OPERATIONS & ADMINISTRATION COMMITTEE MEETING

MONTECITO WATER DISTRICT
583 SAN YSIDRO ROAD

Monday August 20, 2018
9:30 A.M.

AGENDA

1) CALL TO ORDER, DETERMINATION OF COMMITTEE QUORUM

2) PUBLIC FORUM

NOTE: This portion of the agenda may be utilized by any person to address the Operations & Administration Committee on any matter within the jurisdiction of the Committee. No consideration or discussion shall be undertaken by Committee members at this time on any item not appearing on this agenda except as permitted by the Ralph M. Brown Act. Discussion items receiving recommendations by the Committee, and/or items requiring action will be placed on the agenda of a future meeting of the Montecito Water District Board of Directors.

3) ITEMS FOR COMMITTEE CONSIDERATION

A. Romero Canyon Road Water Pressure

B. Sinaloa Lane Water Quality

C. Jameson Lake Aquatic Pesticide Application Plan

D. Amendment to Non-Potable Water Service Agreement for 501 Valley Club Road

E. Update on Advanced Metering Infrastructure (AMI)

F. Groundwater Banking in Semitropic Groundwater Storage District in 2018

4) ADJOURNMENT

Note: This agenda was posted at the Montecito Water District front counter and outside the front office at 9:30 a.m. on Friday, August 17, 2018. The Americans with Disabilities Act provides that no qualified individual with a disability shall be excluded from participation in, or denied the benefits of, the District's programs, services or activities because of any disability. If you need special assistance to participate in this meeting, please contact the District Office at 805/969-2271. Notification at least twenty-four (24) hours prior to the meeting will enable the District to make appropriate arrangements.

Materials related to an item on this agenda submitted to the Board's Operations and Administration Committee after distribution of the agenda packet are available for public inspection in the Montecito Water District offices located at 583 San Ysidro Road, Montecito, during normal business hours.

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-C

DATE: AUGUST 20, 2018

TO: OPERATIONS AND ADMINISTRATION COMMITTEE

FROM: ENGINEERING MANAGER

SUBJECT: JAMESON LAKE AQUATIC PESTICIDE APPLICATION PLAN

RECOMMENDATION:

Recommend the Board of Directors authorize Staff to enter into a contract with Water Quality & Treatment Solutions Inc. (WQTS) for the preparation of an Aquatic Pesticide Application Plan (APAP) as part of an application to the State Water Resources Control Board to apply aquatic algaecides and herbicides to Jameson Lake under NPDES Permit 2013-002-DWQ for a not to exceed amount of $29,460.

DISCUSSION:

Due to continued lower lake levels, higher ambient temperatures and more recently the Thomas Fire, Jameson Lake is increasingly vulnerable to algal blooms that cause taste and odor problems and can produce bacteria such as cyanotoxins that are known to be harmful to humans and animals. In an effort to control and/or prevent algae blooms and subsequent water quality issues, staff recommends the application of aquatic algaecides and herbicides to mitigate the growth of harmful algal blooms and weeds within Jameson Lake.

Before applying aquatic algaecides and herbicides to Jameson Lake, the District must obtain authorization from the State Water Resources Control Board (SWRCB) under the National Pollutant Discharge Elimination System (NPDES) Permit for *Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications*, Water Quality Order 2013-0002-DWQ . To obtain authorization, the District must submit a Notice of Intent (NOI) and an Aquatic Pesticides Application Plan (APAP) to the SWRCB for review and comment at least 90 days prior to the first algaecide and/or herbicide application. As part of the review process, the District's NOI and APAP will be posted on the SWRCB website for a 30-day period for public comment. The District will respond to all comments received from the public and will make any changes requested by SWRCB.

The APAP addresses the requirements presented in NPDES Permit 2013-0002-DWQ including descriptions of the proposed aquatic algaecides/herbicides and application method, best management practices such as spill prevention and applicator education, alternative methods for control, annual monitoring requirements, corrective actions, public notification requirements, reporting, and record keeping requirements.

The plan will consider the sensitive species known to exist in and around Jameson Lake including the Steelhead Trout, Arroyo Toad, Red Legged Frogs, Willow Flycatcher and Least Bell's Vireo. Jean Baldridge of ICF would be involved in the preparation of the APAP to ensure

the selected algaecides/herbicides and the application methods used do not harm these species, some of which are listed under the Endangered Species Act.

District Staff would complete all submittals to the SWRCB including the NOI but will require the assistance of a consultant with experience in aquatic algaecide and herbicide application in surface water bodies used for public drinking water supplies to complete the APAP. Staff has obtained a quote from Water Quality & Treatment Solutions Inc. to perform the work (Attachment 2). WQTS would prepare the APAP and assist the District in responding to public and SWRCB comments to the APAP. Upon approval from the SWRCB, staff would then execute the procedures outlined in the APAP on an as needed basis.

FISCAL IMPACT

WQTS proposes a not to exceed amount of $29,460 to prepare the APAP.

ATTACHMENTS:

1) NPDES Permit 2013-0002-DWQ Notice of Intent
2) WQTS Proposal

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item A. New Applicator B. Change of Information: WDID# _____ C. ☐ Change of ownership or responsibility: WDID# _____

II. DISCHARGER INFORMATION

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Contact Person	H. E-mail address	I. Title	J. Phone

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: _____
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name:_____
   Name of the conveyance system: _____
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: _____

B. Regional Water Quality Control Board(s) where treatment areas are located
(REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region _____
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

C. Period of Application: Start Date_____ End Date_____

D. Types of Adjuvants Used:

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☐ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☐ Yes ☐ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ YES ☐ NO ☐ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: _____

B. Signature: _____ **Date:** _____

C. Title: _____

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

WQTS
Water Quality & Treatment Solutions, Inc.
An environmental engineering and science consulting company

June 29, 2018

Mr. Nick Turner
General Manager
Montecito Water District
583 San Ysidro Road
Montecito, CA 93108

Subject: Proposal to Provide Technical Support Services in preparing an Aquatic Pesticide Application Plan (APAP)

Dear Mr. Turner:

On behalf of Water Quality & Treatment Solutions, Inc. (WQTS), I am pleased to submit to you this proposal to provide support services to the Montecito Water District (District) in obtaining authorization to apply aquatic algaecides to Jameson Lake under NPDES Permit 2013-0002-DWQ.

This proposal includes a brief description of our project understanding and the requested support services, as well as a description of the tasks to be conducted and proposed project cost.

PROJECT UNDERSTANDING

In March 2013, the State Water Resources Control Board (SWRCB) adopted Statewide General NPDES (National Pollutant Discharge Elimination System) Permit 2013-0002-DWQ for algae and weed control applications. Public water systems cannot use aquatic herbicides without first receiving authorization from the SWRCB. Currently there are 176 agencies in California that have authorization to use aquatic herbicides.

Due to the recent Thomas fire, Jameson Lake may be vulnerable to algal blooms that can cause taste and odor events as well as producing cyanotoxins that can cause public health issues. The District wishes to obtain authorization to apply aquatic algaecides and herbicides to Jameson Lake, in case they are needed, and has requested WQTS support for that effort.

Dr. Dan Askenaizer will be our project lead and will be assisted by Dr. Ofelia Romero in collecting and analyzing data as needed. I will provide overall technical review of the work products.

SCOPE OF WORK

To obtain authorization to use aquatic herbicides the District will need to submit a Notice of Intent (NOI) and an Aquatic Pesticides Application Plan (APAP) to the SWRCB for review and comment. As part of the review process the District's NOI and APAP will be posted on the SWRCB website for a 30-day period for public comment. The District will need respond if there are any public comments and/or changes requested by SWRCB staff.

The following presents our proposed scope-of-work to assist the District with obtaining coverage under NPDES Permit 2013-0002-DWQ.

Task 1 – Data Collection

Within one week of a Notice to Proceed, WQTS will prepare and submit to the District a written request for information needed for preparation of the APAP. The requested data will be used to prepare sections of the APAP that address the following: areas of Jameson Lake to be treated, potential algae and weeds of concern, monitoring procedures, standard operating procedures, and best management practices. As part of data collection, WQTS will schedule a site visit to meet with District staff and tour Jameson Lake.

Task 2 – Recommendations for Algaecide and Herbicide Products

The Statewide General Permit lists "active ingredients" that can be applied for algae and weed control. WQTS will review and evaluate products with the approved "active ingredients" that are registered for use in California. WQTS will review information on the Department of Pesticide Regulation website and will contact other public water systems to obtain their experience using specific products.

Jameson Lake is the habitat for an important population of steelhead trout. In addition, the vicinity of Jameson Lake is habitat for listed species under the Endangered Species Act (ESA): the arroyo toad, red legged frogs and two bird species (the Willow Flycatcher and Least Bell's vireo). WQTS will work with Jean Baldridge of ICF to obtain her written review and evaluation of candidate products with a goal of identifying products that will minimize potential harm to the steelhead trout and species listed under the ESA. WQTS understands that ICF will contact and coordinate review with Fish and Game staff, and other agencies, as appropriate.

Task 3 – Prepare Draft and Final APAP

With the information collected in Tasks 1 and 2, WQTS will prepare a draft APAP that addresses the requirements presented in NPDES Permit 2013-0002-DWQ. WQTS will submit the draft APAP to the District and we will schedule a meeting with District staff to present the draft APAP. After District staff complete their review and comment of the draft APAP, WQTS will incorporate the District's comments and prepare a final APAP. The District will prepare the NOI and transmit the NOI and APAP to the SWRCB.

Task 4 – Respond to Public Comments

Once the NOI and APAP are submitted to the SWRCB, they will be posted for a 30-day public comment period. SWRCB and Central Coast Regional Water Quality Control Board staff will review the application package for completeness and applicability to the General Permit requirements. The SWRCB and Regional Water Quality Control Board staff will work with the District to respond to the agency's comments and any public comments. As requested by the District, WQTS will assist with responding to SWRCB/Regional Board and public comments and prepare a revised APAP as needed.

PROJECT COST

All WQTS' services will be billed on a time-and-material (T&M) basis. The total cost to complete the above tasks is projected at $29,460. The table below presents a breakdown of costs for each task.

Task	Labor Cost
Task 1 – Data Request & Site Visit	$2,880
Task 2 – Recommended Algaecides & Herbicides	$4,950
Task 3 – Prepare Draft and Final APAP	$17,460
Task 4 – Respond to Public Comments	$4,170
Total	**$29,460**

We hope this proposal is acceptable to you, and we look forward to working with your staff on this effort. In the meantime, if you have any questions or need additional information, please do not hesitate to contact me.

Respectfully Yours,
Water Quality & Treatment Solutions, Inc.

Issam Najm, Ph.D., P.E.
President

WQTS
Water Quality & Treatment Solutions, Inc.
An Environmental Engineering & Science Consulting Company

Dan Askenaizer, D.Env.

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URL: http://www.WQTS.com

EDUCATION

D. Env., University of California, Los Angeles	1988
M.P.H., University of California, Los Angeles	1982
B.A., Biology, University of California, San Diego	1979

EMPLOYMENT

WQTS, Inc.	Sept 2012-present
Glendale Water and Power	2006 –2012
McGuire Environmental Consultants/Malcolm Pirnie	2005-2006
MWH (Montgomery Watson Harza)	1991-2005
Metropolitan Water District of Southern California	1985-1990

SUMMARY

Dr. Askenaizer is a Principal Scientist with WQTS. He leads WQTS' work on regulatory compliance support for many of our water agencies clients. Dr. Askenaizer tracks water quality and treatment regulations at the Federal and State levels and provides regulatory updates to our clients. Dr. Askenaizer has strong expertise in the development of Regulatory Monitoring and Compliance Plans (RMCPs), which he has completed for a number of water agencies. He has also been working on a number of projects dealing with the development of distribution system monitoring plans and review of nitrification control strategies. Prior to joining WQTS, Dr. Askenaizer was the Water Quality Manager for the Glendale Water and Power. Under his leadership, the Water Quality Group conducted a demonstration-scale study of chlorite for nitrification control and a pilot-scale study of biological treatment for removal of nitrate. Dan has 25 years of experience working on projects dealing with regulatory, water quality and public health issues. Dan has given numerous presentations at workshops and roundtables across the country for water utilities. Dan was instrumental in developing and implementing a Mentoring Program for water staff and was involved in a Sustainable Development team.

EXPERIENCE:

On-Call Regulatory Support
City of Sacramento, Sacramento, California

The City operates two large surface water treatment plants and 33 wells. Dan prepares an annual updated Regulatory Monitoring and Compliance Plan. The RMCP presents a review of all Title 22 Drinking Water Regulations and includes calendars that present monthly monitoring requirements for all of the City's sources and the distribution system. Dan works with City staff for the preparation of the annual Consumer Confidence Report, reviewed and evaluated grey water treatment system for the City, provides as needed review and evaluation of source and treated water quality data, and helps develop responses to DDW requests.

Watershed Sanitary Surveys
Various Agencies, California

WQTS has been involved in preparing five year watershed sanitary survey updates for large and small water systems throughout California. These agencies include the Irvine Ranch Water District, Contra

Costa Water District, City of Fresno, South San Joaquin Irrigation District, Calaveras County Water District, Stockton East Water District, and the Santa Clara Valley Water District. Site visits to sources and treatment plants are conducted, five years of water quality data is compiled and reviewed to identify any changes over time and location, identify potential sources of contamination, the final Reports include recommendations for improving water quality over the next five year period.

Implementation of Ozone and Conversion of Distribution System to Chloramine
Serrano Water District, Villa Park, California

The Serrano Water District owns and operates a 4 MGD surface water treatment plant. To comply with the Stage 2 DBP Rule, the District converted the primary disinfectant from free chlorine to ozone and the distribution system residual disinfectant was converted to chloramine with ammonia addition. WQTS provided services throughout the project including pilot studies, design review, assisted with construction oversight, conducted a tracer study of the new ozone contactor, prepared a Nitrification Monitoring and Control Plan and trained staff on implementing the Plan. Throughout the project WQTS worked regularly with the Santa Ana office of the Division of Drinking Water to provide project updates, and the development updated monitoring plans. WQTS managed the process to obtain an amended operating permit from DDW.

Evaluation of Distribution System Water Quality & Operation
Mid-Peninsula Water District, Belmont, California

MPWD is a retail customer of the San Francisco Public Utilities Commission. WQTS was hired to conduct an assessment of the water quality program. Dan collected and reviewed years of water quality data, reviewed written procedures, spent time with field staff as they conducted their routes. Dan prepared a written assessment, updated SOPs for District staff and provided recommendations for improving the water quality compliance program. WQTS assisted the District with responding to nitrification in several of their storage tanks, developed a chlorine calculator to assist staff when calculating chlorine needed to boost chlorine residual in targeted storage tanks, prepared an updated Nitrification Monitoring and Control Plan and provided training to staff. After working with MPWD on nitrification issues, WQTS was retained by two other SFPUC customers; Purissima Hills Water District and the Westborough Water District, to provide support in dealing with nitrification in their storage tanks.

Corrosion Control Studies
Various Agencies, California

WQTS prepared corrosion control desktop studies for various agencies. These agencies include Las Virgenes Municipal Water District, City of Santa Barbara, Zone 7 Water Agency and the Cedar Glen CSA. To prepare these assessments water quality data and lead and copper tap results were collected, data was organized and reviewed with the data presented in tables and plots; corrosion indices were calculated using a USGS computer program, corrosion control treatment alternatives were evaluated and a final report was prepared with conclusions and recommendations.

Water Quality Manager
Glendale Water and Power, Glendale, California

Dan served as the Water Quality Manager for the utility. The group was responsible for meeting all Title 22 monitoring and reporting requirements, implementing a nitrification monitoring and control program, managing the water Department's NPDES permits and administering the City's cross connection control program. While at GWP, under Dan's leadership the utility conducted a demonstration-scale study on the use of chlorite for nitrification control and conducted a pilot-scale study of biological treatment for the removal of nitrate. Dan managed the effort to obtain two amended operating permits from DDW. One amended operating permit was for a new well and one was for modifications to an existing disinfection process.

WQTS
Water Quality & Treatment Solutions, Inc.
An Environmental Engineering & Science Consulting Company

Ofelia Romero, Ph.D.

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EDUCATION:

Ph.D., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 2014
M.S., Environmental Engineering, Univ. of Illinois at Urbana-Champaign 2009
B.S., Civil & Environmental Engineering, University of California Berkeley 2007

REGISTRATION:

California Engineer-in-Training. Registration Number 128942; July 2007

PROFESSIONAL EXPERIENCE:

Water Quality & Treatment Solutions, Inc.	2015 – present
Alameda County Water District	Feb – Jul 2015
Stanford University, Center for Ocean Solutions	2014 – 2015
University of Illinois at Urbana-Champaign	2008 – 2014
California Department of Public Health	Jan – May 2008

SUMMARY:

Dr. Ofelia Romero is an Engineer with WQTS. She is a graduate of the University of California Berkley with a Bachelor of Science degree in Civil and Environmental Engineering, and a graduate of the University of Illinois at Urbana-Champaign with an MS and PhD degrees in Environmental Engineering. Her PhD dissertation research focused on the disinfection kinetics and mechanisms of viruses in water irradiated with sunlight, with emphasis on the photochemical and microbiological processes leading to disinfection. She brings to WQTS strong expertise in laboratory experimental work, and strong technical knowledge of disinfection kinetics. Since her time with WQTS, Ofelia has been the project engineer for a number of bench and pilot-scale projects including a pilot-scale chlorite study and bench-scale studies for chromium removal through SBA resin columns, TOC removal with activated carbons and/or coagulants, and metals removal with various adsorbents. Ofelia has built Excel-based models for data evalution and analysis of various scenarios. In addition, she has used ESRI's ArcGIS Desktop to modify/generate watershed and distribution system maps.

EXPERIENCE:

Evaluation of Chlorite Addition for Nitrification Prevention & Control **2015 – 2017**
Los Angeles Department of Water and Power, Los Angeles, California

WQTS carried out a pilot-study investigating the applicability and efficiency of chlorite addition as a supplemental tool for nitrification control and prevention in the Los Angeles Department of Water & Power (LADWP) distribution system. Dr. Romero served as the project engineer and performed data collection and analysis, prepared reports and presentations for quarterly meetings, and was one of lead writers of the final report.

Public Health Assessment **2016 – 2017**
Los Angeles Department of Water and Power, Los Angeles, California

The Los Angeles Department of Water & Power (LADWP) retained the services of WQTS to conduct a public health assessment of their finished drinking water. In the early 2000s, LADWP staff began a

more comprehensive and integrated review of the health risks presented by contaminants detected in their drinking water. This approach relies on the available health effects information (PHGs, MCLGs or more recent toxicological data) to evaluate the potential carcinogenic and non-carcinogenic risk posed by each detected constituent. The review considers the cost estimates for various treatment technologies and their corresponding potential risk reduction. An Excel-based model was upgraded to include 10-years of water quality data that allowed the user to assess the health risks over time for each drinking water source. The model included interactive tools that allow for the assessment of the effect of treatment(s) on the overall risk and corresponding cost estimates. Dr. Romero was responsible for upgrading the model, creating interactive tools, and providing updated treatment cost estimates.

Corrosion Control Desktop Studies **2015 – Present**

Various Agencies, California

Las Virgenes Municipal Water District, City of Santa Barbara, Zone 7 Water Agency, and Cedar Glen CSA retained the services of WQTS to prepare corrosion control desktop studies. To prepare these assessments, water quality data and lead and copper tap results were collected, data were organized, corrosion indices were calculated using either PHREEQC (a USGS computer program) or an Excel-based model developed by WQTS, and results were presented in tables and plots; corrosion control treatment alternatives were evaluated and a final report was prepared with conclusions and recommendations. Dr. Romero was primarily responsible data organization and analysis, calculation of corrosion indices, and generation of GIS maps that showed the geographical distribution of the lead and copper results in relation to the water sources.

Evaluation of DBP Reduction Strategies **2016**

Elsinore Valley Municipal Water District, Lake Elsinore, California

WQTS was retained to provide an evaluation of various DBP reduction strategies, including (1) reducing TOC, the precursor material of DBPs, and (2) evaluating different pre-oxidants other than free chlorine. The overall evaluation included extensive bench-scale jar testing where various water quality conditions, pre-oxidants, coagulants and coagulant doses were evaluated. The results of the testing and recommendations were presented in a Technical Report. Dr. Romero helped perform all testing, conducted data analysis and presented the results in tables and/or plots, prepared project updates, and assisted in the writing of the final report.

Evaluation of Treatment Technologies for Mining-Influenced Water **2015 – 2016**

Park City Municipal Corporation, Park City, Utah

Park City draws a portion of their drinking water from flows out of the portals for two closed mines, which contain elevated levels of multiple metals. As the City works on a long-term program to build and operate treatment facilities for this mining-influenced water, the City retained the services of WQTS to provide technical support in the evaluation of treatment alternatives and the bench-scale and pilot-scale testing of potential treatment technologies. Dr. Romero has performed bench-scale jar testing to evaluate various water quality conditions and coagulants and equilibrium isotherm testing to evaluate various adsorbents. Dr. Romero analyzed the results, prepared tables and plots of the results, and helped prepare the Final Report.

Evaluation of Waste Minimization Alternatives for Cr(VI) Treatment Systems **2015 – 2016**

Water Research Foundation, Denver, Colorado

WQTS completed a research project that evaluated alternatives to reduce waste production from three treatment technologies commonly used for the removal of hexavalent chromium, Cr(VI), in water. The study included bench-scale testing to evaluate reuse and recovery of the brine solution used for the strong base anion resin technology, evaluation of the beneficial uses for spent weak base anion resin and cost comparisons of backwash treatment and disposal alternatives for reduction, coagulation, and filtration treatment. Dr. Romero served as the project engineer and conducted the bench-scale testing, data analysis, and was one of the lead writers of the final report.

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-D

DATE: AUGUST 20, 2018

TO: OPERATIONS AND ADMINISTRATION COMMITTEE

FROM: GENERAL MANAGER

SUBJECT: AMENDED NON-POTABLE WATER SERVICE AGREEMENT BETWEEN MONTECITO WATER DISTRICT AND 501 VALLEY CLUB ROAD

RECOMMENDATION:

Recommend the Board of Directors aprove the proposed *Amended Non-Potable Water Service Agreement,* replacing the agreement dated October 24, 2017, between the Montecito Water District and the property owners of 501 Valley Club Road (APN 007-510-001).

DISCUSSION:

The District owns and operates a non-potable groundwater well (Valley Club 2 well) located at 501 Valley Club Road. This District well has historically supplied non-potable water to the Birnam Wood Golf Course, an adjacent property, to be used exclusively for outdoor irrigation to offset potable water use. On October 24, 2017, at the request of the owner of 501 Valley Club Road (property), the Board of Directors approved a *Non-Potable Water Service Agreement* to supply non-potable water to the property to be used exclusively for irrigation and swimming pool auto-refill purposes.

The existing property owners have requested amendments to the non-potable water service agreement dated October 2017. The substantive changes are summarized below.

- The existing agreement limits non-potable water use on the property for the stated purpose to 1.2 acre-feet per year, an amount calculated in accordance with the State of California Title 23, Division 2, Chapter 2.7 Model Water Efficient Landscape Ordinance which considers the irrigated acreage, type of landscaping, evapotranspiration rates, plant water use factors, and irrigation efficiencies. The existing agreement also requires that the property owner make a good faith effort not to exceed this allotted amount of water, and provides for reduction and/or termination of deliveries of non-potable water, at the discretion of the District.

  The proposed amendment: replaces the specific 1.2 acre-feet annual limitation with a general “reasonable” use limitation; establishes a meet and confer requirement to agree upon a specific allocation in the event of unreasonable use;

and authorizes the District to establish a specific allocation if the parties are unable to come to an agreement on a specific allocation in the event of unreasonable use. The Agreement also retains the District's ability to discontinue and/or interrupt supply at the discretion of the District.

- A 1986 agreement between the East Valley Ranch and the District, referred to as the Valley Club Well Agreement, transferred the property owner's right to extract groundwater on the property to the District in exchange for a potable water service including the Valley Club 2 Well facilities. The proposed amendment rescinds the property owner's restriction to extract groundwater from the property but prohibits the ability to exercise that right unless the District abandons its rights under the Valley Club Well Agreement, thereby permanently ceasing to deliver non-potable water to the property.

The proposed amendments have been reviewed by District Legal counsel.

FISCAL IMPACT:

The proposed amendment to the *Non-Potable Water Service Agreement* between the Montecito Water District and the property owners of 501 Valley Club Road will have no fiscal impact on the District.

ATTACHMENTS:

1. Proposed Amended Non-Potable Water Supply Agreement

Recording Requested By
and When Recorded Mail To:

Montecito Water District
583 San Ysidro Road
Montecito, CA 93108
Telephone: (805) 969-2271

No fee per GOVT CODE 6103

APN [007-510-001]

AMENDED NON-POTABLE WATER SERVICE AGREEMENT

WHEREAS Montecito Water District ("District") is a County Water District organized and existing under Water Code §§30000 – 33901.

WHEREAS the District may do any act necessary to furnish sufficient water in the District for any present or future beneficial use [Water Code §31020]; may operate water rights, works, and property useful or necessary to convey, supply store or make use of water for any purpose [Water Code §31022]; may sell water or the use thereof for any useful purpose [Water Code §31023]; and may make contracts to carry out the purposes of the District [Water Code §31004].

WHEREAS the District entered into an agreement with East Valley Ranch Company dated July 23, 1986 wherein the District acquired well facilities and rights to extract water, which agreement is attached to this agreement as **Exhibit "A"** (the "Valley Club Well Agreement").

WHEREAS in accordance with the Valley Club Well Agreement, the District has operated, and continues to operate, a well designated as the Valley Club 2 Well, the location of which is more specifically depicted on **Exhibit "B"**.

WHEREAS the Valley Club 2 Well produces non-potable water.

WHEREAS Sam Leno and Pamela Leno ("Owner") are the owners of real property designated as Lot 1 on Tract No 13,478 in the County of Santa Barbara, State of California, as per map recorded in book 150, pages 38 and 39 of maps in the Office of the County Recorder in said County and more commonly described as 501 Valley Club Road (the "Subject Property"). The District owned Valley Club 2 wellhead is located on the Subject Property within the District's easement depicted on **Exhibit "B"**.

WHEREAS, on October 26, 2017 District and Owner entered into a "Non-Potable Water Service Agreement" and District and Owner wish to replace that agreement with the current "Amended Non-Potable Water Service Agreement.

WHEREAS the Owner has previously requested to the District to connect to, and receive, non-potable water from the Valley Club 2 Well for irrigation and swimming pool auto-refill purposes ("Purpose") at the Subject Property, and the District has previously determined to grant Owner's request to provide non-potable water to the Owner only for the stated Purpose at the Subject Property. District makes no representations as to the quality and/or suitability of the non-potable water provided under this Agreement for the stated Purpose. All risk of such use is the responsibility of the Owner and by entering into this Agreement Owner acknowledges and agrees to the assumption of such risk.

WHEREAS the District will only authorize the Owner to connect to, and receive, non-potable water from the Valley Club 2 Well for the stated Purpose at the Subject Property under certain terms and conditions.

WHEREAS the Owner and the District now wish to amend and memorialize their mutual understandings and their rights and obligations in this agreement ("Agreement") concerning connection to, and receipt of, non-potable water from the Valley Club 2 Well for the stated Purpose at the Subject Property.

NOW, THEREFORE, in consideration of these recitals and the mutual covenants, terms and conditions stated herein, the parties agree as follows:

1. All infrastructure necessary to connect to, and receive non-potable water from the Valley Club 2 Well located on the Property Owner's side of the water meter ("Owner's Infrastructure") shall be designed, operated, maintained, repaired and/or replaced as needed by the Property Owner. All costs and expenses associated with designing, operating, maintaining, repairing and/or replacing such infrastructure shall be the responsibility of the Property Owner.

2. Owner shall be required to, and/or has previously, enrolled the existing domestic water supply backflow device in the District's Cross Connection Prevention Program, which requires, among other things, annual testing of the assembly by a certified tester at Owner's expense.

3. Prior to construction of infrastructure on the District owned side of the water meter between the well discharge line "tee" and the Owner's meter ("District's Infrastructure"), the Owner shall be required to, and/or has previously, provided the District with a cash deposit in the amount of $3,000.00 as the estimated cost of all work on the District Infrastructure necessary to facilitate non-potable water deliveries to the Subject Property, including: civil and electrical engineering design, materials and equipment, project installation, and legal fees. If the actual District Infrastructure cost is less than the deposit, the portion remaining shall be refunded to Owner upon completion of construction of the District's Infrastructure. If the cost of is greater than the amount of the deposit, the applicant agrees to pay the additional amounts due upon completion of the work.

4. The District shall be required to, and/or has previously installed a 1-inch water meter for recording instantaneous water usage. Owner authorizes the District to inspect Owner's Infrastructure and install such devices as may be necessary to measure Owner's water usage and to monitor Owner's Infrastructure or leaks or unauthorized water usage. In the event that the District detects leaks or unauthorized usage for which the District is not being compensated

through its metering service, Owner agrees that the District, in its sole discretion, may take such steps as the District deems necessary to prevent additional leaks or unauthorized usage, including but not limited to shutting off non-potable water, until such time as District is satisfied that Owner has completed necessary repairs or has taken appropriate steps to prevent additional unauthorized water usage. District shall have the right to bill Owner for water lost through leaks or unauthorized usage on the Owner's side of the new non-potable meter, based on District's meter readings. Owner shall compensate District immediately upon receipt of District's invoice for water lost to such leaks or unauthorized usage.

5. Water provided pursuant to this Agreement from the Valley Club 2 well is non-potable and shall only be used for the stated Purpose at the Subject Property. Owner shall not authorize or permit any additional connections or modifications to the District's Infrastructure or the Owner's Infrastructure for any purpose other than the stated Purpose at the Subject Property. Owner shall not authorize or permit any additional use of water delivered from the Valley Club 2 Well other than for the stated Purpose at the Subject Property, only.

6. . Owner shall make a good faith effort to only use a reasonable amount of non-potable water for the stated Purpose. If Owner's use, as assessed by District, exceeds a reasonable amount, or Valley Club 2 well production is materially reduced, the District and Owner agree to meet and confer in good faith to establish a specific allocation of non-potable water to be used for the stated Purpose. If Owner fails to meet and confer in good faith, or the parties are unable to come agree upon a specific allocation of non-potable water to be used for the stated Purpose, District will establish a specific allocation which, in its discretion, is appropriate and necessary for the stated Purpose.

7. The current charge for water under this Agreement will be the non-potable rate of $1.40/HCF. This amount may be changed and/or revised from time to time in the District's sole discretion, including but not limited to changes and/or revisions due to changes in the non-potable rate instituted due to changes and/or revisions to the District's rate structure. District will notify Owner in writing, prior to any change in the charge set forth in this paragraph.

8. District will operate and maintain the Valley Club 2 Well as deemed appropriate and necessary by the District in its discretion. The flowrate and pressure of non-potable water delivered from the Valley Club 2 Well may vary. District does not guarantee its ability to provide non-potable water service to the Owner at any given flowrate or pressure.

9. Non-potable supply from the Valley Club 2 Well under this Agreement can be discontinued and/or is interruptible at the discretion of the District. In the exercise of such discretion the District will use its best efforts to make any discontinuance or reduction of non-potable supply provided under this Agreement to be proportionate to any discontinuance or reduction of non-potable supply to other properties receiving Valley Club 2 Well non-potable supply. In the event Valley Club 2 well is decommissioned and/or abandoned, the District is not required to provide non-potable water to the Subject Property. If the Valley Club 2 well is permanently decommissioned and a new non-potable District Well is installed on the Subject Property within the District's easement area, the supply of non-potable water to the Subject Property by District will continue as delineated in this Agreement.

10. The restriction placed on Owner under the Valley Club Well Agreement against exercising the right to extract groundwater from the Subject Property is rescinded by this Agreement. The specific and aforementioned right ("Extraction Right") is restored by this Agreement to Owner and the successors and assigns of the Owner of the Subject Property. However, Owner and the successors and assigns of Owner, cannot exercise such Extraction Right while receiving non-potable water from the Valley Club 2 Well, or any other non-potable well commissioned by the District pursuant to the Valley Club Well Agreement. The District's written abandonment of its rights under the Valley Club Well Agreement, and/or decommissioning of all District wells operated under the Valley Club Well Agreement, thereby permanently ceasing to deliver non-potable water is a condition precedent to the exercise of any Extraction Right by Owner, and the successors and assigns of Owner.

11. The terms of this Agreement, and any future Extraction Right exercised by Owner and the successors and assigns of Owners, are subject to the following: District ordinances, resolutions, motions, restrictions and requirements currently effected and/or effected in the future under the Sustainable Groundwater Management Act through the creation of a Groundwater Sustainability Agency and any Groundwater Sustainability Plan adopted thereby.

12. All activities arising out of or relating to the use of non-potable water for the stated Purpose pursuant to der this Agreement, shall be at the risk of Owner. To the fullest extent permitted by law, Owner shall defend (with counsel chosen by the District), indemnify and hold harmless the District against any and all claims, suits, actions, legal or administrative proceedings, judgments, debts, demands, damages, including injury or death to any person or persons and damage to any property including loss of use resulting therefrom, incidental and consequential damages, liabilities, interest, costs, attorneys' fees and expenses of whatsoever kind or nature, which are in any manner directly, indirectly, in whole or in part arising out of the use of non-potable water for the stated Purpose pursuant to this Agreement or from any act, omission, fault or negligence, whether active or passive, of Owner, Owner's contractors, subcontractors, agents, or anyone directly or indirectly employed by them, , even though the same may have resulted from the joint, concurring, or contributory negligence, whether active or passive, of the District, unless the same be adjudicated to be caused by the sole negligence or willful misconduct of the District. This includes, but is not limited to, any liability arising from failure of Owner's Infrastructure to perform adequately or to meet applicable health and safety standards.

13. The provisions of this Agreement, and all terms, covenants, and conditions herein, affect the Subject Property identified herein, and shall run with the land constituting the Property. All terms, covenants, and conditions herein shall be binding upon, and inure to the benefit of, successors in interest and assigns of Owner. This Agreement shall be recorded in the Official Records of the Office of the County Recorder, County of Santa Barbara, State of California, and shall give constructive notice of the obligations running with the Property and/or any portion thereof. If the Property includes multiple parcels, or if the Property is later subdivided, the provisions of this Agreement shall run with each and every portion thereof.

14. This Agreement shall be enforced under, and construed in accordance with, the laws of the State of California without regard to its conflicts of laws, provisions, and exclusive venue for any action involving this Agreement will be in Santa Barbara County.

15. This Agreement sets forth the entire understanding of the parties. There are no other understandings, terms or other Agreements expressed or implied, oral or written. Any previous oral or written understandings are superseded by this Agreement and have no force or effect.

16. Each party has had the opportunity to independently review this Agreement with legal counsel. Accordingly, this Agreement will be construed simply, as a whole, and in accordance with its fair meaning; it will not be interpreted strictly for or against either party.

17. If any portion of this Agreement is declared by a court of competent jurisdiction to be invalid or unenforceable, then such portion will be modified with agreement from all parties, to the extent necessary in the opinion of the court to render such portion enforceable and, as so modified, such portion and the balance of this Agreement will continue in full force and effect.

18. The parties represent and warrant that all necessary action has been taken by the parties to authorize the undersigned to execute this Agreement and to engage in the actions described herein. This Agreement may be modified only by written amendment signed by a duly authorized representative of each party.

19. If any legal action is brought to enforce or interpret the provisions of this Agreement, the prevailing party shall be entitled to actual attorney's fees, paralegal fees, and costs in addition to any other legal and/or equitable relief to which that party may be entitled

20. This Agreement may be executed in any number of counterparts. Any such counterpart, when executed, shall constitute an original of this Agreement, and all such counterparts together shall constitute one and the same Agreement.

21. This Agreement is effective as of the date when the last signatory executes this Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the dates indicated.

MONTECITO WATER DISTRICT

By

_____

Nicholas Turner, General Manager

Dated: _____

APN 007-510-001 / 501 Valley Club Road
Sam Leno and Pamela Leno

By

_____

Name: _____
Title: _____

Dated: _____

ACKNOWLEDGEMENT

State of California)
)
County of _____)

On _____, 2018, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
Signature of Notary Public

(Seal)

ACKNOWLEDGEMENT

State of California)
)
County of _____)

On _____, 2018, before me, _____, Notary Public, personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_____
Signature of Notary Public

(Seal)

EXHIBIT A

ECITO WATER DISTRICT
Recorded, Return to:
ecito Water District
PRICE, POSTEL & PARMA
E. Carrillo St.
Barbara, CA 93101 20
Robert M. Jones, Esq.

1986-0624[illegible]7

1986 SEP 29 PM 3:45

9/29/86 .OUNSI

FEE FOR RECORDING
(Government Code
ections 6103 and 27383)

AGREEMENT

THIS AGREEMENT, made and entered into this 23rd day of July, 1986.

By and between

MONTECITO WATER DISTRICT, a County Water District, hereinafter referred to as "District,"

EAST VALLEY RANCH COMPANY, a California Corporation hereinafter referred to as "EVR."

WITNESSETH:

THAT WHEREAS, EVR is the owner of certain real property described in Exhibit "A" attached hereto, and,

WHEREAS, District supplies water to certain real property within its boundaries; and,

WHEREAS, pursuant to law, District declared a water shortage emergency within its boundaries, a moratorium on new water service connections and rations water to its customers; and,

WHEREAS, due to the water shortage, District needs additional supplies of water, which additional supplies District studies have shown to be available from the underground and which supplies can be acquired by the District in the exercise of its power of condemnation; and,

AUG 11 1988

WHEREAS, EVR, as an overlying owner, has installed a water well by which it intends to serve five (5) lots of a six-lot subdivision on its property during the present water shortage; and,

WHEREAS, said well will produce water in a quantity which is suitable for a District's supplemental supply; and,

WHEREAS, in lieu of condemning said well and water rights, it is in the best interest of both parties that an Exchange Agreement be entered into whereby District will acquire EVR's well and certain rights to extract water, together with other facilities, in exchange for service to said parcels from District's general supplies through District meters; and,

WHEREAS, EVR has installed a certain observation water well in the immediate vicinity of the above-described water well.

NOW, THEREFORE, it is hereby mutually agreed that:

I. OBLIGATIONS OF EVR.

A. EVR will transfer to District the well site described in Exhibit "B" together with the two water wells located thereon, commonly known and referred to as the East and West Wells, the East Well being a production well and the West Well an observation well. Said transfer shall be in the form of an easement in the form attached hereto as Exhibit "C".

B. EVR will grant to District all of the easements and rights of way necessary for the District to operate and maintain the two water wells, together with easements for the equipment and facilities which EVR is required to construct as set forth below. The location of the easements will be as shown on Exhibit "B" and the form of easements shall be as shown on Exhibit "C."

C. EVR will grant to Southern California Edison Company and General Telephone Company easements, satisfactory to those companies and the District, for the purpose of providing electric and telephone service to the well site and to the wells and facilities located thereon.

D. EVR will transfer to the District EVR's right to extract water from the underground by virtue of EVR's ownership of the property described in Exhibit "A." The form of transfer document shall be substantially as shown on Exhibit "D."

E. EVR will at its sole cost install on the East Well the following equipment and facilities and do the following work:

(1) The pump, controls (mechanical and electrical), pipelines, chlorination facilities, and other appurtenances described in Exhibit "E" hereto.

(2) A four-inch (4") ductile iron pipeline and appurtenances from the East Well to the ten-inch (10") District pipeline in Valley Club Road to be connected to

said pipeline by EVR at a point designated by District.

(3) Regrade around both the East and West Wells in order to prevent ponding of water around said wells.

F. If, after District has test pumped the East Well at District's expense for a period of three (3) weeks, the manganese level in the water from said well fails to meet the standards set by the State Department of Public Health, EVR shall install treatment facilities for manganese.

G. All of the equipment and facilities installed by EVR shall be pursuant to District's standards and specifications, shall be designed by a registered engineer and installed by a licensed contractor to the satisfaction of the District.

On completion of the installation of the equipment and facilities, District shall test said facilities pursuant to District's standards. Once District has accepted same, EVR shall transfer all of said equipment and facilities to the District and the same shall become a part of the District's water system.

/ / /

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/ / /

II. OBLIGATIONS OF DISTRICT.

A. Upon completion of EVR's obligations as set forth above, District will accept an application from EVR, pursuant to District's rules and regulations, for water service to said five (5) parcels. Upon acceptance of the application, District will provide water through five (5) District meters, one to each of the five (5) parcels described in Exhibit "A." The allocation of water to each of said five (5) parcels shall be 1.6 acre feet for each water year. The use of said water on said five (5) parcels shall be for the usual residential and domestic purposes. Service to said five (5) parcels shall be in accordance with all of District's rules and regulations, including but not limited to, the District's allocation (rationing) ordinance. It is understood that the 1.6 acre-feet allocation per water year may only be reduced in an amount as other similar properties throughout the District may be reduced as a result of any further water shortage. Delivery of water shall be pursuant to a monthly schedule in accordance with District's rules.

As between EVR and the District, all water which the District is able to produce from the well site may be used by the District for service to its other customers.

B. After the facilities required herein to be constructed by EVR have been completed and transferred to the District, the District shall thereafter bear all costs of the operation, maintenance and replacement of said facilities.

C. District will operate the production well according to the best acceptable practices for the extraction of water. In the event of the failure of the East Well, either completely or partially, the District may at its option elect to drill a new well within the easement described in Exhibit "B" at the District's sole cost and expense.

D. EVR may construct an enclosure around the well and treatment facilities at EVR's cost, provided however, that the design of the enclosure shall be such as will allow District reasonable access to all of the facilities and the design must be submitted to the District for approval prior to construction, which approval shall not be withheld unreasonably. District shall install no such enclosure without the consent of EVR or its successor-in-interest, which consent shall not be withheld unreasonably.

III. TERMINATION.

In the event the District permanently abandons any of the easements or facilities or rights transferred to it pursuant to this Agreement, the District shall, on request, quitclaim said unused easements, facilities or rights to EVR.

IV. RIGHTS.

A. In the event of termination of the existing water emergency, this Agreement shall not be construed as a limitation on EVR's right to additional water

connections or water use.

B. EVR shall enjoy or be subject to all the rights, privileges and obligations applicable to owners of land within the District pursuant to ordinances and regulations of the District from time to time in effect.

V. DISPUTE.

In the event either parties should bring an action to enforce the terms of this Agreement, the prevailing party shall be entitled to costs and reasonable attorneys' fees as fixed by order of the Court.

VI. BENEFIT.

This agreement shall be binding on or inure to the benefit of the parties and their successor(s) and the rights and obligations shall run with the land described in Exhibit "A".

ATTEST:

By: C.C. Evans
C.C. Evans, Secretary

MONTECITO WATER DISTRICT:

By: Carol L. Valentine
Carol L. Valentine,
President

APPROVED AS TO FORM:
PRICE, POSTEL & PARMA

By: Robert M. Jones
Robert M. Jones

EAST VALLEY RANCH COMPANY

By: Charles Fairbanks
Charles Fairbanks,
Vice President and
Treasurer

Recording Requested By:
MONTECITO WATER DISTRICT

1987-0611_4

1987 AUG 12 PM 12:33

When Recorded Return to:
Montecito Water District
c/o PRICE, POSTEL & PARMA
P.O. Box B-B
Santa Barbara, CA 93102
Attn: Robert M. Jones, Esq.

NO FEE FOR RECORDING
(Government Code
Sections 6103 and 27383)

WATER RIGHTS AGREEMENT

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, EAST VALLEY RANCH COMPANY, a California corporation, hereinafter called "Grantor", hereby grants and conveys the rights set forth below to the MONTECITO WATER DISTRICT, a public corporation, Santa Barbara County, California, hereinafter called "District", relating to the following real property (hereinafter called "the property") situated in the County of Santa Barbara, State of California, described in Exhibit "A" attached hereto and made a part hereof.

Grantor hereby irrevocably grants and conveys to District, as Trustee, the non-exclusive rights (1) to exercise Grantor's overlying rights to groundwater; (2) to extract percolating waters from, below and within the boundaries of the property; and (3) to use and distribute such water on lands owned by Grantor and lands not owned by Grantor served by the District in accordance with California law. This trust shall be for the benefit of all persons entitled to water from the District.

Grantor declares that this trust is created for the public purpose of aiding the District in supplying water to its water users and that it is the intention of Grantor to create a charitable trust by this instrument.

Acceptance of this instrument by District shall not be construed as limiting District's rights independent of this instrument to extract percolating water from the Groundwater Basin within District's boundaries and distribute and use said water on lands owned by Grantor and lands not owned by Grantor.

It is understood that a part of the consideration to Grantor is the service of water by District to Grantor's lands described in Exhibit "A" pursuant to the terms and conditions. So long as District shall serve water to said land, or any portion thereof, of the Agreement dated July 23, 1986, no water from any

A.P.N. 7-212-10, AND 7-510-1,2,3

APN 7-212-[illegible]

other source, including water from Grantor's reserved rights shall be used on said property, or any portion thereof, for any purpose, regardless of any future split, division, or subdivision of said property.

Nothing contained in this instrument shall be construed as a severance of Grantor's water rights as an overlying landowner. Grantor retains the non-exclusive right, to the extent it otherwise exists, to extract groundwater from the property for use on the property, provided, however, that Grantor in the exercise of said retained non-exclusive right shall not exercise said right by means of a well drilled on the surface of Grantor's land described in Exhibit "A".

Nothing contained in this instrument shall be construed to convey any surface rights to District or any easements on the surface of the property for wells or well sites, except as follows: None.

DATED: 7-22-87 SIGNED: Charles A. Tenbrooks

Asst. Sec.
Title
East Valley Ranch Co.

STATE OF CALIFORNIA)
)
COUNTY OF SANTA BARBARA)

On this 22nd day of July, in the year 1987, before me, the undersigned, a Notary Public in and for said State, personally appeared CHARLES W. FAIRBANKS known to me to be the Assistant Secretary of the Corporation that executed the above Instrument, known to me to be the person(s) who executed the above Instrument, known to me to be the person(s) who executed the within Instrument, on behalf of the Corporation, herein named, and acknowledged to me that such Corporation executed the same.

WITNESS my hand and official seal.

OFFICIAL SEAL
PATRICIA J. LIEBERKNECHT
NOTARY PUBLIC - CALIFORNIA
SANTA BARBARA COUNTY
My Comm. Expires April 15, 1988

Patricia J. Lieberknecht
Notary's signature

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed by the Water Rights Agreement dated July 22, 1987, from EAST VALLEY RANCH COMPANY to the MONTECITO WATER DISTRICT, and the trust set forth therein, is hereby accepted by the undersigned officer or agent on behalf of the Montecito Water District, pursuant to authority conferred by resolution of the District adopted on July 17, 1967, and the District consents to the recording thereof.

DATED: August 5, 1987

By C. Charles Evans
C. Charles Evans
General Manager/Secretary

EXHIBIT "A"

LOTS 1, 2, 3, 4 AND 5 SHOWN ON TRACT NO. 13,478 IN THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 150, PAGES 38 AND 39 OF MAPS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

MONTECITO WATER DISTRICT
583 SAN YSIDRO ROAD
SANTA BARBARA, CALIFORNIA 93108
TELEPHONE (805) 969-2271
MAILING ADDRESS P.O. BOX 5037
93150-5037

March 7, 1989

Charles Catherwood
Valley Club Development Co.
845 Haverwood Road
Bryn Mawr, PA 19010

EAST VALLEY CLUB ROAD WELL IMPROVEMENTS

Dear Mr. Catherwood:

The Montecito Water District finds the subject improvements are acceptable for its use with the assurance by Penfield & Smith Engineers, Inc. that the additional safeguards will be incorporated as outlined in their February 27, 1989 letter. The State Health Department has inspected and approved the installation.

The District has accepted your offer to dedicate the facilities to the District. This offer and acceptance will be recorded. When recorded a copy will be sent to you.

In accordance with the Agreement dated July 23, 1986, application may now be made for District water service to Lots 1, 2, 3, 4 and 5 of Tract No. 13,478.

Yours very truly,

C.C. Evans

C.C. Evans

CCE/KCJ

cc: Charles Roberts
Julio Gonzales

August 31, 1988

Mr. Roger Willmon
Wallace, Morrand, Willmon, Inc.
1096-A Coast Village Road
Santa Barbara, California 93108

Dear Mr. Willmon:

This is to inform you that all provisions of the Water Agreement between the Seller of the lots on Valley Club Road and the Montecito Water District will be completed to the satisfaction of Montecito Water District prior to closing of escrow.

The provision will be included as part of escrow instructions.

Yours very truly,

Catherine H. Deiss

Catherine H. Deiss
Secretary

CHD:lb

Pitts & Bachmann REALTORS

IN THE TRADITION OF SANTA BARBARA

August 18, 1988

Mr. Roger Willmon
Wallace, Morrand Willmon, Inc.
1096-A Coast Village Road
Santa Barbara, California 93108

Dear Roger:

As you know the owner of the five lots on Valley Club Road are currently working with Penfield and Smith Engineers to complete all provisions of the agreement between Montecito Water District and Valley Road Development Company. I have been authorized by the owner to assure you that all provisions of this agreement for which Valley Road Development Company are responsible for will be completed to the satisfaction of Montecito Water District at the expense of Valley Road Development Company.

Yours very truly,

Charles F. Roberts

CFR:lb
cc: Charles Catherwood
Valley Road Development Company

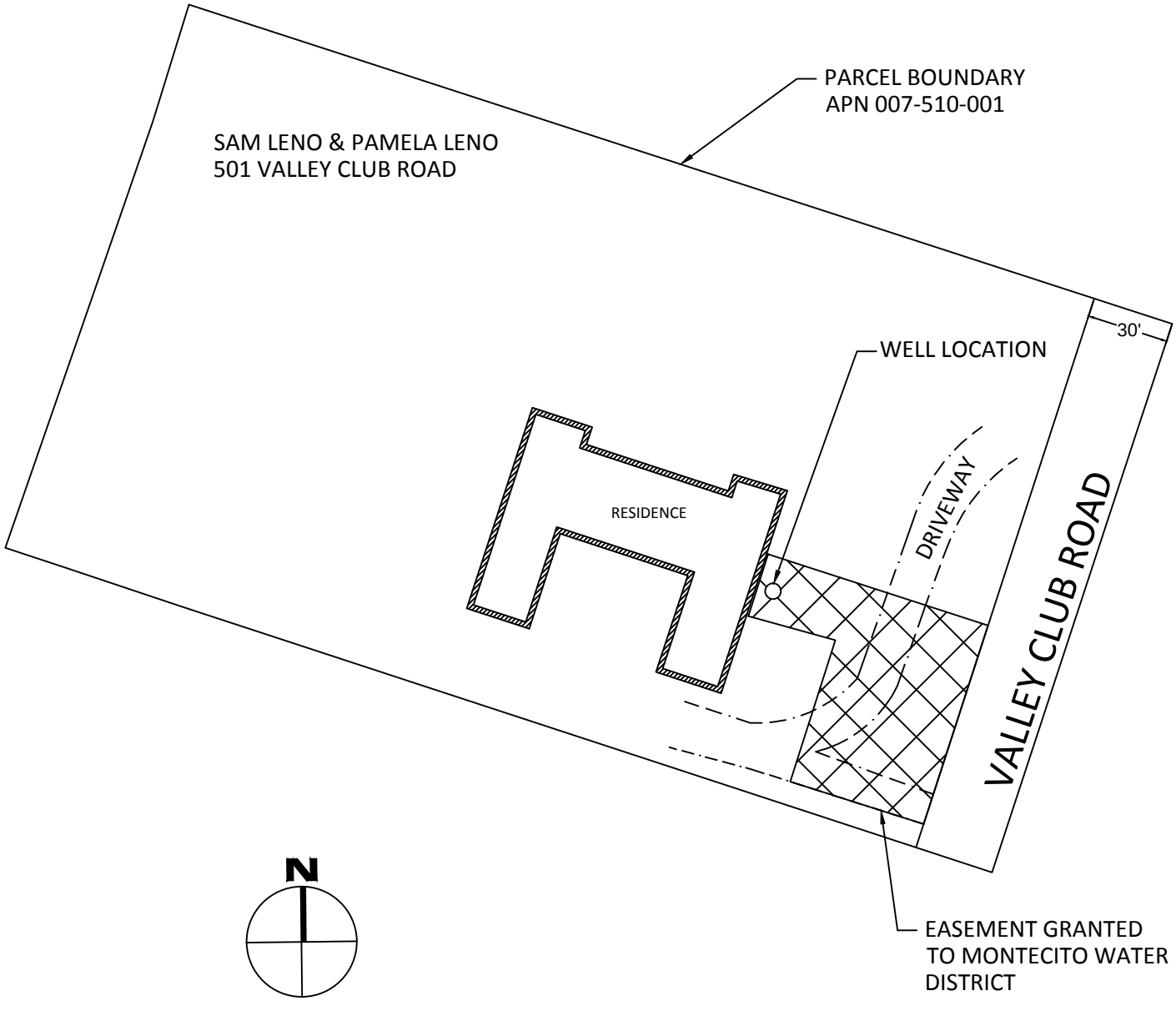
☐ 1500 ANACAPA STREET
SANTA BARBARA, CA 93101
805/963-1391

☐ 1106 COAST VILLAGE ROAD
SANTA BARBARA, CA 93108
805/969-4781

☐ 1470-B EAST VALLEY ROAD
P.O. BOX 50816
MONTECITO, CA 93150
805/969-5005

☐ 1165 COAST VILLAGE ROAD
SANTA BARBARA, CA 93108
805/969-1133

EXHIBIT B


PARCEL BOUNDARY
APN 007-510-001
SAM LENO & PAMELA LENO
501 VALLEY CLUB ROAD
30'
WELL LOCATION
RESIDENCE
DRIVEWAY
VALLEY CLUB ROAD
N
EASEMENT GRANTED
TO MONTECITO WATER
DISTRICT
GRAPHIC SCALE
0
60
120
180
1" INCH = 60 FEET

MONTECITO WATER DISTRICT
MEMORANDUM

SECTION: 3-E

DATE: AUGUST 20, 2018

TO: OPERATIONS AND ADMINISTRATION COMMITTEE

FROM: ENGINEERING MANAGER

SUBJECT: DISTRICT METER PROGRAM ASSESSMENT AND METER MARKET ANALYSIS

RECOMMENDATION:

- For information only.

DISCUSSION:

The purpose of this staff report is to outline the District's existing customer meter program and staff recommendations for improving the meter program. Staff has assessed the District's current residential water meters and meter reading methods and provides findings in this report. Due to major advancements in the water meter industry in the past 10-15 years, this report also provides an analysis of the current meter and meter reading technologies and their potential benefits to the District.

The scope of this meter analysis includes all customer meters from ¾" to 6" meters and does not include District production meters which are managed separately.

Existing Meter Inventory

The District currently relies on 4,605 mechanical meters and manual meter readings to record customer usage once per month. Table 1 shows the current number of District meters by size and manufacturer.

Table 1 – District Meter Inventory as of August 16, 2018

As of 8/16/18								
	MANUFACTURER							
SIZE	Hersey-Mueller	Metron	Rockwell	Badger	Neptune	Kamstrup	Sensus	TOTAL
3/4"F	5		140	4			436	585
3/4"S	2		1,058			1	609	1,670
1"	1		938		3		650	1,592
1-1/2"	11	343					162	516
2"	49	154		2	2	1	14	222
3"		6					8	14
4"		1					1	2
6"		1					3	4
Total	**68**	**505**	**2,136**	**6**	**5**	**2**	**1,883**	**4,605**

The District has not had a meter replacement program since 2010, although meters are replaced periodically when a meter has failed. Past meter replacement programs selected varying meter types depending on management preferences, resulting in a wide range of meter types. This makes meter maintenance difficult and can be confusing for customer service when trying to assist District customers with reading their meter.

The average age of District water meters is 14 years with 2,694 exceeding 15 years old and 722 meters exceeding 20 years old. The expected useful life of most mechanical meters is 15-16 years depending on demand on the meter.

METER TECHNOLOGY

The District has historically used mechanical positive displacement (PD) meters for customer meters 2-inches and smaller and propeller meters for customer meters 3 to 6 inches. The District currently installs Sensus SRII positive displacement (nutating disc) meters for new ¾-inch and 1-inch meters, Hersey-Mueller 500 Series positive displacement (nutating disc) meters for 1-1/2-inch and 2-inch meters, and Sensus OMNI propeller meters for 3-inch and larger meters.

Positive displacement water meters measure volume by the rate at which a rotating disc turns, with each disc rotation correlating to a specific volume of water that passes through the meter. The disc connects to a magnet that moves the consumption figures on a meter's register. Unless water quality is poor, the nutating disc is an effective measuring technology to measure within the American Water Works Association (AWWA) start flow parameters of 0.25 GPM. However, tests results depicted in Water Research Foundation (WRF) *Accuracy of In-Service Water Meters at Low and High Flow Rates* report, shows nutating disc water meters on average only measured 30% of 1/32 GPM or a 70% loss (when the meter has 1.5 million gallons of throughput). This measuring technology does not register flow during low flows resulting in lost revenue. Additionally, inherent to nutating disc water meters is the risk that wear and tear on the meter will cause the disc to rotate less and therefore measure less water volume.

Advances in Meter Technology

Water meters themselves have evolved in the United States in recent years with many water agencies foregoing mechanical meters for electronic meters. Electronic meter refers to both ultrasonic and magnetic flow meters. The main benefit of electronic meters is their higher lifetime accuracy due to no moving parts and no "wear and tear" over the life of the meter. Additionally, electronic meters are generally lower maintenance, have no flow obstructions in the pipe and are able to pass debris and do not create large pressure drops across the meter. Electronic meters can start registering flow at an order of magnitude lower (0.05 GPM) than mechanical meters (0.25 GPM). However, electronic water meters must be powered by batteries which have a shelf life and may die before the end of the meter's useful life. In the event of a dead battery, the entire electronic meter must be replaced.

Mechanical vs. Electronic Accuracy and Lost Revenue

Mechanical meter accuracy decreases over time due to wear of the mechanical parts that allow the meter to register flow. Figure 1 shows the lost revenue caused by a 20-year old PD meter compared to a new PD meter and an electronic flow meter (ultrasonic or magnetic). The decrease in accuracy ranges from 5% during low flows 2% during high flows. According to a 2008 study by Thornton entitled *Water Loss Control,* the average customer meter under-registers by 5 to 6 percent. However, the accuracy of the electronic meter stays the same over the 20-year life of the meter.

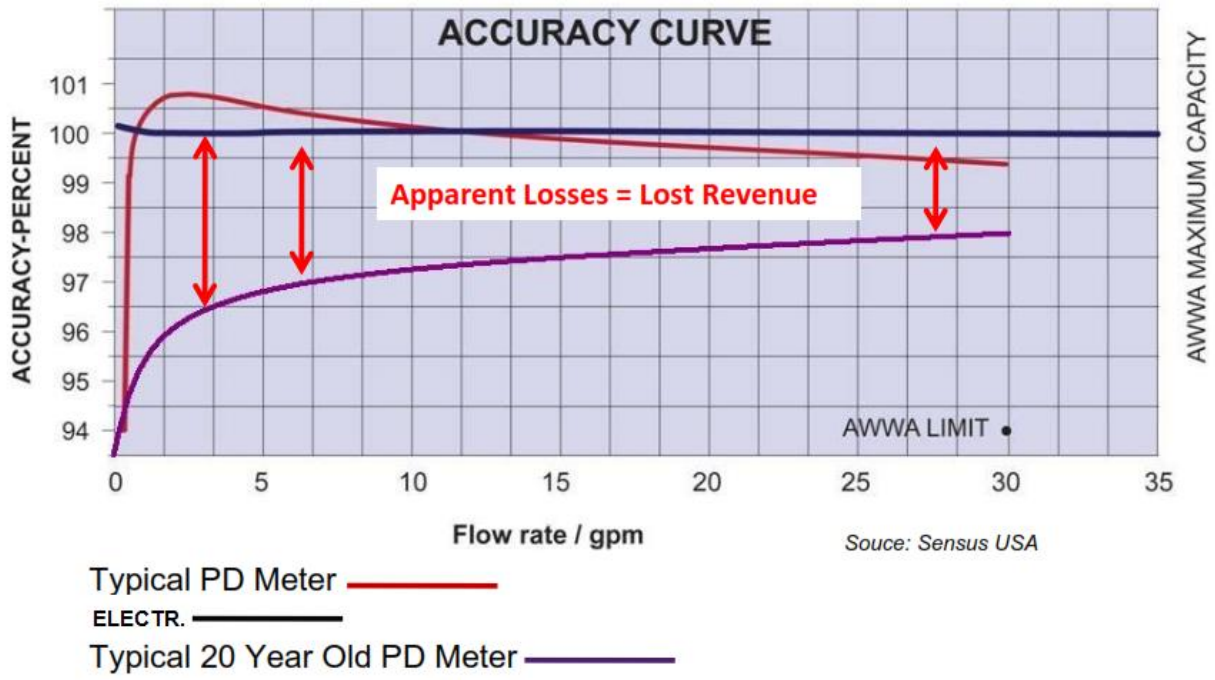


Figure 1 – Lost Accuracy due to Mechanical Meter Wear

Estimating District Meter Lost Revenue

Table 2 provides the estimated lost revenue based on the percentage of water meter under-recording. The District maintained average annual water sales of approximately 3,500 AF during the most recent drought. This number was used for this analysis and any increase in sales would increase potential lost revenue due to meter inaccuracies. Conservatively assuming all water is sold at the lowest tiered sales rate + WSE surcharge ($8.85), the table below provides an estimate of annual lost revenue due to meter under-recording.

Table 2 – Annual Lost Revenue to Mechanical Meter Wear

Meter Reading Inaccuracy (%)	Annual Lost Revenue Due to Meter Wear ($) [1]
0.5%	$ 67,464
1.0%	$ 134,927
1.5%	$ 202,391
2.0%	$ 269,854
2.5%	$ 337,318
3.0%	$ 404,781
3.5%	$ 472,245
4.0%	$ 539,708
4.5%	$ 607,172
5.0%	$ 674,636

[1] Assumes sales of 3,500 AF sold at Tier 1 rate $5.40 + WSE $3.45 = $8.85/HCF

METER READING

Meter reading refers to the method of collecting customer consumption data from the water meter and transferring the data to District software for record keeping, billing, and analyzing.

Existing Meter Reading Process

Each meter is visited by Alexander's Contract Services one time per month within a 3-day meter read period. Manual meter reads are input into the District's accounting software, Incode, where monthly bills are created and distributed to customers. When viewing a customer's consumption history in Incode, one read per month is shown. The District does not currently implement any smart meter technology that can automatically read customer water meters.

The District pays Alexander's approximately $74,000 annually to read the mechanical water meters and staff spend significant time re-reading water meters at the end of the month due to inaccurate reads and/or high or no reads. District engineering, finance, and distribution personnel frequently use customer's consumption history to troubleshoot meter problems, identify leaks, and notify customers of high or no usage but are limited in assisting customers due to a lack of data resolution.

Advances in Meter Reading Technology

In the 1990's, utilities began implementing Automated Meter Reading or "AMR" to eliminate errors in manual meter reads and reduce manual meter reading costs. AMR is technology that electronically collects data from the meter and transfers it back to the central billing system and is usually achieved using a handheld device or laptop during walk-by or drive-by meter collection. An AMR meter is capable of one-way communication to the receiver. AMR allows utilities to collect thousands of meter reads in a matter of hours instead of several days with manual meter reads.

More recently, Advanced Metering Infrastructure or "AMI" was introduced to further streamline meter consumption data collection and provide "real time" readings of customer meters. AMI extends the capabilities of AMR by allowing two-way communication between the meter and the utility. Two-way communication is generally achieved through a fixed based network of radio towers setup by the utility or using a cellular connection to existing communications towers. In both scenarios, a radio and antenna are added to each meter location to transmit meter data to the utility. AMI allows utilities to collect nearly all its meter reads within minutes.

AMI using a cellular signal is achieved by deploying a cellular "endpoint" inside the customer meter box that communicates with existing cellular towers. The benefit of cellular is the District can utilize existing towers to collect its consumption data. The downside being the monthly recurring costs paid to third party cellular providers, which becomes cost prohibitive if the District wants to be able to view high resolution customer data (every hour).

AMI using a fixed based network is achieved by deploying Radio Frequency (RF) radios and antennas within customer meter boxes and District-owned radio towers across the District service area. The in-box radios communicate with the radio towers to transmit consumption data and send it back to District software.

The cost of a cellular based AMI is prohibitive for the District compared to a fixed-base radio network. A cellular AMI solution, providing 24-hour data dumps to the District, costs

$0.89/month per meter, or approximately $49,000 annually for the District. This means a large leak that occurs in the early morning hours would not be discovered until up to 24 hours later. If the District wanted data dumps every 6 hours, the cost increases to $3.70/month per meter or approximately $203,000 annually. A fixed-base system would allow the District to view 15-minute consumption data in real time at a reasonable cost and is the preferred method of meter reading over cellular AMI. The challenge with fixed-base will be finding sufficient locations for AMI collectors and repeaters. These locations include street lights, power poles, and infrastructure often not owned by the District.

METER AND METER READING MARKET ANALYSIS

The largest meter manufacturers in North America are Neptune, Sensus, and Badger which are included in this analysis along with smaller firms Master Meter, Mueller and Kamstrup. District Staff researched available meter and meter reading technologies and engaged six different meter companies to demonstrate their meter and meter reading products to District staff. Staff also visited neighboring agencies to view their smart meter products and discuss pros and cons with management at these locations.

The results of the product demonstrations, visits to neighboring Districts, and follow-up discussions with meter providers have been summarized in Attachments 1, 2, 3 and 4. Attachment 1 provides a summary of the available meter technologies and features; Attachment 2 provides a summary of the AMI or meter reading technologies and features; Attachment 3 provides a summary of costs to implement each meter and meter reading solution; Attachment 4 is a summary of pros and cons to ultrasonic versus mechanical meters and also cellular versus fixed-base AMI network.

Narrowing the Meter Market Analysis

After the first round of data collection for each meter company, staff narrowed the field of meter manufacturers. The field of six companies was narrowed to three with the elimination of Sensus, Mueller, and Master Meter.

Sensus does not offer an ultrasonic flow meter and does not provide 1-1/2" and 2" electronic meters at this time. The electronic meter provided by Sensus is the iPerl which is only for ¾" and 1" meters and has a plastic body and high profile. Sensus offers a high-powered AMI collector (3 Watts) that is appropriate for large, flat open areas where one collector can satisfy the entire service area, but it is not appropriate for the topography in the District's service area where many (expensive) collectors would be required.

Mueller was eliminated based on poor experiences with Mueller customer service and long meter ordering lead times when the District purchases their existing Hersey meters.

Master Meter's capital and ongoing costs were prohibitive. Additionally, Master Meter offers the high-powered and expensive 3-watt AMI collector which is not ideal for District terrain.

Evaluation Criteria and Results

Staff evaluated Neptune, Badger and Kamstrup meters to assess the quality and features of their meter bodies, registers, radios, antennas, collectors, software and customer portals to determine the most appropriate meter and AMI solution for the District. District Staff ordered and installed several of each three meter manufacturer's ultrasonic meters to test their ease of installation and use. A decision matrix was used to rank the selected meter and AMI companies. The evaluation criteria are listed below.

1) **Meter and Register** – higher scores given to meters with durable bodies and registers, ability to register low flows, high accuracy, and ease of installation and repair.

2) **AMI Radio and Collector** – higher scores given to meter radios and antennas without wires, fewer required collectors, and higher percentage of meter coverage from data collectors.

3) **Lifecycle Cost** – higher scores for lower life cycle costs.

4) **Manufacturer Reliability** – higher scores for a long history of meter and AMI installations in California and a large presence in the meter and AMI market.

5) **Customer Service** – higher scores given to companies with more experience in the water measurement industry, responsive sales and technical support, and faster meter order turnaround times.

6) **Software and Customer Portal** – higher scores given for a user-friendly meter data analytics software, robust reporting and notification programming capabilities, and high-quality customer portal.

7) **References** – higher scores given for companies with multiple references providing positive feedback on meter performance and customer service.

Note: the following criteria are generally the same between all of the meter companies and have not been included in this analysis:

- Meter and radio battery life (20 years for all meters)
- Meter and Radio Warranty (10 years full, 10 years prorated)
- Meter Accuracy
- Meter Bodies are all Metal, no plastic parts

Table 3 – Meter and AMI Decision Matrix

CRITERIA	Neptune	Badger/ Itron	Kamstrup	COMMENTS
Meter & Register	3	4	5	Kamstrup has highest quality and most durable meter. Badger is lower due to required wiring between the meter and radio. Neptune is lowest due to poor meter features and required wires.
AMI Radio & Collector	3	2	3	Kamstrup had a moderate number of collectors but did not perform a detailed site inspection or propagation study. Badger/Itron had large number of repeaters, uses wires, and proposed using "street lights". Neptune performed a site visit and had a moderate number of collectors but had the lowest coverage percentage.
Lifecycle Cost (Meters & AMI)	4	4	4	Life cycle costs are all within +/-2% of $3.5M.
Manufacturer Reliability	4	5	2	Neptune and Badger are longest standing and largest firms in the US. Kamstrup is brand new to US market but shows dedication to rapid expansion and no sign of a buyout.
Customer Service	5	5	4	All firms displayed excellent responsiveness to District needs. Kamstrup had the longest meter order lead time.
Software & Customer Portal	3	4	2	Badger's software platform is the most user-friendly and logical software. Neptune's is clunky. Kamstrup recently released their platform and District personnel have only viewed the brochure to date.
References	3	5	2	Badger has the most statewide deployments of ultrasonic meters and AMI. Neptune references were just beginning to deploy AMI. Kamstrup references are small (+/- 300 AMI capable meters).
TOTAL SCORE	**25**	**29**	**22**	

Attachment 1 – Meter and AMI Product Comparison Chart

METERS

Manufacturer	Distributor (location)	Long Term Rep (location)	Meter Installer	Meter Type (s)	Normal Operating Range @ 100% Accuracy (+/- 1.5%) for 3/4" Meter	Low Flow @ 97% Accuracy (3/4" meter)	Meter Body Material	Leak & Flow Indicator?	Max Operating Pressure (psi)	Battery Life	Register Type	Register Resolution	Meter Warranty (yrs)
NEPTUNE	Ferguson (Ventura, CA)	David Lackey (Bakersfield, CA)	Ferguson	Mechanical (PD/ND) Ultrasonic (Mach 10)	Mech. = 0.75 to 30 GPM Ultras. = 0.10 to 35 GPM	Mech = 0.25 GPM Ultras.= 0.05 GPM	Mech = copper Ultras. = Bronze	Mech = flow only Ultras. = both	Mech = 150 Ultras. = 175	20 Years	Direct Read or Digital	Mech = 6 digits Ultras. = 9 digits	10 yr FULL 10 yr PRORTD
BADGER	National Meter (Irvine, CA)	Rob Sears (Irvine, CA)	3rd Party	Mechanical (PD/ND) Ultrasonic (E-Series)	Mech. = 0.75 to 35 GPM Ultras. = 0.10 to 32 GPM	Mech = 0.375 GPM Ultras.= 0.05 GPM	Mech = bronze Ultras. = SS	Mech = flow only Ultras. = both	Mech = 150 Ultras. = 175	20 Years	Digital	Mech = 6 digits Ultras. = 9 digits	
MUELLER	Mueller (Riverside, CA)	Kevin Cornejo (Riverside, CA)	3rd Party	Mechanical (PD/ND) Ultrasonic (SSR)	Mech. = 0.75 to 30 GPM Ultras. = 0.10 to 30 GPM	Mech = 0.25 GPM Ultras.= 0.05 GPM	Mech = Bronze Ultras. = Brass	Mech = flow only Ultras. = both	Mech = 150 Ultras. = 200	20 Years	Direct Read (mechanical only) or Digital	Mech = 6 digits Ultras. = 8 digits	
KAMSTRUP	iFlow (Santa Ana, Ca)	Omar Figueroa (Santa Ana, CA)	3rd Party	Ultrasonic	Ultras. = 0.10 to 32 GPM	Ultras.= 0.015 GPM	Ultras. = SS	Ultras. = both	Ultras. = 175	20 Years	Digital	Ultras. = 9 digits	
SENSUS	AquaMetric (Riverside, CA)	Hector Gutierrez (Riverside, CA)	3rd Party	Mechanical (PD/ND) Magnetic (iPerl only for 3/4" and 1")	Mech. = 0.75 to 35 GPM Magn. = 0.18 to 35 GPM	Mech = 0.375 GPM Magn.= 0.11 GPM	Mech = Brass Magn. = Plastic	Mech = flow only Magn. = both	Mech = 150 Magn. = 200	20 Years	Direct Read (mechanical only) or Digital	Mech = 6 digits Ultras. = 9 digits	
MASTER METER	Core & Main (Valencia, CA)	Nancy Jenkins Best Meter (Los Angeles, CA)	3rd Party	Mechanical (Multi-Jet)	M Jet = 2 to 30 GPM	M Jet = 0.50 GPM	Mech = Bronze or plastic	Mech = flow only	Mech = 150	20 Years	Direct Read	Mech = 6 digits	

PD = Positive Displacement

ND = Nutating Disc

GPM = Gallons Per Minute

Attachment 2 – Meter Reading Market Analysis

AMI

Manufacturer	AMI Network Type	Proposed # Collectors # Repeaters	Prop Study Coverage (%)	Proposed Method to Cover Unread Meters	Integrated Radio	Radio Warranty (yrs)	Radio Memory (days)	Radio Output	Meter Read Freq.	Alarms	Alert Time	Real Time Read Capable?	Water District Software (user friendly)	Customer Portal / Brand as MWD?	Agency Reference Feedback
NEPTUNE	Fixed Cellular	11 TBD	92.2	Cell or AMR	Mech - YES Ultras. - YES	10 yr FULL 10 yr PRORTD	96 @ hourly intervals	1 Watt @ 900 MHz (unlicensed)	Hourly	Leaks Reverse Flow No Flow Tamper	Imme-diate	7.5 Min Delay	N Sight Web Based & App (Good)	N View Web & App NO	Rio Linda WD Great Meters/Network, minimal AMI, issues with cust portal City of Benicia - great meters, no AMI yet, used 3rd party cust portal
BADGER (ITRON)	Fixed	9 9	98.8	AMR	No - Wired	10 yr FULL 10 yr PRORTD	160 @ hourly Intervals	1 Watt @ 900 MHz (unlicensed)	Hourly	Leaks Reverse Flow Bursts Empty Pipe	6 Min Delay	6 Min Delay	Itron Analytics (Good)	Eye on Water Web & App NO	Carpinteria VWD High accuracy of Badger E-series meters, issues with AMI collectors on Edison poles and wires within meter pits.
MUELLER	Fixed	8 TBD	100	AMR	Mech - YES Ultras. - YES	10 yr FULL 10 yr PRORTD	120 @ hourly intervals	1 Watt @ 900 MHz (unlicensed)	Hourly	Leaks Reverse Flow Tamper	Imme-diate	< 1 minute	Mi.Net Web Based (Excellent)	Smart Energy Water Webpage/App YES	City of Newport Beach Good meter reps, good product, OK price
SENSUS	Fixed	6 2	97.9	AMR	Yes	10 yr FULL 10 yr PRORTD	35 @ hourly intervals	2 Watts @ 900 MHz (licensed)	Hourly	Leaks Reverse Flow Broken Pipe Tamper	Imme-diate	< 1 minute	Sensus Analytics Software (Good)	Sensus Hosted YES	Santa Maria Good solution for flat terrain
MASTER METER	Fixed	5 13	96	AMR	No - Wired	10 yr FULL 10 yr PRORTD	240 @ hourly intervals	3 Watts @ 450 MHz Licensed	Hourly	Leaks Reverse Flow Tamper	Imme-diate	< 1 minute	Harmony Allegro (Good)	My Water Advisor Web & App NO	None Provided
BADGER (BEACON)	Cellular	N/A for cellular	100	N/A	Yes	10 yr FULL 10 yr PRORTD	176 @ hourly intervals	LTE w/3G Backup	Hourly	Leaks Reverse Flow Bursts Empty Pipe	24 Hours	No	Beacon Analytics (Excellent)	Eye on Water Web & App NO	Le Cumbre MWD Good meter, good leak detection capabilities, good data management software
KAMSTRUP	Fixed	8 TBD	100	AMR	Yes	10 yr FULL 10 yr PRORTD	90 @ hourly intervals	1 Watt @ 900 MHz (unlicensed)	Hourly	Tamper Leaks No Flow Reverse Flow	Imme-diate	8 min delay	E-Butler (Good)	E-Butler NO	Rancho Coalinga Mutual WD Very small 200 meter utility, excellent accuracy, drive-by AMR only

Attachment 3 – Meter and AMI Cost Summary

COST

	METERS			AMI			TOTAL		ANNUAL	LIFE CYCLE	
Vendor	Mechanical Meters (2" and smaller)	Electronic Meters (2" and smaller)	Meter Installation[1]	Radios	AMI Hardware + Install	Setup Fees	CAPITAL COST (mechanical meters)	CAPITAL COST (electronic meters)	Annual Costs[4]	20 YEAR LIFECYCLE COST (mechanical)	20 YEAR LIFECYCLE COST (electronic)
Neptune FIXED	$ 1,357,070	$ 1,682,070	$ 945,000	(IN METER)	$ 215,000	$ 15,000	$ 2,532,070	$ 2,857,070	$ 30,000	$ 3,132,070	$ 3,457,070
Badger FIXED	$ 1,031,749	$ 1,221,663	$ 900,000	$ 376,134	$ 238,364	$ 56,440	$ 2,602,687	$ 2,792,601	$ 31,928	$ 3,241,247	$ 3,431,161
Mueller FIXED	$ 918,915	$ 967,473	$ 888,231	$ 366,043	$ 59,688	$ 40,600	$ 2,273,477	$ 2,322,035	$ 23,129	$ 2,736,056	$ 2,784,614
Sensus FIXED[2]	$ 942,621	$ 1,015,809	$ 900,000	$ 550,440	$ 235,466	$ 60,161	$ 2,688,688	$ 2,761,876	$ 34,905	$ 3,386,788	$ 3,459,976
Kamstrup FIXED[5]	N/A	$ 1,705,770	$ 689,919	(IN METER)	$ 120,000	$ 40,995	N/A	$ 2,556,684	$ 47,500	N/A	$ 3,506,684
Master Meter FIXED[3]	$ 1,878,448	$ 2,368,376	$ 813,315	(IN METER)	$ 300,857	$ 25,530	$ 3,018,150	$ 3,508,078	$ 31,064	$ 3,639,430	$ 4,129,358
Badger CELLULAR	$ 1,031,749	$ 1,221,663	$ 900,000	$ 513,744	N/A	$ 4,710	$ 2,450,203	$ 2,640,117	$ 48,989	$ 3,429,986	$ 3,619,900

[1] Includes 3/4" to 2" meter installation, new meter boxes and lids. Costs for Sensus and Badger are estimated since they did not provide pricing.

[2] Sensus electronic option (iPerl) is only for 3/4" and 1" meters. Sensus does not have a 1-1/2" or 2" electronic meter option. Sensus "Ultrasonic" pricing includes PD meters for 1-1/2" and 2" meters.

[3] Master Meter does not have a ¾" or 1" electronic option but has the Octave for 1.5" and 2" meters. Electronic Meter costs include PD meters for 3/4" and 1".

[4] Includes hosted data, cellular backhaul, collector and repeater maintenance, software analytics, and customer portal.

[5] Kamstrup does not sell a mechanical meter.

Attachment 4 – Meter and AMI Pros & Cons

METER TYPES – PROS AND CONS

	ELECTRONIC (ULTRASONIC)	MECHANICAL (PD)
PROS	-- No Moving Parts to Wear Out = Sustained Accuracy -- Debris Do Not Cause Meters to Stick or Stop -- Reduced Pressure Loss -- No Maintenance -- Significantly Improved Low Flow Accuracy (0.05 GPM) -- Better High Flow Durability	-- Tried and True Technology with Over 100 Years Experience -- Several Models can be Rebuilt, Extending Useful Life -- Widely Accepted in Industry
CONS	-- New technology with only 5 years in the ground in N. America (25 years in Europe) -- Requires Power -- High sample rate to capture variations in flow	-- Inherent Low Flow Performance Limitations (0.25 GPM) -- Reduced Accuracy over Life of Meter -- Debris in Water Can Cause Problems -- Calcium in Water Can Cause Problems -- Maintenance Can Be Required -- Significant Pressure Loss

METER READING – PROS AND CONS

	CELLULAR	FIXED BASE
PROS	-- 100% Coverage as Long as Cell Signal is Available -- No Maintenance of Collector and/or Repeater Units	-- High Resolution Hourly Data -- Real Time Read Capability -- Immediate Alerts for Leaks, Reverse Flow, Tamper, etc. -- Cheaper Long Term Costs than Cellular
CONS	-- More Expensive Annual Costs for Backhaul Charges -- Unable to Reach some Locations with no Cell Signal -- Dumps Data once Every 24 Hours so No Immediate Leak Alerts	-- More Expensive Capital Costs -- Maintenance of Collectors and/or Repeaters -- Difficult to Install where District has No Assets -- Small Percentage (2-8%) of Meters Not Covered by Collectors will Require Cell Radios or Drive By Backup Reading