

## Shock Chlorination: Use of Chlorine Test Strips as Indicators of Completed Purging

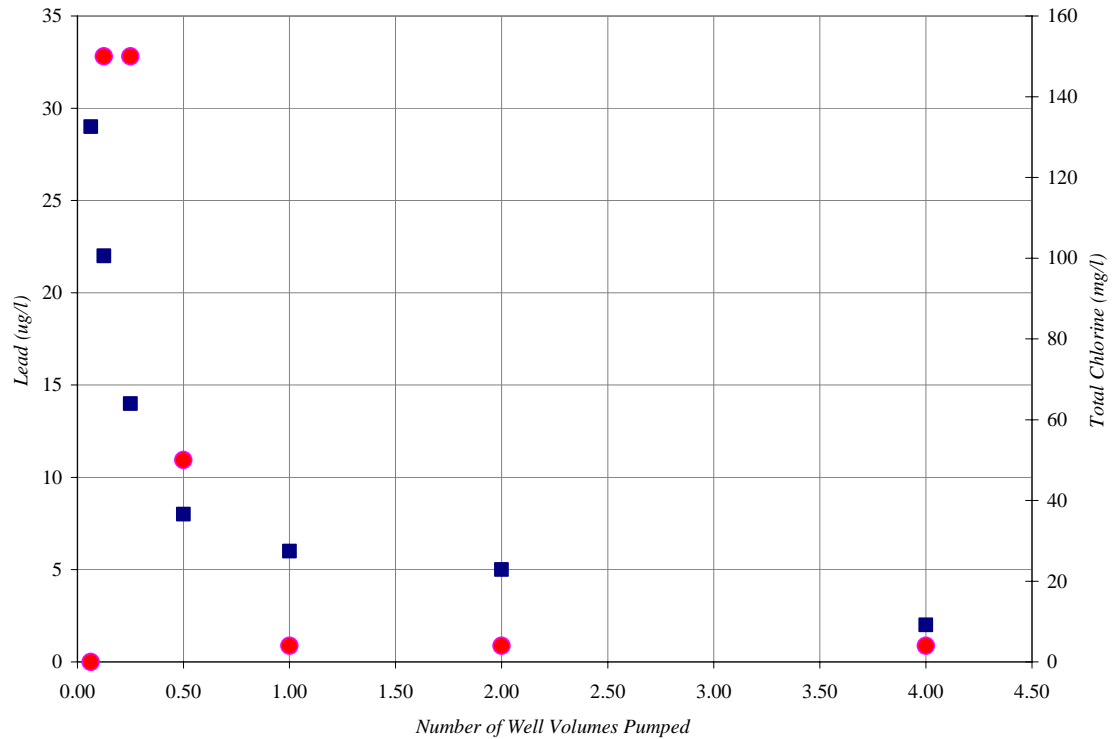


Figure 5: Concentrations of lead (■) and total chlorine (●) during purging following shock chlorination (treatment at 200 ppm total chlorine for 12 hours) of a domestic well. Chlorine concentrations were estimated using simple test strips available for testing water quality in spas.

<i>Background/Need for Project:</i>	Research carried out by the U.S. Geological Survey in Nevada indicated that shock chlorination mobilized metals such as lead from aquifer materials for a very short time (see Seiler, R. 2006. <i>Mobilization of lead and other trace elements following shock chlorination of wells</i> . Science of the Total Environment, 367(2-3):757-768). Although the effect is temporary it is unclear how well owners would know when water is safe to drink after treatment is completed.
<i>Location:</i>	Nevada, California
<i>People involved:</i>	Mark Walker, Ralph Seiler (U.S. Geological Survey)
<i>Started/ Expected end date:</i>	5/2007—9/2008
<i>Brief project description:</i>	<i>Project objectives:</i> This project involved shock chlorinating wells to look for disinfection byproducts and metals and to track concentrations of both during purging. We use a simple paper strip to test chlorine levels in water, which has proven to be an effective indicator in preliminary tests

	<p>(Figure 5).</p> <p><i>Project activities to date:</i> To date we have tested six wells before and after treatment with chlorine.</p> <p><i>Accomplishments/Findings:</i> Several have shown the same kind of increases in lead noted in previous research (Figure 5). None have shown elevated disinfection byproducts. The chlorine test strips appear to be useful for indicating when water is safe to drink. When the test strips indicate that no chlorine is present in water levels of lead also decreased.</p> <p><i>Plans for the future:</i> We plan to continue this work with at least four more wells in 2008 to demonstrate the mobilization of metals and the use of chlorine test strips to indicate when water is safe to consume following treatment. We also plan to produce a peer-reviewed journal article and fact sheets that accompany the Shock Chlorination series produced as part of the regional project (see below).</p>
<p><i>Outcomes:</i></p>	<p>This work will provide guidelines and a simple procedure for homeowners who are interested in shock chlorination. The guidelines will explain the use of a simple tool to help them understand when water is safe to drink after treatment.</p>