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For Immediate Release
April 12, 2012

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Investigation finds perchlorate contamination in sample wells at Barstow site

An investigation by the Lahontan Regional Water Quality Control Board (Water Board) reveals that 12 of 22 temporary sample wells in Barstow are contaminated with perchlorate, a chemical used in making explosives.

The wells were drilled near the former residence of a pyrotechnics company owner. The company ceased operation in the mid-1980s and the owner has since died.

The Perchlorate Groundwater Investigation Report outlines the results of a project, initiated by the Water Board, to determine the extent of contamination in groundwater from an illegal dumping of perchlorate salts. The pyrotechnics company ceased operation in the mid-1980s.

Funding for the investigation was provided by State Cleanup and Abatement Funds through the State Water Resources Control Board.

Twenty-two temporary wells were drilled and sampled in December 2011 for the groundwater investigation. Drilling and sampling were performed by an environmental consultant contracted by the Water Board. The groundwater tested was typically 20 feet below the surface.

Most of the samples were taken in the area closest to the suspected source of the contamination extending toward the south-southeast, the assumed groundwater flow direction.

Perchlorate was detected in 12 of the 22 groundwater sample locations. Detected concentrations of perchlorate ranged from 4.5 to 13,000 micrograms per liter (also known as parts per billion). The concentration of perchlorate in impacted groundwater is highest near the suspected source area and gradually decreases toward the southeast, forming a relatively narrow plume.

The groundwater investigation was planned to sample shallow groundwater to define the extent of contamination. The investigation did not sample deeper groundwater and did not define the vertical extent of perchlorate-impacted groundwater. A map of the groundwater investigation results is attached.

The U.S. EPA will continue to assess the residential property, which is located on Poplar Street in Barstow, and will begin evaluation of alternatives for the removal, treatment, containment and control of perchlorate-contaminated soil. This evaluation should be completed and cleanup activities begun by EPA in mid-summer 2012. The Water Board is working with other state and federal agencies to determine future steps that may be taken for additional groundwater investigation and remediation, and possible funding sources to address the problem. The full report can be viewed and downloaded at:

http://www.waterboards.ca.gov/lahontan/water_issues/programs/perchlorate/index.shtml

Perchlorate has been used in rocket fuels, fireworks, flares, explosives and other applications. California has set the Maximum Contaminant Level (MCL or drinking water standard), at 6.0 parts per billion for perchlorate. The federal government has not yet set an MCL for perchlorate. MCLs are set for consumption purposes only; therefore, it is important not to drink or prepare food with water that exceeds

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an MCL. Boiling the water does not remove perchlorate and may actually concentrate it in the water. One may, however, use water that exceeds an MCL for other household purposes such as bathing, washing dishes, washing clothes, general cleaning and irrigation. MCLs are set for humans; no standards exist for consumption by animals or for irrigation purposes.