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Area water is safe to drink, study concludes

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PASADENA — A report that the National Academies released this past week on perchlorate in drinking water offered some soothing words for many Pasadenans and Altadenans whose water for decades came at least partially contaminated by a chemical plume beneath the Jet Propulsion Laboratory.

The report identified a safe level for total daily intake of the chemical that is 23 times higher than that proposed by the federal Environmental Protection Agency in 2002.

But while agencies begin reviewing the recommendation and how it might be used to come up with the nation's first federal drinking water standard, some epidemiologists and toxicologists say crucial studies that would improve any recommendation have not been completed.

The health concerns surrounding perchlorate relate to potential disruption of normal thyroid function, especially the effects such a disruption might have on pregnant women and their unborn children.

The committee that produced the Academies' report concluded that "the evidence is insufficient to determine whether or not there is an association between perchlorate and adverse neurodevelopmental outcomes in children."

Finding a lack of strong studies in the field, the committee recommended the use of what has come to be known as the benchmark study in perchlorate toxicity, the 2002 "Greer study," which looked at the effects of

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perchlorate on 37 healthy adults.

Jerome Hershman, an epidemiologist from UCLA's David Geffen School of Medicine said, "I think (the Academies' recommendation) is a reasonable compromise between safety, with a great emphasis on safety, and any potential effect on industry." But he added, "the effect of greatest concern is reducing the iodine availability for pregnant women and thus for the unborn fetus. There is not really good data on that."

And Ashok Jain, an associate professor of emergency medicine at USC's Keck School of Medicine who researches toxicology, said, "From what I've seen, there's nothing substantial to indicate that they are in a better position to make a recommendation than the EPA was two years ago."

Jain said the committee had placed too much emphasis on the Greer study, which he said focused on the wrong population.

"The issue at this point is not the adults. We are more concerned about the exposure to the unborn," he said.

The Academies' committee did not provide a recommendation for a drinking water concentration. It stopped at a recommendation of a "reference dose," the total amount of perchlorate they determined a person could safely consume on a daily basis from all sources, including water and food. The committee recommended a dose of 0.0007 milligrams per kilogram of body weight.

The EPA's corresponding dose from 2002 was 0.00003 milligrams per kilogram of body weight. The agency recommended a drinking water concentration of 1 part per billion (ppb).

One ppb translates roughly to a half a teaspoon of a chemical dispersed in a volume of water equal to that in an Olympic swimming pool.

When the Academies' committee released its report, several members of the media and other organizations mistakenly multiplied the EPA's drinking water concentration of 1 ppb by 23. But the conversion is not that simple.

Several assumptions have to be made in order to convert a reference dose into a drinking water concentration. For example, body weight and percentage of daily chemical consumption from water versus other sources have to be factored in. That means the Academies' dose doesn't translate to a concentration of 23 ppb.

And that ambiguity leaves room for interpretation.

With the Natural Resources Defense Council accusing the Bush administration of being too involved in the committee's study, other environmental groups see the Academies' recommendation as a victory for their cause.

Renee Sharp, a senior analyst with the Environmental Working Group, said her group has translated the academies' reference dose to a concentration of 2.5 ppb.

"You can argue about what exact number you might use, but it's very clear that we're not talking about 20 ppb, that's for certain," she said.

On the other hand, James Strock, a spokesman for the Council on Water Quality, said in an e-mail that although the council has not advocated a drinking water standard, a rough calculation of the dosages mentioned in the Greer study yields a value of approximately 240 ppb. The Council on Water Quality is a subset of companies of the Perchlorate Study Group, which includes Aerojet, American Pacific Corporation, Kerr-McGee Chemical and Lockheed Martin.

Currently, California's public health goal for perchlorate in drinking water is 6 ppb.

Pasadena Water & Power currently has 10 of its 16 wells closed due to perchlorate levels above that goal.

Shan Kwan, business director for PWP, said the highest concentration of perchlorate ever detected in one of the wells was 160 ppb, but that was a measurement taken while the well was not on. He said the cost associated with pumping extra water from Pasadena's other wells to make up for the closed wells is about $44,000 per year.

PWP officials say the new study will have no direct impact locally since they will continue to follow state guidelines.

The state EPA's Office of Health Hazard Assessment is responsible for setting the public health goal. Allan Hirsch, a spokesman for that office, said, "In general, we feel very encouraged by the (Academies') report because the general findings of the report appear to support the approach we took in developing our public health goal."

The state office also based its goal on the Greer study, he said. It is the California Department of Health Services' job to take the public health goal and use it to "develop a drinking water standard that's as close to the public health goal as is technically and economically feasible," said Robert Miller, a spokesman for the department.

He said the department has been going through the year-long process of setting a water standard for perchlorate since the state EPA announced its 6 ppb goal in March 2004. If the California EPA changes its recommendation, "we will respond accordingly," Miller said.

A NASA-funded treatment facility directly above the perchlorate plume beneath JPL is nearly complete, said Steve Slaten, remedial project manager for NASA. A facility to clean up the Lincoln Avenue Water Company's wells near JPL has been operating since July and was also funded by NASA.

Kwan said PWP is close to an agreement with NASA for another treatment facility for four wells closest to JPL. Slaten said the facility would cost NASA $4 million to build and about $500,000 per year to operate.

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