

# Arsenic

- Legal Limit (MCL): 10 parts per billion (ppb)
- Public Health Goal (PHG): 0.004 parts per billion (ppb) or 4 parts per trillion (ppt)

## Common sources of the contaminant in the Central Valley

Arsenic occurs naturally in rocks, soil, plants and animals.<sup>a</sup> However, it can also come from industrial and agricultural activities, particularly from wood preservatives, fertilizers, pesticides, animal feeding operations, and mining activities.<sup>b</sup> Historically, arsenic was used in pesticides on cotton and orchards, and some forms continue to be used on cotton today.<sup>c</sup> Additionally, increased alkalinity (increased pH) may increase the levels of arsenic in groundwater because it dissolves naturally occurring arsenic in surrounding rocks and soils.<sup>d</sup>

## Possible health effects of short-term exposure<sup>e</sup>

- Stomach pain, nausea, vomiting, diarrhea
- Numbness or tingling in hands, nose, ears, and feet
- Skin discoloration or rashes
- Thickening of skin, corns in palms and bottom of feet

## Possible health effects of long-term exposure<sup>f</sup>

- Cancer of the bladder, lungs, skin, kidneys, nasal passages, liver and prostate
- Increased blood pressure, hypertension and cardiovascular disease
- Reduced mental functioning in children
- Effects on nervous system, including tremors and numbness
- Some respiratory illnesses
- Type 2 diabetes

## Sensitive populations<sup>g</sup>

Young children, infants, and pregnant women are particularly at risk.

## Pathways of exposure<sup>h</sup>

You can be directly exposed to arsenic from drinking or cooking with contaminated water. Arsenic is not easily absorbed by skin, so bathing or doing dishes is not a significant source of exposure.

## Tips for reducing exposure at home

- Remind children to keep their mouths closed while taking a bath.
- Buy bottled water or use an approved arsenic treatment device at home. Most approved arsenic treatment devices are reverse osmosis units. Under-the-sink units typically range from \$150 - \$400. Water filter pitchers, such as Brita, do not remove arsenic. A full list of certified filter devices is available at <http://ww2.cdph.ca.gov/certlic/device/Documents/WTDDirectory2008/Section6A.pdf> or by calling the California Dept. of Public Health at (916) 449-5600. Note that DPH updates this list each spring.



### **Warning:**

Boiling does not remove arsenic, but instead can actually concentrate arsenic levels in water!



This information was originally published in the Community Water Center's *Guide to Community Drinking Water Advocacy*.

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# Arsenic References

- a. EPA (2007), "Arsenic in Drinking Water," available at <http://www.epa.gov/safewater/arsenic/basicinformation.html> (last visited Nov. 19, 2008).
- b. EPA (2007), "Arsenic in Drinking Water," available at <http://www.epa.gov/safewater/arsenic/basicinformation.html> (last visited Nov. 19, 2008); WHO (2003), "Arsenic in Drinking Water," available at [http://www.who.int/water\\_sanitation\\_health/dwq/chemicals/arsenic.pdf](http://www.who.int/water_sanitation_health/dwq/chemicals/arsenic.pdf) (last visited Nov. 19, 2008).
- c. ATSDR (2007), "Toxicological Profile for Arsenic, Public Health Statement," available at <http://www.atsdr.cdc.gov/toxprofiles/tps2.html> (last visited Nov. 19, 2008).
- d. WHO (2003), "Arsenic in Drinking Water," available at [http://www.who.int/water\\_sanitation\\_health/dwq/chemicals/arsenic.pdf](http://www.who.int/water_sanitation_health/dwq/chemicals/arsenic.pdf) (last visited Nov. 19, 2008).
- e. ATSDR (2007), "Toxicological Profile for Arsenic, Health Effects," available at <http://www.atsdr.cdc.gov/toxprofiles/tp2-c3.pdf> (last visited Nov. 19, 2008); WHO (2003), "Arsenic in Drinking Water," available at [http://www.who.int/water\\_sanitation\\_health/dwq/chemicals/arsenic.pdf](http://www.who.int/water_sanitation_health/dwq/chemicals/arsenic.pdf) (last visited Nov. 19, 2008); EPA (2007), "Arsenic in Drinking Water," available at <http://www.epa.gov/safewater/arsenic/index.html> (last visited Nov. 19, 2008).
- f. ATSDR (2007), "Toxicological Profile for Arsenic, Health Effects," available at <http://www.atsdr.cdc.gov/toxprofiles/tp2-c3.pdf> (last visited Nov. 19, 2008); WHO (2003), "Arsenic in Drinking Water," available at [http://www.who.int/water\\_sanitation\\_health/dwq/chemicals/arsenic.pdf](http://www.who.int/water_sanitation_health/dwq/chemicals/arsenic.pdf) (last visited Nov. 19, 2008); OEHHA (2004), "Public Health Goals for Chemicals in Drinking Water – Arsenic," available at <http://www.oehha.ca.gov/water/phg/pdf/asfinal.pdf> (last visited Nov. 19, 2008); EPA (2007), "Arsenic in Drinking Water," available at <http://www.epa.gov/safewater/arsenic/index.html> (last visited Nov. 19, 2008).
- g. ATSDR (2007), "Toxicological Profile for Arsenic, Public Health Statement," available at <http://www.atsdr.cdc.gov/toxprofiles/tps2.html> (last visited Nov. 19, 2008).
- h. ATSDR (2007), "Toxicological Profile for Arsenic, Public Health Statement," available at <http://www.atsdr.cdc.gov/toxprofiles/tps2.html> (last visited Nov. 19, 2008); OEHHA (2004), "Public Health Goals for Chemicals in Drinking Water – Arsenic," available at <http://www.oehha.ca.gov/water/phg/pdf/asfinal.pdf> (last visited Nov. 19, 2008).



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