



Fact Sheet

Hexavalent Chromium

Air Force Base Conversion Agency, McClellan

No. 2 - 05

August 2002

When the former McClellan Air Force Base was active, many chemicals were used to support military activities. Fuels were used to power vehicles, airplanes and generators; solvents were used to degrease machinery and equipment; and cleaners were used to wash aircraft parts. Sometimes these chemicals escaped to the environment from leaking tanks, being washed down floor drains, or being spilled during transportation and use. Past chemical disposal practices also contributed to soil and groundwater contamination. These were accepted disposal practices but are now known to cause environmental contamination and are no longer used. The soils and the groundwater that were previously contaminated from chemicals released into the environment are being cleaned up. Part of this cleanup process includes monitoring contaminants in the environment. Hexavalent chromium, which has been found at almost two thirds of the nation's most contaminated sites identified by the U.S. Environmental Protection Agency (EPA), is one of the contaminants being monitored in McClellan's groundwater.

Hexavalent chromium is a form of chromium metal that was used at McClellan for chrome plating, steel hardening and painting. Hexavalent chromium has been found occasionally over the last few years during routine testing of groundwater at McClellan. Historically, contaminants of concern in McClellan's groundwater have been volatile organic compounds (VOCs), not metals. To remove contaminants from groundwater, McClellan operates a groundwater treatment plant. The groundwater treatment plant was designed to remove VOCs to drinking water standards. Since the hexavalent chromium was found, the treated water is also routinely tested for this compound at the treatment plant.

If the hexavalent chromium concentration in the cleaned water is below the limit protective of drinking water and fresh water aquatic environments, the water is discharged to Magpie Creek. If the hexavalent chromium concentration in the cleaned water is higher than the protective limit, the water is discharged to the sewer system. McClellan's protective limit is 10 parts per billion (ppb). This limit is lower than the one recommended by the U.S. EPA for both drinking water (21 ppb) and fresh water aquatic environments (11 ppb). The highest level of hexavalent chromium found in cleaned groundwater at McClellan during 2002 was 11.4 ppb.

Health concerns about hexavalent chromium

Hexavalent chromium is a public health and ecological concern, so the Air Force is addressing the presence of hexavalent chromium in its groundwater. The levels of hexavalent chromium found so far have been very low, but low levels can pose a risk to aquatic life. Human exposure to hexavalent chromium occurs from eating contaminated food, drinking contaminated water or breathing contaminated workplace air. Hexavalent chromium at high levels can damage the nose and can cause cancer. It is important to remember that the effects of exposure to any hazardous substance depend on how much, how long, and in what way you are exposed, plus your personal traits and habits, and whether other chemicals are present. Health officials at McClellan do not believe there is an immediate danger to the public.

Plans to address hexavalent chromium

When the Air Force discovered elevated levels of hexavalent chromium in the groundwater, immediate steps were taken to minimize public health and environmental risks. Both the regulators and the public were notified and plans were initiated to find the source of hexavalent chromium and address the problem. The initial action taken (sending cleaned water to the sewer system instead of Magpie Creek) stopped the problem of discharging water with slightly elevated levels of hexavalent chromium to the creek, but this is not a long-term solution. Discharging water to the sewer system requires turning off some wells, limiting future expansion of the treatment plant. Discharging water to the sewer system also uses up sewer capacity, limiting future development of the McClellan property. Furthermore, discharging water to the sewer also reduces water flow in Magpie Creek, which may impact creek habitat. The Air Force's Hexavalent Chromium Action Plan includes on-going efforts and several phases of future actions, as described below:

On-going efforts consist of:

- Regularly test the cleaned water for hexavalent chromium
- Modify pumping rates and usage of extraction wells to maintain levels of hexavalent chromium below 10 ppb
- Adjust the groundwater extraction system to limit spread of VOCs beyond McClellan boundary

Future efforts will be conducted in three phases:

- Phase 1: Install a hexavalent chromium treatment system at the treatment plant (goal: by mid-2003)
- Phase 2: Determine hexavalent chromium background levels and find the source of hexavalent chromium contamination (expected to be a 1- to 2-year effort)
- Phase 3: Use hexavalent chromium background and source data to modify the planned treatment plant expansion design (goal: by late-2005)

The Air Force will continue to check water from the treatment plant and send the cleaned water to the appropriate discharge point. Additionally, when water is discharged to the sewer system, it will be monitored to assure that hexavalent chromium levels stay within the required limits. ↴

For more information on the cleanup program,

- Visit the website: <http://www.afbca.hq.af.mil/mcclellanem/>
- Attend the public Restoration Advisory Board (RAB) meetings
- Attend poster board sessions – a chance to ask one-on-one questions on the cleanup activities
- Sign up to be added to the mailing list
- Read the flyers and fact sheets
- Visit the Information Repository/Administrative Record at McClellan. Hours of Operation: 8 a.m. to 3 p.m. M-Th and every other Friday; Contact: Laraine McQuillen at (916) 643-1250, Ext. 239

Or contact:

Air Force Base Conversion Agency

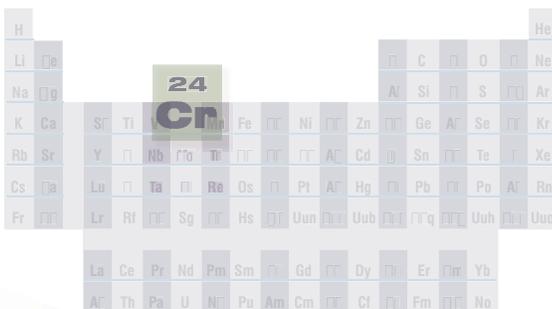
Dawn Young, McClellan Community Relations
(916) 643-1742, Ext. 233

Department of Toxic Substances Control

Diane Fowler, Public Participation Specialist
(916) 255-6682

United States Environmental Protection Agency

David Cooper, Community Involvement Coordinator
(415) 972-3237; (800) 231-3075



| | | | | | | | | | | | | | | | | | |
|----|----|----|----|------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| H | | | | | | | | | | | | | | | | | He |
| Li | Be | | | | | | | | | | | B | C | N | O | F | Ne |
| Na | Mg | | | | | | | | | | | Al | Si | P | S | Cl | Ar |
| K | Ca | Sc | Ti | 24 Cr | Mn | Fe | Cu | Ni | Cd | Zn | Ge | As | Se | Br | Kr | | |
| Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | Xe | |
| Cs | Ba | La | Ce | Pr | Nd | Pm | Sm | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Rn | |
| Fr | Ra | Ac | Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Mn | No | Og | |

