Yucaipa Valley Water District

Notice and Agenda of a Board Workshop

Tuesday, June 23, 2015 at 4:00 p.m.

MEETING LOCATION:	District Administration Building 12770 Second Street, Yucaipa
MEMBERS OF THE BOARD:	Director Ken Munoz, Division 1 Director Bruce Granlund, Division 2 Director Jay Bogh, Division 3 Director Lonni Granlund, Division 4 Director Tom Shalhoub, Division 5

I. Call to Order

II. Public Comments At this time, members of the public may address the Board of Directors on matters within its jurisdiction; however, no action or significant discussion may take place on any item not on the meeting agenda.

III. Staff Report

IV. Presentations

A. Overview of the California Drought and Yucaipa Valley Water District's Action Plan Related to the State Water Resources Control Board Mandatory Restrictions to Achieve a 36% Reduction in Potable Urban Water Use [Workshop Memorandum No. 15-121 - Page 6 of 43]

B. Overview of Local and Regional Conjunctive Use Projects [Workshop Memorandum No. 15-122 - Page 14 of 43]

V. Capital Improvement Projects

A. Status Report on the Construction of a 6.0 Million Gallon Drinking Water Reservoir R-12.4 - Calimesa [Workshop Memorandum No. 15-123 - Page 23 of 43]

B. Status Report on the Testing of Alternative Sludge Dewatering Equipment at the Wochholz Regional Water Recycling Facility [Workshop Memorandum No. 15-124 - Page 29 of 43]

C. Status Report on the Installation of New Recycled Water Services and Recycled Water Pipelines Throughout the Service Area of the Yucaipa Valley Water District [Workshop Memorandum No. 15-125 - Page 30 of 43]

Any person with a disability who requires accommodation in order to participate in this meeting should telephone Erin Anton at (909) 797-5117, at least 48 hours prior to the meeting in order to make a request for a disability-related modification or accommodation.

Materials related to an item on this agenda submitted to the Board of Directors after distribution of the workshop packet are available for public inspection during normal business hours at the District office located at 12770 Second Street, Yucaipa. Meeting material is also be available on the District's website at www.yvwd.dst.ca.us

VI. Administrative Items

A. Purchase Requisition with Harper & Associates Engineering for Engineering, Bidding, and Inspection Services for Coating Repairs to the Yucaipa Valley Regional Water Filtration Facility 48" Feed Pipeline [Workshop Memorandum No. 15-126 - Page 34 of 43]

B. Overview of a Public Relations Request for Proposals [Workshop Memorandum No. 15-127 - Page 35 of 43]

VII. Director Comments

VIII. Closed Session

A. Conference with Real Property Negotiator(s)
Property: Assessor's Parcel Number(s): 0321-261-09
Agency Negotiator: Joseph Zoba, General Manager
Negotiating Parties: Richard and Shirley Ferguson
Under Negotiation: Terms of Payment and Price

B. Conference with Labor Negotiator (Government Code 54957.6)
District Negotiator: Joseph Zoba, General Manager
Employee Organization: IBEW Local Union 1436-YVWD Employees Association

C. Conference with Labor Negotiator (Government Code 54957.6)
District Negotiator: Joseph Zoba, General Manager
Employee Organization: YVWD Supervisory Employees

D. Conference with Labor Negotiator (Government Code 54957.6)
District Negotiator: Joseph Zoba, General Manager
Employee Organization: YVWD Management Employees (Exempt)

IX. Adjournment

Staff Report

Yucaipa Valley Water District

Yucaipa Valley Water District

Community Water Meeting

Join Us for a Conversation about Drought Issues and Our Water Resources

The Yucaipa Valley Water District will be conducting a series of community meetings to provide regular updates about the current drought situation.

The next community meeting is scheduled for

Thursday, June 25, 2015, 6:00 p.m. to 8:00 p.m.
Yucaipa Valley Regional Water Filtration Facility at Crystal Creek
35477 Oak Glen Road, Yucaipa 92399

Presentations

Yucaipa Valley Water District

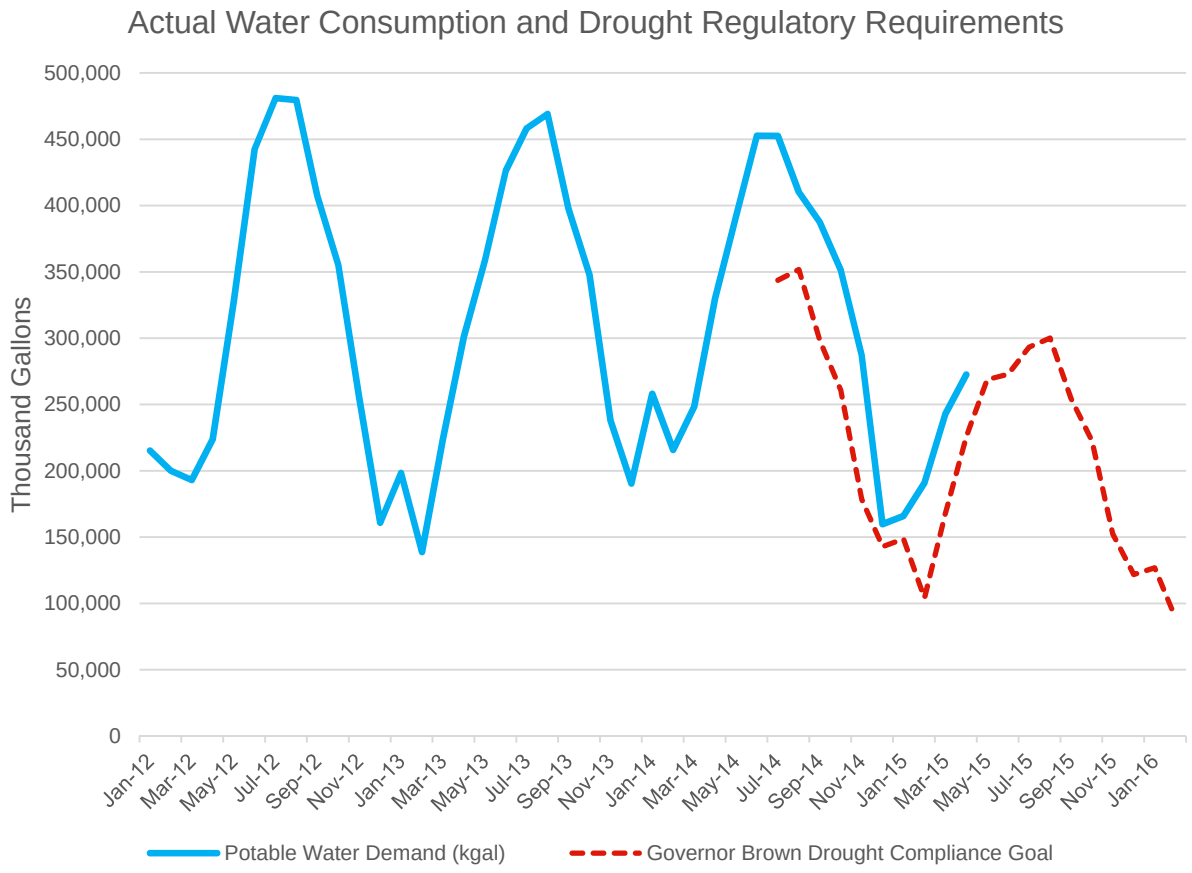
Yucaipa Valley Water District

Workshop Memorandum 15-121

Date: **June 23, 2015**

Subject: **Overview of the California Drought and Yucaipa Valley Water District's Action Plan Related to the State Water Resources Control Board Mandatory Restrictions to Achieve a 36% Reduction in Potable Urban Water Use**

On May 5, 2015, the State Water Resources Control Board ("SWRCB") adopted emergency regulations to achieve a 25% statewide reduction in potable urban water use. These stringent water use regulations will require the Yucaipa Valley Water District to achieve a 36% reduction from the amount of drinking water produced in 2013. In order to achieve this level of water conservation, the Yucaipa Valley Water District will need to provide water based on the following water demand curve.



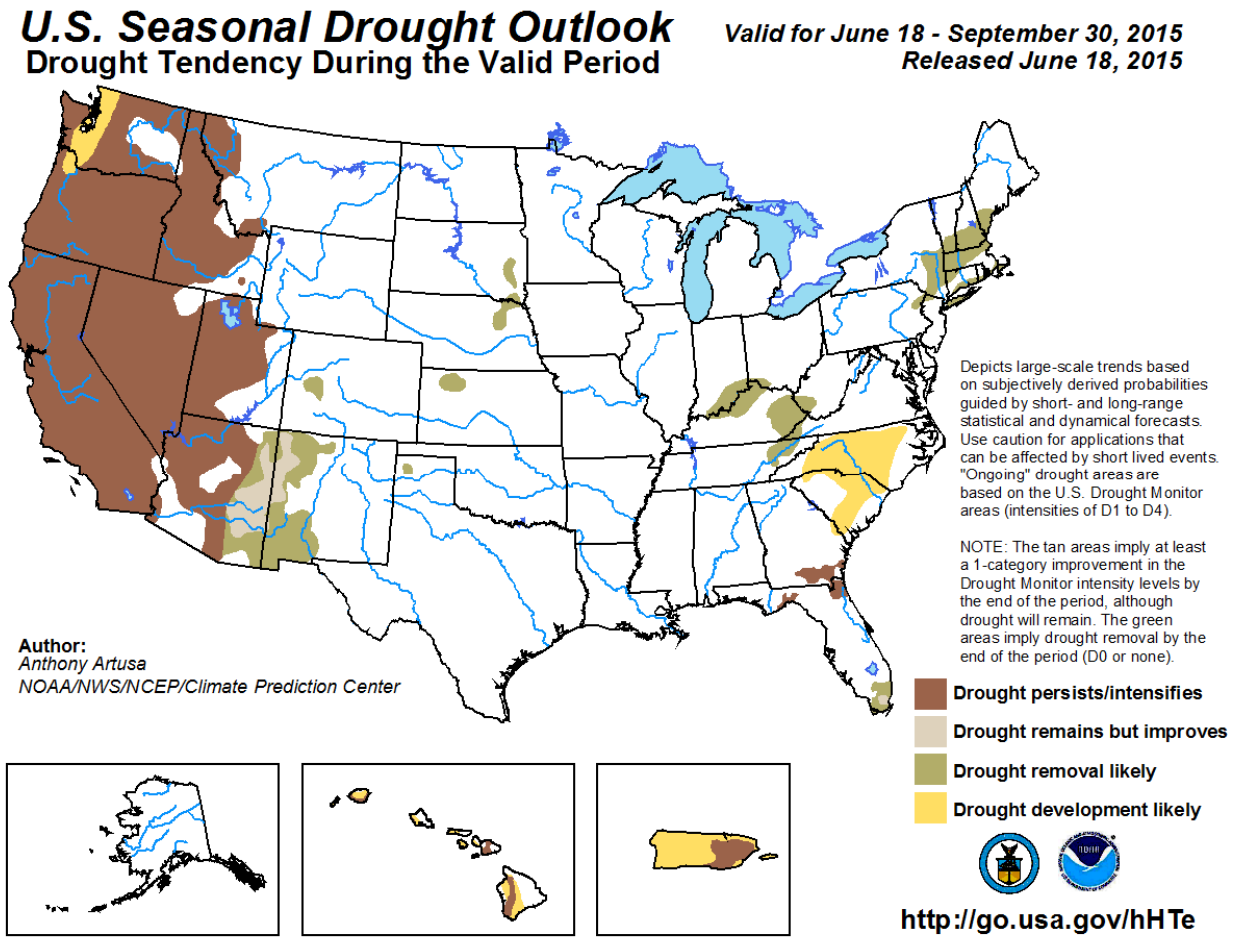
The chart above illustrates the peak difference between Governor Brown's Drought Compliance Goal in 2014 at a 25% reduction, and in 2015 at a 36% reduction in potable water use based on the 2013 baseline period.

To achieve Governor Brown's Drought Compliance Goal of a 36% reduction in potable water use from the 2013 baseline period, the Yucaipa Valley Water District has initiated additional drought conservation programs and conducted community workshops to provide information to our customers.

To achieve the 36% reduction, customers will need to immediately reduce the amount of water used for outdoor landscape purposes by 50% - 60%.

The purpose of this agenda item is to discuss the ongoing and evolving implementation strategy for our community.

Drought Status and Update



Latest Seasonal Assessment - During the past 14-days, above-median rainfall amounts were reported across portions of the Four Corners region, the central and southern Rockies, much of the Great Plains, the middle Mississippi and northern Ohio Valleys, the Great Lakes region, and the interior Northeast. For the upcoming three-month period (July-August-September, or JAS 2015), most climate models favor above-median rainfall from eastern Arizona to west Texas, in connection with the seasonal Summer Monsoon. A one-category improvement is favored in this region. With El Niño now established across the tropical Pacific, there are enhanced chances of an active eastern Pacific hurricane season. Moisture from tropical systems may reach the Southwest CONUS, especially towards the tail end of this seasonal outlook. For most of the remainder of the West, however, drought is expected to persist and/or intensify, as is climatologically the case each summer. Drought is anticipated to develop across the lowlands of western Washington and nearby northwestern Oregon. Small pockets of residual drought across the Great Plains are forecast to be removed during the JAS season, largely due to passing frontal systems, and nocturnal thunderstorm clusters. Residual drought across the Northeast is also ripe for removal, due to the proximity of the summer storm track, and the overall historical tendency for above-median precipitation during the past 10-15 summers. Portions of the Ohio and Tennessee Valley have very recently experienced moderate drought conditions, as designated by the U.S. Drought Monitor. It is anticipated that these areas of increasing rainfall deficits and budding drought will be reversed and eliminated during this Outlook. Across most of the Southeast, above-normal temperatures and below-median precipitation is predicted for all time scales out to 90-days. Drought development is anticipated primarily across the Carolinas, though Georgia is another area that bears careful monitoring. Drought is expected to persist and/or intensify across southern Georgia and adjacent northern Florida, and a one-category improvement is anticipated in southern Florida, even though the traditional rainy season has been off to a slow and unimpressive start. Persistent trade winds are predicted to contribute to sufficient rainfall across the windward (generally, east-facing) slopes of the Hawaiian Islands, while drought development appears more likely across the leeward (generally, west-facing) slopes. During El Niño summers, there is a strong signal for unusual dryness across the Caribbean basin, and a reduction in Atlantic tropical cyclone activity. Therefore, current drought in eastern Puerto Rico is forecast to persist and/or intensify, while drought development is favored for the remainder of the Island.

Forecaster: A. Artusa

Next Seasonal Drought Outlook issued: July 16, 2015 at 8:30 AM EDT

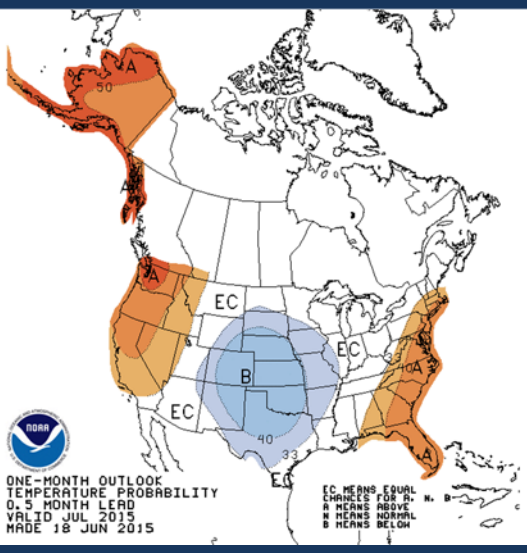
Source: http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html

The National Weather Service and the National Oceanic and Atmospheric Administration provides regular predictions for temperature and precipitation forecasts throughout the United States. The following charts show the temperature and precipitation probability for the next month, as well as a compilation of future forecasts for temperature and precipitation.

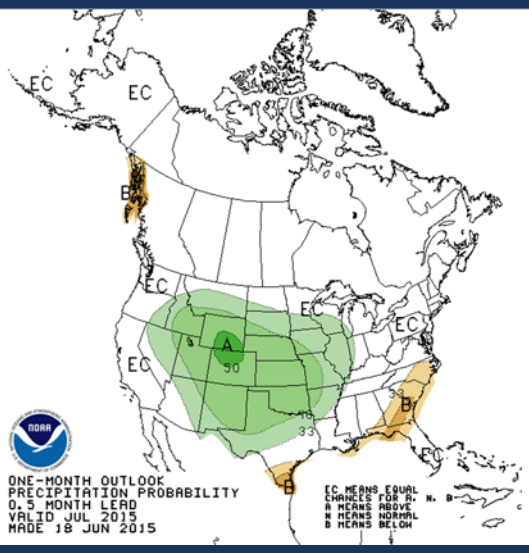
Temperature Forecast Legend: Orange/Red = Above Normal Temperatures
Blue = Below Normal Temperatures

Precipitation Forecast Legend: Green = Above Normal Precipitation
Tan/Brown = Below Normal Precipitation

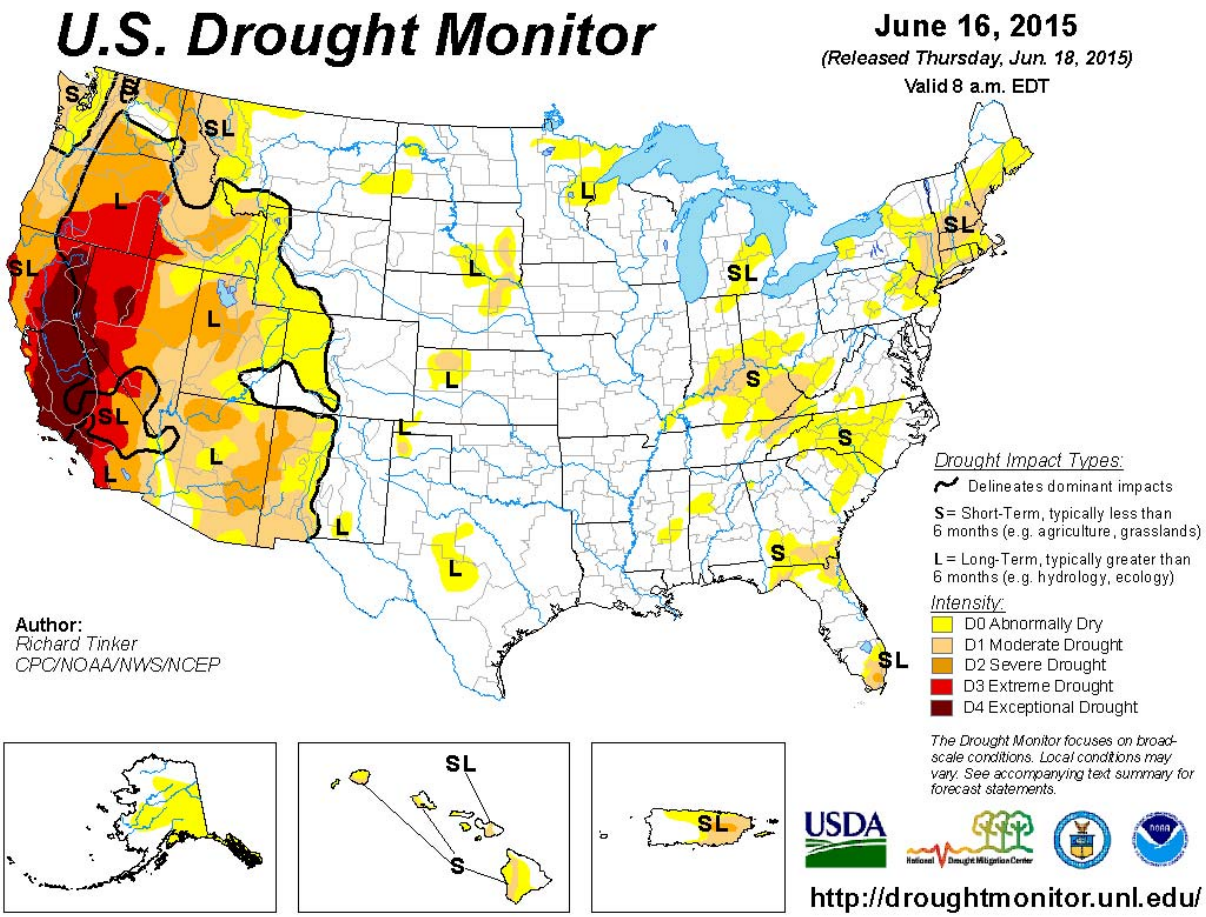
Temperature Probability
July 2015



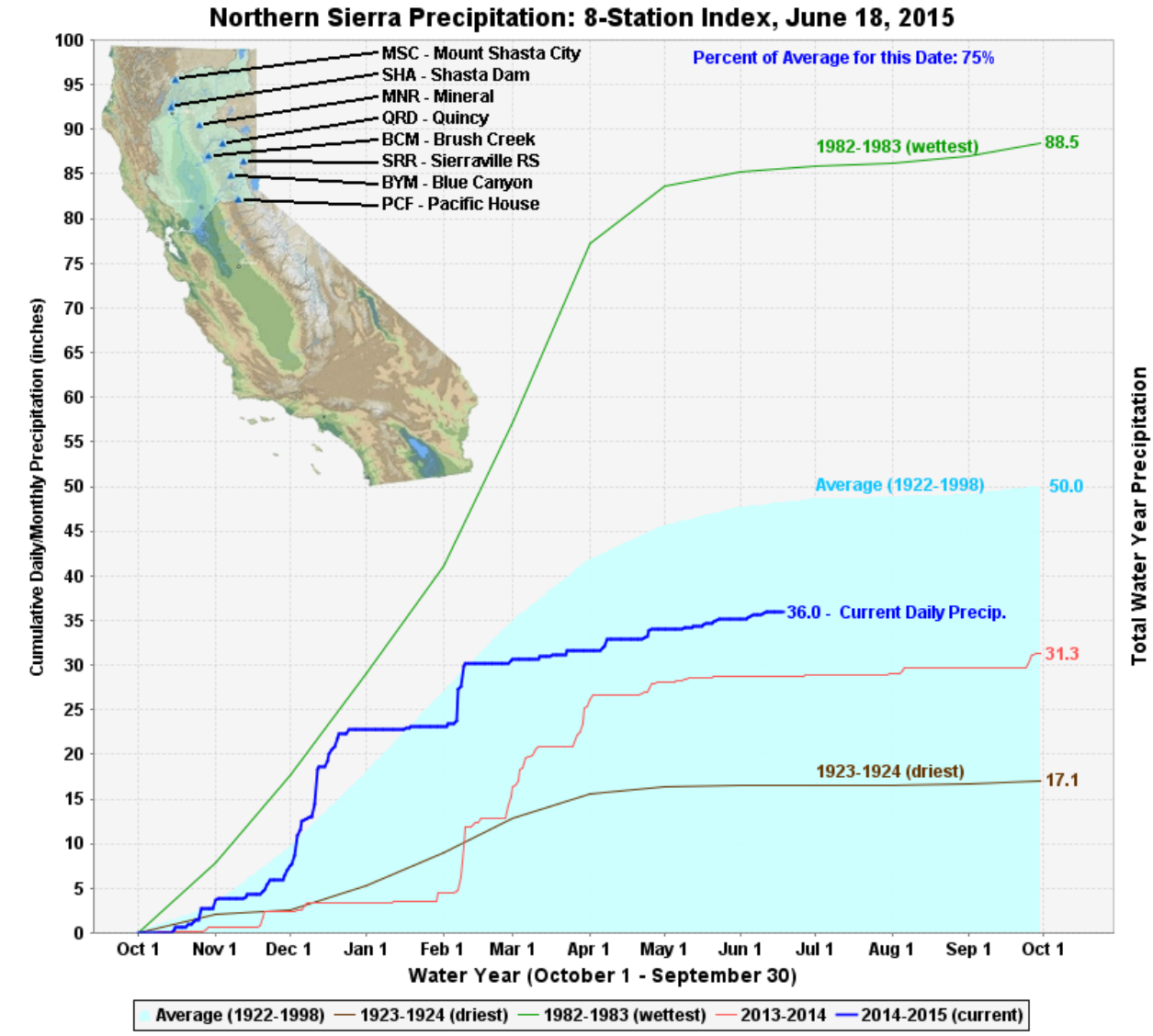
Precipitation Probability
July 2015



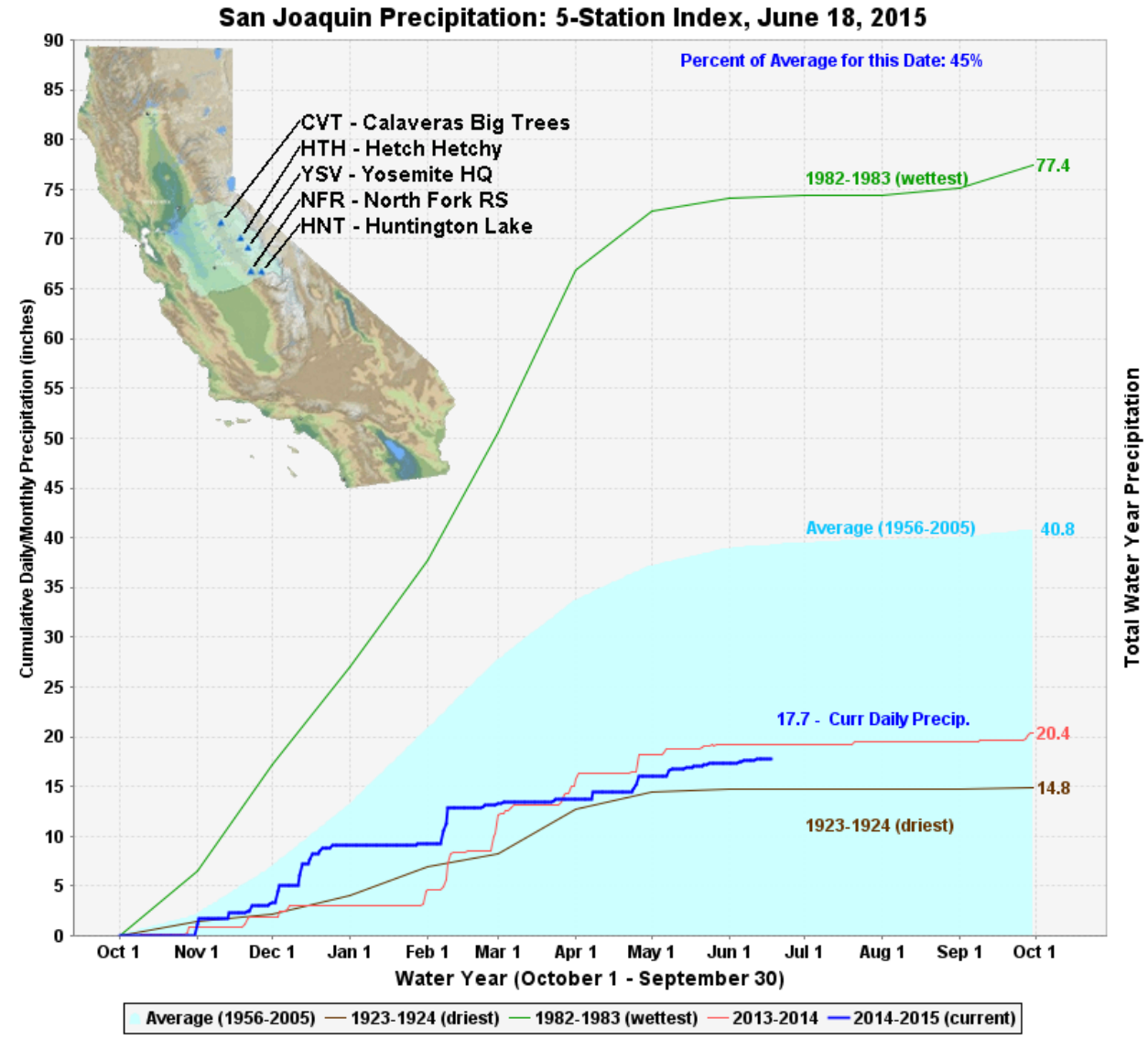
United Stated Drought Monitor Illustration

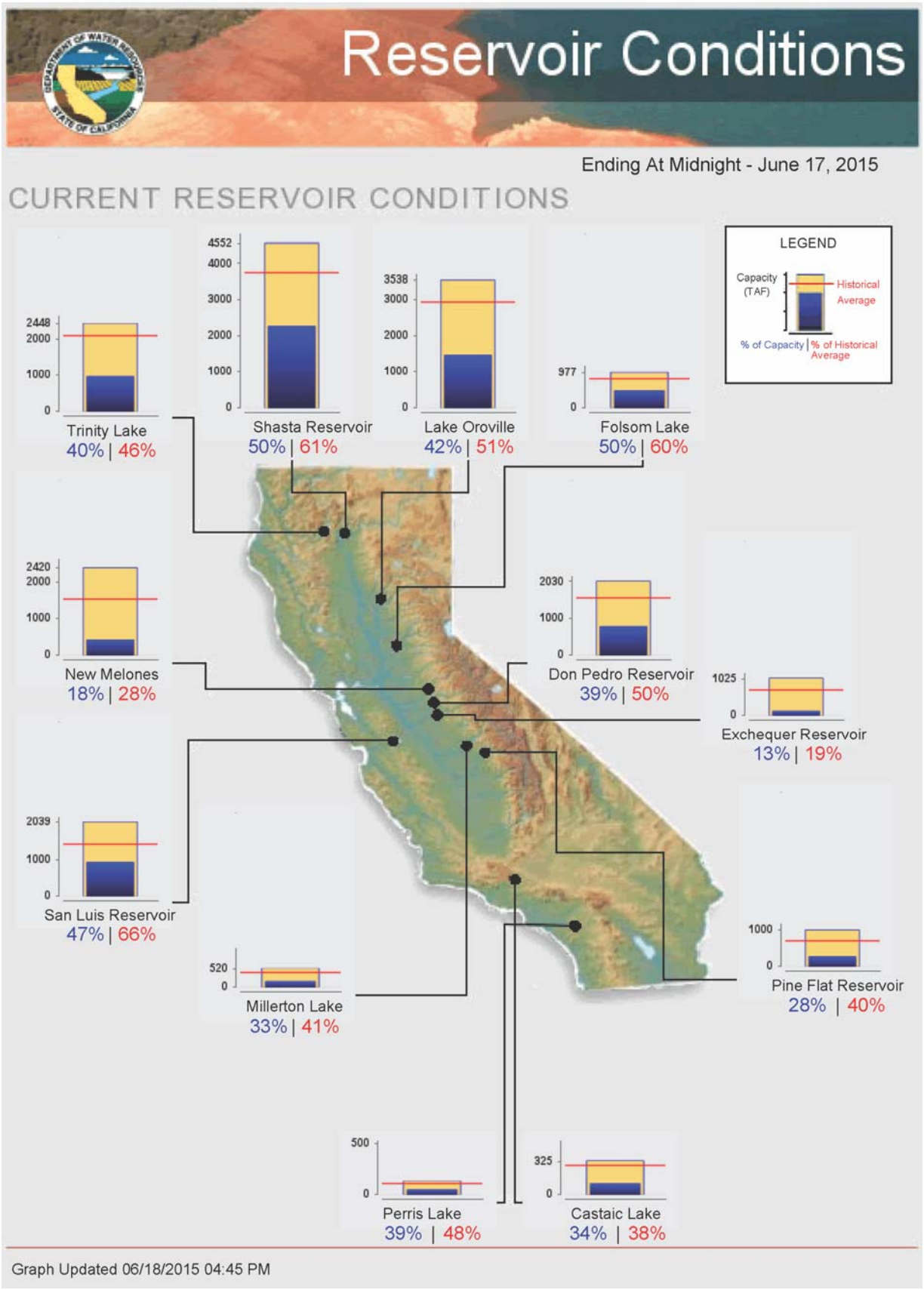


Department of Water Resources - California Data Exchange Center
Northern Sierra Precipitation



Department of Water Resources - California Data Exchange Center
San Joaquin Precipitation

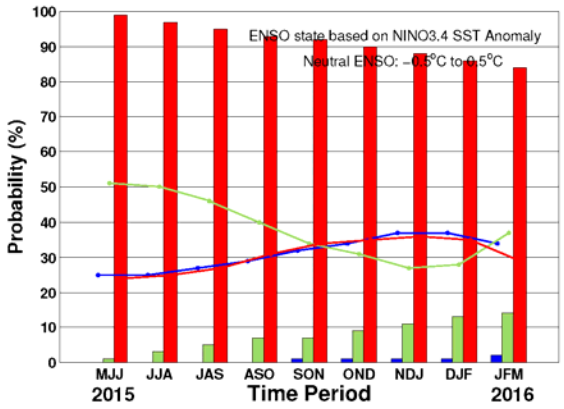



Reservoir Conditions
Ending At Midnight - June 17, 2015
CURRENT RESERVOIR CONDITIONS
LEGEND
Capacity (TAF)
Historical Average
% of Capacity
% of Historical Average
Trinity Lake
40% | 46%
Shasta Reservoir
50% | 61%
Lake Oroville
42% | 51%
Folsom Lake
50% | 60%
New Melones
18% | 28%
Don Pedro Reservoir
39% | 50%
Exchequer Reservoir
13% | 19%
San Luis Reservoir
47% | 66%
Millerton Lake
33% | 41%
Pine Flat Reservoir
28% | 40%
Perris Lake
39% | 48%
Castaic Lake
34% | 38%
Graph Updated 06/18/2015 04:45 PM

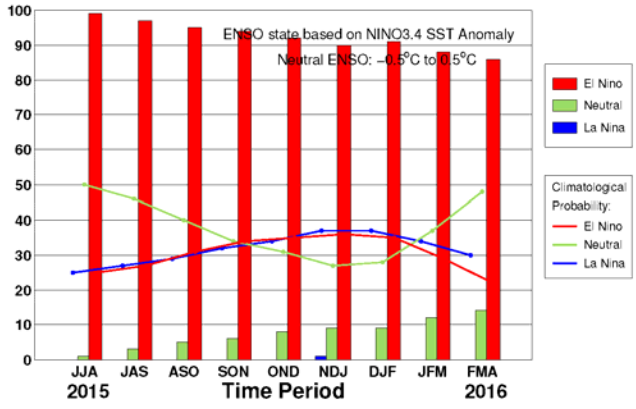
ENSO *QUICK LOOK* **June 18, 2015 A monthly summary of the status of El Niño, La Niña and the Southern Oscillation, or "ENSO",** based on NINO3.4 index (120-170W, 5S-5N)

During late May through early-June 2015 the SST was at a moderate El Niño level. The atmospheric variables support the El Niño pattern, including weakened trade winds and excess rainfall in the east-central tropical Pacific. The consensus of ENSO prediction models indicate continuation of moderate El Niño conditions during the June-August 2015 season in progress, likely strengthening further between summer and fall, and lasting into early 2016.

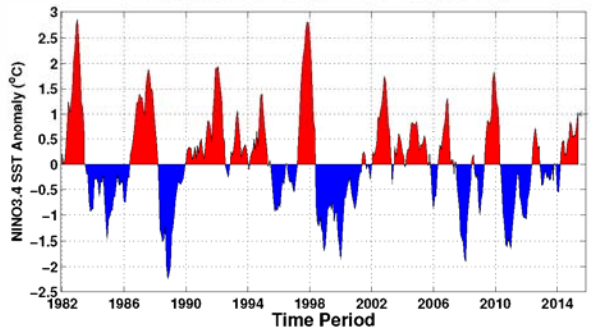
Early-Jun CPC/IRI Consensus Forecast[1]



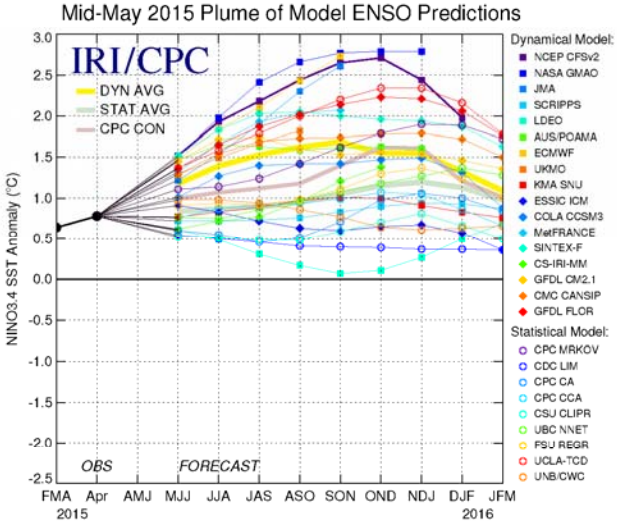
Mid-Jun IRI/CPC Plume-Based Forecast[2]



Historical NINO3.4 SST Anomaly



Mid-May 2015 Plume of Model ENSO Predictions



Historically Speaking

El Niño and La Niña events tend to develop during the period Apr-Jun and they:
- Tend to reach their maximum strength during Dec-Feb
- Typically persist for 9-12 months, though occasionally persisting for up to 2 years
- Typically recur every 2 to 7 years

[1]Based on a consensus of CPC and IRI forecasters, in association with the official CPC/IRI ENSO Diagnostic Discussion.
[2]Purely objective, based on regression, using equally weighted model predictions from the plume.

Yucaipa Valley Water District

Workshop Memorandum 15-122

Date: **June 23, 2015**

Subject: **Overview of Local and Regional Conjunctive Use Projects**

The Yucaipa Valley Water District operates a local conjunctive use project in the Yucaipa groundwater basins where the groundwater aquifer system is managed as an underground storage reservoir. During wet years, when more surface water is available, surface water is stored underground by recharging the aquifers with surplus water. The coordinated management of surface and groundwater supplies increases the yield of both supplies and enhances water reliability in an economic and environmentally responsible manner.

The Yucaipa Valley Water District's conjunctive use program is a significant way to diversify our water supply portfolio. The benefits of our conjunctive use project are:

- Operational flexibility for groundwater production;
- Increased yield of the basin;
- More efficient use of surplus surface water during wet years;
- Better distribution of water resources; and
- Increased reliability.

On September 17, 2013, the San Bernardino Valley Municipal Water District and the San Gorgonio Pass Water Agency conducted a joint board meeting that included a discussion about a proposed Bunker Hill Conjunctive Use Project.

The purpose of this agenda item is to present and explore the concepts of conjunctive use and how these programs can improve the overall sustainability of the Yucaipa Valley Water District.

SAN BERNARDINO VALLEY MUNICIPAL WATER DISTRICT

BUNKER HILL CONJUNCTIVE USE PROJECT
CONCEPT PAPER

September 2013

San Bernardino Valley Municipal Water District
Bunker Hill Conjunctive Use Project

Introduction

Conjunctive use can be defined as the coordinated management of surface and groundwater supplies to best utilize local and imported supplies to enhance water reliability in an economic and environmentally responsible manner. This can be accomplished by actively managing aquifer systems to meet water demands during dry and wet years. Under a conjunctive use scenario, water is stored underground by recharge for future use. The Bunker Hill Conjunctive Use Project (CUP) proposes to develop the contractual and physical systems necessary to use the basin conjunctively to enhance water supply reliability for the region.

Conjunctive use is an effective tool for increasing water supply during dry years and has been implemented on a small scale in the Bunker Hill Basin during the last 15 years. In light of the continued uncertainty of State Water Project (SWP) deliveries due to endangered species constraints, Valley District sees the development of conjunctive use as a means to improve the long-term water supply reliability.

The benefits of a conjunctive use program include:

1. Operational flexibility for groundwater production;
2. Increased yield and water supply reliability;
3. More efficient use of supplemental water when available;
4. Lower overall project costs from a regional perspective; and
5. Mitigation for high groundwater.

Background

In December 2007, 14 agencies adopted the *Upper Santa Ana Watershed Integrated Regional Water Management Plan* (IRWMP). This comprehensive water resources plan identifies various management strategies that will help ensure a reliable water supply for the San Bernardino, Yucaipa, Big Bear Valleys, and San Gorgonio Pass area. One of the management strategies in the IRWMP was to increase the yield of the San Bernardino Basin Area (SBBA) through conjunctive use (pp. 4-30). Based on a number of groundwater models scenarios, the IRWMP concluded that conjunctive use is feasible in the Bunker Hill Basin.

In February 2012, the Basin Technical Advisory Committee (BTAC) approved a cumulative total of 40,000 acre-feet per year for all conjunctive use projects in the SBBA. This is a conservative number and will possibly be increased as experience with the CUP is gained through time.

Existing Conjunctive Use Facilities

The centerpiece of the Valley District Conjunctive Use facilities is the Central Feeder System (CF). Valley District has constructed the first phase of the CF including the Redlands Pump Station and approximately 4 miles of 78-inch pipeline that connects to the Metropolitan Water District of Southern California Inland Feeder Pipeline, and ultimately, to the Department of Water Resources East Branch Extension, Phase II System (EBX II) currently under construction. The first phase of the CF was completed in 2007 and is capable of conveying 50 cubic feet per second (cfs), or 36,000 acre-feet per year of pumped groundwater.

Additionally, Valley District and the City of Redlands recently executed an agreement for Valley District to purchase 2.3 million gallons of storage capacity in the City's existing 3.9 million gallon Texas Grove Reservoir and up to 20,000 acre-feet per year of the City's unused production capacity that can be delivered to the Texas Grove Reservoir. With the connection between the Texas Grove Reservoir and Valley District's Redlands Pump Station, the CF is ready to be used to convey water to users that have access to EBX II (through a planned intertie facility) and the Inland Feeder Pipeline. The CF, its interties with EBX II and the Inland Feeder, and their interconnections with other facilities are shown in Figure 1.

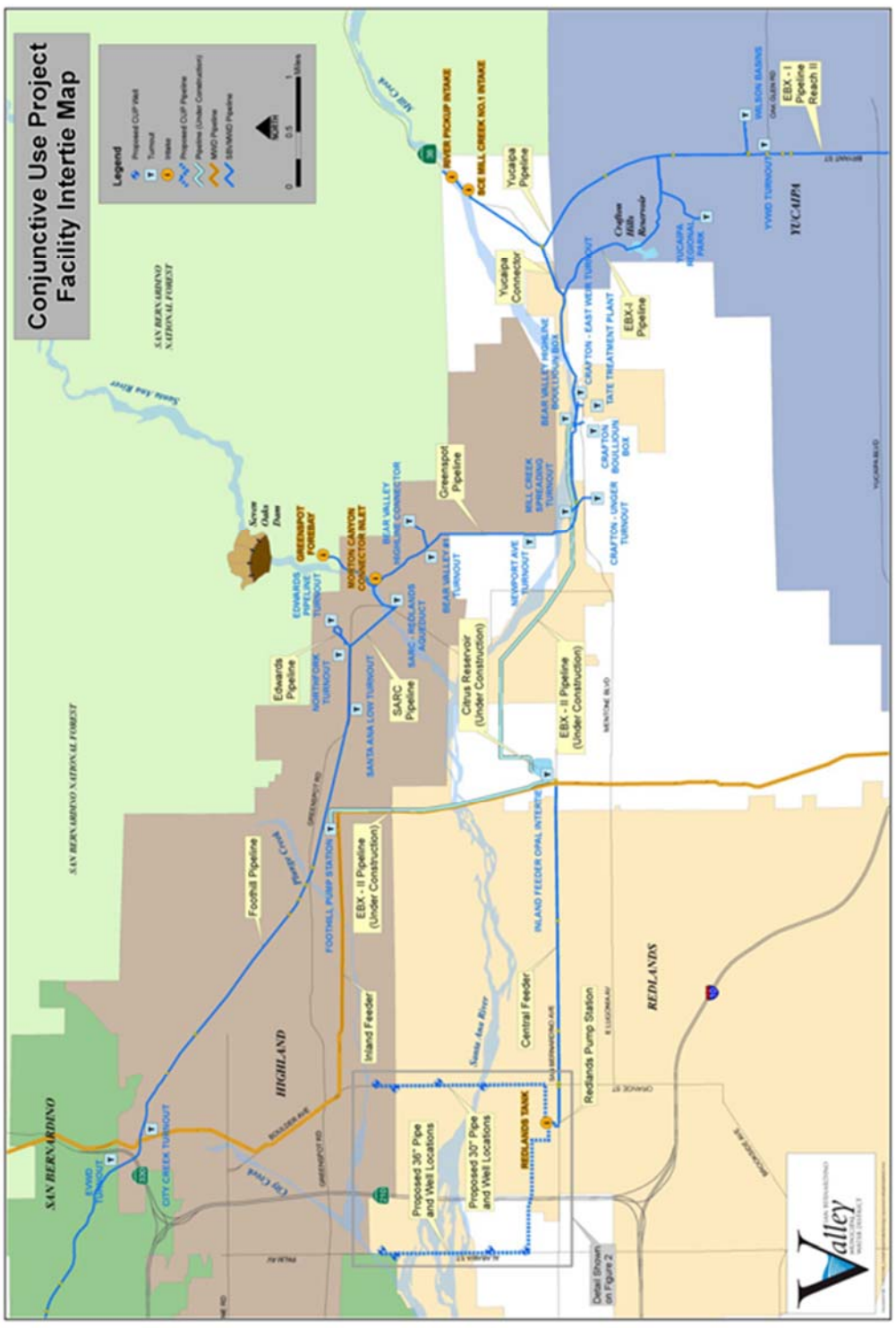
Proposed Conjunctive Use Facilities

Valley District is now seeking partners to expand the Conjunctive Use facilities anchored by the CF. The preliminary design of the CUP consists of up to 4 extraction wells along Alabama Street and Orange Street, respectively, in the vicinity of the Santa Ana River and associated transmission pipelines connected to the Texas Grove Reservoir. Because transmission mains were placed in the bridge cells during the construction of the Alabama and Orange Street bridges, no streambed impacts are anticipated. A phased construction approach is proposed with facilities being built in a sequential plan based on CUP participant needs. The layout of the proposed conjunctive use facilities and their connections to the CF are depicted in Figure 2.

Locations of the well sites will be strategically selected to minimize inter-well interferences and maximize production efficiency. It is anticipated that each well will produce up to 3,000 gallons per minute, or up to approximately 3,500 acre feet per year.

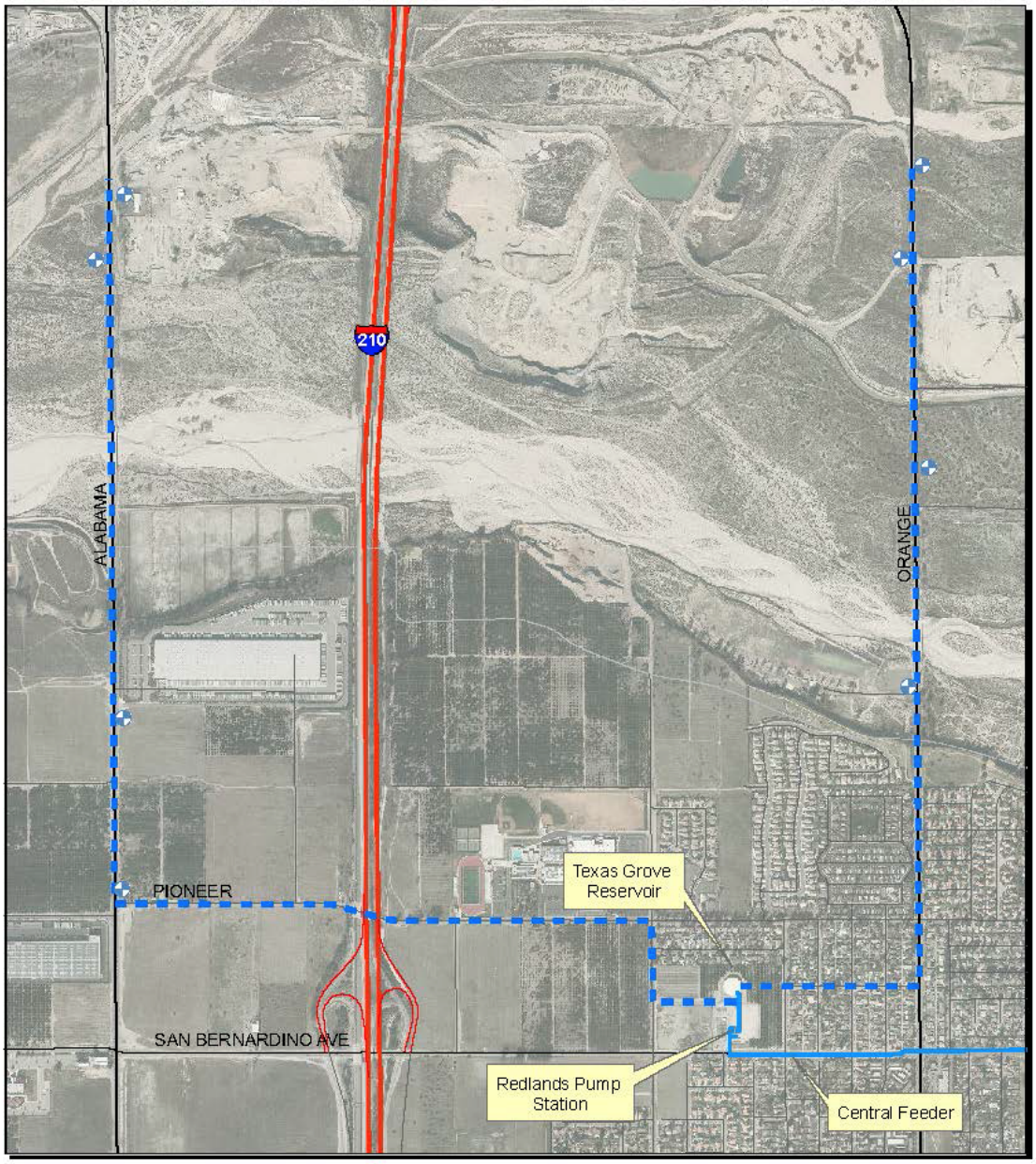
A preliminary opinion of probable project cost based on the conceptual design of drilling and equipping of the wells, associated instrumentation and controls, transmission mains, and "soft" cost, including design/engineering and preparation of environmental documentation, is presented in Table 1. An additional 20 percent contingency was added to the cost estimate to reflect the preliminary status of the work. As the design progresses, the level of contingency will be reduced accordingly.

Figure 1



Conjunctive Use *Page 4 of 7* *July 2013*

Figure 2



Proposed and Existing Conjuctive Use Facilities

0 0.25 0.5 Miles

Central Feeder Proposed Pipeline

Proposed Well

N W E S

Aerial Imagery Date: Feb, 2012

Table 1. Cost Estimate for the CUP based on the Preliminary Design

Item	Sub-item	Unit Cost	Unit	Qty	Total
CEQA Doc					$500,000
Facilities Design & Engineering					$1,000,000
Well Design & Observation					$800,000
Orange Street Wellfield	Well Installation	$650,000	Ea	4	$2,600,000
	Well Equipping	$200,000	Ea	4	$800,000
	Switchgear & SCADA	$200,000	Ea	4	$800,000
	30-in CML&C Pipe	$250	LF	10,000	$2,500,000
Alabama Street Wellfield	Well Installation	$650,000	Ea	4	$2,600,000
	Well Equipping	$200,000	Ea	4	$800,000
	Switchgear & SCADA	$200,000	Ea	4	$800,000
	36-in CML&C Pipe	$275	LF	13,000	$3,575,000
Central Feeder/EBX II Intertie					$1,500,000
				Project Total:	$18,275,000
				20% Project Contingency:	$3,655,000
				Project Total with Contingency:	**$21,930,000**

Potential Project Partners

Given the potential benefits of the Conjunctive Use facilities, agencies may be interested in participating in the CUP in one or more of the following categories:

1. **Basin Management:** The facilities may be used to mitigate potential high groundwater condition in the Pressure Zone, should it return, by increasing pumping from the basin and exporting to other locations. Additionally, the facilities will allow for an increase in storage levels throughout the Bunker Hill Basin. Finally, excess pumped groundwater may be delivered to agencies within or outside of Valley District's service area for possible future exchange. Valley District is primarily interested in this function.

2. **Conjunctive-Use:** Agencies may be interested in "banking" (storing) SWP water, or other types of supplemental water in the Bunker Hill Basin. Water would be percolated into the basin via the recharge ponds along the mountain front, and upgradient of the Orange and Alabama Street wellfield, and pumped out when needed. Potential interested agencies in this category include Yucaipa Valley Water District, San Gorgonio Pass Water Agency, WMWD, City of Riverside Public Utilities, etc.

3. **Base-Load:** The extraction wells may be used to meet an agency's base-load demand. Potential interested agencies in this category include East Valley Water District, City of Redlands, City of Loma Linda, etc.

4. **Emergency Supply:** Agencies may be interested in participating in the CUP as their source of emergency supply. Water from the CUP may be delivered via existing interties and/or through specific wheeling arrangements with other agencies or CUP participants.

These four categories, or classes, of CUP participation have somewhat different demand patterns (i.e. wet vs. dry) that should help to minimize potential conflicts of use. Further, shared financial participation will lead to lower costs overall to all partners. Once the project partners are identified, a cost allocation method will be jointly developed based on the benefits received.

Capital Improvement Projects

Yucaipa Valley Water District

Yucaipa Valley Water District

Workshop Memorandum 15-123

Date: **June 23, 2015**

Subject: **Status Report on the Construction of a 6.0 Million Gallon Drinking Water Reservoir R-12.4 - Calimesa**

At the regular meeting on July 16, 2014, the Board authorized the solicitation of bids for the construction of a 6.0 Million Gallon R-12.4 Reservoir located on Singleton Road in Calimesa [Director Memorandum No. 14-060]. On November 19, 2014, the Board of Directors awarded the construction contract for the reservoir facility to Gateway Pacific Contractors [Director Memorandum No. 14-091].

The purpose of this agenda item is to provide an update on the progress of the reservoir construction project.


04/29/2015 06:52


04/29/2015 11:20
NATRON


NATRON
05/06/2015 08:30


05/11/2015 06:56

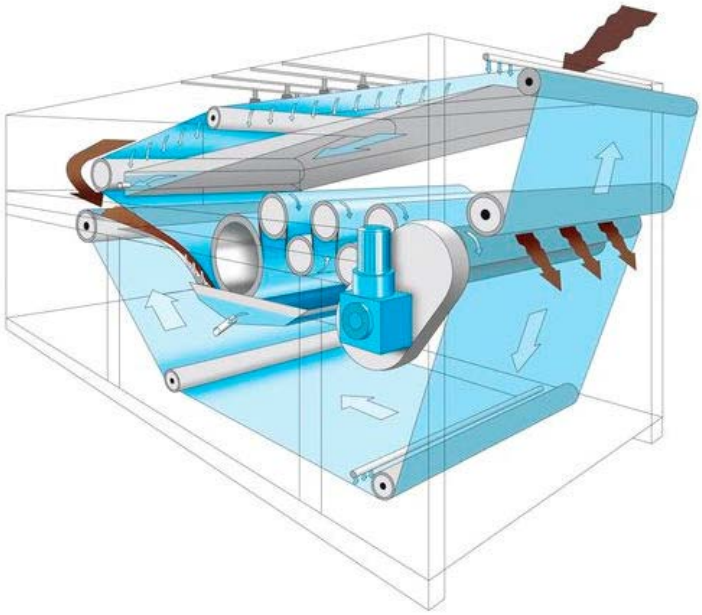
Yucaipa Valley Water District

Workshop Memorandum 15-124

Date: **June 23, 2015**

Subject: **Status Report on the Testing of Alternative Sludge Dewatering Equipment at the Wochholz Regional Water Recycling Facility**

The Wochholz Regional Water Recycling Facility uses belt filters to remove liquids from the biosolids collected throughout the sewer treatment process. The belt filter technology has been in use at the sewer treatment plant for over twenty years. The belt filters have proven to be a simple and reliable technology that has been easy to maintain with a long life. As this equipment has surpassed its useful life the District staff has noticed signs of metal fatigue and stress cracks in the equipment. Therefore, we have started to process to evaluate other available technology to plan for the replacement of the existing belt presses.



The District staff will be testing alternative dewatering equipment to further reduce maintenance, energy and hauling costs. Pilot testing of potential equipment will provide an opportunity to validate the equipment performance and provide the operations staff members with first-hand knowledge about the overall operation and maintenance of the equipment.

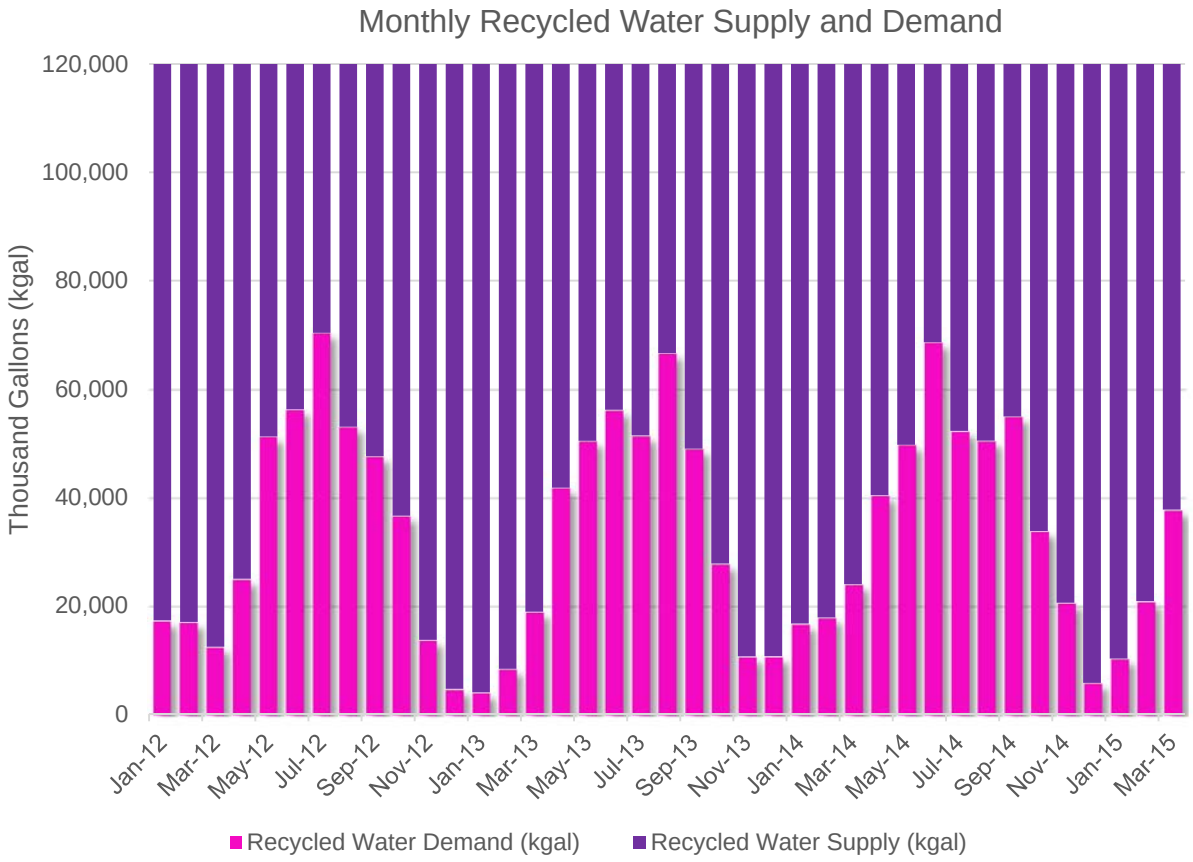
Yucaipa Valley Water District

Workshop Memorandum 15-125

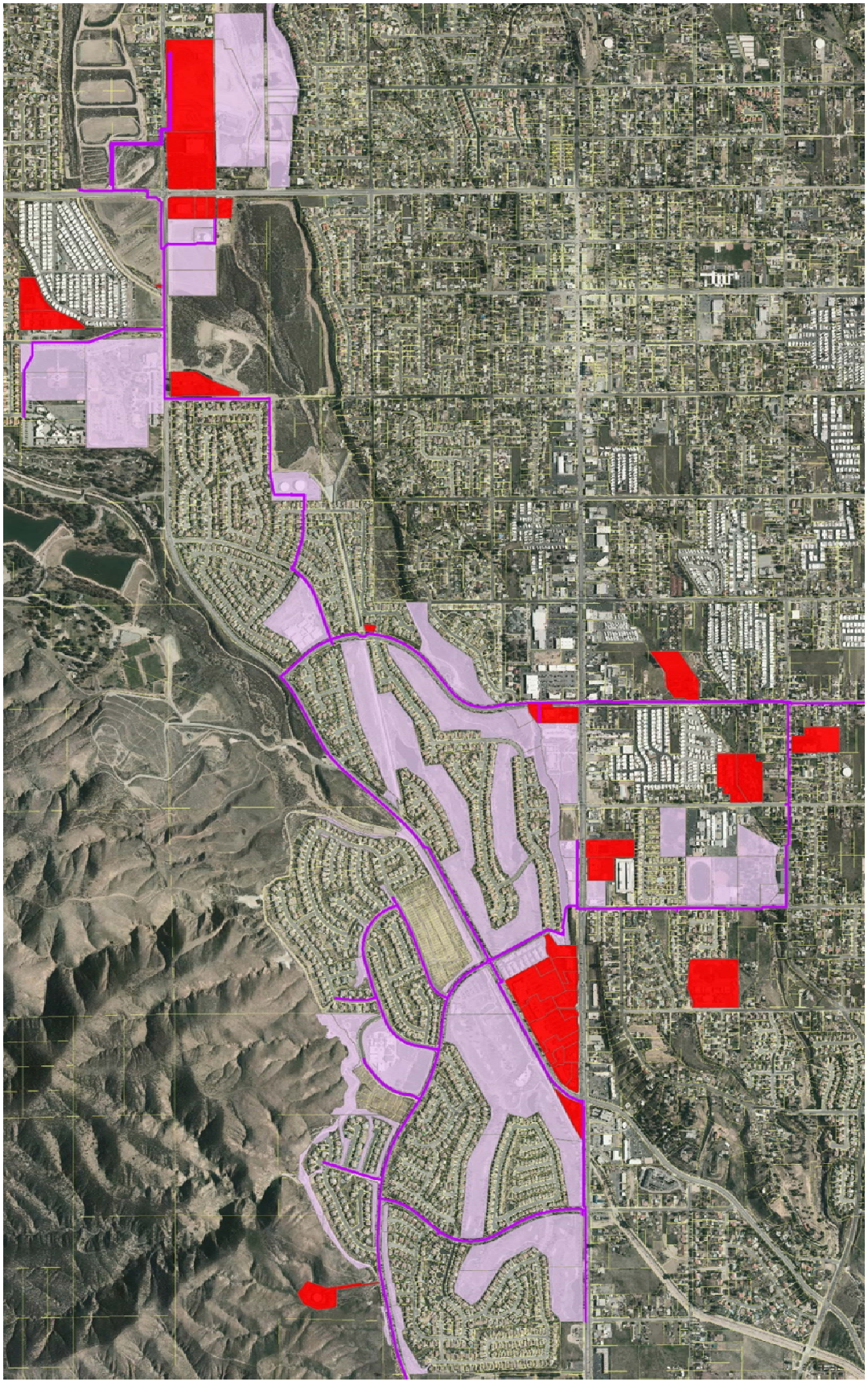
Date: **June 23, 2015**

Subject: **Status Report on the Installation of New Recycled Water Services and Recycled Water Pipelines Throughout the Service Area of the Yucaipa Valley Water District**

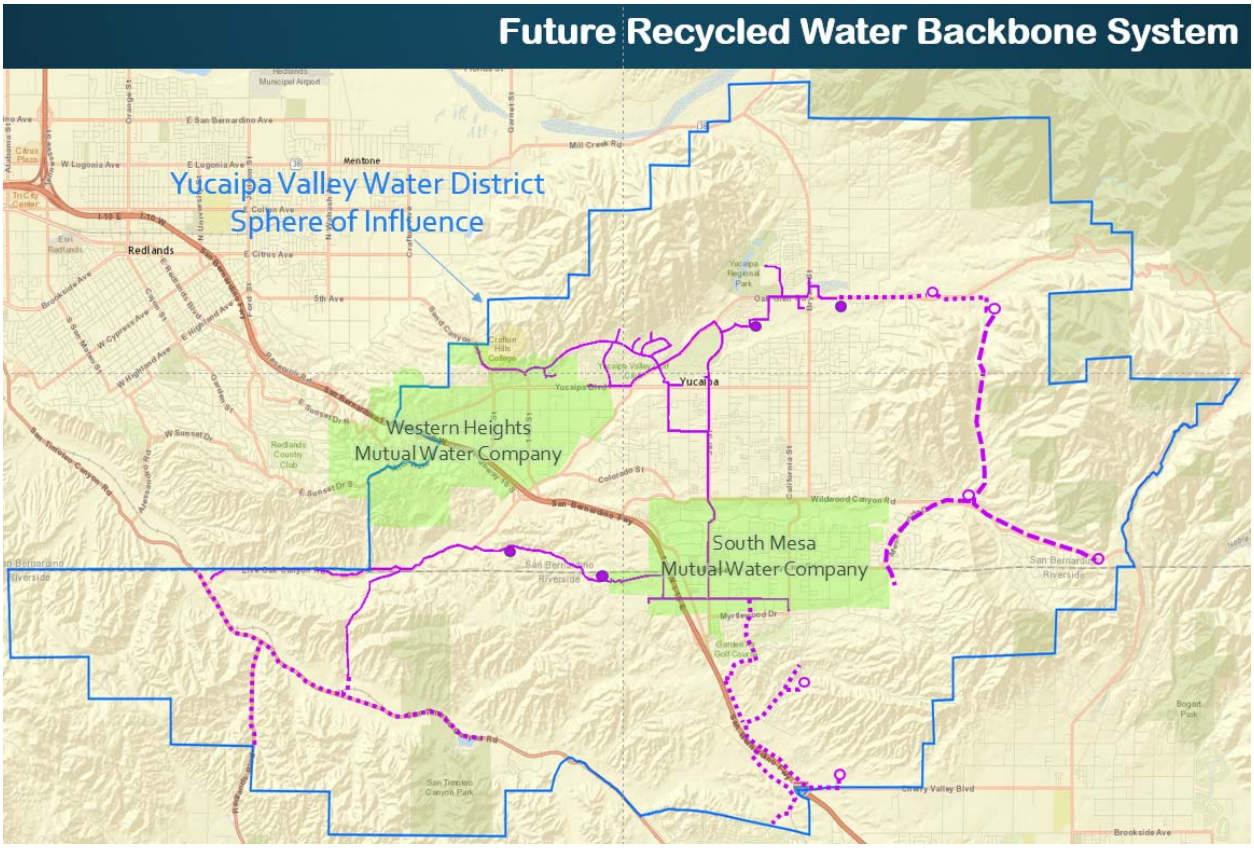
Over the past decade, the Yucaipa Valley Water District has been expanding the recycled water system to reduce the amount of potable water used by our community. Currently the District uses only a portion of the total recycled water available for our community.



The District staff is working closely with property owners to facilitate new service connections to the existing recycled water system. The following map shows some of the targeted customers in the Yucaipa portion of our service area. The red parcels indicate properties planning for a new or expanded recycled water connection. The pink parcels are already connected to the recycled water system.



In addition to new service connections, the District staff is working on a long-term plan to significantly expand the recycled water system as shown on the following map.



During this workshop item, the District staff will provide an update on the status of our recycled water expansion efforts.

Administrative Items

Yucaipa Valley Water District

Yucaipa Valley Water District

Workshop Memorandum 15-126

Date: **June 23, 2015**

Subject: **Purchase Requisition with Harper & Associates Engineering for Engineering, Bidding, and Inspection Services for Coating Repairs to the Yucaipa Valley Regional Water Filtration Facility 48" Feed Pipeline**

During the recently completed routine inspection of the Yucaipa Valley Regional Water Filtration Facility, the 48" diameter welded steel epoxy coated inlet pipeline was inspected. During the inspection some imperfections in the interior epoxy coating were discovered. The imperfections will require repair work to maintain the long-term integrity of the feed pipeline.

The District staff has requested a proposal from Harper & Associates Engineering to prepare the technical specifications for the proposed coating work, bid assistance, construction management assistance, and inspection services.

The purpose of this agenda item is to discuss the process for proceeding with the proposed maintenance work.

Yucaipa Valley Water District

Workshop Memorandum 15-127

Date: **June 23, 2015**

Subject: **Overview of a Public Relations Request for Proposal**

The Board of Directors requested the development of a conceptual scope of services document for reciving specific professional public relations services related to specific District projects and activities.

The purpose of this agenda item is to discuss the draft Request for Proposals for public relations services.

Director Comments

Yucaipa Valley Water District

Yucaipa Valley Water District

FACTS ABOUT THE YUCAIPA VALLEY WATER DISTRICT

Service Area Size: 40 square miles (sphere of influence is 68 square miles)

Elevation Change: 3,140 foot elevation change (from 2,044 to 5,184 feet)

Number of Employees:
5 elected board members
57 full time employees

Operating Budget:
Water Division - $13,072,750
Sewer Division - $11,689,000
Recycled Water Division - $433,500
Total Annual Budget - $25,195,250

Number of Services:
12,206 water connections serving 16,843 units
13,492 sewer connections serving 20,312 units
62 recycled water connections

Water System:
215 miles of drinking water pipelines
27 reservoirs - 34 million gallons of storage capacity
18 pressure zones
12,000 ac-ft annual water demand (3.9 billion gallons)
Two water filtration facilities:
- 1 mgd at Oak Glen Surface Water Filtration Facility
- 12 mgd at Yucaipa Valley Regional Water Filtration Facility

Sewer System:
8.0 million gallon treatment capacity - current flow at 4.0 mgd
205 miles of sewer mainlines
5 sewer lift stations
4,500 ac-ft annual recycled water prod. (1.46 billion gallons)

Recycled Water:
22 miles of recycled water pipelines
5 reservoirs - 12 million gallons of storage
1,200 ac-ft annual recycled demand (0.4 billion gallons)

Brine Disposal:
2.2 million gallon desalination facility at sewer treatment plant
1.108 million gallons of Inland Empire Brine Line capacity
0.295 million gallons of treatment capacity in Orange County

Yucaipa Valley Water District

THE MEASUREMENT OF WATER PURITY

One part per hundred is generally represented by the percent (%).
This is equivalent to about fifteen minutes out of one day.

One part per thousand denotes one part per 1000 parts.
This is equivalent to about one and a half minutes out of one day.

One part per million (**ppm**) denotes one part per 1,000,000 parts.
This is equivalent to about 32 seconds out of a year.

One part per billion (**ppb**) denotes one part per 1,000,000,000 parts.
This is equivalent to about three seconds out of a century.

One part per trillion (**ppt**) denotes one part per 1,000,000,000,000 parts.
This is equivalent to about three seconds out of every hundred thousand years.

One part per quadrillion (**ppq**) denotes one part per 1,000,000,000,000,000 parts.
This is equivalent to about two and a half minutes out of the age of the Earth (4.5 billion years).

Yucaipa Valley Water District

GLOSSARY OF COMMONLY USED TERMS

Every profession has specialized terms which generally evolve to facilitate communication between individuals. The routine use of these terms tends to exclude those who are unfamiliar with the particular specialized language of the group. Sometimes jargon can create communication cause difficulties where professionals in related fields use different terms for the same phenomena.

Below are commonly used water terms and abbreviations with commonly used definitions. If there is any discrepancy in definitions, the District's Regulations Governing Water Service is the final and binding definition.

Acre Foot of Water - The volume of water (325,850 gallons, or 43,560 cubic feet) that would cover an area of one acre to a depth of 1 foot.

Activated Sludge Process – A secondary biological sewer treatment process where bacteria reproduce at a high rate with the introduction of excess air or oxygen, and consume dissolved nutrients in the wastewater.

Annual Water Quality Report - The document is prepared annually and provides information on water quality, constituents in the water, compliance with drinking water standards and educational material on tap water. It is also referred to as a Consumer Confidence Report (CCR).

Aquifer - The natural underground area with layers of porous, water-bearing materials (sand, gravel) capable of yielding a supply of water; see Groundwater basin.

Backflow - The reversal of water's normal direction of flow. When water passes through a water meter into a home or business it should not reverse flow back into the water mainline.

Best Management Practices (BMPs) - Methods or techniques found to be the most effective and practical means in achieving an objective. Often used in the context of water conservation.

Biochemical Oxygen Demand (BOD) – The amount of oxygen used when organic matter undergoes decomposition by microorganisms. Testing for BOD is done to assess the amount of organic matter in water.

Biosolids – Biosolids are nutrient rich organic and highly treated solid materials produced by the sewer treatment process. This high-quality product can be used as a soil amendment on farm land or further processed as an earth-like product for commercial and home gardens to improve and maintain fertile soil and stimulate plant growth.

Catch Basin – A chamber usually built at the curb line of a street, which conveys surface water for discharge into a storm sewer.

Capital Improvement Program (CIP) – Projects for repair, rehabilitation, and replacement of assets. Also includes treatment improvements, additional capacity, and projects for the support facilities.

Collector Sewer – The first element of a wastewater collection system used to collect and carry wastewater from one or more building sewer laterals to a main sewer.

Coliform Bacteria – A group of bacteria found in the intestines of humans and other animals, but also occasionally found elsewhere and is generally used as an indicator of sewage pollution.

Combined Sewer Overflow – The portion of flow from a combined sewer system, which discharges into a water body from an outfall located upstream of a wastewater treatment plant, usually during wet weather conditions.

Combined Sewer System– Generally older sewer systems designed to convey both sewage and storm water into one pipe to a wastewater treatment plant.

Conjunctive Use - The coordinated management of surface water and groundwater supplies to maximize the yield of the overall water resource. Active conjunctive use uses artificial recharge, where surface water is intentionally percolated or injected into aquifers for later use. Passive conjunctive use is to simply rely on surface water in wet years and use groundwater in dry years.

Consumer Confidence Report (CCR) - see Annual Water Quality Report.

Cross-Connection - The actual or potential connection between a potable water supply and a non-potable source, where it is possible for a contaminant to enter the drinking water supply.

Disinfection By-Products (DBPs) - The category of compounds formed when disinfectants in water systems react with natural organic matter present in the source water supplies. Different disinfectants produce different types or amounts of disinfection byproducts. Disinfection byproducts for which regulations have been established have been identified in drinking water, including trihalomethanes, haloacetic acids, bromate, and chlorite

Drought - a period of below average rainfall causing water supply shortages.

Dry Weather Flow – Flow in a sanitary sewer during periods of dry weather in which the sanitary sewer is under minimum influence of inflow and infiltration.

Fire Flow - The ability to have a sufficient quantity of water available to the distribution system to be delivered through fire hydrants or private fire sprinkler systems.

Gallons per Capita per Day (GPCD) - A measurement of the average number of gallons of water use by the number of people served each day in a water system. The calculation is made by dividing the total gallons of water used each day by the total number of people using the water system.

Groundwater Basin - An underground body of water or aquifer defined by physical boundaries.

Groundwater Recharge - The process of placing water in an aquifer. Can be a naturally occurring process or artificially enhanced.

Hard Water - Water having a high concentration of minerals, typically calcium and magnesium ions.

Hydrologic Cycle - The process of evaporation of water into the air and its return to earth in the form of precipitation (rain or snow). This process also includes transpiration from plants, percolation into the ground, groundwater movement, and runoff into rivers, streams and the ocean; see Water cycle.

Infiltration – Water other than sewage that enters a sewer system and/or building laterals from the ground through defective pipes, pipe joints, connections, or manholes. Infiltration does not include inflow. See *Inflow.*

Inflow - Water other than sewage that enters a sewer system and building sewer from sources such as roof vents, yard drains, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm drains and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include infiltration. See *Infiltration*.

Inflow / Infiltration (I/I) – The total quantity of water from both inflow and infiltration.

Mains, Distribution - A network of pipelines that delivers water (drinking water or recycled water) from transmission mains to residential and commercial properties, usually pipe diameters of 4" to 16".

Mains, Transmission - A system of pipelines that deliver water (drinking water or recycled water) from a source of supply the distribution mains, usually pipe diameters of greater than 16".

Meter - A device capable of measuring, in either gallons or cubic feet, a quantity of water delivered by the District to a service connection.

Overdraft - The pumping of water from a groundwater basin or aquifer in excess of the supply flowing into the basin. This pumping results in a depletion of the groundwater in the basin which has a net effect of lowering the levels of water in the aquifer.

Peak Flow – The maximum flow that occurs over a specific length of time (e.g., daily, hourly, instantaneously).

Pipeline - Connected piping that carries water, oil or other liquids. See Mains, Distribution and Mains, Transmission.

Point of Responsibility, Metered Service - The connection point at the outlet side of a water meter where a landowner's responsibility for all conditions, maintenance, repairs, use and replacement of water service facilities begins, and the District's responsibility ends.

Potable Water - Water that is used for human consumption and regulated by the California Department of Public Health.

Pressure Reducing Valve - A device used to reduce the pressure in a domestic water system when the water pressure exceeds desirable levels.

Pump Station - A drinking water or recycled water facility where pumps are used to push water up to a higher elevation or different location.

Reservoir - A water storage facility where water is stored to be used at a later time for peak demands or emergencies such as fire suppression. Drinking water and recycled water systems will typically use concrete or steel reservoirs. The State Water Project system considers lakes, such as Shasta Lake and Folsom Lake to be water storage reservoirs.

Runoff - Water that travels downward over the earth's surface due to the force of gravity. It includes water running in streams as well as over land.

Sanitary Sewer System - Sewer collection system designed to carry sewage, consisting of domestic, commercial, and industrial wastewater. This type of system is not designed nor intended to carry water from rainfall, snowmelt, or groundwater sources. See *Combined Sewer System*.

Sanitary Sewer Overflow – Overflow from a sanitary sewer system caused when total wastewater flow exceeds the capacity of the system. See *Combined Sewer Overflow*.

Santa Ana River Interceptor (SARI) Line – A regional brine line designed to convey 30 million gallons per day of non-reclaimable wastewater from the upper Santa Ana River basin to the sewer treatment plant operated by Orange County Sanitation District.

Secondary Treatment – Biological sewer treatment, particularly the activated-sludge process, where bacteria and other microorganisms consume dissolved nutrients in wastewater.

Supervisory Control and Data Acquisition (SCADA) - A computerized system which provides the ability to remotely monitor and control water system facilities such as reservoirs, pumps and other elements of water delivery.

Service Connection - The water piping system connecting a customer's system with a District water main beginning at the outlet side of the point of responsibility, including all plumbing and equipment located on a parcel required for the District's provision of water service to that parcel.

Sludge – Untreated solid material created by the treatment of sewage.

Smart Irrigation Controller - A device that automatically adjusts the time and frequency which water is applied to landscaping based on real-time weather such as rainfall, wind, temperature and humidity.

Special District - A political subdivision of a state established to provide a public services, such as water supply or sanitation, within a specific geographic area.

Surface Water - Water found in lakes, streams, rivers, oceans or reservoirs behind dams.

Total Suspended Solids (TSS) – The amount of solids floating and in suspension in water or sewage.

Transpiration - The process by which water vapor is released into the atmosphere by living plants.

Trickling Filter – A biological secondary treatment process in which bacteria and other microorganisms, growing as slime on the surface of rocks or plastic media, consume nutrients in primary treated sewage as it trickles over them.

Underground Service Alert (USA) - A free service that notifies utilities such as water, telephone, cable and sewer companies of pending excavations within the area (dial 8-1-1 at least 2 working days before you dig).

Urban Runoff - Water from city streets and domestic properties that typically carries pollutants into the storm drains, rivers, lakes, and oceans.

Valve - A device that regulates, directs or controls the flow of water by opening, closing or partially obstructing various passageways.

Wastewater – Any water that enters the sanitary sewer.

Water Banking - The practice of actively storing or exchanging in-lieu surface water supplies in available groundwater basin storage space for later extraction and use by the storing party or for sale or exchange to a third party. Water may be banked as an independent operation or as part of a conjunctive use program.

Water cycle - The continuous movement water from the earth's surface to the atmosphere and back again; see Hydrologic cycle.

Water Pressure - Pressure created by the weight and elevation of water and/or generated by pumps that deliver water to the tap.

Water Service Line - The pipeline that delivers potable water to a residence or business from the District's water system. Typically the water service line is a 1" to 1½" diameter pipe for residential properties.

Watershed - A region or land area that contributes to the drainage or catchment area above a specific point on a stream or river.

Water Table - The upper surface of the zone of saturation of groundwater in an unconfined aquifer.

Water Transfer - A transaction, in which a holder of a water right or entitlement voluntarily sells/exchanges to a willing buyer the right to use all or a portion of the water under that water right or entitlement.

Water Well - A hole drilled into the ground to tap an underground water aquifer.

Wetlands - Lands which are fully saturated or under water at least part of the year, like seasonal vernal pools or swamps.

Wet Weather Flow – Dry weather flow combined with stormwater introduced into a combined sewer system, and dry weather flow combined with infiltration/inflow into a separate sewer system.

Yucaipa Valley Water District

COMMONLY USED ABBREVIATIONS

AQMD	Air Quality Management District
BOD	Biochemical Oxygen Demand
CARB	California Air Resources Board
CCTV	Closed Circuit Television
CWA	Clean Water Act
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FOG	Fats, Oils, and Grease
GPD	Gallons per day
MGD	Million gallons per day
O & M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
POTW	Publicly Owned Treatment Works
PPM	Parts per million
RWQCB	Regional Water Quality Control Board
SARI	Santa Ana River Inceptor
SAWPA	Santa Ana Watershed Project Authority
SBVMWD	San Bernardino Valley Municipal Water District
SCADA	Supervisory Control and Data Acquisition system
SSMP	Sanitary Sewer Management Plan
SSO	Sanitary Sewer Overflow
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements
YVWD	Yucaipa Valley Water District