LAS VIRGENES - TRIUNFO
JOINT POWERS AUTHORITY
AGENDA

4232 Las Virgenes Road, Calabasas, CA 91377

CLOSING TIME FOR AGENDA IS 8:30 A.M. ON THE TUESDAY PRECEDING THE MEETING. GOVERNMENT CODE SECTION 54954.2 PROHIBITS TAKING ACTION ON ITEMS NOT ON POSTED AGENDA UNLESS AN EMERGENCY, AS DEFINED IN GOVERNMENT CODE SECTION 54956.5 EXISTS OR UNLESS OTHER REQUIREMENTS OF GOVERNMENT CODE SECTION 54954.2(B) ARE MET.

5:00 PM August 6, 2018

PLEDGE OF ALLEGIANCE

1 CALL TO ORDER AND ROLL CALL

2 APPROVAL OF AGENDA

3 PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

4 CONSENT CALENDAR

A Minutes: Special Meeting of July 11, 2018 (Pg. 3)

Approve.

5 ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A Recognition of Director Michael L. Paule's Service to the JPA

B Pure Water Project Las Virgenes-Triunfo: Public Outreach Plan Update (Pg. 11)

Receive and file an update on the public outreach plan for the Pure Water Project Las Virgenes-Triunfo and provide staff with direction on whether to modify the logo associated with the project.

6 ACTION ITEMS

A Rancho Amendment Bin and Conveyance Modifications Project: Purchase Order for Biosolids Disposal during Construction(Pg. 19)

Accept the proposal from New Earth USA, and authorize the General Manager/Administering Agent to issue a purchase order, in the amount of

$175,000, for biosolids disposal during construction of the Rancho Amendment Bin and Conveyance Modifications Project.

B Pure Water Project Las Virgenes-Triunfo: Findings of National Water Research Institute Independent Advisory Panel (Pg. 29)

Accept the proposal from Trussell Technologies, Inc.; and authorize the General Manager/Administering Agent to execute a professional services agreement, in the amount of $79,062, for additional modeling and probabilistic analysis of Las Virgenes Reservoir and to provide a step-by-step framework of necessary actions required by the State Water Resource Control Board to receive regulatory approval for the Pure Water Project Las Virgenes-Triunfo.

C State and Federal Legislative and Regulatory Advocacy: Contract Renewal (Pg. 47)

Authorize the Administering Agent/General Manager to execute a one-year renewal of the professional services agreement with Best Best & Krieger LLP, in the amount of $130,000, for state and federal legislative and regulatory advocacy services.

7 BOARD COMMENTS

8 ADMINISTERING AGENT/GENERAL MANAGER REPORT

9 FUTURE AGENDA ITEMS

10 INFORMATION ITEMS

A Federal Legislative Update (Pg. 49)

B Tapia Water Reclamation Facility Chloride Study: Evaluation of Options Report (Pg 62)

11 PUBLIC COMMENTS

Members of the public may now address the Board of Directors **ON MATTERS NOT APPEARING ON THE AGENDA**, but within the jurisdiction of the Board. No action shall be taken on any matter not appearing on the agenda unless authorized by Subdivision (b) of Government Code Section 54954.2

12 CLOSED SESSION

A Conference with Legal Counsel – Existing Litigation (Government Code Section 54956.9(a)):

Zusser Construction, Inc. v. Las Virgenes Municipal Water District

13 ADJOURNMENT

Pursuant to Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C. Sec. 12132), and applicable federal rules and regulations, requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Executive Assistant/Clerk of the Board in advance of the meeting to ensure availability of the requested service or accommodation. Notices, agendas, and public documents related to the Board meetings can be made available in appropriate alternative format upon request.

LAS VIRGENES – TRIUNFO
JOINT POWERS AUTHORITY
MINUTES
SPECIAL MEETING

5:00 PM July 11, 2018

PLEDGE OF ALLEGIANCE

The Pledge of Allegiance to the Flag was led by Michael Paule.

1. CALL TO ORDER AND ROLL CALL

The meeting was called to order at **5:00 p.m.** by Vice Chair Paule in the Board Room at Las Virgenes Municipal Water District headquarters at 4232 Las Virgenes Road in Calabasas, California. Josie Guzman, Clerk of the Board, conducted the roll call.

Present: Directors Caspary, Lewitt, Orkney, Pan, Paule, Polan, Renger, Tjulander, and Wall.
Absent: Director Peterson

2. APPROVAL OF AGENDA

Director Renger moved to approve the agenda. Motion seconded by Director Wall. Motion carried by the following vote:

AYES: Caspary, Lewitt, Orkney, Pan, Paule, Polan, Renger, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: Peterson

3. PUBLIC COMMENTS

Robert Singer expressed concern that people will not want to drink the recycled water processed through Tapia Water Reclamation Facility (Tapia) or the Pure Water Project. He suggested an alternative of delivering the amount of potable water each resident needs for drinking and cooking purposes using the Arrowhead Water delivery model. He stated that residents do not need potable water to irrigate their landscaping, flush their toilets, take showers, or do laundry, and he suggested changing the pipeline to deliver recycled water from Tapia to customers' homes in lieu of building the Pure Water Project Las Virgenes Triunfo.

4. CONSENT CALENDAR

A Minutes: Regular Meeting of June 4, 2018

Director Caspary moved to approve the Consent Calendar. Motion seconded by Director Wall. Motion carried by the following vote:

AYES: Caspary, Lewitt, Pan, Paule, Polan, Renger, Tjulander, Wall
NOES: None
ABSTAIN: Orkney
ABSENT: Peterson

5. ILLUSTRATIVE AND/OR VERBAL PRESENTATION AGENDA ITEMS

A Pure Water Demonstration Project: Refined Configuration and Layout

Provide staff with feedback and direction on the refined configuration and layout of the Pure Water Demonstration Project.

Administering Agent/General Manager David Pedersen stated that the consultants would provide an updated presentation on the Pure Water Demonstration Project based upon the feedback received at the previous JPA Board workshop, including a revised configuration and layout and updated cost information. He noted that grant funding deadlines were approaching in terms of having the facility in operation, and completing some of the operational testing and reporting by the end of calendar year 2019.

Adam Zacheis, Project Manager representing Carollo Engineers; Andy Salveson, representing Carollo Engineers; and Sean Slattery, representing El Dorado Architects provided a PowerPoint presentation with a conceptual vision of the Pure Water Demonstration Project focused on architectural and engineering components.

The Board provided the following feedback:

- Concern with the proposal for parking in front of the building due to the proposed plaza area.
- Concern with not using a California landscape firm who is familiar with California native plants.
- Considering options for planting other drought tolerant plants, such as plants from Australia or the Mediterranean.
- Encouraging the use of plant species that are locally available.
- Considering the installation of a push button lighted crosswalk in the walkway to alert vehicles of pedestrians.
- Considering the installation of solar panels on the building's roof.
- Following up on whether any of the existing trees will need to be relocated as

part of the site plan.
- Reconsidering whether a circular traffic pattern is feasible around the building.
- Considering incorporation of water misters or hanging landscape in the outdoor space due to afternoon sun in the western exposure of the building.
- Concern with doors that stay open due to rodents and lizards that may enter the building, and keeping air-conditioning on inside the building.
- Considering installation of canvas shades for the proposed porch area.
- Considering what will be done with the extra space inside the building.
- Maintaining balance with having a high-tech site that is not overly opulent.
- Including the history and the reason for this project in the educational component, including static displays, video, and kiosks containing information.

Mr. Zacheis responded to a question regarding how the equipment would be moved in and out of the building by stating that moving the large equipment would be considered during construction so that it is only moved once. He noted that emphasis would be placed on the core unit processes in the main demonstration space.

The Board provided the following feedback:

- Providing video with messages that could vary by seasons.
- Providing high-tech videos with an entertainment element.
- Emphasizing safety of the water and considering inclusion of this as part of the fourth station.
- Including information in the education component regarding water quality, minerals, and elimination of pharmaceutical compounds so that people may understand the purity of the purified water.
- Ensuring that the equipment is attractive and appealing.
- Considering whether to install colored or clear piping.

Mr. Zacheis reviewed the estimated total direct costs, in the amount of $1,725,750, for the following: general conditions; demonstration process installation and materials; architectural modifications; demonstration garden; solar carport; heating and air-conditioning; 25 percent contingency; general contractor overhead and profit; escalation to mid-point of construction; and sales tax. He noted that the estimated cost for the demonstration equipment would be an additional $585,000, for a total estimated cost of $2,310,750. He recommended the JPA pre-purchase the demonstration equipment in order to have greater control over the final price and to avoid the contractor's standard markup. He stated that the pre-purchased demonstration equipment would be turned over to the contractor for installation.

Administering Agent/General Manager David Pedersen summarized that based on the Board's feedback, Carollo Engineers would proceed with the design work and preparation of the design plans. He stated that staff would bring back an item to discuss the educational aspect and visitor experience, as well as a more complete project cost.

6. ACTION ITEMS

A Rancho Amendment Bin and Conveyance Modifications Project: Construction Award

Approve an additional appropriation, in the amount of $381,868; award a construction contract to Pacific Hydrotech Corporation, in the amount of $1,408,700; and reject all remaining bids upon receipt of duly executed contract documents for the Rancho Amendment Bin and Conveyance Modifications Project.

Administering Agent/General Manager David Pedersen presented the report.

Director Caspary moved to approve Item 6A. Motion seconded by Director Pan.

David Lippman, Director of Facilities and Operations, responded to a question regarding the project timeline by stating that the equipment would be fabricated in three to four months before being brought onsite, and demolition and installation would take an additional two to three months to complete. He also responded to a question regarding the designation of equipment by trade name by stating that the Board previously took action to specify the equipment to match the existing equipment at the Rancho Las Virgenes Composting Facility. He noted that staff confirmed the equipment proposed by Pacific Hydrotech Corporation would meet this requirement.

Motion carried by the following vote:

AYES: Caspary, Lewitt, Orkney, Pan, Paule, Polan, Renger, Tjulander, Wall
NOES: None
ABSTAIN: None
ABSENT: Peterson

Director Caspary stated that he wanted to ensure staff uses the proper respirators when dealing with the existing equipment. David Lippman, Director of Facilities and Operations, assured the Board that staff follows the District's standard operating procedures for use of certain cotton respirators.

B Tapia Water Reclamation Facility Fiscal Year 2017-18 Rehabilitation Project: Construction Award

Award a construction contract to GSE Construction Company, Inc., in the amount of $1,369,000, and reject all remaining bids upon receipt of duly executed contract documents for the Tapia Water Reclamation Facility Fiscal Year 2017-18 Rehabilitation Project.

Administering Agent/General Manager David Pedersen presented the report.

Director Lewitt moved to approve Item 6B. Motion seconded by Director Tjulander. Motion carried by the following vote:

AYES: Caspary, Lewitt, Orkney, Pan, Paule, Polan, Renger, Tjulander, Wall
NOES:
ABSTAIN:
ABSENT: Peterson

C Tapia Process Air Improvements Project: Call for Bids

Authorize the issuance of a Call for Bids for the Tapia Process Air Improvements Project.

Administering Agent/General Manager David Pedersen presented the report.

Director Caspary moved to approve Item 6C. Motion seconded by Director Polan. Motion carried by the following vote:

AYES: Caspary, Lewitt, Orkney, Pan, Paule, Polan, Renger, Tjulander, Wall
NOES:
ABSTAIN:
ABSENT: Peterson

Director Polan inquired whether the selected equipment is made in the United States. Administering Agent/General Manager David Pedersen responded that staff would verify and provide that information.

7. BOARD COMMENTS

Director Orkney reported that the Rancho Simi Recreation and Park District would be considering approval of conveyance of a grant deed and temporary construction easement deed to Calleguas Municipal Water District, and a permanent nonexclusive easement to Calleguas Municipal Water District and Las Virgenes Municipal Water District for the Calleguas-Las Virgenes Interconnection Project at its July 16th Board meeting. She noted that the Oak Park Commission and Oak Park Municipal Advisory Council approved this project.

Director Pan noted that an editorial was published in *The Acorn* several weeks ago related to this project, and she also submitted an editorial in support.

Director Paule noted that concerns would need to be addressed regarding the location of the pipeline construction along Lindero Canyon Road, communication to residents, and efforts to minimize the impacts to residents. He commented that this project is a necessary component for both agencies to provide water during

disasters and emergencies.

8. ADMINISTERING AGENT/GENERAL MANAGER REPORT

Director Caspary inquired regarding the Los Angeles County Local Agency Formation Commission's (LAFCO) recommendation to dissolve the Sativa Los Angeles County Water District. Administering Agent/General Manager David Pedersen responded that this small water system located in the Willowbrook/Compton area has experienced many challenges over the years due to aged water infrastructure, and it was under much pressure from the public due to brown water in the drinking water system. He stated that he was unaware of the outcome of LAFCO's decision to consolidate this small water system with another agency but would find out more.

9. FUTURE AGENDA ITEMS

None.

10. INFORMATION ITEMS

A State and Federal Legislative Update

Director Polan referred to H.R. 434 (Denham) – New Water Available to Every Reclamation State Act, and inquired whether the JPA was in support of this proposed legislation. Administering Agent/General Manager David Pedersen responded that the JPA had not taken a position on this federal bill.

Director Polan inquired regarding S.32 (Feinstein) – California Desert Protection and Recreation Act of 2017. Joe McDermott, Director of Resource Conservation and Public Outreach, responded that he would provide additional information at the next Board meeting.

Joe McDermott, Director of Resource Conservation and Public Outreach, reported that the water bond measure, now known as the Water Infrastructure and Watershed Conservation Bond Initiative (2018), was assigned as Proposition 3 on the November 6, 2018 ballot. He stated that $400 million would be set aside for recycled water projects if Proposition 3 passes. He also reported that 13 new bills were introduced at the federal level, including S. 3015 – Water Affordability Act, and H.R. 5596 – Water Infrastructure Resiliency and Sustainability Act.

Director Tjulander inquired regarding S. 3012 – Water Technology Acceleration Act. Joe McDermott, Director of Resource Conservation and Public Outreach, responded that he would provide additional information at the next Board meeting.

Director Paule expressed an interest in having an electronic link provided for the bills referenced in the State and Federal Legislative Update. Joe McDermott,

Director of Resource Conservation and Public Outreach, responded that he would explore the possibility of including an electronic link.

B Flow Augmentation to Malibu Creek: Cost and Economic Impact

C Pure Water Demonstration Project: Equipment Procurement

D Tapia SCADA System Update: Request for Proposals

11. PUBLIC COMMENTS

None.

12. CLOSED SESSION

A Conference with Legal Counsel – Existing Litigation (Government Code Section 54956.9(a)):

Zusser Construction, Inc. v. Las Virgenes Municipal Water District

The Board recessed to Closed Session at **6:40 p.m.,** and reconvened to Open Session at **6:50 p.m.**

Authority Counsel Keith Lemieux announced there was no reportable action.

13. ADJOURNMENT

Seeing no further business to come before the Board, the meeting was duly adjourned at **6:50 p.m**.

Glen Peterson, Chair

ATTEST:

Michael Paule, Vice Chair

August 6, 2018 JPA Board Meeting

TO: JPA Board of Directors

FROM: Resource Conservation & Public Outreach

Subject : Pure Water Project Las Virgenes-Triunfo: Public Outreach Plan Update

SUMMARY:

A critical component of the Pure Water Project Las Virgenes-Triunfo consists of conducting public outreach. In February 2017, a Public Outreach Plan was developed for the project and has since been implemented. While most components of the plan are currently underway or have been completed, a handful of items remain to be implemented, and there are several new items that should be added to the plan. As with any large, multi-year project, it will be important to periodically gage the progress of public outreach activities and make any necessary adjustments to the work.

Attached is a report that summarizes the status of the various public outreach activities and proposes the addition of several new items of work. Also attached are two alternative logos for the Board's consideration in response to a request by Director Janna Orkney.

RECOMMENDATION(S):

Receive and file an update on the public outreach plan for the Pure Water Project Las Virgenes-Triunfo and provide staff with direction on whether to modify the logo associated with the project.

FISCAL IMPACT:

No

ITEM BUDGETED:

No

DISCUSSION:

In collaboration with staff, Katz and Associates developed a Public Outreach Plan for the Pure Water Project Las Virgenes-Triunfo. The plan was presented to the JPA Board on February 6, 2017, and provides a roadmap for conveying timely, accurate and clear information about the project to local leaders, stakeholders and customers. The following main categories of work are addressed in the plan: data collection and research,

informational materials and branding, stakeholder engagement, media/social media, partnerships, and tracking and measurement.

In recent months, staff revisited the original plan prepared by Katz and Associates, identified progress that has been made on the various activities and identified the need for potential changes. Most items described in the plan are either underway or have been completed. The Pure Water Project Outreach Plan Update (Attachment A) summarizes the status of the various items of work that are organized using the aforementioned categories. Proposed new elements of the plan are shown in *italics* and include the following:

- Item 1.4 – Design and Build Demonstration Facility
- Item 1.5 – Pre and Post Demonstration Facility Tour Surveys
- Item 2.13 – Utility Branding Network Initiative
- Item 2.14 – Pure Water Project Lunch Pale
- Item 2.15 – Demonstration Project Orientation Video
- Item 2.16 – Demonstration Facility Visitor Experience

As part of the plan implementation, staff has also kept track of various speaking engagements. Since February 2017, there has been more than 25 formal presentations about the project to various community groups, service clubs, forums and others (i.e. participants of District, JPA and Metropolitan Water District of Southern California facility inspection tours).

The major items that have not yet been started, include the following: Item 1.3 – Formalized Survey(s), Item 2.9 – Animated Video, Item 2.10 – Material Translated into Spanish, and Item 4.7 – Rapid Response Program. Target completion dates for these items of work are provided in the plan update.

While staff plans to continue with efforts to engage the community and implement the items outlined in the plan, the near-term focus will be on efforts associated with the Pure Water Demonstration Project. This effort will include the production of a high-quality orientation video that will be utilized at the beginning of tours of the proposed demonstration facility, and the design and construction of the demonstration facility itself, which will include consideration of the entire visitor experience. Staff also proposes to provide informational materials on the project as part of a Utility Branding Network initiative, which consists of outreach efforts that target the top 50 most influential people in the service area through e-mails containing quick-to-read monthly updates. Staff proposes to continue to periodically revisit and update the plan, as needed, as the Project moves forward.

The main observation or takeaway with regard to the current plan is that while much has been accomplished to date, there is still a significant amount of work to be done to inform and educate the public – especially within the next 18 months in preparation for the proposed opening of the demonstration facility.

At the May 7, 2018 JPA Board Meeting, Director Janna Orkney requested a future agenda item for the Board to reconsider the color scheme for the logo associated with the Pure Water Project Las Virgenes-Triunfo. The current logo was first introduced to the JPA Board on October 5, 2016, together with several other options. As shown on Attachment B, the color scheme for the current logo consists of a dark purple and light purple combination that was intended to illustrate the conversion of recycled water converted to drinking water. When

printed on various media, the dark purple generally appears with a more blue tone that would better signify drinking water; however, the lighter purple tone remains evident. Director Orkney suggested that it may be preferable to revise the logo and utilize blue tones in lieu of purple. Attachment B provides two alternate logos using light and dark blue tones. Also, the alternate logos utilize two semi-circular green arrows instead of a full circle arrow, which is another optional change for consideration. Staff is prepared to modify the logo as directed by the Board.

Prepared by: Joe McDermott, Director of Resource Conservation and Public Outreach

ATTACHMENTS:

Attachment A - Pure Water Project Outreach Plan Update
Attachment B - Pure Water Project Logo (Current and Alternates)

Item	Element	Status	Date Completed/ Target Completion	Notes
1.0 – Data Collection and Research				
1.1	In-Depth Interviews	Completed	September-16	Katz report dated Sept. 16, 2016
1.2	Online Secondary Research	Started	On-going	Includes participation in WateReuse
1.3	Formalized Survey(s) (Random throughout JPA Service Area)	Not started	July-19	Seeking opportunity with a local university/college
1.4	***Design and Build Demonstration Facility (new)***	***Started***	**December-19**	***Currently under design, begin public tours by December 2019.***
1.5	***Pre and Post Demonstration Facility Tour Surveys (new)***	***Not started***	***December-19***	***Need to prepare prior to launch of Demonstration Facility***
2.1 – Informational Materials and Branding				
2.1	Branding (logo and theme line)	Completed	October-16	Updates as needed
2.2	Malibu Creek Watershed Brochure	Completed	February-16	
2.3	Pure Water Project Brochure	Completed	February-17	Updated in March 18
2.4	Fact Sheets	Started	September-18	
2.5	Key Message Graphics/Infographics	Started	On-going	Path to Pure Water Graphic
2.6	Frequently Asked questions (FAQs)	Completed	April-17	Updates as needed
2.7	Presentation Template (various modules for various audiences)	Completed (different versions)	Varies	Updates as needed
2.8	Quick Facts Card (for use by field personnel and at presentations)	Not started	February-19	
2.9	Animated Video	Not started	On-Hold	Potentially utilize existing WateReuse videos instead
2.10	Material Translated into Spanish	Not started	TBD	Select Material Only
2.11	Newsletter/E-Newsletter	Started	On-going	Incorporated into Current Flow
2.12	Website (www.pure-water-project.com) – standalone	Started	February-19	Webpage currently in place, seeking better domain name
2.13	***Utility Branding Network Initiative (new)***	***Starting August 18***	***On-going***	***Monthly e-mails to 50 top influential people***
2.14	***Pure Water Lunch Pail (new)***	***Completed***	***March-18***	
2.15	***Demonstration Project Orientation Video (new)***	***Started***	***December-19***	***Seeking proposals***
2.16	***Demonstration Facility Visitor Experience (new)***	***Started***	***December-19***	***In design***
3.0 – Stakeholder Engagement				
3.1	Identify Project Liaison	Completed	Varies	Liaisons are the GM and Board of Directors. Alternates (RCPO Director and Public Affairs Manager)

Item	Element	Status	Date Completed/ Target Completion	Notes
3.2	Key Stakeholder Briefings	Started	On-going	Per Tracking Sheet
3.3	One-on-One Meetings	Started	On-going	Per Tracking Sheet
3.4	Speakers Bureau / Speaking Events	Started	On-going	Per Tracking Sheet
3.5	Events and Forums	Started	On-going	Per Tracking Sheet
4.0 – Media / Social Media				
4.1	Enhance traditional and social media outreach	Started	On-going	Added Instagram, NextDoor, Pinterest
4.2	Provide media with continuously stimulating and newsworthy content related to water supply diversity and indirect potable reuse	Started	On-going	Press releases after critical JPA decisions
4.3	Cultivate working relationships with local/regional media representatives, bloggers and specialty reporters to facilitate accurate and balanced media coverage	Started	On-going	
4.4	Develop short video presentations featuring indirect potable reuse descriptions and benefits that can be shared with the media and stakeholders	Started	On-going	Pure Water Project Episodes
4.5	Engage multicultural publications and media outlets that reach a diverse readership	Started	On-going	
4.6	Increase the presence, audience and level of engagement on social media	Started	On-going	Will “boost” high importance items on Facebook
4.7	Rapid Response Program	Not started	February-19	
5.0 – Partnerships		Started	On-going	Need to seek out additional partners
6.0 – Tracking and Measurement		Started	On-going	

Pure Water Project Engagement Tracking Sheet

Type	Liaison	Audience	Date	# Attendees	Notes
Key Stakeholder Briefings					
		Staff of Congressman Ted Lieu	5/3/17		Ted Lieu's staff
	Pedersen	Hilton Foundation	6/8/17	2	Pat Madugno, Kathryn Miller
	McDermott	State Senator	4/11/18	2	Henry Stern and staff
Speakers Bureau / Speaking Events					
		Westlake Lake Management Association	3/21/17	NR	
		Calabasas HOA	3/29/17	NR	
		Calabasas Chamber of Commerce Government Affairs Comm.	4/3/17	NR	
		League of Women Voters	4/11/17	NR	
		Agoura Hills City Council	4/26/17	NR	
		Las Virgenes HOA	5/16/17	NR	
		Calabasas City Council	5/24/17	NR	
		Sierra Club	5/25/17	NR	
		County Special District's Association	6/6/17	NR	
		Greater Conejo Chamber Government Affairs Comm.	6/21/17	NR	
		Oak Park Municipal Advisory Council	7/25/17	NR	
		Metropolitan Water District	7/26/17	1	Carolyn Schaffer
		Lt. Governor's Office	7/26/17	1	Joey Freeman
		Malibu Sunrise Rotary	9/8/17	NR	
		Malibou Lake HOA	9/26/17	NR	
	Pedersen	Kiwanis Club (Thousand Oaks)	5/31/18	45	
	Pedersen	Westlake Village City Council	7/25/18	30	
	Pedersen	Congressman Ted Lieu, Senator Henry Stern, Calabasas Mayor Fred Gaines and Mayor Pro David Shapiro, Agoura Hills Mayor Pro Tem Linda Northrup	8/01/18	27	

Type	**Liaison**	**Audience**	**Date**	**# Attendees**	**Notes**
Events and Forums					
		General Public/Influential Persons	3/26/17	32	Colorado River Aqueduct Tour
		General Public	5/6/17	NR	Quarterly Tour (Potable Water)
		General Public	11/18/17	28	Quarterly Tour (Potable Water)
	McDermott	General Public	2/10/18	36	Quarterly Tour (Wastewater)
	Pedersen	Water ReUse	3/25/18	NR	Professional Symposium
	McDermott	General Public/Influential Persons	4/14/18	30	Colorado River Aqueduct Tour
	McNutt	General Public	5/6/18	39	Quarterly Tour (Potable Water)
	Author	***Paper(s)***			
Articles/Press Releases					
	Pedersen	Conejo View	July 2017		Project description and benefits
	Acorn	McReynolds departure creates leadership void	12/15/16		
	Star	Cafe Society: Ventura County homebrew challenge is flushed with	10/20/17		
	Acorn	Agencies ready to move on sewer recycle	4/13/17		
	Acorn	Iceland steps down from Triunfo board	6/22/17		
	Acorn	So the long drought is over, right? - Guest Opinion	April 2018		
	Acorn	The facts behind Triunfo rate hike - Editorial	May 2018		
	Acorn	Triunfo approves rate hike	5/31/18		
	Acorn	Agoura site is the front-runner	6/22/18		
	Acorn	Path to pure water	6/22/18		
	Acorn	Small price to pay for safe, reliable water	7/12/18		

ATTACHMENT B - LOGO

CURRENT LOGO

ALTERNATE LOGOs

August 6, 2018 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Rancho Amendment Bin and Conveyance Modifications Project: Purchase Order for Biosolids Disposal during Construction

SUMMARY:

During construction of the Rancho Amendment Bin and Conveyance Modifications Project, the amendment storage and feed system will need to be taken out of service for approximately six months. As a result, composting operations will need to be temporarily suspended, and an alternative biosolids disposal method will be required. The most economical method for this temporary situation is the off-site disposal of dewatered class B biosolids.

A request for proposals was developed for the service and advertised on LVMWD's website for two months. During the proposal solicitation period, several companies that provide biosolids disposal were contacted with some expressing interest in work. However, only one proposal was received by the July 11, 2018 proposal due date. New Earth USA proposed to provide the service for $63.69 per ton. Staff believes the quoted pricing is competitive considering that the JPA previously paid $68.27 per ton for biosolids disposal in 2011 when composting operations were temporarily suspended for construction of the Reactor Building Ceiling Repair Project.

Based on an estimated 15 tons of class B biosolids generated per day over a 6-month period (26 weeks), approximately 2,730 tons of biosolids are expected to be produced during the temporary shutdown. Using this estimated quantity, the cost of hauling and disposal of the class B biosolids is anticipated to be $173,900. Staff recommends that the Board accept the proposal from New Earth USA and authorize the General Manager/Administering Agent to issue a purchase order for the service, in the amount of $175,000.

RECOMMENDATION(S):

Accept the proposal from New Earth USA, and authorize the General Manager/Administering Agent to issue a purchase order, in the amount of $175,000, for biosolids disposal during construction of the Rancho Amendment Bin and Conveyance Modifications Project.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

The estimated cost of biosolids disposal during the 6-month shutdown of composting operations is $175,000. Sufficient funds for the service are available in the adopted Fiscal Year 2018-19 JPA Budget. During the temporary shutdown, a cost-savings of approximately $53,000 will be realized because amendment will not be required. Also, the JPA will benefit from reduced energy demand. However, the hauling and disposal of the biosolids is an additional cost. The cost of the service will be allocated 70.6% to LVMWD and 29.4% to Triunfo Sanitation District.

DISCUSSION:

During construction of the Rancho Amendment Bin and Conveyance Modifications Project, the amendment storage and feed system will need to be out of service for approximately six months. The scope of the project includes removing and replacing the existing amendment bin with a smaller version and extending the amendment delivery conveyor to the new bin. Composting operations will be temporarily suspended during construction, and the dewatered biosolids are proposed to be hauled and disposed offsite.

As proposed, this would be the fifth time that compost production has be halted since the composting facility was placed in service. Previously, the plant was shut down for improvements to the conveyors and bucket elevators (2003), rehabilitation of the downstream portions (drop ceiling and bay media) of the reactor building (2006), inspection of the loading area ceiling (2009) and repair of the reactor building ceiling (2011).

During the first 60 days of the shutdown, the compost reactor and cure buildings would be emptied, allowing for maintenance tasks that cannot be performed with the system in operation. Some of these tasks include completing the Rancho Lighting Efficiency Upgrade Project, electrical and instrumentation inspection and general cleanup, as well as inspection, maintenance and repair of various mechanical equipment. After construction is completed and compost operations restart, it will take 60 days to produce compost that is certified for public use. Hauling of the biosolids is expected to start in the winter 2018 and be completed by early summer 2019.

A request for proposals was developed for offsite disposal of the JPA's dewatered biosolids and advertised on LVMWD's website for two months. Also, proposals were requested from Synagro, New Earth USA, Denali Water and Liberty Composting, Inc. Only one proposal was received by the submittal deadline, as follows:

New Earth USA $63.69 per ton

The proposal from New Earth USA includes transportation, loading and disposal of the biosolids. The JPA will be required to perform sampling and analyses of the class B biosolids to verify conformance with federal regulations. The sampling and analyses are expected to cost approximately $1,000.

Based on an estimated 15 tons of class B biosolids generated per day over the 6-month period (26 weeks), approximately 2,730 tons of biosolids will be produced during the temporary shutdown. As a result, the cost for hauling and disposal of the biosolids will be approximately $173,900.

The temporary shutdown of composting operations will provide a cost-savings due to reduced amendment purchases and lower energy usage. Amendment will not be purchased during the shutdown period, translating to a savings of approximately $53,000. Additionally, since the blowers and fans in the reactor building will not need to be in operation, a savings in electrical costs is also expected.

Prepared by: Brett Dingman, Water Reclamation Manager

ATTACHMENTS:

New Earth USA Proposal

LAS VIRGENES MUNICIPAL WATER DISTRICT
EST. 1958

&

NEW EARTH USA

REQUEST FOR PROPOSALS
For
Transportation and Disposal of Biosolids
June 11, 2018

Brett Dingman
Las Virgenes Municipal Water District
4232 Las Virgenes Rd
Calabasas, CA 91302

July 11, 2018

Dear Brett,

New Earth USA, LLC is pleased to respond to **REQUEST FOR PROPOSALS for Transportation and Disposal of Biosolids**

New Earth will provide sustainable and cost-effective solutions delivered by experienced professionals in the industry. We understand the challenges that public agencies face in managing biosolids. New Earth staff has successfully dealt with public perception, regulatory compliance, safety, and budgetary concerns. Our goal is to provide cost effective solutions to the Las Virgenes Municipal Water District that are environmentally friendly, while ensuring the highest level of customer service.

New Earth in collaboration with our subcontractor bring decades of experience in biosolids management. Our expertise includes biosolids management, transportation, technical service/regulatory compliance and transportation. We are extremely confident that our service will meet and exceed the expectations of the District.

As always, we are open to working with our customers collaboratively to develop solutions. Please feel free to contact me with any questions.

Regards,

Brian Voss

Brian Voss
Director of Strategic Accounts
909-289-3350
bvoss@newearthusa.com

New Earth USA, LLC is a Waste Solutions Company that transforms waste treatment and conversion challenges into integrated, state-of-the-art solutions with practical applications for our clients.

Harnessing our extensive experience in waste solutions management, transportation, heavy equipment and regulatory compliance ensures an ability to meet a variety of unique residuals management needs while conserving natural resources.

New Earth creates value through customized solutions, meeting and exceeding customer goals, utilizing state of the art equipment, ensuring compliance, and promoting sustainability. Our proven management practices safeguard public health and the environment. We adhere to all federal/state regulations and guidelines to provide the optimal environmental, agronomic, and economic benefit.

Our professionals have experience with Compost Facility Development, as well as the Development, Customization, and Growth of Industrial and Municipal residual management programs. Our team members hold degrees in agronomy, business, urban forestry and education. In addition, they have completed graduate-level class work in soil fertility, soil management and conducted industrial co-product research.

NEW EARTH SOLUTIONS KEY MANAGEMENT PERSONNEL:

Education

- *Degrees in Agronomy, Business, Urban Forestry, and Education*
- *Graduate level class work in soil fertility and soil management (includes industrial research waste projects)*
- *Confined Space Training, OSHA Certification, Smith Driving School, Summit Safety Training*

Residuals Management Experience

- *Twenty plus years of residuals management*
- *Twenty-five plus years of transportation and heavy equipment experience*
- *Assisted in the development, customization, and growth of numerous residuals management programs, ranging from 5,000 wet tons annually to 150,000 wet tons annually*
- *Twenty plus years of completing Federal and State Industrial compliance activities*
- *Compost facility development*

New Earth USA's plan is to recycle a valuable resource into the agricultural community with a proven safe alternative to inorganic fertilizers. The current beneficial use option is mine reclamation in the Lost Hills, CA area. The proposed program will employ management practices which safeguard public health and the environment including strict compliance with all federal and state regulations and guidelines.
New Earth USA will comply with all applicable laws and will maintain insurance as necessary to perform these services.

SAFETY

New Earth and its' employees will comply with all applicable environmental & safety guidelines required by regulatory agencies. New Earth will provide employees working at this site with continuous training in the areas of both safety & environmental compliance. New Earth USA belongs to ISNetworld and currently has an "A" rating.

- ✓ Equipment is inspected to ensure safe operation
- ✓ PPE is issued to each employee to ensure they have the necessary equipment to protect themselves.
- ✓ Safe Work Permit - Each location whether in the field or at the storage pad has what New Earth USA terms as a Safe Work Permit, the permit communicates the hazards and risks of the locations and what the employees are required to be aware of to perform their work safely.
- ✓ Monthly meetings are used to review company issued topics, review "good catches" and share best practices.
- ✓ Provide Certification regarding CPR, First Aid, and AED use.

SCOPE OF WORK

New Earth shall provide transportation, loading, sampling, composting, land applying, land filling, or any other legal and approved method of managing biosolids generated from the treatment plant. New Earth shall provide two (2) staged trailers. The District shall be responsible for loading of the trailers. *Truck gauges will be substituted for scales*

A New Earth subcontractor will haul the biosolids to the following location for beneficial use (mine reclamation):

Facility Information:

Holloway Environmental

14045 Holloway Road

Lost Hills, CA 93249

The facility is fully permitted and has the capacity to manage in excess of 150% of the biosolids currently generated by the DISTRICT. **permits available upon request*

- **Biosolids shall meet the following criteria:**

(i) contain 14-90 % total solids, (ii) meet Table 3 pollutant concentrations required under 40 CFR part 503, (iii) do not constitute a hazardous waste under applicable laws, (iv) do not contain polychlorinated biphenyls in amounts equal to or greater than 50 mg per kg on a dry weight basis, and (v) do not contain any radioactive isotopes in amounts that are regulated under applicable law.

SCHEDULE OF WORK AND PRICES FOR

Transportation and Disposal of Biosolids

Item No.	Description	Unit	Unit Price
1.	Removal and disposal Class B biosolids. Price to include all labor, equipment, transportation and taxes.	Ton	$63.69

No additional hourly charge shall be applied for regular or holiday schedules.

EQUIPMENT

A New Earth transportation subcontractor will provide the equipment necessary for transportation of the Districts biosolids. The equipment is proven to be compatible with the Districts facilities as well as having the capacity to provide spare trailers as necessary. Appropriate insurance shall be provided.

TRANSPORTATION

New Earth will be able to meet the Districts anticipated workload. In addition, New Earth will have the capability to accommodate unforeseen changes in schedules. Trailers will be available for inspection by District staff and will meet all requirements by applicable agencies.

PREPAREDNESS

A copy of the spill response program is provided in this proposal. In the unforeseen event that New Earth is unable to provide services, New Earth shall obtain alternate means of transportation and disposal services at or below the cost of the contract.

REGULATION

New Earth shall provide documentation of compliance with local, state and federal regulatory requirements. New Earth will provide documentation regarding beneficial use of biosolids.

EXPERIENCE

New Earth principals and its employees have 20+ years experience managing biosolids. A reference list is provided below:

REFERENCES

Tony Pollak

Western Municipal Water District

Operations Supervisor

951-789-5114

TPollak@wmwd.com

John Groleau

Resolute Forest Products-Menominee Pulp Mill

Environmental Manager

906-864-9161

john.groleau@resolutefp.com

Todd Clausen

Resolute Forest Products-Menominee Pulp Mill

Mill Manager

906-864-9159

todd.clausen@resolutefp.com

Jarrod Wood

International Paper- Cedar River Mill

Area Process Manager OCC

319-365-3475

jarrod.wood@ipaper.com

Ben Armel

Chino Basin Desalter Authority

Jurupa Community Services District

Treatment Plan Supervisor

909-730-6879

barmel@jcsd.us

John Eaton

District of Eagan, MN

Superintendent of Utilities

651-675-5200

jeaton@Districtofeagan.com

August 6, 2018 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Pure Water Project Las Virgenes-Triunfo: Findings of National Water Research Institute Independent Advisory Panel

SUMMARY:

On February 5, 2018, the results of 3-D hydrodynamic modeling of Las Virgenes Reservoir were presented to the JPA Board. The purpose of the modeling was to confirm that the Pure Water Project Las Virgenes-Triunfo would comply with surface water augmentation (SWA) regulations recently issued by the State Water Resources Control Board (SWRCB). Overall, the modeling results were favorable and demonstrated that the project will meet the SWA regulations under most scenarios.

The modeling work was performed by Trussell Technologies, Inc. (Trussell) and included impaneling a National Water Research Institute (NWRI) Independent Advisory Panel (IAP). The charge of the IAP was to validate the results of the hydrodynamic modeling and comment on the feasibility of the project to meet the SWA regulations. The IAP met on May 4, 2018 and was briefed on the project by JPA and Trussell staff. The IAP summarized its findings, conclusions and recommendations in the attached June 26, 2018 Memorandum.

Although the findings of the IAP were favorable, the memorandum recommended that the JPA conduct some additional modeling and probabilistic analysis. Trussell provided the attached proposal to conduct the additional work. Staff recommends that the Board accept the proposal from Trussell.

RECOMMENDATION(S):

Accept the proposal from Trussell Technologies, Inc.; and authorize the General Manager/Administering Agent to execute a professional services agreement, in the amount of $79,062, for additional modeling and probabilistic analysis of Las Virgenes Reservoir and to provide a step-by-step framework of necessary actions required by the State Water Resource Control Board to receive regulatory approval for the Pure Water Project Las Virgenes-Triunfo.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

Sufficient funds are available in the adopted Fiscal Year 2018-19 JPA Budget for this work.

DISCUSSION:

On February 5, 2018, the results of 3-D hydrodynamic modeling of Las Virgenes Reservoir were presented to the Board. The purpose of the modeling was to confirm that the project would comply with SWA regulations recently issued by the SWRCB. Overall, the modeling results were favorable and demonstrated that the Pure Water Project Las Virgenes-Triunfo would meet the SWA regulations under most scenarios. However, there were three tracer simulations that resulted in dilution values of less than the minimum of 100:1. In each case, a strong southeast wind pushed the warmer purified water from the discharge point along the surface of the reservoir to the inlet of the filter plant. Possible solutions to avoid this condition include a submerged and diffused discharge point and/or improved aeration in the reservoir.

The modeling was performed by Trussell and included impaneling a NWRI IAP. The charge of the IAP was to valid the results of the hydrodynamic model and comment on the feasibility of the project to meet the SWA regulations. The IAP met on May 4, 2018 and was briefed on the project by JPA staff and Trussell representatives. The IAP summarized its findings, conclusions and recommendations in the attached June 26, 2018 memorandum.

Following is a summary of the IAP's conclusions:

- The JPA's Board of Directors and executive leadership appear committed to appropriate planning and investment to ensure regional water supply reliability.
- The proposed project effectively addresses the necessary water supply, regulatory and environmental considerations.
- The preliminary model analyses and scenarios are reasonable and provided the panel with valuable insight into the project.
- The proposed project, as presented to the Panel, appears to be capable of complying with the SWA regulations.

However, the IAP had the following recommendations for additional study:

1. Perform additional modeling efforts with a submerged diffuser inlet rather than a surface water inlet to predict if the regulatory dilution criterion is met in even the most challenging meteorological conditions.
2. Conduct a probabilistic analysis to provide a high confidence level that the required dilution that will be achieved consistently.
3. Develop a monitoring plan that specifically identifies the constituents that will be monitored in the advanced water treatment plant product water, at Las Virgenes Reservoir and in the product water from the Westlake Filtration Plant.

To address the first and second recommendations, Trussell provided a proposal to conduct the additional modeling using an optimized submerged diffuser and completing a probabilistic

analysis to extrapolate the 99.9% confidence level for the required dilution that would be achieved consistently.

The third recommendation is dependent on a thorough understanding the SWA regulations. The SWA regulations were just approved late last year by the SWRCB and have not yet been applied to a specific project. Although the SWA regulations are modeled after groundwater recharge regulations, there are significant differences. The regulations include requirements for a variety of studies, reports and testing prior to the operation of a SWA project, as well as requirements for on-going testing, reporting and monitoring after start-up of a SWA project. To complicate the regulations, approvals for some items are required from the SWRCB Division of Drinking Water for some items, from the Los Angeles Regional Water Quality Control Board for some items, and from both regulatory agencies for other items. Trussell included a task in its proposal to provide a step-by-step framework of necessary actions required by the SWA regulations to obtain project approval from the various divisions of the SWRCB. This framework will prove invaluable to staff as the project progresses through the SWRCB approval process. A recommended monitoring plan will be developed after the framework.

Trussell proposes to perform the additional modeling, probabilistic analysis and step-by-step framework for $79,062. The IAP Memorandum included several other recommendations that are either to be completed at a future date, such as a physical tracer study, or that have been completed, such as installation of a second weather station.

Prepared by: David R. Lippman, P.E., Director of Facilities and Operations

ATTACHMENTS:

NWRI Memorandum
Trussell Proposal

FINAL MEMORANDUM

Date: June 26, 2018

To: David Pedersen, General Manager, Las Virgenes Municipal Water District

From: Amy Childress, Ph.D.
Chair, NWRI Independent Advisory Panel for Las Virgenes-Triunfo Pure Water Project

Kevin M. Hardy, J.D., Executive Director, National Water Research Institute

Subject: NWRI Independent Advisory Panel for Las Virgenes-Triunfo Pure Water Project: Findings and Recommendations from the Panel Meeting held May 4, 2018

The National Water Research Institute (NWRI) is pleased to provide this consensus memorandum of the findings and recommendations of the NWRI Independent Advisory Panel (Panel) to review the Las Virgenes-Triunfo Pure Water Project (Project), a proposed indirect potable reuse project involving surface water augmentation (SWA) of the Las Virgenes Reservoir in Westlake Village, California.

The Panel was established by NWRI in 2018 at the request of the Las Virgenes-Triunfo Joint Powers Authority to provide a third-party peer review of the technical, scientific, regulatory, and policy aspects of the proposed Project. Members of the Panel included:

- Panel Chair: Amy Childress, Ph.D., University of Southern California
- Michael Anderson, Ph.D., University of California, Riverside
- Richard Bull, Ph.D., MoBull Consulting
- William Mitch, Ph.D., P.E., Stanford University
- Matthew Verbyla, Ph.D., San Diego State University

Biographies of the Panel Members are provided in **Attachment A.**

A meeting of the Panel was held on May 4, 2018, at the Las Virgenes Municipal Water District in Calabasas, California. The objectives of the meeting included:

- Provide the Panel with an overview of the Pure Water Project, including historical information and drivers for the project.

- Present information to assist the Panel in evaluating both (1) the validity of the Reservoir Model and (2) the results of various operational scenarios evaluated by the Reservoir Model.

- Solicit Panel feedback on (1) the results of the Reservoir Model and (2) the feasibility of the Pure Water Project to comply with reservoir requirements of the SWA regulations.

The meeting agenda is provided in **Attachment B**, and meeting attendees are listed in **Attachment C**.

All six Panel members reviewed pre-meeting documents, participated at the meeting and an on-site tour of the Las Virgenes Reservoir and Westlake Filtration Plant, and prepared and reviewed this memorandum before it was finalized.

PROJECT BACKGROUND

The Las Virgenes Municipal Water District (LVMWD) and the Triunfo Sanitation District (TSD) created the Las Virgenes-Triunfo Joint Powers Authority (JPA) in 1964 to plan and support construction, operations, and maintenance for a joint wastewater treatment system. Beginning in 1972, the JPA began serving recycled water treated at the Tapia Water Reclamation Facility (WRF) to customers for landscape irrigation. All water produced by the 12-million gallons per day (MGD) facility is treated to Title 22 standards for disinfected tertiary recycled water.

Although the Tapia WRF generates a steady supply of recycled water, the quantity required to meet the community's irrigation needs varies significantly between the dry summer months and the wetter months of winter. In the winter, excess recycled water not needed by customers is discharged to surface water or sprayed on fields maintained by the JPA in conformance with applicable permit conditions. Surface water discharges must comply with stringent nutrient Total Maximum Daily Load (TMDL) discharge permit requirements for Malibu Creek and Malibu Lagoon, including:

- Current Discharge Limitations. The current nutrient TMDL limits include 8 mg/L for nitrate+nitrite-N and 3 mg/L for total phosphorus. According to an established permit and creek flow monitoring protocols, no discharge is allowed from April 15 to November 15 unless flows in Malibu Creek drop below 2.5 cubic feet per second.

- 2022 Discharge Limitations. The JPA must comply with new summer limits (April 15-November 15) of 1 mg/L total nitrogen and 0.1 mg/L total phosphorus by May 16, 2022.

- 2030 Discharge Limitations. The JPA must comply with new winter limits (November 16-April 14) of 4 mg/L total nitrogen and 0.2 mg/L total phosphorus by November 16, 2030.

To optimize local water production, reduce reliance on imported water, support recognized beneficial uses of Malibu Creek and Lagoon, and comply with increasingly stringent discharge limitations, the JPA is seeking to undertake a water supply augmentation project that can provide multiple benefits to the community.

The proposed Project includes building a new Advanced Water Treatment Plant (AWTP) to treat recycled water from the Tapia WRF to drinking water standards. The advanced treated water will be piped to the Las Virgenes Reservoir (Reservoir) for blending and additional treatment at the Westlake Filtration Plant. Ultimately, the proposed Project has the potential to provide up to 15 percent of the drinking water supply for the JPA's customers. Refer to Figure 1 for a schematic of the proposed Project.

Figure 1. Schematic of the Las Virgenes-Triunfo Pure Water Project (Credit: Trussell Technologies).

The proposed Project must comply with the SWA regulations recently approved by the California State Water Resources Control Board. The SWA process involves adding advanced treated water to a surface water reservoir that is used as a source of drinking water (SWRCB, 2018). The SWA regulations include requirements for dilution and retention time in the reservoir, advanced treatment criteria, and minimum log reduction values for pathogens (i.e., enteric virus, *Giardia*, and *Cryptosporidium*).

Las Virgenes Reservoir receives imported water from the Metropolitan Water District of Southern California (MWD). Owned and operated by LVMWD, the Reservoir provides seasonal and emergency storage for the service area. As part of the proposed Project, a three-dimensional (3D) hydrodynamic model was developed and calibrated to evaluate the dilution of advanced treated water in the Reservoir and to ensure future compliance under different operating scenarios. Specifically, three operating scenarios were used:

- **Routine Scenario**: Recycled water from the Tapia WRF is discharged into the Reservoir during winter months, and water is withdrawn from the Reservoir during the summer months for treatment at the Westlake Filtration Plant. That is, the input of recycled water to the Reservoir and withdrawal of water from the Reservoir do not occur simultaneously.

- **Boundary Scenario**: The Westlake Filtration Plant operates continuously throughout the year. In the winter and "shoulder" (i.e., spring and fall) months, recycled water produced by the Tapia WRF is discharged to the Reservoir. In the summer, recycled water is used to meet irrigation demand, resulting in minimal input of recycled water to the Reservoir. No other water source (e.g., MWD water) enters the Reservoir in this scenario.

- **Emergency Scenario**: The feeder line that delivers imported water from MWD to the Reservoir becomes inoperable. In this scenario, both the AWTP and Westlake Filtration Plant are operated at their maximum capacities of 6 MGD and 15 MGD, respectively.

Prior to the meeting, the Panel received a technical report titled *Las Virgenes-Triunfo Joint Powers Authority Pure Water Program: Las Virgenes Reservoir Model Calibration and Results*, prepared by Trussell Technologies, Inc. The document provided background information about the proposed Project and SWA regulations, but focused on the 3D hydrodynamic model, specifically: the development of the model, three operating scenarios, results and conclusions of the hydrodynamic modeling, and next steps for the Project.

PANEL FINDINGS AND RECOMMENDATIONS

The Panel's findings and recommendations for the proposed Project are based on information provided in the technical report prepared by Trussell Technologies, presentations made by the project team at the Panel meeting, and tour of Las Virgenes Reservoir and Westlake Filtration Plant.

1. General Comments

- The Panel appreciated the informative and well-organized technical report prepared by Trussell Technologies and the meeting presentations prepared by the project team.

- The tour of Las Virgenes Reservoir and Westlake Filtration Plant was helpful to the Panel's review process.

2. Project Background and Drivers

- The Panel appreciated the excellent presentation on the background of the proposed Project and the history of the JPA.

- The Panel supports the JPA's efforts to diversify its water portfolio with advanced treated water.

- It is important to recognize that the proposed Project is the first SWA project in Los Angeles County and that it differs from the two existing SWA projects in California: (1) The City of San Diego's Pure Water Program, and (2) Padre Dam Municipal Water District's East County Advanced Water Purification Program. Considerations related to environmental discharges, water supply, water reuse, seasonal operation, and other factors are unique to the proposed Project.

- The proposed Project has a number of benefits, as highlighted during the presentation. The Panel identified additional possible benefits, including:

    - **Reduction in bromide**. As a result of reverse osmosis (RO) treatment, the bromide content of the advanced treated water will be lower than that of imported water. The lower bromide content should decrease the production of brominated disinfection

byproducts (which are more toxic than their chlorinated analogues) at the Westlake Filtration Plant and facilitate compliance with regulatory limits on disinfection byproducts.

- **Reduction in salinity**. The Project will result in a net export of salts from the Malibu Creek Watershed, thereby producing long-term benefits for groundwater and surface water in the region.

- The JPA could consider the potential for beneficial reuse of the RO brine as opposed to disposal via the brine discharge pipeline. For example, Santa Clara Valley Water District is evaluating the use of engineered treatment cells (i.e., a gradient of wetlands with increasingly higher salinity) with eventual discharge in the San Francisco Bay as part of a Reverse Osmosis Concentrate Management Study. Given the brackish nature and valuable habitat of Malibu Creek and Malibu Lagoon, a similar strategy for the provision of brackish water habitat prior to ocean discharge could be an alternative to the brine discharge pipeline.

- It would be useful to identify the locations of the fields that are sprayed with excess recycled water not needed by customers in the winter and clarify any regulations pertaining to the recycled water that is sprayed.

3. Project Facilities

- Siting the AWTP adjacent to the Reservoir could have benefits for water quality. Specifically, the addition of chloramines – frequently applied after ultraviolet (UV) treatment in the AWTP to control microbial growth in pipelines leading to a reservoir – could possibly be avoided, which would reduce the inorganic nitrogen loading to the Reservoir and minimize the formation of nitrosamines.

- Operating the AWTP only during the summer may present several challenges to the Project. The project team should evaluate the implications associated with staffing, resources, operator process sensitivity and situational awareness, and the intermittent operation of membrane (and other treatment) processes.

4. California's Surface Water Augmentation Regulations

- The Panel appreciated the excellent summary of the SWA regulations. In particular, the table on Slide 18 on "Treatment Requirements" was informative.

- The current program and future plans for source control should be described in upcoming presentations and reports. For instance, it will be necessary to identify the chemicals of concern and potential sources of these chemicals in the sewershed, describe the monitoring and outreach programs, and outline the response plan for identified constituents. These communications should emphasize developing an accurate understanding of Project benefits among customers using applicable public health and JPA service standards as context.

- It is important to develop a monitoring plan that specifically identifies the constituents that will be monitored in the AWTP product water, Las Virgenes Reservoir, and Westlake Filtration Plant, and the frequency of monitoring and analysis for each location.

5. Reservoir Model: Build and Calibration

- The Panel believes the Reservoir Model Approach presented by the Project Team is valid. The Model reasonably reproduces temperature and water level in Las Virgenes Reservoir. Next steps should involve the development of a tracer test and validation of the ELCOM model using tracer results with respect to hydrodynamics and dilution in the Reservoir.

- The installation of the second weather station and comparison with existing weather station data will be important for future hydrodynamic modeling. Because information derived from these weather stations will be a factor contributing to public health decisions, the JPA should site each weather station with technical rigor.

- The Panel suggests that the Project Team consider conducting a sensitivity analysis of the model outputs (minimum dilution and theoretical retention time, V/Q) relative to the inputs of the hydrodynamic model, particularly wind and aeration, because these variables will affect dilution at the Reservoir outlet.

- A diagram of the Reservoir showing typical currents would be useful to the process of locating the outfall. It may be possible to identify locations where currents would convey the discharge away from the Westlake Filtration Plant under most conditions.

- While graphic representations of predicted and observed Reservoir surface elevations are helpful, the Panel recommends that more detailed statistics regarding calibration to the surface elevation data be provided. In particular, the scale for water surface elevation on Slide 15 makes it difficult to ascertain goodness-of-fit. Visually, it appears that some modest improvements in the water budget might be achieved through the consideration of local runoff, seepage, etc.

    - Perhaps further qualification is warranted of the statement that "precipitation and runoff from the surrounding area [are] roughly equal to seepage and evaporation in normal years" (see page 13 of the technical report).

6. Reservoir Model: Modeled Conditions and Results

- The Routine Scenario, in which advanced treated recycled water is discharged to the Reservoir during the winter and water is withdrawn from the Reservoir for treatment at Westlake Filtration Plant during the summer, represents a unique operational strategy compared with the other SWA projects currently under development. Because of the asynchronous nature of discharge and withdrawal, simulations for this scenario were not conducted. While the Panel agrees that an extensive modeling analysis is not warranted, some consideration of the switch-over period from discharge to withdrawal would be helpful. Modeling analyses indicate that there are conditions in which the initial project design fails to meet the 100:1 dilution criterion,

so seemingly there would be a finite probability that this situation could occur during the switch-over period in the spring. Under such circumstances, it may be necessary to define the minimum time interval that must elapse after the discharge of advanced treated water to the Reservoir has ended and before withdrawal to the filtration plant can begin to avoid possible non-compliance. Numerical tracer test results can be used to develop the relationship between the minimum dilution ratio and time-to-peak concentration. A plot or regression of these data should define the minimum time interval that must elapse after discharge of advanced treated water to the Reservoir has ended and before withdrawal to the filtration plant can begin. This interval is expected to be quite short, likely on the order of 1 to 2 days, but should be rigorously defined. If the project is demonstrated to achieve at least 100:1 dilution at all times, then the establishment of a minimum time interval would not be necessary.

- Future modeling efforts could follow one of the following two approaches:

    - Option 1: Modify the design of the diffuser/aerator system and/or the inlet configuration such that the model predicts that dilution criterion would be met in even the most challenging meteorological conditions under the Boundary Scenario.

    - Option 2: If it is not possible to maintain a dilution ratio above 100:1 under all meteorological conditions for all scenarios, then an operational framework that defines when withdrawal to the Westlake Filtration Plant can occur is necessary. The framework would ideally be based on real-time hydrodynamic modeling. Alternatively, a regression of the dilution ratio with respect to meteorological and hydraulic conditions should be developed. In this case, the confidence interval of the regression slope should be considered.

- Following the completion of the tracer test and validation of the hydrodynamic model with data from the new weather station, the project team should develop a probabilistic analysis of the dilution ratios achieved at the Westlake Filtration Plant intake under the range of operational, meteorological, and water column conditions (e.g., depth, stratification, etc.) of the Reservoir.

    - A probabilistic model could improve predictions of the likelihood of failure based on various environmental conditions beyond the ones that were simulated.

    - The probabilistic model also can facilitate choosing between the two options presented above. For example, if the risk of failing to meet the 100:1 dilution criterion is high, Option 1 should be selected; however, if the risk is low (for example, one day every two years), Option 2 may be preferable and/or more cost-effective.

- The operation of aerators has been demonstrated to mix the water column and increase the dilution of a pulse of off-specification water. It is valuable to note that aerators also help reduce taste and odor, algal blooms, and toxins in a reservoir, and can improve the treatability of raw water. The Panel does not believe that Solar Bees™ installed at the Reservoir would provide sufficient turbulent-kinetic energy to mix a reservoir of this depth.

7. Conclusions

Based on the information presented at this meeting, the Panel concluded the following:

- The JPA's Board of Directors and executive leadership appear committed to appropriate planning and investment to ensure regional water supply reliability.

- The proposed Project effectively addresses the necessary water supply, regulatory, and environmental considerations.

- The preliminary model analyses and scenarios are reasonable and provided the Panel with valuable insight into the proposed Project.

- The proposed Project, as presented to the Panel, appears to be capable of complying with the SWA regulations.

8. References

SWRCB (2018). *A Proposed Framework for Regulating Direct Potable Reuse in California*. State Water Resources Control Board, Sacramento, CA.

ATTACHMENT A: PANEL MEMBER BIOGRAPHIES

Amy Childress, Ph.D. (Panel Chair), is a Professor and the Director of Environmental Engineering at University of Southern California in Los Angeles. She has more than 25 years of experience researching membrane processes for water treatment, wastewater reclamation, and desalination. Most recently, she investigated membrane contactor processes for innovative solutions to contaminant and energy challenges; pressure-driven membrane processes as industry standards for desalination and water reuse; membrane bioreactor technology; and colloidal and interfacial aspects of membrane processes. Childress has directed research funded by federal, state, and private agencies, including the California Department of Water Resources, National Science Foundation, Electric Power Research Institute, and Strategic Environmental Research and Development Program. She also has received several awards, including the Bureau of Reclamation's More Water Less Concentrate Stage 1 Challenge, Association of Environmental Engineering and Science Professors Outstanding Publication Award, and a National Science Foundation CAREER Award, and has served as President of the Association of Environmental Engineering and Science Professors. She is currently a co-editor of *Desalination* and serves on several national committees. Childress received a B.S. degree in Civil Engineering from the University of Maryland, and an M.S. and a Ph.D. from the University of California, Los Angeles

Michael Anderson, Ph.D., is a Professor of Applied Limnology and Environmental Chemistry at University of California, Riverside, where he has taught courses since 1990. Anderson currently serves as Divisional Dean for Agriculture and Natural Resources, and previously served as Chair of the Department of Environmental Sciences. His research focuses on applied limnology and lake/reservoir management; surface water quality and modeling; fate of contaminants in waters, soils, and sediment; and environmental chemistry. He recently served as a member of the NWRI Expert Panel on Surface Water Augmentation and Potable Reuse, Independent Advisory Committees for indirect potable reuse projects for the City of San Diego and Padre Dam Municipal Water District, Salton Sea Science Advisory Committee, and the U.S. Environmental Protection Agency's Harmful Algal Blooms Grant Panel. He also served as Associate Editor for *Lake and Reservoir Management* from 2004-2017. Anderson received a B.S. in Biology from Illinois Benedictine College, an M.S. in Environmental Studies from Bemidji State University, and a Ph.D. in Environmental Chemistry from Virginia Tech.

Richard Bull, Ph.D., currently works as a Consulting Toxicologist and researcher with MoBull Consulting (Richland, WA), where he conducts studies on the chemical problems encountered in water for water utilities and for federal, state, and local governments. He became Professor Emeritus at Washington State University upon his retirement in 2003. Formerly, he served as a senior staff scientist at the U.S. Department of Energy's Pacific Northwest National Laboratory; Professor of Pharmacology and Toxicology at Washington State University; and Director of the Toxicology and Microbiology Division in the Cincinnati Laboratories for the U.S. Environmental Protection Agency (USEPA). His early research focused on central nervous system effects of heavy metals and progressed to studies of carcinogenic and toxicological effects of disinfectants and disinfection byproducts, halogenated solvents, acrylamide, and other contaminants of drinking water. He has served on international scientific working groups of the World Health Organization, and the International Agency for Research on Cancer, which addresses carcinogenic activity on environmental contaminants and medical devices. Bull served several terms as a member of the USEPA's Science Advisory Board and as Chair of the Drinking Water Committee and served as a member and/or chair of several committees convened by the National Academy of Sciences.

Bull received a Ph.D. in Pharmacology from the University of California San Francisco and a B.S. in Pharmacy from the University of Washington.

William Mitch, Ph.D., P.E., is a Professor in the Civil and Environmental Engineering Department at Stanford University, which he joined in 2013, after 13 years in the Chemical Engineering faculty at Yale University. His current research includes chemicals of concern associated with wastewater recycling and prevention of the formation of nitrogen-based disinfection byproducts. Mitch has authored more than 90 peer-reviewed journal articles, and the February 2018 cover of *Environmental Science and Technology* featured his interdisciplinary approach to identify disinfection byproducts, improve assessment techniques, and minimize risks from chemicals and pathogens in drinking water. He has served on the U.S. Environmental Protection Agency Scientific Advisory Board's Drinking Water Committee since 2010 and on several advisory panels as an expert on nitrosamines. Mitch received a Ph.D. In Civil and Environmental Engineering from University of California, Berkeley, and is a professional engineer in the State of California.

Matthew E. Verbyla, Ph.D., is an Assistant Professor of Environmental Engineering at San Diego State University, where he teaches courses related to sanitation, wastewater treatment, and microbiological processes for environmental engineering, and directs the Safe WaTER Research Group. His research aim is to understand the health-related microbiological processes in engineered natural systems and water, sanitation, and hygiene (WASH) systems, especially those that incorporate water reuse and resource recovery. Verbyla currently serves as co-editor for the Sanitation Technologies group of the Global Water Pathogens Project, an initiative led by UNESCO and Michigan State University to produce an online open access platform for scientific knowledge on pathogens in water. Verbyla received a B.S. in Civil Engineering from Lafayette College, a Ph.D. in Environmental Engineering from the University of South Florida, and a postdoctoral research assignment with the LCE virus group at École Polytechnique Fédérale de Lausanne in Switzerland.

ATTACHMENT B: PANEL MEETING AGENDA

NATIONAL WATER RESEARCH INSTITUTE

Independent Advisory Panel for
Las Virgenes-Triunfo Pure Water Project

May 4, 2018

AGENDA

LOCATION	CONTACTS
Las Virgenes Municipal Water District Board Room 4232 Las Virgenes Road Calabasas, CA 91302-1994	NWRI Office: (714) 378-3278 Kevin Hardy: (760) 801-9111 (cell) Dawna Hernandez: (949) 345-9999 (cell) Suzanne Sharkey: (949) 258-2093 (cell)

The NWRI Independent Advisory Panel was established to provide expert review of the reservoir modeling results for the Las Virgenes-Triunfo Pure Water Project as proposed by the Las Virgenes-Triunfo Joint Powers Authority in Calabasas, California.

MEETING OBJECTIVES

- Provide the Panel with an overview of the Pure Water Project, including historical information and drivers for the project.
- Present information to assist the Panel in evaluating both (1) the validity of the Reservoir Model and (2) the results of various operational scenarios evaluated by the Reservoir Model.
- Solicit Panel feedback on (1) the results of the Reservoir Model and (2) the feasibility of the Pure Water Project to comply with reservoir requirements of the Surface Water Augmentation regulations.

08:00 am	Welcome and Introductions	Kevin M. Hardy, National Water Research Institute (NWRI)
08:15 am	Projection Background, Drivers, and Overview	David Pedersen (LVMWD) and Shane Trussell (Trussell Tech)

09:00 am	Overview of California's Surface Water Augmentation Regulation	Brian Pecson (Trussell Tech)
09:30 am	Reservoir Model: Build and Calibration	Bryan Trussell (Trussell Tech)
10:00 am	**BREAK**	
10:15 am	Reservoir Model: Modeled Conditions and Results	Shane Trussell (Trussell Tech)
11:00 am	Open Discussion / Q & A	Facilitated by Kevin Hardy
11:30 am	**WORKING LUNCH / Continue Discussion**	
12:15 pm	Depart District Offices for Las Virgenes Reservoir (32601 Torchwood Place)	
1:30 pm	Return to District	
2:00 pm	Panel-Only Working Session	Facilitated by Panel Chair and NWRI
4:30 pm	Report Out to Project Team	Facilitated by Panel Chair
5:00 pm	**ADJOURN**	

ATTACHMENT C: PANEL MEETING ATTENDEES

Panel Members

- Amy Childress, Ph.D., University of Southern California (Panel Chair)
- Michael Anderson, Ph.D., University of California, Riverside
- Richard Bull, Ph.D., MoBull Consulting
- William Mitch, Ph.D., P.E., Stanford University
- Matthew Verbyla, Ph.D., San Diego State University

National Water Research Institute

- Kevin M. Hardy, Executive Director
- Dawna Hernandez, Event Manager
- Suzanne Sharkey, Water Resources Scientist and Project Manager (remote access)
- Gina Vartanian, Communications Manager

Las Virgenes Municipal Water District

- Brett Dingman, Water Reclamation Manager
- David Lippman, Director of Facilities and Operations
- Joe McDermott, Resource Conservation and Public Outreach
- David Pedersen, General Manager
- John Zhao, District Principal Engineer

Trussell Technologies Project Team

- Shane Trussell
- Bryan Trussell
- Brian Pecson
- Chao-Chun Yang
- Li Ding (remote access)

Los Angeles Regional Water Quality Control Board

- Cris Morris, Watershed Regulatory Section Chief
- Steven Webb, Municipal Permitting

State Water Resource Control Board, Division of Drinking Water

- Randy Barnard, Recycled Water Unit Chief (remote access)
- Brian Bernados, Technical Specialist (remote access)
- Dmitriy Gizburg, Southern California Drinking Water Field Operations Branch
- Saeed Hafeznezami, Technical Operations Section
- Jeff O'Keefe, Chief, Los Angeles Region
- Shu-Fang Orr, Southern California Drinking Water Field Operations Branch
- Erica Wolski, Technical Operations Section (remote access)

Other Consultants to Las Virgenes Municipal Water District

- Dawn Taffler, Kennedy Jenks (remote access)

Las Virgenes-Triunfo Pure Water Project
Additional Hydrodynamic Modeling and Regulatory Framework
Scope of Work

July 20, 2018

The Las Virgenes-Triunfo Joint Powers Authority (JPA) recently completed calibration of the hydrodynamic model for the Las Virgenes Reservoir in conjunction with the Pure Water project. This effort culminated with an Independent Advisory Panel (IAP) meeting, where an overview of the Pure Water project, the model calibration, and the model results were presented to the IAP panel. The IAP provided comments and feedback in a Memorandum (NWRI, June 26, 2018). The following scope of work carries out many of the next steps and recommendations as put forth by the IAP panel. Additionally, this scope will assess the Surface Water Augmentation (SWA) regulations and provide the JPA with a step-by-step process for achieving regulatory approval.

TASK 1 – AWTF Discharge Diffuser Assessment
Trussell Technologies, in conjunction with Flow Science, Inc, will assess the impact of the addition of a diffuser for the AWTF discharge into the reservoir. This will first begin with an assessment of the optimal design parameters for the diffuser to maximize the initial dilution using the one-dimensional EPA Visual Plume model. Once the diffuser is optimized, the boundary condition scenario will be modeled using the calibrated three-dimensional Lake Virgenes hydrodynamic model and the previously established 30 tracer pulses to determine the minimum dilution achieved at the Westlake Filtration Plant's inlet tower.

TASK 2 – Reservoir Modeling Probabilistic Analysis
In this task, a series of 110 tracer pulses will be assessed in the boundary condition scenario with the addition of the new AWTF discharge diffuser described in Task 1 to extrapolate the 99.9th confidence level dilution ratio achieved. This assessment will provide the JPA with a high level of confidence that the observed dilution ratio can be achieved and will allow for increased confidence in future planning for the Pure Water project. This methodology is consistent with the most recent analysis regarding dilution ratios being performed elsewhere in the state.

TASK 3 – Modeling Results Technical Memorandum
Trussell Technologies will prepare a technical memorandum summarizing the modeling results from Tasks 1-2. A draft memorandum will be distributed to the JPA for review and comment and a final memorandum will be developed with comments addressed.

TASK 4 – Regulatory Pathway Technical Memorandum
Trussell Technologies will review the SWA regulations and develop a step-by-step framework for the JPA to obtain approval of a SWA project from DDW and the RWQCB. This will include several recommendations as part of the pathway, which while not explicitly required in the regulations, help facilitate approval from DDW. The distinction between recommended actions and required actions will be clearly defined and presented.

Budget and Schedule

The schedule for the proposed scope of work is shown below and can be completed within 5-months from the Notice to Proceed.

	Aug		Sep		Oct		Nov		Dec		Jan	
	15	30	15	30	15	30	15	30	15	30	15	30
Task 1 - AWTF Discharge Diffuser Assessment												
Task 2 - Reservoir Modeling Probabilistic Analysis												
Task 3 - Modeling Results Technical Memorandum									☆			
Task 4 - Regulatory Pathway Technical Memorandum						☆						

Our proposed engineering consultant fee for the scope of work is $79,062. The following figure provides a breakdown of this effort.

Scope		Description	Budget							
Task	Sub Task	Initials	RT	ST	BT	CY	Cost	Flow Science	ODC	Total
		Hourly Billing Rate	$299	$245	$210	$108				
		AWTF Discharge Diffuser Assessment	**0**	**2**	**6**	**10**	**$ 2,830**	**$ 20,000**	**$ -**	**$ 22,830**
1	1.1	Preliminary diffuser assessment			2	2	$ 636	$ 6,500		$ 7,136
	1.2	Diffuser Boundary Condition Modeling					$ -	$ 12,000		$ 12,000
	1.3	Analysis and Conference Call to discuss model results		2	4	8	$ 2,194	$ 1,500		$ 3,694
		Reservoir Modeling Probabilistic Analysis	**0**	**2**	**6**	**10**	**$ 2,830**	**$ 13,000**	**$ -**	**$ 15,830**
2	2.1	Boundary Condition Model Run with 110 tracer pulses			2	2	$ 636	$ 11,500		$ 12,136
	2.2	Analysis and Conference Call to discuss model results		2	4	8	$ 2,194	$ 1,500		$ 3,694
		Modeling Result Technical Memorandum	**2**	**10**	**36**	**62**	**$ 17,304**	**$ 2,000**	**$ -**	**$ 19,304**
3	3.1	Prepare draft Technical Memorandum	2	8	30	50	$ 14,258	$ 1,500		$ 15,758
	3.2	Incorporate comments and prepare final Technical Memorandum		2	6	12	$ 3,046	$ 500		$ 3,546
		Regulatory Pathway Technical Memorandum	**2**	**20**	**28**	**90**	**$ 21,098**	**$ -**	**$ -**	**$ 21,098**
4	4.1	Prepare draft Technical Memorandum	2	16	20	70	$ 16,278			$ 16,278
	4.2	Incorporate comments and prepare final Technical Memorandum		4	8	20	$ 4,820			$ 4,820
TOTAL:			**4**	**34**	**76**	**172**	**$ 44,062**	**$ 35,000**	**$ -**	**$ 79,062**

Trussell Technologies Personnel

RT Rhodes Trussell, Ph.D., P.E. BT Bryan Trussell, P.E.
ST Shane Trussell, Ph.D., P.E. CY Chao Yang

August 6, 2018 JPA Board Meeting

TO: JPA Board of Directors

FROM: General Manager

Subject : State and Federal Legislative and Regulatory Advocacy: Contract Renewal

SUMMARY:

On August 1, 2016, the JPA Board authorized the Administering Agent/General Manager to execute a one-year professional services agreement with Best Best & Krieger LLP, in the amount of $130,000, for state and federal legislative and regulatory advocacy services. The JPA Board subsequently renewed the agreement through August 31, 2018. Under the agreement, Mr. John Freshman has represented the JPA well on federal affairs, and Mr. Syrus Devers has done the same at the state level. Staff recommends that the Board authorize a one-year renewal of the existing contract with Best Best & Krieger LLP to allow continuation of the advocacy services.

RECOMMENDATION(S):

Authorize the Administering Agent/General Manager to execute a one-year renewal of the professional services agreement with Best Best & Krieger LLP, in the amount of $130,000, for state and federal legislative and regulatory advocacy services.

FISCAL IMPACT:

Yes

ITEM BUDGETED:

Yes

FINANCIAL IMPACT:

Sufficient funds are available in the adopted Fiscal Year 2018-19 JPA Budget for the services. The total cost of the work is not expected to exceed $130,000. Best Best & Krieger LLP has agreed to provide the services under the same terms as defined in the existing professional services agreement.

DISCUSSION:

The JPA Board authorized the Administering Agent/General Manager to execute a one-year

professional services agreement with Best Best & Krieger LLP for state and federal legislative and regulatory advocacy services on August 1, 2016. The term of the contract was from August 1, 2016 through July 31, 2017. On November 6, 2017, the JPA Board of Directors approved renewing the agreement for the period of September 1, 2017 through August 31, 2018. The proposed contract renewal would be for the period of September 1, 2018 through August 31, 2019.

Prepared by: David W. Pedersen, Administering Agent/General Manager

BEST BEST & KRIEGER LLP
ATTORNEYS AT LAW

To: Las Virgenes – Triunfo JPA Board of Directors
From: John Freshman and Ana Schwab
Date: July 24, 2018
RE: Federal Report

Federal Budget

The House and Senate have both passed the "Minibus 1" which included the Energy and Water Appropriations bill. The two chambers have named their conferees. The first meeting of the Conference was postponed and a public announcement has not been made on rescheduling the meeting.

The House has passed "Minibus 2." This packaged included the Interior and Environment Appropriations bill. The House bill appropriates the Environmental Protection Agency $7.96. The Senate Appropriations Committee has passed the Interior and Environment Appropriations bill and funded the Environmental Protection Agency at $8.1 billion. The Senate is expected to take up "Minibus 2" this week. However, the Senate is intending to tack on their versions of Agriculture and Transportation-Housing and Urban Development Appropriations bills. The House, as a whole, has not taken up either of these Appropriation bills to date.

All of these steps are encouraging to show a possible return to regular order. Both Chambers have to get all twelve appropriations bills done by September 30, 2018 as to avoid having to pass another Continuing Resolution.

Sacramento-San Joaquin Delta Tunnels

The House Interior Appropriations bill included a rider added by Rep. Ken Calvert. The section stated that the Sacramento-San Joaquin Delta Tunnels will not be subjected to judicial review. If this language passes through the Senate, the Conference Committee, and then signed into law by President Trump, then the active lawsuits on various aspects of the project would be invalid.

Infrastructure Package

When President Trump assumed office, he made it a goal to rebuild the nation's infrastructure with an investment of $1.7 trillion over the next 10 years. However, to date, this plan has not come to fruition. Despite the lack of movement on President Trump's plan, House Transportation and Infrastructure Committee Chairman, Bill Shuster, has introduced his own Infrastructure draft legislation.

There is a section of the legislation that considers water infrastructure, including a reauthorization of the WIFIA program. It goes on to increase assistance to communities with

fewer than 10,000 people with the goal of allowing the EPA to better provide assistance to underserved communities. The legislation goes on to reauthorize an EPA grant program under Section 106 of the Clean Water Act that assists States, interstate agencies, and tribes in administering programs for the prevention, reduction, and elimination of pollution in the Nation's waterways. Additionally, the bill authorize' s the EPA's on-going efforts under Section 122 of the Clean Water Act to support states, tribes, and local communities in developing watershed-based plans to achieve water quality standards — the EPA would provide technical assistance and grants to municipalities to carry out pilot projects to best manage wet weather discharges on a watershed basis.

The Infrastructure bill reauthorizes the Clean Water Act Section 319 Nonpoint Source Management Program to provide technical and financial assistance to states to implement a variety of nonpoint source projects.

The legislation has a section that focuses on regulatory reform, primarily related to transportation but there is one provision directly related to water provides. The bill would amend Section 401 of the Clean Water Act so that states may only consider water quality requirements that are consistence with the intent of the Clean Water Act when providing 401 certification.

The Shuster Infrastructure bill goes on to establish a one agency decision process for transportation project permitting and sets a two year deadline for publishing a Record of Decision. Currently this section does not extend to water projects, but it would be worth considering making a push to amend the section to do so. The section goes on to establish a pilot program for streamlined permit review for up to 15 transportation projects that use "innovative practices" like integrated environmental planning on a watershed scale. If certain conditions are met, the Secretary may wave any environmental review process for the pilot projects if the Secretary determines the project will result in an equal or better environmental outcome as implementing the environmental review process would have.

Follow Up Items from June 2018 Monthly Report

S. 3015 – Water Affordability Act
To amend the Federal Water Pollution Control Act to establish a low-income sewer and drinking water assistance pilot program, and for other purposes. The legislation established a low-income sewer and drinking water assistance pilot program — eligible entities include a municipality or a public entity that owns or operates a public water system. The pilot program will provide grants to not less than 10 eligible entities to assist low-income households and environmentally at-=risk households in maintaining access to sanitation services and drinking water. Entities will not be able to exclude a household from eligibility in a fiscal year solely on the basis of household income if that income is less than 110 percent of the poverty level for the State.

H.R. 5596 – Water Infrastructure Resiliency and Sustainability Act of 2018

To authorize the Administrator of the Environmental Protection Agency to establish a program of awarding grants to owners or operators of water systems to increase resiliency or adaptability of the systems to any ongoing or forecasted changes to the hydrologic conditions of a region of the United States. Entities eligible under the legislation include regional, State, interstate, Tribal, local, municipal, intermunicipal, or private entity that owns or operates a water system. The EPA will establish and implement a program – the Water Infrastructure Resilience and Sustainability Program, under which the Administrator awards grants in each of fiscal years 2018 through 2022 to owners or operators of water systems for the purpose of increasing the resiliency or adaptability of the systems to any ongoing or forecasted changes (based on the best available research and data) to the hydrologic conditions of a region of the United States. Awardees will use the grant funds exclusively to assist in the planning, design, construction, implementation, operation, or maintenance of a program or project that meets the purpose described in the legislation by:

1. conserving water or enhancing water use efficiency;
2. modifying or relocating existing water system infrastructure made or projected to be significantly impaired by changed hydrologic conditions;
3. preserving or improving water quality, including through measures to managed, reduce, treat, or reuse municipal stormwater, wastewater, or drinking water;
4. investigating, designing, or constructing groundwater remediation, recycle water, or desalination facilities or systems to serve existing communities;
5. enhancing water management by increasing watershed preservation and protection, including through the use of natural or engineered green infrastructure in management, conveyance, or treatment of water, wastewater, or stormwater;
6. enhancing energy efficiency or the use of generation of renewable energy in the management, conveyance, or treatment water, wastewater, or stormwater;
7. supporting the adoption and use of advanced water treatment, water supply management (such as reservoir reoperation and water banking), or water demand management technologies, projects, or processes (such as water reuse and recycling, adaptive conservation pricing, and groundwater banking) that maintain or increase water supply or improve water quality;
8. modifying or replacing existing systems or constructing new systems for existing communities or land currently in agricultural production to improve water supply, reliability, storage, or conveyance;
9. supporting practices and projects, such as improved irrigation systems, water banking and other forms of water transactions, groundwater recharge, stormwater capture, groundwater conjunctive use, and reuse or recycling of drainage water, to improve water quality or promote more efficient water use on land currently in agricultural production;
10. reducing flood damage, risk, and vulnerability through a variety of means;
11. carrying out studies or assessments to project how changing hydrologic conditions may impact the future operations and sustainability of water systems; or

12. developing and implementing measures to increase the resilience of water systems and regional and hydrological basins to rapid hydrologic change or a natural disaster. The share of the cost of any program or project that is the subject of a grant awarded by the EPA to the owner or operator of a water system paid through funds distributed under this section shall not exceed 75 percent of the cost of the program or project.

H.R. 434 – New WATER Act
This bill authorizes the Department of the Interior, for 15 years after this bill's enactment, to provide financial assistance, such as secured loans or loan guarantees, to entities that contract under federal reclamation law to carry out water projects within the 17 western states served by the Bureau of Reclamation, other states where the Bureau is authorized to provide project assistance, Alaska, and Hawaii. Projects eligible for assistance include:

- non-federal water infrastructure projects that would contribute to a safe, adequate water supply for domestic, agricultural, environmental, or municipal and industrial use;
- projects for enhanced energy efficiency in the operation of a water system;
- projects for accelerated repair and replacement of aging water distribution facilities;
- brackish or sea water desalination projects; and
- the acquisition of real property or an interest therein for water storage, reclaimed or recycled water, or wastewater that is integral to such a project.

To be eligible for assistance, a project must be deemed creditworthy. Eligible project costs must be reasonably anticipated to be at least $20 million. Interior shall establish criteria for project selection and may enter into a master credit agreement for projects secured by a common security pledge on terms acceptable to it. Interior may enter into agreements with obligors to make secured loans to finance or refinance eligible project costs or to refinance long-term project obligations or federal credit instruments to provide additional funding capacity for the completion, enhancement, or expansion of a project. The total amount of federal assistance for a project shall not exceed 80% of its total cost. Interior shall establish: (1) a repayment schedule for each secured loan based on the useful life of the project, and (2) a uniform system to service the federal credit instruments made available under this bill. Interior shall report biennially on the financial performance of the projects that receive assistance under this bill.

S. 32 – California Desert Protection and Recreation Act of 2017
This bill amends the California Desert Protection Act of 1994 to, among other things:

- establish or designate wilderness areas, a special management area, off-highway vehicle recreation areas, and a national scenic area;
- release specified wilderness study areas;
- adjust national park and preserve boundaries; and
- specify land withdrawals and conveyances.

Specified federal land shall be taken into trust for the Lone Pine Paiute-Shoshone Tribe. Lands and interests in land, including improvements, outside the boundary of Joshua Tree National Park in California may be acquired for the purpose of operating a visitor center. The bill makes amendments to the California Desert Protection Act of 1994 regarding the California State School lands. The bill amends the Wild and Scenic Rivers Act to designate specified segments of rivers and creeks as components of the National Wild and Scenic Rivers System. The bill establishes the Renewable Energy Resource Conservation Fund for use in regions impacted by the development of wind or solar energy

S. 3012 – Water Technology Acceleration Act

To establish an innovative water technology grant program and to amend the Safe Drinking Water Act and the Federal Water Pollution Control Act to encourage the use of innovative water technology, and for other purposes. An eligible entity means: a public utility, including publicly owned treatment works and clean water systems; a unit of local government, including a municipality or a joint powers authority; a private entity, including a farmer or manufacturer; an institution of higher education; a research institution or foundation; a State; a regional organization; or a nonprofit organization. The Administrator shall carry out a grant program to accelerate the development of innovative water technologies that address pressing water challenges. The Administrator shall make to eligible entities grants that—

1. finance projects to develop, deploy, test, and improve emerging water technologies;
2. fund entities that provide technical assistance to deploy innovative water technologies more broadly,
3. support technologies that, as determined by the Administrator—
    a. improve water quality of a water source;
    b. improve the safety and security of a drinking water delivery system;
    c. minimize contamination of drinking water and drinking water sources, including contamination by lead, bacteria, chlorides, and nitrates;
    d. improve the quality and timeliness and decrease the cost of drinking water quality tests, especially technologies that can be deployed within water systems and at individual faucets to provide accurate real-time tests of water quality, especially with respect to lead, bacteria, and nitrate content;
    e. increase water supplies in arid areas that are experiencing, or have recently experienced, prolonged drought conditions;
    f. treat edge-of-field runoff to improve water quality;
    g. treat agricultural, municipal, and industrial wastewater;
    h. recycle or reuse water;
    i. manage urban stormwater runoff;
    j. reduce sewer or stormwater overflows;
    k. conserve water;
    l. improve water quality by reducing salinity;

m. mitigate air quality impacts associated with declining water resources;
n. address treatment byproduct and brine disposal alternatives; or
o. address urgent water quality and human health needs.

The federal share of cost activities carried out using a grant under this bill shall not exceed 65 percent. The maximum amount of a grant shall be $5,000,000.

Legislation Recently Introduced

Please let us know if you would like us to track any of the below, or anything in the Legislative Matrix for you

S. 3087 – Living Shorelines Act of 2018
To direct the Administrator of the National Oceanic and Atmospheric Administration to make grants to State and local governments and nonprofit organizations for purposes of carrying out shoreline stabilization projects utilizing natural materials that support natural habitats and ecosystem functions, and for other purposes.

S. 3121 – Water Infrastructure Transparency Act
To amend the Federal Water Pollution Control Act, the Safe Drinking Water Act, and the Water Infrastructure Finance and Innovation Act of 2014 to require maximum open and free competition in procurement for projects receiving assistance under those Acts, and for other purposes.

H.R. 6267 – COAST Research Act
To amend the Federal Ocean Acidification Research and Monitoring Act of 2009 to establish an Ocean Acidification Advisory Board, to expand and improve the research on Ocean Acidification and Coastal Acidification, to establish and maintain a data archive system for Ocean Acidification data and Coastal Acidification data, and for other purposes.

S. 3192 – Contaminant and Lead Electronic Accounting and Reporting Requirements (CLEARR) for Drinking Water Act of 2018
To amend the Safe Drinking Water Act to update and modernize the reporting requirements for contaminants, including lead, in drinking water, and for other purposes.

H.R. 6453 – STORAGE Act of 2018
To amend the Endangered Species Act of 1973 to prohibit designation as critical habitat of certain areas in artificial water diversion or delivery facilities.

LAS VIRGENES-TRIUNFO - HIGH PRIORITY LEGISLATION IN THE 115TH CONGRESS
JULY 2018

Legislation	Summary	Status	Position
H.R. 23 – Gaining Responsibility on Water Act of 2017	This legislation will allow for more water conveyance while protecting the water rights of users, as well. Additionally, the legislation reforms the Central Valley Project Improvement Act and the San Joaquin River Restoration Settlement Act. This legislation would reduce the cost of water delivery contracts and would give users more authority over how restoration funds are spent. The bill purports to expand on a compromise reached between Sen. Dianne Feinstein (D-CA) and House Majority Leader Kevin McCarthy (R-CA) during last year's Water Infrastructure Improvements for the Nation Act discussion. The compromise directed more water to farms by tweaking the way rules meant to protect endangered fish are interpreted when operating the State's waterways.	Introduced by Rep. David Valadao – January 3, 2017 Passed the House of Representatives on July 12, 2017. This measure has not been taken up in the Senate yet.	
H.R. 434 – New Water Available to Every Reclamation State Act or the New WATER Act	This legislation authorizes the Department of the Interior to provide financial assistance, such as loans and guarantees, to entities that contract under federal reclamation law to carry out water projects within the 17 western states served by the Bureau of Reclamation, and Alaska and Hawaii. Eligible Projects include: • non-federal water infrastructure projects that would contribute to a safe, adequate water supply for domestic, agricultural, environmental, or municipal and industrial use; • projects for enhanced energy efficiency in the operation of a water system; • projects for accelerated repair and replacement of aging water distribution facilities; • brackish or sea water desalination projects; and • the acquisition of real property or an interest therein for water storage, reclaimed or recycled water, or wastewater that is integral to such a project.	Introduced by Rep. Jeff Denham – January 11, 2017	

Legislation-con't	Summary-con't	Status-con't	Position-con't
H.R. 448 – Water Conservation Rebate Tax Parity Act	This bill amends the Internal Revenue Code to expand the tax exclusion for energy conservation subsidies provided by public utilities to exclude from gross income subsidies provided (directly or indirectly): (1) by a public utility to a customer, or by a state or local government to a resident of such state or locality, for the purchase or installation of any water conservation or efficiency measure; and (2) by a storm water management provider to a customer, or by a state or local government to a resident of such state or locality, for the purchase or installation of any storm water management measure.	Introduced by Rep. Jared Huffman and Rep. Dana Rohrabacher – January 11, 2017	
S. 32 – California Desert Protection and Recreation Act of 2017	This bill amends the California Desert Protection Act of 1994 to, among other things: • establish or designate wilderness areas, a special management area, off-highway vehicle recreation areas, and a national scenic area; • release specified wilderness study areas; • adjust national park and preserve boundaries; and • specify land withdrawals and conveyances. Specified federal land shall be taken into trust for the Lone Pine Paiute-Shoshone Tribe. Lands and interests in land, including improvements, outside the boundary of Joshua Tree National Park in California may be acquired for the purpose of operating a visitor center. The bill makes amendments to the California Desert Protection Act of 1994 regarding the California State School lands. The bill amends the Wild and Scenic Rivers Act to designate specified segments of rivers and creeks as components of the National Wild and Scenic Rivers System. The bill establishes the Renewable Energy Resource Conservation Fund for use in regions impacted by the development of wind or solar energy.	Introduced by Sen. Dianne Feinstein – January 5, 2017 Committee on Energy and Natural Resources held a hearing on the legislation on July 26, 2017	

Legislation-con't	Summary-con't	Status-con't	Position-con't
S. 692 – Water Infrastructure Flexibility Act	To provide for integrated plan permits, to establish an Office of the Municipal Ombudsman, to promote green infrastructure, and to require the revision of financial capability guidance.	Introduced by Sen. Deb Fischer – March 21, 2017 Passed the Senate on October 5, 2017 This action has not yet been taken up by the House	
H.R. 5596 – Water Infrastructure Resiliency and Sustainability Act of 2018	To authorize the Administrator of the Environmental Protection Agency to establish a program of awarding grants to owners or operators of water systems to increase resiliency or adaptability of the systems to any ongoing or forecasted changes to the hydrologic conditions of a region of the United States.	Introduced by Rep. Salud Carbajal – April 24, 2018	
H.R. 5609 – Water Affordability, Transparency, Equity, and Reliability Act of 2018	To establish a trust fund to provide for adequate funding for water and sewer infrastructure, and for other purposes.	Introduced by Rep. Keith Ellison – April 25, 2018	
S. 2771 – Residential Decentralized Wastewater System Improvement Act	To amend the Federal Water Pollution Control Act to require the Administrator of the Environmental Protection Agency to provide grants for the construction, refurbishing, and servicing of individual household decentralized wastewater systems to individuals with low or moderate income.	Introduced by Sen. Cory Booker – April 26, 2018	

Legislation-con't	Summary-con't	Status-con't	Position-con't
S. 2772 – A bill to amend the Consolidated Farm and Rural Development Act to modify provisions relating to the household water well system grant program.	To amend the Consolidated Farm and Rural Development Act to modify provisions relating to the household water well system grant program.	Introduced by Sen. Cory Booker – April 26, 2018	
H.R. 2510 – Water Quality Protection and Job Creation Act of 2017	To amend the Federal Water Pollution Control Act to authorize appropriations for State water pollution control revolving funds, and for other purposes.	Introduced by Rep. Peter DeFazio – May 18, 2017	
S. 2800 – America's Water Infrastructure Act of 2018	To provide for the conservation and development of water and related resources, to authorize the Secretary of the Army to construct various projects for improvements to rivers and harbors of the United States, and for other purposes.	Introduced by Sen. John Barrasso – May 8, 2018 Passed the Senate Environment and Public Works Committee on May 22, 2018	
H.R. 8 – Water Resources Development Act of 2018	To provide for improvements to the rivers and harbors of the United States, to provide for the conservation and development of water and related resources, and for other purposes.	Introduced by Rep. Bill Shuster – May 18, 2018 Passed the House on June 6, 2018	

Legislation-con't	Summary-con't	Status-con't	Position-con't
S. 2969 – Rural Water Infrastructure Improvement Act of 2019	To amend the Consolidated Farm and Rural Development Act to improve water or waste disposal grants or direct or guaranteed loans, and for other purposes.	Introduced by Sen. Tammy Baldwin – May 24, 2018	
H.Res. 923 – Providing for further consideration of the bill (H.R. 5895)	Providing for further consideration of the bill (H.R. 5895) making appropriations for energy and water development and related agencies for the fiscal year ending September 30, 2019, and for other purposes, and providing for consideration of the bill (H.R. 3) to rescind certain budget authority proposed to be rescinded in special messages transmitted to the Congress by the President on May 8, 2018, in accordance with title X of the Congressional Budget and Impoundment Control Act 1974.	Introduced by Rep. Michael Burgess – June 6, 2018 Passed the House on June 7, 2018	
S. 3012 – Water Technology Acceleration Act	To establish an innovative water technology grant program and to amend the Safe Drinking Water Act and the Federal Water Pollution Control Act to encourage the use of innovative water technology, and for other purposes.	Introduced by Sen. Tammy Baldwin – June 6, 2018	
S. 3015 – Water Affordability Act	To amend the Federal Water Pollution Control Act to establish a low-income sewer and drinking water assistance pilot program, and for other purposes.	Introduced by Sen. Kamala Harris – June 6, 2018	
S. 3001 – Contra Costa Canal Transfer Act	To authorize the Secretary of the Interior to convey certain land and facilities of the Central Valley Project.	Introduced by Sen. Diane Feinstein – June 6, 2018	
H.R. 6040 – Contra Costa Canal Transfer Act	To authorize the Secretary of the Interior to convey certain land and facilities of the Central Valley Project.	Introduced by Rep. Mark DeSaulnier – June 7, 2018 Hearing held in House Natural Resources Subcommittee on Water and Power	

Legislation-con't	Summary-con't	Status-con't	Position-con't
S. 3087 – Living Shorelines Act of 2018	To direct the Administrator of the National Oceanic and Atmospheric Administration to make grants to State and local governments and nonprofit organizations for purposes of carrying out shoreline stabilization projects utilizing natural materials that support natural habitats and ecosystem functions, and for other purposes.	Introduced by Sen. Kamala Harris – June 19, 2018	
S. 3121 – Water Infrastructure Transparency Act	To amend the Federal Water Pollution Control Act, the Safe Drinking Water Act, and the Water Infrastructure Finance and Innovation Act of 2014 to require maximum open and free competition in procurement for projects receiving assistance under those Acts, and for other purposes.	Introduced by Sen. Rand Paul – June 25, 2018	
H.R. 6267 – COAST Research Act	To amend the Federal Ocean Acidification Research and Monitoring Act of 2009 to establish an Ocean Acidification Advisory Board, to expand and improve the research on Ocean Acidification and Coastal Acidification, to establish and maintain a data archive system for Ocean Acidification data and Coastal Acidification data, and for other purposes.	Introduced by Rep. Suzanne Bonamici – June 28, 2018	
S. 3192 – Contaminant and Lead Electronic Accounting and Reporting Requirements (CLEARR) for Drinking Water Act of 2018	To amend the Safe Drinking Water Act to update and modernize the reporting requirements for contaminants, including lead, in drinking water, and for other purposes.	Introduced by Sen. Ed Markey – July 11, 2018	
H.R. 6354 – STORAGE Act of 2018	To amend the Endangered Species Act of 1973 to prohibit designation as critical habitat of certain areas in artificial water diversion or delivery facilities.	Introduced by Rep. Paul Gosar – July 12, 2018	

FY2019 Appropriations

Legislation	Summary	Status	Position
H.R. 5895 – Energy and Water Development and Related Agencies Appropriations Act, 2019	Funding for the Army Corps of Engineers , the Department of the Interior – Bureau of Reclamation, and the Department of Energy	Introduced by Rep. Michael Simpson – May 21, 2018 Passed the House on June 8, 2018	
S. 2975 – Energy and Water Development and Related Agencies Appropriations Act, 2019	Funding for the Army Corps of Engineers , the Department of the Interior – Bureau of Reclamation, and the Department of Energy	Introduced by Sen. Lamar Alexander – May 24, 2018 Passed the Senate Jun 25, 2018	
House Interior, Environment, and Related Agencies Appropriations Act, 2019	Funding for the Department of the Interior, the Environmental Protection Agency, the Forest Service, the Indian Health Service, and various independent and related agencies.	Introduced by Rep. Ken Calvert Passed the House on July 19, 2018	
Senate Interior, Environment, and Related Agencies Appropriations Act, 2019	Funding for the Department of the Interior, the Environmental Protection Agency, the Forest Service, the Indian Health Service, and various independent and related agencies.	Introduced by Sen. Lisa Murkowski Passed the Senate Interior Appropriations Subcommittee on June 14, 2018	

ITEM 10B

INFORMATION ONLY

August 6, 2018 JPA Board Meeting

TO: JPA Board of Directors

FROM: Facilities & Operations

Subject : Tapia Water Reclamation Facility Chloride Study: Evaluation of Options Report

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SUMMARY:

On November 6, 2017, the JPA Board accepted a proposal from Larry Walker Associates, Inc. (LWA), to perform the Tapia Water Reclamation Facility Chloride Study. The study is required by a Time Schedule Order (TSO) in the 2017 Tapia NPDES Permit. The purpose of the study is to evaluate and address levels of chloride discharged from Tapia to the Los Angeles River. The Los Angeles River discharge concentration limit for chlorides will be reduced from 190 to 150 mg/L, effective August 1, 2022, unless the regulatory limit is amended by the Los Angeles Regional Water Quality Control Board (LARWQCB).

Attached is a copy of the Chloride Evaluation of Options Report, which is the second of four sub-reports included as part of the chloride study. The report is required to be submitted to the LARWQB by January 1, 2019. The report analyzes data from the Chloride Source Investigative Report, which was completed in April; evaluates the impact and beneficial uses of the receiving waters in the Los Angeles River downstream of the discharge point; examines potential source reduction activities that could be feasibly implemented to reduce chloride levels; evaluates the effect of drought on chloride levels in the effluent; and validates whether or not a higher chloride limit is justified given the circumstances.

The report concludes that the options to reduce chloride concentrations are limited since most of the chloride loading comes from the potable water supply for the JPA's service area. However, some recommendations are included that can potentially reduce the chloride load from self-regenerating water softeners.

FISCAL IMPACT:

No

ITEM BUDGETED:

No

FINANCIAL IMPACT:

There is no financial impact directly associated with the Chloride Evaluation of Options Report.

DISCUSSION:

In 1999, Tapia began periodically discharging its treated effluent to the Los Angeles River to comply with a prohibition on discharges to Malibu Creek from April 15th to November 15th each year. Discharges to the Los Angeles River were originally permitted under NPDES Order No. 99-066, which prescribed a chloride limit of 190 mg/L rather than the 150 mg/L Basin Plan Water Quality Objective. The rationale for the higher chloride limit was LARWQCB Resolution No. 97-02 that revised the chloride limit from 150 mg/L to 190 mg/L for various surface waters, including certain reaches of the Los Angeles River, due to the impacts of drought on chloride levels in potable source waters. The 190 mg/L chloride limit for discharge has been maintained in all subsequent permits for Tapia based on the same rationale.

During the renewal of Tapia's NPDES permit, LARWQCB staff discovered that the long-standing application of Resolution No. 97-02 was in error because it only covered the portions of the Los Angeles River downstream of the Sepulveda Flood Control Basin and Tapia's discharge occurs upstream. The reason that the 1997 Resolution did not include the portions of the Los Angeles River upstream of Sepulveda Flood Control Basin is because there were no discharges upstream of the Tillman Water Reclamation Plant, which is adjacent the Sepulveda Flood Control Basin, at that time. Tapia's permitted-discharges to the upstream reach of the Los Angeles River did not begin until two years later in 1999.

Tapia's discharge to the Los Angeles River is vital to the success of the Pure Water Project Las Virgenes-Triunfo. The new NPDES permit has stipulations that allow for discharge to Malibu Creek during heavy rain events when daily flows exceed 11 MGD. The rationale for the 11 MGD trigger point was that 6 MGD could be sent to the advanced water treatment facility and 5 MGD could be pumped to the Los Angeles River. If the option to discharge to the Los Angeles River is not available, then the capacity to dispose of excess effluent during heavy rain events is reduced to 6 MGD. Additionally, discharge to the Los Angeles River may also be necessary to dispose of small amounts of effluent when there is not enough water available to start up and maintain operation of the advanced water treatment plant.

During the draft permit comment period, JPA staff requested that the LARWQCB issue a Time Schedule Order (TSO), which would culminate in a proposed Basin Plan Amendment. At the June 1, 2017 permit hearing, the LARWQCB issued a TSO, which requires a study containing six sub-reports. These reports include: an investigation into chloride sources, an evaluation of the impact of chloride levels and source control, an identification of options to address compliance including regulatory remedies, a recommendation, implementation, and confirmation of compliance. Larry Walker Associates, Inc. was retained to complete the first four of these sub-reports.

The Chloride Evaluation of Options Report, which is the second of four reports included in LWA's scope of work, is the subject of this memorandum. Following is a summary of the topics addressed in the report with a brief explanation of each item:

- Evaluate data from the Chloride Source Investigation Report and the impacts on chloride levels in the final effluent.

The Chloride Source Investigation Report was completed by LWA and submitted last April. The Chloride Evaluation of Options Report concludes that chloride levels in potable water supplied to the JPA's service area have gradually increased since 2005, and that chloride levels in Tapia's discharge have increased accordingly. The report determined that the most significant influent sources of chloride are the potable water supply and residential water softeners (water softener load is based upon an estimate of the number of water softeners in the service area). Sodium hypochlorite used for disinfection was found to be the largest in-plant contributor of chloride.

- Evaluate the beneficial uses of the receiving water downstream of Discharge Point No. 005, the frequency of the discharge, characterization of discharge location and flow path, and the impact the discharge may have on the receiving water.

The Chloride Evaluation of Options Report observed that there are no existing or potential beneficial uses in the Los Angeles River receiving waters that differ from beneficial uses of one or more of the downstream reaches that currently have a chloride objective of 190 mg/L by Order No. 97-02. Therefore, a 190 mg/L limit would also protective of beneficial uses in the receiving waters downstream of Tapia WRF's discharge to the Los Angeles River.

- Evaluate potential source reduction activities that the Permittee can feasibly implement to reduce chloride in the influent and effluent, including timeframes for each activity.

The report concluded that most of the chloride loads to the effluent are not feasibly controlled by actions of the JPA. Chloride levels in the imported water supply are not controllable. Loads from residential uses are also considered not to be controllable. Commercial and industrial sources of chloride comprise less than 5% of the effluent chloride load, and reductions that may be achieved through JPA actions may not be commensurate with the resources required to achieve those reductions. Self-regenerating water softeners comprise an estimated 22% of the effluent chloride load. For these softeners, the most effective source control efforts combine outreach and rebates.

- Evaluate the effect of drought on chloride levels in source and influent water and substantiate whether or not the findings in 97-02 are applicable to Tapia WRF's discharge.

The report concluded that chloride concentrations in water supplied by Metropolitan Water District of Southern California via its Jenson Water Treatment Plant increased during drought conditions, and that this increase proportionally impacts Tapia WRF effluent chloride concentrations. Because Jensen effluent is the predominant source of water in Tapia WRF's service area, as well as for the Donald C. Tillman Water Reclamation Plant, Los Angeles-Glendale Water Reclamation Plant, and the City of Burbank Water Reclamation Plant, which all discharge to the Los Angeles River, and all received amended Basin Plan objectives in Order 97-02, Tapia WRF should be subject to the same conditions leading to elevated effluent chloride levels as those described in Order 97-02.

The Chloride Evaluation of Options Report, is required to be submitted to the LARWQB by the regulatory deadline of January 1, 2019. However, the RWQCB encourages the JPA to submit these reports earlier to pursue regulatory remedies. The next report due is an Identification of Options Report to address compliance including potential regulatory remedies.

Prepared by: Brett Dingman, Water Reclamation Manager

ATTACHMENTS:

Tapia Chloride Evaluation of Options Report

JUNE 25 2018

LAS VIRGENES MUNICIPAL WATER DISTRICT

Chloride Evaluation of Options Report

Prepared by:
LARRY WALKER ASSOCIATES

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1 Introduction

Tapia Water Reclamation Facility (WRF) is owned and operated by the Las Virgenes – Triunfo Joint Powers Authority (JPA), which consists of the Las Virgenes Municipal Water District (LVWMD) and Triunfo Sanitation District. The Tapia WRF discharges tertiary treated wastewater primarily to Malibu Creek (Discharge Point 001) and occasionally to the Los Angeles (LA) River (Discharge Point 005), under Order No. R4-2017-0124, NPDES No. CA0056014, issued by the Los Angeles Regional Water Quality Control Board (Regional Board) to LVMWD[1]. Tapia WRF discharges to Arroyo Calabasas, a tributary to the LA River when necessary to comply with a seasonal discharge prohibition for Malibu Creek from April 15th to November 15th. [2]

Order No. R4-2017-0124 revised the chloride effluent limitation for Tapia WRF discharge to the LA River from 190 mg/L to 150 mg/L. The Tapia WRF is not able to consistently comply with the new chloride effluent limit and, therefore, LVWMD requested a time schedule order (TSO). A TSO (Order No. R4-2017-0125) was issued by the Regional Board that contains interim limits and milestones to allow the Tapia WRF time to achieve consistent compliance.

The TSO requires specific actions to identify and evaluate effluent chloride sources, and identify options to reduce chloride sources or regulatory options to amend the new effluent limitation, which may include a Site-Specific Objective, a Basin Plan Amendment, and/or a discharge specific variance. The TSO establishes a schedule to comply with or recommend regulatory actions to address Tapia WRF's ability to comply with the effluent limitation of 150 mg/L, during which time, Tapia WRF will be subject to an interim effluent limitation of 190 mg/L.

The first requirement and milestone in the TSO was to investigate chloride sources and submit a Chloride Source Investigation Report, which was submitted as required to the Regional Board on March 29, 2018. The Chloride Source Investigation Report quantified sources of chloride in Tapia WRF's effluent. This report is intended to fulfill the second requirement and milestone in the TSO, the Chloride Evaluation of Options Report (Evaluation Report) which is due to the Regional Board on January 1, 2019. **Table 1-1** lists the required elements of the Evaluation Report and the sections within this report addressing each element.

Table 1-1. TSO (Order No. R4-2017-0125) Requirements and Schedule

Requirement	Section
1. Evaluate data from the Chloride Source Investigation Report and impacts on chloride levels in the final effluent.	**Section 2**
2. Evaluate beneficial uses of the receiving water downstream of Discharge Point 005, the frequency of the discharge, characterization of discharge location and	**Section 3**

[1] LVMWD is the Permittee under Order No. R4-2017-0124 though Tapia WRF is jointly owned/operated by the JPA.

[2] Tapia WRF is subject to flow augmentation requirements from the National Marine Fisheries Service (NMFS) in Malibu Creek. Discharges to Malibu Creek to sustain required flows are exempt from the discharge prohibition.

Requirement	Section
flow path, and the impact the discharge may have on the receiving water.	
3. Evaluate potential source reduction activities that the Permittee can feasibly implement to reduce chloride in the influent and effluent, including timeframes for each activity.	**Section 4**
4. Evaluate the effect of drought on chloride levels in source and influent water and substantiate whether or not the findings in 97-02 are applicable to Tapia WRF's discharge.	**Section 5**

2 Summary of the Chloride Source Investigation Report

The TSO requires that LVMWD "Evaluate data from the Chloride Source Investigation Report and impacts on chloride levels in the final effluent."

The Chloride Source Investigation Report quantified the relative contributions of sources to chloride levels in the effluent. **Table 2-1** and **Figure 2-1** show a summary of estimated loads from sources of chloride in Tapia WRF effluent for the period from June through December 2017.

As shown below, the monthly average influent chloride concentration during the period from June through December 2017 was 148 mg/L. Using the monthly average influent flow during that period, 7.6 MGD, the average influent chloride load was 9,400 lbs/day. Over the same period, the average effluent load was 10,600 lbs/day, based on an average monthly effluent concentration of 164 mg/L and an average monthly effluent flow of 7.8 MGD. The following sections discuss the data and analyses used to quantify the contribution from specific sources to effluent chloride loads.

Table 2-1. Summary of Estimated Chloride Loads to Tapia WRF, June-December 2017

Source	Estimated Load	% Contribution to Effluent Load
Influent sources	**9,400 lbs/day**	**89%**
Water supply	4,900 lbs/day	46%
Industrial sources	48 lbs/day	1%
Residential water softeners	2,300 lbs/day	22%
Residential uses	1,700 lbs/day	16%
Commercial uses	230 lbs/day	2%
Unidentified influent sources	220 lbs/day	2%
In-plant sources	**1,200 lbs/day**	**11%**
Sodium hypochlorite	1,200 lbs/day	11%
Average Effluent Load, June-December 2017	**10,600 lbs/day**	

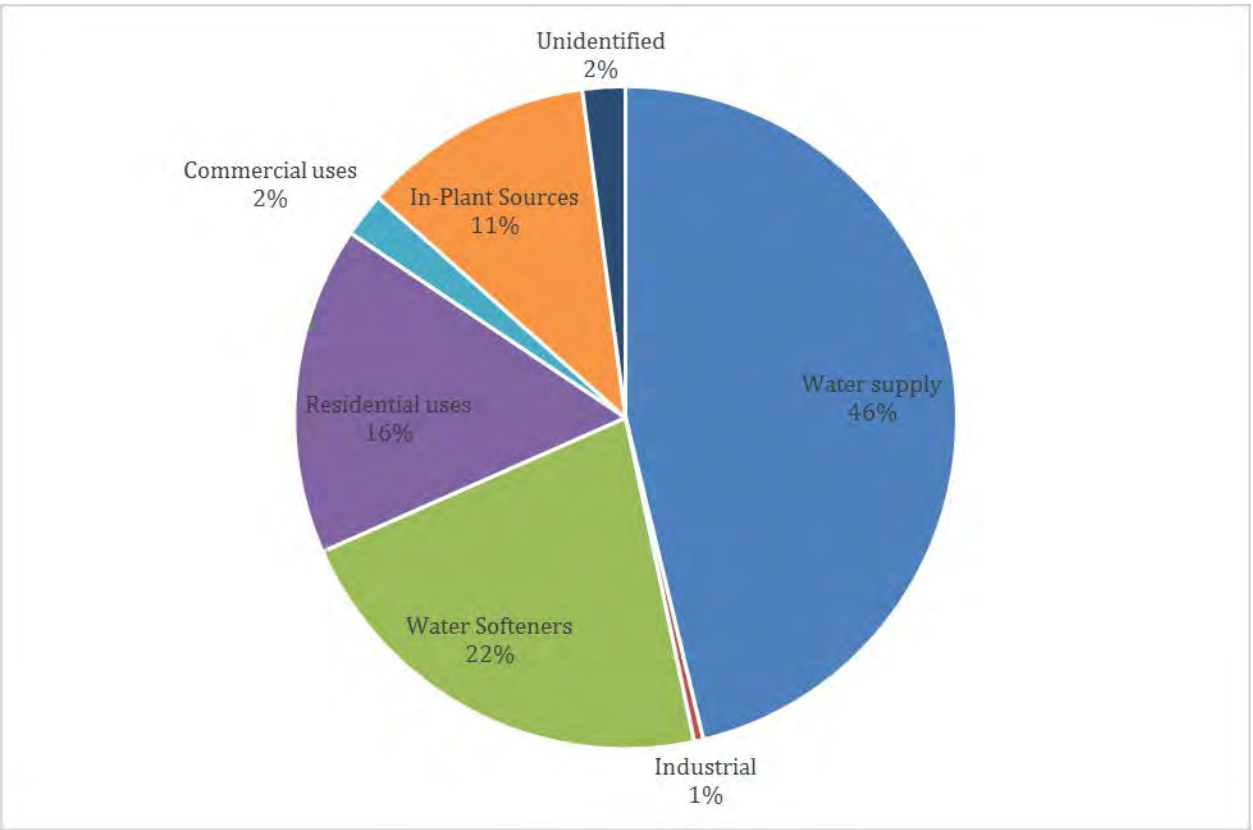

Figure 2-1. Summary of Estimated Chloride Loads to Tapia WRF, June-December 2017

2.1 WATER SUPPLY

For comparison to influent loads calculated based on data from late 2017, the water supply load was estimated from influent flows from June-December 2017 and from the average chloride concentration based on the available data. The estimated chloride load from the water supply is 4,900 lbs/day (46% of effluent loads), based on the average influent flow to Tapia from June through December 2017 of 7.6 MGD, and the average chloride concentration in LVMWD supply water, 77 mg/L.

2.2 WATER SOFTENERS

The number of households in Tapia WRF's service area with residential self-regenerating water softeners (SRWS) was estimated using water supply hardness data from LVMWD consumer water quality reports, and data relating water supply hardness and percentage of households with SRWS in representative communities, and population data from the US Census. The Chloride Source Identification Report estimated the number of households with SRWS to be approximately 1,700. Based on estimates from other chloride source reduction efforts[3], one residential water softener accounts for approximately 1.3 lbs/day of influent chloride loading.

[3] Estimates of chloride load reductions from removal of residential water softeners included in the Santa Clara River Chloride Reduction Ordinance of 2008 passed by the Board of Directors of the Santa Clarita Valley Sanitation District of Los Angeles County indicate that 1 residential water softener accounts for approximately 1.3 lbs/day of chloride loading. http://www.lacsd.org/civicax/filebank/blobdload.aspx?blobid=4190

The chloride load from 1,700 water softeners is expected to be approximately 2,300 lbs/day, 22% of the effluent load.

2.3 RESIDENTIAL USES

In addition to water softener use, residential water uses, such as clothes washing, dishwashing, and regular toilet, faucet and shower uses, contribute to influent chloride loads to POTWs. It is estimated that residential wastewater contains from 20-50 mg/L[4] of chloride above water supply concentrations and water softener contributions. For the purposes of estimating loads, chloride concentrations (above water supply and water softener contributions) in residential wastewater flows to Tapia WRF were estimated to be 35 mg/L. Tapia WRF's 2014 *Sanitation Master Plan*[5] estimated that approximately 77% of the influent wastewater to Tapia WRF is from residential uses. Based on average influent flow from the period of June through December 2017 of 7.6 MGD, the estimated average influent flow from residential sources was 5.8 MGD, and average influent load from residential uses is estimated to be 1,700 lbs/day, 16% of effluent loads.

2.4 INDUSTRIAL USES

Flows from Significant Industrial Users (SIUs) do not comprise a significant portion of flow or chloride load to Tapia WRF. There are two SIUs in the Tapia WRF service area, which are estimated to discharge up to 33,000 gallons per day, combined, to the collection system. Neither SIU exceeded the local limit for chloride for the Tapia WRF service area (175 mg/L) from January to June 2017[6]. Assuming compliance with local limits, the maximum possible chloride load from industrial users is 48 lbs/day, which comprise less than 1% of effluent loads.

2.5 COMMERCIAL USES

Tapia WRF's 2014 *Sanitation Master Plan* estimated that approximately 11% of the influent flow to Tapia WRF is from commercial uses, or 0.8 MGD. The chloride concentration in commercial wastewater is estimated to be 33 mg/L[7] based on other chloride source reduction efforts in Southern California. The chloride load from commercial uses, such as medical facilities and laundries, is estimated to be 2% of effluent loads at 230 lbs/day.

2.6 IN-PLANT SOURCES

During the period of June-December 2017, there was a 10-11% increase in average chloride loads from influent to effluent, indicating that approximately 1,200 lbs/day of chloride load are attributed to sources within the Tapia WRF treatment system. Sodium hypochlorite use at Tapia WRF has the potential to contribute to in-plant loads.

[4] Metcalf & Eddy Inc., Wastewater Engineering Treatment and Reuse, 4th ed. McGraw Hill, 2003.
[5] Kennedy Jenks Consultants, 2014. Sanitation Master Plan Update 2014 for the Joint Powers Authority of Las Virgenes Municipal Water District and Triunfo Sanitation District (JPA). June 2014. LVMWD Project No. 2560.00.
[6] LVMWD, 2017. Semi-Annual Pretreatment Report for the Period of January through June 2017.
[7] Sanitation Districts of Los Angeles County, 2012. 2012 Chloride Source Identification/Reduction, Pollution Prevention, and Public Outreach Plan. November 2012.

2.7 UNIDENTIFIED SOURCES

Water supply, residential, industrial, commercial, and in-plant loads comprise approximately 10,378 lbs/day of the 10,600 lbs/day total effluent load, or 98%. One potential source which may contribute to the remaining 2% of effluent chloride loading is collection system inflow and infiltration from groundwater. However, data is not currently available to estimate contributions from inflow and infiltration. The difference between identified source loads and total influent load may also be related to uncertainties and data variability associated with the estimated source analysis.

3 Evaluation of Discharge and Beneficial Uses

The TSO requires that LVMWD "Evaluate beneficial uses of the receiving water downstream of Discharge Point 005, the frequency of the discharge, characterization of discharge location and flow path, and the impact the discharge may have on the receiving water."

3.1 LOCATION, FREQUENCY, AND QUANTITY OF DISCHARGE

The location of EFF-005 is inside an underground storm drain that eventually daylights into Arroyo Calabasas, as shown in **Figure 3-1.** The confluence of Arroyo Calabasas and Bell Creek form the headwaters of the LA River (Reach 6).

Tapia WRF primarily discharges to Malibu Creek at discharge point EFF-001. The annual volumes discharged to the LA River compared to volumes discharged to Malibu Creek (EFF-001) from 2004 through 2017, evaluated as part of the Chloride Source Investigation Report, are presented in **Table 3-1,** which reflect the limited use of the LA River discharge point. LA River discharge flow data were not available prior to 2004.

Table 3-1. Annual Influent and Effluent Flows to Malibu Creek and the LA River, 2004-2017

Year	Total Annual Flow to Malibu Creek from EFF-001 (MG)	Total Annual Flow to LA River from EFF-005 (MG)
2004	1,061	25
2005	1,469	39
2006	1,087	79
2007	768	49
2008	1,055	41
2009	976	209
2010	1,128	174
2011	1,029	184
2012	784	116
2013	656	69
2014	609	0
2015	620	20
2016	2,130	16
2017	867	0

Figure 3-1. Discharge Point and Receiving Water Monitoring Locations

3.2 RECEIVING WATER BENEFICIAL USES

Other efforts to address chloride issues in the Los Angeles Region have been primarily concerned with agriculture as a chloride sensitive beneficial use[8]. However, there are no agricultural beneficial uses in any portion of the LA River. Receiving water beneficial uses for both Arroyo Calabasas and Reach 6 of the LA River based on the Basin Plan[9] are presented in **Table 3-2.** . Arroyo Calabasas has no existing beneficial uses, however the potential beneficial uses of municipal and domestic water supply, and habitat for water freshwater aquatic life and wildlife. Existing beneficial uses in Reach 6 of the LA River include habitat for water freshwater aquatic life, wildlife and wetland habitat, as well as groundwater recharge. Municipal and domestic water supply, and industrial service supply are potential beneficial uses in Reach 6.

Order No. 97-02 set objectives for several downstream reaches[10] of the main stem of LA River, as well as Burbank Western Channel, at 190 mg/L, and stated that they are expected to be "fully protective of drinking water and freshwater aquatic life". For comparison, the beneficial uses for these reaches are also presented in **Table 3-1**. There are no existing or potential beneficial uses in Arroyo Calabasas or Reach 6 of the LA River that are not also beneficial uses of one or more of the downstream reaches given a chloride objective of 190 mg/L by Order No. 97-02. Therefore, 190 mg/L is also protective of beneficial uses in the receiving waters downstream of Tapia WRF's discharge to Arroyo Calabasas.

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[8] Larry Walker Associates, 2007. Calleguas Creek Watershed Boron, Chloride, TDS, and Sulfate TMDL. Public Review Technical Report. April 2007.

[9] RWQCB, 2014. Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.

[10] Los Angeles River-between Sepulveda Flood Control Basin and Figueroa Street, and between Figueroa Street and the estuary, which encompass Reaches 1 through 4.

Table 3-2. Basin Plan Beneficial Uses of the LA River

	Waterbody	MUN	IND	PROC	GWR	WARM	MAR	WILD	RARE	MIGR	SPWN	SHELL	WET
Tapia WRF Receiving Waters	Arroyo Calabasas	P*				P		P					
	LA River Reach 6	P*	P		E	E		E					E
LA River Reaches and Tributaries with Chloride Objectives of 190 mg/L	LA River Reach 4	P*	P		E	E		E					E
	Burbank Western Channel	P*				P		P					
	LA River Reach 3	P*	P		E	E		E					E
	LA River Reach 2	P*	P		E	E		P					
	LA River Reach 1	P*	P	P	E	E	E	E	E	P	P	P_s	

MUN: Municipal and domestic Supply
IND: Industrial service supply
PROC: Industrial process supply
GWR: Groundwater recharge
WARM: Warm freshwater habitat
MAR: Marine habitat
WILD: Wildlife habitat
RARE: Rare, threatened, or endangered species
MIGR: Migration of aquatic organisms
SPWN: Spawning, reproduction or early development
SHELL: Shellfish harvesting
WET: Wetland habitat
P: Potential beneficial use
E: Existing beneficial use
*Asterisked MUN designations are designated under SB 88-63 and RV 89-03. These designations will be considered for exemption at a later date. In the interim, no new effluent limitations will be placed in Waste Discharge Requirements as a result of these designations.
s: Access prohibited by Los Angeles County Department of Public Works.

3.3 RECEIVING WATER IMPACTS

The Chloride Source Identification Study reviewed available receiving water data corresponding to Tapia WRF's discharge to the LA River was collected through NPDES permit required monitoring. The receiving water monitoring location downstream of EFF-005 is RSW-LA002D, which is located inside an underground storm drain that eventually daylights into Arroyo Calabasas, shown in **Figure 3-1**. Receiving water concentrations compared to effluent concentrations from EFF-005 are shown in **Figure 3-2.** Concentrations at RSW-LA002D closely follow available effluent concentration data from EFF-005. However, as RSW-LA002D is located inside of a storm drain, it is not representative of conditions in Arroyo Calabasas or the LA River, and it is likely that discharge from EFF-005 comprises the majority of flow at RSW-LA002D, with the exception of during storm events.

Figure 3-2. RSW-LA002D and Effluent Chloride Concentrations

4 Evaluation of Source Reduction Activities

The TSO requires that LVMWD "Evaluate potential source reduction activities that the Permittee can feasibly implement to reduce chloride in the influent and effluent, including timeframes for each activity."

4.1 EVALUATION OF SOURCE REDUCTION ACTIVITIES

The following sections describe actions to reduce chloride levels and their efficacy, for the following sources:

- Water softeners
- Industrial uses
- Commercial uses
- Sodium hypochlorite use at Tapia WRF
- Water supply sources originating at Las Virgenes Reservoir, such as groundwater influence or concentration due to evaporation, or chloramination at Westlake Filtration Plant.

Chloride levels in the imported water supply are not controllable by actions from LVMWD. Loads from residential uses are also considered to not be controllable. Additionally, unidentified loads are not considered to be controllable without further investigation to determine their specific source, or the degree to which the 2% contribution from unidentified loads can be attributed to uncertainty associated with the source identification analysis.

4.1.1 Water Supply Loads Originating at Las Virgenes Reservoir

Of the 4,900 lbs/day of chloride load associated with the water supply, it is estimated that 4,500 lbs/day can be attributed to water purchased from MWD, or approximately 92% of the load from LVMWD, as shown in **Table 4-1**. Approximately 400 lbs/day (4% of effluent load) may be the result of evaporation or groundwater influence at Las Virgenes Reservoir or chloramination at Westlake Filtration Plant.

Table 4-1. Estimated Contribution of Water Supply to Influent Chloride Loads

Period	Average Influent flow June-Dec 2017 (MGD)	LVMWD		MWD	
		Average chloride 2005-2016 (mg/L)	Estimated chloride load (lbs/day)	Average chloride 2005-2016 (mg/L)	Estimated chloride load (lbs/day)
June-December 2017	7.6	77	4,900	71	4,500

Chloride loads from imported water are not controllable. Potential controllable chloride sources in the water supply include chloramination at Westlake Filtration Plant, groundwater influence and evaporation. Conversion to a non-chlorine primary disinfection system may reduce a small portion of the chloride load, however chloramination cannot be eliminated completely, due to the need for secondary chlorination to maintain water quality in the drinking water distribution system. Groundwater influence and evaporation can be reduced through lining or covering the

reservoir. However, lining or covering the 10,000 acre-foot reservoir would require extensive time and capital investment to implement. Further investigation would be required to confirm the contributions from these sources to substantiate actions.

4.1.2 Water Softeners

Water softeners comprise 22% of the effluent chloride load. Options to reduce the use of self-regenerating water softeners and associated chloride discharges include[11]:

- Public outreach and education regarding the water quality impacts of water softeners and encouraging residents to voluntarily stop using water softeners to or to switch to non-salt discharging alternatives;
- Rebates or other financial incentives for residents to remove self-regenerating water softeners; and
- Ordinances banning or restricting residential self-regenerating water softeners.

4.1.3 Both LVMWD and TSD have ordinances prohibiting the discharge of brines from self-regenerating water softeners in their service areas, in Article 2, 5-4.202 a) of the LVMWD Code[12] and Division 3, 3-2 T. of the TSD Rules and Regulations for the Sewage Discharge System[13]. Additional outreach educating residents on the existing ordinances, or implementation of a rebate or financial incentive program may enhance source control efforts. More effective source control efforts have combined outreach, rebates, and ordinances. The effectiveness of these options depends on the duration and intensity of implementation. For example, the effectiveness of rebates and other financial incentives is dependent on the rebate amount, and the effectiveness of ordinances depends on the type of ordinance (e.g. banning installation of new residential SRWS vs. banning all SRWS). A summary of chloride load reductions over time with the implementation of source control activities is presented in Table 4-3. Industrial and Commercial Uses

Industrial and commercial uses comprise approximately 3% of the total effluent chloride load. Management practices for industrial and commercial uses to reduce chloride discharged to the collection system include:

- Product substitution or reducing quantities of products used;
- Modification of equipment practices or processes, such as eliminating salt based water softeners, maximizing reverse osmosis efficiency, minimizing pH adjustments, boiler blowdown and cleaning methods;
- Redirecting the waste stream for on-site reuse; and
- Pretreatment.

[11] Larry Walker Associates, Inc., 2012. Central Valley Clean Water Association DRAFT Salinity Management Practices for POTWs. September 2012

[12] LVMWD, 2018. Las Virgenes Municipal Water District Code. Updated May 22, 2018.

[13] Triunfo Sanitation District, 1995. Rules and Regulations for the Sewage Discharge System. June 26, 1995.

Strategies to increase implementation of these management practices by industrial and commercial customers include:

- Outreach and education on implementation of chloride reduction practices;
- Mandatory management practices for certain industrial/commercial categories or processes;
- Numerical local discharge limits.

Currently, the existing local limit for chloride within Tapia WRF's service area is 175 mg/L, which, as previously stated, has not recently been exceeded by SIUs in the service area. Approaches to reducing chloride loads from industrial and commercial uses include pretreatment, such as membrane treatment methods, or elimination of discharges by redirecting the waste stream. These approaches may be employed if they are determined likely to result in measureable chloride reductions.

4.1.4 In-Plant Sources

Based on the difference between influent and effluent chloride load, sodium hypochlorite use for disinfection at Tapia WRF comprises 11% of the effluent load. Chloride Sodium hypochlorite use is controllable through conversion to non-chlorine disinfection, such as ultra-violet (UV) disinfection.

4.1.5 Summary and Timelines to Reduce Major Sources

Table 4-2 and **Figure 4-1** show the percentages of the effluent chloride loads from each source that can be feasibly reduced. Commercial, industrial and sources of chloride in the water supply originating from Las Virgenes Reservoir may be controllable or partially controllable, however each source comprises less than 5% of the effluent chloride load. Reductions that may be achieved may not be commensurate with the resources required to achieve those reductions. More significant sources of chloride include sodium hypochlorite use at Tapia WRF and residential water softeners, at 11% and 22% of the effluent load, respectively. Again, the resources required to achieve measurable reductions will need to be further evaluated. Potential timelines to reduce chloride from these larger sources are described below.

Table 4-2. Summary of Controllable Chloride Loads to Tapia WRF

Source		Estimated Load	% Contribution to Effluent Load	Controllability
Influent sources		***9,400 lbs/day***	***89%***	
Water supply	Imported Water	4,500 lbs/day	42%	Not controllable
	Las Virgenes Reservoir Sources	400 lbs/day	4%	Partially Controllable
Industrial uses		48 lbs/day	1%	Controllable
Residential water softeners		2,300 lbs/day	22%	Partially Controllable
Residential uses		1,700 lbs/day	16%	Not controllable
Commercial uses		230 lbs/day	2%	Controllable
Unidentified influent sources		222 lbs/day	2%	Not controllable unless identified
In-plant sources		***1,200 lbs/day***	***11%***	
Sodium hypochlorite		1,200 lbs/day	11%	Controllable
Total effluent Load		**10,600 lbs/day**		

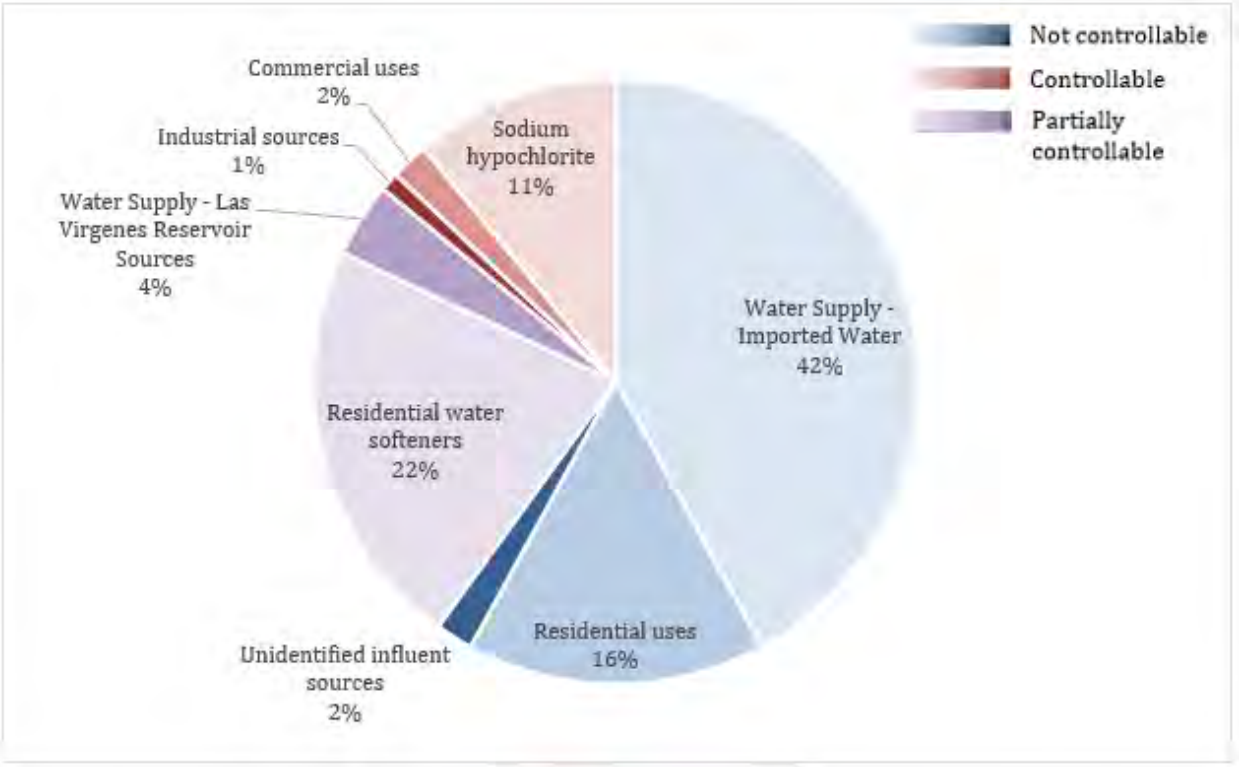

Figure 4-1. Summary of Controllable Chloride Loads to Tapia WRF

As described in **Section 4.1.2,** the time required to reduce loads from residential SRWS depends on the actions being implemented, their intensity, and the desired level of reduction. An example of SRWS removal or chloride load reduction outcomes over time, and as actions are escalated, based on other source reduction efforts in California is presented in **Table 4-3**.

Table 4-3. Timelines and Outcomes for Actions to Remove Residential SWRS[11]

Agency	Duration	Action	Outcome
Santa Clarita Valley Sanitation District	18 months	Rebates of $100-$150 offered	400 SRWS removed
	18 months	Rebates of $350-$1,800 offered	2400 SRWS removed
	3 years	Ordinance requiring removal of all water softeners	47% reduction in chloride load from SRWS
	7 years	Combined, outreach, rebates and ordinance requiring removal of all water softeners	Over 7000 SRWS removed, 70% reduction in chloride load from SRWS
City of Dixon	4 years	Combined, outreach, incentive program and ordinance banning water softeners	500 SRWS removed, 54% reduction in softener salt sales, effluent chloride levels reduced by 50%

Conversion to UV disinfection requires planning, design, construction, testing, and regulatory approvals. The time required to convert from sodium hypochlorite to UV disinfection considering these components is projected to be 3.5 to 6 years, as presented in **Table 4-4**, based on a review timelines for other chlorine to UV conversion projects at wastewater treatment plants in California. Constructing a UV disinfection system also requires significant capital investment, and time required to secure financing, which is not included in **Table 4-4**.

Table 4-4. Projected Timeline for UV Conversion[14,15,16]

Action	Time Required to Complete
Planning and pursuit of environmental approvals (e.g. CEQA)	1 year – 18 months
Design	6 months -1 year
Complete bid process and award construction contract	6 months – 1 year
Construction	1 year – 18 months

[14] Regional Water Quality Control Board, North Coast Region, 2010. Revised Compliance Schedule for Completion of Ultraviolet Disinfection Project at Russian River County Sanitation District, Pursuant to Administrative Civil Liability Order No. R1-2008-0045 and Cease and Desist Order No. R1-2010-0006.

[15] Regional Water Quality Control Board, Central Valley Region, 2018. Amending Time Schedule Order R5-2015-0003-02, City of Jackson Wastewater Treatment Plant, Amador County.

[16]California Natural Resources Agency, CEQA process flow chart. http://resources.ca.gov/ceqa/flowchart/lead_agency/final_EIR_prep.html

Test installed equipment and complete required reports for submittal to the State Board Division of Drinking Water and the Regional Board	6 months – 1 year
Total time	3.5 – 6 years

Reduction of 11% of the effluent chloride load through construction of a UV treatment facility will require significant capital and yearly operations and maintenance (O&M) expenses. **Table 4-5** presents example planning level capital and annual O&M costs estimates for different wastewater treatment plant capacities. Based on the average cost per MGD of wastewater treatment plant design capacity presented in **Table 4-5**, conversion to UV at Tapia WRF, which has a 12 MGD design capacity, may cost $18,000,000 to construct and $600,000 annually to operate and maintain.

Table 4-5. Capital and O&M Costs of UV Disinfection[1]

Design Capacity	Capital Cost	Annual O&M Cost
18 MGD	$41,000,000	$1,000,000
25.4 MGD	$34,000,000	$2,000,000
218 MGD	$166,000,000	$4,000,000
Average Cost/MGD	**$1,500,000**	**$50,000**

1. Estimated May 2018 costs at Engineering News Record (ENR) Construction Cost Index (CCI) for Los Angeles = 11935.
2. Larry Walker Associates, 2011. Victor Valley Wastewater Reclamation Authority Cumulative Impact Analysis. February 2011. (Source costs presented in 2009 Dollars, ENR CCI = 8641)
3. Carollo Engineers, 2009. Technical Memorandum. Advanced Treatment Alternatives for the Sacramento Regional Waste Water Treatment Plant. March 2009. (Source costs presented in 2009 dollars, ENR CCI = 9138)
4. Larry Walker Associates, 2015. North Valley Regional Recycled Water Program. Addendum No. 1 to Antidegradation Analysis for Proposed Recycled Water Discharge to the Delta-Mendota Canal: Socioeconomic Impact Assessment of UV Disinfection Implementation at City of Turlock Regional Water Quality Control Facility. (Source costs presented in 2015 dollars, ENR CCI 10039)

5 Evaluation of Effects of Drought on Chloride Levels

The TSO requires that LVMWD "Evaluate the effect of drought on chloride levels in source and influent water and substantiate whether or not the findings in 97-02 are applicable to Tapia WRF's discharge."

5.1 REGULATORY BACKGROUND

Prior to revision of the chloride effluent limitation, Tapia WRF's previous NPDES permits[17] for discharge to the LA River prescribed an effluent limitation of 190 mg/L, citing a resolution adopted by the regional board in 1997, Order No. 97-02, changing the WQO in the Basin Plan from 150 mg/L to 190 mg/L for specific reaches of the LA River. However, Order No. 97-02 does not apply to the portion of the LA River to which Tapia WRF discharges[18]. Resolution No. 97-02 was adopted as a long term solution to drought related chloride compliance problems for Publicly Owned Treatment Works (POTWs) in the Los Angeles Region, and applies to the reaches of the LA River that received discharge from POTWs in 1997, before Tapia WRF began discharging to the LA River in 1999[17].

Following an administrative update to the Basin Plan in 2013, it became evident to the Regional Board that resolution No. 97-02 was not applicable to the Reach of the LA River to which Tapia WRF discharges. Therefore, the chloride effluent limitation in the 2017 permit was changed to 150 mg/L.

5.2 DROUGHT CONDITIONS AND APPLICABILITY OF ORDER NO. 97-02

Figure 4-1 shows Tapia WRF effluent chloride concentrations from 2002-2017[19] and water supply chloride concentrations from 2005-2016[20], along with coinciding periods of drought. **Figure 4-1** shows periodic increases in chloride concentrations in MWD Jensen Plant effluent, LVMWD water supply and Tapia WRF effluent corresponding to drought conditions from 2012 through 2016, 2007 through 2009 and 2001 through 2002[21]. This demonstrates that chloride concentrations in water supplied by MWD increase during drought conditions, and that this

[17] Tapia WRF began discharging to Dry Canyon Creek, a tributary to the LA River, in 1999, and was permitted to do so under Order No. 99-006. However, the discharge point was moved to Arroyo Calabasas, the current location, and a new permit was issued, Order No. 00-046. Subsequent permits which contained the 190 mg/L effluent limitation for chloride were Order Nos. R4-2005-0074, R4-2010-0165

[18] Order No. 97-02 applied to the following reaches of the LA River: Between Sepulveda Flood Control Basin and Figueroa Street (including the Burbank Western Channel only), and Between Figueroa Street and the estuary (including Rio Hondo below the Santa Ana Freeway). Both the previous and current discharge point for Tapia WRF are upstream of these reaches.

[19] Effluent chloride concentration data were available from 2002 through 2017. Prior to 2002, effluent water quality samples were taken from a different monitoring station which is not representative of current practice.

[20] A complete dataset prior to 2005 is not available, and this time frame is considered to be the most representative of current conditions and, therefore, most useful for evaluating chloride sources. Source: http://www.lvmwd.com/your-water/water-quality Chloride concentrations reported from LVMWD Annual Water Quality Reports provided to water customers. The 2016 Annual Water Quality Report is the most recently available report.

[21] United States Geological Survey (USGS), 2017. 2012-2016 California Drought: Historical Perspective. Accessed February 15, 2017. https://ca.water.usgs.gov/california-drought/california-drought-comparisons.html

increase proportionally impacts Tapia WRF effluent chloride concentrations. **Figure 4-1** also shows long term increases in chloride concentrations in the water supply and effluent, which reflect sustained changes in MWD source water composition, due to increasing salinity levels in the San Francisco Bay-Delta and increased reliance on deliveries from the Colorado River Aqueduct. Water conservation also impacts chloride concentrations entering Tapia WRF, as less water use results in lower dilution of chloride sources and higher concentrations. In addition to drought triggered water conservation, both statewide and local long term water use reduction goals correlate to long term increases in chloride concentrations.

Jensen effluent is the predominant source of water in Tapia WRF's service area, as for the Donald C. Tillman Water Reclamation Plant, Los Angeles-Glendale Water Reclamation Plant, and the City of Burbank Water Reclamation Plant discharging to the LA River[22], which all received amended Basin Plan objectives in Order 97-02. Therefore Tapia WRF is subject to the same conditions leading to elevated effluent chloride levels as those described in Order 97-02. **Table 5-1** shows averages and ranges of chloride concentrations in LVMWD's water supply from 2005 through 2016, and shows that chloride concentrations in effluent from Jensen peaked during the two most recent droughts from 2007-2009 and from 2012 to 2016, reaching a peak concentration in 2016 of 97 mg/L.

Table 5-1. Chloride Concentrations (mg/L) in LVMWD Source Water

Year	LVMWD		MWD Jensen Effluent	
	Average	Range	Average	Range
2005	62	48-77	52	47-65
2006	56	44-69	50	44-56
2007	66	50-82	61	40-70
2008	89	73-130	75	72-80
2009	81	79-83	79	77-82
2010	75	69-78	79	67-80
2011	70	51-87	64	59-69
2012	74	50-92	56	50-63
2013	81	76-94	76	75-77
2014	91	86-96	86	85-86
2015	85	79-93	86	85-86
2016	95	92-98	93	89-97

[22] Regional Water Quality Control Board, Los Angeles Region, 1997. Resolution No. 97-02, Amendment to the Water Quality Control Plan to incorporate a Policy for Addressing Levels of Chloride in Discharges of Wastewaters.

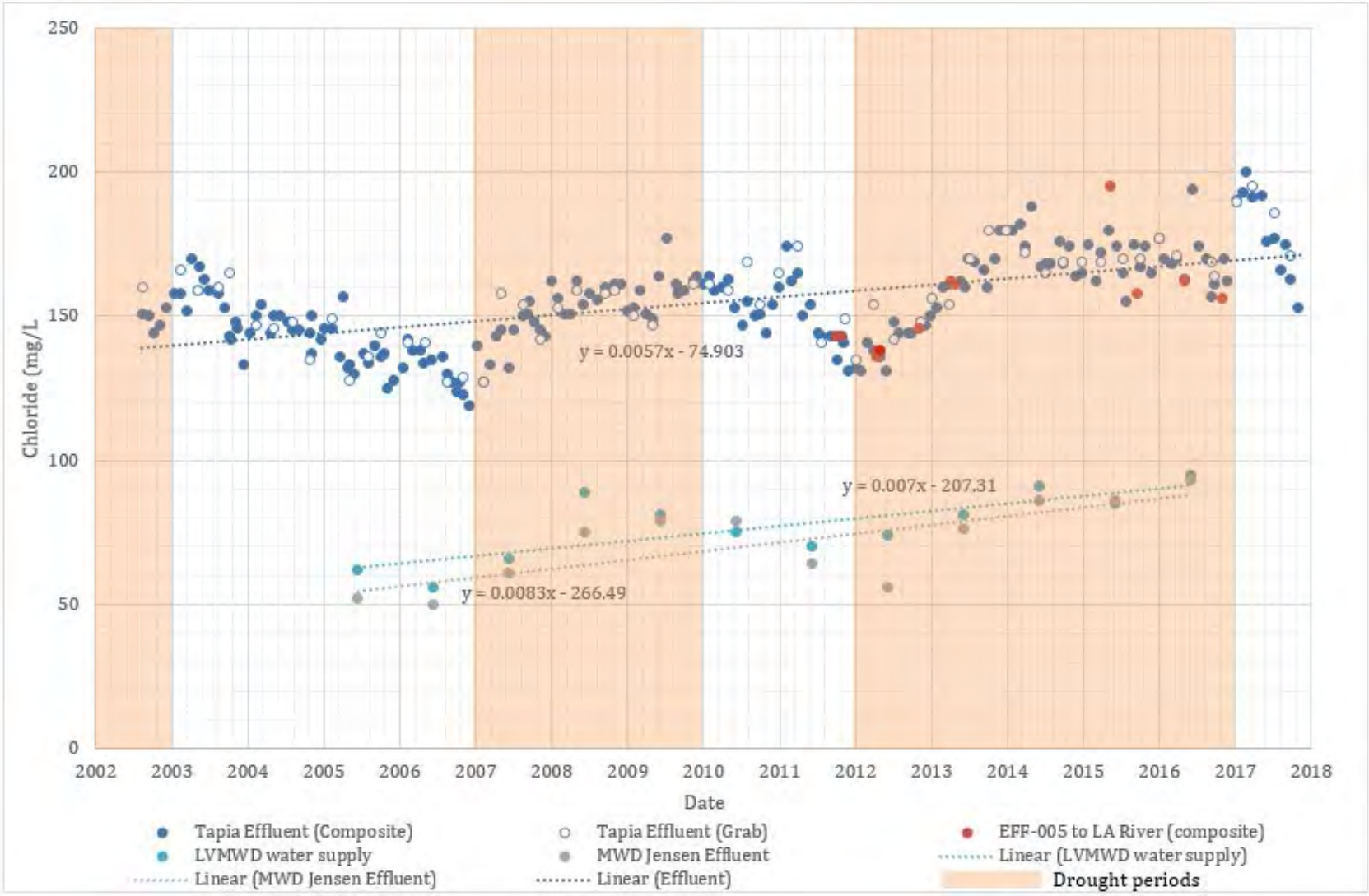

Figure 5-1. Tapia Effluent Chloride Concentrations (2002-2017), Water Supply Chloride Concentrations (2005-2016) and Drought Conditions

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6 Summary

Chloride in imported water supply provided by MWD is the largest source of chloride in Tapia WRF's effluent but it is not a controllable source. Data over the past 12 years show periodic increases in chloride concentration in effluent from the Jensen Plant corresponding to drought conditions, as well as long term increases over time. MWD supplies imported water treated at Jensen to many areas in the Los Angeles Region, including the service areas to several POTWs that received regulatory relief as a result of increased chloride levels in imported waters due to drought under Order No. 97-02.

Furthermore, Order No. 97-02 revised the Basin Plan objective for chloride to 190 mg/L for several reaches of the LA River, downstream of Tapia WRF's discharge. The Regional Board determined that 190 mg/L was protective of beneficial uses in these reaches, which include all beneficial uses of Arroyo Calabasas and Reach 6 of the LA River.

In addition, the next largest source of chloride, normal residential water use, is also not considered to be a controllable source.

Sources that may be controllable, or partially controllable, through reduction activities include industrial and commercial sources, residential SRWS, sodium hypochlorite use for disinfection, and chloride source in the water supply not attributed to imported water, which may include evaporation or groundwater influence at Las Virgenes Reservoir, or chloramination at Westlake Filtration Plant. These sources are estimated to comprise approximately 40% of Tapia WRF's effluent chloride load. This report identified potential actions to control these sources, however these actions may not be fully effective at eliminating the source.

Specifically, chloramination at Westlake Filtration Plant is not fully controllable due to secondary disinfection requirements to maintain drinking water quality in the distribution system. Lining or covering the Las Virgenes Reservoir would require extensive time and capital investment to implement and is unlikely to achieve measurable reductions in chloride. Residential SRWS are already prohibited in the service area and additional actions to reduce their use will be only partially effective based on the experiences of other municipalities. Some of these actions may also not be economically feasible (e.g., UV disinfection).

In addition, increases in chloride influent loading due to ongoing water conservation has resulted in increased chloride concentrations counteracting source control actions and it is likely this trend will continue in the future.