

April 2, 2013

To: Members of the Assembly Committee on Environmental Safety & Toxic Materials

From: Assemblymember Luis Alejo, Chair

Subject: Oversight Hearing on Groundwater Contamination and the Threat to California Drinking Water

The Assembly Environmental Safety and Toxic Materials Committee (ESTM) will be holding an oversight hearing on Tuesday, April 2, 2013, focusing on California's groundwater contamination and the steps needed to protect the State's drinking water.

This hearing is the third in a series of ESTM oversight hearings on the provision of safe, affordable, accessible drinking water to all Californians, especially those in disadvantaged communities.

The first hearing, held on November 14, 2012, reviewed the actions that State agencies, including the Department of Public Health (DPH), which manages the State's Drinking Water Program (DWP), have taken to address the issue of contaminated drinking water, especially in disadvantaged communities. The second hearing, held on March 18, 2013, considered whether efficiencies can be achieved and effectiveness can be improved if the DWP is moved from DPH, which is housed in the California Health and Human Services Agency, to the California Environmental Protection Agency (CalEPA).

At the April 2nd hearing, Committee members will seek to investigate the causes and severity of groundwater contamination, and examine solutions for providing safe drinking water to communities that rely on contaminated groundwater as their source of drinking water. This ESTM hearing will gather information on and take testimony on policy questions including:

- 1) Is there, or how can we create, a reliable, stable funding source to provide long-term safe drinking water infrastructure and interim solutions for the small disadvantaged communities impacted by nitrate contamination?
- 2) To provide long-term protection for groundwater supplies, how can we develop an

effective system for minimizing discharges of nitrates and other contaminants to groundwater?

- 3) How can we provide DPH, or another State agency, regional organizations, and county agencies with the regulatory responsibility and authority to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage drinking water systems for small disadvantaged communities impacted by nitrate contamination?
- 4) Nitrate contamination of drinking water is a nationwide problem. In many cases, individual states have established programs to provide assistance and relief for drinking water systems affected by nitrate contamination. Are there actions that regulatory agencies in other states have taken on the regulation of nitrate sources, such as fertilizer, animal waste, food processing by-products, and domestic septic systems, that California should learn from?
- 5) Is California's regulatory program for fertilizers robust enough to protect groundwater? Can the financial aspects of the regulatory program be improved upon?

Recent reports. This year, the State Water Resources Control Board (SWRCB) issued two critical reports on the status of drinking water and the threat posed to drinking water supplies by groundwater contamination from natural and anthropogenic chemicals.

Communities That Rely on a Contaminated Groundwater Source For Drinking Water, Report to the Legislature, January 2013; and,

Recommendations Addressing Nitrate in Groundwater, Report to the Legislature, February 2013.

Prevalence of Groundwater Contamination in Disadvantaged Communities: Assembly Bill 2222 (Caballero) Chapter 670, Statutes of 2008, requires the SWRCB to submit to the Legislature a report that identifies, among other things, communities that rely on contaminated groundwater as a primary source of drinking water. The resultant report, *Communities That Rely on a Contaminated Groundwater Source For Drinking Water*, which was released in January, 2013, identified 682 community public water systems (PWS) that rely on contaminated groundwater as a primary source of drinking water. These community water systems serve nearly 21 million people. The SWRCB report also revealed that 265 community PWS that rely on contaminated groundwater and serve a little over two million people had received at least one drinking water quality violation within the last DPH compliance cycle. According to this report, most of the community PWS with violations of drinking water standards are located in the Southern California Inland Empire, the east side of San Joaquin Valley, the Salinas Valley and the Santa Maria Valley. The findings from this report and the recent UC Davis study, *Addressing Nitrate in California's Drinking Water*, which informed the second SWRCB report, suggest that drinking

water contamination in California disproportionately affects small, rural and low-income communities that depend mostly on groundwater as their drinking water source.

An additional two million Californians rely on groundwater from either a private domestic well or a smaller groundwater-reliant system that is not regulated by the State. Most of these residents lack an assessment of their water because they are not required to test its quality.

Nitrate contamination in California: Senate Bill SBX2 1 (Perata) Chapter 1, Statutes of 2008 Second Extraordinary Session, required the SWRCB, in consultation with other agencies, to prepare a report to the Legislature focusing on nitrate groundwater contamination in the state and potential remediation solutions. In response, the SWRCB contracted with the University of California to gather information to prepare its report.

The University of California at Davis (UCD) prepared and released its resultant report, *Addressing Nitrate in California's Drinking Water*, to the SWRCB in January 2012. While the study only examined nitrate contamination in the four-county Tulare Lake Basin and the Monterey County portion of the Salinas Valley, its findings are helpful at informing the discussion about nitrate contamination statewide.

The UCD study showed that nitrate loading to groundwater in the area is widespread and chronic, and is overwhelmingly the result of crop and animal agricultural activities. Urban wastewater, septic systems, and other sources have significant localized impact. Due to long transit times, the impact of nitrates on groundwater resources will likely worsen in scope and concentration for several decades.

The study indicated that about 2.6 million people in these regions rely on groundwater for drinking water, including those in some of the poorest communities in California. Nitrate contamination is increasing and currently poses public health concerns for about 254,000 people in the study area. Groundwater data show that 57% of the current population in the study area uses a community public water system with recorded raw (untreated) nitrate concentrations that have exceeded the maximum contaminant level (MCL) at least once between 2006 and 2010. Continued basin-wide trends in nitrate groundwater concentration may raise the affected population to nearly 80% by 2050.

Nitrates/ nitrites and public health: According to DPH, the presence of nitrates in groundwater is most often associated with septic systems, confined animal feeding operations or fertilizer use, which often occurs in rural settings. Nitrates are also present in treated wastewater, and thus are found in surface water and groundwater recharge projects, which pose risks to urban drinking water supplies. Nitrates are also used in the production of some products, such as fertilizers and explosives.

Nitrite is a chemical similar to nitrate, and it comes from the same sources as nitrate. Once consumed, nitrate is converted into nitrite in the body. Nitrite can interfere with the ability of red blood cells to carry oxygen to the tissues of the body, producing a condition called methemoglobinemia. This is of greatest concern in infants, whose immature stomach environment enables the conversion of nitrate into nitrite that is absorbed into the blood stream. The effects of nitrite are often referred to as "blue baby syndrome." High nitrate levels may also

affect the oxygen-carrying ability of the blood of pregnant women.

Recommendations to address nitrates in groundwater: Per SBX2 1, on February 20, 2013, the SWRCB issued its report, *Recommendations Addressing Nitrate in Groundwater, Report to the Legislature*, in which it makes 15 specific recommendations for addressing nitrate contaminated groundwater. In developing the report and recommendations, the SWRCB relied on the UC Davis report as a foundation, and obtained significant input from the Interagency Task Force, which included representatives from DPH, the Department of Food and Agriculture, the Department of Pesticide Regulation, CalEPA, and local environmental health agencies. Recommendations were also informed by the findings of a task force convened by the Governor's office to address safe drinking water issues.

The SWRCB recommendations reflect a comprehensive strategy focused on the following key areas:

- 1) **Providing Safe Drinking Water.** Creating a reliable, stable funding source, integrated with institutional changes, to provide long-term safe drinking water infrastructure and interim solutions for the small disadvantaged communities impacted by nitrate contamination.
 - a) Of note is the SWCB's specific recommendation (recommendation #1) that, "The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs. Funding sources include a point-of-sale fee¹ on agricultural commodities, a fee on nitrogen fertilizing materials, or a water use fee. In addition, the Legislature also should authorize CDPH to assess a fee in lieu of interest on Safe Drinking Water State Revolving Fund loans, or to assess other fees associated with these loans, to generate funds for expanded assistance to water systems."
- 2) **Monitoring, Assessment, and Notification.** Developing and managing the data necessary to identify and effectively manage nitrate contaminated groundwater, with particular attention focused on (1) defining nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts in these areas, (2) notifying groundwater users in nitrate high-risk areas, and (3) requiring property owners to sample their well as part of a property title transfer or purchase.
- 3) **Nitrogen Tracking and Reporting.** Developing and implementing a nitrogen mass balance tracking and reporting system to manage the application of nitrogen fertilizing materials.
- 4) **Protecting Groundwater.** Developing an effective system for minimizing discharges of nitrates to groundwater including (1) establishing a nitrogen management training and certification program which recognizes the importance of water quality protection, (2)

continuing and improving agricultural nitrate education and research programs, (3) convening a panel of experts to recommend improvements in agricultural nitrate control programs and implementing the recommendations, and (4) evaluating the effectiveness of existing permits to address nitrate contamination in high-risk areas.

California fertilizer regulations. California fertilizer regulations require that every person who manufactures or distributes fertilizing materials obtain a license from the Department of Food and Agriculture (Food and Agricultural Code §14591). In addition, licensees pay fees to support the State's fertilizer program.

Fertilizer mill fee. Existing California law authorizes a "mill" assessment per dollar of sales on fertilizer materials. The mill assessment is paid by any fertilizer licensee whose name appears on the product label who sells or distributes packaged or bulk fertilizing materials in California.

The rate of the mill assessment is set by the CDFA Secretary with the recommendations of the Fertilizer Inspection Advisory Board (FIAB). Current statute sets the maximum amount of the mill at \$.002 per dollar to fund the CDFA Inspection Services Program (ISP) and \$.0001 to fund the CDFA Fertilizer Research and Education Program (FREP) (Food and Agriculture Code § 14611). The legislature established the FREP in 1990 to provide funding for research and education regarding the use and handling of fertilizing material, including, but not limited to, any environmental effects.

In January 2008, the FIAB voted to cut the mill in half, from \$.003 to \$.0015, allocating \$.001 to fund the ISP and \$.0005 for FREP. At the FIAB June 2012 meeting, after a discussion "on the issue of nitrates and groundwater," the FIAB discussed raising the mill after it was noted there are "currently high fertilizer prices." The mill was subsequently returned to \$.0025.

AB 2174 (Alejo) Chapter 198, Statutes of 2010, specifies that research and education projects regarding the use and handling of fertilizing materials eligible to receive FREP funding include programs from the University of California Extension, the California resource conservation districts, and other postsecondary California institutions or qualified entities for programs such as Technical education for users of fertilizer materials and research to improve nutrient management practices. AB 2174 was designed to provide access to an existing underutilized funding source that can lead to more efficient application of fertilizers, resulting in cost savings to farmers who would use less fertilizer and less contamination of the state's watersheds.

Optional State actions for generating revenue for nitrate management. There are currently five

ways that states generate, or have proposed to generate, revenues for fertilizer-associated activities: 1) fertilizer materials license fees; 2) fertilizer registrations fees; 3) mill fees; 4) tonnage fees; and 5) penalty fees.

Fertilizer-associated fees are commonly used to ensure that fertilizer products are accurately labeled for content, enforcement of labeling, promotion of proper fertilizer use and application, and for fertilizer research. In some states a portion of licensing and registration fees is directed at water quality.

With regard to groundwater specifically, Michigan provides an intriguing model. Michigan created a "freshwater protection fund" (FPF) financed by dedicated fees on pesticides and fertilizers. Michigan's Groundwater and Freshwater Protection laws specify that the FPF can be used for "direct" and "indirect" assistance. Direct assistance includes, but is not limited to, the provision of alternate noncommunity water supplies, closures of wells impacting groundwater, monitoring of private wells, and grants. Indirect assistance includes, but is not limited to, public education, evaluation of management practices, and other research.

Related pending legislation.

- 1) AB 69 (Perea). Establishes the Nitrate at Risk Area Fund to fund solutions for disadvantaged communities with nitrate-contaminated drinking water. This bill passed the Assembly ESTM Committee on a 5 – 2 vote on and was referred to the Assembly Appropriations Committee.
- 2) AB 467 (Stone). Establishes the Freshwater Protection Fund in the State Treasury, under the administration of the SWRCB, and requires the SWRCB, upon appropriation, to expend money from the fund for various purposes generally relating to groundwater and water quality. . This bill was referred to the Assembly ESTM Committee.