

**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, MAY 26, 2010**

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 – PROPOSED WATER QUALITY REGULATIONS FOR 1,2,3 - TRICHLOROPROPANE**
Staff Recommendation: For information.
- 4. GROUNDWATER QUALITY UPDATE – CHEMICALS OF EMERGING CONCERN SCIENCE ADVISORY PANEL DRAFT REPORT**
Staff Recommendation: For information.
- 5. GROUNDWATER CONTAMINATION UPDATE**
Staff Recommendation: For information.
- 6. DIRECTORS' REPORTS, INQUIRIES, AND REVIEW OF DIRECTIONS TO STAFF**
- 7. ADJOURNMENT**

Posted by Abigail C. Andom, Deputy Secretary, May 21, 2010.

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.

All public records relating to an agenda item on this agenda are available for public inspection at the time the record is distributed to all, or a majority of all, members of the Board. Such records shall be available at the District office located at 4040 Paramount Boulevard, Lakewood, California 90712.

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



MEMORANDUM

ITEM NO. 3

Prepared by: Hoover Ng

Reviewed by: Ted Johnson

Approved by: Robb Whitaker

DATE: MAY 26, 2010

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: GROUNDWATER QUALITY UPDATE – PROPOSED WATER QUALITY REGULATIONS FOR 1,2,3 - TRICHLOROPROPANE

SUMMARY

The California Department of Public Health (CDPH) recently indicated that 1,2,3 – trichloropropane (TCP) is a potential candidate for water quality rulemaking in the near future. It was one of several unregulated contaminants for which monitoring is required to determine if there was widespread occurrence in the state. As of July 1, 2009, it was detected in 2 or more samples in 335 sources with the highest level at 57 micrograms per liter (ug/L) from a Burbank Operable Unit. Most detections were in Kern, Fresno, and Los Angeles counties. In the District's service area, TCP was found above the Notification Level (NL) of 0.005 ug/L in 2 production wells in 2001. However, in follow up samples, it was not detected.

TCP has been shown to cause cancer to animals and is recognized as a human carcinogen. It has historically been used as a degreaser, paint and varnish remover, and cleaning solvent, as well as a pesticide. More recent analytical methods were developed that are more sensitive and have lower detection limits (0.005 ug/L) than earlier methods (0.5 ug/L), and therefore, more detections were noted. The CDPH NL for TCP is 0.005 ug/L, the same as the detection limit. There is no federal standard.

TCP is slightly soluble in water and does not adsorb well on soil, and therefore would be readily transported in an aquifer if it were present. Because it is denser than water, it is also prone to migrate into deeper aquifers. Because it is a chlorinated hydrocarbon, treatment options for TCP would be air stripping and activated carbon. In addition, oxidation with potassium permanganate and biological degradation has shown some success in removal as well.

In September 2007, the State Office of Environmental Health Hazard Assessment (OEHHA) released a draft Public Health Goal (PHG) and in January 2009, a revised draft PHG. In August 2009, OEHHA finalized the PHG at 0.0007 ug/L for TCP. A PHG is established after reviewing health effects information only and may or may not be realistic or achievable in practice. After this PHG has been finalized, CDPH will proceed with establishing a drinking water Maximum Contaminant Level (MCL) as close as possible to the PHG, and will consider not only health effects, but also occurrence and exposure levels and technical and economic feasibility.

The CDPH follows several steps before establishing an enforceable regulatory standard, or MCL.

- Gather and evaluate occurrence data
- Evaluate available analytical methods and estimate monitoring costs at a draft MCL
- Estimate population exposures at a draft MCL
- Identify best available treatment (BAT) options
- Estimate treatment costs at the draft MCL
- Review costs and associated health benefits (health risk reductions)
- Propose draft MCL
- Adopt a final MCL

FISCAL IMPACT

None.

STAFF RECOMMENDATION

For information.



MEMORANDUM

ITEM NO. 4

Prepared by: Hoover Ng

Reviewed by: Ted Johnson

Approved by: Robb Whitaker

DATE: MAY 26, 2010

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: GROUNDWATER QUALITY UPDATE – CHEMICALS OF EMERGING CONCERN SCIENCE ADVISORY PANEL DRAFT REPORT

SUMMARY

The State Water Resources Control Board adopted a new recycled water policy in May 2009 that recognized the importance and increased role of recycled water in the state. One of the provisions in this policy is how to address new classes of chemicals, such as pharmaceuticals, personal care products, and industrial chemicals, collectively referred to as “chemicals of emerging concern (CEC),” that may be present in recycled water. The Policy authorized the formation of a science advisory panel (Panel) to address this issue and use the best science available for its work.

The Panel was convened in May 2009, and is comprised of the following experts – human health toxicologist, environmental toxicologist, risk assessment/ epidemiologist, biochemist, civil engineer familiar with design and construction of recycled water treatment projects, and chemist familiar with advanced laboratory methods for the detection of CECs.

The Panel was tasked to provide responses and recommendations to the following questions:

- What are the appropriate constituents to be monitored in recycled water, and what are the applicable monitoring methods and detection limits?
- What toxicological information is available for these constituents?
- Would the constituent list change based on level of treatment? If so, how?
- What are the possible indicators (i.e. surrogates) that represent a suite of CECs?
- What levels of CECs should trigger enhanced monitoring in recycled, ground or surface waters?

The Panel was explicitly charged with developing their responses in the context of recycled water use in groundwater recharge and landscape irrigation projects and how its use might impact human health. A separate panel and effort is underway to address environmental impacts. Several meetings have been held and findings from their draft report, “Monitoring Strategies for Chemicals of Emerging Concern (CECs) in Recycled Water” was recently released for public comment.

The approach and conceptual framework that the Panel decided to follow to help prioritize CEC monitoring was as follows:

- Compile occurrence data or measurable environmental concentrations (MEC)
- Develop monitoring trigger levels (MTL) based on toxicological relevance
- Compare the MEC with the MTL, and prioritize those CEC's with MEC/MTL is > 1
- Screen the priority CEC's to ensure robust analytical methods are available

Provisions of this framework also include prioritizing chemicals that are presently unknown by using yet-to-be-developed bioanalytical methods to screen for them. Chemicals that are already regulated or being considered for regulation were excluded from review and prioritization, since they are no longer considered "emerging".

In addition, the Panel also defined an approach to identify indicator compounds for assessing treatment performance, which would include CECs or surrogate parameters. The chemicals selected for monitoring would depend upon the treatment process.

The Panel utilized these approaches to screen candidate CECs for toxicological relevance. A key finding is that for groundwater recharge projects, they found only 3 compounds that met their criteria, MEC/MTL > 1 , that should be monitored, 17 beta-estradiol, caffeine, and triclosan, based on toxicological relevance (MEC/MTL >1). They also recommended monitoring for additional CECs for treatment performance assessment. NDMA was considered, but excluded from screening, because there was insufficient information on occurrence data.

It was noted that any monitoring program needs to be flexible and adjustable, based on findings, and that laboratory analytical methods need to be further developed to be robust enough for commercial laboratories to employ. If CECs are detected, there may be a need to increase monitoring; however, if none are found after an extended period, then less monitoring would be required.

For future improvements in monitoring and interpreting CEC data, the Panel recommended more and better analytical methods, development of bioanalytical screening techniques to better identify future unknowns, and development of a process to predict likely CEC concentrations, based on production, use, and environmental fate, as a means of prioritizing chemicals on which to focus method development and toxicological investigations.

FISCAL IMPACT

None.

STAFF RECOMMENDATION

For information.



MEMORANDUM

ITEM NO. 5

Prepared by: Phuong Ly

Reviewed by: Ted Johnson

Approved by: Robb Whitaker

DATE: MAY 26, 2010

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), Los Angeles Regional Water Quality Control Board (LARWQCB), 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.

CONOCO PHILLIPS LOS ANGELES REFINERY (CITY OF CARSON, WEST COAST BASIN)

The Conoco Phillips Los Angeles Refinery is comprised of two active facilities: one in the City of Los Angeles (Wilmington area - a.k.a. Wilmington Plant) and the other in the City of Carson (a.k.a., Carson Plant). Both plants have caused soil and groundwater contamination from past operations, and are actively investigating and cleaning up their sites under orders by the LARWQCB. Details follow:

The two plants are connected by pipelines and together they provide complete petroleum refining operations. The Wilmington Plant is located approximately 2.5 miles southwest of the Carson Plant. Investigations/remediation at both the Carson and Wilmington Plants are conducted under the same Cleanup and Abatement Order, which was issued by LARWQCB.

Refinery operations have been conducted at the 245-acre Carson Plant since 1923. Constituents of concern in groundwater include volatile organic compounds (VOCs) and fuel oxygenates. Contaminants are detected in the Bellflower Aquitard, Gage Aquifer, and Silverado Aquifer beneath the site; the highest concentrations are detected in the Bellflower

Aquitard. Below is a summary of the most recent analytical results of groundwater samples collected from the site.

SUMMARY OF RECENT GROUNDWATER ANALYTICAL RESULTS Conoco Phillips Los Angeles Refinery, City of Carson		
Chemical	Concentration in Groundwater (October 2009)	Maximum Contaminant Level (MCL)
Benzene	15,000 ug/L	1 ug/L
Toluene	530 ug/L	150 ug/L
Ethylbenzene	1,000 ug/L	300 ug/L
Xylenes	840 ug/L	1,750 ug/L
Methyl tert-butyl ether (MTBE)	2,100 ug/L	13 ug/L
1,2-Dichloroethane (1,2-DCA)	1.4 ug/L	0.5 ug/L
1,4-Dichlorobenzene (1,4-DCB)	6 ug/L	5 ug/L
cis-1,2-Dichloroethene (cis-1,2-DCE)	21 ug/L	6 ug/L
Vinyl chloride	1.8 ug/L	0.5 ug/L
Tert-butyl alcohol (TBA)	1,100 ug/L	None
Di-isopropyl ether (DIPE)	1,200 ug/L	None
Naphthalene	610 ug/L	None

Remediation activities at the site consist of light non-aqueous phase liquid (LNAPL) recovery (since January 1986) and soil vapor extraction (SVE). LNAPL recovery wells are located throughout the site and as of the end of 2009, a total of 29,521 barrels (~1.24 million gallons) of LNAPL have been recovered. An SVE system operates at the central portion of the site. As of December 31, 2009, the SVE system has removed approximately 204,384 pounds, or approximately 32,965 gallons, of petroleum hydrocarbons from soils.

The existing LNAPL recovery system requires upgrades and enhancements to improve residual LNAPL recovery. Along the western (downgradient) site boundary, the LNAPL recovery system is being re-designed to control migration of dissolved-phase hydrocarbons in the Bellflower Aquitard. Also, pilot testing of vapor enhanced pumping (VEP) is planned for February 2010 at select remediation-well points at two interior portions of the site. Data obtained from these pilot tests will be used as part of the design to enhance dissolved-phase oxygenate recovery and residual LNAPL removal in the areas.

THRIFTY OIL STATION #010 (MONTEBELLO, CENTRAL BASIN, MONTEBELLO FOREBAY)

The site is an active retail gasoline station/convenience store owned by Thrifty Oil Co. and has been operated by BP West Coast Products (ARCO) since 1997. Soil and groundwater contamination have occurred at the site, but investigation and cleanup efforts have been completed and the LARWQCB has recently classified the case as closed. Details follow:

In June 1988, four single-walled underground storage tanks (USTs) were replaced by three 10,000-gallon double-walled USTs at the site. Approx. 150 cubic yards of hydrocarbon-impacted soil were removed during the UST replacement.

Below is a summary table of the most recent available groundwater analytical results.

SUMMARY OF MOST RECENT GROUNDWATER ANALYTICAL RESULTS Thrifty Oil Station #010, Montebello		
Chemical	Maximum Concentration (April 2009)	Maximum Contaminant Level (MCL)
Total petroleum hydrocarbons as gasoline (TPH-g)	1,150 ug/L (Well MW-7)	None
Benzene	58 ug/L (Well MW-7)	1 ug/L
Methyl-tert-butyl ether (MTBE)	40 ug/L (Well MW-7)	13 ug/L
Di-isopropyl ether (DIPE)	22 ug/L (Well MW-7)	None
Tert-amyl methyl ether (TAME)	21 ug/L (Well MW-7)	None
Tertiary butyl ether (TBA)	290 ug/L (Well MW-7)	None

Free product historically has been detected in three on-site monitoring wells. Since 1997, a total of approximately 20 gallons of free product have been recovered. No free product has been detected in any monitoring wells since September 2006.

From January 2005 through March 2009, a soil vapor extraction (SVE) system operated at the site. The SVE system was shut down on March 19, 2009 due to low hydrocarbon concentrations in the influent. As of March 19, 2009, approximately 68,245 lbs of hydrocarbons have been removed through soil vapor extraction.

After requesting case closure from the LARWQCB, three confirmation soil borings were drilled on March 31 and April 1, 2009, to total depths of 80 and 105 feet below ground surface (ft bgs) in the vicinity of the former and current USTs. Soil samples were collected at various depths and results are summarized below.

SUMMARY OF CONFIRMATION SOIL ANALYTICAL RESULTS FOR CASE CLOSURE Thrifty Oil Station #010, Montebello		
Chemical	Maximum Concentration (Mar & Apr 2009)	Boring ID & Depth
TPH-g	11,900 mg/kg	CB-3 at 55 ft bgs
Benzene	16.5 mg/kg	
Toluene	294 mg/kg	
Ethyl benzene	80.6 mg/kg	
Xylenes	1,490 mg/kg	
MTBE	0.014 mg/kg	CB-1 at 70 ft bgs

On October 30, 2009, the LARWQCB closed this case based on the following reasons:

- The lateral and vertical extent of hydrocarbon impact in the subsurface soil and groundwater has been defined,
- The leak has been stopped and potential sources (i.e., contaminated soils) have been removed or mitigated,
- The most recent groundwater monitoring results (April 2009) indicate TPH-g, benzene, MTBE, DIPE, TAME, and TBA were detected at maximum concentrations in the upgradient monitoring well (Well MW-7),
- The nearest active production well is located 0.7 mile upgradient from the site and as of August 2009, there have been no constituents of concern detected in this production well, and
- The residual soil and groundwater contamination would not cause any human health and environmental risks via major pathways, such as direct contact, drinking water ingestion, and vapor intrusion.

FISCAL IMPACT

None at this time.

STAFF RECOMMENDATION

For information.