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" or "For discussion" may also be the subject of an "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. AUTHORIZE AN END USER LICENSE AGREEMENT WITH SEEQUENT LIMITED FOR THE LEAPFROG WORKS, CENTRAL, AND EDGE SOFTWARE PLATFORMS FOR 3-DIMENSIONAL HYDROGEOLOGIC MODELING, VISUALIZATION AND STATISTICAL ANALYSES
   Staff Recommendation: The Groundwater Quality Committee recommends that the Board of Directors enter into a 1-year hydrogeologic modeling and visualization software agreement with Seequent Limited, subject to approval of form by District Counsel, comprised of the following: 1) Software license agreement for Leapfrog Works; 2) Hosting Agreement for Leapfrog Central; and 3) Early Access Programme Agreement for Leapfrog Edge, for a total cost not to exceed $20,000 which includes contingency.

4. AUTHORIZE THE BOARD OF DIRECTORS TO ENTER INTO A MEMORANDUM OF UNDERSTANDING WITH THE STATE WATER RESOURCES CONTROL BOARD AND LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD FOR THE LOS ANGELES FOREBAY PERCHLORATE CLEANUP PROJECT
   Staff Recommendation: The Groundwater Quality Committee recommends that the Board of Directors enter into a memorandum of understanding with the State Water Resource Control Board and the Los Angeles Regional Water Quality Control Board, subject to approval of form by District Counsel, for the Los Angeles Forebay Perchlorate Cleanup Project.

5. SAFE DRINKING WATER PROGRAM AND DISADVANTAGED COMMUNITIES PROGRAM UPDATE
   Staff Recommendation: The Groundwater Quality Committee receive and file the report.
6. **SAFE DRINKING WATER OUTREACH UPDATE**  
   *Staff Recommendation:* The Groundwater Quality Committee receive and file the report.

7. **ENVIRONMENTAL SITES REVIEW**  
   *Staff Recommendation:* The Groundwater Quality Committee receive and file the report.

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

9. **ADJOURNMENT**  
   *The Committee will adjourn to the next regular meeting.*

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Agenda posted on 11/10/2018. In compliance with the Americans with Disabilities Act (ADA), if special assistance is needed to participate in the meeting, please contact Brandon Mims, Board Deputy Secretary 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](http://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 Deputy Secretary 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: NOVEMBER 13, 2018

TO: GROUNDWATER QUALITY (GWQ) COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: AUTHORIZE AN END USER LICENSE AGREEMENT WITH SEEQUEST LIMITED FOR THE LEAPFROG WORKS, CENTRAL, AND EDGE SOFTWARE PLATFORMS FOR 3-DIMENSIONAL HYDROGEOLOGIC MODELING, VISUALIZATION AND STATISTICAL ANALYSES

SUMMARY

The District has invested in the collection and storage of an extensive suite of geologic, hydrogeologic, geophysical, groundwater contamination, well inventory, seawater intrusion, engineering, and other types of data. These data have been used to significantly advance our understanding of the groundwater flow systems in the Central and West Coast Basins for enhanced District management of these valuable resources. Visualizing and modeling these extensive and diverse data sets can be best accomplished using state of the art software programs that can quickly and intuitively bring information together in a common format and display them in a manner that can be understood by scientists and engineers in addition to the Districts other staff and management, stakeholders and the general public.

Using 3-Dimensional (3D) software platforms has proven to be the most effective way to visualize and present these data due to their ability to look at information from all angles and create graphics, slides and videos of the technical information in a more intuitive manner. For example, Staff recently created a video of the new geologic model developed for the District in conjunction with the U.S. Geological Survey which was posted on Social Media to very positive response. A link to the You Tube video of this model is here:

https://www.youtube.com/watch?v=dezMKvEI2A
Staff is recommending entering into software licensing agreements with Seequent Limited for use of their Leapfrog Works, Central, and Edge Software platforms ("Leapfrog") for 3-D hydrogeologic modeling, visualization, and statistical analyses. Leapfrog is a world leading 3D geological modelling software for exploration, civil engineering, groundwater, and mining industries. It is built to handle the types of data WRD specializes in, including water well drilling, water levels, soil types, contaminant plumes, geophysical data, barrier injection wells, seawater intrusion, and more.

The Leapfrog Works program models the complex 3D geologic information and presents the visualization. It requires a software license agreement. Leapfrog Central is a cloud-based data hosting service that maintains the data on the Seequent servers so that the Leapfrog Works models can be accessed by anyone anywhere with access to the server and is very useful for sharing the 3D model interpretations for refinement, and for borrowing data from one model to the next. Central requires a Hosting Agreement. Leapfrog Edge is a relatively new program that performs sophisticated statistical analysis of the hydrogeological data stored in Works that WRD will utilize for calculating contaminant plume distributions as well as groundwater storage changes. Seequent is providing WRD with access to this program at no charge for beta testing, but requires an Early Access Programme Agreement.

Although there are other software platforms out in the industry, some of which do many of the things that Leapfrog programs can do, Staff to has found to date the Leapfrog programs more intuitive, faster, easier to learn, and more in-tune with the District's data sets. The You Tube Video referenced above was created by Staff using Leapfrog. Staff recently attended a 3-day workshop training course on using Leapfrog software, and the Leapfrog technical support and developers have been readily available both online and visiting WRD to assist us with questions. In addition, the District's On-Call modeling consultant Intera has built models using Leapfrog and can provide them to WRD should WRD standardize on the same software platform. For all these reasons, Staff desires to enter into a license agreement to use the Leapfrog software.

**FISCAL IMPACT**

The cost for the license agreements for 3 WRD licensed users has been negotiated down to $18,000 for the first year to evaluate actual software usage (normal price is $45,000), plus a $2,000 contingency for a total not to exceed amount of $20,000. Comparisons were made to two other 3D-Geologic visualization software packages that show that the Leapfrog license fees are in-line with (or less expensive than) these other platforms. This expenditure was anticipated and was included in the adopted 2018-19 fiscal year budget under Program 025 (Hydrogeology), and the funds currently exist in that program for this license.

**STAFF RECOMMENDATION**

The Groundwater Quality Committee recommends that the Board of Directors enter into a 1-year hydrogeologic modeling and visualization software agreement with Seequent Limited, subject to approval of form by District Counsel, comprised of the following: 1)
Software license agreement for Leapfrog Works; 2) Hosting Agreement for Leapfrog Central; and 3) Early Access Programme Agreement for Leapfrog Edge, for a total cost not to exceed $20,000 which includes contingency.
Comparable Cost #1

GeoScene 3D

$39,651 AUD = $28,000 U.S.D.
Earth Volumetric Studio Enterprise License Program

Earth Science Software

Earth Volumetric Studio

Earth Volumetric Studio Float

Earth Volumetric Studio Rental

**Earth Volumetric Studio:** *Earth Volumetric Studio* is a standalone Windows program which offers the ultimate in speed, power and flexibility. EVS unites advanced volumetric gridding, geostatistical analysis, and 4D visualization tools into a software system developed to address the needs of all Earth science disciplines. The graphical user interface is integrated with modular analysis and graphics routines which can be customized and combined to satisfy the analysis and visualization needs of any application. EVS can be used to analyze all types of analytical and geophysical data in any environment (e.g. soil, groundwater, surface water, air, noise, resistivity, etc.). *Earth Volumetric Studio*’s integrated geostatistics provides
quantitative evaluation of the quality of a site assessment and identification of locations at sites that require additional investigation.

_Earth Volumetric Studio_ includes the capabilities of C Tech’s former _Environmental Visualization System Pro_ and _MVS (Mining Visualization System)_ within a more powerful, easy-to-use environment. Features include: borehole and sample posting; parameter estimation using expert system driven 2D and 3D kriging algorithms with best fit variograms; exploding geologic layers; finite difference and finite element modeling grid generation; advanced gridding; comprehensive Python scripting of virtually all functions; high level animation support; interactive 3D fence diagrams; multiple analyte data analysis and integrated volumetrics and mass calculation for soil and groundwater contamination and ore bodies. The advanced features in, formerly found in our MVS software are targeted to the needs of mining engineers and planners, or the geologist or environmental engineer with the most demanding requirements. Some of the advanced features include: 3D fault block generation; tunnel cutting; advanced texture mapping; mine pit modeling; visualizing and modeling of ore body overburden; and many additional advanced features.

Studio includes C Tech’s DrillGuide© technology which applies integrated geostatistics to provide quantitative appraisal of the quality of site assessments and identification of optimal new sample locations at sites that require additional investigation. This proven technology can dramatically cut site assessment costs whether you’re searching for gold or groundwater contamination. Our tools improve site assessment and enhance your ability to analyze and present data for assessments, remediation planning, litigation support, regulatory reporting, and public relations.

$15,995 _Single License_

$40,000 _for 3 licenses_

_Earth Volumetric Studio (Supersedes MVS) Fixed License Quantity Discounts_

Multiple Fixed Licenses of Earth Volumetric Studio purchased at the time of purchase qualify for quantity discounts. The total price is based on the total number of licenses purchased.
### License Number (No discount on first license) | Discount on License | Price for Nominal Number of Seats | Effective Price per License
---|---|---|---
2 | 20% | $28,800 for 2 licenses | $14,400
3 | 30% | $40,000 for 3 licenses | $13,333
4 | 40% | $49,600 for 4 licenses | $12,400
5 | 50% | $57,600 for 5 licenses | $11,520
6 | 60% | $64,000 for 6 licenses | $10,667
Additional | 60% | $6,400 Per Additional License | 

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**Software Updates and Technical Support**

**Additional Services**

**University Initiative**

**Additional Details**

- All purchases of Earth Volumetric Studio, EnterVol & 3D PDF Converter include one year of software updates and technical support (Maintenance).
- Subsequent year Annual Maintenance for Earth Volumetric Studio is available for 22% of the software list price according to the terms of the [CTech Earth Science Software EULA](https://www.ctech.com/products/price-list/).
- Subsequent year Annual Maintenance for EnterVol and the 3D PDF Converter is available for 25% of the software list price according to the terms of the [CTech Earth Science Software EULA](https://www.ctech.com/products/price-list/).
- Prices are in U.S. Dollars, effective January 1, 2018. International customers click [here](https://www.ctech.com/products/price-list/) for a currency converter.
- C Tech reserves the right to change prices at any time.
- Discounts are available for multiple system purchases, call for a quotation.
- C Tech offers substantial discounts to qualified educational institutions. Click [here](https://www.ctech.com/products/price-list/) for more information.
- Please e-mail sales <at> ctech.com or call 1-941-315-5740 for details.

- **Contact Us**
MEMORANDUM
ITEM NO. 4

DATE: NOVEMBER 13, 2018

TO: GROUNDWATER QUALITY (GWQ) COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: AUTHORIZE THE BOARD OF DIRECTORS TO ENTER INTO A MEMORANDUM OF UNDERSTANDING WITH THE STATE WATER RESOURCES CONTROL BOARD AND LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD FOR THE LOS ANGELES FOREBAY PERCHLORATE CLEANUP PROJECT

SUMMARY

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 Project). The perchlorate detections are among the highest in the state and the groundwater plume is currently located in a deep aquifer system within the Los Angeles Forebay. WRD successfully applied for and will soon receive a grant for over $7 million from the State Water Resources Control Board (SWRCB) through the Proposition 1 Groundwater Grant Program (Proposition 1). The State grant funds will help pay for approximately 80% of the remediation construction costs to treat the perchlorate impacts along with other cominglyd volatile organic contaminants (VOCs).

WRD is in the final stages of negotiating the grant agreement with the SWRCB, which requires a memorandum of understanding (MOU) between the WRD, SWRCB, and Los Angeles Regional Water Quality Control Board (LARWQCB). The purpose of the MOU is to create a forum and process for discussing and resolving any technical issues associated with the work and ensure there are no negative impacts to nearby third-party cleanup efforts due the Project.

The Project work will be reviewed by a Technical Advisory Committee (TAC). The TAC will be made up of technical staff from the SWRCB’s Division of Financial Assistance (DFA), SWRCB’s Division of Drinking Water (DDW), LARWQCB, and representatives of
WRD. The TAC may also include representatives of other State or federal regulatory agencies such as the Department of Toxic Substances Control (DTSC) and the U.S. Environmental Protection Agency (EPA). Technical issues not resolved by the TAC will be forwarded to a Steering Committee consisting of following executive level staff (or representative designee) including the Deputy Director of DFA, Deputy Director of DDW, Executive Officer of the LARWQCB, and General Manager of WRD.

A copy of the MOU is included with this staff report.

**FISCAL IMPACT**

There is no fiscal impact under the MOU as any costs to WRD are fully reimbursed through the Proposition 1 grant award.

**STAFF RECOMMENDATION**

The Groundwater Quality Committee recommends that the Board of Directors enter into a memorandum of understanding with the State Water Resource Control Board and the Los Angeles Regional Water Quality Control Board, subject to approval of form by District Counsel, for the Los Angeles Forebay Perchlorate Cleanup Project.
MEMORANDUM OF UNDERSTANDING REGARDING TECHNICAL ADVISORY COMMITTEE WITH THE STATE WATER RESOURCES CONTROL BOARD, LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD, AND WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

I. The purpose of this Memorandum of Understanding (MOU) between the Water Replenishment District of Southern California (WRD), State Water Resources Control Board (State Water Board), and the Los Angeles Regional Water Quality Control Board (Regional Water Board) is to identify the forum and processes for discussion and resolution of issues related to monitoring, planning, modeling, remedial investigation, feasibility studies, design, construction, and operation of any WRD projects that are currently funded or may in the future be funded by the State Water Board under Proposition 1 (Cal. Water Code §§79700 et seq.) for the prevention or cleanup of groundwater contamination in the Central Basin (Project or Projects), and to ensure those Projects support and do not negatively impact nearby third-party cleanup efforts.

II. The State Water Board and Regional Water Board enter into this MOU under the authorities of California Water Code section13225, subsections (a), (b), and (j). WRD enters into this MOU under the authority of California Water Code section 60000 et.seq; section 60224.

III. The Parties to this MOU recognize that the implementation of the Project(s) may involve complex technical issues regarding prevention and/or cleanup of contamination in groundwater. The implementation of this MOU will be primarily through a Technical Advisory Committee (TAC) that will provide a forum for discussion and resolution of technical issues associated with the implementation of the Project(s). The TAC will be made up of technical staff from the State Water Board’s Division of Financial Assistance (DFA), from the State Water Board’s Division of Drinking Water (DDW), and from the Regional Water Board, and representatives of WRD. The TAC may also include representatives of other State or federal regulatory agencies that are not Parties to this MOU, such as the Department of Toxic Substances Control and the U.S. Environmental Protection Agency. Technical issues not resolved by the TAC will be forwarded to a Steering Committee consisting of executive level staff of the Parties for resolution. The Steering Committee will include Deputy Director of DFA, Deputy Director of DDW, Executive Officer of the Regional Water Board, and General Manager of WRD or their respective designees. The Steering Committee will also address non-technical issues as needed.

IV. The Parties to this MOU share the same goal: prevention and/or cleanup of contamination in groundwater in the most timely and cost effective manner feasible, in compliance with applicable state, federal, and local laws.
The Parties recognize the need to proceed expeditiously with the Project(s) and without interruption or undue delay to Project schedules. TAC members commit to providing technical review comments to WRD and the DFA grant manager within three weeks of receipt of the deliverable subject to TAC review, unless the funding agreement specifies otherwise or an alternative review period is mutually agreed upon by the Parties.

The State Water Board through DFA, as the funding authority, retains decision-making authority regarding whether WRD has met the deliverables and other requirements of the Grant Agreement. The Parties recognize that the Project(s) must be consistent with and support the State Water Board’s and Regional Water Board’s regulatory programs and be consistent with applicable laws and regulations, including State Water Board Resolution 92-49, State Water Board Resolution 68-16, and applicable plans and policies of the State and Regional Water Boards.

WRD recognizes that the State Water Board and Regional Water Board have an interest in receiving information from and communicating with WRD regarding investigation, planning, design, construction, and operation of the Project(s), as applicable, to ensure that the Project(s) will be effective and will not adversely affect other nearby remediation projects.

For any implementation Project(s), WRD will coordinate with the TAC to evaluate cleanup progress and demonstrate whether or not the Project(s) is successful in achieving prevention and/or cleanup of contamination in groundwater. Such evaluation and demonstration will include development of a monitoring plan with monitoring frequencies and locations aimed at evaluating changes to the extent of the plume and contaminant concentrations (Monitoring Plan). The State Water Board shall approve the Monitoring Plan.

Where feasible and consistent with this purpose, the Monitoring Plan may incorporate existing monitoring locations and/or frequencies that are used to meet other regulatory or operational requirements, including but not limited to locations listed in the DDW 97-005 or drinking water permit requirements.

As part of the Monitoring Plan development, the TAC will consider and identify appropriate methods for the ongoing evaluation of groundwater quality data in comparison to assumptions used in Project design to proactively identify trends that would affect Project operations.

Proposition 1 grant agreements for implementation Projects may require WRD to submit Operational Reports after commencement of operation. The State Water Board may provide WRD Operational Reports to the TAC and the TAC may provide technical insight and
comments in writing to the State Water Board and WRD regarding the Operational Reports. WRD agrees to communicate with the TAC regarding the technical insight and comments it may provide in response to WRD Operational Reports during the 5 years, or longer, such reports are provided.

X. WRD will be responsible for coordinating the logistics of TAC meetings as follows:

a. Schedule and hold quarterly TAC meetings following submittal of quarterly progress reports. Meeting frequency may be modified as mutually agreed by WRD and the State Water Board.

b. Prepare agendas and action items and communicate them to TAC members.

c. Arrange audio visual equipment, phone conference lines, web-based meetings, and other meeting logistics, as needed.

d. Should additional meetings be deemed necessary by the State Water Board, meetings will be scheduled at the earliest mutually convenient time and place.

XI. The State Water Board recognizes that WRD may be entitled to cost recovery from various third parties. Nothing in this MOU is meant, in any way, to alter or change those rights that may exist. Any costs recovered must be used consistent with the requirements of Proposition 1.

XII. Reservation of Rights: Each Party to this MOU shall be solely responsible and liable in connection with its actions associated with its responsibilities under this MOU. For purposes of this MOU, the relationship of the Parties is that of independent entities and not as agents of each other or as joint venturers or partners. The Parties shall maintain sole and exclusive control over their personnel, agents, consultants, and operations. Nothing in this MOU alters the statutory or regulatory authority of WRD, the State Water Board, or Regional Water Board, or any other provision of law, nor shall anything in this MOU limit WRD or the State and Regional Water Boards' legal authority or responsibilities.

XIII. Third Parties: Nothing in this MOU is intended to create duties or obligations to or rights in third parties to this MOU or affect the legal liability of the Parties to this MOU.

XIV. AMENDMENTS AND TERMINATION
a. In entering into this MOU, it is the intention of the Parties that this MOU shall not be construed to be an enforceable contract or agreement, but is, rather, a statement of principles.

b. This MOU shall remain in effect until all components have been fully implemented or until June 30, 2023, whichever occurs later.

c. This MOU may be amended with the mutual written approval of all Parties or their successors.

d. Any Party to this MOU, or its successor agency, may withdraw from the MOU by giving 30-days advanced written notice to the other Parties, in which case, the MOU is no longer effective.

e. **Governing Law:** This MOU is governed by, interpreted under, and construed and enforced in accordance with the laws of the State of California.

f. **Authorized signatures:** The Parties hereby represent and warrant that their respective signatory to this MOU is duly authorized to execute and bind the agency for which he or she signs.

g. **Severability:** If any provision of this MOU shall be determined by any court to be invalid, illegal or unenforceable to any extent, the remainder of this MOU shall not be affected and this MOU shall be construed as if the invalid, illegal or unenforceable provision had never been contained in this MOU.

h. **Execution:** This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by facsimile or electronic PDF transmission.
IN WITNESS WHEREOF, the Parties to this MOU have caused this MOU to be executed on their behalf as of the date specified below, respectively, as follows:

FOR THE STATE WATER RESOURCES CONTROL BOARD:
Dated: ________________, 2018
Eileen Sobeck
Executive Director
State Water Resources Control Board

Eileen Sobeck

FOR THE LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD:
Dated: ________________, 2018
Deborah J. Smith
Executive Officer
Los Angeles Regional Water Quality Control Board

Deborah J. Smith

FOR THE WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA
Dated: ________________, 2018

Print Name
President, Board of Directors

Print Name
Secretary, Board of Directors

Print Name
Approved As To Form
LEAL, TREJO LLP
Attorneys for the Water Replenishment District of Southern California
MEMORANDUM
ITEM NO. 5

DATE: NOVEMBER 13, 2018

TO: GROUNDWATER QUALITY (GWQ) COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: SAFE DRINKING WATER PROGRAM AND DISADVANTAGED COMMUNITIES PROGRAM UPDATE

SUMMARY

The District administers the Safe Drinking Water Program (SDWP) which provides 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 providing water treatment to remove unacceptable levels of contaminants from natural sources (e.g. iron, manganese, and arsenic).

In 2016, the District approved three wellhead treatment projects as part of 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. All three projects are now in the construction phase.

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. The Board approved the Notice of Award to Pacific Hydrotech for construction of the Maywood Avenue Wellhead treatment project.
Safe Drinking Water DAC 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) 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 nine 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. 1, Maywood Mutual Water Company No. 2, Maywood Mutual Water Company No. 3, Sativa LA County Water District and Tract 180 Mutual 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

The Groundwater Quality Committee receive and file the report.
DATE: NOVEMBER 13, 2018

TO: GROUNDWATER QUALITY (GWQ) COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: SAFE DRINKING WATER OUTREACH UPDATE

SUMMARY

The District administers an ongoing Safe Drinking Water Outreach Program aimed at providing cities, pumpers, and local legislators information about WRD’s grant and loan assistance programs for wellhead treatment to protect and improve water quality. District staff participate in outreach activities and education campaigns to inform the public and elected representatives about the efforts WRD takes to ensure safe drinking water and to provide necessary resources to interested parties.

FISCAL IMPACT

None

STAFF RECOMMENDATION

The Groundwater Quality Committee receive and file the report.
DATE: NOVEMBER 13, 2018

TO: GROUNDWATER QUALITY (GWQ) COMMITTEE

FROM: ROBB WHITAKER, GENERAL MANAGER

SUBJECT: ENVIRONMENTAL SITES REVIEW

SUMMARY

WRD 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 49 sites located throughout the Central Basin and West Coast Basin. The list was developed based on the following criteria:
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. Below is an update on two adjacent environmental sites (Angeles Chemical and McKesson Chemical) located in the Central Basin (Montebello Forebay). Both sites are also located within a larger regional groundwater plume associated with the Omega Chemical Company (Omega Plume).

ANGELES CHEMICAL COMPANY (SANTA FE SPRINGS, CENTRAL BASIN)

The site (1.9-acres) formerly operated as a bulk chemical storage and distribution facility from 1976 to 2000. Chemicals were primarily stored in drums, containers, railcars, above ground storage tanks (ASTs), and underground storage tanks (USTs). The facility structures were removed upon terminating operations in the early 2000’s. The site is currently occupied by a towing facility and environmental related work is overseen by DTSC.

Soil and groundwater are primarily impacted with chlorinated solvents (such as tetrachloroethene [PCE] and trichloroethene [TCE]) and to a lesser degree petroleum related hydrocarbons (such as benzene and total petroleum hydrocarbons [TPH]). The constituents are comingled with the neighboring chemical facility (McKesson Chemical).

Groundwater impacts (based on the existing well network) are present at a depth of approximately 81 feet below ground surface (ft bgs). The nearest active production well is owned and operated by the City of Santa Fe Springs (Well #1). Chlorinated solvents have been detected in the water well including PCE (22 µg/L in September 2015) and TCE (14 µg/L in September 2015). These constituent concentrations are above each of their respective California Maximum Contaminant Level (MCL). The well has not operated since early 2014.

In 1996, DTSC separated the site into three operable units (OUs); soil in the northern portion is OU-1, soil in the southern portion is OU-2, and groundwater is OU-3. Shallow vadose zone soils were partially remediated using soil vapor extraction (SVE). The SVE system operated intermittently from 1996 to 2011 (removing 26,248 pounds [lbs] of volatile organic compounds [VOCs]). No remediation has been conducted in the deeper vadose zone soils (> 30 ft bgs).
In March 2016, DTSC issued an “Imminent and Substantial Endangerment Determination and Order and Remedial Action Order” for the site (the Order). The Order provides a framework for additional investigation, site remediation, and reimbursement costs for DTSC. In late 2016, Angeles Chemical implemented a soil / soil gas investigation and based on the results they requested additional time to complete an off-site investigation prior to preparing the agency required feasibility study and remedial action plan (FS/RAP). In May 2017, DTSC issued a letter indicating the additional offsite data would not change the conceptual model and sufficient data exists to prepare and submit the FS/RAP. The letter also suggested they conduct the additional off-site work while the agency was reviewing / approving the FS/RAP.

MCKESSON CHEMICAL COMPANY (SANTA FE SPRINGS, CENTRAL BASIN)

The site (4.3-acres) formerly operated as a bulk chemical storage and distribution facility from 1976 to 1986. Chemicals were primarily stored in drums, containers, railcars, ASTs (removed in 1990) and USTs (removed in 1996). The environmental work at the site is overseen by DTSC.

Soil and groundwater are impacted with chlorinated solvents (primarily PCE, TCE, and 1,1,1-TCA) and 1,4-Dioxane. The constituents are comingleld with the neighboring chemical facility (Angeles Chemical).

Groundwater impacts (based on the existing well network) are present at a depth of approximately 128 ft bgs. The nearest active production well is owned and operated by the City of Santa Fe Springs (Well #1). Chlorinated solvents have been detected in the water well including PCE (22 µg/L in September 2015) and TCE (14 µg/L in September 2015). These constituent concentrations are above each of their respective California MCL. The well has not operated since early 2014.

McKesson is conducting environmental work in accordance with a “Consent Order” signed January 8, 1990. Shallow vadose zone soils were partially remediated using SVE. The SVE system operated intermittently from 1994 to 2009. An enhanced thermal remediation system was installed and operated for approximately one year to address the remaining constituents residing in the fine-grained soils commencing in October 2009. It is estimated the soil remediation efforts removed a total of approximately 64,000 lbs of VOCs. DTSC issued a “no further action” decision for soils in a letter dated December 7, 2015.

A groundwater extraction system was installed to treat groundwater contamination and commenced operations in 1998. To date, the treatment system has removed approximately 5,500 lbs of VOCs. DTSC approved a temporary two year shutdown of the treatment system to evaluate the potential for constituent concentration rebound commencing in May 2016. The study results are anticipated in 2018/2019.

FISCAL IMPACT

None
STAFF RECOMMENDATION

The Groundwater Quality Committee receive and file the report.
### Angeles Chemical Company (Santa Fe Springs, Central Basin)

#### Key Indicator Compounds in Groundwater (Results shown for June 2016)

<table>
<thead>
<tr>
<th>Chemical</th>
<th>MCL</th>
<th>Current Concentration</th>
<th>Maximum Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCE</td>
<td>5</td>
<td>370 in MW-25</td>
<td>5,370 in MW-3</td>
</tr>
<tr>
<td>TCE</td>
<td>5</td>
<td>152 in MW-25</td>
<td>14,300 in MW-4</td>
</tr>
<tr>
<td>1,1-DCA</td>
<td>5</td>
<td>200 in MW-24</td>
<td>85,300 in MW-11</td>
</tr>
<tr>
<td>1,1,1-TCA</td>
<td>200</td>
<td>ND &lt;5</td>
<td>114,000 in MW-6</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>0.5</td>
<td>ND &lt;2</td>
<td>5,410 in MW-11</td>
</tr>
<tr>
<td>1,4-Dioxane</td>
<td>1 (NL)</td>
<td>ND &lt;100</td>
<td>42,900 in MW-16</td>
</tr>
<tr>
<td>Freon-11</td>
<td>150</td>
<td>111 in MW-17 / MW-25</td>
<td>330 in MW-23</td>
</tr>
</tbody>
</table>

Results in µg/L.

First groundwater monitoring wells where a majority of the higher concentrations were detected historically were dry in June 2016.


### McKesson Chemical Company (Santa Fe Springs, Central Basin)

#### Key Indicator Compounds in Groundwater (Results shown for June 2016)

<table>
<thead>
<tr>
<th>Chemical</th>
<th>MCL</th>
<th>Maximum Concentration (Shallow Zone)</th>
<th>Maximum Concentration (Zone A1)</th>
<th>Maximum Concentration (Zone A2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCE</td>
<td>5</td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCE</td>
<td>5</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,1-DCE</td>
<td>6</td>
<td>210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,1-DCA</td>
<td>5</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,1,1-TCA</td>
<td>200</td>
<td>Not Sampled during Rebound Study</td>
<td>0.53</td>
<td>Not Sampled during Rebound Study</td>
</tr>
<tr>
<td>Vinyl Chloride</td>
<td>0.5</td>
<td>ND &lt; 0.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,4-Dioxane</td>
<td>1 (NL)</td>
<td>ND &lt; 0.30</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Freon-11</td>
<td>150</td>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freon-113</td>
<td>1,200</td>
<td>210</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results in µg/L.

Implementing rebound testing post groundwater extraction from wells EW-02, MW-02, SB-20, and SB-36. Two wells currently dry (SB-20 / SB-36).


### Common Acronyms:

- PCE = Tetrachloroethylene
- TCE = Trichloroethylene
- DCE = Dichloroethene
- DCA = Dichloroethane
- TCA = Trichloroethane
- Cr⁶⁺ = Hexavalent Chromium
- MTBE = Methyl Tertiary Butyl Ether
- TBA = Tertiary Butyl Alcohol
- LNAQL = Light Non-Aqueous Phase Liquid
- TPH = Total Petroleum Hydrocarbons
- μg/L = Micrograms per Liter
- ND = Not Detected
- FT = Feet
- MCL = Maximum Contaminant Level
- Ft BGS = Feet Below Ground Surface
- NL = Notification Level