

Summary of Well Data – June 2011

Larry Ernst, engineering consultant from Wood Rogers, provided data from all City of Davis and UC Davis wells for selenium, arsenic, and hexavalent chromium.

Data from the “deep” wells was reviewed, as it has been proposed that North Davis Meadows drill a new well(s) using aquifers below 700 feet in depth. Larry suggests drilling an exploration test hole to about 900 feet and then monitoring the water quality from the best aquifers encountered to that depth.

The City of Davis has 4 “deep” wells that are completed to a depth ranging from approximately 1400 feet to 1700 feet.

UC Davis has 6 deep wells completed to a depth ranging from approximately 800 feet to 1400 feet.

Selenium

1. No detectable selenium has been found in the deep City of Davis wells. The data for Well 28, the oldest city well, dates back to 1995.

Arsenic

According to Larry Ernst, you must demonstrate to CDPH a four quarter running average under 10ppb for arsenic. If you are very near 10 ppb, CDPH may require more frequent sampling. It is not an acute hazard like nitrates, and thus slight variations are not a concern. There is up to 20% error allowed in the US EPA arsenic method. For reference, the OEHHA public health goal (PHG) for arsenic is 0.004ug/L. This is based on the mortality of arsenic-induced lung and urinary bladder cancers observed in epidemiological studies.

2. The arsenic level, in two of the city wells, is stable at approximately 4ug/L. Well 28 data dates to 1995 and Well 31 dates back to 2005.
3. The arsenic level in the 6 UC Davis wells is stable at 5ug/L or lower. Data dates to 1990. According to Larry Ernst, before 1999, the reporting limit for arsenic ranged between 10 and 20ug/L. Zero readings in the UC Davis data are really less than 10ppb.
4. City of Davis well 29 started with an arsenic level of 7ug/l in 2002 and has had a result of 8ug/l.
5. City of Davis well 30 started with an arsenic level of 6ug/l in 2003 and has been fairly steady at this level with one reading at 7 ug/l.

Hexavalent Chromium

Currently the total chromium MCL is at 50ug/L. An MCL has not yet been set for hexavalent chromium. The proposed draft Public Health Goal (PHG) is .02ug/L. Scientists recently reported that their two-year animal study “clearly demonstrates” that hexavalent chromium is carcinogenic in drinking water. Mice

and rats contracted malignant tumors in their small intestines and mouths when they drank water containing several different doses of hexavalent chromium.

6. Hexavalent chromium levels are typically in the teens or 20's (ug/L) in the "shallow" City of Davis wells. This level seems to bounce around. Some wells show a downward trend and some and upward trend. Not many data points are available (4 to 5), as testing of hexavalent chromium is not required.
7. Three of the six UC Davis wells "deep" demonstrate hexavalent chromium levels below 6ug/L. All UC Davis wells have been tested only twice for hexavalent chromium. The city well closest to NDM (Well #31) is one of these wells. It has a level just below 6ug/L.
8. Two of the four City of Davis "deep" wells demonstrate hexavalent chromium below 6 ug/L.
9. The readings for the remaining wells are summarized (ug/L) below:

Well #28 (City)- 16, 10, 12

Well #30(City)- 9, 5

Well # 4 (UCD)- 5, 12

Well #6A (UCD)- 24, 14

Well #7A (UCD)- 9, 11

Larry Ernst was asked about the variability in the hexavalent chromium levels. He said that he does not know much about the chromium 6 testing methods. He "understands that they have changed some as they have attempted to lower the detection levels." He does not know what the MCL for chromium 6 will be. Larry also noted that "variations in water quality can be the result of casing leaks."