

**MEETING OF THE GROUNDWATER QUALITY COMMITTEE
OF THE BOARD OF DIRECTORS
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA
4040 PARAMOUNT BOULEVARD, LAKEWOOD, CA 90712
12:00 P.M., WEDNESDAY, APRIL 27, 2011**

AGENDA

EACH ITEM ON THE AGENDA, NO MATTER HOW DESCRIBED, SHALL BE DEEMED TO INCLUDE ANY APPROPRIATE MOTION, WHETHER TO ADOPT A MINUTE MOTION, RESOLUTION, PAYMENT OF ANY BILL, APPROVAL OF ANY MATTER OR ACTION, OR ANY OTHER ACTION. ITEMS LISTED AS "FOR INFORMATION" MAY ALSO BE THE SUBJECT OF ANY "ACTION" TAKEN BY THE BOARD OR A COMMITTEE AT THE SAME MEETING.

- 1. DETERMINATION OF A QUORUM**
- 2. PUBLIC COMMENT**
- 3. GROUNDWATER QUALITY UPDATE – PERCHLORATE REGULATORY UPDATE**
Staff Recommendation: For information.
- 4. GROUNDWATER CONTAMINATION UPDATE**
Staff Recommendation: For information.
- 5. DIRECTORS' REPORTS, INQUIRIES, AND FOLLOW UP OF DIRECTIONS TO STAFF**
- 6. ADJOURNMENT**

Posted by Abigail C. Andom, Deputy Secretary, April 22, 2011.

In compliance with the Americans with Disabilities Act (ADA), if special assistance is needed to participate in the Board meeting, please contact Deputy Secretary Abigail Andom at (562) 921-5521 for assistance to enable the District to make reasonable accommodations.

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Agendas and minutes are available at the District's website, www.wrd.org.



MEMORANDUM

ITEM NO. 3

Prepared by: Cathy Chang

Reviewed by: Ted Johnson

Approved by: Robb Whitaker

DATE: APRIL 27, 2011

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: GROUNDWATER QUALITY UPDATE – PERCHLORATE REGULATORY UPDATE

SUMMARY

This memo updates the perchlorate memo dated March 24, 2010, provided to the Groundwater Quality Committee. The following is a brief summary of the pertinent water quality regulations, potential health effects of perchlorate, WRD service area wells affected by perchlorate contamination, and potential treatment technologies.

In 2007, the California Department of Public Health (CDPH) set a drinking water standard (i.e. Maximum Contaminant Level or MCL) for perchlorate of 6 µg/L, the same as the existing public health goal (PHG). On January 7, 2011, the California Office of Environmental Health Hazard Assessment (OEHHA) released for public comment a draft PHG for perchlorate that proposes to reduce the existing PHG from 6 micrograms per liter (µg/L) to 1 µg/L. Once a final PGH for perchlorate is established, CDPH will act to develop and adopt a MCL based on the PGH and several other factors, including chemical occurrence, population exposed, treatment feasibility and cost, and detection limit. Currently, the detection limit for purposes of reporting for perchlorate is 4 µg/L. At the present time, there is no federal MCL for perchlorate.

Perchlorate is both a naturally occurring and manmade contaminant found in groundwater, surface water, and soil. Perchlorate is a component of rocket fuel, missiles, and fireworks. Perchlorate interferes with iodide uptake into the thyroid gland, which can lead to impairment of metabolism and of proper development of young children, and creation of tumors in the thyroid. Drinking water contaminated with perchlorate is the most likely way that perchlorate can be ingested.

As of January 2011, CDPH reported that perchlorate has been found in 273 sources in the state. "Sources" include pending, inactive, and destroyed or abandoned wells, including monitoring wells and agricultural wells. Many of these sources are near aerospace and defense sites. About 59% of detected are above the current MCL of 6 µg/L, with a third of the sources exceeding MCLs located in Los Angeles County.

Groundwater cannot be served to the public if the perchlorate levels exceed the MCL. If exceedances occur, the wells are either shut down or the water treated to meet State standards. Perchlorate has been detected in several monitoring wells and groundwater

production wells in the northern area of the Central Basin. Because of the proximity of these impacted wells to each other and the perchlorate concentrations detected thus far, an investigation has been initiated by the Department of Toxic Substances Control (DTSC) and WRD to identify potential perchlorate sources. Soil, soil gas, and groundwater sampling will be conducted to determine the extent of perchlorate contamination in the area. WRD has been assisting in the data collection and will continue to monitor the status of the investigation.

In addition, since 2008 WRD has been coordinating annual perchlorate monitoring through our Title 22 Groundwater Monitoring Program, which includes 20 pumpers in our District service area. Existing data (2008 to 2010) showed no exceedance of MCLs associated with the participating production wells.

Effective treatment technologies for perchlorate in water include ion exchange, bioreactors, and granular activated carbon (GAC). In the Central Basin, an ion exchange system has been operating since 2005 to remove perchlorate to below detection levels ($< 4 \mu\text{g/L}$). In this particular case, ion exchange system was chosen over other methods because it was the most cost effective at \$200 to \$250 per acre-feet.

The committee will be informed of new developments as they occur.

FISCAL IMPACT

None at this time.

STAFF RECOMMENDATION

For information.



MEMORANDUM

ITEM NO. 4

Prepared by: Phuong Ly

Reviewed by: Ted Johnson

Approved by: Robb Whitaker

DATE: APRIL 27, 2011

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: GROUNDWATER CONTAMINATION UPDATE

CONTAMINATED GROUNDWATER SITES

With the cooperation and support of stakeholders such as the United States Environmental Protection Agency (USEPA), California Regional Water Quality Control Board, Los Angeles Region (RWQCB), and California Department of Toxic Substances Control (DTSC), WRD developed a list of high-priority contaminated groundwater sites within District boundaries. This list is a living document, subject to cleanup and "closure" of sites as well as discovery of new sites warranting further attention. Currently, the list includes 46 sites across the Central and West Coast Basins.

WRD has been working with the lead regulatory agencies for each of these sites to keep abreast of their status, review and provide recommendations as needed, facilitate progress in site characterization and cleanup, and provide technical and financial assistance when necessary. Below is a discussion of two sites that were recently updated with information obtained from the lead regulatory agency.

FORMER TRW SPACE & DEFENSE, CITY OF HAWTHORNE (WEST COAST BASIN)

The 17-acre site was used for the design, manufacturing, and testing of semiconductors from 1956 through 1992. During site operations, various chemicals were used in the manufacturing process, including chlorinated solvents, aromatic hydrocarbons, and ketones. Additionally, a wastewater neutralization pit and five underground storage tanks (USTs) containing waste solvents, fuel oil, and insulating oil were also used at the site. In 1994, all site buildings and subsurface structures were removed from the site. In 1999, a developer acquired the property redeveloped the site into a commercial property that now includes two hotels, two banks, a self-storage facility, and a medical building. Due to historical site activities, groundwater beneath the site is contaminated and investigation/remediation activities are being conducted under the oversight of the RWQCB. Details follow regarding these ongoing investigation and remediation activities.

Constituents of concern in groundwater beneath the site are volatile organic compounds (VOCs). These constituents are detected in the "Dune Sand" aquifer, which extends to a depth of approximately 140 feet below ground surface (ft bgs) and is followed by an aquitard that extends to at least 147 ft bgs. As of February 2010, no chemicals of concern have been detected in the nearest active production (drinking water) wells.

Remediation activities at the site consist of soil excavation, in situ thermal treatment of soils, soil vapor extraction (SVE), and groundwater pump and treat, as further discussed below.

- From 1994 through 1996, contaminated surficial soils were removed from the site and RWQCB subsequently issued closure for site surficial soils in June 1997.
- From April 2008 to March 2009, in situ thermal treatment of the vadose zone and the groundwater was conducted on site by applying electrical resistance heating (ERH) technology. Electrodes were placed in the ground to heat the subsurface, which increased the rate of contaminant removal. Contaminated vapors are treated by the on-site SVE system.
- The SVE system began operating at the site in 1996 and is now only intermittently operated when necessary. In December 2005, RWQCB issued closure for vadose zone soils.
- Groundwater pump and treat has been conducted at the site since 1998 to hydraulically contain VOCs in groundwater and to remove dense non-aqueous phase liquids (DNAPL). The groundwater treatment system continues to operate at the site.

PEMACO SUPERFUND SITE, CITY OF MAYWOOD (CENTRAL BASIN)

The 1.4-acre site was occupied by Pemaco Chemical Company from the 1940s until June 1991, when the site was abandoned. Pemaco conducted chemical mixing on site, including the use of chlorinated and aromatic solvents, flammable liquids, oils, and specialty chemicals, which were stored in 31 USTs and multiple drums and aboveground storage tanks (ASTs). Between 1991 and 1998, all stored chemicals, drums, ASTs, and USTs were removed from the site. The site was listed on the USEPA National Priorities List (NPL) in 1999. Soil and groundwater contamination has occurred at the site, but the site is actively undergoing investigation/remediation activities under the oversight of the USEPA. Details follow regarding these ongoing investigation/remediation activities.

Chemicals of concern in groundwater beneath the site (specifically, the perched groundwater zone and the Exposition Aquifer) are VOCs. As of May 2010, no chemicals of concern have been detected in the nearest active production (drinking water) well.

Currently, the northern portion of the site and adjacent properties have been developed into the Maywood Riverfront Park, which is a public recreational park that was completed in June 2006. The southern portion of the site had the highest levels of contaminants and is currently uncovered. It is referred to as the Electrical Resistance Heating (ERH) area because in situ thermal treatment was conducted in soils and groundwater.

Remediation activities at the site consist of soil excavation, in situ thermal treatment of soils, soil vapor extraction (SVE), and groundwater pump and treat, as further discussed below.

- Between March and July 2005, contaminated shallow soil in one area of the site was removed as part of the construction activities of the Maywood Riverfront Park. Certified clean fill was placed over the entire park area.

- From September 2007 to April 2008, in situ thermal treatment of the vadose zone and the groundwater was conducted on site by applying electrical resistance heating (ERH) technology. Electrodes were placed in the ground to heat the subsurface, which increased the rate of contaminant removal. Vapors were extracted by the on-site SVE system.
- An interim SVE treatment system operated at the site from 1998 through 1999. A new SVE system has been operating at the site since May 2007 and continues to the present.
- Groundwater extraction began in April 2007 and continues to the present.
- Contaminated vapors and groundwater are treated by an on-site GAC treatment plant. As of October 2010, approximately 21,400 pounds of VOCs have been removed from the subsurface.

FISCAL IMPACT

None at this time.

STAFF RECOMMENDATION

For information.