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### INLAND EMPIRE PERCHLORATE GROUND WATER PLUME ASSESSMENT ACT

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SEPTEMBER 27, 2010.—Ordered to be printed

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Mr. BINGAMAN, from the Committee on Energy and Natural  
Resources, submitted the following

### R E P O R T

[To accompany H.R. 4252]

The Committee on Energy and Natural Resources, to which was referred the Act (H.R. 4252) to direct the Secretary of the Interior to conduct a study of water resources in the Rialto-Colton Basin in the State of California, and for other purposes, having considered the same, reports favorably thereon without amendment and recommends that the Act do pass.

#### PURPOSE

The purpose of H.R. 4252 is to direct the Secretary of the Interior to conduct a study of water resources in the Rialto-Colton Basin in the State of California, and for other purposes.

#### BACKGROUND AND NEED

Perchlorate is both a naturally occurring and man-made chemical. Most of the perchlorate manufactured in the United States is used as the primary ingredient of solid rocket propellant and is also used in the manufacture of pyrotechnics and roadside flares. Perchlorate-containing chemicals are increasingly being discovered in soil and groundwater. Over the last several years the Environmental Protection Agency has been studying the impact of perchlorate in water and its impacts on both adults and children. Perchlorate is a regulated drinking water contaminant in California, with a maximum contaminant level of 6 micrograms per liter.

Perchlorate has been detected in 20 water supply wells at concentrations above the California action level of 4 parts per billion in the Rialto-Colton Basin. The basin is the source of water for

thousands of San Bernardino County residents. The introduction of perchlorate into the Rialto-Colton Basin can be traced to the B.F. Goodrich Site, a 160-acre area in Rialto, once used for construction of rockets and fireworks. The other source of contamination is the San Bernardino Landfill. In September 2008, the Environmental Protection Agency proposed adding the B.F. Goodrich Site to the Superfund National Priorities List.

H.R. 4252 proposes a study of the complicated geological formation surrounding the contamination in order to understand how to best clean up the existing contamination. Before a comprehensive cleanup plan can be developed, additional data must be collected at source sites and regionally. Although information through EPA and other monitoring wells exists, information gaps still remain that must be resolved prior to finalizing and implementing an effective cleanup plan to restore the aquifer.

#### LEGISLATIVE HISTORY

H.R. 4252, sponsored by Representative Baca, passed the House of Representatives by voice vote on March 18, 2010. The Subcommittee on Water and Power held a hearing on H.R. 4252 on June 9, 2010. At its business meeting on July 21, 2010, the Committee on Energy and Natural Resources ordered H.R. 4252 favorably reported without amendment.

#### COMMITTEE RECOMMENDATION

The Committee on Energy and Natural Resources, in open business session on July 21, 2010, by voice vote of a quorum present, recommends that the Senate pass H.R. 4252.

#### SECTION-BY-SECTION ANALYSIS

*Section 1* identifies the short title of the bill as the “Inland Empire Perchlorate Ground Water Plume Assessment Act of 2010”.

*Section 2* authorizes the Secretary of the Interior, acting through the United States Geological Survey, and in coordination with the State of California, and other federal agencies, to conduct a study of the water resources of the Rialto-Colton Basin in the State of California. The study shall include a characterization of the extent of perchlorate in the area groundwater and an identification of potential source areas. At the conclusion of the study, the Secretary of the Interior shall report to the Senate Committee on Energy and Natural Resources and the House Natural Resources Committee.

#### COST AND BUDGETARY CONSIDERATIONS

The following estimate of costs of this measure has been provided by the Congressional Budget Office:

*H.R. 4252—Inland Empire Perchlorate Ground Water Plume Assessment Act of 2010*

H.R. 4252 would direct the U.S. Geological Survey to conduct a study of water resources in the Rialto-Colton Basin located east of Los Angeles, California. The study would identify the location of aquifers in the basin, evaluate the impact of perchlorate contamination in the basin, and include analysis of other related water issues in the basin. Based on information from the U.S. Geological

Survey and assuming appropriation of the necessary amounts, CBO estimates that implementing H.R. 4252 would cost \$4 million over the next two years.

Enacting the legislation would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply.

H.R. 4252 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act and would impose no costs on state, local, or tribal governments.

On March 3, 2010, CBO provided a cost estimate for H.R. 4252 as ordered reported by the House Committee on Natural Resources on February 24, 2010. The two versions of the legislation and CBO's cost estimates are similar.

The CEO staff contact for this estimate is Aurora Swanson. The estimate was approved by Theresa Gullo, Deputy Assistant Director for Budget Analysis.

#### REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out H.R. 4252.

The bill is not a regulatory measure in the sense of imposing Government-established standards or significant economic responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy.

Little, if any, additional paperwork would result from the enactment of H.R. 4252, as ordered reported.

#### CONGRESSIONALLY DIRECTED SPENDING

H.R. 4252, as ordered reported, does not contain any congressionally directed spending items, limited tax benefits, or limited tariff benefits as defined in rule XLIV of the Standing Rules of the Senate.

#### EXECUTIVE COMMUNICATIONS

##### STATEMENT FOR THE RECORD, U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

Madam Chairwoman and members of the Subcommittee, I appreciate the opportunity to provide the Department of the Interior's views regarding U.S. Geological Survey (USGS) scientific capability relevant to the Inland Empire Perchlorate Ground Water Plume Assessment Act of 2009 (H.R. 4252).

##### USGS SCIENCE IN SUPPORT OF GROUNDWATER MANAGEMENT AND CONTAMINANTS

The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life. The specific mission of the USGS California Water Science Center is to

collect, interpret, and provide unbiased and timely scientific information of the highest quality for the responsible planning, use, and management of California's water resources in cooperation with local, State, and other Federal agencies. Scientific issues related to the occurrence and movement of groundwater and contaminants, such as perchlorate, fall within the scope of the USGS mission.

PERCHLORATE ISSUES IN RIALTO-COLTON AND THE "INLAND EMPIRE"

The Rialto-Colton Basin is located in western San Bernardino County in California, about 60 miles east of Los Angeles in the upper Santa Ana River watershed (the Inland Empire). The Rialto-Colton Basin is bounded on the northeast by the Bunker Hill and Lytle Creek Basins and on the southwest by the Chino and North Riverside Basins. Groundwater presently constitutes about 79 percent of the drinking-water supply in the Inland Empire. Perchlorate has been detected in the main water-producing aquifers within the Rialto-Colton and adjacent basins and has contaminated water in more than 20 production wells that supply the communities within the Rialto-Colton Basin and surrounding area.

Perchlorate ( $\text{ClO}_4$ ) has both synthetic and natural sources. Synthetic perchlorate is a residual of the manufacture and use of rocket propellants, fireworks, flares and other pyrotechnic devices. Minor concentrations of natural perchlorate has been measured in mined Chilean nitrate fertilizers. Perchlorate is extremely soluble and is carried in groundwater without retardation or absorption. The two major sources of synthetic perchlorate in the area are San Bernardino County's Mid-Valley Sanitary Landfill and a 160-acre site near the landfill. These two sites were used for storage and destruction of perchlorate-containing compounds such as explosives, propellants, and pyrotechnic devices. Chilean nitrate fertilizer was commonly used in the Basin in the early part of the 20th century. In addition, imported water from the Colorado River contains measurable perchlorate and also may be a source of perchlorate in the Inland Empire. Recent data collected by the USGS indicates that low levels of perchlorate have accumulated naturally in unsaturated zones in arid and semi-arid areas of the southwestern United States, such as the Mojave Desert, likely as a result of atmospheric deposition.

Perchlorate contamination is of concern to water managers because of the importance of groundwater in this region. Water managers need to know the source, fate, and transport of perchlorate within the Rialto-Colton Basin and adjacent basins in order to effectively mitigate the contamination. Major uncertainties facing water managers include: (1) the source(s) of perchlorate in specific wells; (2) the hydrologic and geologic controls on the migration of perchlorate within the Rialto-Colton Basin; (3) the effectiveness of the Rialto-Colton Fault as a barrier to perchlorate migration from the Rialto-Colton basin to the ad-

adjacent Chino and North Riverside basins; and (4) the potential vertical movement of perchlorate through long-screened wells.

#### WHAT IS THE USGS DOING IN THE AREA?

The USGS has a long history of hydrologic work in the Rialto-Colton area and adjacent areas in the Inland Empire going back as far as the early 1900s. This work has been updated periodically and collectively forms the basis of our scientific understanding of the regional hydrogeologic setting, the movement of water within aquifers pumped for public supply, and water-quality issues in the area. The USGS operates an extensive groundwater-monitoring network providing the public with real-time information on water levels and water quality. The USGS has developed predictive models in the Rialto-Colton Basin (Woolfenden and Kadhim, 1997; Woolfenden and Koczot, 2001) and the adjacent Lytle Creek and Bunker Hill groundwater basins (Danskin and Freckleton, 1989; Danskin and others, 2006) to assist in the management of the water resources in the area. These models are based on the current scientific understanding of the geology and hydrology in the area, including the areal and vertical extent of aquifers, hydraulic properties, recharge and discharge of groundwater, and the interaction between groundwater and surface water. Most of the USGS research done in the Inland Empire has been in cooperation with local water management agencies such as the San Bernardino Valley Municipal Water District under the auspices of the USGS Cooperative Water Program. In the past five years, about 70 percent of the cost of these studies has been borne by local agencies.

In recent years, the USGS has been working with local water agencies to help them understand the sources, distribution, and migration of perchlorate in the Inland Empire. A recent study completed as part of the USGS Groundwater Ambient Monitoring and Assessment (GAMA) Program (Belitz and others, 2003) sampled 99 drinking water wells throughout the Inland Empire and identified perchlorate in about 67 percent of the wells at the reporting level of 0.5 micrograms per liter ( $\mu\text{g/L}$ ); about 10 percent had perchlorate concentrations in excess of the California maximum contaminant level of 6  $\mu\text{g/L}$ , but no well had concentrations in excess of the EPA health reference level (Kent and Belitz, 2009). Woolfenden (2008) used a particle-tracking model to determine the susceptibility of an aquifer to perchlorate contamination in the Rialto-Colton Basin. Izbicki (2008) collected wellbore flow and depth-dependent water-quality data from a public supply well near Highland, CA located in the northern part of the Inland Empire. Water-quality and isotopic data indicated that the source of perchlorate was Chilean nitrate fertilizer.

The USGS is participating in a 2-year study funded by the Department of Defense Environmental Security Tech-

nology Certification Program (ESTCP) to apply state-of-the-art chemical and multiple-isotope techniques to identify the source of perchlorate within the Inland Empire. A total of 25 wells will be sampled and analyzed for perchlorate, perchlorate isotopes, and other tracers in the Rialto-Colton Basin and Chino Basin adjacent to the Rialto-Colton Fault. Data collected in this study are intended to help identify the areal and vertical extent of perchlorate contamination near the margin plumes in areas having high background perchlorate concentrations from fertilizer or other sources. An important component of this new work is to investigate the impact of well-bore flow on the vertical distribution of perchlorate within aquifers.

RIALTO-COLTON BASIN, CALIFORNIA WATER-RESOURCES  
STUDY

The key issues of concern identified in H.R. 4252 are:

- A. The delineation, either horizontally or vertically, of the aquifers in the Rialto-Colton Basin within the State, including the quantity of water in the aquifers;
- B. the availability of groundwater resources for human use;
- C. the salinity of groundwater resources;
- D. the identification of a recent surge in perchlorate concentrations in groundwater, whether significant sources are being flushed through the vadose zone, or if perchlorate is being remobilized;
- E. the identification of impacts and extents of all source areas that contribute to the regional plume to be fully characterized;
- F. the potential of the groundwater resources to recharge;
- G. the interaction between groundwater and surface water;
- H. the susceptibility of the aquifers to contamination, including identifying the extent of commingling of plume emanating within surrounding areas in San Bernardino County, California; and
- I. characterization of surface and bedrock geology, including the effect of the geology on groundwater yield and quality.

The USGS has the capability to complete a 2-year study to address the issues of concern presented in H.R. 4252 for the Rialto-Colton Basin. The tasks required are within the scope of the USGS mission and expertise and could be accomplished under existing authorities.

H.R. 4252 focuses on perchlorate issues in the Rialto-Colton Basin; however, perchlorate is a concern throughout the Inland Empire. If requested, the USGS could consider options for studying this issue throughout the region.

CONCLUSION

The USGS has the scientific capacity to address issues of concern identified in H.R. 4252, a strong working relationship with many of the people currently working on

groundwater quality issues in California's Inland Empire, and a reputation for providing unbiased information.

The problem of groundwater quality affecting drinking water supplies is not unique to communities in Rialto-Colton or the Inland Empire. Perchlorate is an issue throughout the southwestern U.S. Therefore, methods developed to understand the perchlorate contamination in the Rialto-Colton could be useful to water managers in other basins.

We note, however, that the activities called for in H.R. 4252 are already authorized by existing authorities. Any study conducted to fulfill the objectives of the bill would need to compete for funding with other Administration priorities.

Thank you, Madam Chairwoman, for the opportunity to present the views of the Department on H.R. 4252. I will be happy to answer any questions you or the other Members may have.

#### REFERENCES

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CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law are made by H.R. 4252, as ordered reported.

