

ENVIRONMENTAL Fact Sheet



Sampling for Perchlorate, N Morrow & NW Umatilla Counties, Oregon

U.S. Environmental Protection Agency, Region 10

March 2007

This fact sheet summarizes the results of watermelon sampling by the U.S. Environmental Protection Agency (EPA) in 2006. EPA collected watermelons at several locations in northern Morrow and northwestern Umatilla Counties in Oregon as part of an ongoing effort to learn more about the presence of perchlorate in the local environment and the potential for health concerns from exposure to perchlorate in water and food crops.

In recent months, perchlorate contamination has been of high local interest. EPA is working with several other state and federal agencies, both locally and nationally, to learn more about exposure to perchlorate.

What information was gathered about perchlorate in food and crops?

In August 2006, EPA sampled watermelons as a focused follow-up to limited sampling of food crops done by the Oregon Department of Human Services (ODHS) in 2005. Watermelons were selected in 2006 because there were some discrepancies in the ODHS watermelon data, watermelons were readily available for collection and local melon producers were interested in making sure the important watermelon crop is safe.

Perchlorate was detected at levels ranging from less than 1 part per billion to 22.9 ppb. The average value for these samples was 5.1 ppb. These levels are consistently higher than the watermelon data used by ODHS in their health assessment. Investigations in other locations have sometimes shown much higher values in various produce, although watermelon has not often been sampled.

Additional watermelons were collected in September 2006 and tested for perchlorate, in partnership with local farmers and the Oregon State University Hermiston Agricultural Research and Experiment Center (OSU-HAREC). However, the data from these samples were discarded because the data did not meet quality assurance standards. EPA's need to discard these data underscores the complexity of this work and the challenges of producing high quality data.

Although a number of unanswered questions remain, these watermelon data do not by themselves indicate a health concern. Nonetheless, the results along with available ground water data suggest that additional work may be appropriate to help EPA understand the potential overall dietary exposure, the extent to which perchlorate is getting into other foods, and ways that such uptake may be reduced.

ODHS will release the findings of their 2005 sampling in a separate Exposure Investigation in the near future.

What are the next steps for EPA?

EPA will continue to work with ODHS, Oregon Department of Environmental Quality, Oregon Department of Agriculture, U.S. Agency for Toxic Substances and Disease Registry, the Food and Drug Administration, OSU-HAREC and local farmers to better understand perchlorate in the local area.

In addition to helping EPA identify other commodities that could be candidates for sampling, OSU

continued

What are the next steps for EPA? *continued*

HAREC is also helping EPA understand various agricultural practices and how these practices might be adjusted if levels of perchlorate are found to be of concern.

Is perchlorate being studied in other places?

There is ongoing national debate about what level of perchlorate is acceptable in drinking water. Many places around the nation and world are doing similar work to evaluate perchlorate exposure, but there currently is no federal or Oregon drinking water standard for perchlorate. The State of Massachusetts has already adopted a State drinking water standard of 2 ppb, and the States of California and New Jersey are proposing drinking water standards of 6 ppb and 5 ppb, respectively.

On January 10, 2005, the National Academy of Sciences (NAS) released their report on the health effects of perchlorate exposure. The NAS report estimates that more than 11 million people, in 35 states, have perchlorate in their drinking water at concentrations of 4 ppb or higher.

The NAS report recommended limits for total dietary perchlorate exposure. Based on the NAS recommendation, if drinking water is the sole source of perchlorate exposure, the level in drinking water should not exceed 24.5 ppb. However, if exposure includes multiple sources such as water, milk, produce, and vitamins, the level in drinking water recommended by the NAS could be as low as 4.9 ppb.

EPA and the U.S. Food and Drug Administration are presently sampling foods nationally to determine how much human exposure may be coming from foods. In addition, the Centers for Disease Control (CDC) has conducted bio-monitoring studies to evaluate total dietary perchlorate exposure, regardless of whether from water or food or other sources.

All of these efforts are increasing EPA's overall understanding of perchlorate and are helping EPA determine next steps for the local area.

What is perchlorate?

Perchlorate is a manufactured salt that is found in rocket fuels, explosives, flares, fireworks, some bleach products, and some herbicides. It also occurs naturally in arid environments and has been found in natural fertilizers imported from Chile.

Perchlorate readily dissolves in water and can easily infiltrate into soil and ground water. In fall 2003, groundwater testing found perchlorate in over half of the 133 wells sampled in the lower Umatilla basin. Similar results were found in follow-up well testing in 2004 and 2005. Because studies elsewhere found perchlorate in some crops and milk, EPA also needs to find out if food crops in the project area contained perchlorate.

What are the health risks from perchlorate?

Perchlorate can impair thyroid function. Prolonged exposure may lead to hypo-thyroidism, which affects growth and development in the fetus, infant and child, as well as metabolism in all age groups. Pregnant women, fetuses, infants, children and people with hypothyroidism are considered the most sensitive to perchlorate exposure.

Do I need to make changes to ensure a healthy diet?

State and federal officials continue to recommend a balanced diet that includes a variety of fruits and vegetables. People sensitive to perchlorate should ensure adequate iodide uptake. Seafood and iodized salt are two good dietary sources of iodide.

Residents with shallow private drinking water wells are encouraged to regularly test their drinking water for both perchlorate and nitrate. Before paying a lab to test for perchlorate, verify that the lab can reliably detect perchlorate values to 1 ppb, and specify that approved EPA Drinking Water Methods and all associated quality assurance procedures be used. A list of labs approved for perchlorate testing is available on the web at: <http://www.epa.gov/safewater/ucmr/ucmr1/labs.html>

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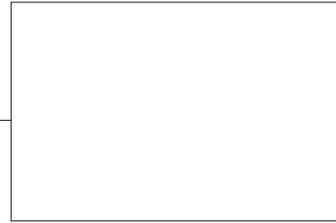
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Links to information on the internet:

- <http://yosemite.epa.gov/r10/CLEANUP.NSF/sites/oregon-perchlorate>
- EPA National Perchlorate Questions and Answers:
<http://www.epa.gov/safewater/contaminants/unregulated/perchlorate.html>
- Resources for testing perchlorate in groundwater: <http://www.epa.gov/safewater/ucmr/ucmr1/labs.html>
- Integrated Risk Information System: <http://www.epa.gov/iris/subst/1007.htm>
- ODEQ Perchlorate web page: <http://www.deq.state.or.us/er/PerchlorateSites.htm>
- ODHS SHINE Perchlorate web page: <http://www.oregon.gov/DHS/ph/shine/pasite.shtml>
- ATSDR ToxFAQs Information: <http://www.atsdr.cdc.gov/tfacts162.html>
- FDA Perchlorate information: <http://www.cfsan.fda.gov/~dms/clo4qa.html>



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