.

Years of manufacturing, testing, and disposal of perchlorate by the military and industry has resulted in the discovery of perchlorate in groundwater across the country. The chemical began seeping into the water supply during the Cold War, when munitions production was thriving. Because perchlorate was not generally thought to be toxic, military munitions facilities, defense contractors, and other industries reportedly disposed of spent rocket fuel by washing it into unlined pits in the ground. Due to its high solubility, perchlorate spread into surface waters and drinking water wells, where it persists today. The

substance has been found in groundwater in more than twenty states including Arizona, Texas, Nebraska, Iowa, New York, Maryland, Massachusetts, and most pervasively in California, where perchlorate has been detected in more than three hundred drinking water wells. In addition, perchlorate has been detected in surface waters, including the Colorado River. As a result, much of the irrigation water for agriculture and drinking water for millions of residents in Southern California contains low levels of perchlorate. Recent studies have even suggested that lettuce and other crops grown in California and irrigated with such perchlorate-impacted water may also contain trace amounts of perchlorate.

Although government officials have known of releases of perchlorate from military and industrial facilities for many years, few suspected its presence in drinking water until 1997, when development of a more sensitive analytical technique made it possible to detect perchlorate concentrations as low as 4 parts per billion (ppb). At that time, the United States Environmental Protection Agency (EPA) began examining the potential risks associated with exposure to perchlorate, as an initial step toward creating an enforceable federal drinking water standard. Although EPA had initially proposed a standard equivalent to 32 ppb, a draft risk assessment issued by EPA in January 2002 recommended a reference dose for perchlorate that would translate into a drinking water standard of 1 ppb—roughly equivalent to one drop of water in an Olympic-size swimming pool. *Cf.* Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization Based on Emerging Information (Dec. 31, 1998) (External Review Draft) and Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization (Jan. 16, 2002) (External Review Draft), both issued by the EPA Office of Research and Development. By contrast, the Department of Defense has argued that perchlorate is safe at levels up to 200 ppb in drinking water. In its public peer review workshop on this draft risk assessment, EPA's methodology was criticized and its draft risk assessment was attacked for being too conservative and overstating the potential risks associated with perchlorate. EPA Peer Review Workshop, Sacramento, California (Mar. 5–6, 2002). Following the peer review, EPA determined that additional research is necessary to determine the risks associated with perchlorate and establish an appropriate reference dose for the substance. In 2003, the Bush administration responded to the scientific uncertainty by ordering that the National Academy of Sciences evaluate the science EPA used in its draft risk assessment of the safety of perchlorate. Pending this evaluation, EPA has declined to place perchlorate on its Contaminant

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Candidate List or otherwise propose formal regulation of the substance. Given the scientific uncertainties, most sources do not expect EPA to establish a federal standard for perchlorate until 2006 or later.

Some in Congress have responded to EPA's delays in setting a federal standard with criticism and proposed legislation requiring a faster response. Sen. Barbara Boxer (D-Calif.), for example, has introduced bills in Congress that would require EPA to set a reference dose for perchlorate by July 2004, and provide the public with information about the use of perchlorate by companies in their communities. *See* S. 502 and S. 820 (108th Congress). Similarly, as part of the current defense appropriations bill, the House has passed a provision requiring EPA and the Department of Defense to conduct a study regarding acceptable levels of perchlorate and propose a national drinking water standard within 180 days of its completion. *See* National Defense Authorization Act, S. 1050 (108th Congress), as amended. However, none of this legislation has yet been enacted, and EPA continues to review the risks of perchlorate at its own pace.

In contrast to EPA's more cautious approach toward perchlorate regulation, the State of California has been on the forefront of establishing strict standards governing the substance. California, which has established a drinking water advisory standard of 4 ppb, is currently one of the only states with a regulatory standard for perchlorate. *See* California Department of Health Services list of "Unregulated Chemicals Requiring Monitoring," CAL. CODE REGS. tit. 22, § 64450 (2001). This very conservative standard has resulted in well closures across the state. In the counties of Riverside and San Bernardino east of Los Angeles, for example, more than half the drinking water wells have been closed due to detectable concentrations of perchlorate. In response to well closures in Rialto, the city declared a water emergency this summer, calling for substantial voluntary reductions in water usage. Such well closures have added further stress to California's already serious water supply problems, potentially harming economic development in these areas. Although California planned to establish an enforceable primary drinking water standard for perchlorate by January 1, 2004, this rulemaking process may be delayed by legal challenges. *See* CAL. HEALTH & SAFETY CODE § 116293 (2003). If an enforceable standard is established at or below the current 4 ppb standard, the water supply problems in California could worsen.

Claiming that the California standard was overly stringent, the Department of Defense had argued that any action on its part in California should be delayed until the EPA standard was established. However, in the wake of increased criticism and pressure from

California politicians on both the state and federal levels, the Department of Defense recently agreed to comply with any final perchlorate standard promulgated by California, rather than delaying compliance until a federal standard is adopted. *See* Press Release, Senator Barbara Boxer, Boxer Announces Agreement on Perchlorate Contamination (Aug. 7, 2003). In addition, to calm concerns that it was attempting to avoid perchlorate liability, the Defense Department has stated publicly that although it is seeking exemptions from many environmental laws from Congress, its attempts are not intended to exempt the department from liability for cleaning up perchlorate contamination. The Defense Department's decision to comply with the California standard could potentially result in millions of dollars in cleanup costs at sites across California.

The well closures and water shortages in California have also prompted local water authorities to respond with an increasing number of lawsuits against industries alleged to be responsible for the contamination. In addition, undeterred by the scientific uncertainties regarding health risks, discovery of perchlorate in drinking water supplies has spawned class action lawsuits by private parties against both industry and water authorities, creating an emerging new area of toxic tort.

Whether perchlorate merits federal and state regulation or not, it provides a good example of how the perception of risk and resulting political pressure can drive regulatory action and potential liability. While subsequent scientific findings may bear out California's decision to set such a low standard for perchlorate, the risks associated with low levels of perchlorate are by no means certain. Because perchlorate is primarily associated with rocket fuel, it may be perceived as inherently more dangerous than many other substances, and may have attracted more attention and concern than it might otherwise deserve, given its potential risks. These types of concerns may have influenced California's decision to set its stringent standard for perchlorate, in spite of the remaining uncertainties. The resulting well closures, water shortages and lawsuits in California have, in turn, created additional concern, which appears to be contributing to the pressure on the federal government to regulate perchlorate quickly. In light of the politically charged environment surrounding the perchlorate issue, it is more important than ever for EPA and the federal government to assess the risk associated with perchlorate in a reasoned manner, in light of all the scientific evidence. Only then can we be certain to achieve a reasonable balance between the risk associated with the substance itself, and the risks and costs associated with its regulation.