

Meeting Agenda

December 6, 2022

11:30 a.m. – 1:00 p.m.



Location: Santa Clarita Valley Water Agency
Mitchell River House at Vista Canyon
16950 Lost Canyon Rd.
Santa Clarita, CA 9138

For virtual participation, please register for the Zoom meeting via the following link:

<https://us02web.zoom.us/meeting/register/tZ0rdeiorTgpHdxj88LMHoAgud6HVbeEGrsZ>

The mission of Los Angeles Chapter of the WaterReuse Association is to enhance the resiliency and sustainability of Los Angeles County by increasing the safe, beneficial use of recycled water. Its objectives shall be to promote water reclamation and recycling as a sustainable supplemental source of water for the state; to work for the adoption of legislation and regulations that allow the safe use of recycled water; to facilitate the development of technology aimed at improving water recycling; to promote legislation that would increase funding for water recycling projects; to provide mutual assistance and support between and among Chapter members involved with water recycling projects; and to increase public awareness and understanding of related water problems and solutions.

Lunch..... 11:00 a.m.

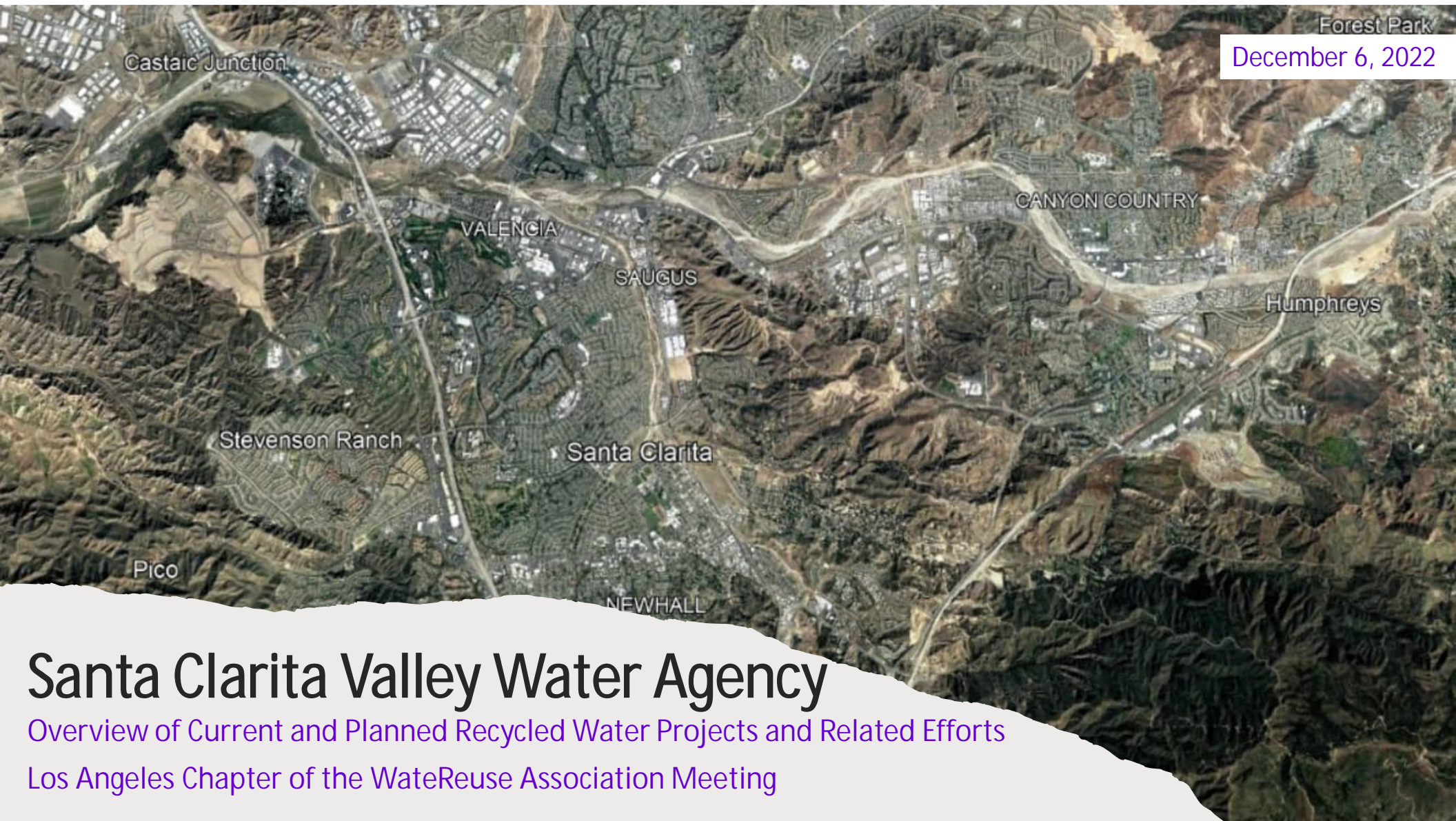
Welcome, Introductions and Instructions..... 11:30 a.m.

1. Host presentation: Recycled Water Projects at Santa Clarita and the New Drop Approach (Shadi Bader/SCVWA)
2. Sponsor presentation: Santa Clarita Valley Water Agency Recycled Water Projects Highlight (Elisha Back and Matt Elsner/Woodard & Curran)
3. Technical Topic: Maximizing Pathogen Crediting for Potable Reuse (Bryan Trussell/Trussell)
4. Water Recycling Legislative/Regulatory Updates (Raymond Jay)
5. Regulatory Agency Spotlight – SWRCB DDW (Rebecca Christmann)
6. California State Section Update (Rafael Villegas)
7. Chapter Updates (Judi Miller)
 - a. October 2022 Member Meeting Summary
 - b. Volunteer Opportunities
 - c. Elections
8. Membership Roundtable (Jared Lee)
9. Next Meetings
 - February 14, 2023 – Host: Los Angeles County Sanitation Districts; Sponsor: TBD
 - April 11, 2023 – Host: Los Angeles Department of Water and Power; Sponsor: TBD
10. Adjournment 1:00 p.m.
11. Vista Canyon Water Factory Tour

Los Angeles Chapter Officers for 2020/2022

Fred Gerringer, President	626-319-1107
Jared Lee, Vice President	626-379-8443
Judi Miller, Secretary/Treasurer	213-228-8236
Rafael Villegas, Chapter Trustee	213-367-1289
Raymond Jay, Past-President	213-217-5777

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rafael.villegas@ladwp.com
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December 6, 2022

Santa Clarita Valley Water Agency

Overview of Current and Planned Recycled Water Projects and Related Efforts

Los Angeles Chapter of the WaterReuse Association Meeting

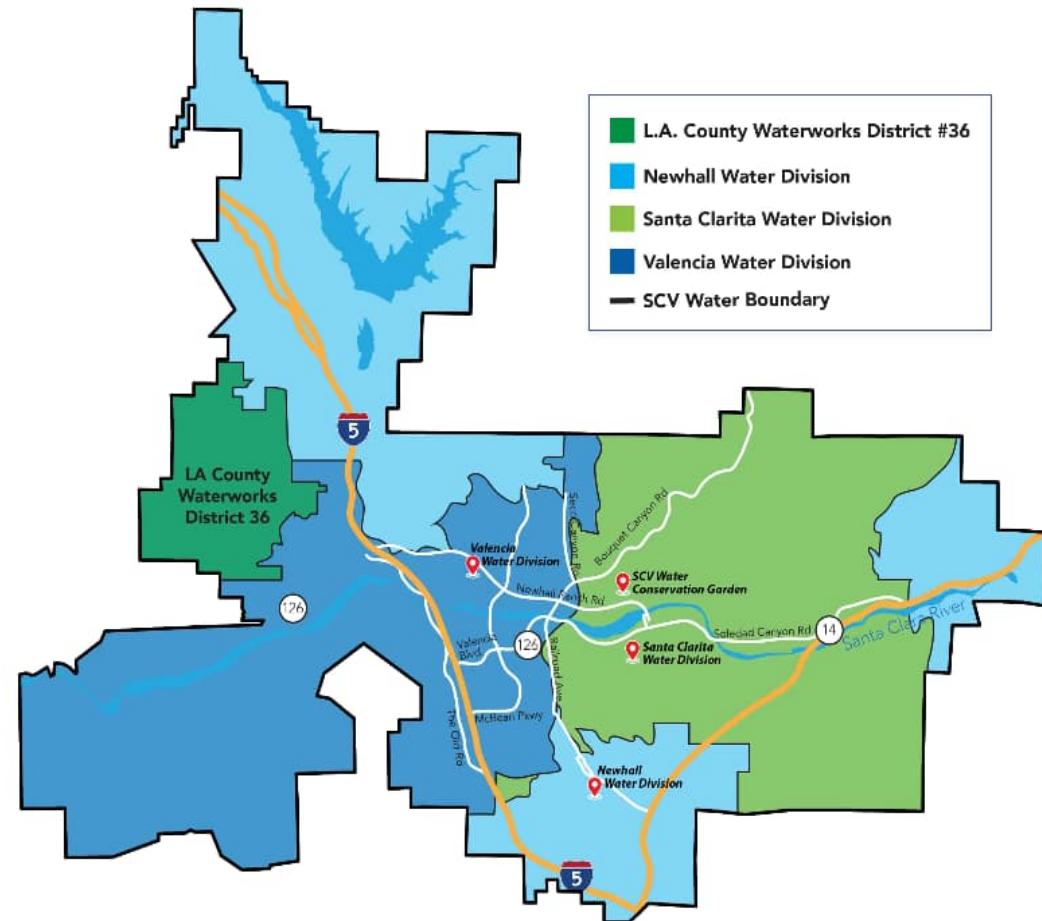
Outline

1. SCV Water Background
 - Service Overview, Supply Portfolio, Recycled Water Use
2. History of Recycled Water Planning
 - Planning, Legal Challenges, Permitting, Historical Wastewater Flows, New Drop Overview
3. Current Projects for Near Term Recycled Water Use
 - Near Term Expansion of RW Use, Purple Prep Program
4. Recycled Water Use Costs and Schedule Overview
5. Next Steps



Water Services - Overview

- Formerly 5 Separate Water Providers:
 - Castaic Lake Water Agency (wholesaler)
 - Valencia Water Company
 - Newhall County Water District
 - Santa Clarita Water Division
 - LA County Waterworks District 36
- Formation of SCV Water January 2018
 - Service Population: 273,000
 - ~75,000 services
- LA County Waterworks District 36
 - Receives wholesale water from SCV Water



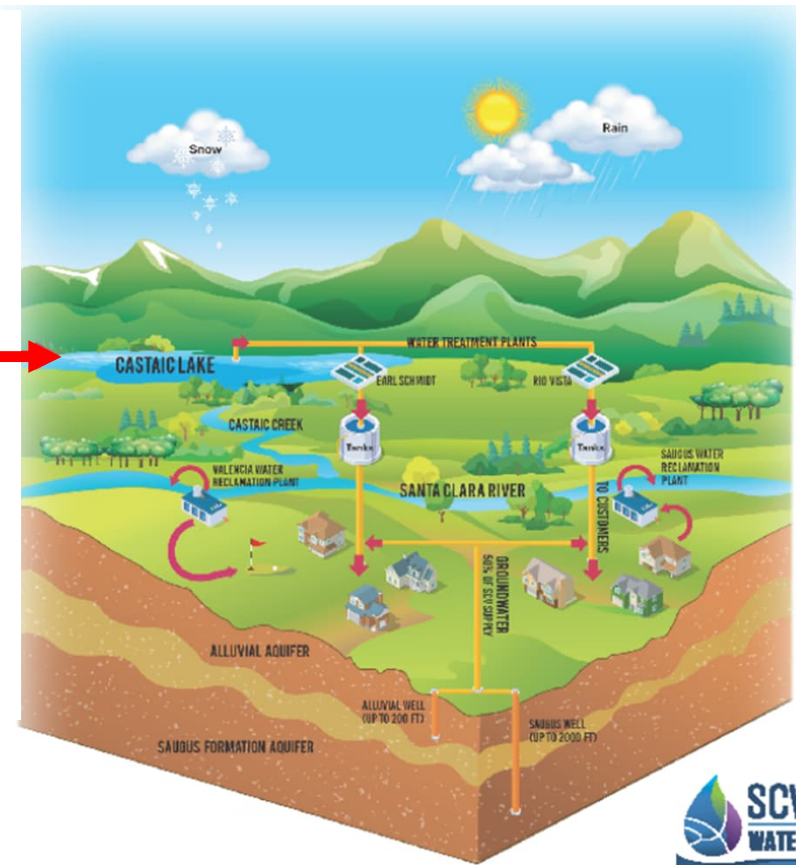
SCV Existing Water Supply Portfolio

Imported Supplies

- State Water Project
- Water Banking Programs

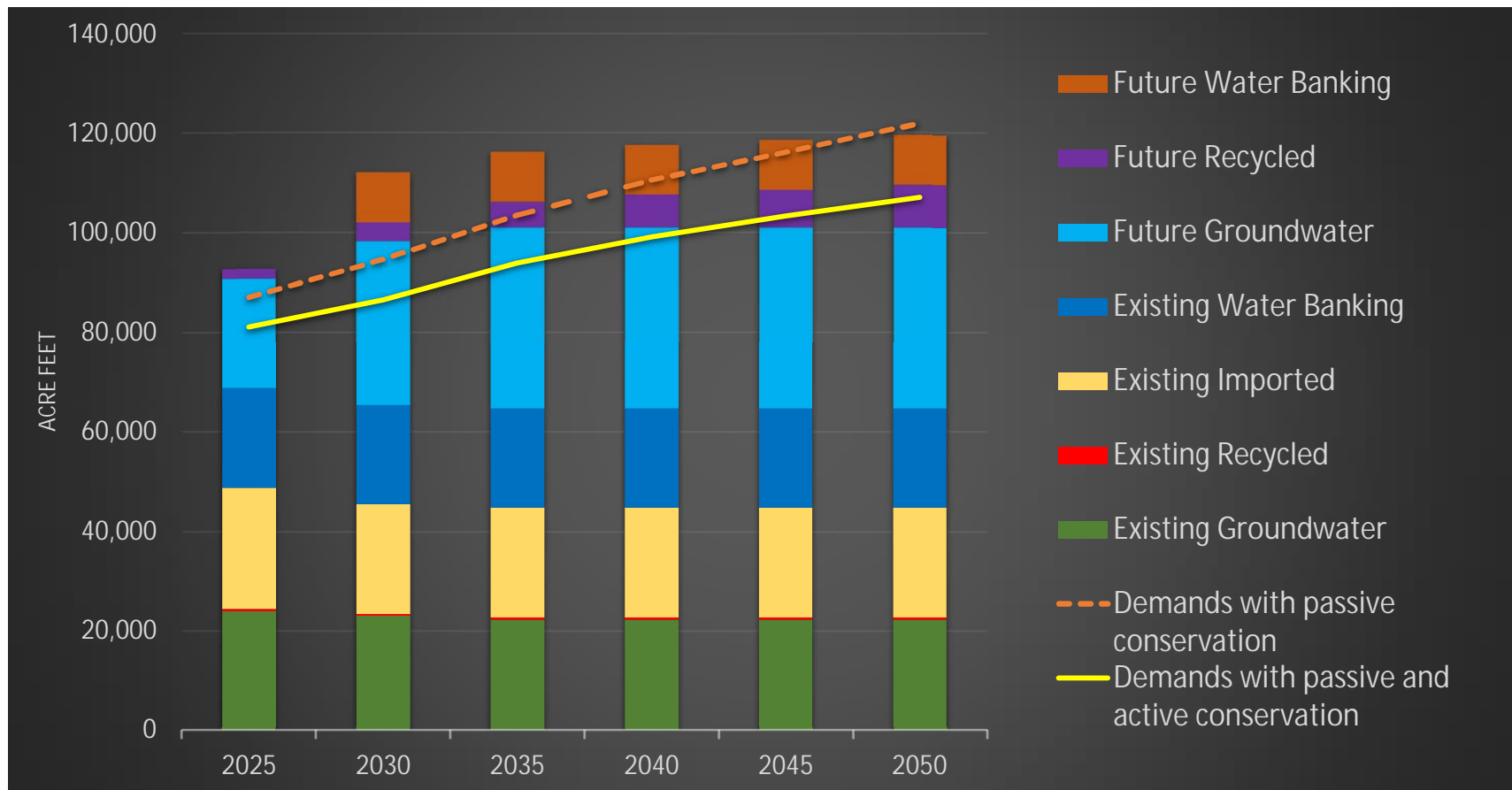
Local Supplies

- Groundwater
- Recycled Water



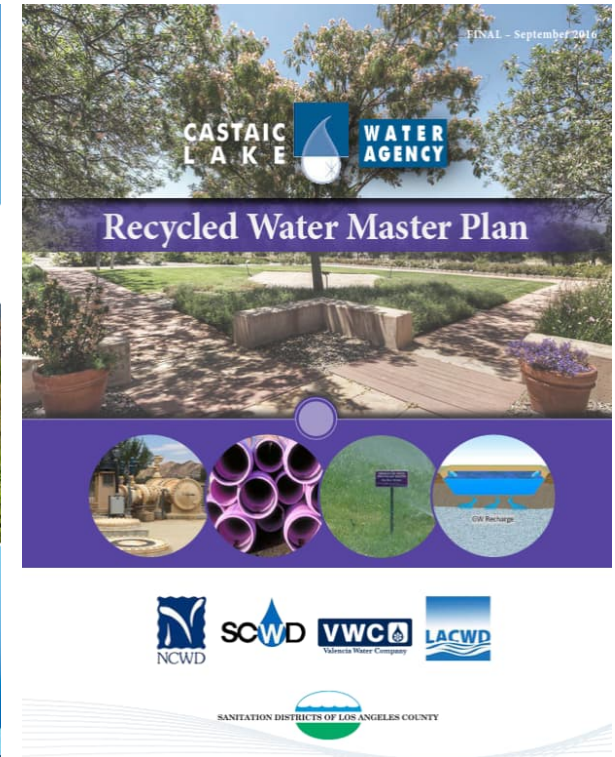
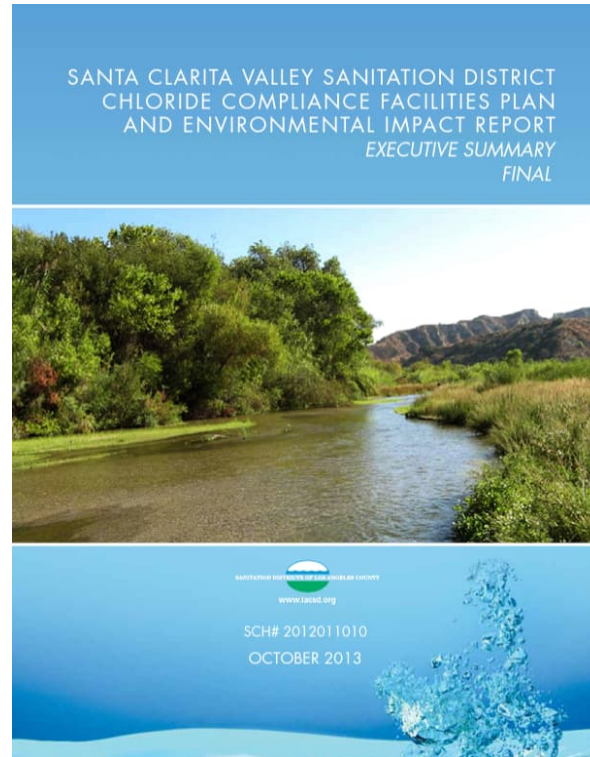
Role Recycled Water Plays in Water Resources

*Single-Dry Year Projected Water Supply



Planning History and Legal Challenges

- Recycled Water Master Plans
- Urban Water Management Plans
- Legal Challenge to LACSD Chloride Removal Project

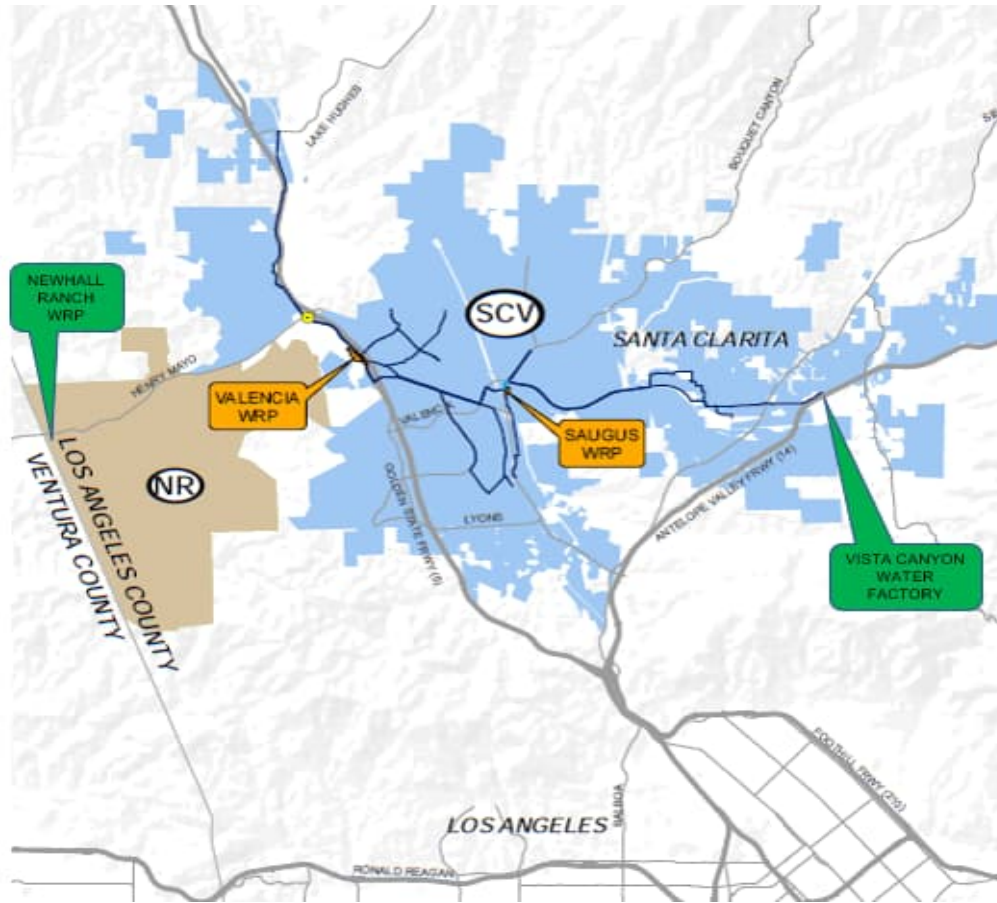


Regulatory Considerations

- State Board - 1211 Permit
- Regional Board - Engineering Report
- Division of Drinking Water - Engineering Report
- Los Angeles County Department of Public Health - Inspections
- Rules and Regulations
- End User Agreements



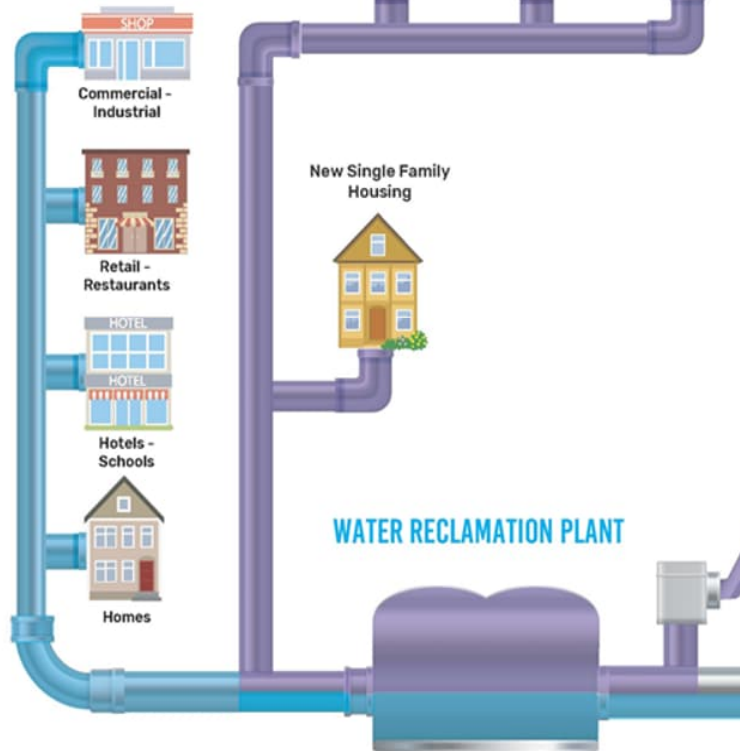
Wastewater Treatment in SCV



- Los Angeles County Sanitation District (Santa Clarita Valley Sanitation District)
 - Owns and operates the Valencia and Saugus WRPs which discharge to the Santa Clara River
 - Will own and operate the Newhall Ranch WRP (for new development)
 - Owns and operates the trunk sewers
- City of Santa Clarita: Vista Canyon WF operational in 2021 to serve new development



EXISTING INTERIOR WATER USE



NEW DROP IN

WATER RECLAMATION PLANT

RECYCLED WATER FOR THE SANTA CLARITA VALLEY



NEW DROP WATER
TO NEW USERS

EXISTING RECYCLED WATER
TO EXISTING USERS (PER 1211 PERMIT)



TABLE 5-3 PROJECTED RECYCLED WATER USE

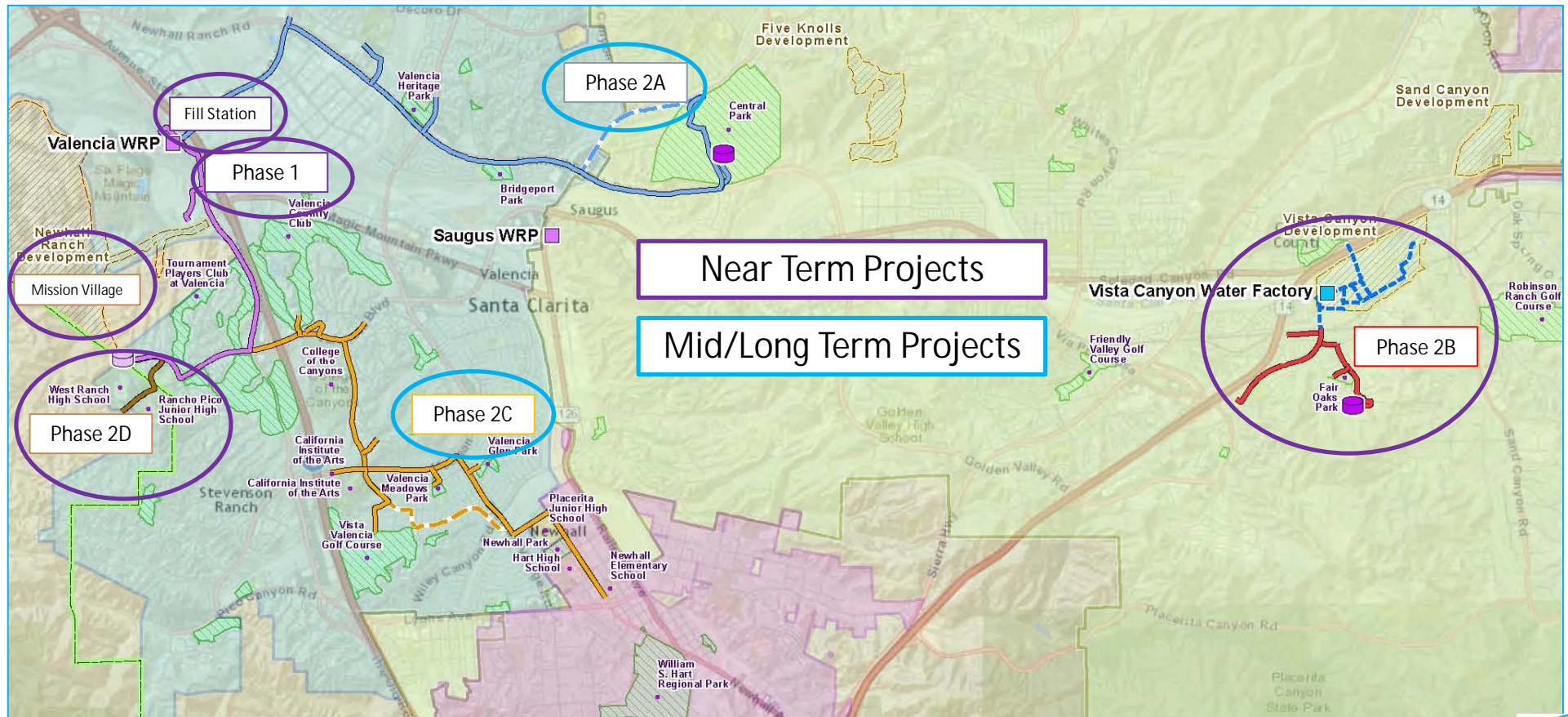
	2025	2030	2035	2040	2045	2050
Existing Recycled Water Use	450	450	450	450	450	450
New Recycled Water Use	1,849	3,696	5,091	6,498	7,499	8,511
Total Projected Recycled Water Use^(a)	2,299	4,146	5,541	6,948	7,949	8,961
Total Potential Recycled Water Demand^(b)	4,559	6,514	8,441	9,191	9,469	9,749

Notes:

- (a) Total projected water use is equal to total projected recycled water supply as total potential recycled water demand exceeds total projected supply.
- (b) Difference in recycled water supply and total potential recycled water demand will be made up by potable water supplies, i.e., make-up water. See Table 2-12.



Overview of Recycled Water Projects Locations



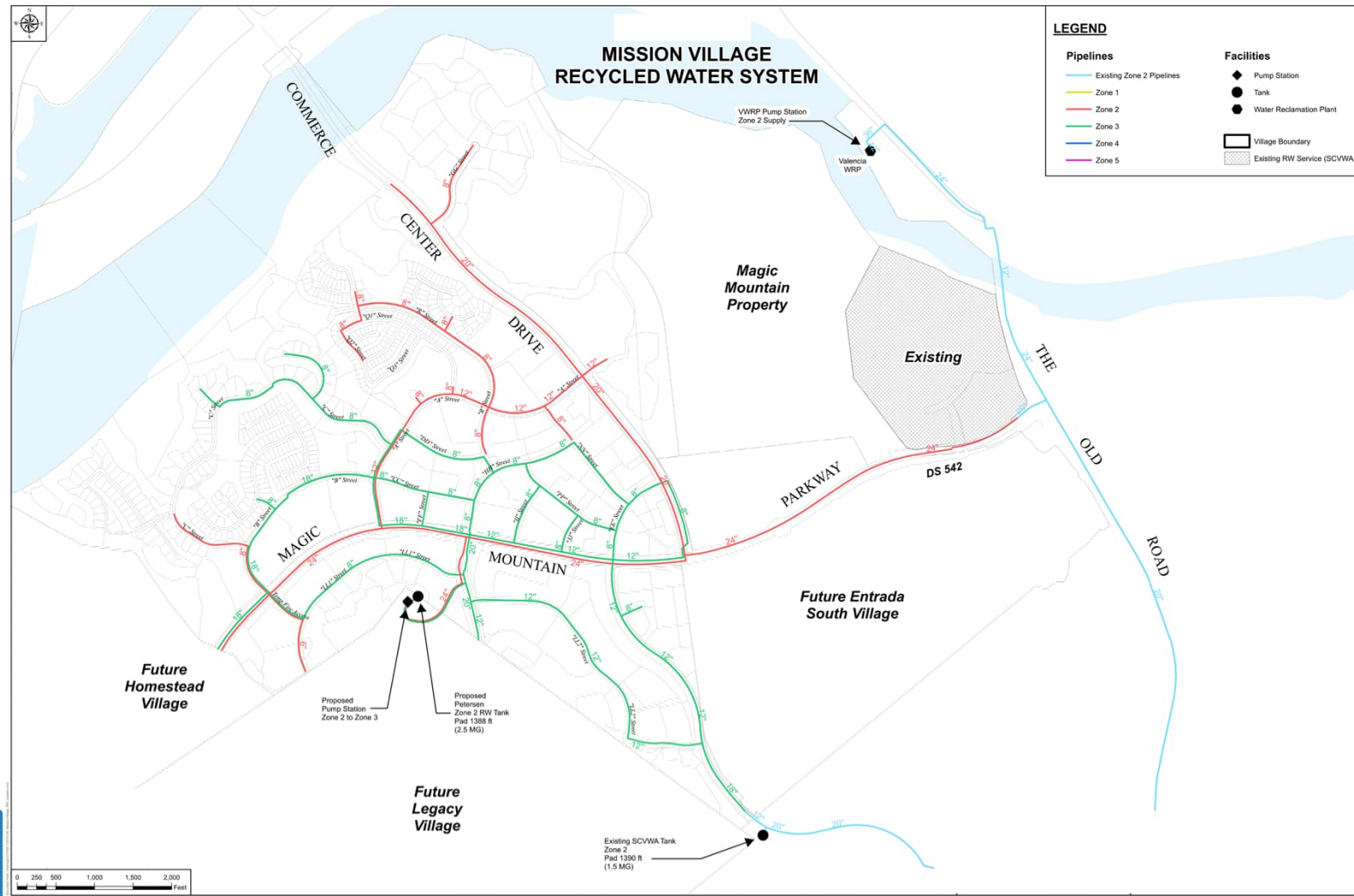
Recycled
Water Planning

Recycled Water Projects Schedule Summary

Project Name	Description	Permit	Construction Start	Construction Finish	Costs
Phase 2A	New transmission main from Valencia WRP to Central Park.	SCVWA RW Permit	2028	2030	\$20M
Phase 2B	New transmission main from Vista Canyon to a new storage tank	Vista Cyn RW Permit	March 2020	2022	\$8.3M
Phase 2C	New transmission main from existing line at Valencia/Old Road to Hart High	SCVWA RW Permit	July 2023	2025	\$15M
Phase 2D	New pump station located close to RW Tank 1 and new transmission from Westridge to serve Westside Communities	SCVWA RW Permit	March 2020	2021	\$5.7M
Grading Water for Westside Communities	Fill stations will provide recycled water for grading	SCVWA RW Permit	Updating Permit	Updating Permit	Developer Paid
Vista Canyon In-Tract	New transmission and distribution recycled mains within Vista Canyon development.	Vista Cyn WF Permit	July 2018	December 2019	Developer Paid
Fill Station (VWRP Station)	Loading stands to allow water trucks to fill up with RW for construction purposes.	SCVWA RW Permit	March 2023	Fall 2023	\$1.2M
Mission Village 14 Irrigation Meter Accounts	Irrigation	SCVWA RW Permit	December 2021	Spring 2023	Developer Paid

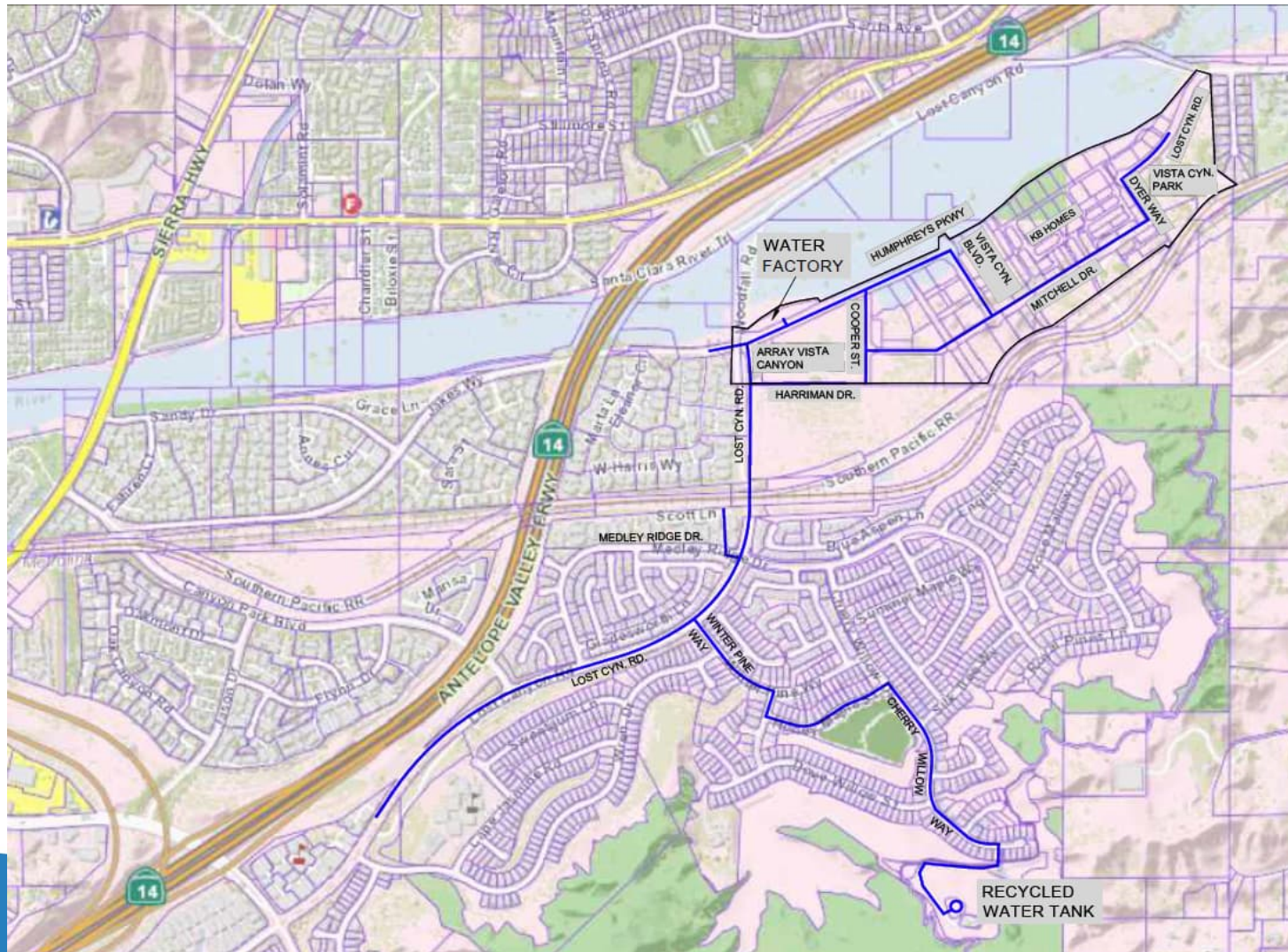


Developer Funded Projects



Recycled
Water Planning

Vista Canyon- Phase 2B



Recycled
Water Planning

West Ranch - Phase 2D



Recycled
Water Planning

Next Steps

1. Finalize Permitting
2. Hook Up Customers
 - Conversion customers
 - New customers
3. Continue to Track New Drop
4. Pursue Cost Effective Expansion of Recycled Water System



Recycled
Water Planning

Thank you!

Shadi Bader, P.E.

Senior Engineer

661-310-6410

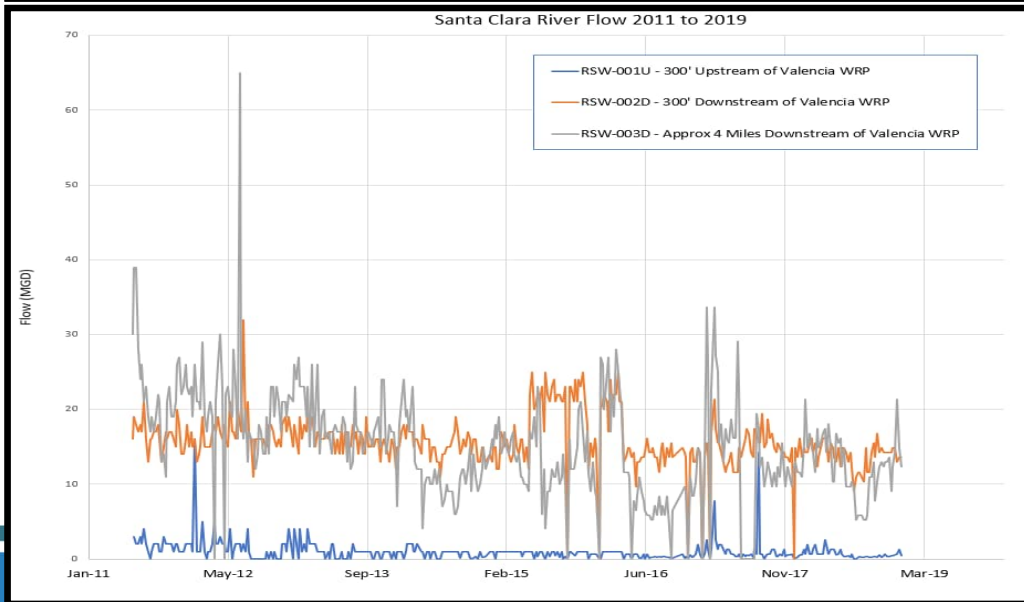
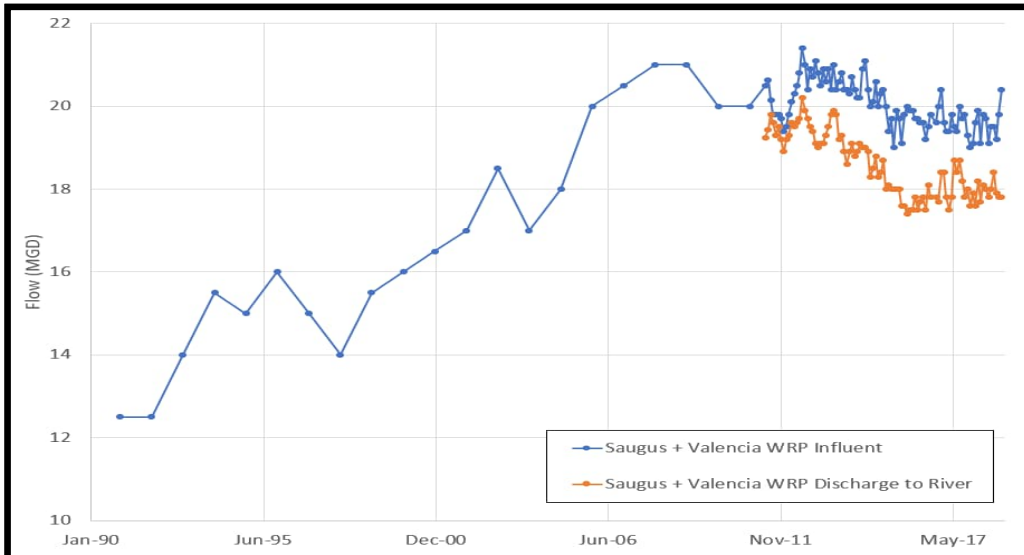
sbader@scvwa.org



Recycled
Water Planning

Historical Wastewater Flows in SCV

- Since 1993 wastewater change petition, flow has increased approximately 6.5 mgd (7,280 AFY)
- Legal Challenge halted LACSD advancement of studies to determine the minimum flow of discharge to Santa Clara river
- SCV Water is now pursuing a California Environmental Flow Framework Study to work on the minimum flow determination



New Drop Principle

- SWRCB 1211 Permit Requirement applies to existing wastewater discharges to the river
- New Drop Technical Memorandum (June 2019)
- Wastewater flows from new construction are calculated based off SCVSD usage factors used to determine sewage rates based on account type
- New Drop Principle approved for use under SCVWA's Monitoring and Reporting Program WQ 2016-0068-DDW (CI-10081)





Santa Clarita Valley Water Agency Recycled Water Projects Highlight

Presenters: Elisha Back, Matt Elsner
August 23, 2022



Company Overview



FOUNDED
1979



27
OFFICES

Client Mix
55% Public
45% Private

1200+
PEOPLE



33%
EMPLOYEE
OWNERSHIP



Our Core Values

PEOPLE FIRST

INTEGRITY

AUTONOMY

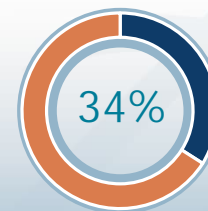
OWNERSHIP

COLLABORATION



of work is from
repeat clients

Environment & Remediation SBU: Site Remediation Solutions | Environmental Services
Industrial & Commercial SBU: Industrial Wastewater Treatment | Industrial Plant Engineering
Municipal SBU: Community Development & Land Use | Intelligent Technology Services | Water Engineering & Infrastructure | Water Resources
Operations & Management SBU: Contract Operations
Woodard & Curran Constructors: Design-Build



of staff has
20+ years
experience

Woodard & Curran Practice Areas



Environmental Services

Meeting environmental regulatory requirements



Site Remediation Solutions

Cleaning up historical contamination



Industrial Plant Engineering

Updating & optimizing industrial processes



Industrial Water Treatment

Reducing pollutants in facility discharges



Design-Build

Designing & constructing infrastructure & facilities



Community Development & Land Use

Flood & urban revitalization



Intelligent Technology Services

SCADA & asset management



Water Resources

Stormwater & water resources planning



Water Engineering & Infrastructure

Drinking water, wastewater & recycled water

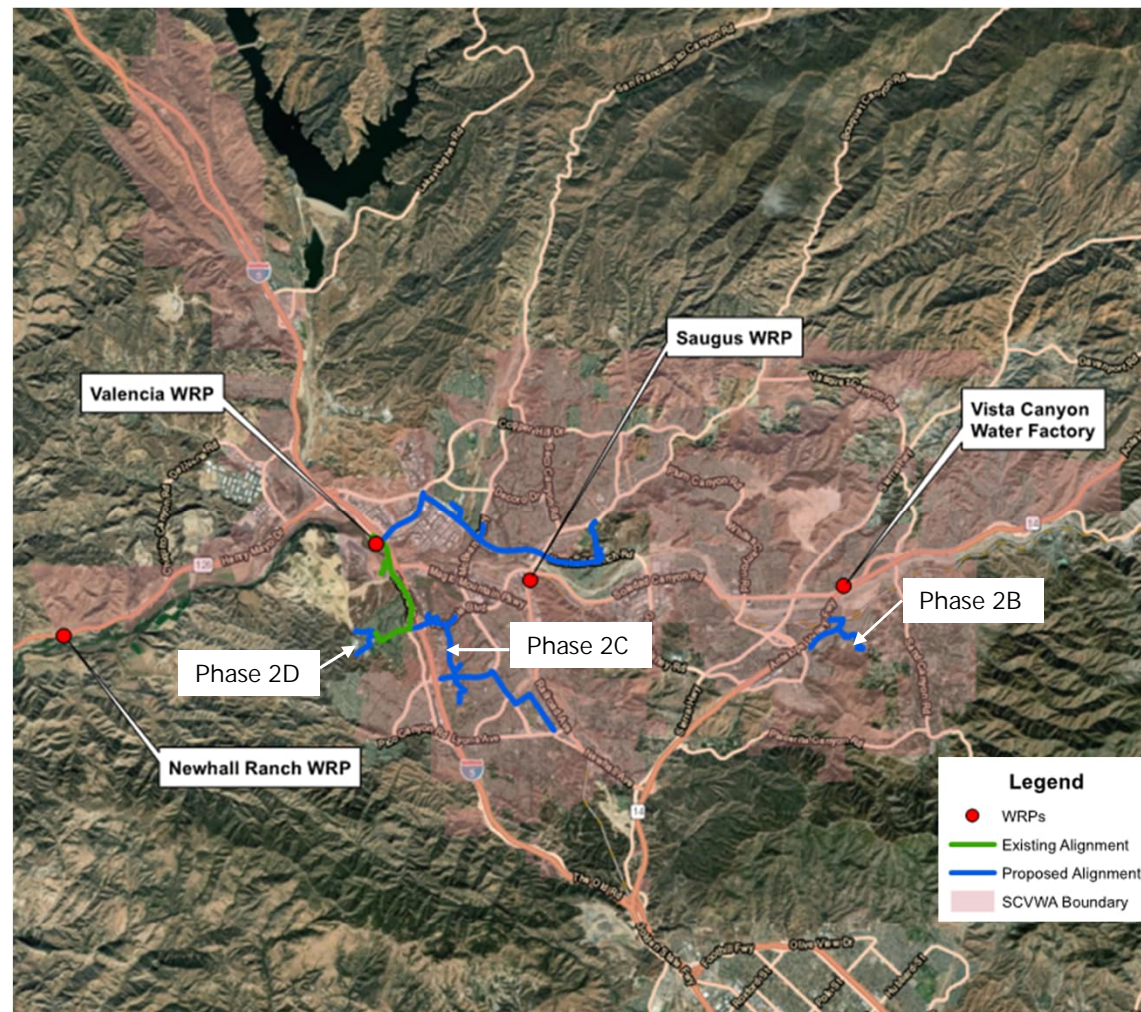


Contract Operations

Operating water and wastewater treatment plants

Supporting SCV Water's Recycled Water Program

- ▶ Regulatory support
- ▶ CEQA compliance
- ▶ New Drop Program support
- ▶ Engineering



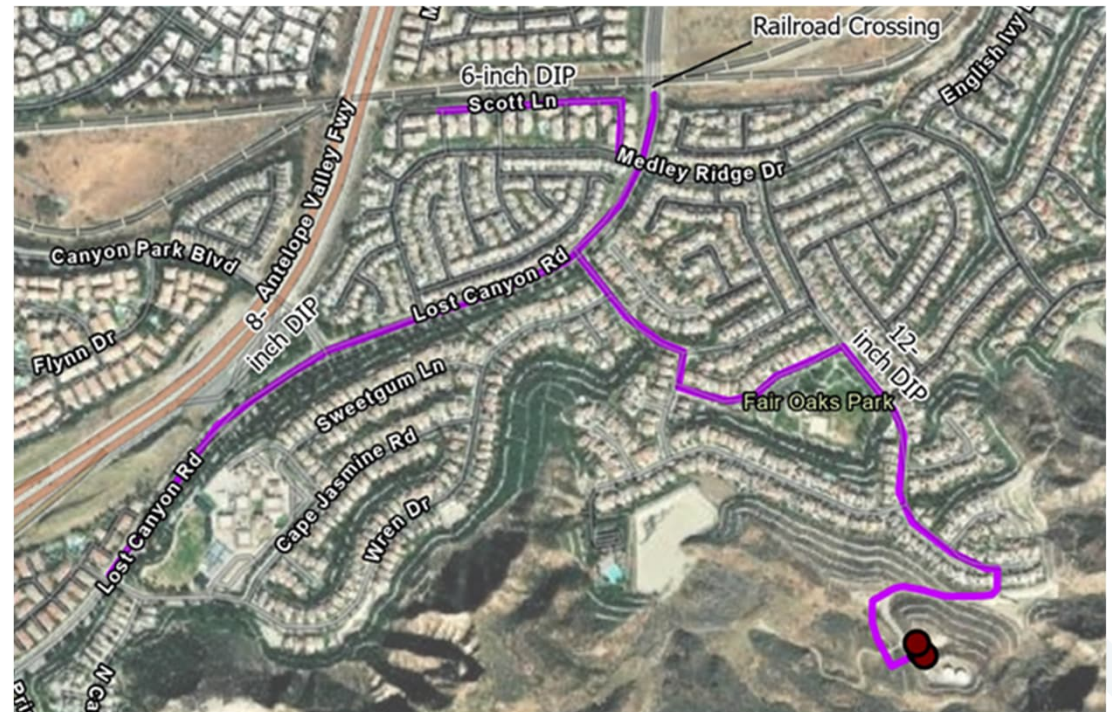
Phase 2D Recycled Water Main Extension

- ▶ RW from Valencia WRP
- ▶ ~5,000 LF of 12-inch DIP
- ▶ Closed Zone
- ▶ Will be integrated into Newhall Ranch



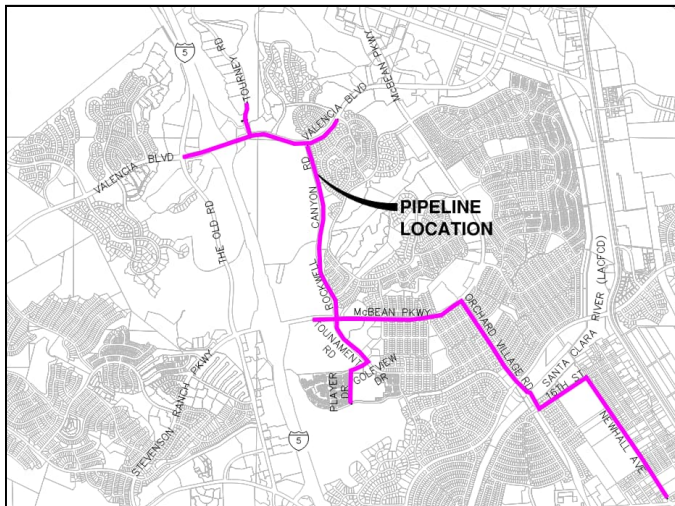
Phase 2B Recycled Water Main Extension

- ▶ RW from Vista Canyon WF
- ▶ ~10,000 LF of 12 and 8-inch DIP
- ▶ Bridge Crossing of Active Rail Line
- ▶ Construction Complete



Phase 2C Recycled Water Main Extension

- ▶ RW from Valencia WRP
- ▶ ~28,000 LF of 24 to 8-inch DIP
- ▶ Bridge Crossing of I-5 at Valencia Blvd.
- ▶ Bridge Crossing of Santa Clara River
- ▶ Over 200 potholes performed



TEST HOLE DATA REPORT																			
TEST HOLE NO: TH133	CLIENT TEST HOLE NO: TH133	SUE CREW/TRUCK NO: CQJW550616																	
TEST HOLE DATE: 12/7/2021	PROJECT NO: CA16200102	CITY/COUNTY: VALENCIA/LA COUNTY																	
CLIENT: WOODWARD & CURRIAN	5622 Research Drive Suite A Huntington Beach, California 92649 TEL: 714.487.5790 www.T2en.com	LOCATION/INTERSECTION: 16TH STREET & AVENIDA IGNACIO																	
PROJECT: NEWHALL/CASTAIC RECYCLED WATER																			
MAP		SITE PHOTO - FACING NW																	
CROSS SECTION - NOT TO SCALE		TEST HOLE - UTILITY - FACING NW																	
MATERIAL AND/OR UTILITIES MAY EXIST BELOW APPARENT BOTTOM																			
<table border="1"> <thead> <tr> <th colspan="2">REFERENCE MARKER</th> </tr> </thead> <tbody> <tr> <td>ABLE TV</td> <td>NORTHING 1954191.68'</td> </tr> <tr> <td>LASTIC (PVC, PE, POPE)</td> <td>EASTING 6397479.66'</td> </tr> <tr> <td>SOUTHEAST - NORTHWEST</td> <td>ELEVATION 1219.09'</td> </tr> <tr> <td>LOCATION MARKED BY</td> <td>CENTER OF UTILITY</td> </tr> <tr> <td>STATION</td> <td>NAIL & DISK</td> </tr> <tr> <td>OFFSET</td> <td>-</td> </tr> <tr> <td>OFFSET FROM</td> <td>-</td> </tr> </tbody> </table>				REFERENCE MARKER		ABLE TV	NORTHING 1954191.68'	LASTIC (PVC, PE, POPE)	EASTING 6397479.66'	SOUTHEAST - NORTHWEST	ELEVATION 1219.09'	LOCATION MARKED BY	CENTER OF UTILITY	STATION	NAIL & DISK	OFFSET	-	OFFSET FROM	-
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STATION	NAIL & DISK																		
OFFSET	-																		
OFFSET FROM	-																		
CHECKED DATE:		REVISION DATE:																	
CHECKED BY:																			

Phase 2D and 2B Customer Conversion Support

Phase 2D

20 Irrigation Meters



Phase 2B

17 Irrigation Meters



Recycled Water Truck Fill Station Project

- ▶ Located just outside the Valencia WRP
- ▶ Access Point for Construction Use
- ▶ Double Portalogic Fill Stations





Thank You!

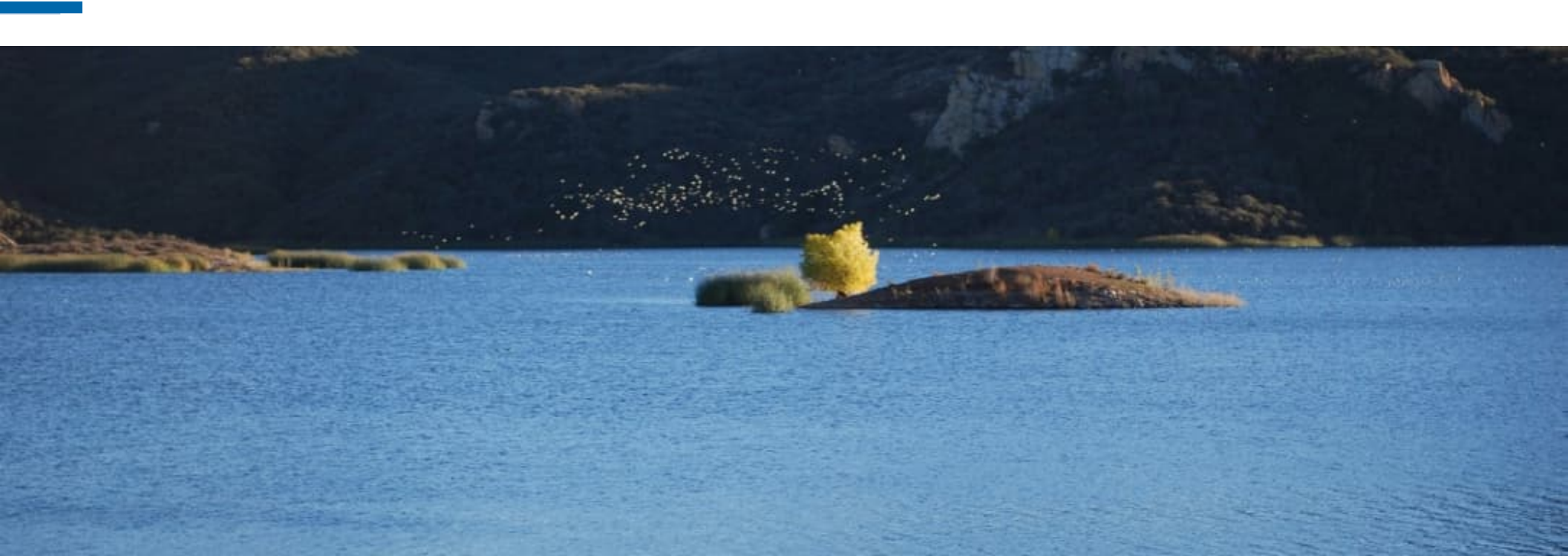
Contact Information:

Elisha Back

Senior Client Manager

eback@woodardcurran.com

949-769-0322



Maximizing Pathogen Crediting for Potable Reuse

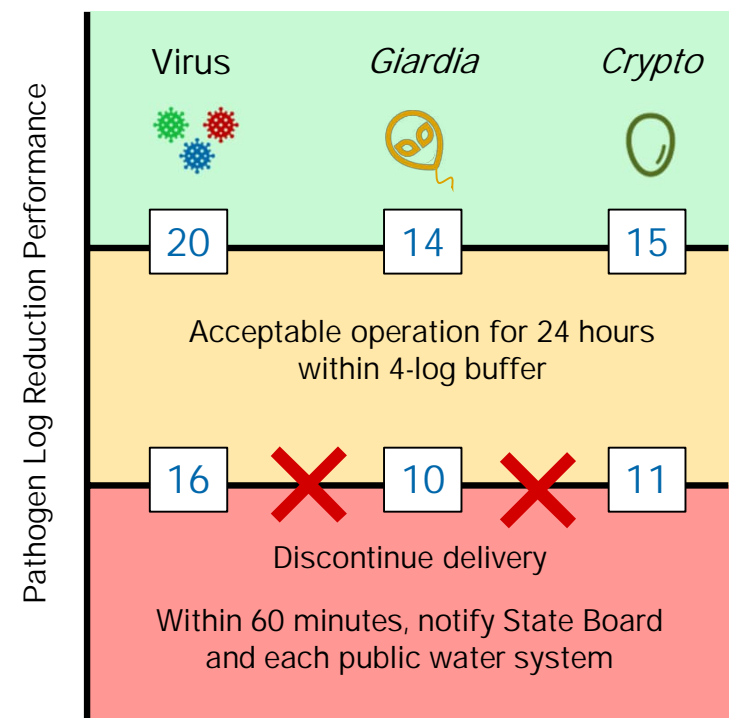
Bryan Trussell

December 6, 2022

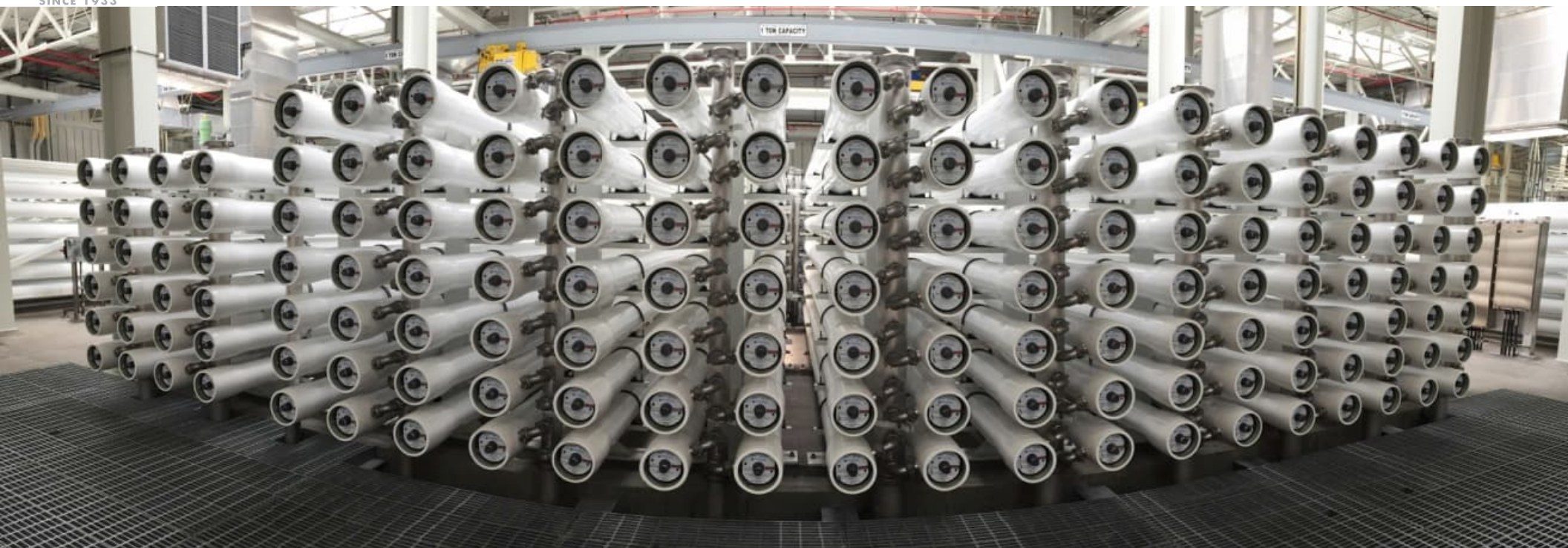
DPR Draft Pathogen LRV Requirements

- Enhanced reverse osmosis (RO) monitoring credit
- Wastewater treatment and tertiary filtration credit
- Membrane bioreactor (MBR) credit
- Free chlorine disinfection credit
- Soil aquifer treatment (SAT) credit

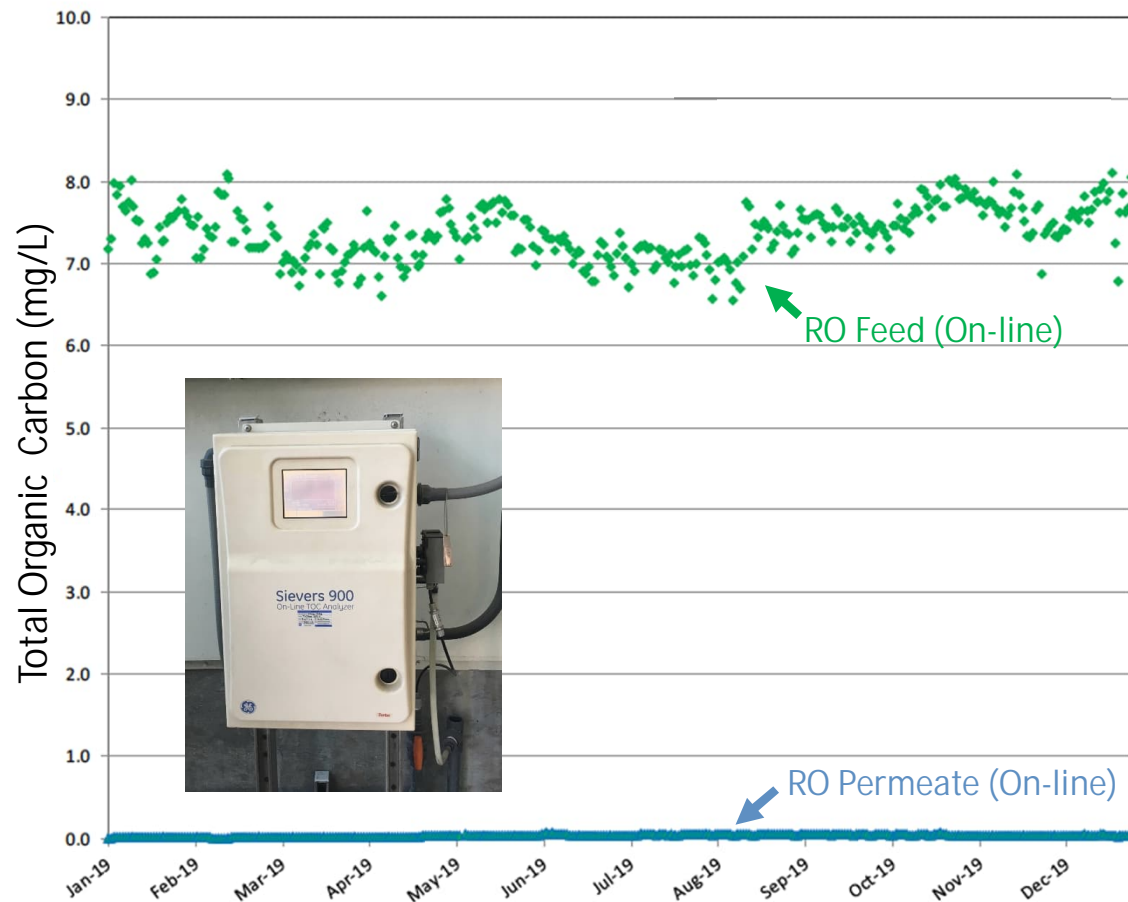
Draft DPR Regulation LRV Requirements



Enhanced Reverse Osmosis Monitoring Credit



RO Pathogen Removal Using TOC



$$LRV = \log \frac{[RO \text{ feed}]}{[RO \text{ permeate}]}$$

- 99% TOC removal by RO
 - 2 LRVs
- Limited by the precision of the TOC detection limit (~0.1 mg/L)

Adapted from 2019 GWRS annual report

Long track record of virus removal by RO



MS2 bacteriophage

Accepted surrogate for enteric virus

*Used to benchmark pathogen
removal via RO challenge testing*

MS2 Log Removal	Reference
6.7	Madireddi et al. (1997)
3.0–4.8	Kruithof et al. (2001)
4.0 to >6.0	Lozier et al. (2003)
5.4	Mi et al. (2004)
2.4–4.7	DeCarolus et al. (2005)
6.2	Steinle-Darling et al. (2015)
4.2 to >6.0	Pype et al. (2016)
4.6 to >6.2	Antony et al. (2016)
4.6–7.3	Trussell et al. (2017)
5.0–5.4	Vickers (2018)

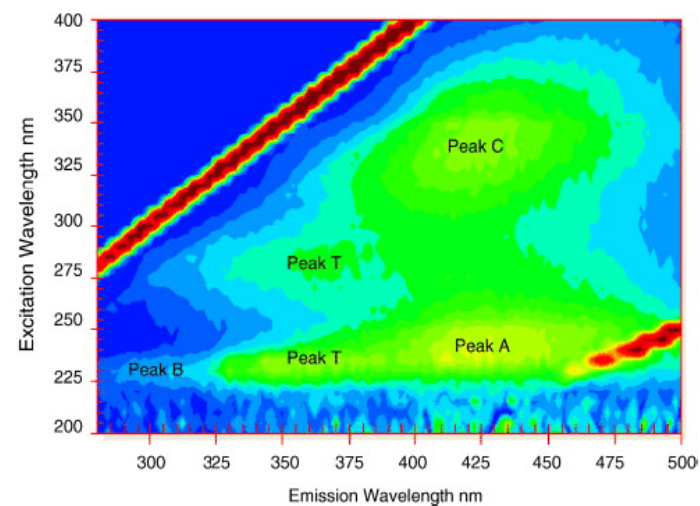
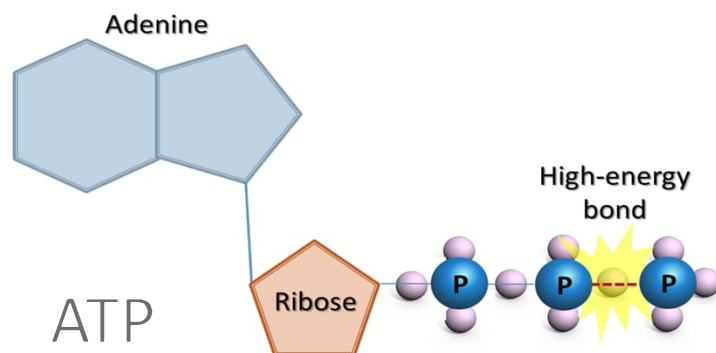
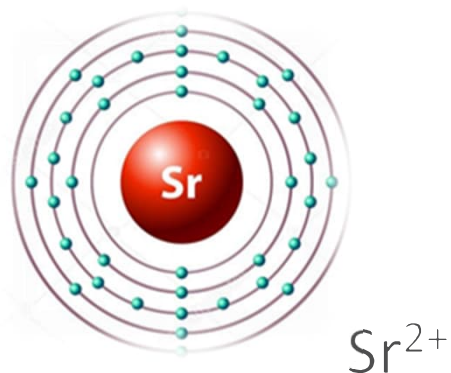
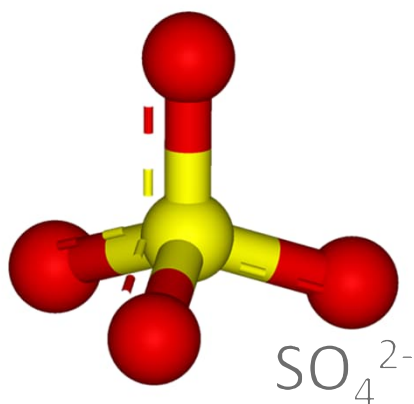
Typically >4.0-logs (>99.99%)

Previously evaluated surrogates (not exhaustive)

Surrogate	Ambient or spiked	Scale of Testing	Advantages	Drawbacks	LRV Potential	References
Conductivity	Ambient	Pilot, demo, and full-scale	<ul style="list-style-type: none"> • Easily implementable • Relatively inexpensive • Fast response • Online monitoring capabilities • Regulatory and industry accepted 	<ul style="list-style-type: none"> • Relatively low LRV • Fluctuates with temperature and membrane condition 	1.5 – 2.0 LRV	Adham et al. (1998) OCWD (2018) Trussell et al. (2017)
TOC	Ambient	Pilot-, demo-, and full-scale	<ul style="list-style-type: none"> • Easily implementable • Online monitoring capabilities • Regulatory and industry accepted 	<ul style="list-style-type: none"> • Relatively low LRV • Maintenance of analyzers • High cost of maintenance 	Up to 2.5-logs	Adham et al. (1998) OCWD (2018) Trussell et al. (2017)
Strontium	Ambient	Pilot-, demo-scale	<ul style="list-style-type: none"> • Relatively high LRV • No spiking necessary • Regulatory accepted • Sufficiently sensitive EPA method available 	<ul style="list-style-type: none"> • Rejection affected by membrane aging thus LRV may decrease • Lacks online monitoring capabilities • Dedicated personnel to operate and upkeep instrument • Must have sufficient strontium in feedwater (i.e., plant specific) 	Up to 3.5-logs	City of San Diego (2019) Trussell et al. (2017)
3D TRASAR™ (fluorescent dye)	Spiked	Pilot-, demo-scale	<ul style="list-style-type: none"> • High LRV potential • Dye is NSF certified • Online monitoring capabilities • Very low detection limit 	<ul style="list-style-type: none"> • Spiking necessary • Proprietary technology • Potentially too costly for smaller systems 	3.4 – 3.7	Trussell et al. (2017), Steinle-Darling et al. (2015)
Microbial surrogate (e.g., MS2)	Spiked	Pilot-, demo-scale, full-scale	<ul style="list-style-type: none"> • High LRV potential • Similar characteristics to enteric virus 	<ul style="list-style-type: none"> • Spiking necessary • Costly • Possible need to divert flows during testing • Labor intensive 	4.0 – 5.0 typical for reuse applications	See previous slides

Adapted and updated from Trussell et al. (2017)

RO Integrity Surrogate Evaluated



Fluorescence Peak C

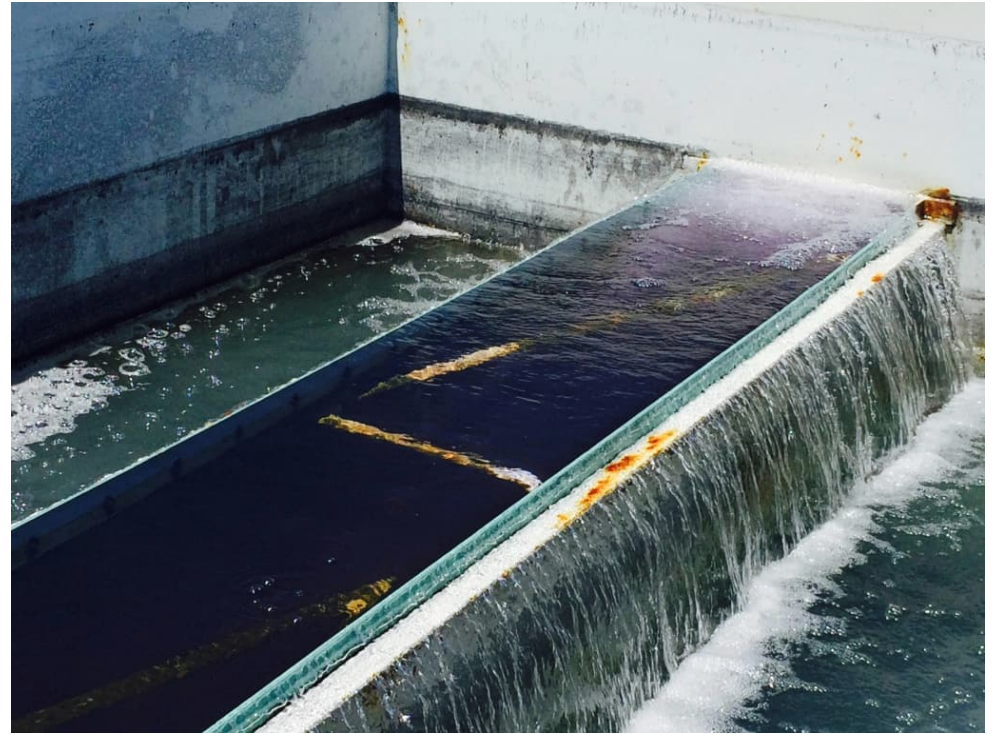
RO Study LRV Results

Surrogate	Study Average LRV	Min LRV	Max LRV
Strontium ¹	3.26	3.01	3.38
Sulfate ¹	2.91	2.79	3.00
Free ATP ²	2.96	2.60	3.30
Fluorescence Peak C ²	2.70	2.27	3.00
TOC ²	2.01	1.77	2.36
EC ²	1.50	0.72	1.54

¹Grab Samples

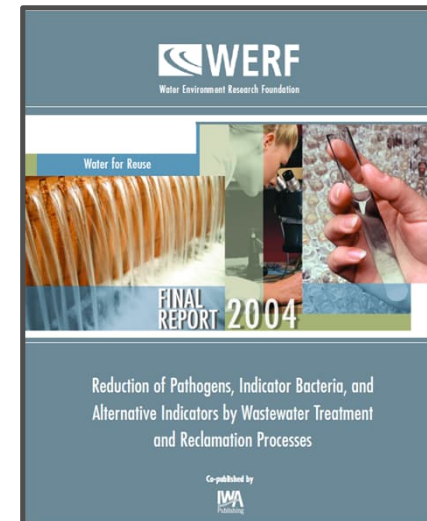
²Continuous (online)

Wastewater Treatment and Tertiary Filtration Crediting



The “Joan Rose Study”

- WERF study published in 2004
- Analyzed indicator bacteria, phage, enteric virus, *Giardia* cysts and *Cryptosporidium* oocysts
- 6 plants sampled 5-6 times each (4 FL, 1 CA, 1AZ)
- RWW, SE, TE, DTE
- Longer MCRTs and nitrification associated with better removals
- Benchmark study for years to come



	Capacity (MGD)	Primary Clarifiers?	Biological Treatment	Filter Type	MCRT (d)	No. of V/G/C Samples per Process
Facility A	0.9-2.6	No	Conventional Activated Sludge	Cloth	6-8	5-6
Facility B	13.9-16.2	No	Conventional Activated Sludge	Traveling Bridge (0.3 m sand)	3.5-6	5-6
Facility C	9.6-10.3	Yes	Conventional Activated Sludge	Monomedia (1.2 m anthracite)	1.6-2.7	5-6
Facility D	11-25	No	Conventional Activated Sludge	Dual Media (0.25 m sand+ 0.8 m anthracite)	3-5	5-6
Facility E	1.2-2.1	No	Nitrification- Denitrification	Continuously Backwashed Upflow Filter (1.2 m sand)	8.7-13.3	5-6
Facility F	1.3-2.4	No	Biological Nutrient Removal	Dual Media (1.2 m sand+ 0.6 m anthracite)	8-16	5-6

WRF Crediting Pioneers

- Two GRRP WRFs have been credited using the literature-based approach:
 - *Long Beach WRP and Los Coyotes WRP (Alamitos Barrier, WRD)*
 - *Terminal Island WRP (Dominguez Gap Barrier, LASAN)*
- Same Rose dataset used, different credits permitted...

	WRF LRV Credits Received		
	Virus	<i>Giardia</i>	<i>Crypto</i>
WRD	2	2	1
LASAN	1.9	0.8	1.2

WRF Crediting Pioneers

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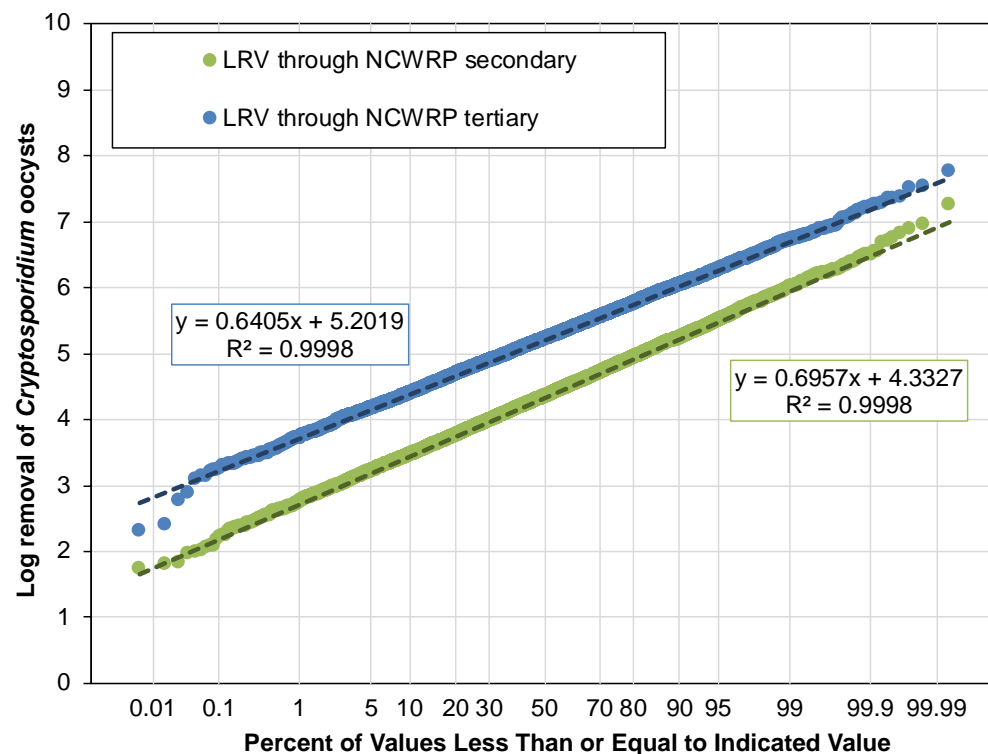
	WRF LRV Credits Received		
	Virus	<i>Giardia</i>	<i>Crypto</i>
WRD	2	2	1
LASAN	1.9	0.8	1.2
Current DDW Approval Method	0.4	0.2	0

Site Specific Testing

- *Cryptosporidium* oocysts and *Giardia* cysts (N=24)
- Culturable enteric virus (N=21)
- Phage, qPCR virus, and TC also included
- RWW, SE, and TE
- Matrix spikes for QA/QC



San Diego Monte Carlo Results: *Giardia* Cysts



Location	5 th Percentile
Raw to Secondary Effluent	3.2
Raw to Tertiary Effluent	4.1

DDW-Approved Credits for San Diego

Pathogen	Proposed LRV Credit through Secondary Treatment	Rose Credits with MC
Enteric Virus	0.7	0.4
Giardia Cysts	3.2	0.2
Cryptosporidium Oocysts	0.9	0

MBR Pathogen Crediting



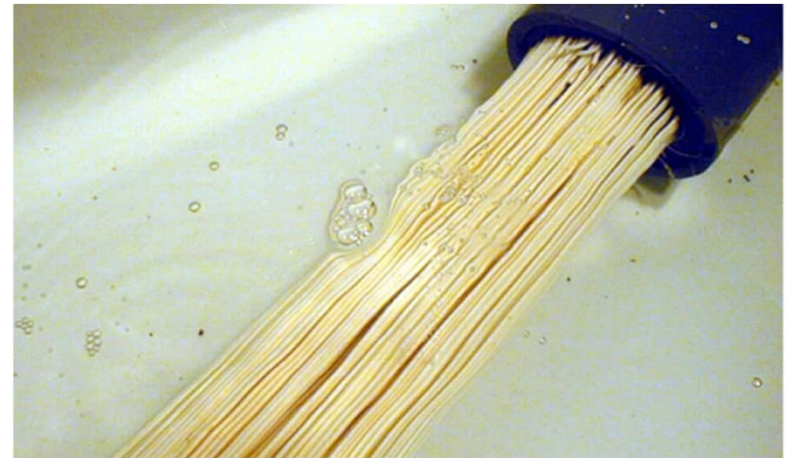
WRF 4997 and 4959

- WRF 4997 defines Tier 1 and Tier 2
- WRF 4959 defines Tier 3 (in progress)

	Virus	Protozoa	Requirements
Tier 1	1.0	2.5	Maintain Operating Envelope
Tier 2	1.0	3.5 – 4.0	Site Specific Testing
Tier 3	1.0	> 4.0	Site Specific Surrogate Correlation
MF	0	4	With turbidity and daily PDTs

Tier 2 and 3 Indicators and Surrogates

- Total coliform
- *Clostridium perfringens*
- Coliphages
- Online turbidity analyzers
 - *0.2 NTU 95%, 0.5 NTU max*
- Direct Integrity Tests
 - *Pressure Decay Tests*

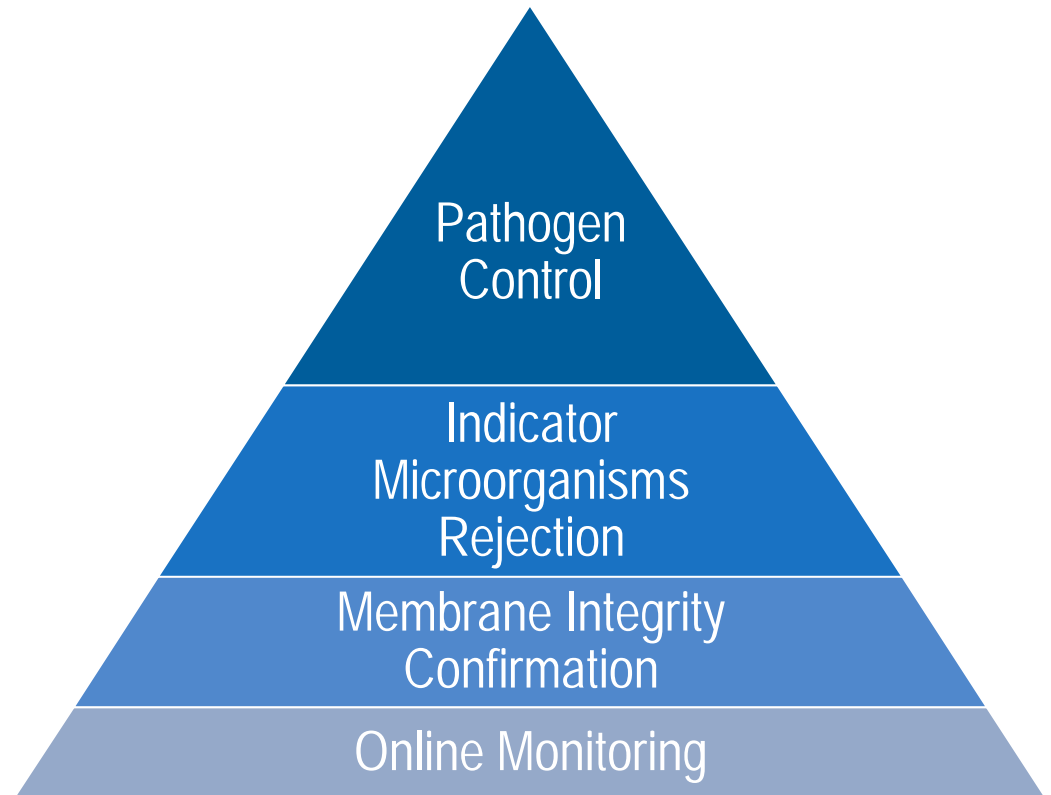


MBR Ongoing Pathogen Studies

- MWD Pure Water Southern California Demo
- LASAN Hyperion 2035 Demo
- San Diego Central Area Small Scale Facility
- Encina MBR Pilot
- Lake of the Pines Facility

MBR Validation Monitoring

- Monitoring should ensure the process is achieving validated LRVs.
- Monitoring should allow for prompt corrective action to protect public health (e.g. diversion and investigation).



WRF 4997 and 4959

- WRF 4997 defines Tier 1 and Tier 2
- WRF 4959 defines Tier 3 (in progress)

	Virus	Protozoa	Requirements
Tier 1	1.0	2.5	Maintain Operating Envelope
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Tier 3	1.0	> 4.0	Site Specific Surrogate Correlation
MF	0	4	With turbidity and daily PDTs

Free Chlorine Disinfection



Title 22 Recycled Water Regulations

- Requires disinfection of filtered wastewater:
 - *Chlorine process providing a CT of 450 mg/L•min and a model contact time of 90 minutes, or*
 - *Alternate disinfection process for inactivating 99.999% of viruses*

- *Separately, must meet coliform bacteria goals:*
 - <2.2 MPN / 100 mL (7-day average)
 - <23 MPN / 100 mL (once every 30-days)
 - <240 MPN / 100 mL (maximum)

Title 22 Recycled Water Regulations

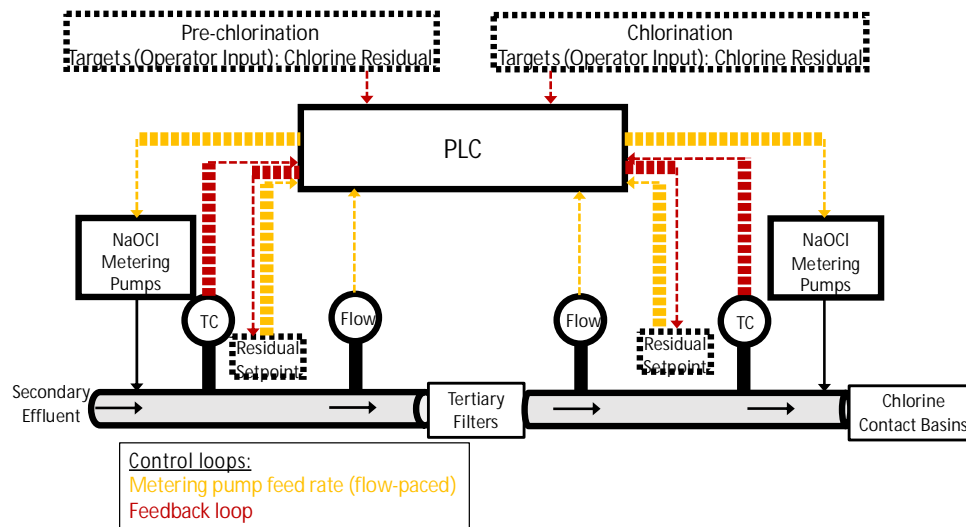
- Many inland WRPs provide nitrification
 - *Disinfection process is free chlorine in lieu of ammonia addition*
- Australian WaterVal validation protocol

Table 1 CT values for 1 to 4 log reduction values of viruses at a range of turbidity, pH and temperature

pH	Log ₁₀ inactivation	≤0.2 NTU					≤2 NTU					≤5 NTU				
		5 °C	10 °C	15 °C	20 °C	25 °C	5 °C	10 °C	15 °C	20 °C	25 °C	5 °C	10 °C	15 °C	20 °C	25 °C
≤7	1	4	3	2	2	1	4	3	2	2	1	4	3	2	2	1
	2	5	4	3	2	2	5	4	3	2	2	6	4	3	2	2
	3	7	5	4	3	2	7	5	4	3	2	7	5	4	3	2
	4	8	6	4	3	2	9	6	4	3	2	9	7	5	3	3
≤7.5	1	7	5	4	3	2	7	5	4	3	2	8	6	4	3	2
	2	10	7	5	4	3	10	7	5	4	3	13	9	6	5	4
	3	13	9	7	5	4	13	9	7	5	4	16	12	9	6	5
	4	16	11	8	6	4	16	11	8	6	4	21	15	11	7	6
≤8	1	9	7	5	3	3	10	7	5	4	3	12	9	6	4	3
	2	14	10	7	5	4	15	10	7	5	4	19	13	9	7	5
	3	18	13	9	7	5	19	13	10	7	5	25	18	13	9	7
	4	23	16	12	8	6	23	16	12	8	6	32	23	16	11	8
≤8.5	1	11	8	6	4	3	12	9	6	5	4	14	10	7	5	4
	2	17	12	9	6	5	19	13	9	7	5	21	15	11	8	6
	3	23	16	12	9	6	25	17	13	9	7	29	21	15	10	8
	4	29	21	15	10	8	31	22	16	11	8	37	26	18	13	9
≤9	1	13	9	6	5	3	14	10	7	5	4	15	10	7	5	4
	2	20	14	10	7	5	22	16	11	8	6	23	16	12	8	6
	3	28	19	14	10	7	30	21	15	11	8	32	23	16	11	8
	4	35	25	17	12	9	38	27	19	13	10	41	29	20	14	10

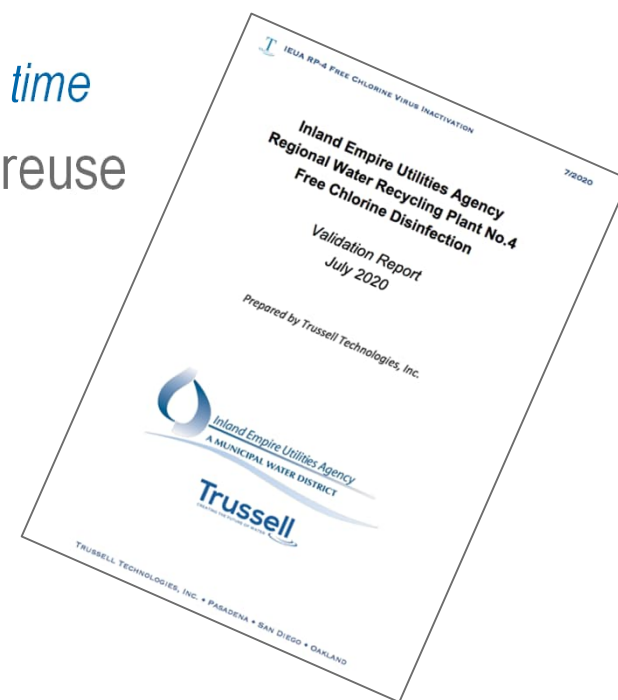
Title 22 Recycled Water Regulations

- Review historical water quality data (turbidity, temperature, pH)
 - *Determine required CT for free chlorine*
- Document instrumentation list, control basis, operational strategy and reliability requirements

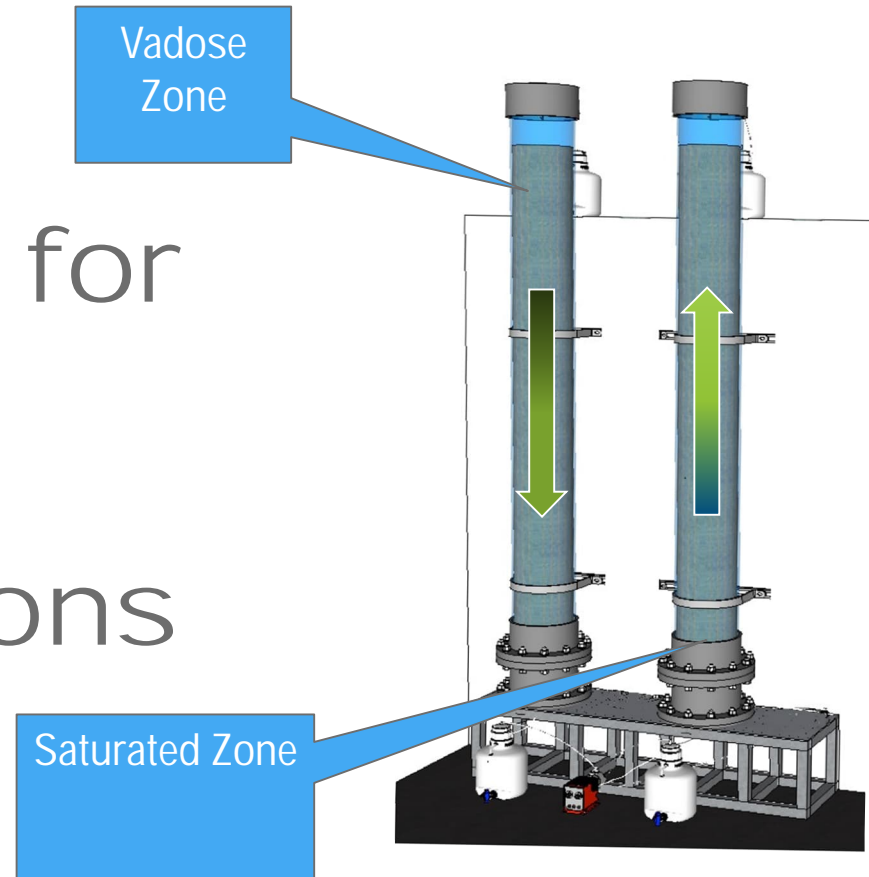


Title 22 Recycled Water Regulations

- Approved CT on order of 20-50 mg/L•min and 4-minute t_{10} contact time
 - *Compared to 450 mg/L•min and 90-minute modal contact time*
- Provides additional flexibility for downstream potable reuse projects

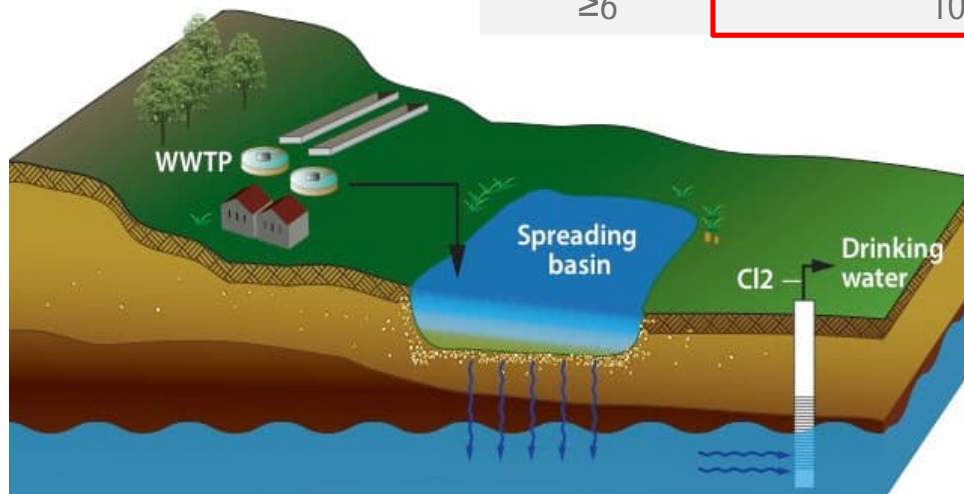


Soil Column Testing for Enhanced Pathogen Crediting in Surface Spreading Applications

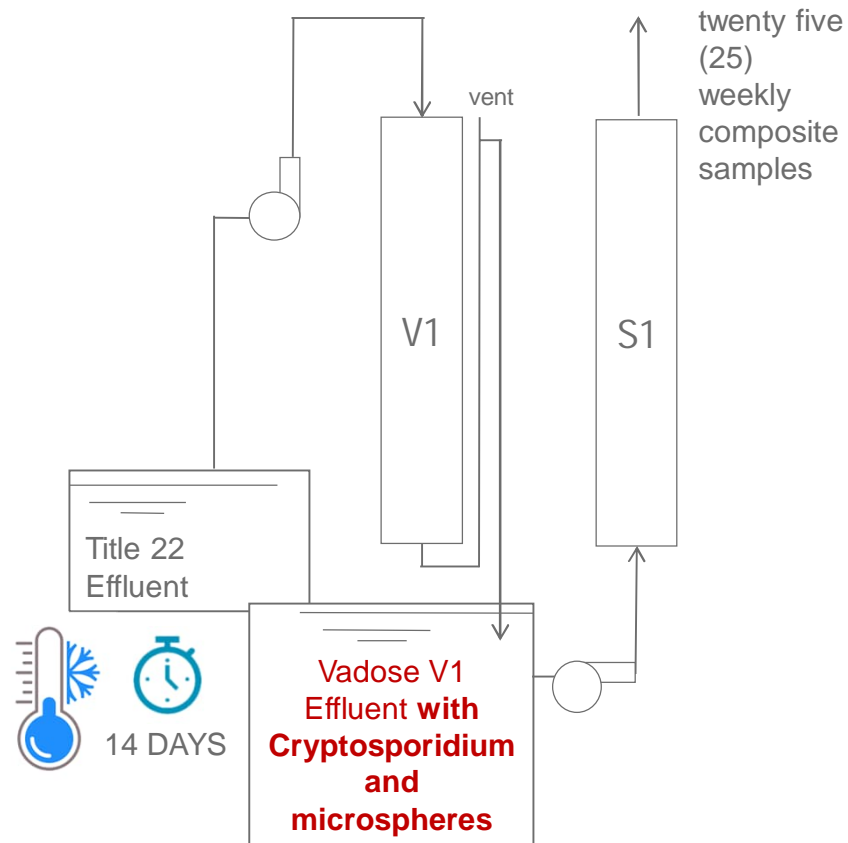


Credits For Protozoa Control in Recycled Water Regulations

Months	Cryptosporidium and Giardia LRV Credit
<6	0
≥6	10

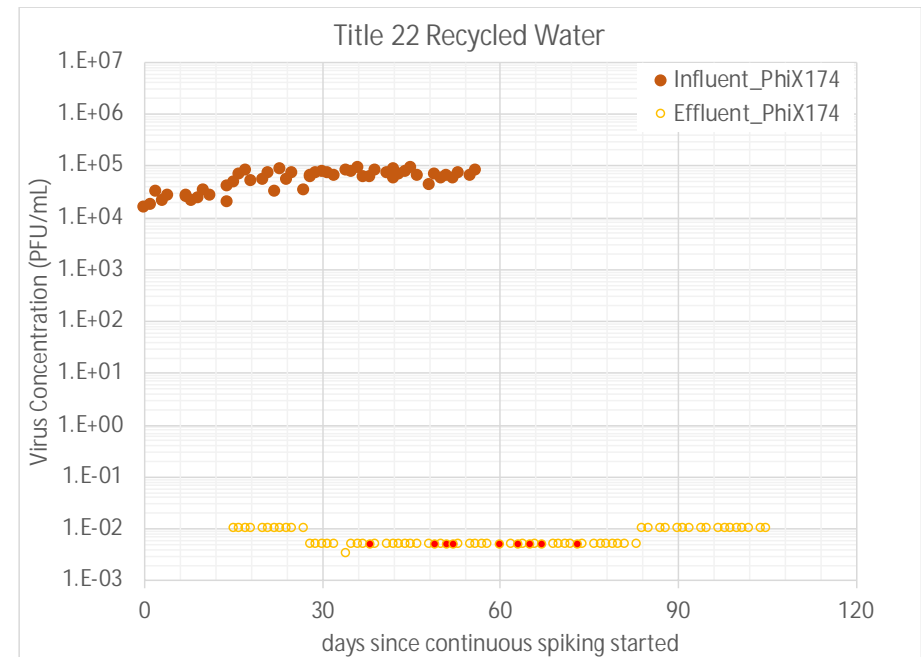
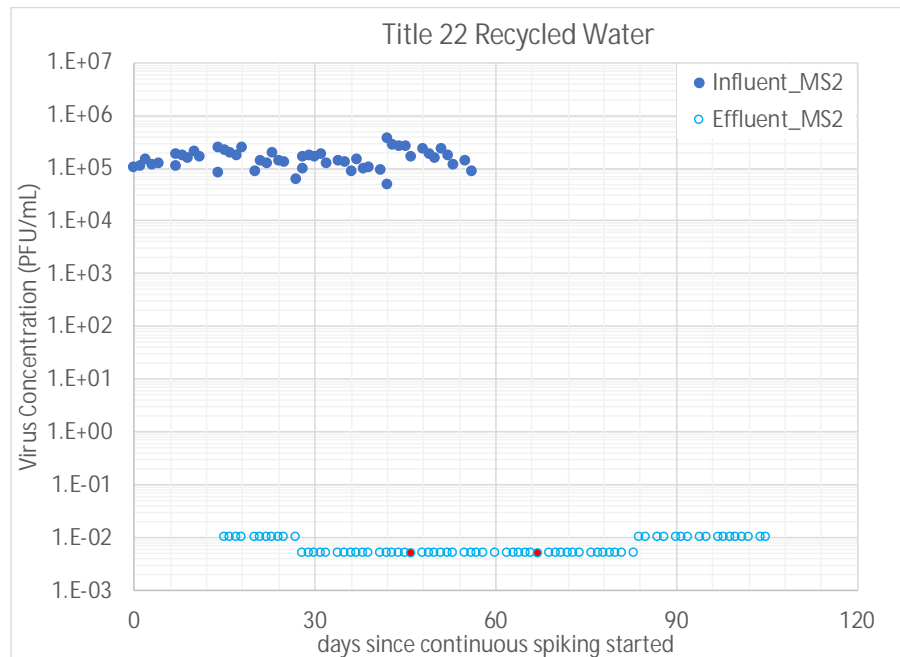


Continuous Spike



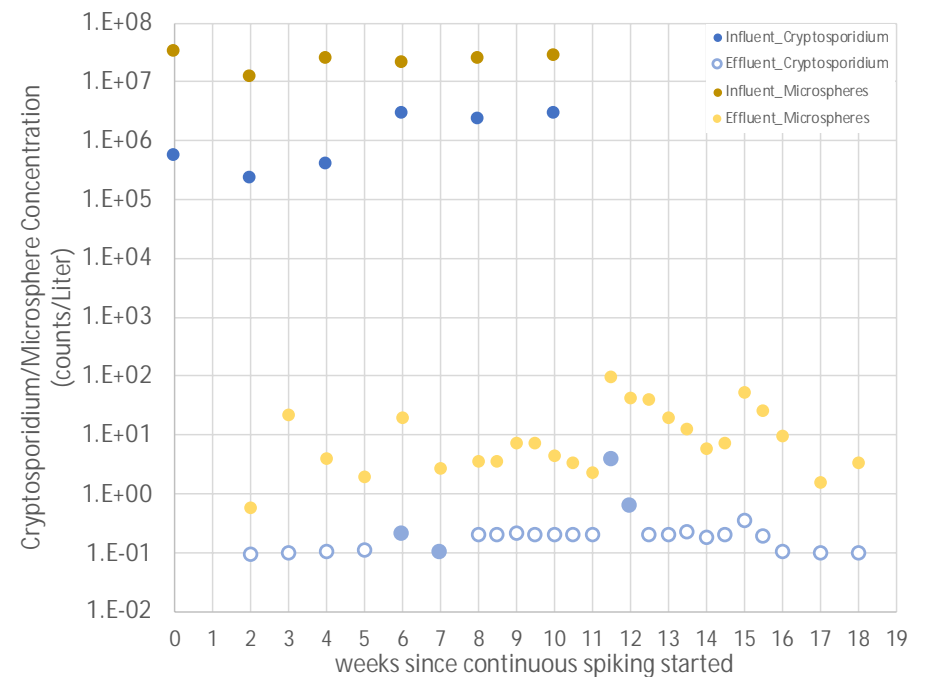
Soil Column Testing for Soil Aquifer Treatment

- Bacteriophage surrogate for virus
 - *continuous spike in 30-day column tests*
 - *Somatic (PhiX174) and male specific (MS2) coliphages*
 - *5th percentile LRV calculated as 5.41-log and 6.08-log, respectively*



Soil Column Testing for Soil Aquifer Treatment

- Cryptosporidium cysts testing over 30-day soil columns
 - *Cryptosporidium* and microspheres
 - 5.17-log and 4.54 log, respectively



Pathogen Soil Column Summary

- Virus testing showed 5.4-6.0-log removal in 30-days
- Cryptosporidium testing showed 4.5-5.2-log removal in 30-days

Expand the Toolbox and get the credit treatment deserves



Thank you!!

WaterReuse California LA Chapter Meeting

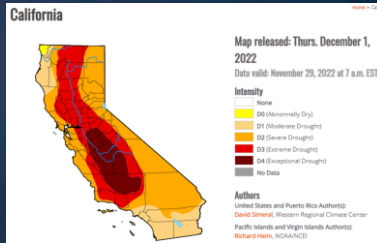


December 06, 2022

Legislation & Regulation Update

Raymond Jay
Metropolitan Water District of Southern California
(213) 217-5777 or rjay@mwdh2o.com

Water Supply Conditions

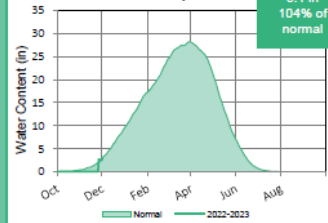


● Initial SWP allocation = 5%

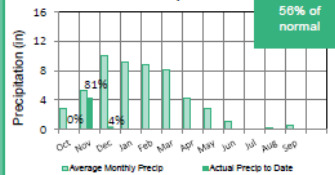
State Water Project Resources

As of: 12/01/2022

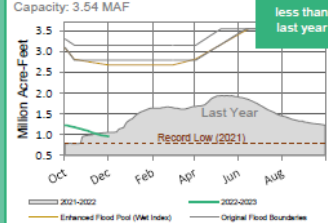
Northern Sierra Snowpack



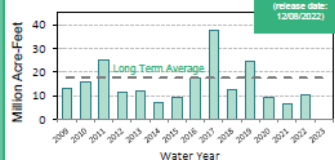
8 Station Index Precipitation



Oroville Reservoir Storage



Sacramento River Runoff



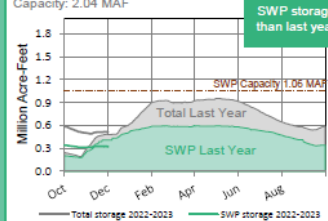
Other SWP Supplies

Calendar Year 2022

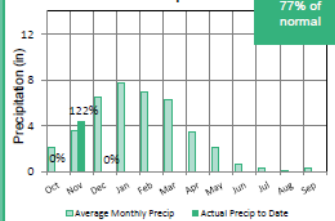
Carryover 38,000 AF (Est.)

Human Health and Safety 134,000 AF

San Luis Reservoir Storage



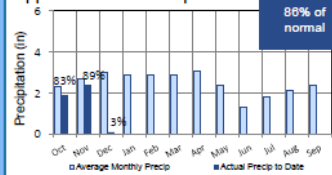
5 Station Index Precipitation



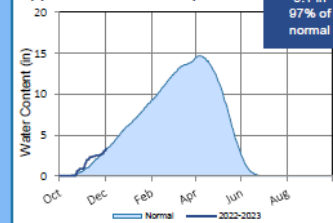
Colorado River Resources

As of: 12/01/2022

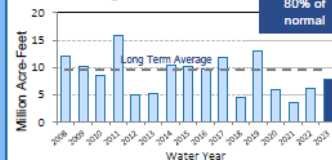
Upper Colorado Precipitation



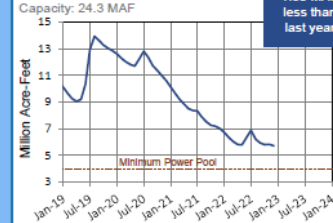
Upper Colorado Snowpack



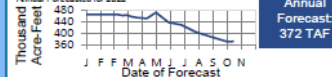
Powell Unregulated Inflow



Lake Powell Storage



PVID/Yuma Agricultural Use



Projected Lake Mead ICS

Calendar Year 2022

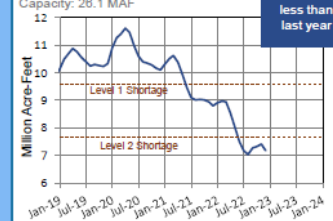
Put (+) / Take (-)
-78,000 AF

Lake Mead Surplus/Shortage Outlook

	2023	2024	2025	2026
Surplus	0%	0%	0%	0%
Shortage	100%	93%	100%	93%
Metropolitan bcr*	7%	7%	7%	6%
	283 TAF	301 TAF	293 TAF	

Likelihood based on results from the August 2022 CPDAMS in
Ensemble Model/CRS model run. Includes DCP Contributions.
* Chance of required DCP contribution by Metropolitan. Volume is
average contribution when needed.

Lake Mead Storage



2023 California Legislative Calendar

- Jan. 1 Statutes take effect
- Jan. 4 Legislature reconvenes
- Jan. 10 Governor submits budget to Legislature
- Feb. 17 Last day for bills to be introduced
- Apr. 28 Last day policy comm. to report fiscal bills
- May 5 Last day fiscal comm. to report fiscal bills
- June 2 Last day for bills to pass house of origin
- June 15 Last day to pass budget
- Sept. 14 Last day for any bill to be passed
- Oct. 14 Last day for Governor to sign or veto bills
- See: <http://assembly.ca.gov/legislativedeadlines>

2022 Water Legislation Outcome

- SB 1157 (Hertzberg): Hertzberg. Urban water use objectives: indoor residential water use; WRCA = neutral after amendments; Approved by Governor & Chaptered 9/28/22
- SB 991 (Newman): Public contracts: progressive design-build: local agencies; WRCA = Support; Chaptered 9/02/22
- SB 230 (Portantino): SWRCB: Constituents of Emerging Concern in Drinking Water Program; WRCA = Support; Approved by Governor & Chaptered 9/28/22
- AB 2247 (Bloom) PFAS disclosure; Amended to intentionally added PFAS; WRCA = Support; Enrolled & sent to Governor 09/12/22; Vetoed by Governor 9/29/22
- <https://watereuse.org/sections/watereuse-california/legislativeregulatory-committee/>

Regulatory Update

● Direct Potable Reuse Regulations

- SWRCB to adopt regulations by December 31, 2023

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/dpr-criteria-panel.html

● Water Use Efficiency Regulations

- DWR submitted proposal to SWRCB

<https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/Urban-Water-Use-Efficiency-Standards-Variances-and-Performance-Measures>

● On-Site Reuse

- SWRCB to adopt regulations by December 1, 2022
- SWRCB has not started rulemaking process

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/onsite_nonpotable_reuse_regulations.html

● Cross Connection Control Handbook

- A second comment period through December 9, 2022

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/cccp.html

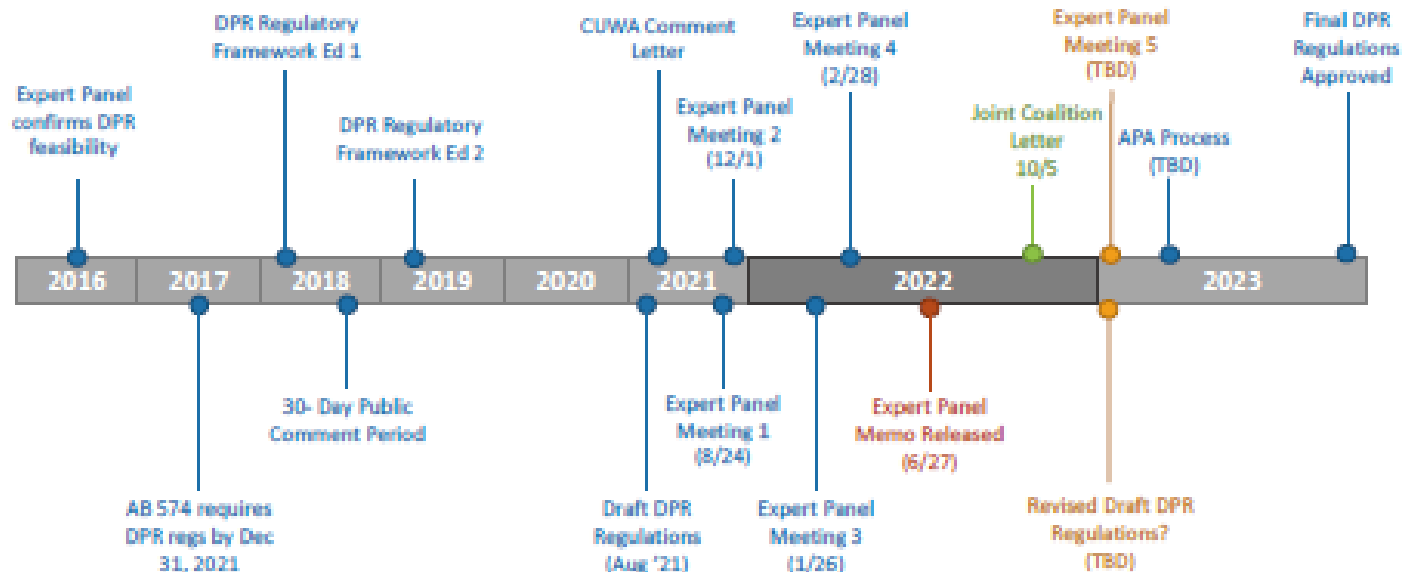
Regulatory Update

Direct Potable Reuse Regulations

Joint comment letter submitted

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/dpr-criteria-panel.html

DPR Regulations Timeline



Federal Update

- FY23 Appropriations
- Large Scale Water Recycling program
 - Draft guidance on Feasibility Studies released
 - Expect funding for Feasibility Studies
- Alternative Water Supply program
 - Letter requesting additional funding
- BABAA Waivers
 - Letter requesting additional waivers
- PFAS
 - WRA submitted comment letter

Questions?

If you have any questions, please contact:

Raymond Jay, Past President



c/o Metropolitan Water District of Southern California
700 N Alameda Street
Los Angeles, CA 90054
(213) 217-5777
rjay@mwd.h2o.com



Regulatory Agency Spotlight

➤ State Water Resources Control Board – Division of Drinking Water

○ Rebecca.Christmann@Waterboards.ca.gov

LA Chapter Update (*Judi Miller*)

- October Meeting Summary Approval
 - Voting by one rep from each member org
- Volunteer Opportunities
 - Meeting Summaries
- Emerging Professionals Committee Update
 - Chair: *Alex Waite*
alex.waite@smgov.net
- Communications Lead
 - Chair: *Oliver Slosser*
oslosser@lvmwd.org
- Awards Champion
 - Chair: *Everett Ferguson*
eferguson@wrd.org
- Technical Topics Committee
 - Chair: *Alex Franchi*
alex.franchi@aecom.com

LA Chapter Update (*Judi Miller*)

➤ Officer Elections

- 2023-2024
- Voting by one rep from each member org (in-person or virtually)

Slate of Officers

- | | |
|-------------------------------|-------------------------|
| • <i>President:</i> | <i>Jared Lee</i> |
| • <i>Vice President:</i> | <i>Alex Waite</i> |
| • <i>Secretary/Treasurer:</i> | <i>Jennifer Jacobus</i> |
| • <i>Chapter Trustee:</i> | <i>Rafael Villegas</i> |
| • <i>Past-President*:</i> | <i>Fred Gerringer</i> |

* Not subject to vote

Membership Roundtable (*Jared Lee*)

Next Meetings

- Tuesday, February 14, 2023:
 - Los Angeles County Sanitation Districts (+ virtual?)
 - Sponsorship opportunity
- Tuesday, April 11, 2023:
 - Los Angeles Department of Water and Power (+ virtual?)
 - @ La Kretz Innovation Campus
 - Sponsorship opportunity

