

Drinking Water Treatment and Research Fund Report to the Governor and the Legislature Calendar Year 2001

I. INTRODUCTION

The California Department of Health Services herein submits the third annual report to the California State Legislature and the Governor on the implementation of the Drinking Water Treatment and Research Fund (DWTRF). The completion of this report has been mandated by the enactment of Senate Bill (SB) 2198 (Chapter 997, Statutes of 1998) and cited in Health and Safety Code Section 116367(e) as follows:

"the department shall report annually to the Governor and to the Legislature on any money provided to a public water system pursuant to this section"

This report identifies the DWTRF Program activities completed by the Department and expenditures from the DWTRF during the period of December 16, 2000 through December 15, 2001.

II. BACKGROUND

The Drinking Water Treatment and Research Fund (DWTRF) program was created under SB 2198 and identified the Department as the state agency responsible for the administration of the DWTRF. The purpose of the DWTRF is to provide financial assistance to public water systems for (1) replacement and/or treatment of drinking water supplies contaminated by oxygenates at concentration levels exceeding drinking water standards, (2) investigations to determine the responsible party for oxygenate contamination, and (3) conducting research to develop cost-effective treatment technologies to remove oxygenates from water to meet drinking water standards and develop strategies to protect drinking water sources from contamination by oxygenates. Methyl-Tertiary-Butyl-Ether (MTBE) is the best known of the fuel oxygenates and the oxygenate most frequently involved in contamination of drinking water sources.

SB 2198 appropriated \$5 million from the General Fund to the Department and the DWTRF to provide the referenced financial assistance. Additionally, the State Water Resources Control Board is required to transfer \$5 million annually from the Underground Storage Tank Cleanup Fund to the DWTRF through fiscal year 2001-2002, the sunset date of the program. Subsequent legislation, SB 989 (Chapter 812, Statutes of 1999) extended the effective date of the DWTRF to January 1, 2010.

SB 2198 also requires the Department to establish a DWTRF Research Advisory Committee to review research proposals for projects to develop cost-effective treatment technologies to remove oxygenates from drinking water and develop strategies to

protect drinking water sources from oxyanion contamination. The Department is authorized to expend up to \$1 million annually for research projects.

In February 1998, the Department adopted regulations requiring public water systems to monitor their drinking water sources for MTBE. Subsequently, the Department adopted a secondary drinking water standard for MTBE of 5 parts per billion (ppb), to address taste and odor considerations, and a primary drinking water standard of 13 ppb to address human health concerns.

The Department has developed the necessary administrative procedures and forms for the effective implementation of the DWTRF.

III. CORRECTIVE ACTION PROJECTS

The Department issued funding commitments totaling \$3,528,820 to public water systems for corrective action projects during this reporting period. The scope of these projects included replacement of drinking water supplies contaminated by MTBE or installation of treatment systems to remove MTBE from the drinking water supplies. Since the inception of the DWTRF Program, the Department has issued funding commitments totaling \$6,685,797 for corrective action projects.

Commensurately, the Department expended \$2,714,870 to public water systems in cost reimbursements for the approved corrective action projects during the reporting period. The Department has expended a total of \$3,869,052 in reimbursements to public water systems since the inception of the DWTRF Program.

A brief description of the corrective action projects approved during this reporting period and the ongoing projects approved previously is provided below. In addition, a summary of the DWTRF Program funding commitments and expenditures is provided in Appendix A to this report.

A. New Projects Approved in Calendar Year 2001

Cambria Community Services District (San Luis Obispo County): Santa Rosa Creek Well Nos. 1 & 3 Replacement Project-

MTBE was detected in the groundwater adjacent to the Cambria Community Services District (CCSD) drinking water wells designated as Santa Rosa Well Nos. 1 & 3 at levels exceeding the primary drinking water standard. The Regional Water Quality Control Board (RWQCB) requested CCSD cease operation of the Santa Rosa Creek Wells to help contain the MTBE contamination plume and enhance the remediation of the MTBE contamination plume.

The Department approved funding in the amount of \$1,806,000 for the construction of a new drinking water well and the required treatment and pipeline to replace the water supply lost from Santa Rosa Creek Well Nos. 1 & 3.

The Department issued reimbursements to CCSD totaling \$1,298,697 during this reporting period.

Fruitridge Vista Water Company (Sacramento County): Well No. 2 Replacement Project -

Fruitridge Vista Water Company (FWWC) detected MTBE in their drinking water well designated as Well No. 2 at concentrations exceeding the primary drinking water standard and immediately ceased operation of the well. The Department approved funding in the amount of \$40,000, during this reporting period, to initiate the engineering planning and investigative work necessary to identify a replacement water supply.

Yosemite Spring Park Utility Company (Fresno County): Well No. 1 Treatment Project-

Yosemite Spring Park Utility Company (YSPUC) detected MTBE in their drinking water well designated as Well No. 1 at concentrations exceeding the primary drinking water standard.

The Department approved funding in the amount of \$371,000 for the installation of a treatment system for the removal of the MTBE during this reporting period.

B. Previously Funded Ongoing Projects

Fruitridge Vista Water Company (Sacramento County): Well No. 11 Replacement Project-

In calendar year 2000, the Department approved funding in the amount of \$1.3 million for the construction of two new drinking water wells and the required pipeline to transport the new drinking water supply to the section of the service area served by Well No. 11. This well is contaminated by MTBE at concentrations exceeding the primary drinking water standard. The construction of the wells and pipeline was completed in 2001. The Department approved an additional \$50,000 during calendar year 2001, to cover additional project costs, for a total approved funding amount of \$1,350,000.

The Department has issued reimbursements in the amount of \$776,644 to the FWWC for this project during this reporting period. FWWC has received a total of \$1,349,307 in reimbursements for the Well No. 11 Replacement project.

South Tahoe Public Utility District (Nevada County): Gardner Mountain Well and Pipeline Project –

The Department approved funding in the amount of \$564,677 during calendar year 2000 for the construction of one new drinking water well and the installation of a pipeline to transport the new drinking water supply to the section of the service area previously served by the contaminated well. The construction of the new well and pipeline was completed in 2001, and the Department issued reimbursements totaling \$457,401 to the South Tahoe Public Utilities District during this reporting period.

South Tahoe Public Utilities District (Nevada County): Arrowhead Well Replacement Project –

The Department approved funding in the amount of \$409,800 during calendar year 2000 for the construction of a new Arrowhead well to replace two contaminated drinking water supply wells. The construction of the new well was completed in 2001 and reimbursements totaling \$370,225 were issued to the South Tahoe Public Utilities District for this project during calendar year 2000.

Riverview Water District (San Diego County): Alternate Water Supply Purchase –

This public water system detected MTBE contamination in one (1) drinking water well at concentrations that consistently exceeded an adopted drinking water standard. The District has taken the contaminated well out of service and is purchasing additional water supplies from an adjacent water supplier until a treatment facility is constructed to remove MTBE from the contaminated drinking water well.

The Department approved funding in the amount of \$243,500 for the incremental cost to purchase the alternate drinking water supply during calendar year 2000. The Department approved additional funding in the amount of \$269,820 during this reporting period to continue reimbursements for the purchase of alternate drinking water supplies through June 30, 2002. Reimbursements in the amount of \$182,128 have been made to the Riverview Water District during this reporting period. The Department has made reimbursements totaling \$393,422 to the Riverview Water District for the purchase of alternate water supplies.

City of Santa Monica (Los Angeles County): Charnock Well Field Contamination Source Investigation –

The City of Santa Monica detected MTBE concentrations in four drinking water wells in the Charnock Well Field at concentrations exceeding the primary drinking water standard in 1999.

The Department approved funding in the amount of \$639,000 in calendar year 2000 for the investigation of the possible source(s) of the MTBE contamination in the Charnock Well Field.

The Department approved additional funding in the amount of \$992,000 during this reporting period to the City of Santa Monica to continue the investigation of the sources of the MTBE contamination.

The Department will be distributing a supplemental notification letter in January 2002 to all public water systems in California, to promote the availability of the DWTRF financial assistance program. This notification letter will also be available on the Department's website.

IV. RESEARCH PROJECTS

In January 1999, the Department solicited recommendations for membership to the DWTRF's Research Advisory Committee from trade associations of public water systems, gasoline manufacturers and distributors, environmental organizations, and consumer groups, as required by the statute.

The Department appointed the members to the Research Advisory Committee based on the recommendation received during the solicitation process. The members of the Research Advisory Committee consist of representatives from the Department, Contra Costa Water District, Orange County Water District, Santa Clara Valley Water District, City of Santa Monica, Chevron Oil Company, Exxon-Mobil Oil Corporation, Association of Gasoline Distributors, Van De Pol Oil Distribution, and Clean Water Action.

In September 2000, the Department sponsored a Nominal Group Technique (NGT) Workshop for the purpose of identifying the research needs in the areas identified by the statute. The DWTRF Research Advisory Committee reviewed the findings of the NGT Workshop final report and made recommendations to the Department regarding the research project areas that should be conducted under the DWTRF. A list of the recommended research projects is included in Appendix B of this report.

The Department has developed draft requests for proposals (RFPs) for the highest priority projects recommended by the Research Advisory Committee. The Department is scheduled to release the RFPs in the first quarter of 2002.

A. New Projects Approved in Calendar Year 2001

During this reporting period, the Department issued funding commitments totaling \$750,000. A brief description of the research projects approved during this reporting period and the ongoing projects previously approved is provided below.

Field Study of the Impact of a Gasohol Spill on Natural Attenuation of Pre-existing BTEX (Benzene Toluene Etholbenzene Xylene)/MTBE Contamination

The Department approved funding in the amount of \$750,000 to the University of California, Davis, and the U.S. Environmental Protection Agency, for a collaborative research project to conduct a field study of the impact of a gasohol spill on pre-existing BTEX - MTBE contamination sites. This three-year research project will involve (1) a controlled release of a gasohol product into the existing contamination plume, (2) installation of monitoring wells, (3) injection of a tracer compound into the contamination plume, and (4) comprehensive sampling and monitoring of the MTBE-BTEX plume movement and attenuation. The research will be conducted at an existing MTBE-BTEX contamination site located at Vandenberg Air Force Base. Initial site characterization work is currently ongoing with the research project field work scheduled to begin in early 2002.

B. Previously Funded Ongoing Projects

Contra Costa Water District (CCWD) –

In calendar year 2000, the Department issued a funding commitment of \$150,000, to conduct a collaborative research project with the American Water Works Association Research Foundation (AWWARF) for the development of a guidance manual for minimizing MTBE and other oxygenate contamination in lakes and reservoirs. The total amount of funding required to complete the project is \$300,000. The AWWARF contributed \$150,000 for conducting this research project.

The field work for this project was completed during calendar year 2001 and the development of the final report is ongoing. To date, the Department has not received any requests for reimbursement for this project.

SUMMARY OF FUNDING COMMITMENTS

<u>Public Water System</u>	<u>2001 Calendar Year</u>	<u>Previous Amount</u>	<u>Total</u>
Cambria CSD (SRC Well #1&3 Repl.)	\$1,806,000	-0-	\$1,806,000
Fruitridge Vista WC (Well #2 Replacement)	\$40,000	-0-	\$40,000
Yosemite Spring Park UC (Well #1 Treatment)	\$371,000	-0-	\$371,000
Fruitridge Vista WC (Well #11 Replacement)	\$50,000	\$1,300,000	\$1,350,000
South Tahoe PUD (Gardener Mtn. Well)	-0-	\$564,677	\$564,677
South Tahoe PUD (Arrowhead Well)	-0-	\$409,800	\$409,800
Riverview WD (Replacement Water Purchase)	\$269,820	\$243,500	\$513,320
City of Santa Monica (Charnock Investigation)	\$992,000	\$639,000	\$1,631,000
Total Commitments	\$3,528,820	\$3,156,977	\$6,685,797

CSD – Community Services District 1
 WC – Water Company
 UC – Utility Company
 PUD – Public Utility District
 WD – Water District

SUMMARY OF EXPENDITURES

<u>Public Water System</u>	<u>2001 Calendar Year</u>	<u>Previous Amount</u>	<u>Total</u>
Cambria CSD (SRC Well #1&3 Repl.)	\$1,298,697	-0-	\$1,298,697
Fruitridge Vista WC (Well #2 Replacement)	-0-	-0-	-0-
Yosemite Spring Park UC (Well #1 Treatment)	-0-	-0-	-0-
Fruitridge Vista WC (Well #11 Replacement)	\$776,644	\$572,663	\$1,349,307
South Tahoe PUD (Gardener Mtn. Well)	\$457,401	-0-	\$457,401
South Tahoe PUD (Arrowhead Well)	-0-	\$370,225	\$370,225
Riverview WD (Replacement Water Purchase)	\$182,128	\$211,294	\$393,422
City of Santa Monica (Charnock Investigation)	-0-	-0-	-0-
Total Expenditures	\$2,714,870	\$1,154,182	\$3,869,052

CSD – Community Services District 2
 WC – Water Company
 UC – Utility Company
 PUD – Public Utility District
 WD – Water District

**Research Advisory Committee
Project Recommendations**

Evaluate Various Reactive Barrier Designs

- a) Reactive Barrier Designs for *In Situ* Treatment Oxygenate Plumes
- b) Investigate the Potential of Using Pseudo-Fenton Chemistry in an *In Situ* Permeable Reactive Barrier Mode
- c) Complexity of VOC Contamination in Subsurface Remediation
- d) Develop Barrier Technologies for Long-Term Containment of Low and High Concentration Oxygenate Plumes
- e) Proactive / Reactive Barriers
- f) Chemical Catalyst for *Ex Situ* Degradation of Ether Oxygenates or for *In Situ* Abiotic Barriers

Develop Subsurface Monitoring Systems and Improve UST (Underground Storage Tank) Monitoring Equipment

- a) Develop Subsurface Monitoring Systems to Detect Liquid / Vapor-phase Releases from USTs
- b) Establish the Occurrence and Environmental Significance of MTBE Vapor Losses from UST's
- c) Development of Rapid Response Technology Guidelines for LUFT (Leaking Underground Fuel Tank) Cleanups
- d) Evaluate and Field Test Vapor / Liquid Detection Technologies
- e) Evaluate / Develop Tools for Monitoring Fuel Storage and Distribution Systems
- f) Monitor Incentives for Detection and Reduction of Gasoline Contamination

Ethanol Data Gaps

- a) Assess Impacts of Ethanol in Gasoline on BTEX plumes in Groundwater
- b) Investigation of Trace Contaminants in Fuel Grade Ethanol

Gasoline Containment Practices / Improving Best Management Practices

- a) Evaluate Current Gasoline Containment Practices
- b) Develop BMPs for Pipelines, Tank Farms, and Fueling Stations
- c) Forensic Analysis of an Upgraded UST System w/ MTBE Release

VOC – volatile organic compounds

UST – underground storage tank

BTEX - benzene toluene etholbenzene xylene

BMP – best management practices