What are the health risks from drinking or cooking with water contaminated with hexavalent chromium (Cr(VI))? Drinking water daily with high levels of Cr(VI) for a long period of time (years) may adversely effect the gastrointestinal system, blood, and liver. A study of 155 subjects in China exposed to Cr(VI) in drinking water at concentrations of approximately 20000 micrograms per liter (ppb) were observed to have ulcers in the mouth, diarrhea, abdominal pain, indigestion, vomiting, and elevated white blood cell counts (Zhang and Li 1987). A recent study conducted by the National Toxicology Program (2008) reported that rats and mice exposed to Cr(VI) daily in drinking water for two years experienced adverse effects in the gastrointestinal system, liver, blood, and lymph nodes.

What are the health risks from bathing/showering in water contaminated with Cr(VI)? Skin exposure to high levels of Cr(VI) may cause skin irritation. In some individuals, skin exposure to Cr(VI) may cause allergic contact dermatitis. A scientific study showed that a person is not exposed to a significant amount of Cr(VI) from breathing steam while showering (Finley et al. 1996).

Can Cr(VI) cause cancer? Cr(VI) is considered a known human carcinogen by the inhalation route of exposure. The study discussed above in which 155 subjects in China were exposed to drinking water with Cr(VI) concentrations of approximately 20 mg/L reported a positive association with exposure to Cr(VI) and incidence of stomach and lung cancer, although the study did not discuss possible confounding factors such as smoking (Zhang and Li 1987). The study conducted by the National Toxicology Program (2008) determined that daily, long-term ingestion of high doses of Cr(VI) in drinking water caused an increase in carcinomas of the mouth in rats and cancer of the small intestine in mice. It is not known if Cr(VI) is carcinogenic when absorbed through the skin.

Can I eat fruits or vegetables grown in a garden that has been irrigated with water contaminated with Cr(VI)? Many factors determine how much Cr(VI) is taken up into plants that have been irrigated with water containing Cr(VI) and whether the Cr(VI) is then concentrated in the fruit or vegetable part of the plant at levels that would be considered toxic. It is not possible to know what level of Cr(VI) is present in the fruit or vegetables without actually taking a sample of the fruit or vegetable, even then it may vary from plant to plant.

Can my animals get sick from drinking water contaminated with Cr(VI)? Animals may also experience adverse health effects from exposure to Cr(VI) and we recommend that you contact your veterinarian if you have specific questions.

What can I do about the elevated Cr(VI) levels in my drinking water? The most important thing you can do is to limit your exposure to the contaminated water. The TCEQ is taking steps to install filtration systems on individual homeowner wells to reduce the levels of Cr(VI) to concentrations that are considered by USEPA and TCEQ to be safe for household use. If you suspect or are concerned that you may have elevated

levels of Cr(VI) in your drinking water, you can limit exposure to the water until you can have it tested, or the TCEQ can have it tested, if your house is in the geographical area of concern.

Is there anything else toxic in my drinking water? At this time, the TCEQ has only tested the water for Cr(VI). Additional testing is currently taking place to determine if levels of any other contaminants (volatile organics and semi-volatile organics) are a concern.

More information on the toxicity of Cr(VI) can be found at the following links:

The Toxicological Profile for a detailed evaluation of the toxicity of chromium
http://www.atsdr.cdc.gov/toxprofiles/tp7.pdf

ATSDR Public Health Statement for chromium
http://www.atsdr.cdc.gov/toxprofiles/tp7-c1-b.pdf

ATSDR Frequently Asked Questions regarding chromium
http://www.atsdr.cdc.gov/tfacts7.pdf