

**MEETING OF THE GROUNDWATER QUALITY COMMITTEE
OF THE BOARD OF DIRECTORS
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA
4040 PARAMOUNT BOULEVARD, LAKEWOOD, CA 90712
8:30 A.M., TUESDAY, MAY 9, 2017**

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**
Pursuant to Government Code Section 54954.3
- 3. APPROVAL OF MINUTES OF APRIL 11, 2017**
Staff Recommendation: The Groundwater Quality Committee approve the minutes as submitted.
- 4. PARTICIPATION IN THE WATER ENVIRONMENT & RESEARCH FOUNDATION PROJECT 16-01: EVALUATING POST TREATMENT CHALLENGES FOR POTABLE REUSE APPLICATIONS**
Staff Recommendation: The Groundwater Quality Committee recommends that the Board of Directors authorize the General Manager to participate in the Water Environment & Research Foundation Project 16-01, Evaluating Post Treatment Challenges for Potable Reuse Applications, for an amount not to exceed \$20,000.
- 5. ADOPT RESOLUTION 17-1054 AUTHORIZING ENTERING INTO A FUNDING AGREEMENT WITH THE STATE WATER RESOURCES CONTROL BOARD FOR THE LOS ANGELES FOREBAY PERCHLORATE AND VOC CLEANUP PROJECT – PHASE 1**
Staff Recommendation: The Groundwater Quality Committee recommends that the Board of Directors adopt Resolution 17-1054, subject to approval as to form by District Counsel, authorizing WRD to enter into a funding agreement with the State Water Resources Control Board for the Los Angeles Forebay Perchlorate and VOC Cleanup Project – Phase 1.
- 6. SAFE DRINKING WATER PROGRAM - DISADVANTAGED COMMUNITIES OUTREACH PILOT PROGRAM UPDATE**
Staff Recommendation: For discussion.
- 7. ENVIRONMENTAL SITES REVIEW**
Staff Recommendation: For information.

8. DIRECTORS REPORTS, INQUIRIES AND FOLLOW UP OF DIRECTIONS TO STAFF

9. ADJOURNMENT

The Committee will adjourn to the next regular meeting currently scheduled for June 13, 2017 at 8:30 A.M.

Agenda posted by Sherri Brown, Senior Administrative Specialist on May 4, 2017. In compliance with ADA requirements, this document can be made available in alternative formats upon request.

In compliance with the Americans with Disabilities Act (ADA), if special assistance is needed to participate in the meeting, please contact Senior Administrative Specialist Sherri Brown 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.

EXHAUSTION OF ADMINISTRATIVE REMEDIES – If you challenge a District action in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the District office at, or prior to, the public hearing. Any written correspondence delivered to the District office before the District's final action on a matter will become a part of the administrative record.



MEMORANDUM

ITEM NO. 3

DATE: MAY 9, 2017

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: MINUTES OF APRIL 11, 2017

**MINUTES OF APRIL 11, 2017
MEETING OF THE GROUNDWATER QUALITY COMMITTEE
OF THE BOARD OF DIRECTORS
WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA**

A meeting of the Groundwater Quality Committee of the Board of Directors of the Water Replenishment District of Southern California was held on Tuesday, April 11, 2017 at 8:39 a.m., at the District Office, 4040 Paramount Boulevard, Lakewood, California 90712. Committee Chair John D. S. Allen called the meeting to order and presided thereafter. Senior Administrative Assistant Sherri Brown recorded the minutes.

1. DETERMINATION OF A QUORUM

A quorum was present, which included:

Committee: Committee Chair John D. S. Allen; President Rob Katherman

Staff: Ted Johnson; Charlene King; Brian Partington; Pete Brown

Public: None

2. PUBLIC COMMENT

Pursuant to Government Code Section 54954.3

None.

3. APPROVAL OF MINUTES OF MEETING MARCH 14, 2017

The Committee unanimously approved the minutes as submitted.

4. SAFE DRINKING WATER PROGRAM – DISADVANTAGED COMMUNITIES OUTREACH PILOT PROGRAM UPDATE

Associate Engineer Charlene King presented this item. Discussion followed. No action was taken.

Communication and Education Services (CES) Manager Pete Brown provided additional information regarding the Safe Drinking Water Program – Disadvantaged Communities Outreach correspondence to local legislators. No action was taken.

5. ENVIRONMENTAL SITES REVIEW

Hydrogeologist Brian Partington provided the reviews on the Pemaco Superfund Site and Fairchild Controls Facility in addition to the District’s successful preliminary grant award notification of \$7.28 million for the Los Angeles Forebay Perchlorate cleanup project. Discussion followed.

6. DIRECTORS REPORTS, INQUIRIES, AND FOLLOW-UP OF DIRECTIONS TO STAFF

Chief Hydrogeologist Ted Johnson provided an update on a Committee request to evaluate alternative recycled water treatment technologies to reduce the necessary underground retention time for tertiary water, and for alternatives to reverse osmosis for advanced water treatment that can provide the same level of safety at a reduced cost. The Committee stated that further work on reduced retention time for tertiary water is not necessary, but to report back on cost estimates for alternatives to reverse osmosis membranes. Discussion followed.

7. ADJOURNMENT

There being no further business to come before the Committee, the meeting was adjourned at 9:52 A.M.

Chair

ATTEST:

Member

Approved in minutes of:



MEMORANDUM

ITEM NO. 4

DATE: MAY 9, 2017

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

**SUBJECT: PARTICIPATION IN THE WATER ENVIRONMENT & RESEARCH
FOUNDATION PROJECT 16-01: EVALUATING POST TREATMENT
CHALLENGES FOR POTABLE REUSE APPLICATIONS**

SUMMARY

The Water Environment & Reuse Foundation has awarded a new contract to Trussell Technologies for a unique project, *Evaluating Post Treatment Challenges for Potable Reuse Applications* (Reuse-16-01), to examine treatment technologies related to advanced treated recycled water facilities for groundwater recharge and injection projects. Stanford University and the Orange County Water District are providing additional research support and are soliciting other recycled reuse agencies, such as WRD, to participate and learn from our experiences.

The goals of this research have broad significance because post treatment challenges in recycled water reuse is an under-studied area and the challenges are wide ranging, likely to reach all utilities that implement potable reuse solutions in response to increasing water scarcity.

Research will include a literature review related to aggressive water and the impact on cement mortar lining, culminating in a state-of-the-science report on post treatment for potable reuse applications. This will be the first expert evaluation of its kind on the topic. In addition, the team will survey utilities to learn about experiences in corrosion and current areas of interest related to post treatment in potable reuse. Next, the project team will conduct a corrosion assessment of aging pipe materials installed at different times to determine a cause and potential solutions to prevent deterioration. The project will examine the release of potential contaminants to bulk water, and evaluate the effect of different water qualities and levels of treatment. This evaluation of corrosion control for potable reuse applications is novel because of its critical importance to projects involving post treatment of reclaimed water for potable reuse applications and the potential public health impact.

By participating, WRD will have direct access to the information which could be beneficial to our various recycled water reuse projects, such as GRIP and Leo J. Vander Lans Advanced Water Treatment Facility as well as contributing to research to benefit future reuse projects. The project is expected to be completed in late 2018.

FISCAL IMPACT

WRD's contribution to this research project would be no more than \$20,000 plus participation in workshops and other meetings. This is a budgeted item under Program 004 – Recycled Water.

STAFF RECOMMENDATION

The Groundwater Quality Committee recommends that the Board of Directors authorize the General Manager to participate in the Water Environment & Research Foundation Project 16-01, Evaluating Post Treatment Challenges for Potable Reuse Applications, for an amount not to exceed \$20,000.



MEMORANDUM

ITEM NO. 5

DATE: MAY 9, 2017

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: ADOPT RESOLUTION 17-1054 AUTHORIZING ENTERING INTO A FUNDING AGREEMENT WITH THE STATE WATER RESOURCES CONTROL BOARD FOR THE LOS ANGELES FOREBAY PERCHLORATE AND VOC CLEANUP PROJECT – PHASE 1

SUMMARY

WRD recently received preliminary approval from the State of California for a grant to remediate groundwater contamination located in the City of Vernon in the Los Angeles Forebay through Proposition 1 (the "Project", Phase 1). As previously reported to the Committee and Board, WRD has been investigating a perchlorate groundwater "hot spot" plume with the assistance of various regulatory agencies in association with our Los Angeles Forebay Groundwater Task Force. The perchlorate detections in the deep groundwater in the Project area are among the highest in California. Perchlorate is a highly miscible and mobile groundwater contaminant and is currently located in a deep aquifer system within the Los Angeles Forebay. In addition to the perchlorate, other volatile organic contaminants (VOCs) are present in the groundwater that would be remediated under this Project.

This is a particularly sensitive area of the basin as the groundwater (along with contaminants) can migrate through the coarse-grained sediments directly into the deep regional aquifer system, representing a substantial threat to the quality of groundwater in the Central Basin and West Coast Basin (CBWCB). In fact, perchlorate has already been detected at elevated levels and is currently having to be addressed in at least two water supply wells located down-gradient of the hot spot, although it is not yet known if the detections at the water wells are related to the hot spot Project area. A responsible party (RP) has not been identified by either the Department of Toxic Substances Control (DTSC) or Los Angeles Regional Water Quality Control Board (LARWQCB).

The state grant funds will help pay for a majority (approximately 80%) of the remediation construction costs. In preparation for the grant application WRD utilized our on-call environmental consultant to conduct a 'high level' technology screening. Based on their analysis, a removal action process of limited duration was recommended using pump and treat to immediately reduce contaminant mass and further migration into the CBWCB. The additional data collected during the removal action will also support the various regulatory agencies in identifying the yet to be determined RP.

The project was also reviewed and supported by the members of our Technical Advisor Committee (TAC). The Groundwater Quality Committee also supported the Project and submittal of the grant application, and forwarded their recommendations to the Capital Improvement Projects Committee (CIP). WRD's Board of Directors approved of the Project

concept and submittal of the grant application on November 3, 2016. The grant application was submitted on November 18, 2016. WRD received the preliminary award notification in a letter dated March 30, 2017.

WRD staff are currently working with a financial analyst and grant manager assigned to us by the State Water Resource Control Board (SWRCB). The initial actions required to commence work include assigning a project director and adopting a resolution by our governing body to enter into an agreement with the SWRCB.

FISCAL IMPACT

None at this time pending grant negotiations and final award by the SWRCB. The state approved the funding of a preliminary grant award of up to \$7,275,675. WRD's proposed match in the grant application is currently \$1,839,070 (or ~20%). In addition, WRD would fund the two year cost of operation and maintenance in the amount of approximately \$1,500,000. The total project cost is estimated at approximately \$10,600,000. This project is included in the District's CIP budget for Fiscal Years 2016/17 to 2020/21.

STAFF RECOMMENDATION

The Groundwater Quality Committee recommends that the Board of Directors adopt Resolution 17-1054, subject to approval as to form by District Counsel, authorizing WRD to enter into a funding agreement with the State Water Resources Control Board for the Los Angeles Forebay Perchlorate and VOC Cleanup Project – Phase 1.



MEMORANDUM

ITEM NO. 6

DATE: MAY 9, 2017

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

**SUBJECT: SAFE DRINKING WATER PROGRAM - DISADVANTAGED COMMUNITIES
OUTREACH PILOT PROGRAM UPDATE**

SUMMARY

The District administers the Safe Drinking Water Program (SDWP), providing grant or loan assistance to basin pumpers for wellhead treatment to remove contaminants and improve water quality. The Grant Program provides treatment for removing groundwater contaminants from man-made sources (e.g. Volatile Organic Compounds); whereas the Loan Program provides 10-year, zero-interest loans for water treatment, removing unacceptable levels of contaminants from natural sources (e.g. iron, manganese, and arsenic).

In 2016, the District approved three wellhead treatment projects through the Safe Drinking Water Program: California American Water Arlington Well, Huntington Park Well 15, and Lynwood Well 11. The wellhead treatment system at all three wells will consist of a complete granular activated filtration system built within the boundaries of the existing well sites owned and operated by the water systems. In addition, as part of Assembly Bill No. 240, the District was designated to manage and implement a water quality improvement project in the City of Maywood. The appropriated funds were assigned to the Maywood Avenue Wellhead treatment project for iron and manganese removal.

Safe Drinking Water Pilot Program

As an extension of the District's Safe Drinking Water Program, the District approved the creation of the Safe Drinking Water Disadvantage Communities (DAC) Pilot Program. The goal of this program is to assist water systems located in disadvantaged communities within the District's service area with state and federal funding to address the issues related to their drinking water wells. The focus of the program is to provide technical assistance and extensive outreach to help the systems secure funding that is set aside specifically for disadvantaged communities. Currently there are seven water systems participating in the program and receiving assistance: City of Bell Gardens, City of Compton, City of Huntington Park and City of Lynwood, Maywood Mutual Water Company No. 2, Maywood Mutual Water Company No. 3 and Sativa LA County Water District.

Safe Drinking Water Program Outreach Efforts

Outreach efforts continue as staff is preparing follow-up outreach to cities, particularly disadvantaged communities, to schedule presentations for upcoming city council meetings to further explain WRD's programs.

FISCAL IMPACT

None.

STAFF RECOMMENDATION

For discussion.



MEMORANDUM

ITEM NO. 7

DATE: MAY 9, 2017

TO: GROUNDWATER QUALITY COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: ENVIRONMENTAL SITES REVIEW

SUMMARY

WRD has and continues to take an active role in groundwater quality protection, cleanup, and investigation. As part of its Groundwater Contamination Prevention Program, WRD established the Central and West Coast Basin Groundwater Contamination Forum, a data-sharing and discussion forum with key stakeholders that include various cities, water purveyors, the United States Environmental Protection Agency (EPA), California Department of Toxic Substances Control (DTSC), Los Angeles Regional Water Quality Control Board (RWQCB), State Water Resources Control Board Division of Drinking Water (DDW), United States Geological Survey (USGS), and California Department of Water Resources (DWR).

In 2005, the stakeholders drafted and signed a Memorandum of Understanding ("MOU") agreeing to meet regularly and share data on major groundwater contaminated sites within the Central Basin and West Coast Basin. WRD acts as the meeting coordinator and data repository/distributor, helping stakeholders to characterize the extent of contamination to identify pathways for contaminants in shallow aquifers to reach deeper drinking water aquifers and develop optimal methods for remediating contaminated groundwater. The overall purpose of the Forum is to expedite the cleanup of these major contaminated sites in the basins.

With the cooperation and support of all stakeholders in the Groundwater Contamination Forum, WRD developed a list of high-priority groundwater contaminated sites ("environmental sites") located within the District. 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 48 sites located throughout the Central Basin and West Coast Basin. The list was developed based on the following criteria:

- Site location and hydrogeology
- Distance to nearest drinking water well
- Depth to shallowest water-supply aquifer beneath site
- Concentration of detected contaminants
- Fate and transport of detected contaminants
- Presence of contamination in nearby drinking water wells
- Status of site characterization with respect to groundwater contamination
- Status of site remediation with respect to groundwater contamination
- Stage of regulatory agency involvement

WRD works in close consultation with the lead regulatory agencies for each of these sites to provide data and technical support to facilitate site characterization and expedite cleanup. An

update is provided below for TRW Space & Defense (City of Hawthorne) and Honeywell El Segundo #1 (City of El Segundo).

TRW SPACE & DEFENSE (HAWTHORNE, WEST COAST BASIN)

The 17-acre facility formerly operated as an electronic components manufacture from 1956 to 1992. Solvents were used for cleaning / degreasing operations resulting in the release of chlorinated volatile organic compounds (VOCs) (primarily PCE and TCE) and the detected presence of dense non-aqueous phase liquid (DNAPL). The site was also impacted with 1,4-Dioxane. The facility was demolished (including all subsurface infrastructure) and shallow impacted soils were removed in 1994. In 2011, the site was redeveloped into a commercial center by Mar Ventures. The environmental related work is being overseen by the RWQCB.

Groundwater flows to the east with impacts identified locally in three water bearing zones including a Shallow Zone (65 to 105 ft bgs), Deep Zone (105 to 130 ft bgs), and Lower Gage (130 to 150 ft bgs). The nearest downgradient active public water supply wells are owned and operated by Golden State Water Company (wells Doty #1, Doty #2, and Compton-Doty #1). Site constituents have not been detected in the production wells with the closest one located approximately 1.9-miles east of the Site. The most recent readily available groundwater sampling results for the Site are summarized below for November 2016.

Key Indicator Compounds in Groundwater*				
Chemical	MCL	Shallow Zone (65' – 105')	Deep Zone (105' – 130')	Lower Gage (130' – 150')
PCE	5	15 in GW-26	150 in GW-13	No Wells / Regional Plume
TCE	5	50 in GW-26	2,800 in GW-13	No Wells / Regional Plume
1,1-DCE	6	13 in GW-14	2,300 in GW-13	No Wells / Regional Plume
1,4-Dioxane	1 (NL)	19 in PMW-1S**	1.6 in DEW-04**	No Wells / Regional Plume

*Maximum detection with results in µg/L / ** indicates samples collected in May 2015. / NL = Notification Level

Multiple treatment systems have operated over the years to address soil and groundwater contamination from the Site. A summary is provided as follows:

Type	Dates	Results
Excavation	1997	Impacted soils were removed from surface to 15 ft bgs. RWQCB issued NFA.
SVE	1996 to 2001	58,000 pounds removed from vadose zone (primarily PCE/TCE). RWQCB issued NFA.
GW P&T	1998 to 2015	210 million gallons of impacted groundwater treated through December 2015.
ERH	2008/2009	32,000 pounds of mass removed near the source of DNAPL.
EAD	2017	Groundwater recirculation remedy for on-site remediation approved by RWQCB.

NFA = No Further Action/SVE = Soil Vapor Extraction/GW P&T = Groundwater Pump and Treat/EAD = Enhanced Anaerobic Dechlorination

The off-site groundwater impacts are being delineated concurrently with a neighboring facility (Fairchild Controls – another high priority site of WRDs). The RWQCB is requiring vertical delineation just above an aquitard present at a depth of approximately 150 ft bgs (El Segundo Aquitard). An off-site groundwater remedy has not been approved by the RWQCB.

HONEYWELL EL SEGUNDO #1 (EL SEGUNDO, WEST COAST BASIN)

The 54.9-acre chemical facility commenced operations in the 1920's. Impacts associated with past operations have been segregated into three areas of concern listed as follows:

- 37.3-acre Refrigerant Plant (RP) parcel, which included unlined natural depression (UND) 1 through 3, together referred to as the “RP Area”. The impacts primarily include carbon tetrachloride (CT), chloroform (CF), and trichlorofluoromethane (CFC-11).

- 12.9-acre UND areas 4 & 5. This parcel received industrial waste from sulfuric acid operations, which resulted in metals (mainly aluminum) contamination due to low pH.
- 4.7-acre parcel called the Southwest Corner Lot (SWCL). The impacts are primarily cis-1,2-DCE and TCE.

Facility demolition (including all subsurface infrastructure) commenced after operation were discontinued in February 2003. The RP Area was redeveloped into a retail shopping center called “Plaza El Segundo” (completed in 2007). The SWCL area was redeveloped into a shopping mall called the “Point”. No development has occurred on UND areas 4 & 5. The environmental related work is being overseen by the RWQCB.

Groundwater flows southeast (then east) with impacts identified locally in three water bearing zones including the Old Dune Sand (70 to 100 ft bgs), Gage Aquifer (110 to 150 ft bgs), and to a lesser extent the Silverado Aquifer (>170 ft bgs). The nearest downgradient active public water supply wells are owned and operated by Golden State Water Company (wells Doty #1, Doty #2, and Compton-Doty #1). Site constituents have not been detected in the production wells with the closest one located east of the Site approximately 2.8-miles. The most recent readily available groundwater sampling results for the Site are summarized below for January 2017.

Key Indicator Compounds in Groundwater*				
Chemical	MCL	Old Dune Sand (70' – 100')	Gage Aquifer (110' – 150')	Silverado Aquifer (>170')
Refrigerant Plant				
CF	80	220,000 in RMW-04_105	97,000 in AS-MW-56_100	ND to 0.71
CT	0.5	9,600 in AS-MW-10	510 in AS-MW-56_100	ND < 5
CFC-11	150	8,000 in RMW-04_105	1,600 in AS-MW-65_115	ND < 5
TCE	5	480 in AS-MW-06	24 IN AS-MW-53_150	ND to 1.6
Southwest Corner Lot				
TCE	5	23,000 in PMW-09	4,000 in PMW-07_140	ND to 1.6
c1,2-DCE	6	13,000 in PMW-02	3,500 in PMW-07_140	ND to 0.62

*Maximum detection with results in µg/L / ND = Not Detected

Various remediation efforts have been implemented or recently initiated to address soil / groundwater impacts including shallow soil removals in preparation for redevelopment (NFA was issued by RWQCB), deep air sparge and soil vapor extraction (AS/SVE), and enhanced reductive dechlorination (ERD).

FISCAL IMPACT

None.

STAFF RECOMMENDATION

For information.