PALMDALE WATER DISTRICT

2029 East Avenue Q • Palmdale, California 93550 • Telephone (661) 947-4111
Fax (661) 947-8604
www.palmdalewater.org

LAGERLOF, SENECAL, GOSNEY & KRUSE LLP
Attorneys

Board of Directors

ROBERT E. ALVARADO
Division 1

GORDON G. DEXTER
Division 2

GLORIA DIZMANG
Division 3

KATHY MAC LAREN
Division 4

STEVE R. CORDOVA
Division 5

April 18, 2013

Agenda for Regular Meeting of the Board of Directors of the Palmdale Water District to be held at the District's office at 2029 East Avenue Q, Palmdale

Wednesday, April 24, 2013

7:00 p.m.

NOTE: To comply with the Americans with Disabilities Act, to participate in any Board meeting please contact Dawn Deans at 661-947-4111 x1003 at least 48 hours prior to a Board meeting to inform us of your needs and to determine if accommodation is feasible.

Agenda item materials, as well as materials related to agenda items submitted after distribution of the agenda packets, are available for public review at the District's office located at 2029 East Avenue Q, Palmdale. Please call Dawn Deans at 661-947-4111 x1003 for public review of materials.

PUBLIC COMMENT GUIDELINES: **The prescribed time limit per speaker is three-minutes. Please refrain from public displays or outbursts such as unsolicited applause, comments, or cheering. Any disruptive activities that substantially interfere with the ability of the District to carry out its meeting will not be permitted and offenders will be requested to leave the meeting.**

Each item on the agenda shall be deemed to include any appropriate motion, resolution, or ordinance to take action on any item.

1) Pledge of Allegiance/Moment of Silence for A.V. College President Dr. Jackie L. Fisher Sr. and his family.

2) Roll Call.

3) Adoption of Agenda.

4) Public comments for non-agenda items.

5) Presentations:

5.1) Cash for Grass Rebate Program. (Water Conservation Supervisor Beck)

5.2) Before the First Drop marketing campaign. (Water Conservation Supervisor Beck/Outreach Committee)

6) Action Items - Consent Calendar (The public shall have an opportunity to comment on any action item as each item is considered by the Board of Directors prior to action being taken.)

6.1) Approval of minutes of regular meeting held April 10, 2013.

6.2) Payment of bills for April 24, 2013.

7) Action Items – Action Calendar (The public shall have an opportunity to comment on any action item as each item is considered by the Board of Directors prior to action being taken.)

7.1) Consideration and possible action on proposals received for conducting an Organizational Assessment. ($29,500.00 plus expenses not-to-exceed $5,600.00 - Non-Budgeted – General Manager LaMoreaux/Personnel Committee/Dr. Bill Mathis)

7.2) Public hearing on adoption of 2013 Public Health Goal Report. (Water Quality Supervisor Kerschner)

7.3) Consideration and possible action on adoption of 2013 Public Health Goal Report. (Water Quality Supervisor Kerschner)

7.4) Consideration and possible action on Resolution No. 13-8, a Resolution of the Board of Directors of the Palmdale Water District Authorizing the Issuance by the Palmdale Water District Public Financing Authority of Water Revenue Bonds in an Aggregate Principal Amount Not-to-Exceed $50,000,000 and Approving Certain Documents in Connection Therewith. (Financial Advisor Egan/Finance Manager Williams)

7.5) Adjourn to meeting of the Palmdale Water District Public Financing Authority.

7.6) Consideration and possible action on Memorandum of Understanding (MOU) for the A.V. Water Partners. (Water Conservation Supervisor Beck/Outreach Committee)

7.7) Discussion on Board memorandum received April 3, 2013 on after hours office building entry and the use of District facilities specifically the actions of Director Alvarado. (Director Dexter)

7.8) Consideration and possible action on Board and staff attendance at conferences, seminars, and training sessions as follows:

a) California Special Districts Association "Board's Role in Finance & Fiscal Accountability" to be held June 6, 2013 in Sacramento.

8) Information Items:

8.1) Reports of Directors: Meetings/Committee Meetings/General Report.

8.2) Report of General Manager.

a) District vacancies.

b) Palmdale Recycled Water Authority status.

c) Director credit card statements.

8.3) Report of Attorney.

9) Public comment on closed session agenda matters.

10) Closed session under:

10.1) Government Code Section 54956.9(a), existing litigation: *Antelope Valley Ground Water Cases.*

10.2) Government Code Section 54956.9(a), existing litigation: *United States, et al. v. J-M Manufacturing Company, Inc., et al., United States District Court for the Central District of California Case No. ED CV06-0055-GW.*

10.3) Government Code Section 54956.9(a), existing litigation: *Central Delta Water Agency vs. Department of Water Resources, Sacramento Superior Court Case No. 34-2010-80000561.*

10.4) Government Code Section 54956.9(a), pending litigation: *Velez v. City of Palmdale, et al, Los Angeles Superior Court Case No. MC023216.*

10.5) Government Code Section 54956.9(a), pending litigation: *Miller v. Fairweather, et al, Los Angeles Superior Court Case No. MC023677.*

10.6) THREAT TO SECURITY OF PUBLIC BUILDINGS (Govt. Code Section 54957) Consultation with District Counsel.

11) Public report of any action taken in closed session.

12) Board members' requests for future agenda items.

13) Adjournment.

DENNIS D. LaMOREAUX,
General Manager

DDL/dd

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE:	April 17, 2013	**April 24, 2013**
TO:	BOARD OF DIRECTORS	**Board Meeting**
FROM:	Claudette Beck, Water Conservation Supervisor	
VIA:	Mr. Dennis D. LaMoreaux, General Manager	
RE:	***AGENDA ITEM NO. 5.2 – PRESENTATION: BEFORE THE FIRST DROP MARKETING CAMPAIGN***	

Information and Background:

The Outreach Committee decided to work on a campaign to inform the District's customers on the cost to the District before they get one drop of water. In doing so, the Outreach Committee wanted to bring Aquadog back as a friendly equation to the campaign. The first part of the campaign was to develop a working image that outlines the idea on what costs are involved "Before the First Drop." The image can be seen on the District's web site with a short explanation of the cost in each category: wells, booster stations, treatment, and overhead. The idea was to build on this idea adding more information for customers to view.

The Outreach Committee decided to enter ACWA's Best in Blue/Achieving Communications Excellence Award. After reviewing the criteria, the Outreach Committee decided to come up with a plan for the campaign. Please see the "Before the First Drop" campaign plan enclosed.

Strategic Plan Element:

This work is part of Strategic Element/BMP-Public Relations.

Budget:

The "Before the First Drop" campaign does not affect the budget.

Supporting Documents:

- "Before the First Drop" campaign plan
- Best in Blue Award information
- "Before the First Drop" image on web
- Survey #1 (to be provided at Board meeting)

BEFORE THE FIRST DROP campaign

Jan 2013–Dec 2013

Goals:

1) Communicate the cost, therefore the value of water, before it reaches the customer
2) Communicate the cost of water to all age groups
3) Communicate the cost of water using social media to the District's advantage
4) Communicate the cost of water with a limited budget

Objectives:

1) Develop a plan to communicate the cost of water, before it reaches the customer, in numerous innovative ways
2) Develop a plan to communicate the cost of water using the message "Before the First Drop"
3) Develop a contest to communicate the cost of water to elementary students
3) Develop a plan to communicate the cost of water on a limited budget by taking advantage of existing higher tier program budgets

The Plan

PLAN- to implement the District's message on the cost of water, "Before the First Drop"

1) Develop two surveys to provide desired outcome of District's message (both in English and Spanish)

   The first survey is to establish what the public knows about the cost of water before they have read or received information about "Before the First Drop" materials.

   A. The survey will be pasted on the home page on the District's web site.

   B. Those participating in the survey will be entered into a drawing for a grand (grand prize-drawing for a new front yard landscape
   C. The survey will be placed in the March AND APRIL water news (direct and e-news). Each person participating in the survey will automatically be entered in the drawing. Customer must fill out both surveys.
   D. Bulletin on lobby monitor about survey (survey sheet and drop off box provided at service window)
   E. Survey handed out at landscape workshops. Workshops in March workshops in April
   F. Survey handed out to elementary and high school students (selected class rooms) students will be entered into different drawing for t-shirts
   G. First survey starting in March ending deadline April 30th.

2) Implementing the message "Before the First Drop" in 2013

   A. Reach out to the public "Before the First Drop" graphics and verbiage on web site.

B. Reach out to the public "Before the First Drop" Water News- mentioned in 2013 February's water news....and in Aprils water news and constant contact.
C. Reach out to the public "Before the First Drop" graphics on lobby monitor....
D. Reach out to schools- provide a coloring contest "Before the First Drop" graphics, grades 4-6, prize $100.00 and a pizza party.
E. "Before the First Drop" graphics and message on lobby bulletin board
F. Reach out to the public new article "Before the First Drop" Water News-April and May
G. Develop a U-tube video about "Before the First Drop" using Aquadog and the District employees at different locations
H. Develop a flash mob dance advertising "Before the First Drop" using Aquadog, school students and District staff (develop an Aquadog dance with "Before the First Drop" signs and practice for mob dances and place video on U-tube)
I. Provide written articles, flyers or brochures about "before the First drop" to hand out at events: Home Show, AVRCD booth, PWD Plant sale
J. Provide PSA sound bites on "Before the First Drop" with Radio spots on the Cash for Grass program
K. April is National poem month get customers to write a poem about the cost of water "Before the First Drop". Give a $25.00 credit back on water bill for the winning poem.

3) The second survey will help to quantify the results of the District's message. The survey will be conducted in the same manner as the first survey in July of 2013.

4) Qualify results of second survey for effectiveness of program

5) Keep tract of the budget, use innovated cost effective ways to communicate the District's message

6) Write entry narrative including budget summary for the best in blue award, fill out entry form and send to ACWA before October 1, 2014

Things to consider:

Additional facts on "Before the first drop"

How to make customers hang on to "Before the First Drop" materials

How do we get teenager or everyone to tweeter the message "Before for First Drop"

best in blue

achieving communications excellence

Recognizing outstanding achievements by public water agencies in communications.

Best in Blue: Achieving Communications Excellence

ACWA's Best in Blue Award recognizes outstanding achievements by public water agencies in communicating with customers, legislators, media, the public and others. Winning projects and programs will quantifiably meet their agency's public information, communications or outreach goals in an innovative way while making effective use of available resources.

Eligibility

- Open to public water agency members of ACWA
- All or most of the work must have been executed between Jan. 1 and Dec. 31 of the previous year. For ongoing programs, please submit for one year of program only.
- An agency may submit only one entry per year
- An agency may not submit again for three years after winning

Examples of Entries

Short- and long-term public outreach programs, crisis communications programs, employee relations programs, self-promotion campaigns, customer education programs, legislative outreach programs, agency anniversary campaigns. School education programs are not eligible for this award.

Note: This award aims to recognize overall communications programs. Individual communications tools, such as a press release or event, should not be submitted unless they are supporting elements of an overall communications or outreach program being entered in this award.

Criteria for Selection

- Were the objectives clearly stated and described?
- Were the chosen methods appropriate?
- Was the program successful? Does the entry material support the description of the results?
- Were the program and method(s) innovative?
- How well did the elements support the concept? Was it well organized, well executed and professional?
- Did the program or campaign increase the agency's transparency to the public? How?
- Was the budget appropriate for the program objectives? Did the program make good use of the available funds/resources?

Entry Narrative and Budget Summary

Entries must be accompanied by a typewritten narrative no longer than three pages addressing the following questions:

- Objective: What were the objectives of the program? Describe your agency's goals and desired outcome and quantify, if possible.
- Method: Explain which tools, materials and/or events your agency used to achieve your objectives and why they were chosen. Include the role that consultants played in the program.
- Results: How did you meet your agency's communication needs? Quantify and qualify your results.
- Creativity: How did your program employ innovative communications methods and techniques? Describe any obstacles you had to overcome and the solution.
- Transparency: Describe how your program helped increase your agency's transparency.

On a separate page, indicate the total budgeted amount for the program and break out all costs, including donated/in-kind services.

Submission Requirements and Deadline

Submit entry form, narrative, budget summary and all supporting materials electronically to awards@acwa.com. Examples of supporting materials include press releases, bill stuffers, event photos, videos, websites and social media links.

Entries must be received by **Oct. 1** of each year, or the following business day if the deadline falls on a weekend or holiday. The award will be presented annually at the ACWA Fall Conference & Exhibition.

OFFICIAL ENTRY FORM

Association of California Water Agencies
Since 1910
Leadership • Advocacy
Information • Service

OFFICIAL ENTRY FORM

Deadline: October 1 of each year

(or the following business day if the deadline falls on a weekend or holiday)

Agency

Address, City, State, Zip

Phone Fax

Person responsible for submitting the entry:

Name Title

E-mail Address

Information about the program:

Name of Program

Date Program Implemented (MM/YY) Date Program Ended (MM/YY)

Explain the program and how it meets the criteria for selection by including a separate, typed narrative and budget summary addressing the questions on the previous page. The narrative should be no longer than three pages.

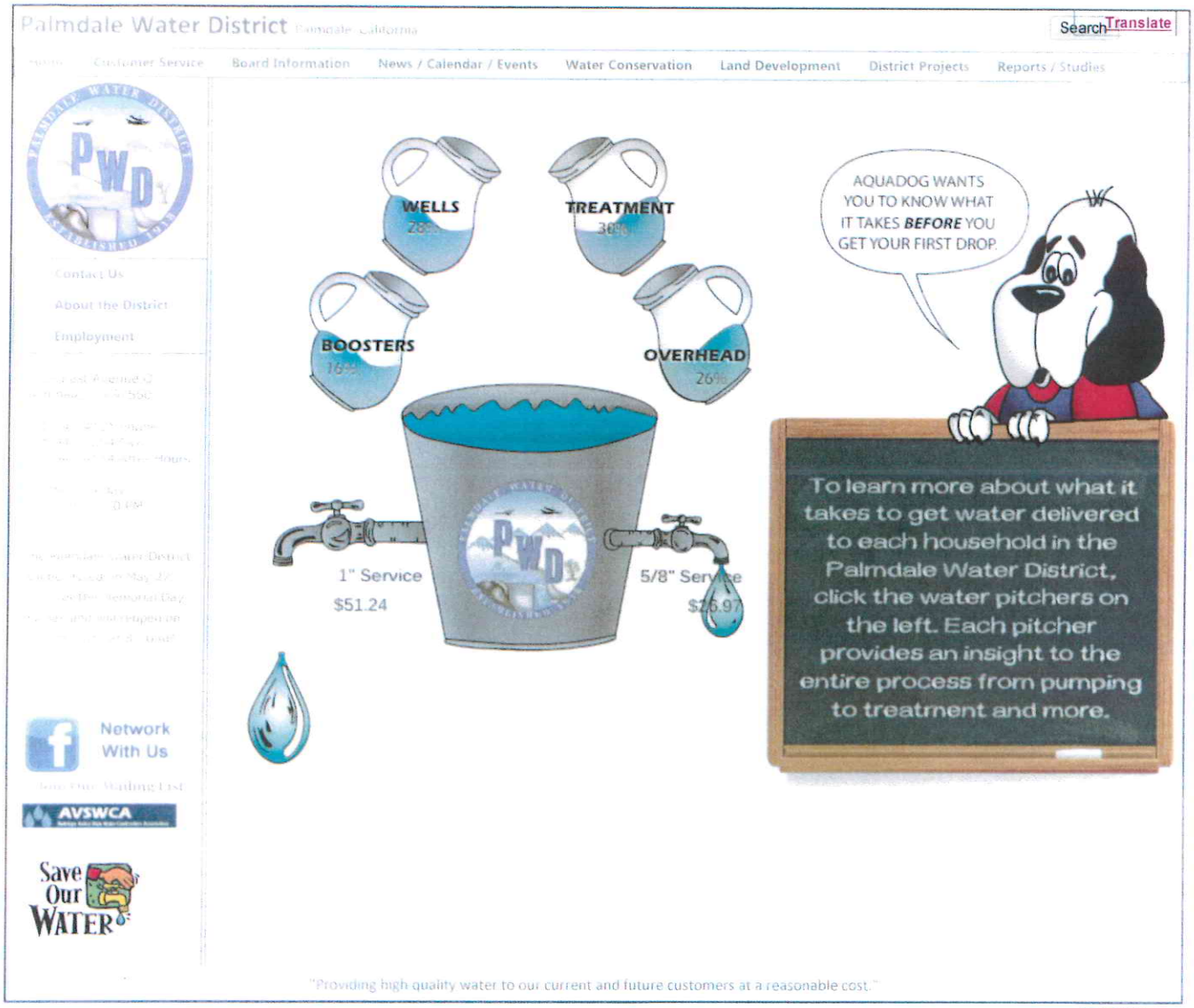
Signature of Board President (or designee) or Manager (or designee) Date

Questions? Call ACWA's Communications Department at 916.441.4545.

best in blue
achieving communications excellence

Send completed entry package, including all supporting materials, to awards@acwa.com.

Association of California Water Agencies
Since 1910
Leadership • Advocacy
Information • Service


Palmdale Water District
Search
Translate
Customer Service
Board Information
News / Calendar / Events
Water Conservation
Land Development
District Projects
Reports / Studies
Contact Us
About the District
Employment
WELLS
TREATMENT
BOOSTERS
OVERHEAD
1" Service
$51.24
5/8" Service
AQUADOG WANTS YOU TO KNOW WHAT IT TAKES BEFORE YOU GET YOUR FIRST DROP.
To learn more about what it takes to get water delivered to each household in the Palmdale Water District, click the water pitchers on the left. Each pitcher provides an insight to the entire process from pumping to treatment and more.
Network With Us
AVSWCA
Save Our WATER
"Providing high quality water to our current and future customers at a reasonable cost."
Mobile Website

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: April 18, 2013 **April 24, 2013**

TO: BOARD OF DIRECTORS **Board Meeting**

FROM: Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.1 – CONSIDERATION AND POSSIBLE ACTION ON PROPOSALS RECEIVED FOR CONDUCTING AN ORGANIZATIONAL ASSESSMENT.***

Recommendation:
Staff and the Personnel Committee recommend a contract be awarded to the Mathis Consulting Group in the not-to-exceed amount of $35,100.00 for conducting an Organizational Assessment for the District.

Alternative Options:
The alternative option is to award a contract to EMA in the amount of $93,730.00.

Impact of Taking No Action:
No Organizational Assessment will be conducted.

Background:
Requests for Proposals were circulated for conducting an Organizational Assessment for the District, and proposals were received from the Mathis Consulting Group and EMA. After Personnel Committee discussion, revisions to these proposals were requested. These two firms then presented their proposal to the Personnel Committee, and based on these presentations and on the cost of the two proposals, the Personnel Committee recommended the Mathis Consulting Group proposal be presented to the full Board for consideration.

Strategic Plan Element:
This work is part of Strategic Element 4.0 Personnel Management.

Budget:
This item is not budgeted.

Supporting Documents:
- Initial proposals
- Revised proposals
- Powerpoint presentation from EMA

Mathis Consulting Group

A Mathis Company

February 6, 2013

TO: **Dennis LaMoreaux, General Manager**
Palmdale Water District

FROM: **William Mathis, PhD.**
Management Psychologist

RE: **Organizational Assessment**

It is my pleasure to respond to a request for proposal for an Organizational Assessment of Palmdale Water District. We have successfully completed Organizational Assessments for Moulton Niguel Water District, ACWA organization, as well as many other water districts, special district agencies, cities and counties in California.

A. Basic Qualifications:

Mathis Consulting Group was founded in 1973 by a Management Psychologist, Dr. Bill Mathis. Mathis Group maintains two locations in California: Northern California and the newest in Southern California along with a virtual office accessible at all times. Mathis Consulting Group consists of bilingual, permanent staff, on-call staff and consultants. Dr. Mathis holds a Ph. D in Clinical/Industrial Psychology from the University of North Dakota at Grand Forks, a Master's degree in Clinical Psychology from the University of Portland in Oregon and a Bachelor's degree in Chemistry/Biology and Psychology from the University of Puget Sound in Tacoma, Washington. Dr. Mathis is also a well-known writer and speaker, whose published articles include: "When Council is Unhappy with the City Manager", "What Council's want from their Managers...but do not tell them", "The Business Journal", and "The 7 symptoms of a Manager in Trouble". Mathis Groups' "whole team" concept of intermingling business consultants with psychologists brings a "value added" concept to his clients. Mathis Group provides consulting services to both public and private sectors that include but are not limited to: high risk, safety, disaster recovery management, efficient internal and external business practices, working through personnel conflicts, top management employee evaluations, organizational structure best practices and in changing organizational culture. Mathis Group Professional Affiliations include: International Independent City Managers Association (ICMA), CA City Manager's Foundation (CCMF), National League of Cities (NLC), and League of CA Cities (LCC).

B. Specific Qualifications

R. WILLIAM MATHIS, PH.D.
MANAGEMENT PSYCHOLOGIST

Biographical Summary

Dr. Mathis holds a Ph.D. in Clinical / Industrial Psychology from the University of North Dakota at Grand Forks, a Master's Degree in Clinical Psychology from the University of Portland in Oregon and a Bachelor's degree in Chemistry / Biology and Psychology from the University of Puget Sound in Tacoma, Washington.

Dr. Mathis is the founder of Mathis Group, and has sole proprietorship. The firm is currently located in Napa, California. The firm provides both general management and clinical consulting services to public and private sectors. High risk, safety, law enforcement and crisis related situations are special niches addressed through the clinical psychologists on staff.

Dr. Mathis is a well-known writer and speaker, whose published well-read articles include "When Council is Unhappy with the City Manager," "What Councils want from their Managers… but do not Tell Them," The Business Journal, "Don't Drop the Ball on Your City Council", "The 7 Symptoms of a Manager in Trouble…," Public Management. He is well known throughout the United States and is frequently seen in both western and east coast cities. His "whole team" concept of intermingling business consultants with psychologists brings a "value added" concept to his clients.

Dr. Mathis and his firm, Mathis Group, offer a wide variety of services such as:

City Manager / City Attorney Evaluation
Team Building
Goal Setting Workshops / Town Hall
Annual Goal Setting
Style Analysis - Individual and Group
Effective Communications
Problem Solving and Project Management
Organization / Department Audits
Strategic Planning
Executive Recruitments
Coaching and Mentoring
Change Management Strategies
Personnel Conflicts / Outpatient Services
Organizational Assessment

Mathis Group is and has been a member of numerous public organizations including ICMA (International City Managers' Association), California, City Management Foundation, California Utility Executive Management Foundation, National League of Cities and League of California Cities.

JANICE MATHIS, M.A.
PERSONNEL MANAGEMENT CONSULTANT
MATHIS GROUP

Janice Mathis brings extensive government and public agency experience to The Mathis Group having served as Deputy City Manager for one of the largest cities in Los Angeles County. She held a variety of positions at CSU Long Beach, working in both University Relations and Development, and the Dean's Office of the Graduate Center for Public Policy and Administration. Janice holds an M.A. Degree in Human Behavior and a B.A. Degree in Behavioral Sciences, with a focus on the Employee Assistance Program.

An accomplished writer, Janice co-authored the article, "Don't Drop the Ball on Your City Council," with Dr. Bill Mathis and former City Manager, Bill Garrett.

Janice joined Mathis Group ten years ago and specializes in recruitments; policies and procedures (revisions and updating); customer service training; completion of assessments of executive staff and best fit for top leaders' executive assistants. She has broad knowledge and training in supervisory skills and has worked with Dr. Bill in City Council and Special District Board Goal Setting with City/General Managers and Department Heads. Janice coaches staff and has also performed staff personnel assessments in her work for a large District Attorney's Office.

Janice is involved in the California Utility Executive Management Association and California City Management Foundation; she also has prior experience in the real estate, insurance and banking industries.

Please see section C for clarification of who will perform specific tasks.

C. Philosophy and Approach to Palmdale Assessment

1. **All the initiatives and movement towards High Performance** (a new goal), are the product of measuring the constructive nature of any workforce's environment. Identification of systems issues that create passivity, dependency and unnecessary bureaucracy should be identified within the scope of this project. It's expected that 80% of the positive change will occur in this approach. The remaining 20% of issues will center on personnel, training and supervision issues that prevent the culture from becoming high performance.

Our philosophy and research demonstrates that significant issues inside organizations get resolution with role clarity, improved systems (I.T., Communications) and proper equipment to do the work. This philosophy helps the workplace feel supported in their efforts to achieve high performance.

2. **Major Goals/Activities of the Assessment**

I) Preparation for the actual Assessment Phase: 1 Day $3,000
Dr. Bill

- Ask HR for job descriptions of supervisors, managers and lead workers to be included in culture survey and focus groups.

- Create interview documents, potential schedule modules (vacations, etc.). Assume scheduling to be accomplished internally. Messages will be crafted by the General Manager that will alert appropriate staff to purpose, confidential reporting and end product anticipated.

- Examine results of past goal setting, prior AWWA assessments, training and succession planning and past evaluations of General Manager (i.e., recommendations or goals for General Manager).

- Review and clarify current organizational structure, reporting and supervision requirements, and names associated with positions. Examine the structure for clarity, duplication and underutilization.

II) Initial Major Steps for On-Site Consultation: 3 Days $12,000
Dr.Bill/Janice

1. Meet with the General Manager and executive staff as well as Board of Directors to listen to expectations and outcomes. Meet with Association leadership for the same purpose.

2. Establish the firm scope of work with the General Manager to determine best scheduling, time frames, employee availability and establish completion date. Establish reporting date to the Board? Dr. Bill Mathis and Janice Mathis, M.A. will staff this assignment.

3. On-site completion of Organizational Culture Inventory for each of the following groups:

    - Administrative Group (8)
    - Managers' Team (7)
    - Operations Team (18)
    - Facilities Team (21)
    - Finance Team (21)

    Each group takes about 1 hr. each.

4. Each of the five groups will participate in Focus groups designed to elicit important insight into all the AWWA 15 Business processes. In addition, the OC I and Focus groups will provide data on the following:

- Role clarity in all organizational positions
- Attitude towards Customer Service
- Morale of staff at Palmdale Water District
- Clearly define where bureaucracy of processes occurs and give recommendations
- Identification of conflict areas and culture aggravating areas
- How much the Organization compares with other organizations in terms of a constructive or High Performance Culture.

Cost: 2 Days $8,600 Dr. Bill/Janice

5. Consultants to evaluate and recommend on specific areas gleaned from the date:

- Opportunities for streamlining, consolidating or improvement in organizational effectiveness
- Examine potential gaps in service, roles in overload and potential redistribution of workloads

- Identify potential role changes to complete special projects; recommend any changes in strategy for various positions and how to achieve recommended goals
- Comment and explain business processes from AWWA list

6. Consolidate and analyze the findings onto a final report and provide recommendations Cost: $2900

- Prepare submission to General Manager and Board (draft)
- Appear with the Board for discussion and results

Cost: $3000 1 Day and expenses

Expenses not to exceed $5600

- Travel/Lodging $1500
- OCI Profile (75) $1900
- OCI Grading/Analysis (Synergistics International) $1800
- Focus Group Grading Assessment $400

Total Cost: $29,500 (see expenses as additional)
Retainer: $6000 to begin/schedule work

D. Past Performance

Mathis Group has provided names of six clients of similar projects to the one required by this RFP. All five clients have been completely satisfied with their organization's results and we remain in continued engagement for various other assignments with these clients. Reference letters attached.

List includes:

1. John Mura, General Manager, East Valley Water district
2. Martin Zvrbulis, General Manager, Cucamonga Valley Water District
3. John Rossi, General Manager, Western Municipal Water District
4. Ken Deck, General Manager, Rowland Water District
5. Rick Gilmore, General Manager, Byron-Bethany Irrigation District
6. Tim Quinn, Executive Director, ACWA

E. Project Fee and Schedule

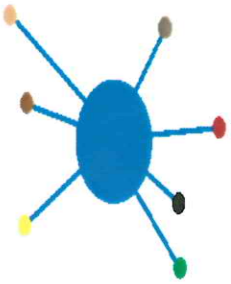
I) Project Fee:

Preparation for the Assessment Phase: $3000 (1 day)
Initial Major Steps for On-Site Consultation: $12,000 (3 days)
Focus Groups: $8,600 (2 days)
Findings Final Report: $2900
Discussion with Board for discussion and results: $3,000
Total_____ **$29,500.00**

Additional expenses not to exceed $5600

- Travel/Lodging $1500
- OCI Profile (75) $1900
- OCI Grading/Analysis (Synergistics International) $1800
- Focus Group Grading Assessment $400

II) Schedule/Timeline: The project will require 60 days for completion if the project is awarded in March (end). Target dates for Board presentation will be negotiated with General Manager for early June 2013.



Mathis Consulting Group

Reference Letters

East Valley Water District

3654 East Highland Avenue, Suite 18, Highland, CA 92346
P.O. Box 3427, San Bernardino, CA 92413

Serving Our Community for Over 50 Years

March 13, 2013

To Whom It May Concern:

East Valley Water District has had the privilege of working with the Mathis Consulting Group and Dr. William Mathis for the past four years. During this time, the District has made several significant changes to its organizational structure with the assistance of Dr. Mathis. He has been instrumental in the recruitment of a new General Manager/CEO, Human Resources Manager and an Assistant General Manager. He has been involved with the development and implementation of the District's Strategic Plan, Board Norms, and has facilitated the Boards request to modify the District's corporate culture and values.

The Mathis Consulting Group has assisted the District with the development of employee programs, board coaching, leadership goals, team building, administrative professionals training, and facilitated the General Manager evaluation process. Dr. Mathis has assisted the District in establishing an environment of continuous learning and created a work environment that encourages all employees to excel.

Dr. Mathis has been instrumental in enhancing the District's mission to be more conducive to efficient and effective public service while meeting the community's expectations. Throughout this labor intensive process Dr. Mathis and his staff have been easy to work with, and always willing to take the time to discuss my concerns and respond to questions.

I feel confident in recommending Dr. Mathis and the Mathis Consulting Group services.

Please feel free to contact me directly at 909-806-4290 if you have any further questions.

Sincerely,

John Mura
General Manager/CEO

ROWLAND WATER DISTRICT

BOARD OF DIRECTORS

Szu Pei Lu-Yang
President

John Bellah
Vice President

Robert W. Lewis
Director

Anthony J. Lima
Director

Teresa P. Rios
Director

Ken Deck
General Manager

Ted Carrera
Assistant General Manager

Janet Morningstar
Legal Counsel

March 13, 2013

To Whom It May Concern

In an effort to achieve the District's goal to become "Best in Class" the Rowland Water District engaged the services of Dr. Bill Mathis, The Mathis Group, to assist us in providing an organizational assessment in order to move forward with Board and Staff development.

Dr. Mathis has provided valuable management and staff training which has been very effective in accomplishing the District's long-term strategic plan of providing guided growth of the staff and Board of Directors, resulting in increased opportunities and an elevated level of service for customers.

Dr. Mathis' involvement and assistance with the District has been a major factor in achieving its goals and we look forward to his continued contribution in this area of development.

Ken Deck
General Manager

Thursday, March 7, 2013

BYRON BETHANY IRRIGATION DISTRICT

7995 Bruns Road
Byron, California 94514-1625

Telephone
(209) 835-0375
Fax
(209) 835-2869

General Manager
Rick Gilmore
Secretary

As the General Manager of the Byron Bethany Irrigation District, I am very pleased to offer an excellent reference for Dr. Bill Mathis, who is highly regarded in the water industry and with City Management groups. Dr. Mathis has been a mentor, always raising the bar and then teaching best practices in learning, achieving, training, as we have moved up and taken over as leaders.

The District has utilized the extensive skills that Dr. Bill Mathis has to offer and it has been extremely beneficial to BBID and me personally. It has been a privilege to work with Dr. Bill in Organizational Assessments, Goal Setting, changing our Culture; he has provided the tools to become the best of the best in our organization. his assistance with conducting *Focus Groups* and *Retreats* where we had to look at the history of a negative culture and then taught us how to deal with tough challenges to make necessary and crucial changes in order to improve our agency.

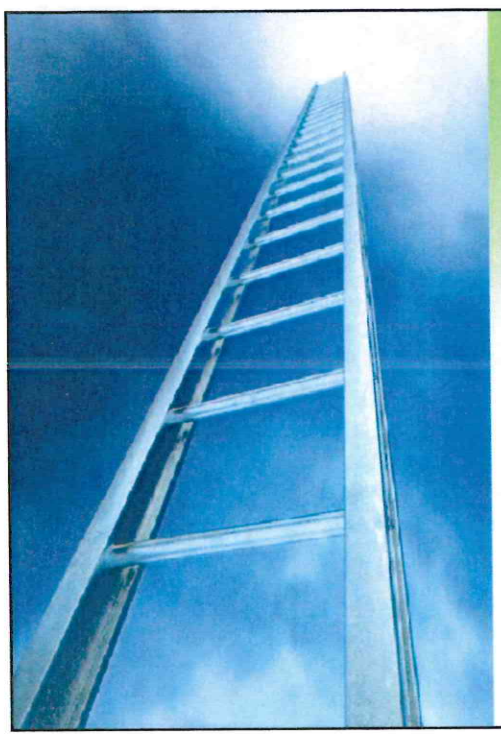
Dr. Bills' experience and vast skills are what we all need to move forward in a positive manner now and in the future.

Please do not hesitate to call on me should you need further information or explanation.

Very truly yours,

BYRON BETHANY IRRIGATION DISTRICT

Rick Gilmore
General Manager

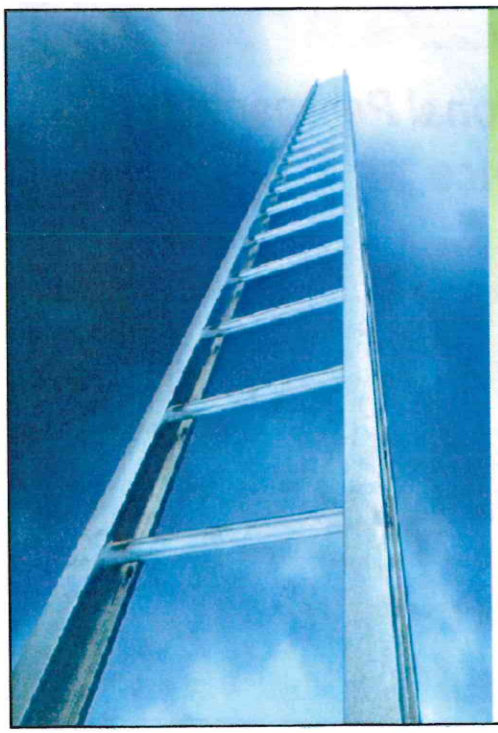


April 3, 2013

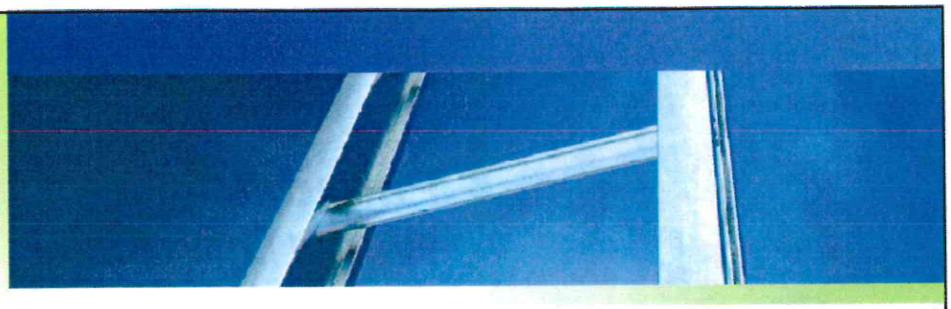
Palmdale Water District Organizational Assessment

Tim Payne
Executive Vice President

EMA



1. Introduction to EMA
2. Proposed Project Team
3. Project Approach
4. Conclusion/Q&A



Introduction to EMA

EMA Provides a National Perspective with Regional Presence

- Established 1975
- More than 150 professionals nationwide
- Clients include water & wastewater utilities in North America
- Industry leader & innovator in improving utility performance through our competitive and organizational assessment & change management programs

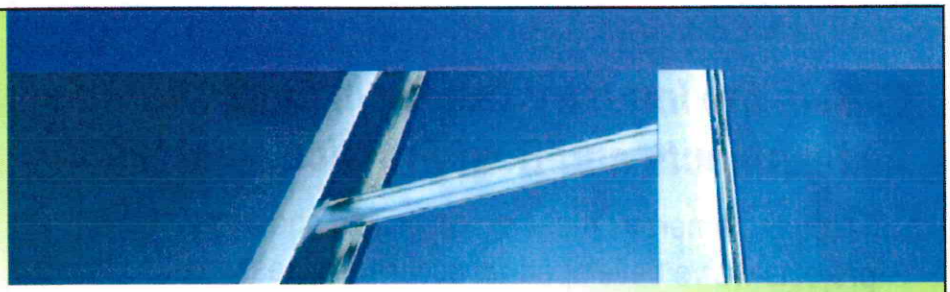
EMA is the Industry Leader in Organizational Assessments and Best Practice Consulting

- Through numerous research programs and real world projects we've developed an accurate assessment methodology
- The methodology has been used and refined on over 420 competitive assessments throughout the US and Canada
- Assessments have analyzed management structures, operations and maintenance practices, administrative services, appropriate use of technology and overall organizational efficiency/effectiveness

Examples of Directly Applicable Research Programs that Provide Direct Access To Innovation and Best Practices

IWA / Water Research Foundation	Forecasting the Future: Predictions for the Water Sector
IWA / Water Research Foundation	Strategic Planning and Organizational Development
Global Water Research Coalition / Water Research Foundation / WERF	Strategic Asset Management Program
NACWA	Competitive Utility O&M Practices
Water Research Foundation	QualServe Program Enhancements (EUM Measures)
Water Research Foundation	Water System Maintenance Best Practices
Water Research Foundation / WERF	Developing Performance Measurement Systems
Water Research Foundation / WERF	Control Systems Cyber Security
gita	GECCo (Critical Infrastructure Protection)

All projects include extensive collaboration with leading utilities



Proposed Project Team

Proposed Project Team Brings Experience and Industry Perspective to Your Assessment

PALMDALE WATER DISTRICT
Project Manager

Tim Payne
Principal-in-Charge

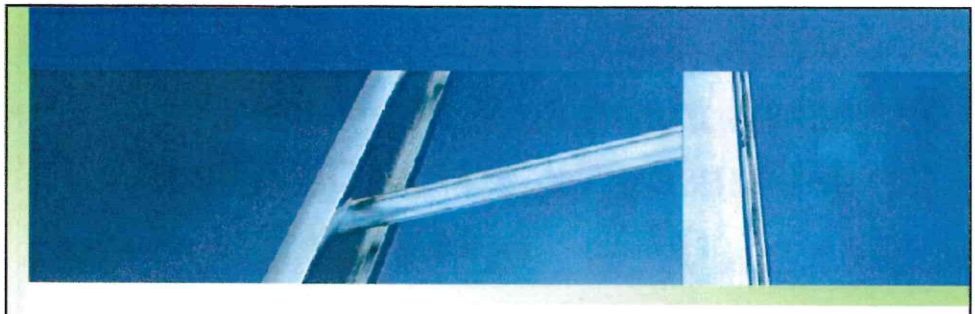
Mark Wehmeyer, PE
EMA Project Manager

Richard Haugh, PE
Subject Matter Expert

Chris Saill
Subject Matter Expert

Rob Ivanovic
Subject Matter Expert

Sharon Peters, PEng
Subject Matter Expert



Project Approach

EMA's Approach Considers Organization, Practices and Technology

- An integrated approach to organizational structure, business practices, and technology – all three components must be considered and implemented in tandem to achieve best practices

Project Approach Assures a Comprehensive Project that Delivers Value

Organization, Practices, and Technology for:
- Engineering
- Distribution
- Production
- Water Quality

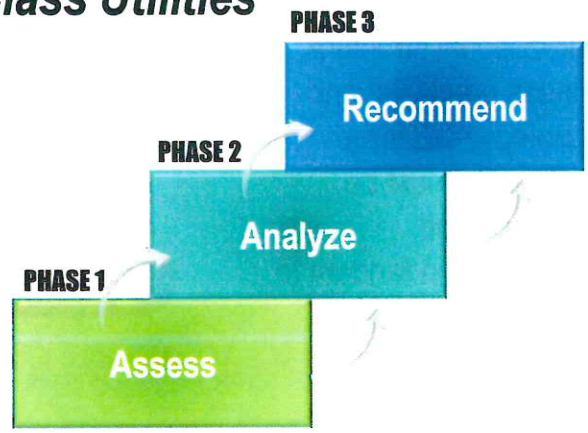
CURRENT OPERATIONS

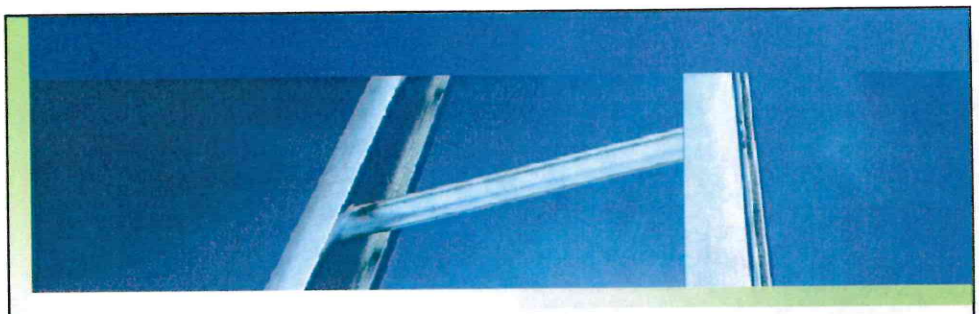
Drivers for Change	Activities
• Operational Enhancements (Efficiency & Effectiveness)	• Analyze Current Work (Eliminate/Shift/Reduce/Redesign)
• Regulations and Green Initiatives	• Identify and Acquire Skills Needed to Run Future Operations
• Changing Workforce (Gen X replacing Boomers)	• Identify Technology Improvement Projects
• Changing Industry (Automation, Mobile, Workload Management Tools)	• Benchmark Against Similar Operations
• Changing Public (Transparency, Sustainable Financing)	• Measure Performance
	• Analyze Capital Projects

FUTURE OPERATIONS

- Optimize Operational Work Practices
- Improve Use of Current Technologies
- Prioritize Capital Expenditures
- Maintain Highly Skilled Workforce

Proven Methodology Provides a Systematic Approach to Building Best-in-Class Utilities

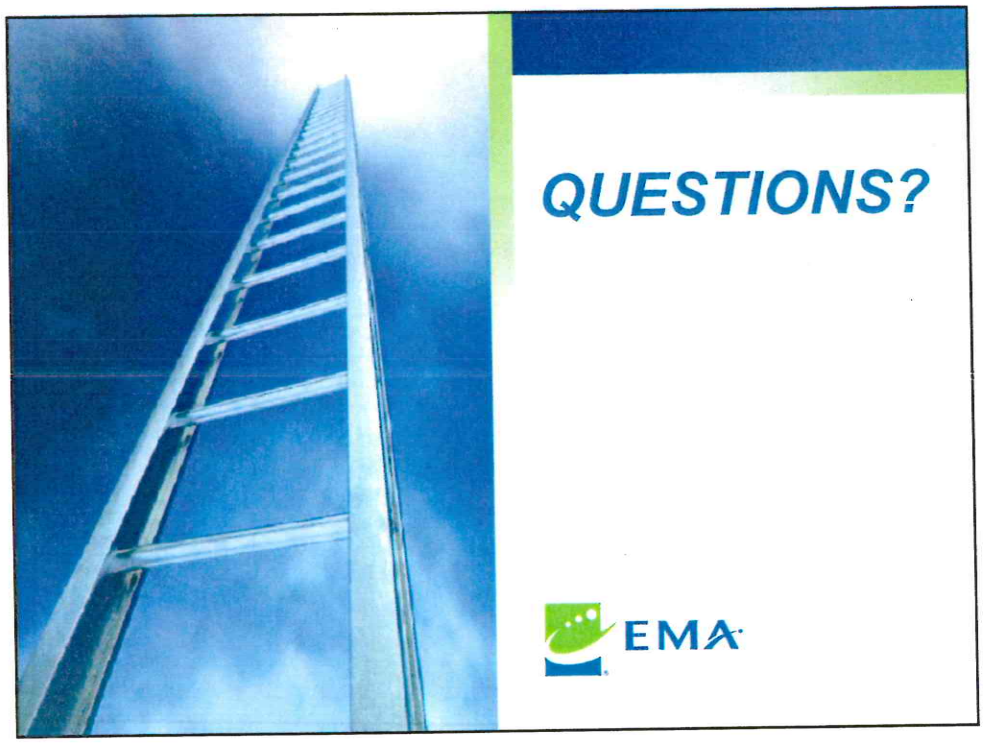




Conclusion / Q&A

Organizational Assessment will Highlight Areas in Which Palmdale Can Gain Efficiency to Improve the Bottom Line

- Bring experience and industry perspective to the District
- Understand the current issues and future trends facing the water industry
- Use proven methodology and systematic approach that considers industry best practices and organizational strategies


QUESTIONS?
EMA

SCOPE OF WORK

Phase 1: Assessment

Development of the future state and documentation of the current state will be completed in this phase.

Task 1.2 Operational Analysis

We will perform an operational analysis to develop a clear understanding of the current situation. This is fundamental knowledge that will help the District clearly identify opportunities to enhance the efficiency and effectiveness of operations. We will look at the organization structure, current work performed, staffing levels, how technology is utilized, and the effectiveness of the capital plan to meet current and future needs.

Assess Organizational Structure

We will work with the District to review the organizational structure to understand how the structure fits with where the organization is now. As part of the assessment, we will identify and evaluate all relevant processes and performance metrics, supporting organization designs, and enabling technologies. We will review existing documentation such as organizational charts and job descriptions, and personalize and build on that information by directly interviewing people involved.

This task will include looking at how functions are allocated and how responsibilities and accountabilities are structured across the organization. We will look at the needed qualifications and staff development plans. We will identify key positions and critical risk areas that affect organization sustainability. We will also look at labor requirements and state driven regulations, to be aware of constraints as well as opportunities.

Assess Workload and Associated Staffing Levels/Demographics

To collect data on staffing levels and demographics, we will meet with District staff to capture details about their current workload, duties, and responsibilities. Any documented workflows will also be collected at this time.

A skills assessment will be conducted to document staff skills and how they are used. We will identify any current documentation or methods that exist at the District to retain the operational knowledge.

Assess Management/Operations Techniques and Procedures

EMA will meet with District staff to document current Management and Operations techniques and procedures. We will review the effectiveness of documented practices and how well they support the core functions of the departments, and if they are realistic and appropriate for the organization. We will audit current management operations techniques and procedures against Manager Tools and Techniques Best Practices to identify both redundant practices and process gaps. Example of management practices that will be evaluated include:

- Purchasing approval and oversight
- Planning and scheduling of maintenance and operations tasks and staff
- Information analysis and operational optimization
- Performance measurement
- Planning

We will look at process documentation, training on topics such as safety and environmental regulations, and continuing education.

Audit Systems

We will audit how current systems are utilized and maintained. We will also run various operational reports from the systems to provide additional insight.

Phase 2: Analysis

Task 2.1 Operational Practices Analysis

We will review the effectiveness of documented practices and workflows and how well they support the core functions of the departments. EMA will identify both redundant practices and process gaps.

EMA will also review operational philosophies of the District. This will assure that any recommendations made in the Final Plan do not work against stated strategies. There are many areas to cover in this analysis including: staffing, shift staffing, level of automation, level of staff redundancy, asset management objectives, software development, system maintenance, and many others.

EMA will conduct workshops with District staff to review the processes, practices, and workflows analyzed. In these workshops, EMA will assist staff in evaluating the strengths, weaknesses, and opportunities associated with current processes. EMA will help staff identify areas where processes can possibly be streamlined or combined, and how different groups' processes and practices affect each other.

Task 2.4 Analyze Existing Technologies

We will analyze the District's existing technologies to determine if they are being used as effectively as possible. We will determine the level of automation and alarm management within the SCADA system; we will analyze the level of data automation in place for regulatory reporting, performance measurement, operational optimization, and data sharing. We will analyze the work management system to determine the level of support for work management and asset management.

Phase 3: Recommendations

EMA will present and summarize the findings of the assessment in the form of a PowerPoint presentation. The presentation is intended to be highly interactive and we will seek feedback from District staff. Based on the feedback a short executive summary of results will be submitted to the District within a week of the presentation.

Project Management

To initiate the project, EMA will hold a kick-off meeting with District staff. The purposes will be to identify, coordinate, and formalize project logistics and planning required to meet the District's needs, and establish overall project goals and objectives. At this meeting, we will:

- Clarify and agree on the goals and objectives of the project
- Provide an overview of the project approach
- Discuss roles and responsibilities
- Confirm timelines and finalize project schedule

EMA will perform standard project management activities including managing EMA resources, monitoring the budget, and managing the schedule and scope. We will provide monthly status reports with the invoices.

PROJECT COST

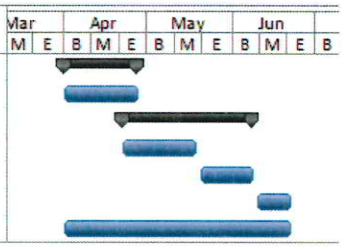
We propose a not-to-exceed amount of $93,730 for this project. The following table provides a cost breakdown by task.

Task	Hours	Cost
Phase 1: Assessment	**226**	**$ 50,210**
Task 1.2 Operational Analysis	*226*	*$ 50,210*
Phase 2: Analysis	**84**	**$ 18,200**
Task 2.1 Operational Practices Analysis	*46*	*$ 9,780*
Task 2.4 Analyze Existing Technologies	*38*	*$ 8,330*
Phase 3: Recommendations	**32**	**$ 6,930**
Project Management	**32**	**$ 8,390**
Expenses	5 trips	$ 10,000
TOTAL	**374**	**$ 93,730**

PROJECT SCHEDULE

We anticipate that this project can be completed in approximately 3 months (as illustrated in the Gantt Chart below), but will confirm and finalize the project schedule with District staff during project initiation.

ID	Phase/Task #	Phase/Task Name	Duration	Start	Finish
1	1	**Assessment**	**20 days**	**Mon 4/1/13**	**Fri 4/26/13**
2	1.2	Perform Operational Assessment	4 wks	Mon 4/1/13	Fri 4/26/13
3	2	**Analysis**	**35 days**	**Mon 4/22/13**	**Fri 6/7/13**
4	2.1	Perform Operational Practices Analysis	4 wks	Mon 4/22/13	Fri 5/17/13
5	2.4	Analyze Existing Technologies	3 wks	Mon 5/20/13	Fri 6/7/13
6	3	**Recommendations**	**2 wks**	**Mon 6/10/13**	**Fri 6/21/13**
7		**Project Management**	**12 wks**	**Mon 4/1/13**	**Fri 6/21/13**



PALMDALE WATER DISTRICT

BOARD MEMORANDUM

DATE: 4/16/2013

TO: BOARD OF DIRECTORS

FROM: Joe Kerschner, Water Quality Supervisor

VIA: Mr. Dennis LaMoreaux, General Manager

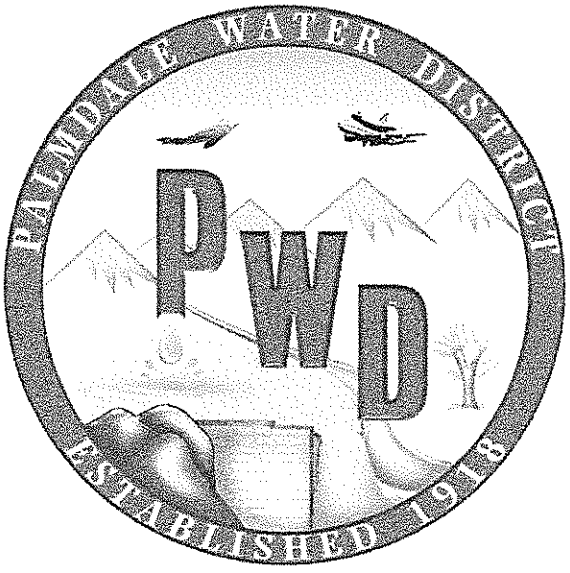
RE: *2013 Public Health Goal Report*

Attached for your approval is the 2013 Public Health Goal report. The purpose of this report is to compare the drinking water produced by the Palmdale Water District to Public Health Goals (PHGs) established by California's Office of Environmental Health Hazard Assessment (OEHHA). Additionally, Maximum Contaminant Level Goals (MCLGs) adopted by the USEPA are evaluated. PHGs and MCLGs are not enforceable standards and no action is required to meet them.

Senate Bill 1307 (Calderone-Sher; effective 1-1-97) added new provisions to the California health and Safety Code which require that a report be prepared by July 1, 1998, and every three years thereafter. The attached report is intended to provide information to the public in addition to the annual Consumer Confidence Report (CCR) that is mailed to each customer.

Our water system complies with all of the health-based drinking water standards and Maximum Contaminant Levels required by the California Department of Public Health and the USEPA.

The law requires that a public hearing be held (which can be part of a regularly scheduled public meeting) for the purpose of accepting and responding to public comment on the report. This public hearing can be scheduled as part of our regular board meeting scheduled for April 24, 2013 and should be noticed as required for public hearings.



Public Health Goal Report
2013

Background:

Provisions of the California Health and Safety Code (Attachment No. 1) specify that larger (>10,000 service connections) water utilities prepare a special report by July 1, 2013 if their water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the Cal-EPA's Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goal (MCLG) adopted by United States Environmental Protection Agency (USEPA). Only constituents which have a California primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed. (Attachment No. 2 is a list of all regulated constituents with Maximum Contaminant Level (MCL), PHG or MCLG.)

Few constituents exist that are routinely detected in water systems at levels usually well below the drinking water standards for which neither PHG nor MCLG have been adopted by OEHHA or USEPA including Total Trihalomethanes (TTHM). These will be addressed in a future required report after a PHG has been adopted.

The new law specifies what information is to be provided in the report. (See Attachment No. 1)

If a constituent was detected in the District's water supply between 2010 and 2012 at a level exceeding an applicable PHG or MCLG, this report provides the information required by the law. Included is the numerical public health risk associated with the MCL and the PHG or MCLG, the category or type of risk to health that could be associated with each constituent (Attachment No. 2), the best treatment technology available that could be used to reduce the constituent level (Attachment No. 1), and an estimate of the cost to install that treatment if it is appropriate and feasible (Attachment No. 3).

What Are PHGs?

PHGs are set by the California Office of Environmental Health Hazard Assessment (OEHHA) which is part of Cal-EPA and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or the California Department of Public Health (CDPH) in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, benefits and costs. The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.

Water Quality Data Considered:

All of the water quality data collected by our water system between 2010 and 2012 for purposes of determining compliance with drinking water standards was considered. This data was all summarized in our 2010, 2011, and 2012 Annual Water Quality Reports which were mailed to all of our customers by July 1st. of each year (Attachment No. 4).

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup which prepared guidelines for water utilities to use in preparing these newly required reports. The ACWA guidelines were used in the preparation of our report. No guidance was available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and CDPH adopt what are known as Best Available Technologies (BATs) which are the best known methods of reducing contaminant levels to the MCL. Costs have been estimated for such technologies (Attachment No.3). However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always possible or feasible to determine what treatment is needed to further reduce a constituent downward to or near the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult, if not impossible, because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

Constituents Detected That Exceed a PHG or a MCLG:

The following is a discussion of constituents that were detected in one or more of our drinking water sources between 2010 and 2012 at levels above the PHG, or if no PHG, above the MCLG.

Arsenic:

In 2010, arsenic was detected in wells 18 and 19 at 0.003 mg/L and 0.002 mg/L respectively. Additionally, arsenic was detected in the State Water Project Aqueduct at a level of 0.004 mg/L in 2010. In 2011, arsenic levels in the State Water Project Aqueduct and Palmdale Lake were detected at 0.003 mg/L and 0.002 mg/L respectively.

The USEPA and California State MCL for Arsenic is 0.010 mg/L. California PHG is 0.000004 mg/L and USEPA MCLG is zero.

Arsenic (continued):

The major sources of arsenic in drinking water are erosion of natural deposits; runoff from orchards; glass and electronics production wastes. Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer. Cancer risk at the PHG is 1×10^{-6} and at California MCL it is 1×10^{-2}. Cancer risk is stated in terms of excess cancer cases per million (or fewer) population, e.g., 1×10^{-6} means one excess cancer case per million people; 1×10^{-2} means one excess cancer case per hundred people.

Our water system is in full compliance with the Federal and State arsenic MCL. BATs for arsenic removal (Attachment 1 - CA Title 22 CCRs 64447.2 Table 64447.2-A) is listed as Activated Alumina, Coagulation/Filtration, Ion Exchange, Lime Softening and Reverse Osmosis. Where the PHG or MCLG is set at zero, there may not be commercially available technology to reach that level. Since there is little data readily available to estimate the cost of treatment to achieve absolute zero levels, "BAT" will not necessarily achieve the PHG or MCLG and the actual costs may be relatively higher than the estimate especially when detection is substantially below the MCL or already close to the PHG or MCLG.

Estimated cost for arsenic removal using Reverse Osmosis, the most efficient technology is listed in Attachment No.3.

Lead and/or Copper:

There is no MCL for Lead or Copper. Instead the 90th percentile value of all samples from household taps in the distribution system cannot exceed an Action Level of 0.015 mg/l for lead and 1.3 mg/l for copper. The PHG for lead is 0.0002 mg/L. The PHG for copper is 0.17 mg/l.

Based on the triennial sampling of residences within our distribution system in 2012, our 90^{th} percentile value for copper was 0.370 mg/L which exceeded the PHG. For lead, our 90^{th} percentile value was 0.0019 mg/L.

The category of health risk for copper is acute toxicity (gastrointestinal effects in children/human data). Numerical health risk data on copper have not yet been provided by OEHHA, the State agency responsible for providing that information.

Our water system is in full compliance with the Federal and State Lead and Copper Rule. To reduce the potential that lead or copper values at consumer taps would

Lead and/or Copper (continued):

exceed the PHG, corrosion control treatment was installed at our treated surface water source. Based on our extensive sampling, it was determined that according to State Regulatory Requirements, we meet the Action Levels for Lead and Copper. Therefore, we are deemed by CDPH to have "optimized corrosion control" for our system.

In general, optimizing corrosion control is considered to be the best available technology to deal with corrosion issues and with any lead or copper findings.

We continue to monitor our water quality parameters that relate to corrosiveness, such as the pH, hardness, alkalinity, total dissolved solids, and will take action if necessary to maintain our system in an "optimized corrosion control" condition.

Since we are meeting the "optimized corrosion control" requirements, additional corrosion control treatment is not necessary. Therefore, no estimate of cost is included in this report.

While our system did not exceed the Lead PHG or Lead Action Level, it is possible that there may be high lead levels in your home as a result of materials in your home plumbing. Lead can cause serious health problems, especially for pregnant women and children 6 and under. If you are concerned about high lead levels in your home's water, run your water for 30 seconds to 2 minutes before using tap water and have your water tested. Additional information is available from the National Lead Information Center at 1–800–424–LEAD.

Gross Alpha Particle Activity :

In 2010, gross alpha particle activity was detected in Well 19 at a level of 4.78 pCi/L. Additionally in 2010, wells 22 and 26 had gross alpha particle activity levels of 6.12 pCi/L and 3.32 pCi/L respectively. There is not a PHG for gross alpha particle activity, however the USEPA has set the MCLG at 0 pCi/L.

The major source of alpha particle activity in drinking water is from the erosion of natural deposits. Certain minerals are radioactive and may emit alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

The Palmdale Water District is in full compliance with the State MCL for Gross Alpha Particle activity which is 15 pCi/L. BATs for gross alpha particle activity removal (Attachment 1 - CA Title 22 CCRs 64447.3 Table 64447.3-A) is listed as Reverse Osmosis. Where the PHG or MCLG is set at zero, there may not be commercially available technology to reach that level. Since there is little data readily available to estimate the cost of treatment to achieve absolute zero levels, "BAT" will not necessarily

Gross Alpha Particle Activity(continued):

achieve the PHG or MCLG and the actual costs may be relatively higher than the estimate especially when detection is substantially below the MCL or already close to the PHG or MCLG.

Estimated cost for gross alpha particle activity removal using Reverse Osmosis technology is listed in Attachment No.3.

Gross Beta Particle Activity:

In 2010, gross beta particle activity was detected in the State Water Project Aqueduct at a level of 0.411 pCi/L and in Palmdale Lake at 2.69 pCi/L. Additionally, the 2010 sample of Littlerock Dam detected a gross beta level of 0.383 pCi/L. There is not a PHG for gross beta particle activity, however the USEPA has set the MCLG at 0 pCi/L.

The major source of beta particle activity in drinking water is from decay of natural and manmade deposits. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.

The Palmdale Water District is in full compliance with the State MCL for Gross Beta Particle activity which is 50 pCi/L. BATs for gross beta particle activity removal (Attachment 1 - CA Title 22 CCRs 64447.3 Table 64447.3-A) is listed as Reverse Osmosis and Ion Exchange. Where the PHG or MCLG is set at zero, there may not be commercially available technology to reach that level. Since there is little data readily available to estimate the cost of treatment to achieve absolute zero levels, "BAT" will not necessarily achieve the PHG or MCLG and the actual costs may be relatively higher than the estimate especially when detection is substantially below the MCL or already close to the PHG or MCLG.

Estimated cost for gross beta particle activity removal using Reverse Osmosis, the most efficient technology, is listed in Attachment No.3.

Strontium-90:

In 2010, Strontium-90 was detected in The State Water Project Aqueduct at a level of 0.029 pCi/L. Also, Palmdale Lake had Strontium-90 levels of 0.526 pCi/L. Additionally, the 2010 sample of Littlerock Dam detected a level of 0.283 pCi/L. The PHG for Strontium-90 is 0.35 pCi/L.

Strontium-90 (continued):

The major source of Strontium-90 in drinking water is from decay of natural and manmade deposits. Some people who drink water containing Strontium-90 in excess of the MCL over many years may have an increased risk of getting cancer.

The Palmdale Water District is in full compliance with the State MCL for Strontium-90 which is 8 pCi/L. BATs for Strontium-90 removal is not listed in Attachment 1 - CA Title 22 CCRs 64447.3 Table 64447.3-A. An assumption has been made that the same methods used to remove uranium are equally effective for Strontium-90. Attachment 1 lists Reverse Osmosis, Lime Softening, Coagulation/Filtration and Ion Exchange. Where the PHG or MCLG is set at zero, there may not be commercially available technology to reach that level. Since there is little data readily available to estimate the cost of treatment to achieve absolute zero levels, "BAT" will not necessarily achieve the PHG or MCLG and the actual costs may be relatively higher than the estimate especially when detection is substantially below the MCL or already close to the PHG or MCLG.

Estimated cost for Strontium-90 activity removal using Reverse Osmosis, the most efficient technology, is listed in Attachment No.3.

Uranium:

In 2010, Uranium was detected in Well 19 and 22 at levels of 1.85 pCi/L and 9.47 respectively. Additionally, a level of 1.82 pCi/L was detected in the State Water Project Aqueduct. The public health goal for Uranium is 0.43 pCi/L.

The major source of Uranium in drinking water is from erosion of natural deposits. Some people who drink water containing beta Uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer.

The Palmdale Water District is in full compliance with the State MCL for Uranium which is 20 pCi/L. BATs for Uranium removal (Attachment 1 - CA Title 22 CCRs 64447.3 Table 64447.3-A) is listed as Reverse Osmosis, Ion Exchange, Coagulation/Filtration and Lime Softening. Where the PHG or MCLG is set at zero, there may not be commercially available technology to reach that level. Since there is little data readily available to estimate the cost of treatment to achieve absolute zero levels, "BAT" will not necessarily achieve the PHG or MCLG and the actual costs may be relatively higher than the estimate especially when detection is substantially below the MCL or already close to the PHG or MCLG.

Estimated cost for Uranium removal using Reverse Osmosis, the most efficient technology, is listed in Attachment No.3.

Chromium VI:

In 2011, the state of California established a Public Health Goal for Chromium VI which was set at 0.02 ug/L. During that same year, the Palmdale Water District conducted monitoring of its wells and distribution system to determine to what extent Chromium VI was present in its system. Of the 21 active wells sampled, all had Chromium VI levels that exceeded the newly established PHG. Likewise, the 10 representative samples collected from the distribution system revealed that the PHG was exceeded in all of the distribution system samples as well.

The average Chromium VI level among all wells monitored during the March, 2011 sampling event is 3.78 ug/L. The highest levels were found in well 4 at a concentration of 13 ug/L. In the distribution system, the average level is 1.83 ug/L. The highest concentrations are in areas nearest the North well field.

There is currently no MCL for Chromium VI, however one is expected in the next few years. Palmdale Water District is currently participating with the Water Research Foundation in a study to determine the most cost effective treatment method for Chromium VI removal.

Estimates of removal cost are not available at this time as the studies are ongoing.

RECOMMENDATIONS FOR FURTHER ACTION:

The drinking water quality of the Palmdale Water District meets all State of California, Department of Public Health and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are already significantly below the health-based Maximum Contaminant Levels established to provide "safe drinking water", additional costly treatment processes would be required. The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed.

ATTACHMENTS:

No.1 Table of Regulated Constituents with MCLs, PHGs or MCLGs and Health Risk Information

No.2 Health Risk Information for Public Health Goal Exceedance Reports

No.3 Cost Estimates for Treatment Technologies

No.4 Palmdale Water District's 2010, 2011 and 2012 Water Quality Data

No.5 Glossary of terms and abbreviations used in the report

ATTACHMENT NO. 1

ATTACHMENT No. 1

2013 PHG Triennial Report: Calendar Years 2010-2011-2012

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: February 12, 2013

(Reference: http://www.cdph.ca.gov/certlic/drinkingwater/Pages/MCLsandPHGs.aspx)

This table includes:

- CDPH's maximum contaminant levels (MCLs)
- CDPH's detection limits for purposes of reporting (DLRs)
- Public health goals (PHGs) from the Office of Environmental Health Hazard Assessment (OEHHA)
- PHGs for NDMA and 1,2,3-Trichloropropane (1,2,3-TCP is unregulated) are at the bottom of this table
- The federal MCLG for chemicals without a PHG, microbial contaminants, and the DLR for 1,2,3-TCP

Constituent	MCL	DLR	PHG or (MCLG)	Date of PHG
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals				
Aluminum	1	0.05	0.6	2001
Antimony	0.006	0.006	0.02	1997
Arsenic	0.010	0.002	0.000004	2004
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003
Barium	1	0.1	2	2003
Beryllium	0.004	0.001	0.001	2003
Cadmium	0.005	0.001	0.00004	2006
Chromium, Total - OEHHA withdrew the 1999 0.0025 mg/L PHG in Nov 2001	0.05	0.01	(0.100)	
Chromium, Hexavalent (Chromium-6) - MCL to be established - currently regulated under the total chromium MCL	--	0.001	0.00002	2011
Cyanide	0.15	0.1	0.15	1997
Fluoride	2	0.1	1	1997
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*
Nickel	0.1	0.01	0.012	2001
Nitrate (as NO3)	45	2	45	1997
Nitrite (as N)	1 as N	0.4	1 as N	1997
Nitrate + Nitrite	10 as N	0.4	10 as N	1997
Perchlorate	0.006	0.004	0.006	2004
Selenium	0.05	0.005	0.03	2010
Thallium	0.002	0.001	0.0001	1999 (rev2004)
Copper and Lead, 22 CCR §64672.3				
Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule				
Copper	1.3	0.05	0.3	2008
Lead	0.015	0.005	0.0002	2009

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Constituent	MCL	DLR	PHG or (MCLG)	Date of PHG
Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity [units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]				
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	(zero)	n/a
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	(zero)	n/a
Radium-226	--	1	0.05	2006
Radium-228	--	1	0.019	2006
Radium-226 + Radium-228	5	--	(zero)	--
Strontium-90	8	2	0.35	2006
Tritium	20,000	1,000	400	2006
Uranium	20	1	0.43	2001
Chemicals with MCLs in 22 CCR §64444—Organic Chemicals				
(a) Volatile Organic Chemicals (VOCs)				
Benzene	0.001	0.0005	0.00015	2001
Carbon tetrachloride	0.0005	0.0005	0.0001	2000
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999
cis-1,2-Dichloroethylene	0.006	0.0005	0.1	2006
trans-1,2-Dichloroethylene	0.01	0.0005	0.06	2006
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000
1,2-Dichloropropane	0.005	0.0005	0.0005	1999
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)
Ethylbenzene	0.3	0.0005	0.3	1997
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999
Monochlorobenzene	0.07	0.0005	0.2	2003
Styrene	0.1	0.0005	0.0005	2010
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001
Toluene	0.15	0.0005	0.15	1999
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	2006
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009
Trichlorofluoromethane (Freon 11)	0.15	0.005	0.7	1997
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)
Vinyl chloride	0.0005	0.0005	0.00005	2000
Xylenes	1.75	0.0005	1.8	1997

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Constituent	MCL	DLR	PHG or (MCLG)	Date of PHG
Chemicals with MCLs in 22 CCR §64444—Organic Chemicals				
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)				
Alachlor	0.002	0.001	0.004	1997
Atrazine	0.001	0.0005	0.00015	1999
Bentazon	0.018	0.002	0.2	1999 (rev2009)
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010
Carbofuran	0.018	0.005	0.0017	2000
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)
Dalapon	0.2	0.01	0.79	1997 (rev2009)
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.0000017	1999
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997
Dinoseb	0.007	0.002	0.014	1997 (rev2010)
Diquat	0.02	0.004	0.015	2000
Endrin	0.002	0.0001	0.0018	1999 (rev2008)
Endothal	0.1	0.045	0.58	1997
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003
Glyphosate	0.7	0.025	0.9	2007
Heptachlor	0.00001	0.00001	0.000008	1999
Heptachlor epoxide	0.00001	0.00001	0.000006	1999
Hexachlorobenzene	0.001	0.0005	0.00003	2003
Hexachlorocyclopentadiene	0.05	0.001	0.05	1999
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)
Methoxychlor	0.03	0.01	0.00009	2010
Molinate	0.02	0.002	0.001	2008
Oxamyl	0.05	0.02	0.026	2009
Pentachlorophenol	0.001	0.0002	0.0003	2009
Picloram	0.5	0.001	0.5	1997
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007
Simazine	0.004	0.001	0.004	2001
2,4,5-TP (Silvex)	0.05	0.001	0.025	2003
2,3,7,8-TCDD (dioxin)	$3x10^{-8}$	$5x10^{-9}$	$5x10^{-11}$	2010
Thiobencarb	0.07	0.001	0.07	2000
Toxaphene	0.003	0.001	0.00003	2003

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Constituent	MCL	DLR	PHG or (MCLG)	Date of PHG
Chemicals with MCLs in 22 CCR §64533—Disinfection Byproducts				
Total Trihalomethanes	0.080	--	--	--
Bromodichloromethane	--	0.0010	(zero)	--
Bromoform	--	0.0010	(zero)	--
Chloroform	--	0.0010	(0.07)	--
Dibromochloromethane	--	0.0010	(0.06)	--
Haloacetic Acids (five) (HAA5)	0.060	--	--	--
Monochloroacetic Acid	--	0.0020	(0.07)	--
Dichloroacetic Adic	--	0.0010	(zero)	--
Trichloroacetic Acid	--	0.0010	(0.02)	--
Monobromoacetic Acid	--	0.0010	--	--
Dibromoacetic Acid	--	0.0010	--	--
Bromate	0.010	0.0050 or 0.0010[a]	0.0001	2009
Chlorite	1.0	0.020	0.05	2009
Microbiological Contaminants (TT = Treatment Technique)				
Coliform % positive samples	%	5	(zero)	
*Cryptosporidium***		TT	(zero)	
*Giardia lamblia***		TT	(zero)	
*Legionella***		TT	(zero)	
Viruses**		TT	(zero)	
Chemicals with PHGs established in response to CDPH requests. These are <u>not</u> currently regulated drinking water contaminants.				
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006
1,2,3-Trichloropropane	--	0.000005	0.0000007	2009

Notes:

[a] CDPH will maintain a 0.0050 mg/L DLR for bromate to accommodate laboratories that are using EPA Method 300.1. However, laboratories using EPA Methods 317.0 Revision 2.0, 321.8, or 326.0 must meet a 0.0010 mg/L MRL for bromate and should report results with a DLR of 0.0010 mg/L per Federal requirements.

*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG

** Surface water treatment = TT

ATTACHMENT NO. 2

Attachment No. 2

Health Risk Information for Public Health Goal Exceedance Reports

Prepared by

Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

February 2013

Under the Calderon-Sher Safe Drinking Water Act of 1996 (the Act), water utilities are required to prepare a report every three years for contaminants that exceed public health goals (PHGs) (Health and Safety Code Section 116470 (2)[b]). The numerical health risk for a contaminant is to be presented with the category of health risk, along with a plainly worded description of these terms. The cancer health risk is to be calculated at the PHG and at the California maximum contaminant level (MCL). This report is prepared by the Office of Environmental Health Hazard Assessment (OEHHA) to assist the water utilities in meeting their requirements.

PHGs are concentrations of contaminants in drinking water that pose no significant health risk if consumed for a lifetime. PHGs are developed and published by OEHHA (Health and Safety Code Section 116365) using current risk assessment principles, practices and methods.

Numerical health risks. Table 1 presents health risk categories and cancer risk values for chemical contaminants in drinking water that have PHGs.

The Act requires that OEHHA publish PHGs based on health risk assessments using the most current scientific methods. As defined in statute, PHGs for non-carcinogenic chemicals in drinking water are set at a concentration "at which no known or anticipated adverse health effects will occur, with an adequate margin of safety." For carcinogens, PHGs are set at a concentration that "does not pose any significant risk to health." PHGs provide one basis for revising MCLs, along with cost and technological feasibility. OEHHA has been publishing PHGs since 1997 and the entire list published to date is shown in Table 1.

Table 2 presents health risk information for contaminants that do not have PHGs but have state or federal regulatory standards. The Act requires that, for chemical contaminants with California MCLs that do not yet have PHGs, water utilities use the

federal maximum contaminant level goal (MCLG) for the purpose of complying with the requirement of public notification. MCLGs, like PHGs, are strictly health based and include a margin of safety. One difference, however, is that the MCLGs for carcinogens are set at zero because the United States Environmental Protection Agency (U.S. EPA) assumes there is no absolutely safe level of exposure to them. PHGs, on the other hand, are set at a level considered to pose no *significant* risk of cancer; this is usually a no more than one-in-a-million excess cancer risk (1×10^{-6}) level for a lifetime of exposure. In Table 2, the cancer risks shown are based on the U.S. EPA's evaluations.

For more information on health risks: The adverse health effects for each chemical with a PHG are summarized in each PHG technical support document. These documents are available on the OEHHA Web site (http://www.oehha.ca.gov). Also, U.S. EPA has consumer and technical fact sheets on most of the chemicals having MCLs. For copies of the fact sheets, call the Safe Drinking Water Hotline at 1-800-426-4791, or explore the U.S. EPA Ground Water and Drinking Water web page at http://water.epa.gov/drink/.

Attachment No. 2

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Alachlor	carcinogenicity (causes cancer)	0.004	NA[5]	0.002	NA
Aluminum	neurotoxicity and immunotoxicity (harms the nervous and immune systems)	0.6	NA	1	NA
Antimony	digestive system toxicity (causes vomiting)	0.02	NA	0.006	NA
Arsenic	carcinogenicity (causes cancer)	0.000004 (4×10^{-6})	1×10^{-6} (one per million)	0.01	2.5×10^{-3} (2.5 per thousand)
Asbestos	carcinogenicity (causes cancer)	7 MFL[6] (fibers >10 microns in length)	1×10^{-6}	7 MFL (fibers >10 microns in length)	1×10^{-6} (one per million)
Atrazine	carcinogenicity (causes cancer)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)

[1] Based on the OEHHA PHG technical support document unless otherwise specified. The categories are the hazard traits defined by OEHHA for California's Toxics Information Clearinghouse (online at: http://oehha.ca.gov/multimedia/green/pdf/GC_Regtext011912.pdf).
[2] mg/L = milligrams per liter of water or parts per million (ppm)
[3] Cancer Risk = Upper estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] MCL = maximum contaminant level.
[5] NA = not applicable. Risk cannot be calculated. The PHG is set at a level that is believed to be without any significant public health risk to individuals exposed to the chemical over a lifetime.
[6] MFL = million fibers per liter of water.

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Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Barium	cardiovascular toxicity (causes high blood pressure)	2	NA	1	NA
Bentazon	hepatotoxicity and digestive system toxicity (harms the liver, intestine, and causes body weight effects[7])	0.2	NA	0.018	NA
Benzene	carcinogenicity (causes leukemia)	0.00015	1×10^{-6}	0.001	7×10^{-6} (seven per million)
Benzo[a]pyrene	carcinogenicity (causes cancer)	0.000007	1×10^{-6}	0.0002	3×10^{-5} (three per hundred thousand)
Beryllium	digestive system toxicity (harms the stomach or intestine)	0.001	NA	0.004	NA
Bromate	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.01	1×10^{-4} (one per ten thousand)
Cadmium	nephrotoxicity (harms the kidney)	0.00004	NA	0.005	NA
Carbofuran	reproductive toxicity (harms the testis)	0.0017	NA	0.018	NA

[7] Body weight effects are an indicator of general toxicity in animal studies.

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Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Carbon tetrachloride	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.0005	5×10^{-6} (five per million)
Chlordane	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.0001	3×10^{-6} (three per million)
Chlorite	hematotoxicity (causes anemia) neurotoxicity (causes neurobehavioral effects)	0.05	NA	1	NA
Chromium, hexavalent	carcinogenicity (causes cancer)	0.00002	1×10^{-6}	---	NA
Copper	digestive system toxicity (causes nausea, vomiting, diarrhea)	0.3	NA	1.3 (AL)[8]	NA
Cyanide	neurotoxicity (damages nerves) endocrine toxicity (affects the thyroid)	0.15	NA	0.15	NA
Dalapon	nephrotoxicity (harms the kidney)	0.79	NA	0.2	NA
1,2-Dibromo-3-chloropropane (DBCP)	carcinogenicity (causes cancer)	0.0000017 (1.7×10^{-6})	1×10^{-6}	0.0002	1×10^{-4} (one per ten thousand)

[8] AL = action level. The action levels for copper and lead refer to a concentration measured at the tap. Much of the copper and lead in drinking water is derived from household plumbing (The Lead and Copper Rule, Title 22, California Code of Regulations [CCR] section 64672.3).

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Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,2-Dichloro-benzene (o-DCB)	hepatotoxicity (harms the liver)	0.6	NA	0.6	NA
1,4-Dichloro-benzene (p-DCB)	carcinogenicity (causes cancer)	0.006	1×10^{-6}	0.005	8×10^{-7} (eight per ten million)
1,1-Dichloro-ethane (1,1-DCA)	carcinogenicity (causes cancer)	0.003	1×10^{-6}	0.005	2×10^{-6} (two per million)
1,2-Dichloro-ethane (1,2-DCA)	carcinogenicity (causes cancer)	0.0004	1×10^{-6}	0.0005	1×10^{-6} (one per million)
1,1-Dichloro-ethylene (1,1-DCE)	hepatotoxicity (harms the liver)	0.01	NA	0.006	NA
1,2-Dichloro-ethylene, cis	nephrotoxicity (harms the kidney)	0.1	NA	0.006	NA
1,2-Dichloro-ethylene, trans	hepatotoxicity (harms the liver)	0.06	NA	0.01	NA
Dichloromethane (methylene chloride)	carcinogenicity (causes cancer)	0.004	1×10^{-6}	0.005	1×10^{-6} (one per million)
2,4-Dichloro-phenoxyacetic acid (2,4-D)	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.02	NA	0.07	NA

Attachment No. 2

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,2-Dichloro-propane (propylene dichloride)	carcinogenicity (causes cancer)	0.0005	1×10^{-6}	0.005	1×10^{-5} (one per hundred thousand)
1,3-Dichloro-propene (Telone II®)	carcinogenicity (causes cancer)	0.0002	1×10^{-6}	0.0005	2×10^{-6} (two per million)
Di(2-ethylhexyl) adipate (DEHA)	developmental toxicity (disrupts development)	0.2	NA	0.4	NA
Diethylhexyl-phthalate (DEHP)	carcinogenicity (causes cancer)	0.012	1×10^{-6}	0.004	3×10^{-7} (three per ten million)
Dinoseb	reproductive toxicity (harms the uterus and testis)	0.014	NA	0.007	NA
Dioxin (2,3,7,8-TCDD)	carcinogenicity (causes cancer)	5×10^{-11}	1×10^{-6}	3×10^{-8}	6×10^{-4} (six per ten thousand)
Diquat	ocular toxicity (harms the eye) developmental toxicity (causes malformation)	0.015	NA	0.02	NA
Endothall	digestive system toxicity (harms the stomach or intestine)	0.58	NA	0.1	NA
Endrin	hepatotoxicity (harms the liver) neurotoxicity (causes convulsions)	0.0018	NA	0.002	NA

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Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Ethylbenzene (phenylethane)	hepatotoxicity (harms the liver)	0.3	NA	0.3	NA
Ethylene dibromide	carcinogenicity (causes cancer)	0.00001	1×10^{-6}	0.00005	5×10^{-6} (five per million)
Fluoride	musculoskeletal toxicity (causes tooth mottling)	1	NA	2	NA
Glyphosate	nephrotoxicity (harms the kidney)	0.9	NA	0.7	NA
Heptachlor	carcinogenicity (causes cancer)	0.000008	1×10^{-6}	0.00001	1×10^{-6} (one per million)
Heptachlor epoxide	carcinogenicity (causes cancer)	0.000006	1×10^{-6}	0.00001	2×10^{-6} (two per million)
Hexachloroben-zene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.001	3×10^{-5} (three per hundred thousand)
Hexachloro-cyclopentadiene (HEX)	digestive system toxicity (causes stomach lesions)	0.05	NA	0.05	NA

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Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Lead	developmental neurotoxicity (causes neurobehavioral effects in children) cardiovascular toxicity (cause high blood pressure) carcinogenicity (causes cancer)	0.0002	3×10^{-8} (PHG is not based on this effect)	0.015 (AL)[8]	2×10^{-6} (two per million)
Lindane (γ-BHC)	carcinogenicity (causes cancer)	0.000032	1×10^{-6}	0.0002	6×10^{-6} (six per million)
Mercury (inorganic)	nephrotoxicity (harms the kidney)	0.0012	NA	0.002	NA
Methoxychlor	endocrine toxicity (causes hormone effects)	0.00009	NA	0.03	NA
Methyl tertiary-butyl ether (MTBE)	carcinogenicity (causes cancer)	0.013	1×10^{-6}	0.013	1×10^{-6} (one per million)
Molinate	carcinogenicity (causes cancer)	0.001	1×10^{-6}	0.02	2×10^{-5} (two per hundred thousand)
Monochloro-benzene (chlorobenzene)	hepatotoxicity (harms the liver)	0.2	NA	0.07	NA
Nickel	developmental toxicity (causes increased neonatal deaths)	0.012	NA	0.1	NA

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Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Nitrate	hematotoxicity (causes methemoglobinemia)	45 as nitrate	NA	45 as NO_3	NA
Nitrite	hematotoxicity (causes methemoglobinemia)	1 as nitrogen	NA	1 as nitrite-nitrogen	NA
Nitrate and Nitrite	hematotoxicity (causes methemoglobinemia)	10 as nitrogen	NA	10 as nitrogen	NA
N-nitroso-dimethyl-amine (NDMA)	carcinogenicity (causes cancer)	0.000003	$1x10^{-6}$	---	NA
Oxamyl	general toxicity (causes body weight effects)	0.026	NA	0.05	NA
Pentachloro-phenol (PCP)	carcinogenicity (causes cancer)	0.0003	$1x10^{-6}$	0.001	$3x10^{-6}$ (three per million)
Perchlorate	endocrine toxicity (affects the thyroid) developmental toxicity (causes neurodevelop-mental deficits)	0.006[9]	NA	0.006	NA
Picloram	hepatotoxicity (harms the liver)	0.5	NA	0.5	NA

[9] This is the current PHG value for perchlorate. A revised draft PHG for perchlorate was posted online for public comment on December 7, 2012. http://www.oehha.ca.gov/water/phg/120712Perchlorate.html.

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Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Polychlorinated biphenyls (PCBs)	carcinogenicity (causes cancer)	0.00009	1×10^{-6}	0.0005	6×10^{-6} (six per million)
Radium-226	carcinogenicity (causes cancer)	0.05 pCi/L	1×10^{-6}	5 pCi/L	1×10^{-4} (one per ten thousand)
Radium-228	carcinogenicity (causes cancer)	0.019 pCi/L	1×10^{-6}	5 pCi/L (combined $Ra^{226+228}$)	3×10^{-4} (three per ten thousand)
Selenium	integumentary toxicity (causes hair loss and nail damage)	0.03	NA	0.05	NA
Silvex (2,4,5-TP)	hepatotoxicity (harms the liver)	0.025	NA	0.05	NA
Simazine	general toxicity (causes body weight effects)	0.004	NA	0.004	NA
Strontium-90	carcinogenicity (causes cancer)	0.35 pCi/L	$1x10^{-6}$	8 pCi/L	2×10^{-5} (two per hundred thousand)
Styrene (vinylbenzene)	carcinogenicity (causes cancer)	0.0005	$1x10^{-6}$	0.1	2×10^{-4} (two per ten thousand)

Attachment No. 2

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,1,2,2-Tetrachloro-ethane	carcinogenicity (causes cancer)	0.0001	1×10^{-6}	0.001	1×10^{-5} (one per hundred thousand)
Tetrachloro-ethylene (perchloro-ethylene, or PCE)	carcinogenicity (causes cancer)	0.00006	1×10^{-6}	0.005	8×10^{-5} (eight per hundred thousand)
Thallium	integumentary toxicity (causes hair loss)	0.0001	NA	0.002	NA
Thiobencarb	general toxicity (causes body weight effects) hematotoxicity (affects red blood cells)	0.07	NA	0.07	NA
Toluene (methylbenzene)	hepatotoxicity (harms the liver) endocrine toxicity (harms the thymus)	0.15	NA	0.15	NA
Toxaphene	carcinogenicity (causes cancer)	0.00003	1×10^{-6}	0.003	1×10^{-4} (one per ten thousand)
1,2,4-Trichloro-benzene (Unsym-TCB)	endocrine toxicity (harms adrenal glands)	0.005	NA	0.005	NA

Attachment No. 2

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
1,1,1-Trichloro-ethane	neurotoxicity (harms the nervous system), reproductive toxicity (causes fewer offspring) hepatotoxicity (harms the liver) hematotoxicity (causes blood effects)	1	NA	0.2	NA
1,1,2-Trichloro-ethane	carcinogenicity (causes cancer)	0.0003	$1x10^{-6}$	0.005	$2x10^{-5}$ (two per hundred thousand)
1,1,2-Trichloro-ethylene (TCE)	carcinogenicity (causes cancer)	0.0017	$1x10^{-6}$	0.005	$3x10^{-6}$ (three per million)
Trichlorofluoro-methane (Freon 11)	hepatotoxicity (harms the liver)	0.7	NA	0.15	NA
1,2,3-Trichloro-propane (1,2,3-TCP)	carcinogenicity (causes cancer)	0.0000007	$1x10^{-6}$	---	NA
1,1,2-Trichloro-1,2,2-trifluoro-ethane (Freon 113)	hepatotoxicity (harms the liver)	4	NA	1.2	NA
Tritium	carcinogenicity (causes cancer)	400 pCi/L	$1x10^{-6}$	20,000 pCi/L	$5x10^{-5}$ (five per hundred thousand)

Attachment No. 2

Table 1: Health Risk Categories and Cancer Risk Values for Chemicals with California Public Health Goals (PHGs)

Chemical	Health Risk Category[1]	California PHG (mg/L)[2]	Cancer Risk[3] at the PHG	California MCL[4] (mg/L)	Cancer Risk at the California MCL
Uranium	carcinogenicity (causes cancer)	0.43 pCi/L	1×10^{-6}	20 pCi/L	5×10^{-5} (five per hundred thousand)
Vinyl chloride	carcinogenicity (causes cancer)	0.00005	1×10^{-6}	0.0005	1×10^{-5} (one per hundred thousand)
Xylene	neurotoxicity (affects the senses, mood, and motor control)	1.8 (single isomer or sum of isomers)	NA	1.75 (single isomer or sum of isomers)	NA

Attachment No. 2

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	U.S. EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Disinfection byproducts (DBPS)					
Chloramines	acute toxicity (causes irritation) digestive system toxicity (harms the stomach) hematotoxicity (causes anemia)	4[5]	NA	none	NA
Chlorine	acute toxicity (causes irritation) digestive system toxicity (harms the stomach)	4[5]	NA	none	NA
Chlorine dioxide	hematotoxicity (causes anemia) neurotoxicity (harms the nervous system)	0.8[5]	NA	none	NA
Disinfection byproducts: haloacetic acids (HAA5)					
Chloroacetic acid	general toxicity (causes body and organ weight changes[6])	0.07	NA	none	NA
Dichloroacetic acid	carcinogenicity (causes cancer)	0	0	none	NA
Trichloroacetic acid	hepatotoxicity (harms the liver)	0.02	0	none	NA
Bromoacetic acid	NA	none	NA	none	NA

[1] Health risk category based on the U.S. EPA MCLG document or California MCL document unless otherwise specified.
[2] MCLG = maximum contaminant level goal established by U.S. EPA.
[3] Cancer Risk = Upper estimate of excess cancer risk from lifetime exposure. Actual cancer risk may be lower or zero. 1×10^{-6} means one excess cancer case per million people exposed.
[4] California MCL = maximum contaminant level established by California.
[5] Maximum Residual Disinfectant Level Goal, or MRDLG
[6] Body weight effects are an indicator of general toxicity in animal studies.

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Chemical	Health Risk Category[1]	U.S. EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Dibromoacetic acid	NA	none	NA	none	NA
Total haloacetic acids	carcinogenicity (causes cancer)	none	NA	0.06	NA
Disinfection byproducts: trihalomethanes (THMs)					
Bromodichloro-methane (BDCM)	carcinogenicity (causes cancer)	0	0	none	NA
Bromoform	carcinogenicity (causes cancer)	0	0	none	NA
Chloroform	hepatotoxicity and nephrotoxicity (harms the liver and kidney)	0.07	NA	none	NA
Dibromo-chloromethane (DBCM)	hepatotoxicity, nephrotoxicity, and neurotoxicity (harms the liver, kidney, and nervous system)	0.06	NA	none	NA
Total (sum of BDCM, bromoform, chloroform and DBCM)	carcinogenicity (causes cancer), hepatotoxicity, nephrotoxicity, and neurotoxicity (harms the liver, kidney, and nervous system)	none	NA	0.08	NA

Table 2: Health Risk Categories and Cancer Risk Values for Chemicals without California Public Health Goals

Attachment No. 2

Chemical	Health Risk Category[1]	U.S. EPA MCLG[2] (mg/L)	Cancer Risk[3] @ MCLG	California MCL[4] (mg/L)	Cancer Risk @ California MCL
Radionuclides					
Gross alpha particles[7]	carcinogenicity (causes cancer)	0 (^{210}Po included)	0	15 pCi/L[8] (includes ^{226}Ra but not radon and uranium)	up to $1x10^{-3}$ (for ^{210}Po, the most potent alpha emitter
Beta particles and photon emitters[7]	carcinogenicity (causes cancer)	0 (^{210}Pb included)	0	50 pCi/L (judged equiv. to 4 mrem/yr)	up to $2x10^{-3}$ (for ^{210}Pb, the most potent beta-emitter)

[7] MCLs for gross alpha and beta particles are screening standards for a group of radionuclides. Corresponding PHGs were not developed for gross alpha and beta particles. See the OEHHA memoranda discussing the cancer risks at these MCLs at http://www.oehha.ca.gov/water/phg/index.html.
[8] pCi/L = picocuries per liter of water.

ATTACHMENT NO. 3

ATTACHMENT NO. 3
Table 1
Reference: 2012 ACWA PHG Survey

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey ($/1,000 gallons treated)
1	Ion Exchange	Coachella Valley WD, for GW, to reduce Arsenic concentrations. 2011 costs.	1.84
2	Ion Exchange	City of Riverside Public Utilities, for GW, for Perchlorate treatment.	0.89
3	Ion Exchange	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.67
4	Granular Activated Carbon	City of Riverside Public Utilities, GW sources, for TCE, DBCP (VOC, SOC) treatment.	0.45
5	Granular Activated Carbon	Carollo Engineers, anonymous utility, 2012 costs for treating SW source for TTHMs. Design souce water concentration: 0.135 mg/L. Design finished water concentration: 0.07 mg/L. Does not include concentrate disposal or land cost.	0.32
6	Granular Activated Carbon, Liquid Phase	LADWP, Liquid Phase GAC treatment at Tujunga Well field. Costs for treating 2 wells. Treament for 1,1 DCE (VOC). 2011-2012 costs.	1.36
7	Reverse Osmosis	Carollo Engineers, anonymous utility, 2012 costs for treating GW source for Nitrates. Design souce water concentration: 88 mg/L NO_3. Design finished water concentration: 45 mg/L NO_3. Does not include concentrate disposal or land cost.	0.72
8	Packed Tower Aeration	City of Monrovia, treatment to reduce TCE, PCE concentrations. 2011-12 costs.	0.39
9	Ozonation+ Chemical addition	SCVWD, STWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations. 2009-2012 costs.	0.08
10	Ozonation+ Chemical addition	SCVWD, PWTP treatment plant includes chemical addition + ozone generation costs to reduce THM/HAAs concentrations, 2009-2012 costs.	0.18

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 ACWA Survey ($/1,000 gallons treated)
11	Coagulation/Filtration	Soquel WD, treatment to reduce manganese concentrations in GW. 2011 costs.	0.68
12	Coagulation/Filtration Optimization	San Diego WA, costs to reduce THM/Bromate, Turbidity concentrations, raw SW a blend of State Water Project water and Colorado River water, treated at Twin Oaks Valley WTP.	0.77
13	Blending (Well)	Rancho California WD, GW blending well, 1150 gpm, to reduce fluoride concentrations.	0.64
14	Blending (Wells)	Rancho California WD, GW blending wells, to reduce arsenic concentrations, 2012 costs.	0.52
15	Blending	Rancho California WD, using MWD water to blend with GW to reduce arsenic concentrations. 2012 costs.	0.62
16	Corrosion Inhibition	Atascadero Mutual WC, corrosion inhibitor addition to control aggressive water. 2011 costs.	0.08

ATTACHMENT NO. 3
Table 2
Reference: Other Agencies

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated Unit Cost 2012 Other References ($/1,000 gallons treated)
1	Reduction - Coagulation-Filtration	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	$1.47 - $9.23
2	IX - Weak Base Anion Resin	Reference: February 28, 2013, Final Report Chromium Removal Research, City of Glendale, CA. 100-2000 gpm. Reduce Hexavalent Chromium to 1 ppb.	$1.50 - $6.29
3	IX	Golden State Water Co., IX w/disposable resin, 1 MGD, Perchlorate removal, built in 2010.	$0.46
4	IX	Golden State Water Co., IX w/disposable resin, 1000 gpm, perchlorate removal (Proposed; O&M estimated).	$1.00
5	IX	Golden State Water Co., IX with brine regeneration, 500 gpm for Selenium removal, built in 2007.	$6.57
6	GFO/Adsorption	Golden State Water Co., Granular Ferric Oxide Resin, Arsenic removal, 600 gpm, 2 facilities, built in 2006.	$1.72 -$1.84
7	RO	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. RO cost to reduce 800 ppm TDS, 150 ppm Nitrate (as NO3); approx. 7 mgd.	$2.25
8	IX	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. IX cost to reduce 150 ppm Nitrate (as NO3); approx. 2.6 mgd.	$1.25
9	Packed Tower Aeration	Reference: Inland Empire Utilities Agency : Chino Basin Desalter. PTA-VOC air stripping, typical treated flow of approx. 1.6 mgd.	$0.38

10	IX	Reference: West Valley WD Report, for Water Recycling Funding Program, for 2.88 mgd treatment facility. IX to remove Perchlorate, Perchlorate levels 6-10 ppb. 2008 costs.	$0.52 - $0.74
11	Coagulation Filtration	Reference: West Valley WD, includes capital, O&M costs for 2.88 mgd treatment facility- Layne Christensen packaged coagulation Arsenic removal system. 2009-2012 costs.	$0.34
12	FBR	Reference: West Valley WD/Envirogen design data for the O&M + actual capitol costs, 2.88 mgd fluidized bed reactor (FBR) treatment system, Perchlorate and Nitrate removal, followed by multimedia filtration & chlorination, 2012. NOTE: The capitol cost for the treatment facility for the first 2,000 gpm is $23 million annualized over 20 years with ability to expand to 4,000 gpm with minimal costs in the future. $17 million funded through state and federal grants with the remainder funded by WVWD and the City of Rialto.	$1.55 - $1.63

ATTACHMENT NO. 3
Table 3
Reference: 2010 ACWA Cost of Treatment Table, Costs Revised for 2012

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012* Unit Cost ($/1,000 gallons treated)
1	Granular Activated Carbon	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	0.53-1.00
2	Granular Activated Carbon	Reference: Carollo Engineers, estimate for VOC treatment (PCE), 95% removal of PCE, Oct. 1994,1900 gpm design capacity	0.24
3	Granular Activated Carbon	Reference: Carollo Engineers, est. for a large No. Calif. surf. water treatment plant (90 mgd capacity) treating water from the State Water Project, to reduce THM precursors, ENR construction cost index = 6262 (San Francisco area) - 1992	1.16
4	Granular Activated Carbon	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility for VOC and SOC removal by GAC, 1990	0.45-0.66
5	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for "rented" GAC to remove VOCs (1,1-DCE), 1.5 mgd capacity facility, 1998	2.08
6	Granular Activated Carbon	Reference: Southern California Water Co. - actual data for permanent GAC to remove VOCs (TCE), 2.16 mgd plant capacity, 1998	1.35
7	Reverse Osmosis	Reference: Malcolm Pirnie estimate for California Urban Water Agencies, large surface water treatment plants treating water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, 1998	1.56-2.99
8	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	3.69
9	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 1.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	2.27
10	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 40% of design flow, high brine line cost, May 1991	2.46
11	Reverse Osmosis	Reference: Boyle Engineering, RO cost to reduce 1000 ppm TDS in brackish groundwater in So. Calif., 10.0 mgd plant operated at 100% of design flow, high brine line cost, May 1991	1.90
12	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 40% of design capacity, Oct. 1991	6.17

COST ESTIMATES FOR TREATMENT TECHNOLOGIES

(INCLUDES ANNUALIZED CAPITAL AND O&M COSTS)

No.	Treatment Technology	Source of Information	Estimated 2012* Unit Cost ($/1,000 gallons treated)
13	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 1.0 mgd plant operated at 100% of design capacity, Oct. 1991	3.64
14	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 40% of design capacity, Oct. 1991	2.73
15	Reverse Osmosis	Reference: Arsenic Removal Study, City of Scottsdale, AZ - CH2M Hill, for a 10.0 mgd plant operated at 100% of design capacity, Oct. 1991	1.69
16	Reverse Osmosis	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility with RO to remove nitrate, 1990	1.70-2.99
17	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 1.4 mgd facility operating at 40% of design capacity, Oct. 1991	0.98
18	Packed Tower Aeration	Reference: Analysis of Costs for Radon Removal... (AWWARF publication), Kennedy/Jenks, for a 14.0 mgd facility operating at 40% of design capacity, Oct. 1991	0.52
19	Packed Tower Aeration	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by packed tower aeration, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.26
20	Packed Tower Aeration	Reference: Carollo Engineers, for PCE treatment by Ecolo-Flo Enviro-Tower air stripping, without off-gas treatment, O&M costs based on operation during 329 days/year at 10% downtime, 16 hr/day air stripping operation, 1900 gpm design capacity, Oct. 1994	0.27
21	Packed Tower Aeration	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - packed tower aeration for VOC and radon removal, 1990	0.42-0.69
22	Advanced Oxidation Processes	Reference: Carollo Engineers, estimate for VOC treatment (PCE) by UV Light, Ozone, Hydrogen Peroxide, O&M costs based on operation during 329 days/year at 10% downtime, 24 hr/day AOP operation, 1900 gpm capacity, Oct. 1994	0.51
23	Ozonation	Reference: Malcolm Pirnie estimate for CUWA, large surface water treatment plants using ozone to treat water from the State Water Project to meet Stage 2 D/DBP and bromate regulation, *Cryptosporidium* inactivation requirements,1998	0.12-0.24
24	Ion Exchange	Reference: CH2M Hill study on San Gabriel Basin, for 135 mgd central treatment facility - ion exchange to remove nitrate, 1990	0.57-0.74

Note: *Costs were adjusted from date of original estimates to present, where appropriate, using Engineering News Record (ENR) building costs index (20-city average) from Dec 2012.

ATTACHMENT NO. 3
Table 4

Reference: Technical Report 6: Drinking Water Treatment for Nitrate

Nitrate Treatment Costs for California Utilities

This information was extracted from Chapter 6 of *Technical Report 6: Drinking Water Treatment for Nitrate (July 2012)*, part of a series of reports from the State Water Resources Control Board to the California Legislature. The report was prepared by Chad Seidel and Craig Gorman of Jacobs Engineering and by Vivien Jensen and Jeannie Darby of the Center for Watershed Services, University of California, Davis, and was derived from their June 2011 report to AWWA, *An Assessment of the State of Nitrate Treatment Alternatives*. The tables were created using information taken directly from *Technical Report 6*.

Treatment Cost Analysis

Cost details presented here were derived from literature, vendors, surveys, and water utilities with a specific focus on California. Factors affecting the different cost categories are as follows:

- Costs unique to each system - flow rate, source water quality, temperature, and target effluent concentration
- Waste brine disposal
- Capital costs for treatment - land, housing, piping, storage tanks, O&M equipment, process equipment, preliminary testing, permits, and training
- O&M costs - resin, media, or membrane replacement and disposal; waste residuals disposal or treatment; chemical use; repair and maintenance; power; and labor.

Costs by Treatment Type

Average total annualized costs across all system sizes surveyed were estimated for the following treatment processes:

- Reverse Osmosis (RO) – Capital $0.70/kgal; O&M $2.10/kgal – much higher for <0.5MGD
- Ion Exchange (IX) – Capital $0.50/kgal; O&M $1.35/kgal – much higher for systems <0.5MGD
- Biological Denitrification (BD) – Capital $0.60/kgal; O&M $0.50/kgal – little variation w/capacity
- Electrodialysis Reversal (EDR) – Capital $0.75/kgal; O&M $0.80/kgal

Treatment costs generally increase if multiple contaminants are treated. Higher contaminant concentrations can also increase O&M costs.

Costs by System Size

System size greatly affects treatment costs. Larger systems generally have higher capital and O&M costs, but the cost per gallon typically decreases. Treatment cost estimates by system size are shown below for IX and RO. RO treatment is usually higher than IX.

IX and RO Costs by System Size								
System Size (persons served)	MGD Range	Treatment Type	Capital Cost		O&M Cost		Total Cost	
			Range	Average	Range	Average	Range	Average
Very Small (25-500)	0.009-0.17	IX	0.05-1.53	0.75	0.28-3.81	1.22	0.62-4.60	1.97
		RO	0.47-4.40	2.43	0.22-16.16	4.22	0.69-19.16	6.64
Small (501-3300)	0.17-1.09	IX	0.08-0.25	0.15	0.15-2.63	0.87	0.34-2.73	1.05
		RO	0.19-1.13	0.47	0.23-1.15	0.57	0.58-1.34	0.93
Medium (3300-10,000)	1.09-3.21	IX	0.06-0.52	0.19	0.12-1.69	0.84	0.36-2.04	1.06
		RO	0.44-0.63	0.53	0.91-2.76	1.89	1.35-3.39	2.59
Large (10,001-100,000)	3.21-30.45	IX	0.09-0.41	0.26	0.13-1.39	0.66	0.22-1.81	0.97
		RO	0.33-1.46	0.97	0.40-2.21	1.48	0.73-3.67	2.38

Disposal Costs

Disposal costs can be a significant part of O&M costs. IX uses salt for resin regeneration and produces a waste stream of spent brine solution as well as nitrate and other contaminants. RO and EDR produce concentrates of contaminants.

Brine and Concentrate Disposal

Brine and concentrate disposal can be a significant part of the O&M cost, and costs are influenced by proximity to a coastal brine line, waste brine volume, and water quality characteristics of waste brine. The presence of other contaminants can also increase disposal costs. Disposal to a hazardous waste facility may be required.

Brine or concentrate disposal methods include discharge to septic tanks and leach fields, to wastewater treatment plants through sewers or by trucking, to irrigation ponds (RO), and to a brine line. For this study, trucking and disposal costs for IX brine were approximately $0.15/gallon. O&M costs for the disposal range from $0.015 to $ 0.05/1000 gallons of treated water or from $3 to $11/1000 gallons of waste brine (high efficiency of 99.5%). The table shows costs by several brine disposal methods from a study in Arizona, but costs in California could differ because of location-specific characteristics.

	Avg. Cost by Waste or Treated Volume ($/1000 gallons)			
Disposal Method	**Annualized Capital**	**O&M**	**Total Annualized**	**Total Range**
Evaporation Ponds				
Waste	10.23	5.62	15.85	7-27
Treated	0.046	0.015	0.061	0.03–0.14
Solar Ponds				
Waste	20.48	18.80	39.27	8-80
Treated	0.063	0.047	0.110	0.07-0.20
Well Injection				
Waste	12.00	18.52	30.52	13-111
Treated	0.051	0.077	0.128	13-111
Sewer				
Waste	2.40	5.51	7.91	6-11
Treated	0.007	0.034	0.041	0.02-0.12

Resin Disposal

Because IX resin removes other contaminants, disposal at hazardous waste facilities may be required. Non-hazardous resin can be disposed in landfills. The use of regenerable resin can result in significantly lower disposal costs than brines or concentrates.

ATTACHMENT NO. 3
Table 5

Reference: Final Report for Water Research Foundation Project #4359: State-of-Science on Perchlorate Treatment Technologies and Regulations*

Table ES.1
Comparison of removal technologies for treatment of perchlorate.

Technology	Typical Influent Concentration	Pros	Cons	Water Production Costs
Ion Exchange	• 6 – 100 µg/L • > 300 µg/L (bifunctional resins)	• Proven technology • Most effective and commonly used	• Generates concentrated brine stream • Performance impacted by competing anions	• $100 – 450/acre foot
Carbon Adsorption	• 60 – 80 µg/L	• Existing facilities can be used • No waste brine is generated	• Tailoring necessary for high efficiency • Limited full-scale installations	• $60 – 120/acre foot
Nanofiltration/ Reverse Osmosis	• 100 – 800 µg/L	• Multicontaminant removal	• Generates large quantity of brine • High energy consumption	• >$450/acre foot
Electrodialysis/ Electrodialysis Reversal	• 10 – 130 µg/L	• Multicontaminant removal	• Generates large quantity of brine • High energy consumption	• >$350/acre foot

- While the report contains many references and is essentially a literature review, specific references for these costs are not provided in the report
- The report does not specify a target treatment level, system size, or other assumptions for these costs.
- The report does not state whether these costs include both capital and operation and maintenance costs in total annualized costs.

* Extracted from Final Report for Water Research Foundation Project #4359: State-of-Science on Perchlorate Treatment Technologies and Regulations

ATTACHMENT NO. 3
Table 5
Reference: Final Report for Water Research Foundation Project #4359:
State-of-Science on Perchlorate Treatment Technologies and Regulations*

Table ES.2
Comparison of reduction technologies for treatment of perchlorate.

Technology	Typical Influent Concentration	Pros	Cons	Water Production Costs
Fluidized Bed Reactor (FBR)/Packed Bed Reactor (PBR)	• 8 – 10,000 µg/L	• Proven technology • Can be cost effective compared to ion exchange when influent concentration is high	• Acclimation of microorganisms • Public acceptance	• $90 – 360/acre foot
Membrane Biofilm Reactor (MBfR)	• 50 – 1,000 µg/L	• No waste brine is generated	• Reactor efficiency • Still under development	• $300 – 1,000/acre foot
In situ Bioremediation (ISB)	• > 500,000 µg/L	• Treats high levels of perchlorate	• Time consuming • Efficiency depends on nutrient availability	• >$2500/acre foot
Permeable Reactive Barrier (PRB)	• >10,000 µg/L	• Treats high levels of perchlorate	• Time consuming • Efficiency depends on nutrient availability	• $130 – 210 /acre foot

* Extracted from Final Report for Water Research Foundation Project #4359:
State-of-Science on Perchlorate Treatment Technologies and Regulations

ATTACHMENT NO. 4

Parameter	MCL or MRDL (units)	Meets Standard?	DLR	Sample Frequency*	Treated Surface Water		*Ground Water Sampled in 2010		EPA (MCLG) PHG or [MRDLG]	Typical Source of Contaminant
				Surface Water/Groundwater	Range	Sampled 1/13/2010 or Average Effluent	Range	Average		
Primary Standards										
Turbidity (Water Clarity)	TT = 1 NTU				0.06 - 0.15	0.09				
Turbidity is a measure of the cloudiness of the water. We measure it because it is a good indicator of the effectiveness of our filtration system.	TT = 95% of monthly samples ≤0.3 NTU	Y	NA	Continuous/Once in 3yrs	100%	100%	<0.2 - 0.6	0.08	NA	Soil Runoff
Treated Surface Water Range and Average are of Daily Maximum										
Dist. System Microbiological										
Total Coliform Bacteria (Total Coliform Rule)	*For systems that collect less than 40 samples per month*: More than 1 positive sample *For systems that collect 40 or more samples per month*: No more than 5.0% of monthly samples are positive	Y	NA	Weekly	NA	0%	NA	NA	(0)	Naturally present in the environment
E. coli (Federal Ground Water Rule)	0	Y	NA	Weekly	NA	0	NA	0	(0)	Human and animal fecal waste
Organic Chemicals										
Disinfection By-products					System RAA from Dist. Syst.					
					All Sample Range	Highest RAA				
TTHMs	80 µg/L	Y	NA	Monthly/NA	ND - 111	35.2	NA	NA	NA	By-product of drinking water disinfection
HAA5	60 µg/L	Y	NA	Quarterly/NA	ND - 24	5.7	NA	NA	NA	By-product of drinking water disinfection
Disinfectant Residual					System RAA from Dist. Syst.					
Chlorine Residual	4.0 (mg/L as Cl_2)	Y	NA	Weekly/NA	0.2 - 2.2	1.0	NA	NA	[4]	Drinking water disinfectant added for treatment
Disinfectant By-product Precursors										
Control of DBP Precursor (Total Organic Carbon, TOC) - see explanation on the next page	TT = ratio of actual TOC removal to required TOC removal shall be ≥ 1	Y	0.3	Monthly/NA	0.5 - 1.6	1.0	NA	NA	NA	Various natural and manmade sources
Inorganic Chemicals										
Arsenic	10 µg/L	Y	2	Yearly/Once in 3yrs	NA	ND	ND - 2	ND	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium	1000 µg/L	Y	100	Yearly/Once in 3yrs	NA	ND	ND - 170	ND	2000	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride	2 mg/L	Y	0.1	Quarterly/Quarterly	ND - 3	0.2	ND - 0.50	0.15	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO_3)	45 mg/L	Y	2	Quarterly/Quarterly	ND	ND	ND - 31.8	7.8	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Radioactivity										
Gross Alpha Activity**	15 pCi/L	Y	3	**See comment below	ND	ND	ND - 6.12	ND	(0)	Erosion of natural deposits
Uranium***	20 pCi/L	Y	1	NA/Quarterly	NA	NA	NA	NA	0.43	Erosion of natural deposits
Tap Monitoring Lead & Copper	Action Level			No. of samples in 2009	90th Percentile	No. sites exceeded AL				
Lead	15 µg/L	Y	5	59	ND	NONE		NA	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper	1.3 mg/L	Y	0.05	59	0.402	NONE		NA	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Secondary Standards										
Inorganic Chemicals										
Aluminum	200 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	ND - 130	ND	600	Erosion of natural deposits; residual from some surface water treatment processes
Color	15 units	Y	NA	Weekly/Once in 3yrs	NA	<5	NA	<5	NA	Naturally occurring organic materials
Odor-Threshold	3 units	Y	1	Weekly/Once in 3yrs	NA	1	NA	ND	NA	Naturally occurring organic materials
Chloride	500 mg/L	Y	NA	Quarterly/Quarterly	64 -92	78	5.0 - 92	25.8	NA	Runoff/leaching from natural deposits; seawater influence
Copper	1.0 mg/L	Y	0.05	Yearly/Once in 3yrs	NA	ND	NA	ND	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Iron	300 µg/L	Y	100	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Leaching from natural deposits; industrial wastes
Manganese	50 µg/L	Y	20	Monthly/Once in 3yrs	ND -61	ND	NA	ND	NA	Leaching from natural deposits
Sulfate	500 mg/L	Y	0.5	Quarterly/Quarterly	14- 55	38	18 - 73	38	NA	Runoff/leaching of natural deposits; industrial wastes
Zinc	5000 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Runoff/leaching of natural deposits; industrial wastes; corrosion control
Total Dissolved Solids	1000 mg/L	Y	NA	Yearly/Once in 3yrs	NA	310	110 - 570	245	NA	Runoff/leaching of natural deposits
Specific Conductance	1600 µmhos/cm	Y	NA	Yearly/Once in 3yrs	NA	589	236 - 944	412	NA	Substances that form ions when in water; seawater influence
Additional Constituents Analyzed										
pH	NA (Units)	NA	NA	Continuous/Once in 3yrs	6.9 - 9.3	7.22	7.8-8.70	8.10	NA	Leaching from natural deposits
Hardness	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	102 - 124	112	20-335	120	NA	Sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally-occuring
Alkalinity	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	56 - 69	67	80-250	122	NA	Dissolved as water passes through limestone deposits
Sodium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	83	16-77	36	NA	Generally naturally-occurring salt present in water
Calcium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	25	8-103	37	NA	Dissolved as water passes through limestone deposits
Potassium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	3	ND - 4	1.4	NA	Leaching from natural deposits
Magnesium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	11	ND - 24	6.7	NA	Dissolved as water passes through magnesium-bearing minerals
Special Testing										
Radium 228	5pCi/L	NA	1	4 Quarters by 12/31/2007	NA	ND	NA	ND	0.019	Erosion of natural deposits
UCMR						Average				
Chromium VI	No Standard(µg/L)	NA	1	Yearly/Yearly	NA	ND	ND - 15.2	4.17	NA	Steel and pulp mill discharges, chrome plating, natural erosion
Boron (NL = 1,000 µg/L)	No Standard(µg/L)	NA	100	Yearly/Once in 3yrs	NA	100	ND - 200	ND	NA	Industrial waste discharges, particularly from tallow manufacturing
Vanadium (NL = 50µg/L)	No Standard(ug/L)	NA	3	Yearly/Once in 3yrs	NA	ND	7.0 - 40.0	15.3	NA	Leaching from natural deposits, steel manufacturing, hazardous waste sites

* Wells are sampled once/3yrs except for Fluoride, Chloride, Sulfate, & Nitrate which are sampled quarterly.

** Sampled between 2001 and 2009. Individual sites are sampled once/3yrs or once/9yrs. Range is from individual sample results. Compliance is based on the average of four consecutive quarters.

*** Sample collected only when quarterly average of Gross Alpha exceeds 5pCi/L.

Parameter	MCL or MRDL (units)	Meets Standard?	DLR	Sample Frequency*	Treated Surface Water		*Ground Water Sampled in 2010		EPA (MCLG) PHG or [MRDLG]	Typical Source of Contaminant
Primary Standards				Surface Water/Groundwater	Range	Sampled 2/16/2011 or Average Effluent	Range	Average		
Turbidity (Water Clarity)	TT = 1 NTU				0.06 - 0.20	0.10				
Turbidity is a measure of the cloudiness of the water. We measure it because it is a good indicator of the effectiveness of our filtration system.	TT = 95% of monthly samples ≤0.3 NTU	Y	NA	Continuous/Once in 3yrs	100%	100%	<0.2 - 0.6	0.08	NA	Soil Runoff
Treated Surface Water Range and Average are of Daily Maximum										
Dist. System Microbiological										
Total Coliform Bacteria (Total Coliform Rule)	*For systems that collect less than 40 samples per month*: More than 1 positive sample. *For systems that collect 40 or more samples per month*: No more than 5.0% of monthly samples are positive	Y	NA	Weekly	NA	0%	NA	NA	(0)	Naturally present in the environment
E. coli (Federal Ground Water Rule)	0	Y	NA	Weekly	NA	0	NA	0	(0)	Human and animal fecal waste
Organic Chemicals										
Disinfection By-products					System RAA from Dist. Syst.					
					All Sample Range	Highest RAA				
TTHMs	80 µg/L	Y	NA	Monthly/NA	ND - 135	33	NA	NA	NA	By-product of drinking water disinfection
HAA5	60 µg/L	Y	NA	Quarterly/NA	ND - 22	6.1	NA	NA	NA	By-product of drinking water disinfection
Disinfectant Residual					System RAA from Dist. Syst.					
Chlorine Residual	4.0 (mg/L as Cl_2)	Y	NA	Weekly/NA	0.2 - 2.8	1.0	NA	NA	[4]	Drinking water disinfectant added for treatment
Disinfectant By-product Precursors										
Control of DBP Precursor (Total Organic Carbon, TOC) - see explanation on the next page	TT = ratio of actual TOC removal to required TOC removal shall be ≥ 1	Y	0.3	Monthly/NA	0.3 - 1.2	0.9	NA	NA	NA	Various natural and manmade sources
Inorganic Chemicals										
Arsenic	10 µg/L	Y	2	Yearly/Once in 3yrs	NA	ND	ND - 2	ND	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium	1000 µg/L	Y	100	Yearly/Once in 3yrs	NA	ND	ND - 170	ND	2000	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride	2 mg/L	Y	0.1	Quarterly/Quarterly	ND - 0.1	ND	ND - 0.48	0.17	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3)	45 mg/L	Y	2	Quarterly/Quarterly	ND	ND	ND - 33.1	8.2	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Chromium	50 µg/L	Y	10	Yearly/Once in 3yrs	ND	ND	ND-12	ND	(100)	Steel and pulp mill discharges, chrome plating, natural erosion
Radioactivity										
Gross Alpha Activity**	15 pCi/L	Y	3	**See comment below	ND	ND	ND - 8.12	ND	(0)	Erosion of natural deposits
Uranium***	20 pCi/L	Y	1	NA/Quaterly	NA	NA	NA	NA	0.43	Erosion of natural deposits
Tap Monitoring Lead & Copper	Action Level			No. of samples in 2009	90th Percentile	No. sites exceeded AL				
Lead	15 µg/L	Y	5	50	ND	NONE		NA	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper	1.3 mg/L	Y	0.05	50	0.402	NONE		NA	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Secondary Standards										
Inorganic Chemicals										
Aluminum	200 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	ND - 130	ND	600	Erosion of natural deposits; residual from some surface water treatment processes
Color	15 units	Y	NA	Weekly/Once in 3yrs	NA	<5	NA	<5	NA	Naturally occurring organic materials
Odor-Threshold	3 units	Y	1	Weekly/Once in 3yrs	NA	1	NA	ND	NA	Naturally occurring organic materials
Chloride	500 mg/L	Y	NA	Quarterly/Quarterly	99 - 120	110	5.6 - 69	28.1	NA	Runoff/leaching from natural deposits; seawater influence
Copper	1.0 mg/L	Y	0.05	Yearly/Once in 3yrs	NA	ND	NA	ND	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Iron	300 µg/L	Y	100	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Leaching from natural deposits; industrial wastes
Manganese	50 µg/L	Y	20	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Leaching from natural deposits
Sulfate	500 mg/L	Y	0.5	Quarterly/Quarterly	40 - 44	42	18 - 79	38	NA	Runoff/leaching of natural deposits; industrial wastes
Zinc	5000 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Runoff/leaching of natural deposits; industrial wastes; corrosion control
Total Dissolved Solids	1000 mg/L	Y	NA	Yearly/Once in 3yrs	NA	300	110 - 570	245	NA	Runoff/leaching of natural deposits
Specific Conductance	1600 umhos/cm	Y	NA	Yearly/Once in 3yrs	NA	600	236 - 944	412	NA	Substances that form ions when in water; seawater influence
Additional Constituents Analyzed										
pH	NA (Units)	NA	NA	Continuous/Once in 3yrs	6.9 - 9.0	7.14	7.6-8.70	8.10	NA	Leaching from natural deposits
Hardness	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	82 - 120	102	20-335	120	NA	Sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally-occuring
Alkalinity	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	45 - 79	61	80-260	122	NA	Dissolved as water passes through limestone deposits
Sodium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	83	16-77	36	NA	Generally naturally-occurring salt present in water
Calcium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	24	8-103	37	NA	Dissolved as water passes through limestone deposits
Potassium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	3	ND - 4	1.4	NA	Leaching from natural deposits
Magnesium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	13	ND - 24	6.7	NA	Dissolved as water passes through magnesium-bearing minerals
Special Testing										
Radium 228	5pCi/L	NA	1	4 Quarters by 12/31/2007	NA	ND	NA	ND	0.019	Erosion of natural deposits
UCMR						Average				
Chromium VI	No Standard		1	Yearly/Yearly	NA	ND	ND - 13	3.6	NA	Steel and pulp mill discharges, chrome plating, natural erosion

* Wells are sampled once/3yrs except for Fluoride, Chloride, Sulfate, & Nitrate which are sampled quarterly.

** Sampled during 2010 and 2011. Individual sites are sampled once/6yrs or once/9yrs. Range is from individual sample results. Compliance is based on the average of four consecutive quarters.

*** Sample collected only when quarterly average of Gross Alpha exceeds 5pCi/L

Parameter	MCL or MRDL (units)	Meets Standard?	DLR	Sample Frequency*	Treated Surface Water		*Ground Water Sampled in 2010		EPA (MCLG) PHG or [MRDLG]	Typical Source of Contaminant
				Surface Water/Groundwater	Range	Sampled 2/9/2012 or Average Effluent	Range	Average		
Primary Standards										
Turbidity (Water Clarity)	TT = 1 NTU				0.04 - 0.19	0.07				
Turbidity is a measure of the cloudiness of the water. We measure it because it is a good indicator of the effectiveness of our filtration system.	TT = 95% of monthly samples ≤0.3 NTU	Y	NA	Continuous/Once in 3yrs	100%	100%	<0.2 - 0.6	0.08	NA	Soil Runoff
Treated Surface Water Range and Average are of Daily Maximum										
Dist. System Microbiological										
Total Coliform Bacteria (Total Coliform Rule)	*For systems that collect less than 40 samples per month:* More than 1 positive sample *For systems that collect 40 or more samples per month:* No more than 5.0% of monthly samples are positive	Y	NA	Weekly	NA	0%	NA	NA	(0)	Naturally present in the environment
E. coli (Federal Ground Water Rule)	0	Y	NA	Weekly	NA	0	NA	0	(0)	Human and animal fecal waste
Organic Chemicals										
Disinfection By-products					System RAA from Dist. Syst.		Stage 2 D/DBP			
					All Sample Range	Highest RAA	Range	Average		
TTHMs	80 µg/L	Y	NA	Monthly/NA	ND - 44	18	ND - 100	46	NA	By-product of drinking water disinfection
HAA5	60 µg/L	Y	NA	Quarterly/NA	ND - 8.7	3.5	ND - 15	6.5	NA	By-product of drinking water disinfection
Disinfectant Residual					System RAA from Dist. Syst.					
Chlorine Residual	4.0 (mg/L as Cl_2)	Y	NA	Weekly/NA	0.12-1.77	0.9	NA	NA	[4]	Drinking water disinfectant added for treatment
Disinfectant By-product Precursors										
Control of DBP Precursor (Total Organic Carbon, TOC) - see explanation on the next page	TT = ratio of actual TOC removal to required TOC removal shall be ≥ 1	Y	0.3	Monthly/NA	0.6- 1.2	0.9	NA	NA	NA	Various natural and manmade sources
Inorganic Chemicals										
Arsenic	10 µg/L	Y	2	Yearly/Once in 3yrs	NA	ND	ND - 2	ND	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium	1000 µg/L	Y	100	Yearly/Once in 3yrs	NA	ND	ND - 170	ND	2000	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride	2 mg/L	Y	0.1	Quarterly/Quarterly	0.1 - 0.13	0.1	ND - 0.47	0.16	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO3)	45 mg/L	Y	2	Quarterly/Quarterly	ND	ND	2.2 - 28.4	6.7	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Chromium	50 µg/L	Y	10	Yearly/Once in 3yrs	ND	ND	ND-12	ND	(100)	Steel and pulp mill discharges; chrome plating; natural erosion
Radioactivity										
Gross Alpha Activity**	15 pCi/L	Y	3	**See comment below	ND	ND	3	3	(0)	Erosion of natural deposits
Uranium***	20 pCi/L	Y	1	NA/Quaterly	NA	NA	NA	NA	0.43	Erosion of natural deposits
Tap Monitoring Lead & Copper	Action Level			No. of samples in 2009	90th Percentile	No. sites exceeded AL				
Lead	15 µg/L	Y	5	50	ND	1		NA	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper	1.3 mg/L	Y	0.05	50	0.370	NONE		NA	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Secondary Standards										
Inorganic Chemicals										
Aluminum	200 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	ND - 130	ND	600	Erosion of natural deposits; residual from some surface water treatment processes
Color	15 units	Y	NA	Weekly/Once in 3yrs	NA	<5	NA	<5	NA	Naturally occurring organic materials
Odor-Threshold	3 units	Y	1	Weekly/Once in 3yrs	NA	1	NA	ND	NA	Naturally occurring organic materials
Chloride	500 mg/L	Y	NA	Quarterly/Quarterly	76.6 - 97.4	91.5	5.2 - 58.4	19.7	NA	Runoff/leaching from natural deposits; seawater influence
Copper	1.0 mg/L	Y	0.05	Yearly/Once in 3yrs	NA	ND	NA	ND	0.3	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Iron	300 µg/L	Y	100	Monthly/Once in 3yrs	ND	ND	ND - 170	ND	NA	Leaching from natural deposits; industrial wastes
Manganese	50 µg/L	Y	20	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Leaching from natural deposits
Sulfate	500 mg/L	Y	0.5	Quarterly/Quarterly	28.2 - 52.8	43.8	11.2 - 59.5	34.2	NA	Runoff/leaching of natural deposits; industrial wastes
Zinc	5000 µg/L	Y	50	Monthly/Once in 3yrs	ND	ND	NA	ND	NA	Runoff/leaching of natural deposits; industrial wastes; corrosion control
Total Dissolved Solids	1000 mg/L	Y	NA	Yearly/Once in 3yrs	NA	270	110 - 570	245	NA	Runoff/leaching of natural deposits
Specific Conductance	1600 µmhos/cm	Y	NA	Yearly/Once in 3yrs	NA	500	236 - 944	412	NA	Substances that form ions when in water; seawater influence
Additional Constituents Analyzed										
pH	NA (Units)	NA	NA	Continuous/Once in 3yrs	6.9 - 7.6	7.14	7.6-8.70	8.10	NA	Leaching from natural deposits
Hardness	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	64 - 130	110	20-335	120	NA	Sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally-occurring
Alkalinity	NA(mg/L)	NA	NA	Weekly/Once in 3yrs	51 - 79	63	80-260	122	NA	Dissolved as water passes through limestone deposits
Sodium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	50	16-77	38	NA	Generally naturally-occurring salt present in water
Calcium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	25	8-103	37	NA	Dissolved as water passes through limestone deposits
Potassium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	3	ND - 4	1.4	NA	Leaching from natural deposits
Magnesium	NA(mg/L)	NA	NA	Yearly/Once in 3yrs	NA	12	ND - 24	8.7	NA	Dissolved as water passes through magnesium-bearing minerals
Special Testing										
Radium 228	5pCi/L	NA	1	4 Quarters by 12/31/2007	NA	ND	NA	ND	0.019	Erosion of natural deposits
UCMR						Average				
Chromium VI	No Standard		1	Yearly/Yearly	NA	ND	ND - 11	4.1	NA	Steel and pulp mill discharges; chrome plating; natural erosion

* Wells are sampled once/3yrs except for Fluoride, Chloride, Sulfate, & Nitrate which are sampled quarterly.

** Sampled during 2010 and 2011. Individual sites are sampled once/6yrs or once/9yrs. Range is from individual sample results. Compliance is based on the average of four consecutive quarters.

*** Sample collected only when quarterly average of Gross Alpha exceeds 5pCi/L.

ATTACHMENT NO. 5

GLOSSARY OFTERMS AND ABBREVIATIONS

ACWA:	Association of California Water Agencies
BAT:	Best Available Technology to achieve compliance with an MCL
CDPH:	California Department of Public Health
DLR:	Detection Limit for Reporting Purposes; set by CDPH
MCL:	Maximum Contaminant Level; set by CDPH and USEPA
MCLG:	Maximum Contaminant Level Goal; set by USEPA
MGD:	Million Gallons per Day
OEHHA:	Office of Environmental Health Hazard Assessment (State of California)
PHG:	Public Health Goal; set by OEHHA
USEPA:	United States Environmental Protection Agency
mg/l:	milligrams per liter pr parts per million
µg/l:	micrograms per liter or parts per billion

AGENDA ITEM NO. 7.4

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: April 18, 2013 **April 24, 2013**

TO: BOARD OF DIRECTORS **Board Meeting**

FROM: Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.4 – CONSIDERATION AND POSSIBLE ACTION ON RESOLUTION NO. 13-8, A RESOLUTION OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT AUTHORIZING THE ISSUANCE BY THE PALMDALE WATER DISTRICT PUBLIC FINANCING AUTHORITY OF WATER REVENUE BONDS IN AN AGGREGATE PRINCIPAL AMOUNT NOT-TO-EXCEED $50,000,000 AND APPROVING CERTAIN DOCUMENTS IN CONNECTION THEREWITH.***

Staff recommends approval of Resolution No. 13-8. The complete set of documents for Resolution No. 13-8 will be available at briefings or upon request.

RESOLUTION NO. 13-8

RESOLUTION OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT AUTHORIZING THE ISSUANCE BY THE PALMDALE WATER DISTRICT PUBLIC FINANCING AUTHORITY OF WATER REVENUE BONDS IN AN AGGREGATE PRINCIPAL AMOUNT NOT TO EXCEED $50,000,000 AND APPROVING CERTAIN DOCUMENTS IN CONNECTION THEREWITH

WHEREAS, the Palmdale Water District (the "District") is an irrigation district duly organized and existing under and pursuant to the Constitution and laws of the State of California (the "State");

WHEREAS, the District proposes to undertake the refinancing of the acquisition of certain improvements, betterments, renovations, and expansions of facilities within its water system (the "2004 Project");

WHEREAS, the District and the Palmdale Water District Public Facilities Corporation (the "Corporation") have previously entered into an Installment Purchase Agreement, dated as of September 1, 2004 (the "2004 Installment Purchase Agreement") in order to assist the District in financing the 2004 Project;

WHEREAS, the Palmdale Water District Public Financing Authority (the "Authority") has agreed to assist the District in refinancing the 2004 Project and prepaying the installment payments payable by the District pursuant to the 2004 Installment Purchase Agreement;

WHEREAS, the District proposes to finance the acquisition and construction of certain improvements, betterments, renovations to and expansions of facilities within its water system (the "2013 Project");

WHEREAS, the District and the Authority have determined to finance the 2013 Project and, assuming certain net present value savings as described herein, to refinance all or a portion of the installment payments due under the 2004 Installment Purchase Agreement;

WHEREAS, the District has determined to request the Authority to issue Water Revenue Bonds (the "Bonds") for the purpose of refinancing all or a portion of the installment payments due

under the 2004 Installment Purchase Agreement, financing the 2013 Project and paying costs of issuance in connection therewith;

WHEREAS, the Bonds will be issued pursuant to the Marks-Roos Local Bond Pooling Act of 1985, commencing with Section 6584 of the California Government Code (the "Act");

WHEREAS, the District and the Corporation desire to amend that certain Installment Purchase Agreement (the "2012 Installment Purchase Agreement"), dated as of November 1, 2012, by and between the District and the Corporation, for the purpose of revising certain definitions therein; and

WHEREAS, the District is authorized by Division 11 of the Water Code of the State of California, including, but not limited to Sections 22228 through 22231, to acquire property for its water system and to refinance the acquisition of property for its water system;

NOW, THEREFORE, the Board of Directors of the Palmdale Water District hereby finds, determines, declares and resolves as follows:

SECTION 1. Each of the above recitals is true and correct. The Board of Directors hereby further finds and determines that there are significant public benefits of the type described in Section 6586 of the Act to the District and its residents by issuing the Bonds under the Act in that the issuance of the Bonds and related transactions will result in demonstrable savings in effective interest rate to the District.

SECTION 2. The issuance by the Authority of the Bonds in the principal amount not to exceed $50,000,000 to refinance all or a portion of the installment payments due under the 2004 Installment Purchase Agreement, to finance the 2013 Project, and to pay the cost of issuance of the Bonds is hereby approved; provided, however, that the Bonds shall be issued only in accordance with the parameters set forth in Section 6 below.

SECTION 3. The Installment Purchase Agreement by and between the District and the Authority, in substantially the form on file with the Secretary of the Board, is hereby approved,

subject to final approval as to form by the District's legal counsel and the law firm of Stradling Yocca Carlson & Rauth, a Professional Corporation ("Bond Counsel"). Each of the President of the Board of Directors, the General Manager of the District (the "General Manager") and the Director of Financial Services of the District (the "Director of Financial Services"), or their designees (collectively, the "Authorized Officers"), acting alone, is hereby authorized and directed to execute and deliver such Installment Purchase Agreement with such changes, insertions and omissions as may be approved by the District's legal counsel and Bond Counsel, with the execution thereof by an Authorized Officer being conclusive evidence of such approval.

SECTION 4. The Continuing Disclosure Agreement by and between the District and the Bank of New York Mellon Trust Company, N.A., in substantially the form on file with the Secretary of the Board, is hereby approved, subject to final approval as to form by the District's legal counsel and Bond Counsel. Each of the Authorized Officers, acting alone, is hereby authorized and directed to execute and deliver the Continuing Disclosure Agreement with such changes, insertions and omissions as may be approved by the District's legal counsel and Bond Counsel, with the execution thereof by an Authorized Officer being conclusive evidence of such approval.

SECTION 5. The Escrow Agreement by and between the District and The Bank of New York Mellon Trust Company, N.A., as escrow agent, in substantially the form on file with the Secretary of the Board, is hereby approved, subject to final approval as to form by the District's legal counsel and Bond Counsel. Each of the Authorized Officers, acting alone, is hereby authorized and directed to execute and deliver the Escrow Agreement with such changes, insertions and omissions as may be approved by the District's legal counsel and Bond Counsel, with the execution thereof by an Authorized Officer being conclusive evidence of such approval. The Bank of New York Mellon Trust Company, N.A., is hereby appointed as escrow agent under the Escrow Agreement.

SECTION 6. The Purchase Contract by and between the Authority and Piper Jaffray & Co. (the "Underwriter"), in substantially the form on file with the Secretary of the Board, is hereby approved. Each of the Authorized Officers, acting alone, is hereby authorized and directed to

execute and deliver the Letter of Representations of the District in substantially the form attached to the Purchase Contract, with such changes, insertions and omissions as may be approved by the District's legal counsel and Bond Counsel, with the execution thereof by an Authorized Officer being conclusive evidence of such approval; provided, however, that in no event shall the principal amount of the Bonds exceed $50,000,000, nor shall the underwriter's discount exceed 0.8% of the principal amount of the Bonds, nor shall Bonds be issued to refinance the 2004 Installment Purchase Agreement unless such refinancing results in net present value savings for the District equal to or greater than 3% of the principal amount of the installment payments due on and after October 1, 2015 under the 2004 Installment Purchase Agreement, as calculated by the Underwriter.

SECTION 7. The form of the Preliminary Official Statement, presented to this meeting and on file with the Secretary of the Board, is hereby approved. The General Manager, the Director of Financial Services and their designees are hereby authorized to make such changes to the Preliminary Official Statement as are necessary to make it final as of its date and are authorized and directed to execute and deliver a certificate deeming the Preliminary Official Statement final as of its date in accordance with Rule 15c2-12 promulgated under the Securities Exchange Act of 1934. Each of the Authorized Officers, acting alone, is hereby authorized and directed to execute, approve and deliver the final Official Statement in the form of the Preliminary Official Statement with such changes, insertions and omissions as the Authorized Officer executing said document may require or approve, such approval to be conclusively evidenced by the execution and delivery thereof by an Authorized Officer.

SECTION 8. The Secretary of the Board, or persons as may have been designated by the General Manager, are hereby authorized and directed to attest the signature of any of the Authorized Officers designated herein to execute any documents, as may be required or appropriate in connection with the execution and delivery of the Purchase Contract, the Installment Purchase

Agreement, the Escrow Agreement, the Continuing Disclosure Agreement and the Official Statement.

SECTION 9. Each of the General Manager, the Director of Financial Services and their designees, acting alone, is authorized to execute a contract for services with Stradling Yocca Carlson & Rauth, a Professional Corporation, to act as Bond Counsel and Disclosure Counsel to the District, which contract shall be in substantially the form on file with the Secretary of the Board, together with such changes as may be approved by the General Manager or the Director of Financial Services, the District's legal counsel, or their designee, which changes shall be conclusively evidenced by the execution and delivery of such contract by any one of such officers.

SECTION 10. Each of the General Manager, the Director of Financial Services and their designees, acting alone, is hereby authorized to (i) execute a commitment for municipal bond insurance and/or a reserve surety policy from a municipal bond insurer (the "Insurer"), (ii) to finalize the form of such policy or policies with the Insurer, and (iii) if it is determined that the policy or policies will result in interest rate savings for the District, to pay the insurance premium of such policy from the proceeds of the issuance and sale of the Bonds. Bond Counsel is hereby directed to make all changes to the Preliminary Official Statement, the Installment Purchase Agreement and the Purchase Contract as are necessary to reflect the selection of an Insurer and the reasonable comments thereof.

SECTION 11. The Authorized Officers are each hereby authorized and directed, jointly and severally, to do any and all things and to execute and deliver any and all documents which each may deem necessary or advisable in order to consummate the issuance of the Bonds, the refinancing of all or a portion of the installment payments due under the 2004 Installment Purchase Agreement, the financing of the 2013 Project, and otherwise to carry out, give effect to and comply with the terms and intent of this Resolution, the Bonds, the Installment Purchase Agreement, the Continuing Disclosure Agreement, the Escrow Agreement, the Preliminary Official Statement, and the Official

Statement. Such actions heretofore taken by such officers or designees are hereby ratified, confirmed and approved.

SECTION 12. Unless otherwise defined herein, all terms used herein and not otherwise defined shall have the meanings given such terms in the Installment Purchase Agreement unless the context otherwise clearly requires.

SECTION 13. The Authorized Officers are hereby authorized to enter into an amendment to the 2012 Installment Purchase Agreement to revise the definition of maintenance and operation expenses therein to be consistent with the definition of operation and maintenance expenses in the Installment Purchase Agreement executed upon the issuance of the Bonds. The Authorized Officers are hereby further authorized to take any other actions necessary to effect such amendment.

SECTION 14. This Resolution shall take effect immediately upon its passage.

PASSED AND ADOPTED by the Board of Directors of the Palmdale Water District, California, this 24th day of April 2013, by the following vote:

AYES:

NAYS:

ABSENT:

ABSTAIN:

_____

President

ATTEST:

_____

Secretary

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: April 18, 2013 **April 24, 2013**

TO: BOARD OF DIRECTORS **Board Meeting**

FROM: Claudette Roberts

VIA: Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.6 – CONSIDERATION AND POSSIBLE ACTION ON MEMORANDUM OF UNDERSTANDING (MOU) FOR THE A. V. WATER PARTNERS.***

Recommendation:

Staff recommends that the Board of Directors approve the MOU for the Antelope Valley Water Partners.

Background:

The Palmdale Water District, Quartz Hill Water District, L.A. County Water Works, and Rosamond Community Services District have worked together and partnered in several conservation events over the years. The districts were meeting and discussing conservation efforts that could be combined to benefit each other and help with resources. At one point, we decided to give ourselves a name - the Antelope Valley Water Partners. L.A. County Water District provided the resources to have a logo made for the partners. The idea was to come together each year to plan our events and combine resources when possible. In the mix, an MOU for the partners was brought up. PWD put together an MOU, which each partner has reviewed several times. Several changes have been made to the MOU, and the final MOU has been reviewed by Attorney Ciampa who revised a specific way to allocate any costs involved and other language clarifications.

Strategic Plan Element:

This work is part of Strategic Element/CUWCC working with other agencies.

Budget:

The MOU does not affect the budget.

Supporting Documents:

- Antelope Valley Water Partners MOU

MEMORANDUM OF UNDERSTANDING

BETWEEN

The Antelope Valley Water Partners

"California"

April 9, 2013

Memorandum of Understanding regarding the

Antelope Valley Water Partners

"California"

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Page

Memorandum of Understanding

Regarding

The Antelope Valley Water Partners

In California

MISSION STATEMENT

To provide education and public awareness as united partners, on water conservation, and to protect our natural resource “water” and the environment.

Objectives

1) Identify and promote practices that will result in more efficient use of water

2) Educate and increase awareness regarding the importance of water, water use, and conservation.

3) Encourage research, development, and implementation of water use and efficiency and water conservation technologies.

Understanding

The provision contained herein constitute a framework for cooperation by and between the Palmdale Water District, Quartz Hill Water District, Los Angeles County Waterworks District No. 40, and Rosamond Community Services District (hereinafter the “ Antelope Valley Water Partners”).

Recitals

A. The Antelope Valley, located in Southern California, is uniquely situated regarding its water conservation needs and practices. The Antelope Valley is in the high desert where precipitation is less than 7 inches per year. The local economy, quality of life, and environment are largely dependent upon imported water from the State Water Project (SWP), where the Antelope Valley receives approximately 50 percent of its domestic supply through the SWP. The balance of the water supply is from groundwater produced from the Antelope Valley Groundwater Basin, which the court has found to be in over-draft, Los Angeles Superior Court Case No. 1-05CV-049053. Current and increasing demands for urban, agriculture and environmental water uses call for water conservation and the elimination of waste. The signatories recognize that this MOU is intended to bring water retailers under one umbrella, the Antelope Valley Water Partners, collaboratively working together to define and establish conservation measures for this unique area while providing funding and economies of scale to all participants and sharing costs that would otherwise be shouldered solely by each agency.

B. Water conservation practices are intended to reduce long term urban demands and to meet the governor's 20x20x20 Water Conservation Plan, introduced by Governor Schwarzenegger in February of 2008. The plan is intended to achieve a 20 percent reduction in per capita per day use by 2020 as described in Senate bill No. 7 (SBX7-7), introduced by State Senator Steinberg in 2009.

C. It is the intent of this MOU that individual signatory water suppliers (1) develop comprehensive conservation programs using sound economic criteria, and (2) consider partnering with each other when possible in order to gain more exposure with outreach materials.

D. It is further the intent of the signatories to develop partnerships with water purveyors and others interested in conservation to strategize and implement mutually beneficial cooperative conservation efforts and messages.

SECTION 1. DEFINITIONS

For purposes of this MOU, the following definitions apply:

1.1 Conservation Measures. Some or all Best Management Practices ("BMP"s) that are outlined in the California Urban Water Conservation Council's (CUWCC) 2009 "Guide book" or as updated by the CUWCC. See www.cuwcc.org.

1.2 Partnering. Working jointly on formulating and sharing expenses on media coverage, and /or hosting booths at local events, workshops, and similar forums, and providing outreach materials to promote water efficiency within the Antelope Valley.

a. Media coverage includes, but is not limited to radio, TV, web sites, newspaper print, including individual public agency websites, and social media such as: Facebook, Twitter, and Linkedin.

b. Local events include, but are not limited to: the AV Home Show, Fix-a-Leak Week, Poppy Festival, Almond Blossom Festival, Thursday Night on the Square, and the Antelope Valley Fair and Alfalfa Festival.

c. Workshops including, but not limited to: smart irrigation, water-efficient landscape, and sustainable gardening.

d. Outreach materials include, but are not limited to: landscape booklets, DVD's on water use efficiency, posters, pamphlets, calendars, and other materials related to practice of using water more efficiently.

e. Educational programs and contests.

1.3 Signatories. For purposes of this MOU, signatories will be divided into two groups as follows:

a. Group 1 will consist of water suppliers. A "water supplier" is defined as any entity, which delivers or supplies water for urban use at the wholesale or retail level within the Antelope Valley.

b. Group 2 will consist of other interested groups. "Other Interested Groups" is defined as landscape contractors, irrigation equipment suppliers or other agencies in the business of supplying information or materials that promote water use efficiency.

SECTION 2. PURPOSES

2.1 This MOU is to create a framework for cooperation within the Antelope Valley Water Partners for the development and implementation of educational programs, outreach materials, and messages to promote public awareness regarding water conservation and efficiency of water usage in a coordinated and cost-effective manner. By participating in the programs and media outreach through this partnership, the Antelope Valley Water Partners will be able to show conservation activities that can be reported to the Department of Water Resources in the Partners' respective Urban Water Management Plans, and to the CUWCC to demonstrate implementation of BMP's and to otherwise assist in meeting the State's 20 percent reductions by 2020. This MOU will promote and provide a means to establish a process to share research and information, develop and implement educational programs, and coordinate outreach efforts on conservation and efficiency of water usage.

SECTION 3. CONSERVATION GOALS

3.1 Goals

1) This MOU is intended to help each partnering agency reach their independent conservation goal, efficiently, economically, and cooperatively, through working together on media and outreach messages and materials and programs that help to satisfy any conservation and demand reduction requirements.

2) Promote environmentally sound and economically feasible water conservation measures to protect the water resources within the Antelope Valley.

3) Develop and implement educational programs related to water conservation.

4) Provide research and information sharing efforts related to water conservation.

5) Research, develop, and implement water conservation programs and educational outreach materials including, but not limited to, smart irrigation and water-efficient

landscape workshops, water conservation school programs, and rebates for water saving devices.

6) Streamline and coordinate advertisements in local newspapers, radio stations, theaters and billboards to encourage and promote reasonable and beneficial use of water using local newspapers, radio stations, theaters, and billboards.

7) Sponsor booths at local events and festivals promoting water conservation.

8) Meet the State's 20 percent water reductions by 2020; provide conservation efforts to be reported in the Partners' respective Urban Water Management Plans and to the CUWCC to demonstrate implementation of BMP's.

9) Provide economies of scale for each partner agency's funding to provide their customers with cost-effective programs and educational materials.

SECTION 4. FUNDING

4.1 Through this MOU, the Antelope Valley Water Partners agree to share funding water conservation programs and activities described herein. Each agency's share of the cost of a particular program or activity undertaken by the Antelope Valley Water Partners shall be determined on a program-by-program or activity-by-activity basis through an individual written schedule that allocate such costs among the Partners. The allocation of those costs shall take into consideration the number of customers in the Antelope Valley served by each agency participating in the particular program or activity, the location of the particular program or activity and the target audience of the particular program or activity. Any individual Antelope Valley Partner may opt out of participating in any of the programs or activities undertaken by the Antelope Valley Water Partners.

4.2 Through this MOU, the Antelope Valley Partners agree that participation funding may either be monetary or in kind services, as the participating Partners may agree, and which shall be documented in the schedule applicable to the particular program or activity.

SECTION 5. GENERAL PROVISIONS

5.1 Relationship Between Water Suppliers. No rights, obligations, or authorities between water suppliers, wholesale suppliers or other interested parties are created or expanded by this MOU.

5.2 Legal Authority. Nothing in this MOU is intended to give any signatory, agency, entity, or organization expansion of any existing authority. No organization formed pursuant to this MOU has authority beyond that specified in this MOU.

5.3 Withdrawal from MOU**.** Any signatory shall have the right to withdraw from the MOU by providing written notice to the Antelope Valley Water Partners at any time, without liability.

5.4 Joining the MOU. This is an open partnership that welcomes future members.

ANTELOPE VALLEY WATER PARTNERS

The memorandum of understanding regarding the Antelope Valley Water Partners is made and entered into on the dates set forth below among the undersigned parties (signatories).

PALMDALE WATER DISTRICT _____Date:_____
http://www.palmdalewater.org (Board Secretary)

QUARTZ HILL WATER DISTRICT _____Date:_____
http://www.qhwd.org (Board Secretary)

ROSAMOND COMMUNITY
SERVICES DISTRICT _____ Date:_____
http://www.rosamondcsd.com (Board Secretary to General Manager)

LOS ANGELES COUNTY
WATERWORKS DISTRICT NO. 40 _____Date:_____
http://www.lacwaterworks.org (Assistant Deputy Director)

AGENDA ITEM NO. 7.7

PALMDALE WATER DISTRICT

BOARD MEMORANDUM

DATE: April 3, 2013

TO: BOARD OF DIRECTORS

CC: Jim Ciampa, Attorney

FROM: Mr. Dennis D. LaMoreaux, General Manager

RE: **AFTER-HOURS OFFICE BUILDING ENTRY AND USE OF DISTRICT FACILITIES**

VIA: **EMAIL AND HARD COPY**

On the morning of Monday, April 1, 2013 I was informed by staff of an incident that occurred on Friday, March 29, 2013. I gathered information about the incident and have summarized it as follows.

Office Building Incident

March 29, 2013

1. The office was closed on March 29, 2013 for Good Friday. Notification of the District holiday was made through signs posted in the lobby (the week prior), at the front entrance, in newsletters, on the District web site, on the District Facebook page, on the telephone system, and in the employee newsletter;
2. The office building alarm activated at 3:39:43 pm due to entry from the North door;
3. Three (3) attempts to disarm the alarm occurred over the next 30 seconds;
4. No phone calls were made to the alarm company. (Message above alarm key pads: *"PLEASE NOTIFY [redacted] FOR ANY ENTRY (OFF HOURS)"*);
5. The alarm company contacted the answering service at 3:41:23 pm about the alarm;
6. The District On-Call employee was contacted by the alarm company through the answering service and responded to the office building as a burglary in process;
7. The On-Call employee arrived at the office, noted two empty, compact vehicles in front of the building, entered the office building using the East door, and disarmed the alarm at 3:42:48 pm;
8. The On-Call employee proceeded carefully into the building and heard laughing and talking coming from the Board Members Office. The door was closed. He tried calling out but there was no reply so he knocked on the door;
9. Director Alvarado, dressed in suit and tie, opened the door and gave the On-Call employee his business card, said he'd tried to use his entry code to disarm the alarm but it didn't work and they'd closed the office door;

10. The On-Call employee noted there were two men, a tripod, a camera, and a video camera also in the Board Members Office with Director Alvarado;
11. Director Alvarado stated what they were doing wouldn't take much longer and they would leave afterwards;
12. The On-Call employee then left to do other work on the District property (record information from the weather station, check property perimeter, etc.);
13. The alarm company had continued contacting District personnel and received authorization to deploy the Sheriff at 4:04:21 pm from a District supervisor;
14. The supervisor contacted the On-Call employee and the Sheriff did not respond to the District office;
15. On-Call employee contacted the alarm company at 4:06:54 pm to completely clear the alarm;
16. Director Alvarado and the two men left and the On-Call employee armed the alarm system at 4:24:28 pm;
17. The On-Call employee then contacted the department manager and informed him of the incident.

April 1, 2013

1. Staff contacted Director Alvarado at approximately 3:30 pm regarding the submittal of Form 700. After that business was over, Director Alvarado stated he had entered the building on the afternoon of March 29, 2013 to pick up his mail, that he'd been unable to disarm the alarm, that an employee had come to do that, that he was unaware the office was closed that day for Good Friday, that he will not be coming to the office when it's closed again as he didn't want to know the alarm code, and to pass the information to me.

Summary Statement

The day-to-day operations of the District, including security, are my responsibility. This incident is concerning due to the wasted employee time, potential cost of a false alarm for the Sheriff, and unknown activities occurring in District facilities. Similar behavior from an employee would result in corrective disciplinary action from a minimum of failing to use the information clearly posted at the alarm key pad and no known District business being conducted in the office.

This incident is different as it doesn't involve an employee and the person involved is not managed by my position. However, I feel it is important the Board is aware of the incident to help prevent similar, future occurrences. Please be aware that your entry codes allow you access even if the District office building is closed. The alarm system is set when the office building is closed. If you should enter the building when the alarm is set, please call the number posted at the key pad to help avoid unnecessary response and expenses.

CALIFORNIA SPECIAL DISTRICTS ASSOCIATION
BOARD'S ROLE IN FINANCE & FISCAL ACCOUNTABILITY
June 6, 2013
Sacramento

NAME:_____

_____

ADVANCE REGISTRATION DEADLINE:_____

MEALS: ___YES ___NO SPOUSE: ___YES ___NO SPOUSES' TOUR: ___YES ___NO

DEPARTMENTAL TRAVEL BUDGET:

REGISTRATION:_____ TRAVEL:_____
TOTAL REMAINING BALANCE:_____

PROPOSED EXPENSES:

Registration:	_____
Transportation:	_____
Meals:*	_____
Miscellaneous:	_____
TOTAL:	_____

*DIRECTORS: Expenses are outlined in Section 4.06.1 of the District's Rules and Regulations.
*FOR STAFF: Meal limitations are outlined on pages 30 and 31 of the District's Employee Manual.
Please review these limitations.

HOTEL ACCOMMODATIONS: ___YES ___NO REGISTRATION DEADLINE:_____
ARRIVAL DATE/TIME:_____ DEPARTURE DATE/TIME:_____

TYPE OF ACCOMMODATIONS:
_____ SINGLE (1 PERSON)
_____ DOUBLE (2 PEOPLE)
_____ (2 PEOPLE/2 BEDS)

AIRLINE RESERVATIONS: ___YES ___NO

DEPART FROM _____ (airport) on _____ (date) at _____ (time) AM/PM

RETURN FROM _____ (airport) on _____ (date) at _____ (time) AM/PM

SUPERVISOR APPROVAL:_____ DATE:_____

Board's Role in Finance & Fiscal Accountability

Back Register

Instructor: David Becker, James Marta & Company

This course will focus on how to develop a method for approving the district's annual budget, communicate budget information to the public, establish financial goals for the district, review district finances, develop and analyze capital inprovement plans and reserve guidelines, comprehend the relationship between district finance and district belief and values as set forth in the district mission and strategic goals.

08:30 am - 09:00 am Sign-in & Registration
09:00 am - 12:00 pm Workshop
12:00 pm - 01:00 pm Lunch (On Your Own)
01:00 pm - 04:00 pm Workshop

$225 CSDA Member
$375 Non-Member

Sign up for all four academy courses and save $$$
$800 CSDA Member
$1400 Non-Member

Cancellations must be made IN WRITING and received via fax, mail, or email no later than three days prior to the seminar. All cancellations made within the specified time will be refunded less a $25 processing fee. 08:30 am - 09:00 am Sign-in & Registration 09:00 am - 12:00 pm Workshop 12:00 pm - 01:00 pm Lunch (On Your Own) 01:00 pm - 04:00 pm Workshop

Start Date:	Thursday, June 06, 2013
End Date:	Thursday, June 06, 2013
Coordinators:	Sharon Foster, Professional Development Assistant - sharonf@csda.net
Address:	California District Attorneys Association 921 11th Street, Suite 300 Sacramento, CA 95814

You must log on before continuing through the checkout process.

Thank you for using the CSDA web site.

MINUTES OF MEETING OF THE OUTREACH COMMITTEE OF THE PALMDALE WATER DISTRICT, MARCH 11, 2013:

A regular meeting of the Outreach Committee of the Palmdale Water District was held Monday, March 11, 2013, at 2029 East Avenue Q, Palmdale, California, in the Board Room of the District office. Chair Dizmang called the meeting to order.

1) **Roll Call.**

Attendance:	**Others Present:**
Outreach Committee:	Dennis LaMoreaux, General Manager
Gloria Dizmang, Chair	Jim Stanton, Information Technology Manager
Robert Alvarado, Committee Member	Claudette Beck, Water Conservation Supervisor
	Tim Moore, Facilities Manager
	Danielle Henry, Administrative Assistant
	0 members of the public

2) **Adoption of Agenda.**

It was moved by Committee Member Alvarado, seconded by Chair Dizmang, and unanimously carried to adopt the agenda, as written.

3) **Public Comments.**

There were no public comments.

4) **Action Items:**

4.1) Consideration and Possible Action on Approval of Minutes of Meeting Held February 4, 2013.

After a brief discussion, it was moved by Committee Member Alvarado, seconded by Chair Dizmang, and unanimously carried to approve the minutes of the meeting held February 4, 2013, as written.

4.2) Discussion of Next Issue of Water News. (Water Conservation Supervisor Beck)

Water Conservation Supervisor Beck reviewed the upcoming issue of Water News followed by discussion of the articles and revisions.

General Manager LaMoreaux then stated that the deadline for the Level Pay Plan survey referred to in the Water News has been extended to the end of March; that just under 400 surveys have been received; and that the majority of the surveys are in favor of the Level Pay Plan but responders do not want to pay for the Level Pay Plan followed by discussion of options for distributing the Level Pay Plan survey to customers.

4.3) Discussion of "Before the First Drop" Marketing Campaign. (Chair Dizmang)

Water Conservation Supervisor Beck stated that a survey to establish a baseline for customer knowledge of the District for the "Before the First Drop" marketing campaign was included in the most recent issue of Water News; that this survey will be repeated later this year after promotion of the campaign; and then reviewed in detail the promotion of the campaign for entry into ACWA's Best in Blue Achieving Communications Excellence Awards Program.

Information Technology Manager Stanton stated that regarding a social media marketing campaign, 25 usable children's t-shirts have been received; that Ventura Graphics has been nonresponsive on the adult t-shirts, and staff has requested a refund; and that staff recommends adult t-shirts be printed by Kosicks Keepsakes for the amount of $230.00 after which the Committee recommended the refund be received from Ventura Graphics and Kosicks Keepsakes print the adult t-shirts.

The deadline for returning the "Before the First Drop" surveys, methods for conveying the survey answers and the message of the campaign to the public and to schools, the content and timeframe for the follow-up survey, and giveaways to promote the campaign were then discussed.

4.4) Discussion and Possible Action on Social Media Marketing Campaign. (Information Technology Manager Stanton)

Information Technology Manager Stanton informed the Committee that the social medial marketing campaign can proceed once the adult t-shirts are received and that Administrative Assistant Henry is doing a wonderful job of updating Facebook and sending the e-Water News and e-workshop notifications.

4.5) Discussion of Aquadog Animation. (Information Technology Manager Stanton)

Information Technology Manager Stanton informed the Committee of several resources available for animating Aquadog including the District's Adobe programs, an inexpensive website called Animotion, District staff talent, and the District's website designer's skills and that these options can be further explored once the type of story to be animated is determined.

Animation story ideas, obtaining a price from a film company for animation, and water conservation stickers were then discussed.

4.6) Discussion of District "Blow-up-the-Box" Staff Committee. (Committee Member Alvarado)

Committee Member Alvarado requested the Blow-up-the-Box Committee be revived to help improve the customer service department after which General Manager LaMoreaux clarified that the intent of the Blow-up-the-Box Committee is to look at how the District does business and to look at ways for improvement; that the previous Blow-up-the-Box Committee was comprised of a representative from all departments; that staff is still implementing Blow-up-the-Box Committee recommendations including the website update and the water bill template and not sending late notices, which has led to increased lobby traffic; and that this Committee can meet again.

Revisions to the water bills were then discussed after which Committee Member Alvarado requested General Manager LaMoreaux provide a report at the next Outreach Committee meeting on how the Blow-up-the-Box Committee will be implemented and then commended staff on a good of job of communicating with the District's customers and for the promotion of the "Before the First Drop" marketing campaign.

5) Old Business.

5.1) Discussion of Amendment to the District's Rules and Regulations Regarding Community Presentations and Policy for Requesting District Speakers and Presentations. (General Manager LaMoreaux)

General Manager LaMoreaux distributed a draft Community Presentations Policy along with previous handouts regarding other agency's community presentation policies and stated that the draft policy was based on feedback topics from community groups; that it includes four simple guidelines; that pre-set topics and presentations can be

developed; and that the policy is intended to provide consistency in the information presented to the public.

After a brief discussion of the guidelines, the Committee concurred with the draft Community Presentations Policy and directed staff to develop a standardized form for requesting District speakers for review at the next Committee meeting.

5.2) Discussion and Possible Action on Video Media for Front Lobby and Development of a Progressive Outreach Video. (Committee Member Alvarado/Information Technology Manager Stanton)

Information Technology Manager Stanton informed the Committee that staff is working on a history video using current images and that this video can be presented to the Committee prior to posting in the lobby.

6) Information Items.

6.1) Update on Landscape Workshops. (Water Conservation Supervisor Beck)

There was no additional information to report on this item.

6.2) Update on 2012-2013 Water Awareness School Education Programs. (Water Conservation Supervisor Beck)

Water Conservation Supervisor Beck informed the Committee that contest entries have been received and posted in the Board room and that staff has requested the Directors judge the entries.

6.3) Update on Schedule for On-Air Discussions. (Water Conservation Supervisor Beck)

Water Conservation Supervisor Beck reviewed proposed topics for on-air discussions and stated that District staff is scheduled on High Desert Radio for one hour in April and that topics to be discussed in fifteen minute increments include the "Before the First Drop" campaign drawing, sources of water and the Bay Delta, tips for designing a water wise landscape from a landscape professional, and getting ready for spring.

Information Technology Manager Stanton then requested a recording of the interview for the website.

6.4) Other.

Water Conservation Supervisor Beck distributed the latest water conservation brochures followed by discussion of a "Before the First Drop" brochure.

There were no further information items.

6) Board Members' Requests for Future Agenda Items.

There were no further requests for future agenda items.

The next Outreach Committee meeting was then scheduled for April 8, 2013 at 3:00 p.m.

7) Adjournment.

There being no further business to come before the Outreach Committee, the meeting was adjourned.

Gloria A. Kazmang
Chair

MINUTES OF MEETING OF THE FINANCE COMMITTEE OF THE PALMDALE WATER DISTRICT, MARCH 13, 2013:

A meeting of the Finance Committee of the Palmdale Water District was held Wednesday, March 13, 2013, at 2029 East Avenue Q, Palmdale, California, in the Board Room of the District office. Chair Dizmang called the meeting to order.

1) **Roll Call.**

Attendance:	**Others Present:**
Finance Committee:	Dennis LaMoreaux, General Manager
Gloria Dizmang, Chair	Mike Williams, Finance Manager
Steve Cordova, Committee Member	Bob Egan, Financial Advisor
	Dennis Hoffmeyer, Senior Accountant
	Matt Knudson, Engineering Manager
	Dawn Deans, Executive Assistant
	3 members of the public

2) **Adoption of Agenda.**

It was moved by Committee Member Cordova, seconded by Chair Dizmang, and unanimously carried to adopt the agenda, as written.

3) **Public Comments.**

There were no public comments.

4) **Action Items:**

4.1) Consideration and Possible Action on Approval of Minutes of Meeting Held October 23, 2012.

After a brief discussion, it was moved by Committee Member Cordova, seconded by Chair Dizmang, and unanimously carried to approve the minutes of the meeting held October 23, 2012.

4.2) Discussion and Overview of Cash Flow Statement and Current Cash Balances as of January 31, 2013. (Financial Advisor Egan)

Financial Advisor Egan reviewed in detail the investment funds report and cash flow report as of January 31, 2013 and stated that assessments received through February

are higher than projected; that amounts going forward may also be higher than projected; that capital expenditures through the year are projected at nearly $800,000; that year-end cash at this time is anticipated at $9.391 million, which is higher than budgeted; that it is too early in the year to anticipate this higher amount will remain; but that all signs are positive.

4.3) Discussion and Overview of Financial Statements, Revenue and Expense and Departmental Budget Reports for January 31, 2013. (Finance Manager Williams)

Finance Manager Williams reviewed the balance sheet, profit and loss statement, year-to-year and month-to-month revenue and expense analysis, water consumption comparison, and individual departmental reports through January 31, 2013 along with the graphs for these reports and a graph comparing personnel costs to operational costs, and stated that there are no significant changes for the month of January; that the target expenditure percentage is 8.3%; that all departments are at or below this expenditure; and then clarified the comparisons on the profit and loss statement.

4.4) Discussion and Overview of Committed Contracts Issued. (Engineering Manager Knudson)

Engineering Manager Knudson informed the Committee that the updated Committed Contracts schedule indicates payments that have been approved for various committed contracts and then reviewed these payments.

4.5) Discussion and Overview on Project Financing Options. (Financial Consultant Egan/Finance Manager Williams)

Financial Consultant Egan introduced Mr. Mark Northcross, Mr. Russ Reyes, and Mr. Tony Repista, the District's bond team, and then stated that the bond team has discussed refinancing the District's 2004 bonds as well as obtaining additional funding for capital District projects in the amount of $8.5 million; that rates are favorable; and that a callable feature can be built into this debt after which the bond team reviewed the details of the proposed refinancing and new bond issue including the combined savings to the District, the process for increasing the District's credit rating in order to obtain a lower interest rate, the timeline for Board approval of the refinance and new bond issue, and a callable feature for potential early payoff.

Increasing the District's reserves, cash flow, repaying the general fund from capital improvement fees, other financing options versus a special call feature, the cost of the special feature, the ability to prepay bonds after ten years with no penalties, and the total cost of the new money were then discussed, and staff was directed to research the cost of a five year callable feature and to assist the bond team with the process of increasing the District's credit rating.

5) Information Items.

General Manager LaMoreaux informed the Committee that the audit has begun and that staff anticipates presentation of the final audit to the full Board for consideration in April.

There were no further information items.

6) Board Members' Requests for Future Agenda Items.

After a brief discussion, it was determined that an item be placed on the next agenda for "Discussion and possible action on establishing a CalPERS trust fund for OPEB costs."

The CalPERS side fund was then briefly discussed.

There were no further requests for future agenda items.

The next Finance Committee meeting was then scheduled for April 10, 2013 at 5:00 p.m.

7) Adjournment.

There being no further business to come before the Finance Committee, the meeting was adjourned.

Gloria A. DeMarco
Chair

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: April 18, 2013 **April 24, 2013**

TO: BOARD OF DIRECTORS **Board Meeting**

FROM: Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 8.2 – REPORT OF GENERAL MANAGER – DISTRICT VACANCIES***

All budgeted positions are currently filled with the following exceptions:

Position	**Department**	**Comment**
Human Resources Manager	Human Resources	Retired
Treatment Plant Supervisor	Operations	Executing hiring process approved 2/13/13
Senior Plant Maintenance Worker	Operations	Executing hiring process approved 11/14/12
Water Quality Supervisor	Operations	Executing hiring process approved 4/10/13