AGENDA
REGULAR BOARD MEETING OF THE
SAN ELIJO JOINT POWERS AUTHORITY
JUNE 18, 2024 AT 8:30 A.M.
SAN ELIJO WATER CAMPUS – BOARD MEETING ROOM
2695 MANCHESTER AVENUE
CARDIFF BY THE SEA, CALIFORNIA

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1. CALL TO ORDER

2. ROLL CALL

3. PLEDGE OF ALLEGIANCE

4. ORAL COMMUNICATIONS/PUBLIC COMMENT PERIOD (NON-ACTION ITEM)

5. AWARDS AND RECOGNITION

6. * **CONSENT CALENDAR**

7. * APPROVAL OF MINUTES FOR MAY 21, 2024 MEETING

8. * APPROVAL FOR PAYMENT OF WARRANTS AND MONTHLY INVESTMENT REPORTS – MAY

9. * WASTEWATER TREATMENT REPORT – APRIL

10. * RECYCLED WATER REPORT – APRIL

11. * REPORTABLE MEETINGS

12. * AMENDMENT 1 TO PROFESSIONAL SERVICES AGREEMENT FOR BIOTREATMENT IMPROVEMENTS PROJECT

13. * AGREEMENT FOR GROUNDS MAINTENANCE SERVICES

14. * ITEMS REMOVED FROM CONSENT CALENDAR

Items on the Consent Calendar are routine matters and there will be no discussion unless an item is removed from the Consent Calendar. Items removed by a "Request to Speak" form from the public will be handled immediately following adoption of the Consent Calendar. Items removed by a Board Member will be handled as directed by the Board.

REGULAR AGENDA

15. ADOPTION OF THE SAN ELIJO JOINT POWERS AUTHORITY FISCAL YEAR 2024-25 BUDGET, INVESTMENT POLICY, AND APPOINTMENT OF TREASURER

    1. Adopt Resolution No. 2024-04, Approving the San Elijo Joint Powers Authority Operating and Capital Improvement Budgets for Fiscal Year 2024-25

    2. Adopt Resolution No. 2024-05, Approving the San Elijo Joint Powers Authority Investment Policy and Guidelines and Appointment of Christopher Trees as SEJPA Treasurer; and

    3. Discuss and take action as appropriate.

    Staff Reference: General Manager

16. PURCHASE OF REPLACEMENT MEMBRANE MODULES FOR THE ADVANCED WATER PURIFICATION SYSTEM

    1. Authorize the General Manager to execute Purchase Order with Aria Filtra in an amount not-to-exceed $381,667.49 for membrane modules, ancillary parts, and installation supervision; and

    2. Discuss and take action as appropriate.

    Staff Reference: General Manager

17. CAPITAL PROGRAM UPDATE

    No action required. This memorandum is submitted for information only.

    Staff Reference: Director of Infrastructure and Sustainability

18. AWARD OF PROFESSIONAL SERVICES FOR FACILITY PLAN UPDATE

    1. Authorize the General Manager to execute Professional Services Agreement with Black & Veatch in an amount not-to-exceed $416,600 for the Facility Plan Update; and

    2. Discuss and take action as appropriate.

    Staff Reference: Director of Infrastructure and Sustainability

19. GENERAL MANAGER'S REPORT

    Informational report by the General Manager on items not requiring Board action.

20. GENERAL COUNSEL'S REPORT

Informational report by the General Counsel on items not requiring Board action.

21. BOARD MEMBER COMMENTS

This item is placed on the agenda to allow individual Board Members to briefly convey information to the Board or public, or to request staff to place a matter on a future agenda and/or report back on any matter. There is no discussion or action taken on comments by Board Members.

22. CLOSED SESSION

The Board will adjourn to Closed Session to discuss item(s) identified below. Closed Session is not open to the public; however, an opportunity will be provided at this time if members of the public would like to comment on any item listed below. (Three-minute limit.) A closed session may be held at any time during this meeting of the San Elijo Joint Powers Authority for the purposes of discussing potential or pending litigation or other appropriate matters pursuant to the "Ralph M. Brown Act".

A closed session will be held per Government Code Section 54957 (b), Public Employee Performance Evaluation, Title: General Manager

23. APPROVAL OF GENERAL MANAGER EMPLOYEMENT AGREEMENT

1. Discussion and possible action regarding General Manager's Employment Contract; and

2. Discuss and take action as appropriate.

24. ADJOURNMENT

The next regularly scheduled San Elijo Joint Powers Authority Board Meeting will be Tuesday, July 16, 2024 at 8:30 a.m.

NOTICE:

The San Elijo Joint Powers Authority's open and public meetings comply with the protections and prohibitions contained in Section 202 of the Americans with Disabilities Act of 1990 (42 U.S.C Section 12132), and the federal rules and regulations adopted in implementation thereof. Any person with a disability who requires a modification or accommodation, including auxiliary aids or services, in order to participate in a public meeting of the SEJPA Board of Directors, may request such modification or accommodation from Michael T. Thornton, General Manager, (760) 753-6203 ext. 72.

The agenda package and materials related to an agenda item submitted after the packet's distribution to the Board are available for public review in the lobby of the SEJPA Administrative Office during normal business hours. Agendas and minutes are available at www.sejpa.org. The 2024 SEJPA Board meetings schedule is available at SEJPA Board Meeting Dates.

AFFIDAVIT OF POSTING

I, Michael T. Thornton, Secretary of the San Elijo Joint Powers Authority, hereby certify that I posted, or have caused to be posted, a copy of the foregoing agenda on the SEJPA website at www.sejpa.org, and in the following locations:

San Elijo Water Campus (formerly known as San Elijo Water Reclamation Facility), 2695 Manchester Avenue, Cardiff, California
City of Encinitas, 505 South Vulcan Avenue, Encinitas, California
City of Solana Beach, 635 South Highway 101, Solana Beach, California

The notice was posted at least 72 hours prior to the meeting, in accordance with Government Code Section 54954.2(a).

Date: June 13, 2024

Michael T. Thornton, P.E.
Secretary / General Manager

SAN ELIJO JOINT POWERS AUTHORITY
MINUTES OF THE BOARD MEETING
HELD ON MAY 21, 2024
AT THE SAN ELIJO WATER CAMPUS

Kellie Hinze, Chair — Kristi Becker, Vice Chair

A meeting of the Board of Directors of San Elijo Joint Powers Authority (SEJPA) was held Tuesday, April 16, 2024, at 8:30 a.m., at the San Elijo Water Campus.

1. CALL TO ORDER

Chair Hinze called the meeting to order at 8:31 a.m.

2. ROLL CALL

Directors Present:	Kellie Hinze
	Allison Blackwell
	Kristi Becker
	David Zito
Others Present:	
General Manager	Michael Thornton
Director of Operations	Chris Trees
Director of Infrastructure and Sustainability	Tom Falk
Interim Director of Finance	Richard Duffey
Administrative Coordinator	Vanesa Hackney
Financial Analyst I	Erica Zito
SEJPA Counsel:	
Procopio	Adriana Ochoa
City of Solana Beach:	
City Manager	Allisa Muto
Director of Engineering/Public Works	Mohammad “Mo” Sammak
San Dieguito Water District:	
Principal Engineer	Habib Hariri

3. PLEDGE OF ALLEGIANCE

Board Chair, Kellie Hinze, led the Pledge of Allegiance.

4. ORAL COMMUNICATION/PUBLIC COMMENT PERIOD

None.

5. AWARDS AND RECOGNITION

None.

6. CONSENT CALENDAR

Moved by Board Member Zito and seconded by Vice Chair Becker to approve the Consent Calendar.

Agenda Item No. 7	Approval of Minutes for the April 16, 2024 Board Meeting
Agenda Item No. 8	Approval for Payment of Warrants and Monthly Investment Report – April
Agenda Item No. 9	Wastewater Treatment Report – March
Agenda Item No. 10	Recycled Water Report – March
Agenda Item No. 11	Reportable Meetings
Agenda Item No. 12	Approve Biosolids Hauling and Reuse Contract
Agenda Item No. 13	San Elijo Joint Powers Authority Professional Services Agreement for Auditing Services for FY 2023-24 and FY 2024-25
Agenda Item No. 14	Recycled Water Program – Proposed Wholesale Agreement Amendment

Motion carried with the following vote of approval:

AYES:	Hinze, Blackwell, Becker, Zito
NOES	None
ABSENT:	None
ABSTAIN:	None

16. PRESENTATION OF SAN ELIJO JOINT POWERS AUTHORITY FISCAL YEAR 2024-25 RECOMMENDED BUDGET

As of now, SEJPA has not received any proposed changes or public comments on the recommended budget for FY 2024-25.

No action required. This item was submitted for information only.

17. TRUSSELL TECHNOLOGIES RESEARCH PRESENTATION

A presentation from Trussell Technologies on the potable reuse research that is currently being conducted at the San Elijo Water Campus.

No action required.

18. RATIFY AND AUTHORIZE CHANGE ORDERS FOR THE MOONLIGHT BEACH PUMP STATION CONSTRUCTION CONTRACT

The Moonlight Beach Pump Station Modifications Project will replace aging mechanical components to improve operational reliability and reduce maintenance frequency and intensity.

SEJPA authorized CCO No. 1 ($39,000) to assist in-house staff with installation of control valves at the San Elijo Water Campus, leveraging contractor resources to support urgent work on the recycled water pump station.

Administrative note, CCO No. 2 was not executed as the contemplated scope of work was rolled into subsequent CCO No. 4.

SEJPA authorized CCO No. 3 ($4,463.90 and no days) for upgrade of electrical disconnect switches to Type 316 stainless steel, to match similar electrical components and to improve corrosion resistance in this critical facility.

CCO No. 4 (net increase of $74,703 and 10 days extension) will amend contractor's scope to accomplish the following additional work at the Moonlight Beach Pump Station:

- Installation of new isolation valves on existing Pump 1, 2, and 3, suction pipes – SEJPA has previously purchased the valves under capital outlay and will leverage contractor's resources and timing of wetwell rehabilitation work to complete this work. Cost of additional work will be $20,566.43.
- Installation of a protective "cured-in-place pipe liner" (CIPP Liner) on the influent pipe between the onsite splitter box and the wetwell. This work was bid as an optional item and SEJPA is recommending the work be completed while the wetwell is offline during this project work. Cost of additional work will be $29,022.75.
- Installation of moisture sensor components in the existing variable frequency drives and additional, dedicated conduits and wiring for pump controls to ensure compatibility with the new non-clog, drypit submersible pumps (total of 4). Cost of additional work is $25,113.78.

Upon execution of CCO No. 4, the total Moonlight Beach Pump Station construction change orders to date will be $79,166.90, representing 5% of the original construction value. Approval of staff's recommendation will reduce contingency funds to $283,833 for the remainder of the project. No additional funding is needed at this time.

Moved by Board Member Zito and seconded by Board Member Blackwell to:

1. Ratify Contract Change Order No. 1 (increase contract value by $39,000 and 0 days) and Contract Change Order No. 3 (increase $4,463.93 and 0 days), previously executed under General Manager's signing authority; and

2. Authorize General Manager to execute Change Order No. 4 (CCO No. 4) with Ahrens Mechanical in an amount of $74,703 of additional construction services at the Moonlight Beach Pump Station.

Motion carried with the following vote of approval:

AYES: Hinze, Becker, Blackwell, Zito
NOES None
ABSENT: None
ABSTAIN: None

19. RATIFY AND AUTHORIZE CHANGE ORDERS FOR THE BIOSOLIDS DEWATERING FACILITY IMPROVEMENT PROJECT

The Biosolids Dewatering Facilities Improvements Project (Biosolids Project) consists of two major components – (1) replacement of the aging biosolids dewatering equipment, polymer system, electrical systems, and biosolids handling systems, and rehabilitation of the dewatering building and ancillary systems and structures; (2) replacement of Main Switchboard No. 2 (MS-2) which feeds secondary, tertiary, Advanced Water Purification (AWP), and solids treatment processes. The biosolids facility and MS-2 were originally constructed in 1991 and are approaching the end of their service life and the building is exhibiting extensive deterioration.

CCO No.3 (net increase of $8,882) and CCO No.4 (net increase of $18,317) authorized necessary changes to the project including:

- Revisions to the new dewatering control panel (BIO-PLC-02) to provide components compatible with existing SCADA architecture and preferred system integration;
- Revised power and control wiring for equipment deleted from the project;
- Increased capacity of underground pull section (UGPS) per requirements of San Diego Gas and Electric (SDG&E); and
- Reduced (cost deduct) mechanical system insulation.

CCO No.5 will increase contractor's scope for installation of pumps feeding the dewatering system.

Upon executing CCO No.5, the total construction change orders to date will be $136,099, representing 1.6% of the original construction value. Approval of staff's recommendation will reduce contingency funds to $883,901 for the remainder of the project.

Moved by Board Member Zito and seconded by Board Member Blackwell to:

1. Ratify Contract Change Order No. 3 (increase contract value by $8,882 and 0 days) and Contract Change Order No. 4 (increase contract value by $18,317 and 0 days), previously executed under General Manager's signing authority; and

2. Authorize General Manager to execute Contract Change Order No. 5 in an amount not-to-exceed $60,000 for additional construction services related to the Biosolids Dewatering Facility Improvements project.

Motion carried with the following vote of approval:

AYES: Hinze, Becker, Blackwell, Zito
NOES None
ABSENT: None
ABSTAIN: None

20. GENERAL MANAGER'S REPORT

General Manager Michael Thornton stated that a leak from the Escondido Land Outfall was identified on April 16, 2024 near the entrance to the Nature Center parking lot. SEJPA established a containment area and commenced water recovery. SEJPA and Escondido worked collaboratively to develop a repair plan, manage the recovery of leaked water, execute a communication plan, and provide construction oversight. The final repair was completed on May 16, 2024 and next steps are to complete the backfill and replant disturbed area.

21. GENERAL COUNSEL'S REPORT

General Counsel, Adriana Ochoa, stated that she attended CASA on Friday April 26, 2024 where there was discussion of potential new legislation that could have impacts to SEJPA and like agencies.

22. BOARD MEMBER COMMENTS

None.

23. CLOSED SESSION

A closed session was held per Government Code Section 54957 (b), Public Employee Employment, Title: General Manager

No reportable actions taken.

24. CONSIDERATION OF GENERAL MANAGER EMPLOYMENT AND/OR MERIT BONUS

Moved by Board Member Zito and seconded by Vice Chair Becker to award the General Manager his full $10,000 bonus per the General Manager's employment agreement.

Motion carried with the following vote of approval:

AYES: Hinze, Becker, Blackwell, Zito
NOES None
ABSENT: None
ABSTAIN: None

25. ADJOURNMENT

The meeting adjourned at 10:24 a.m. The next Board of Directors meeting is scheduled to be held on Tuesday, June 18, 2024 at 8:30 a.m.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
For the Month of May 2024

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
43683	Liquid Environmental Solution	Services - Grease & Scum	Pumping service - through 03/26/24	$ 2,315.00
43658	Abila	Licenses	Accounting software support and subscription	365.12
43659	Ardurra Group, Inc	Services - Engineering	Wanket tank refurbish support from 02/01/24 - 02/29/24	6,040.88
43660	AT&T	Utilities - Telephone	Phone service - 03/13/24 - 04/12/24	721.19
43661	Backflow Services, Inc.	Services - Maint., Repair Parts Expense	Fire svc on backflow preventer & post meter installation	2,664.00
43662	Badger Daylight Corp.	Services - Maintenance	Hydrovac service	5,775.89
43663	Black & Veatch	Services - Engineering	Dewatering facilities upgrades through 03/29/24	12,695.00
43664	Brenntag Pacific, Inc	Supplies - Chem - Odor	Sodium hydroxide	1,580.05
43665	Brewer Crane and Rigging	Services - Maintenance	30 ton mobile crane rental	836.00
43666	CA. Office Cleaning, Inc.	Services - Janitorial	Office and window cleaning	6,990.00
43667	California State Lands Commiss	Fees - Permits	Staff project charges - 03/01/24 - 03/31/24	258.16
43668	California Water Technologies	Supplies - Chem - Ferric Chlo	Ferric chloride solutions	11,322.84
43669	Caltrol, Inc.	Repair Parts Expense	Actuators	1,676.27
43670	Collicutt Energy Services Inc	Services - Maintenance	Generator service	1,862.08
43671	Denali Water Solutions LLC	Services - Biosolids Hauling	Biosolids hauling and reuse - Nov and Feb	29,794.37
43672	Dudek & Associates	Services - Engineering	Stormwater capture reuse and construction of M.B.P.S - 02/24/24 - 03/29/2	50,872.00
43673	Westbound Solar 2, LLC	Utilities - Solar Power	Solar - Mar	13,252.42
43674	EDCO Waste & Recycling Service	Utilities - Trash	Apr	485.95
43675	Encina Wastewater Authority	Services - Laboratory	Heterotrophic plate count analysis	162.00
43676	Enthalpy Analytical, LLC	Services - Laboratory	Laboratory toxicity testing services for Feb 2024	1,050.00
43677	Eurofins Calscience, LLC	Services - Laboratory	Testing water samples	2,202.50
43678	Evoqua Water Technologies	Supplies - Chem - Odor	Bioxide	8,254.76
43679	Fisher Scientific	Supplies - Chemicals	AWP chemicals	105.92
43680	GSE Construction Company Inc.	Services - Contractors	Biosolids facilities improvements - 01/01/24 - 03/31/24	253,890.35
43681	Hardy Diagnostics	Supplies - Lab	Various lab supplies	1,384.55
43682	Idexx Distribution,Inc.	Supplies - Lab	Various lab supplies	2,447.38
43684	McMaster-Carr Supply Co.	Supplies - Shop & Field	Various supplies	1,160.27
43685	Mission Square	ICMA Retirement	ICMA - 401a	11,229.37
43686	Mission Square - 304175	EE Deduction Benefits Payable	ICMA - 457	19,527.99
43687	Motion Industries, Inc.	Repair Parts Expense	Parts for ground water pump	726.00
43688	MSE Landscape Professionals	Services - Landscape	Tree maintenance services - Weevil treatment	2,565.00
43689	Cosby Oil Company, Inc	Fuel	Fuel - Apr	658.48
43690	NSI Solutions, Inc.	Supplies - Lab	Test standard	221.00
43691	Oasis Palm Nursery, Inc.	Services - Maintenance	Spring service - Palm maintenance	600.00
43692	Olin Corp - Chlor Alkali	Supplies - Chem - Odor	Procurement of sodium hypochlorite	11,286.25
43693	OneSource Distributors, Inc.	Repair Parts Expense	Conduit and copper mechanical lug	137.18
43694	Pacific Pipeline Supply	Supplies - Shop & Field	Bolt nut set	379.03
43695	Peerless Materials Co., LLC	Supplies - Shop & Field	Various supplies	704.79
43696	Peterson Structural Engr, Inc	Services - Engineering	Structural assessment of digester #4	5,502.50
43697	Powerflo Product's Inc	Repair Parts Expense	Pump station part	2,620.48
43698	Radwell International, Inc.	Repair Parts Expense	Circuit card repair	75.37
43699	San Dieguito Water District	Utilities - Water (Suppl.)	Water	788.87
43700	Tharsos Inc.	Services - Contractors	Biosolids dewatering facilities improvements repairs	6,800.00
43701	Thatcher Company of California	Supplies - Chemicals	Aluminum sulfate	7,328.50
43702	Traffic Safety Store	Supplies - Safety	Safety supplies	541.75
43703	Trussell Technologies, Inc	Services - Professional	Design of bio treatment improvements and Operational support	115,287.25
43704	U.S. CAD	Licenses	Bluebeam annual license renewals	1,000.00
43705	Unifirst Corporation	Supplies - Safety, Uniforms	Uniform service and gloves	1,237.94
43706	USA Bluebook	Supplies - Lab	Various lab supplies	84.14
43707	Valley CM, Inc.	Services - Contractors	Management and inspection services - 03/01/24 - 03/31/24	7,840.25
43708	VEGA Americas, Inc	Repair Parts Expense	Level radar for wet well	2,391.31
43709	Verizon Wireless	Utilities - Telephone	03/11/24 - 04/10/24	622.83
43710	Volt Management Corp	Services - Temp	Internship program and temp service	730.64
43711	Benefits Coordinators Corp.	Dental/Vision	Vision - May	379.40
43712	VWR International, Inc.	Shop Tools and Equip.	Hydrogen sulfide	437.28
43713	WageWorks	Payroll Processing Fees	Admin fee - Apr	170.75
43714	Allied Storage Containers	Equipment Rental/Lease	20' and 40' storage containers - 05/11/24 - 06/07/24	359.89
43715	APGN Inc.	Services - Maintenance	Support for aeration blower	188.00
43716	Babcock Laboratories, Inc	Services - Laboratory	Annual water suitability test	550.00
43717	Boot World, Inc.	Uniforms - Boots	Safety boots - W. Friedly	214.31
43718	Brax Process and Pump Equip.	Repair Parts Expense	Pump #3	2,777.73
43719	Brenntag Pacific, Inc	Supplies - Chem - Odor	Sodium hydroxide and citric acid	5,054.36
43720	CA. Office Cleaning, Inc.	Services - Janitorial	Office cleaning and window cleaning	4,691.00
43721	California Water Technologies	Supplies - Chem - Ferric Chlo	Ferric chloride solution	11,319.68
43722	Caltrol, Inc.	Repair Parts Expense	Various supplies	4,912.54
43723	CDW Government	Supplies - Office	Laptop	1,296.07
43724	City National Bank	Interest Expense - AWT Note	Loan agreement - #11-020 - # 25	74,076.57
43725	The Coast News Group	Advertising	Newspaper ad - Wanket tank recycled water bid	652.50
43726	Corodata	Rent	Record storage - APR	119.07
43727	D & R Crane, Inc.	Services - Maintenance	Moonlight Beach P.S. service	650.00
43728	Department of Consumer Affairs	Dues & Memberships	License renewal - C. Trees	270.00
43729	Del Mar Blue Print	Printing	Photo art for conference room	11.96
43730	Denali Water Solutions LLC	Services - Biosolids Hauling	Biosolids hauling and reuse - Mar	1,148.45
43731	Devin McGinness	Dues & Memberships	Employee reimbursement - Grade 3 operator certificate fee	170.00
43732	Enthalpy Analytical, LLC	Services - Laboratory	Laboratory toxicity testing services for Mar 2024	1,050.00
43733	ERA	Supplies - Lab	Various lab samples	3,306.49
43734	Eurofins Calscience, LLC	Services - Laboratory	Testing water samples	4,814.00
43735	Evoqua Water Technologies	Supplies - Chem - Odor	Bioxide	8,597.80
43736	Excel Landscape, Inc.	Services - Landscape, Maintenance	Grounds maintenance service and valve replacement- Apr	4,493.43
43737	Didra Felix	Other Personnel Cost	Employee reimbursement - health and wellness	120.00
43738	Fisher Scientific	Supplies - Lab	Test standard	615.20
43739	Evan E Fox	Supplies - Safety	Employee reimbursement - prescription safety glasses	335.00
43740	gafcon	Services - Contractors	Labor compliance for Wanket Pipeline - 03/01/24 - 03/31/24	68.25
43741	Grainger, Inc.	Repair Parts Expense, Supplies - Safety	Valve, padlock and sleeve coupling insert	132.61

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
For the Month of May 2024

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
43742	Hardy Diagnostics	Supplies - Lab	Various lab supplies	1,125.61
43743	HASA Inc.	Supplies - Chemicals	Muriatic acid	1,783.21
43744	Hesed Group Inc	Subsistence - Meals	Safety board meeting luncheon	593.31
43745	Idexx Distribution,Inc.	Supplies - Lab	Various lab supplies	1,898.35
43746	Lawson Products Inc.	Supplies - Shop & Field	Various hardware	1,581.68
43747	Life Technologies Corporaiton	Supplies - Lab	Various lab supplies	2,009.68
43748	Liquid Environmental Solution	Services - Grease & Scum	Pumping service	204.00
43749	Marine Taxonomic Services, LTD	Services - Professional	Outfall pipeline inspection	19,768.00
43750	McMaster-Carr Supply Co.	Repair Parts Expense, Shop Tools & Equip.	Various supplies	1,908.12
43751	Midas Shop	Vehicle Maintenance	Reclaim truck oil change	135.11
43752	Mission Square	ICMA Retirement	ICMA - 401a	6,043.12
43753	Mission Square - 304175	EE Deduction Benefits Payable	ICMA - 457	9,599.12
43754	Cosby Oil Company, Inc	Fuel	Fuel - Apr	1,393.00
43755	OneSource Distributors, Inc.	Repair Parts Expense	Electrical conduit	289.27
43756	Otis Elevator Company	Services - Maintenance	Elevator maintenance from 04/01/24 - 05/31/24	410.40
43757	PE Instruments	Services - Maintenance	Service to rosemount magnetic flowmeter	584.32
43758	Powerflo Product's Inc	Repair Parts Expense	San Elijo Hills P.S. supplies	785.75
43759	ProBuild Company, LLC	Supplies - Office, Safety	Various supplies	720.59
43760	RSF Security Systems	Services - Alarm	Cellular fire system monitoring	49.00
43761	Ryan Herco Products Corp.	Repair Parts Expense	Level transducer	880.20
43762	Santa Fe Irrigation District	Utilities - Water	Water	376.59
43763	Santa Fe Irrigation District	SFID Distribution Pipeline	Pipeline purchase payment	2,988.64
43764	Sartorius Corporation	Capital Outlay, Supplies - Lab	Lab service and adapter plate	1,116.37
43765	San Dieguito Water District	Utilities - Water	Water	2,758.72
43766	Sloan Electric Company	Repair Parts Expense	VFD fan, recirculating pump motor and rapid mixer motor	3,844.39
43767	Sunbelt Rentals	Equipment Rental/Lease	Equipment rental	2,279.97
43768	T Force Freight, Inc.	Postage/Shipping	Freight costs	2,171.62
43769	Terminix Processing Center	Services - Maintenance	Pest control service	441.00
43770	Michael Thornton	Subsistence - Travel/Rm & Bd	Employee reimbursement - Various	279.37
43771	Unifirst Corporation	Services - Uniforms	Uniform service	290.31
43772	UPS	Postage/Shipping	Shipping	96.98
43773	Underground Service Alert/SC	Services - Alarm	Dig alert and safe excavation board	164.64
43774	USA Bluebook	Supplies - Lab, Repair Parts Expense	Various lab supplies	3,897.69
43775	Volt Management Corp	Services - Temp	Internship program and temp service	4,464.28
43776	VWR International, Inc.	Supplies - Lab	Various lab supplies	2,089.78
43777	Webster Bank, N.A.	Interest Expense -2023 RW Loan	2023 Recycled water loan - payment #2	384,221.40
43778	Erica Alexander Zito	Subsistence - Travel/Rm & Bd	Employee reimbursement - Mileage and board meeting supplies	527.85
43779	CWEA	Dues & Memberships	Membership and lab grade 1 certification - M. Haney and V. Buskirk	826.00
43780	Tesco Controls	Services - Professional	SCADA support services	13,296.00
43781	Abila	Licenses	Accounting software support and subscription	365.12
43782	Aflac	EE Deduction Benefits Payable	Aflac - May	1,214.52
43783	Ahrens Mechanical	Services - Contractors	Moonlight Beach P.S. modifications and Wanket Tank RW pipeline - Apr	302,651.27
43784	Albireo Energy LLC	Services - Maintenance	Annual service agreement - 2024	1,378.00
43785	Ardurra Group, Inc	Services - Engineering	Wanket tank refurbish support from - 03/01/24 - 03/31/24	4,555.00
43786	AT&T	Utilities - Internet	Internet service - 03/28/24 - 04/27/24	1,541.60
43787	AT&T	Utilities - Telephone	Phone service - 04/13/24 - 05/12/24	719.67
43788	James Barnett	Uniforms - Boots	Employee reimbursement - utility boots	122.38
43789	Black & Veatch	Services - Engineering	Dewatering facilities upgrades through 05/03/24	11,575.00
43790	Carollo Engineers	Services - Professional	Electrical system analysis update through 04/30/24	5,260.45
43791	CDM Smith	Services - Engineering	Services for Moonlight PS and Pipeline - 03/03/24 - 05/04/24	22,150.00
43792	Collicutt Energy Services Inc	Services - Maintenance	Generator Service	709.27
43793	County of San Diego	Prepaid - Other	Permit - DEH2002-HUPFP-129180	2,212.00
43794	Denali Water Solutions LLC	Services - Biosolids Hauling	Biosolids hauling and reuse - Jan	24,168.99
43795	Dudek & Associates	Services - Engineering	Stormwater capture reuse and site water quality improvements	4,303.68
43796	EDCO Waste & Recycling Service	Utilities - Trash	May	485.95
43797	eMaint Enterprises, LLC	Repair Parts Expense	Software for maintenance management - 06/01/24 - 05/31/25	1,449.41
43798	Environmental Sampling Supply,	Supplies - Lab	Various lab supplies	422.20
43799	Eurofins Calscience, LLC	Services - Laboratory	Testing water samples	287.50
43800	Excel Landscape, Inc.	Services - Landscape, Maintenance	Grounds maintenance service - May	4,382.00
43801	Evan E Fox	Seminars/Education	Employee reimbursement - Wastewater grade II exam fee	155.00
43802	GEM Site Development LLC	Services - Contractors	Recycled water main repair	28,664.57
43803	Grainger, Inc.	Shop Tools and Equip., Vehicle Maint.	Various supplies	684.79
43804	GSE Construction Company Inc.	Services - Contractors	Biosolids facilities improvements - 04/01/24 - 04/30/24	150,435.35
43805	GSM Engineered Fabrics LLC	Repair Parts Expense	Belt press belts	3,682.86
43806	Hardy Diagnostics	Supplies - Lab	Various lab supplies	1,248.01
43807	Helix Environmental Planning	Services - Professional	Biological consulting for Wanket RW line through 05/19/24	5,482.50
43808	Idexx Distribution,Inc.	Supplies - Lab	Enterococci sample	896.49
43809	McMaster-Carr Supply Co.	Repair Parts Expense, Shop Tools & Equip.	Various supplies	1,290.53
43810	Mission Square	ICMA Retirement	ICMA - 401a	6,014.04
43811	Mission Square - 304175	EE Deduction Benefits Payable	ICMA - 457	9,602.27
43812	MSE Landscape Professionals	Services - Landscape	Tree maintenance services - Weevil treatment	2,565.00
43813	Cosby Oil Company, Inc	Fuel	Fuel - Mar	676.22
43814	Olin Corp - Chlor Alkali	Supplies - Chem - Odor	Procurement of sodium hypochlorite	11,217.43
43815	Olivenhain Municipal Water Dis	Rent	Pipeline rental payment - Apr 2024	5,985.00
43816	Penn Valley Pump Co., Inc.	Repair Parts Expense	Parts for primary sludge pump	4,504.90
43817	Peterson Structural Engr, Inc	Services - Engineering	Structural assessment of digester #4	5,794.00
43818	Michael Piper	Subsistence - Meals	Employee reimbursement - Safety lunch	137.33
43819	PlanetBids, Inc.	Licenses	FY 24/25 - vendor bid management module	4,067.31
43820	Powerflo Product's Inc	Repair Parts Expense	San Elijo Hills P.S. parts	2,754.09
43821	ProBuild Company, LLC	Repair Parts Expense, Supplies - Safety	Various supplies	730.03
43822	Procopio Cory Hargreaves	Services - Legal	General and labor and employment	4,680.00
43823	Rincon Consultants Inc	Services - Professional	As needed grant support and environmental services	2,715.00
43824	Rusty Wallis, Inc.	Services - Maintenance	Water softener , tank service and salt bags	305.97
43825	Santa Fe Irrigation District	Utilities - Water	Water	98.51

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS
For the Month of May 2024

Warrant #	Vendor Name	G/L Account	Warrant Description	Amount
43826	Southern Contracting Comp.	Services - Contractors, Maintenance	Clay valve I & C installation, repair motor feeder and conduit controls	33,791.81
43827	Terminix Processing Center	Services - Maintenance	Pest control service	108.88
43828	Trussell Technologies, Inc	Services - Professional	Design of bio treatment improvements - 04/01/24 - 04/30/24	46,792.00
43829	Unifirst Corporation	Supplies - Safety, Uniforms	Uniform service and gloves	553.83
43830	UPS	Postage/Shipping	Shipping	98.05
43831	USA Bluebook	Supplies - Lab, Repair Parts Expense	Various lab supplies	2,559.38
43832	Valley CM, Inc.	Services - Contractors	Construction Management and inspection services - 04/01/24 - 04/30/24	7,103.50
43833	Verizon Wireless	Utilities - Telephone	04/11/24 - 05/10/24	622.47
43834	Verizon Wireless	Utilities - Telephone	Cell phone service - 03/08/24 - 04/07/24	986.70
43835	Volt Management Corp	Services - Temp	Internship program and temp service	250.16
43836	VWR International, Inc.	Supplies - Lab	Hydrochloric acid and thermometer	732.21
43837	WageWorks	Payroll Processing Fees	Admin fee - May	170.75
On-line 908	P.E.R.S.	Medical Insurance - Pers	Health - May	40,452.02
On-line 909	Public Employees- Retirement	Retirement Plan - PERS	Retirement - 04/13/24 - 04/26/24	21,210.40
On-line 910	ReadyRefresh	Supplies - Lab	Kitchen and lab supplies	1,068.49
On-line 911	MetLife - Group Benefits	Dental/Vision	Dental - Jun	2,867.87
On-line 912	Michelle Pizer	Training	Executive coaching - Apr 2024	1,500.00
On-line 913	Public Employees- Retirement	Retirement Plan - PERS	Retirement - 04/27/24 - 05/10/24	21,258.20
On-line 914	Sun Life Financial	Life Insurance/Disability	Life and disability - Jun	2,572.16
On-line 915	WM Corporate Services, Inc.	Services - Sediment Disposal	Roll off bins - 04/01/24 - 04/30/24	450.00
On-line 916	P.E.R.S.	Medical Insurance - Pers	Health - Jun	40,452.02
On-line 917	Public Employees- Retirement	Retirement Plan - PERS	Retirement - 05/11/24 - 05/24/24	21,075.83
On-line 918	ReadyRefresh	Supplies - Lab	Kitchen and lab supplies	971.01
On-line 919	San Diego Gas & Electric	Utilities - Gas & Electric	Gas and electric - 04/06/24 - 05/07/24	79,211.66
On-line 920	BankCard Center	Supplies - Safety, Shop Tools & Equip.	Various supplies	9,715.20
	San Elijo Payroll Account	Payroll	Payroll - 05/03/2024	108,991.38
	San Elijo Payroll Account	Payroll	Payroll - 05/17/2024	109,448.82
	San Elijo Payroll Account	Payroll	Payroll - 05/31/2024	104,181.02
				$2,535,464.68

AGENDA ITEM NO. 8

SAN ELIJO JOINT POWERS AUTHORITY
PAYMENT OF WARRANTS SUMMARY

For the Month of May 2024
As of May 31, 2024

PAYMENT OF WARRANTS	$ 2,535,464.68

I hereby certify that the demands listed and covered by warrants are correct and just to the best of my knowledge, and that the money is available in the proper funds to pay these demands. The cash flows of SEJPA, including the Member Agency commitment in their operating budgets to support the operations of SEJPA, are expected to be adequate to meet SEJPA's obligations over the next six months. I also certify that SEJPA's investment portfolio complies with the SEJPA's investment policy.

C. Yani Barragan
Accounting Technician III

SAN ELIJO JOINT POWERS AUTHORITY

STATEMENT OF FUNDS AVAILABLE FOR PAYMENT OF WARRANTS AND INVESTMENT INFORMATION

As of May 31, 2024

FUNDS ON DEPOSIT WITH	AMOUNT
LOCAL AGENCY INVESTMENT FUND *(MAY 2024 YIELD 4.332%)*	$ 13,361,207.77
CALIFORNIA BANK AND TRUST *(MAY 2024 YIELD 0.01%)*	481,407.93
U.S. Bank *(MAY 2024 YIELD 4.40%)*	15,582,671.49
PARS *(APRIL 2024 YIELD -3.07%)*	960,914.65
TOTAL RESOURCES	$ 30,386,201.84

*

AGENDA ITEM NO. 9

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: WASTEWATER TREATMENT REPORT - APRIL

RECOMMENDATION

No action required. This memorandum is submitted for information only.

DISCUSSION

Monthly Treatment Plant Performance and Evaluation

Wastewater treatment for the San Elijo Joint Powers Authority (SEJPA) met all National Pollutant Discharge Elimination System (NPDES) ocean effluent limitation requirements for the month of April 2024. The primary indicators of treatment performance include the removal of Total Suspended Solids (TSS) and Carbonaceous Biochemical Oxygen Demand (CBOD). The SEJPA is required to remove a minimum of 85 percent of the TSS and CBOD from the wastewater. Treatment levels for **TSS** and **CBOD** were **97.9** and **98.3** percent removal, respectively, during the month of April.

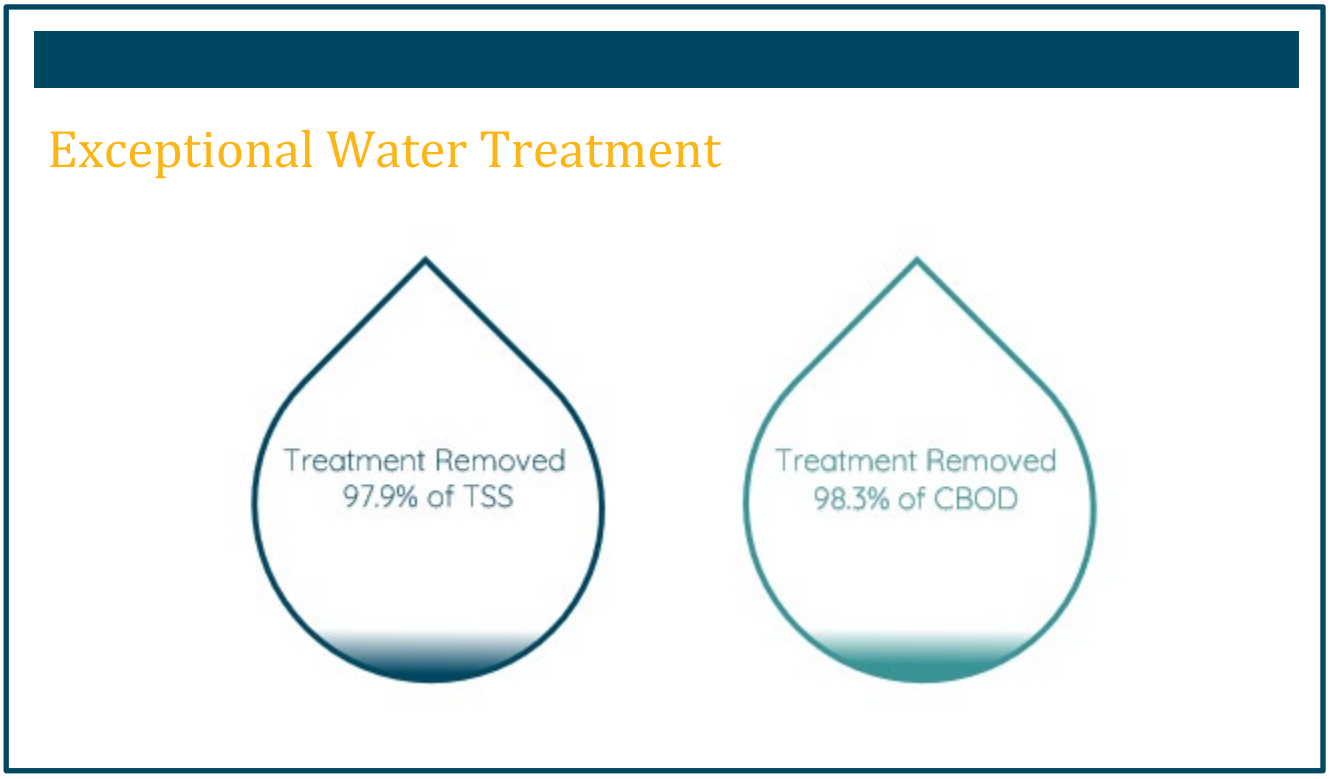
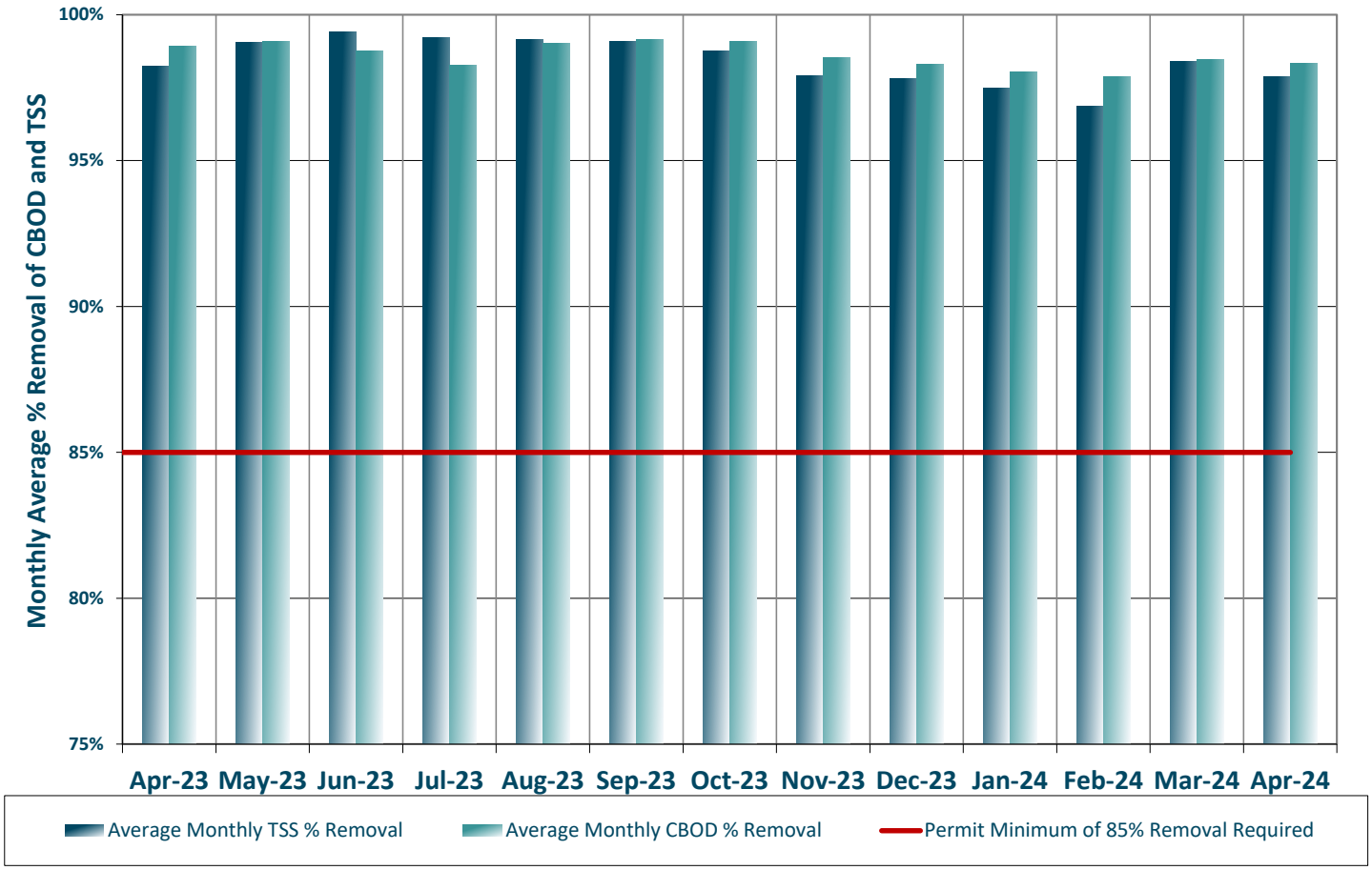


Figure 1 (below) shows historic treatment performance trends for the removal of TSS and CBOD over the last 13 months compared to the permit minimum removal requirement of 85%.

Figure 1: Wastewater Treatment Performance of the SEJPA % Removal of Total Suspended Solids (TSS) and Carbonaceous Biochemical Oxygen Demand (CBOD)



Figures 2 and 3 (below) show historic influent vs effluent TSS and CBOD concentration fluctuations in the strength of the wastewater being received and discharged by the SEJPA.

FIGURE 2: TREATED EFFLUENT FLOWS REMOVAL OF TSS

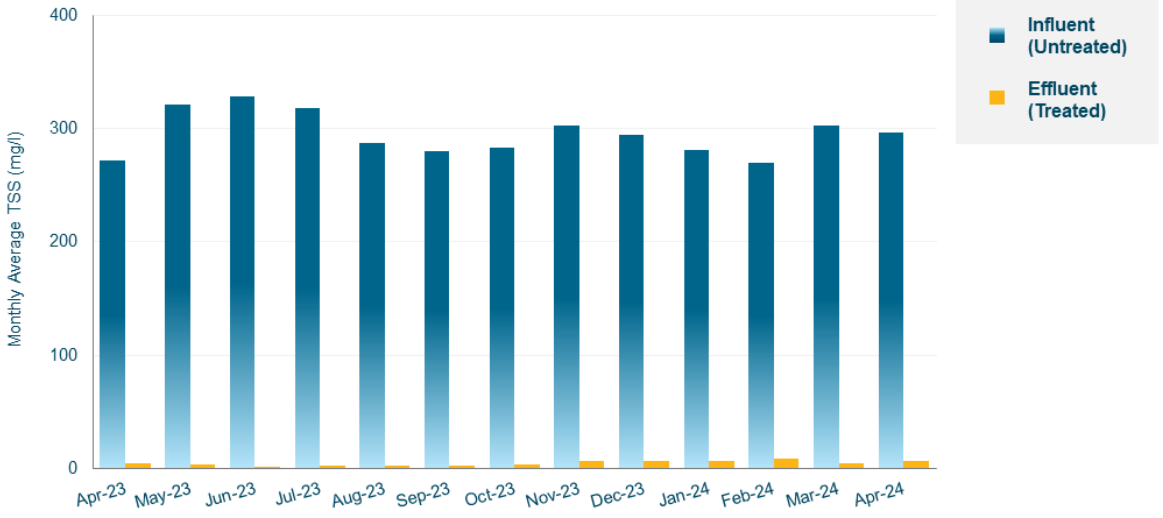
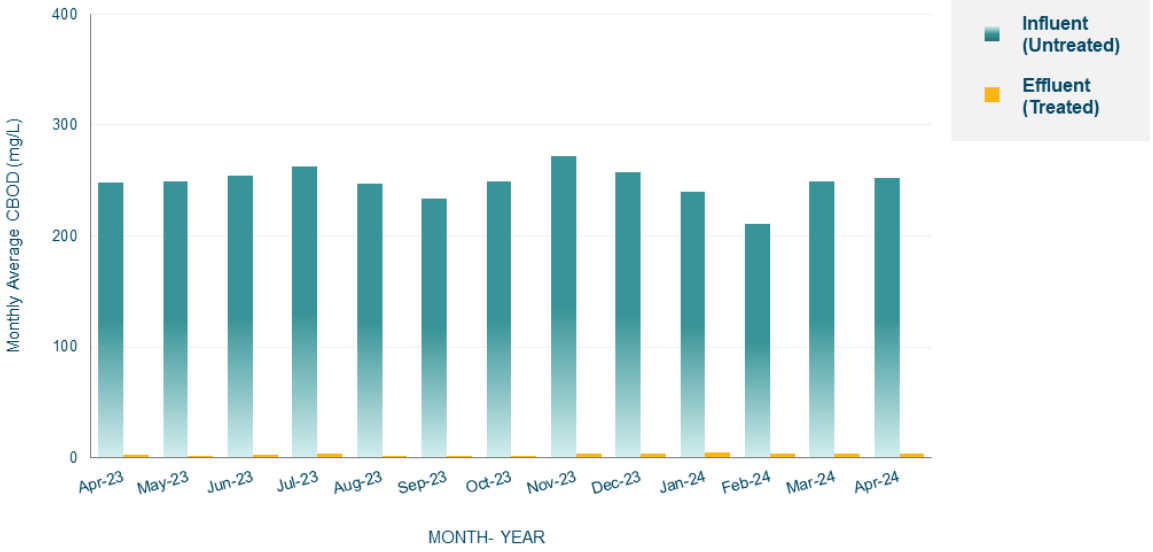


FIGURE 3: TREATED EFFLUENT FLOWS REMOVAL OF CBOD



Member Agency Flows

Table 1 (below) presents the influent and effluent flows for the month of April. Average daily influent flows were recorded for each contributing agency. In April, about 32% of the incoming flow was repurposed as recycled water with the remaining flow discharged to the ocean.

TABLE 1 – INFLUENT AND EFFLUENT FLOWS IN APRIL

APRIL			
	Influent (mgd)	Recycled Water (mgd)	Effluent (mgd)*
Cardiff Sanitary Division	1.313	0.422	0.891
City of Solana Beach	1.036	0.333	0.703
Rancho Santa Fe SID	0.216	0.069	0.147
City of Del Mar	0.368	0.118	0.25
Total San Elijo Water Campus Flow	2.933	0.942	1.991

* Effluent is calculated by subtracting the recycled water production from the influent wastewater.

Table 2 (below) presents the historical average and unit influent rates per month for each of the contributing agency during the past 3 years. It also presents the number of connected Equivalent Dwelling Units (EDUs) for each agency during this same time.

TABLE 2 - SAN ELIJO WATER CAMPUS MONTHLY REPORT - FLOWS AND EDUS

	AVERAGE DAILY INFLUENT FLOW RATE (MGD)					CONNECTED EDUs					AVERAGE UNIT INFLUENT FLOW RATE (GAL/EDU/DAY)				
MONTH	CSD	RSF	SB	DM	TOTAL DESIGN	CSD	RSF	SB	DM	TOTAL EDUS	CSD	RSF	SB	DM	TOTAL PLANT
Apr-21	1.232	0.160	0.925	0.320	2.637	8,552	579	8,110	2,616	19,857	144	277	114	129	133
May-21	1.189	0.157	0.932	0.323	2.601	8,552	579	8,110	2,616	19,857	139	271	115	130	131
Jun-21	1.218	0.148	0.938	0.358	2.662	8,554	579	8,110	2,616	19,859	142	256	116	145	134
Jul-21	1.183	0.144	0.972	0.435	2.734	8,554	579	8,124	2,616	19,873	138	249	120	178	138
Aug-21	1.178	0.150	0.966	0.480	2.774	8,556	579	8,124	2,616	19,875	138	259	119	196	140
Sep-21	1.153	0.129	0.948	0.353	2.583	8,557	579	8,124	2,616	19,876	135	223	117	144	130
Oct-21	1.225	0.126	0.885	0.329	2.565	8,557	579	8,124	2,616	19,876	143	218	109	139	129
Nov-21	1.156	0.131	0.911	0.329	2.527	8,557	581	8,124	2,616	19,878	135	226	112	135	127
Dec-21	1.264	0.145	0.913	0.310	2.632	8,557	581	8,124	2,616	19,878	148	250	112	127	132
Jan-22	1.174	0.140	0.906	0.357	2.577	8,557	581	8,124	2,616	19,878	137	241	112	145	130
Feb-22	1.113	0.158	0.929	0.300	2.500	8,557	581	8,124	2,616	19,878	130	272	114	120	126
Mar-22	1.176	0.142	0.946	0.307	2.571	8,557	581	8,124	2,616	19,878	137	245	116	123	129
Apr-22	1.134	0.140	0.875	0.315	2.464	8,557	582	8,124	2,616	19,879	133	241	108	129	124
May-22	1.146	0.140	0.877	0.301	2.464	8,557	582	8,124	2,616	19,879	134	241	108	123	124
Jun-22	1.133	0.138	0.921	0.452	2.644	8,557	583	8,124	2,616	19,880	132	237	113	184	133
Jul-22	1.124	0.129	0.948	0.438	2.639	8,557	583	8,142	2,616	19,898	131	221	116	179	133
Aug-22	1.163	0.133	0.929	0.448	2.673	8,557	583	8,142	2,616	19,898	136	228	114	185	134
Sep-22	1.139	0.125	0.904	0.381	2.549	8,557	584	8,142	2,616	19,899	133	214	111	158	128
Oct-22	1.083	0.128	0.890	0.295	2.396	8,557	584	8,142	2,616	19,899	127	219	109	122	120
Nov-22	1.205	0.124	0.879	0.336	2.544	8,557	585	8,142	2,616	19,900	141	212	108	138	128
Dec-22	1.186	0.133	0.906	0.374	2.599	8,557	585	8,142	2,616	19,900	139	228	111	151	131
Jan-23	1.630	0.200	0.979	0.379	3.188	8,557	585	8,142	2,616	19,900	190	342	120	153	160
Feb-23	1.323	0.167	0.930	0.371	2.791	8,557	585	8,142	2,616	19,900	155	286	114	149	140
Mar-23	1.892	0.255	1.044	0.392	3.583	8,557	585	8,142	2,616	19,900	221	436	128	154	180
Apr-23	1.244	0.187	0.915	0.303	2.649	8,557	586	8,142	2,616	19,901	145	319	112	123	133
May-23	1.184	0.167	0.879	0.295	2.525	8,557	586	8,142	2,616	19,901	138	285	108	120	127
Jun-23	1.185	0.144	0.891	0.413	2.633	8,557	586	8,142	2,616	19,901	136	282	109	171	132
Jul-23	1.160	0.146	0.949	0.446	2.701	8,557	586	8,166	2,616	19,925	136	249	116	182	136
Aug-23	1.242	0.177	0.954	0.494	2.867	8,559	586	8,166	2,622	19,933	145	302	117	200	144
Sep-23	1.161	0.161	0.885	0.371	2.578	8,559	586	8,166	2,622	19,933	136	275	108	152	129
Oct-23	1.125	0.163	0.870	0.308	2.466	8,559	587	8,166	2,622	19,934	131	278	107	125	124
Nov-23	1.246	0.186	0.961	0.409	2.802	8,559	588	8,166	2,622	19,935	146	317	118	149	141
Dec-23	1.313	0.173	1.011	0.377	2.874	8,559	588	8,166	2,622	19,935	153	294	124	133	144
Jan-24	1.416	0.190	1.055	0.380	3.041	8,569	588	8,166	2,622	19,945	165	323	129	134	152
Feb-24	1.788	0.256	1.099	0.422	3.565	8,569	588	8,166	2,622	19,945	209	436	135	151	179
Mar-24	1.395	0.200	1.061	0.352	3.008	8,616	588	8,166	2,639	20,009	162	340	130	125	150
Apr-24	1.313	0.216	1.036	0.368	2.933	8,620	588	8,166	2,639	20,013	152	368	127	130	147

CSD: Cardiff Sanitary Division

RSF: Ranch Santa Fe Community Service District

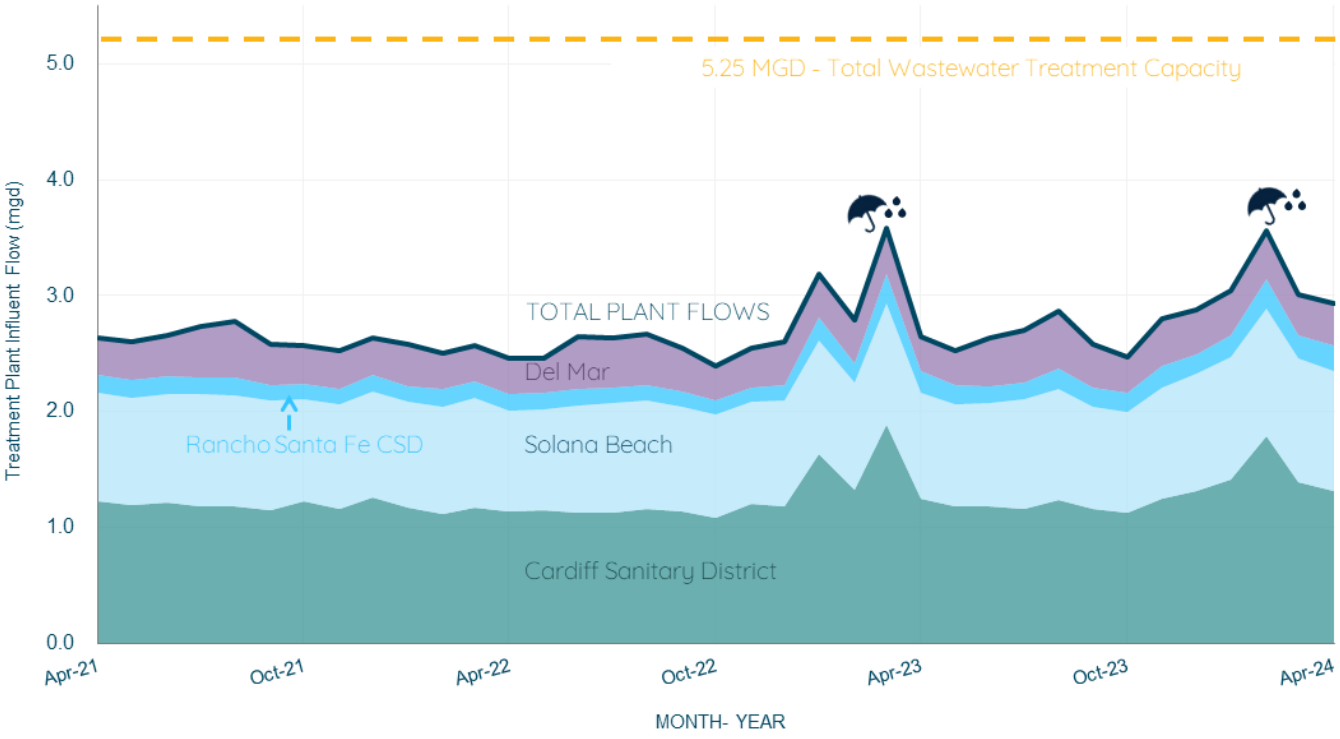
SB: Solana Beach

DM: City of Del Mar

EDU: Equivalent Dwelling Unit

Figure 4 (below) presents the 3-year historical average daily flows per month for each contributing agency. This is to provide a historical overview of the average flow treated for each agency. Also shown in Figure 4 is the total wastewater treatment capacity of the water campus, 5.25 mgd, of which the Cities of Encinitas and Solana Beach has the right to 2.2 mgd, Rancho Santa Fe Community Service District leases 0.25 mgd, and the City of Del Mar leases 0.60 mgd.

FIGURE 4: SEJPA AVERAGE DAILY FLOWS OVER THE PAST 3 YEARS



City of Escondido Flows

The average and peak flow rate for the month of April 2024 from the City of Escondido's Hale Avenue Resource Recovery Facility, which discharges through the San Elijo Ocean Outfall, is reported below in Table 3.

TABLE 3 – CITY OF ESCONDIDO FLOWS

	Flow (mgd)
Escondido (Average flow rate)	11.5
Escondido (Peak flow rate)	18.3

Connected Equivalent Dwelling Units

The City of Solana Beach updated the number of connected EDUs that are reported to the SEJPA in August 2023. The number of connected EDUs for City of Del Mar was updated in March 2024. City of Encinitas and Rancho Santa Fe CSD update their connected EDUs report every month. The number of EDUs connected for each of the Member Agencies and lease agencies is reported in Table 4 below.

TABLE 4 – CONNECTED EDUs BY AGENCY

	Connected (EDU)
Cardiff Sanitary Division	8,620
Rancho Santa Fe SID	588
City of Solana Beach	7,829
San Diego (to Solana Beach)	337
City of Del Mar	2,639
Total EDUs to System	20,013

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

*

AGENDA ITEM NO. 10

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: RECYCLED WATER REPORT - APRIL

RECOMMENDATION

No action required. This memorandum is submitted for information only.

DISCUSSION

Recycled Water Production

For the month of April 2024, recycled water demand was 129.7 acre-feet (AF), which was met using 128.4 AF of recycled water and 1.3 AF of supplemental water. April demand met budget expectations of 130 AF.

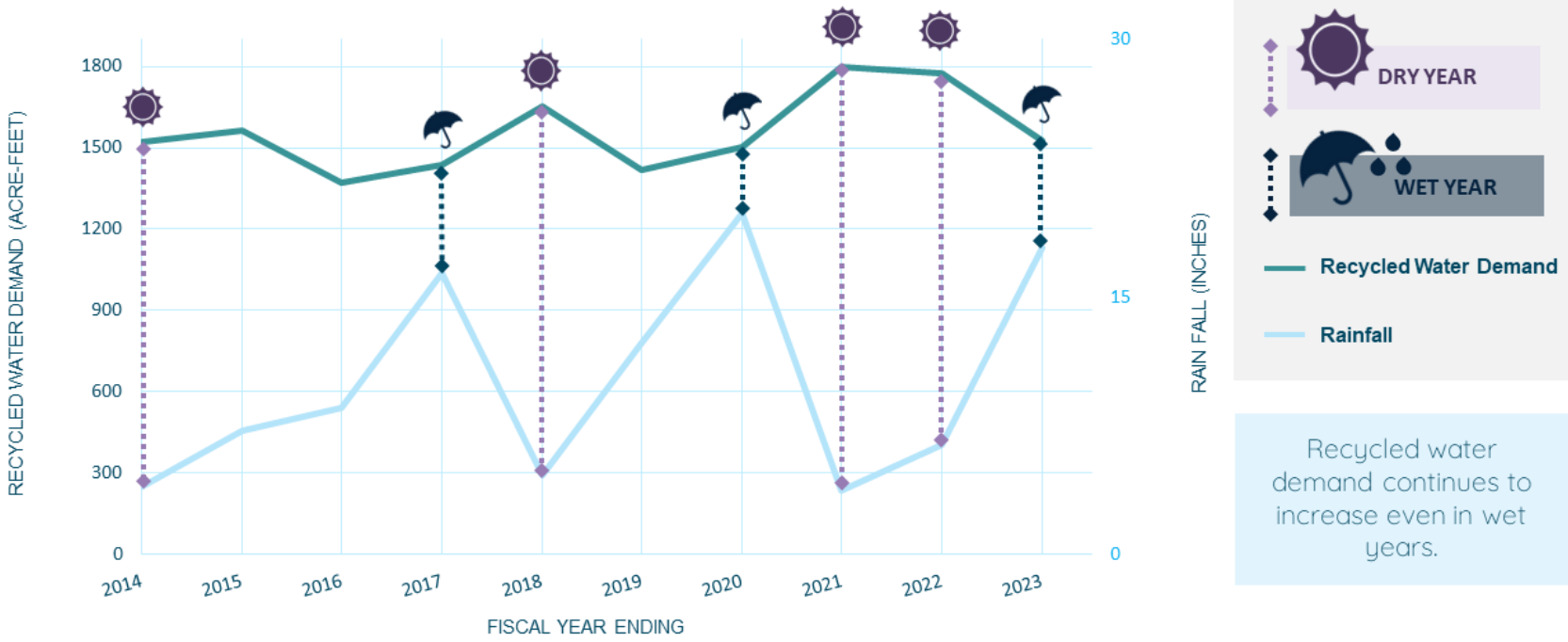
For the first ten months of FY 2023-24, total recycled water production was 1,170 AF, which is below budget by 8.8%.

Figure 1 (attached) provides a graphical view of annual recycled water demand spanning the last 10 fiscal years, with the overlay of annual rainfall. Since the recycled water program primarily serves outdoor irrigation, annual demand is reduced during wet periods and increases during times of drought. Figure 2 (attached) shows the monthly recycled water demand for each April for the last ten years to provide a year-over-year comparison. Figure 3 (attached) compares budget versus actual recycled water sales for FY 2023-24.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

FIGURE 1: RECYCLED WATER DEMAND AND RAINFALL COMPARISON



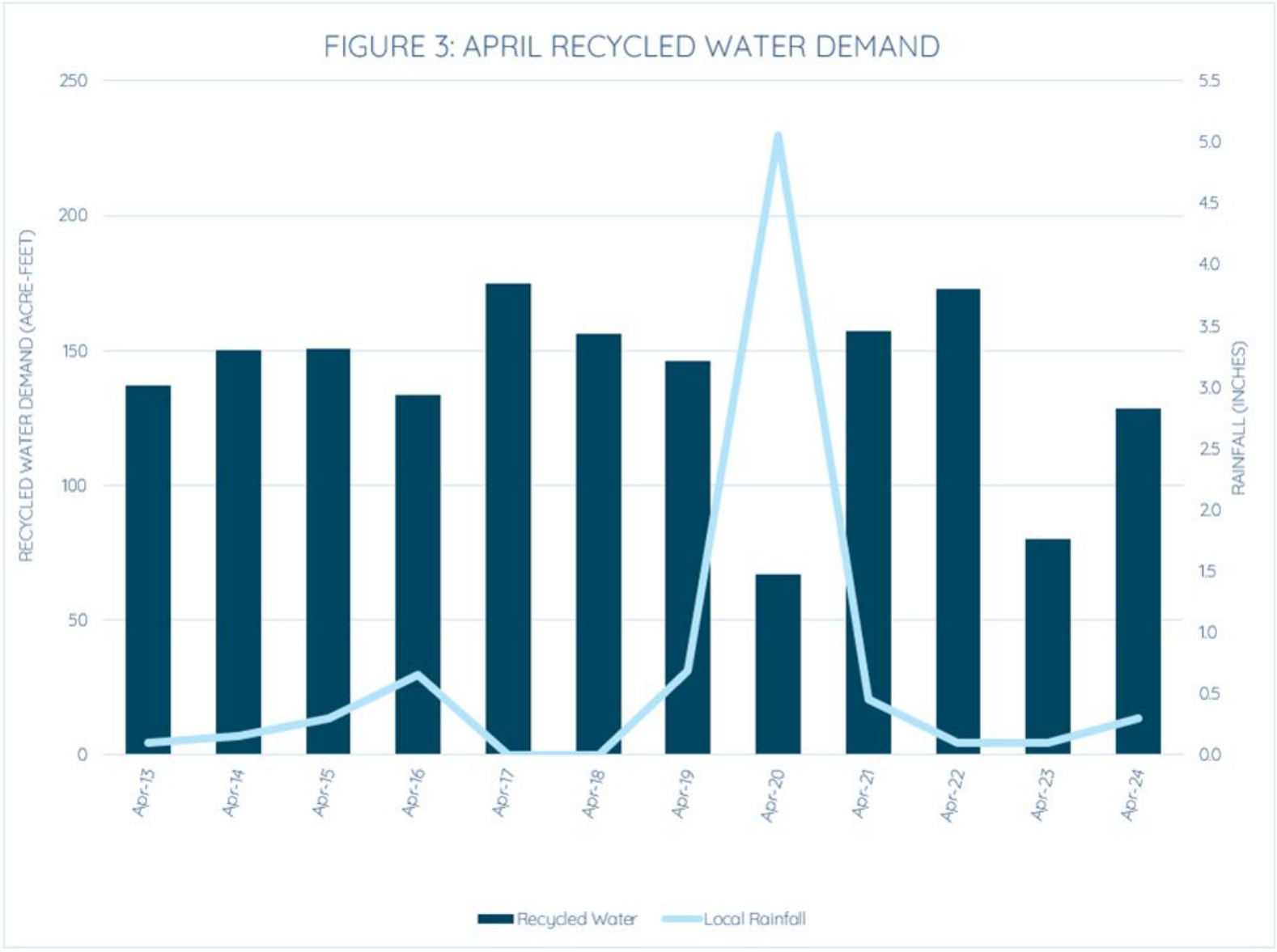
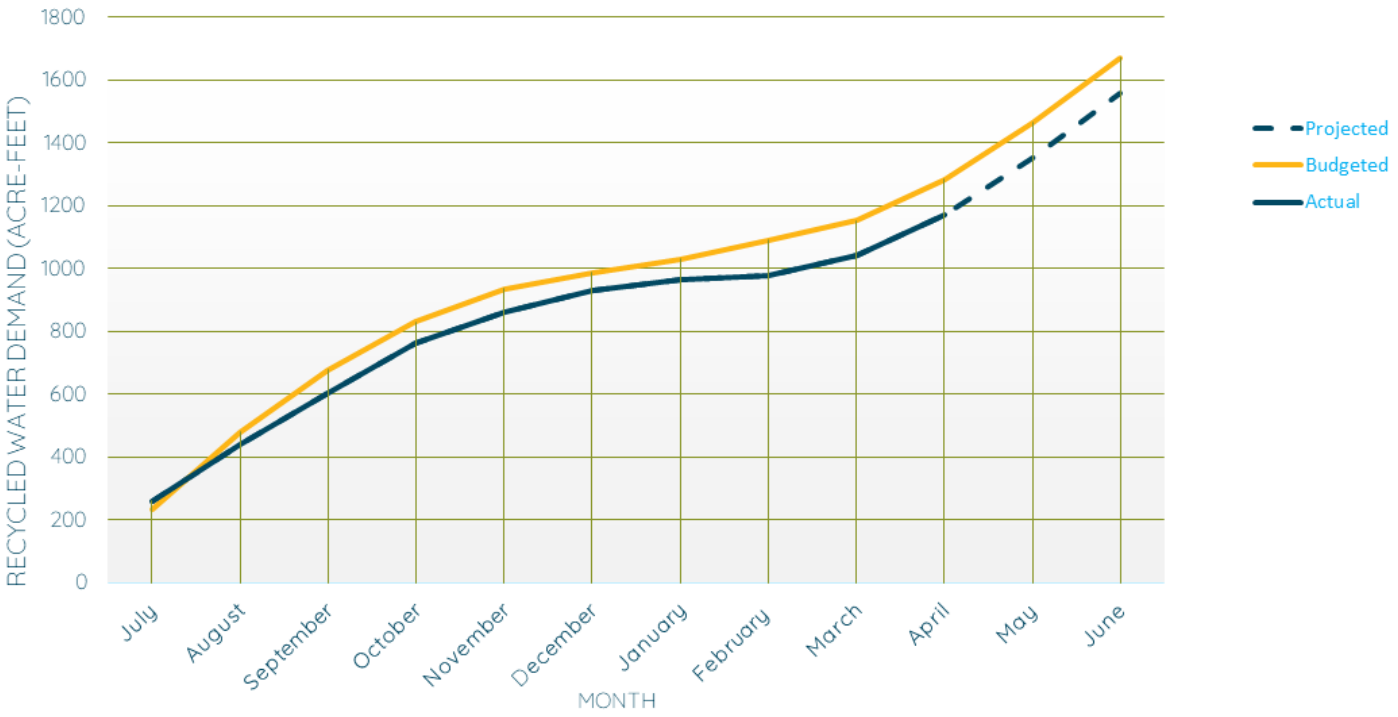


FIGURE 3: APRIL RECYCLED WATER DEMAND
RECYCLED WATER DEMAND (ACRE-FEET)
RAINFALL (INCHES)
250
200
150
100
50
0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Apr-13
Apr-14
Apr-15
Apr-16
Apr-17
Apr-18
Apr-19
Apr-20
Apr-21
Apr-22
Apr-23
Apr-24
Recycled Water
Local Rainfall

FIGURE 3: FY2023/24 CUMULATIVE DEMAND VS BUDGET



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AGENDA ITEM NO. 11

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: REPORTABLE MEETINGS

RECOMMENDATION

No action required. This memorandum is submitted for information only.

BACKGROUND

The General Manager or his designee may meet monthly with one or more Board Members in preparation for the Board Meeting.

DISCUSSION

The following meetings have taken place since the previous Board Meeting:

1. Meeting to review Board Meeting Agenda with Board Chair Hinze on May 20, 2024.

FINANCIAL IMPACT

Per the SEJPA Restatement Agreement, SEJPA offers the Board Member $160 for each reportable meeting, which the Board Member may choose to accept or reject. These meetings are accounted for in our annual budget.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

AGENDA ITEM NO. 12

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: Director of Infrastructure and Sustainability

SUBJECT: AMENDMENT 1 TO PROFESSIONAL SERVICES AGREEMENT FOR BIOTREATMENT IMPROVEMENTS PROJECT

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute Amendment to Professional Services Agreement with Trussell Technologies in an amount not-to-exceed $115,000 for the BioTreatment Improvements Project; and

2. Discuss and take action as appropriate.

BACKGROUND

In March 2023, San Elijo Joint Power Authority's (SEJPA) Board approved the Phase 4 Capital Projects which included the Biological Treatment Improvements Project (Project) consisting of the following major project scope components:

- Retrofitting and upgrading the aeration basins and secondary clarifiers;
- Addition of new high-speed, energy-efficient blowers, diffusers, and mixers;
- Improve and re-rate capacity of the chlorine contact tank (CCT); and
- Associated electrical and control system upgrades.

This Project will transition the San Elijo Water Campus (SEWC) to more robust biological process that improves effluent quality for both water recycling and ocean discharge. The removal of nitrogen through a biological nitrification/denitrification (NDN) process will allow for optimization of the tertiary disinfection process while proactively preparing SEJPA for anticipated nutrient limits on the ocean outfall. The improved secondary effluent quality will relieve stress on existing tertiary filtration systems, allow for more efficient membrane performance, and position SEJPA for future potable reuse.

The design of the Biological Treatment Improvements Project was awarded to Trussell Technologies in August 2023 in the amount of $891,100.

The project is budgeted at $10.5 million and has qualified for up to $2.5 million in federal grant funding. The remaining project cost will be funded by the Wastewater Program and Recycled Water Program in accordance with their respective benefits.

DISCUSSION

The project has progressed through preliminary design including wastewater sampling campaign and flow validation. These wastewater characterization efforts necessitated additional work to establish the basis of design criteria, ensuring that hydraulic considerations and aeration capacity requirements are accounted for in the new nitrification/denitrification process.

It was identified during field investigations that the building ventilation system, installed in the original project construction in 1991 (now 33 years old), is due for upgrades. The exhaust fans on the blower room are inoperable and inlet air louvers are exhibiting advanced corrosion and deterioration. The Design Team provided a field assessment of the ventilation system recommending replacement of fans and louvers, sized for the new project air requirements.

At the request of SEJPA, the Design Team provided a proposal including scope, budget and revised design schedule to incorporate the wastewater characterization impacts and recommended ventilation system improvements into the final project design.

FISCAL IMPACT

All Project costs will be paid through the Recycled Water Program from capital reserves and Phase 4 Capital Program financing, as necessary. The Wastewater Program will reimburse its share (net of grant funding) through capital cash contributions (pay-go). Recycled Water Program's share (net of grant funding) will be paid out of the 2023 Recycled Water Loan. There are sufficient funds in the Recycled Water Program capital reserves to fund the amended design effort at this time.

RECOMMENDATION

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to amend Professional Services Agreement with Trussell Technologies in an amount not-to-exceed $115,000 for the the BioTreatment Improvements Project; and

2. Discuss and take action as appropriate.

Respectfully submitted,

Thomas C. Falk, P.E., PMP
Director of Infrastructure and Sustainability

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: AGREEMENT FOR GROUNDS MAINTENANCE SERVICES

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to enter into a grounds maintenance service agreement with Excel Landscaping, Inc. for a two-year term. Total agreement amount is not-to-exceed $105,168; and

2. Discuss and take action as appropriate.

BACKGROUND

San Elijo Joint Powers Authority (SEJPA) hires a specialized company for landscape maintenance services annually to maintain the extensive landscaping throughout the San Elijo Water Campus. This work includes shaping, trimming and training of shrubs and ground cover plants; fertilization; cultivation; weed control; control of all minor plant diseases and pests; plant replacement; sweeping; maintenance and repairs of trails, pathways, irrigation and drainage systems, natural drainage features on the site; litter pick up; removal of pet waste; removal of illegal dumps; cleaning of site furnishings, and all other maintenance required to maintain the areas in a safe, attractive and usable condition, and to maintain the plant material in good condition with horticulturally acceptable growth and color.

DISCUSSION

Staff solicited bids for grounds maintenance services and held a mandatory job walk on May 23, 2024. Three firms attended the mandatory job walk and bids were received from the qualified companies listed in Table 1. Staff recommends selecting Excel Landscape, Inc. who submitted the lowest responsive and responsible bid. Excel has been providing grounds maintenance services to SEJPA since 2021 and they have been very responsive to our needs.

TABLE 1 – SOLICITATION COMPARISON

Company	Proposed Annual Service Fee
Excel Landscape, Inc. (current provider)	$52,584
Brightview Landscape Services, Inc.	$ 77,796
PWCL I, Inc.	$ 96,876

FINANCIAL IMPACT

The recommended agreement with Excel Landscape, Inc. is for an annual amount not-to-exceed $52,584. The total agreement amount for two years is not-to-exceed $105,168. The FY 2024-25 budget includes funding for this contract.

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to enter into a grounds maintenance service agreement with Excel Landscape, Inc. for a two-year term. Total agreement amount is not-to-exceed $105,168; and

2. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Excel Landscape, Inc. Bid Submission Form for Grounds Maintenance Services

STATEMENT OF QUALIFICATIONS AND REFERENCES

PROVISION OF GROUNDS MAINTENANCE SERVICES
BID SPECIFICATION SE 2024 GMS

Proposing Contractor shall submit the number of years engaged in providing services included within the scope of the bid specifications under the present business name: 30 years under Excel Landscape.

List and describe fully the last three contracts performed by your firm that demonstrate your ability to provide the supplies, equipment, or services included with the scope of the bid specifications. Attach additional pages if required. The Authority reserves the right to contact each of the references listed for additional information regarding your firm's qualifications.

Reference No. 1

Customer Name: City of Murrieta
Contact Individual: George Moring Phone No.: 951-461-6124
Address: 1 Town Square, Murrieta CA 92562

Contract Amount: Exceeds $1,000,000.00 per year Year: 1994 - present
Description of supplies, equipment, or services provided: Landscape maintenance of all city slopes, parks, sports parks, parkways and facilities

Reference No. 2

Customer Name: City of Encinitas
Contact Individual: Annette Saul Phone No.: 760-633-2755
Address: 505 S. Vulcan Ave, Encinitas CA 92024

Contract Amount: Exceeds $1,000,000.00 per year Year: 1990 - present
Description of supplies, equipment, or services provided: Landscape maintenance of all city slopes, parks, sports parks, parkways, beaches, trails and facilities

Reference No. 3

Customer Name: City of Chino Hills
Contact Individual: Luther Martin Phone No.: 909-364-2600
Address: City of Chino Hills, 14000 City Center Dr, Chino Hills CA, 91709

Contract Amount: Exceeds $1,000,000.00 per year Year: 1994 - present
Description of supplies, equipment, or services provided: Landscape maintenance of all city slopes, parks, sports parks, parkways, trails and facilities

Signature of Authorized Bidder Representative

STATEMENT OF BIDDER'S PAST CONTRACT DISQUALIFICATIONS

PROVISION OF GROUNDS MAINTENANCE SERVICES
BID SPECIFICATION SE 2024 GMS

The bidder shall state whether such prospective bidder, any officer of such bidder, of any employee of such bidder who has a proprietary interest in such bidder, has ever been disqualified, removed, or otherwise prevented from bidding on, or completing a Federal, State or local government project because of the violation of law or a safety regulation, and if so to explain the circumstances.

1. Do you have any disqualification, removal, etc., as described in the above paragraph to declare?

   yes _____ no ✓

2. If yes, explain the circumstances.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Executed on May 30, 2024 at Corona, California.

I declare, under penalty of perjury, that the foregoing is true and correct.

_____
Signature of Authorized Bidder Representative

SAN ELIJO JOINT POWERS AUTHORITY BID SUBMISSION FORM

PROVISION OF GROUNDS MAINTENANCE SERVICES
BID SPECIFICATION SE 2024 GMS

TO: Michael T. Thornton P.E., General Manager
San Elijo Joint Powers Authority
2695 Manchester Avenue
Cardiff, CA 92007

Dated: May 30, 2924

This bid, as presented herein, is irrevocable and may not be withdrawn for a period of sixty (60) calendar days after the date set for the opening of bids, except in accordance with the withdrawal of bid provisions in the request for bids.

Provision of ground maintenance services, as outlined in the detailed specification and for the area outlined on the attached map, at the San Elijo Water Reclamation Facility for the period of July 1, 2024 to June 30, 2027.

OPTION NO.	ITEM DESCRIPTION WITH PRICES WRITTEN IN WORDS	TOTAL FIGURES
1	Provision of ground maintenance services.	
	Price per month:	
	Four Thousand Tree Hundred Eighty Two no/100 (In Words)	$ 4,382.00 (In Numbers)
	Annual price (monthly price per month x 12 months):	
	Fifty Two Thousand Five Hundred Eighty Four no/100 (In Words)	$ 52,584.00 (In Numbers)

Total Contract Value (monthly price per month x 24 months):

One Hundred Five Thousand One Hundred Sixty Eight no/100 (In Words)	$ 105,168.00 (In Numbers)

COSTS INCLUDED IN THE BID
The undersigned bidder declares that the cost for all labor, materials, equipment, taxes and incidentals necessary for the completion of the contract is included in the Total Contract Value

CONTRACTOR REGISTRATION
The bidder shall submit proof of all contractor and subcontractor registrations with the DIR with the bid.

LIST OF SUBCONTRACTORS
The bidder shall provide in the form below the name, California Contractor's license number, and location of place of business of each subcontractor who will perform work or labor or render services to the bidder in the performance of the Work. Attach additional sheets to this

subcontractor listing form if necessary. The bidder may not use any subcontractors not listed in this bid in the performance of the work without prior written consent of the SEJPA.

Subcontractor's Name, Location of Business and Contractor's License Number	Value of Work ($)	Portion (Type of Work)
NONE		

CLOSING STATEMENT

In signing below, bidder certifies that its Total Contract Value requests sufficient funds to allow bidder to comply with all applicable laws or regulations governing the labor or services to be provided under the contract.

In conformance with current requirements of Section 1861 of the Labor Code of the State of California, the undersigned confirms the following as his certification:

> I am aware of the provisions of Section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

The undersigned has the legal authority to bind the bidder to a contract for the execution of the work described in the request for bids in accordance with this bid proposal.

Addenda: The undersigned acknowledges receipt of the following Addenda numbers:

Addenda #1, #2 & #3

Signature of Authorized Bidder Representative: _____

Name of Individual (Typed): Marty Fox Title: Sales Manager

Firm Name: Excel Landscape Inc.

Address: 1185 Magnolia Ave. Ste. E-400

City: Corona State: CA Zip: 92879 Telephone: 951-735-9650

Contractor's License Number and Expiration Date: C-27: 694553, August 31, 2024

BOND NO. n/a

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS:

That we Excel Landscape, Inc., as PRINCIPAL, and Markel Insurance Company, as SURETY, are held and firmly bound unto the San Elijo Joint Powers Authority, 2695 Manchester Avenue, Cardiff-by-the-Sea, CA 92007, a political subdivision of the State of California, hereinafter called the OWNER, in the penal sum of ten percent of the total*(1), which amount equals TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID submitted by the Principal above named for the work described below for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the SURETY hereunder exceed the sum of ten percent of the total amount*(2) Dollars ($ 10%).

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the PRINCIPAL has submitted the above-mentioned bid to the OWNER for certain services specifically described as follows, for which bids are to be received on Thursday, May 30, 2024, or at a later date as may be established by OWNER in its sole discretion, for

Grounds Maintenance Services

NOW THEREFORE, if the aforesaid PRINCIPAL shall not withdraw said bid within the period specified therein after the opening of the same, or, if no period be specified, within sixty (60) days after said opening, and shall within the period specified therefor, or, if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written contract with the OWNER, in the prescribed form, in accordance with the bid as accepted, and file the two bonds with the OWNER, one to guarantee faithful performance and the other to guarantee payment for labor and materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect.

In the event suit is brought upon this bond by the OWNER and judgment is recovered, the SURETY shall pay all costs incurred by the OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

*(1) amount bid by the principal (10%)

*(2) bid by the principal

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 16th day of May .A.D. 20 24 .

Excel Landscape, Inc.
Principal

(Seal)

(Signature for Principal) Title

Marty Fox, Sales Manager.
(Print Name and Title of Signer)

Markel Insurance Company
Surety

Attorney-In-Fact
(Signature for Surety) Title

(Seal)

Samantha Orf, Attorney-In-Fact
(Print Name and Title of Signer)

CALIFORNIA ALL PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss:
COUNTY OF San Bernardino)

On May 16, 2024, before me, Dylan Parker, Notary Public, personally appeared Samantha Orf, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

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

WITNESS my hand and official seal.

DYLAN PARKER
Notary Public - California
Riverside County
Commission # 2384867
My Comm. Expires Nov 30, 2025

Notary Public

NOTE:
(a) Signature of those executing for Surety must be properly acknowledged.
(b) The Attorney-in-fact must attach a certified copy of the Power of Attorney.

POA# 510005

JOINT LIMITED POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That SureTec Insurance Company, a Corporation duly organized and existing under the laws of the State of Texas and having its principal office in the County of Harris, Texas and Markel Insurance Company (the "Company"), a corporation duly organized and existing under the laws of the state of Illinois, and having its principal administrative office in Glen Allen, Virginia, does by these presents make, constitute and appoint:

George A. DeCristo, Shannon Lopez, Beth Kolpien, Epi Carter, Samantha Orf

Their true and lawful agent(s) and attorney(s)-in-fact, each in their separate capacity if more than one is named above, to make, execute, seal and deliver for and on their own behalf, individually as a surety or jointly, as co-sureties, and as their act and deed any and all bonds and other undertaking in suretyship provided, however, that the penal sum of any one such instrument executed hereunder shall not exceed the sum of:

Fifty Million and 00/100 Dollars ($50,000,000.00)

This Power of Attorney is granted and is signed and sealed under and by the authority of the following Resolutions adopted by the Board of Directors of SureTec Insurance Company and Markel Insurance Company:

"RESOLVED, That the President, any Senior Vice President, Vice President, Assistant Vice President, Secretary, Assistant Secretary, Treasurer or Assistant Treasurer and each of them hereby is authorized to execute powers of attorney, and such authority can be executed by use of facsimile signature, which may be attested or acknowledged by any officer or attorney, of the company, qualifying the attorney or attorneys named in the given power of attorney, to execute in behalf of, and acknowledge as the act and deed of the SureTec Insurance Company and Markel Insurance Company, as the case may be, all bond undertakings and contracts of suretyship, and to affix the corporate seal thereto."

IN WITNESS WHEREOF, Markel Insurance Company and SureTec Insurance Company have caused their official seal to be hereunto affixed and these presents to be signed by their duly authorized officers on the 14th day of December , 2022 .

SureTec Insurance Company

By: _____
Michael C. Keimig, President

Markel Insurance Company

By: _____
Lindey Jennings, Vice President

State of Texas
County of Harris:

On this 14th day of December , 2022 A. D., before me, a Notary Public of the State of Texas, in and for the County of Harris, duly commissioned and qualified, came THE ABOVE OFFICERS OF THE COMPANIES, to me personally known to be the individuals and officers described in, who executed the preceding instrument, and they acknowledged the execution of same, and being by me duly sworn, disposed and said that they are the officers of the said companies aforesaid, and that the seals affixed to the proceeding instrument are the Corporate Seals of said Companies, and the said Corporate Seals and their signatures as officers were duly affixed and subscribed to the said instrument by the authority and direction of the said companies, and that Resolutions adopted by the Board of Directors of said Companies referred to in the preceding instrument is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed my Official Seal at the County of Harris, the day and year first above written.

XENIA RIVAS
Notary Public State of Texas
Commission # 129117659
Commission Expires 9/10/24

By: _____
Xenia Rivas, Notary Public
My commission expires 9/10/2024

We, the undersigned Officers of SureTec Insurance Company and Markel Insurance Company do herby certify that the original POWER OF ATTORNEY of which the foregoing is a full, true and correct copy is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, we have hereunto set our hands, and affixed the Seals of said Companies, on the 16th day of May , 2024 .

SureTec Insurance Company

By: _____
M. Brent Beaty, Assistant Secretary

Markel Insurance Company

By: _____
Andrew Marquis, Assistant Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity. 510005
For verification of the authority of this Power you may call (713)812-0800 on any business day between 8:30 AM and 5:00 PM CST.

CALIFORNIA ALL PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA)
) ss:
COUNTY OF San Bernardino)

On May 29, 2024, before me, K. Davis, Notary Public, personally appeared Marty Fox, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

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

WITNESS my hand and official seal.

K. Davis
COMM. #2487361
NOTARY PUBLIC - CALIFORNIA
RIVERSIDE COUNTY
My Comm. Expires April 19, 2028

Notary Public

NOTE:
(a) Signature of those executing for Surety must be properly acknowledged.
(b) The Attorney-in-fact must attach a certified copy of the Power of Attorney.

END OF BID BOND

AGENDA ITEM NO. 15

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: ADOPTION OF THE SAN ELIJO JOINT POWERS AUTHORITY FISCAL YEAR 2024-25 BUDGET, INVESTMENT POLICY, AND APPOINTMENT OF TREASURER

RECOMMENDATION

It is recommended that the Board of Directors:

1. Adopt Resolution No. 2024-04, Approving the San Elijo Joint Powers Authority Operating and Capital Improvement Budgets for Fiscal Year 2024-25;

2. Adopt Resolution No. 2024-05, Approving the San Elijo Joint Powers Authority Investment Policy and Guidelines and Appointment of Christopher Trees as SEJPA Treasurer; and

3. Discuss and take action as appropriate.

BACKGROUND

In April 2024, Staff presented the Fiscal Year (FY) 2024-25 Recommended Budget to the Board of Directors for review and public comment. In addition, staff met with staff from both Member Agencies and discussed the recommended budget with other government agencies that utilize San Elijo Joint Powers Authority (SEJPA) services.

In May 2024, Staff informed the Board of Directors that SEJPA has not received any proposed changes from the Member Agencies or other participating government agencies, as well as no public comments. However, staff have identified minor clerical errors that have been corrected.

DISCUSSION

FY 2024-25 Budget

The FY 2024-25 San Elijo Joint Powers Authority (SEJPA) Budget has been prepared in accordance with the SEJPA formation agreement and service agreements with other government entities. The budget estimates expenditures necessary to provide wastewater treatment, waste disposal, water recycling, laboratory, ocean outfall, pump stations, and other services.

The FY 2024-25 Budget consists of $10,521,442 in operating expenses, $3,666,000 capital appropriations, and $2,373,604 in debt service payments for a total budget of $16,561,046.

Table 1 – Operating Expenses

Program	Budget 2024-25	Budget Change
Wastewater Treatment	$ 4,306,992	$ 343,195
Laboratory Services	1,050,738	95,662
Ocean Outfall	1,070,306	39,075
Cardiff Sanitary Division Pump Stations	405,554	29,385
Encinitas Sanitary Division Pump Station	185,448	17,671
City of Encinitas Urban and Stormwater Services	61,804	6,290
City of Solana Beach Pump Stations	512,798	49,524
City of Solana Beach Generator Maintenance Services	17,556	2,050
City of Del Mar Pump Station	75,981	9,589
22nd District Agricultural Association (Del Mar Fairgrounds)	172,371	35,417
Leucadia WD Technical Support Services	28,209	5,409
	$ 7,887,757	$ 633,265
Recycled Water	2,633,685	(86,447)
Total Operating Expenses	$ 10,521,442	$ 546,819

The FY 2024-25 Capital Improvement Program appropriation is $3,666,000 which is comprised of nine projects. Capital appropriations are based on ownership or leased capacity of the asset being built or improved. The following table provides the capital appropriations for FY 2024-25.

Table 2 – Capital Appropriations

Capital Project	Encinitas	Solana Beach	Del Mar	Rancho Santa Fe	Escondido	Recycled Water	Total
Biological Treatment (NDN & CCT)*	$ 303,810	$ 303,810	$ 82,857	$ 34,524	$ -	$ -	$ 725,000
Miscellaneous Projects	131,162	131,162	35,771	14,904	-	-	313,000
Laboratory Remodel	52,381	52,381	14,286	5,952	-	-	125,000
Outfall Reballast Reserve	4,412	4,412	1,176	490	39,510	-	50,000
Escondido Vault Rehabilitation	4,412	4,412	1,176	490	39,510	-	50,000
Olivenhain Inlet Gate Replace	100,000	-	-	-	-	-	100,000
Moonlight Beach PS Rehab	200,000	-	-	-	-	-	200,000
Wanket Tank Refurb & Pipeline	-	-	-	-	-	1,650,000	1,650,000
Facility Plan Update	137,402	134,402	54,539	12,308	36,349	78,000	453,000
Total	**$ 933,578**	**$ 630,579**	**$ 189,806**	**$ 68,669**	**$ 115,369**	**$1,728,000**	**$ 3,666,000**

Debt Service for FY 2024-25 is $2,373,604, which includes $1,391,963 for Wastewater and $981,641 for Recycled Water. Below is a table listing the debt services.

Table 3 – Debt Service Payments

Expense	Budget FY 2024-25	$ Change
Wastewater - 2017 Revenue Bonds	$ 1,338,575	$ 400
Wastewater - San Diego Gas & Electric	53,388	-
Recycled Water - Advanced Water Purification	148,154	1
Recycled Water - SFID Pipeline Loan	46,980	2,480
Recycled Water - Solana Beach Pipeline Loan	8,010	(2,340)
Recycled Water - 2023 Recycled Water Loan	778,497	(485)
Total	**$ 2,373,604**	**$ 56**

FY 2024-25 revenue budget is forecast to be $15,362,626 (shown below). In addition, $1,198,420 in 2024-25 capital appropriations from Recycled Water reserves will fund the Wanket Tank Refurbishment and Pipeline projects.

Table 4 - Revenue

Revenue Source	Budget 2024-25	Budget Change
City of Encinitas	$ 4,624,919	$ (66,471)
City of Solana Beach	3,601,681	268,715
City of Del Mar	1,089,244	95,072
22nd District Agricultural Association	172,371	35,417
Rancho Santa Fe CSD	440,716	36,508
City of Escondido	1,061,075	64,234
Laboratory Services	112,400	11,800
Recycled Water	3,691,767	88,054
T-Mobile Cell Site Lease	33,718	982
Other Revenue	45,885	8,253
Interest on Wastewater Operations	63,100	33,100
Interest on Water Reclamation	425,750	413,750
Total Revenue Sources	$ 15,362,626	$ 989,416

The FY 2024-25 Budget is now ready for Board consideration for adoption as presented in the attached Resolution No. 2024-04. A copy of the FY 2024-25 Budget Document is available on the SEJPA website at https://www.sejpa.org/about-us/financials.

Investment Policy

State law requires that the Investment Policy be reviewed and adopted annually. SEJPA investment policy allows for investment in the State Local Agency Investment Fund (LAIF), the San Diego County Investment Pool, and Money Market Funds to provide diversified investment options. The Money Market Funds allow investment in short-term, dollar-denominated securities that are issued by diversified management companies and registered with the Securities and Exchange Commission under the Investment Company Act of 1940 (15 U.S.C. Sec. 80a-1 et seq.) in accordance with Government Code 53601(l)(2) and subject to the criteria and restrictions set forth in Government Code 53601(l)(4) and (5). No changes to the investment policy are being recommended at this time.

Additionally, state law requires the annual appointment of a SEJPA Treasurer. Christopher Trees, Director of Operations, is the current SEJPA Treasurer, appointed following the departure of the Director of Finance and Administration. The General Manager recommends reappointing Christopher Trees as SEJPA Treasurer until the Director of Finance and Administration position is filled.

RECOMMENDATION

It is recommended that the Board of Directors:

1. Adopt Resolution No. 2024-04, Approving the San Elijo Joint Powers Authority Operating and Capital Improvement Budgets for Fiscal Year 2024-25;

2. Adopt Resolution No. 2024-05, Approving the San Elijo Joint Powers Authority Investment Policy and Guidelines and Appointment of Christopher Trees as SEJPA Treasurer; and

3. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Resolution No. 2024-04, “Resolution Approving the San Elijo Joint Powers Authority Operating and Capital Improvement Budgets for Fiscal Year 2024-25”

Attachment 2: Resolution No. 2024-05, “Resolution Approving the San Elijo Joint Powers Authority Investment Policy and Guidelines and Appointment of SEJPA Treasurer”

Attachment 1

RESOLUTION NO. 2024-04

RESOLUTION APPROVING THE SAN ELIJO JOINT POWERS AUTHORITY OPERATING AND CAPITAL IMPROVEMENT BUDGETS FOR FISCAL YEAR 2024-25

WHEREAS, the San Elijo Joint Powers Authority (SEJPA) General Manager has submitted for the consideration of the SEJPA Board of Directors proposed SEJPA Operating and Capital Projects Budgets for Fiscal Year 2024-25;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE SAN ELIJO JOINT POWERS AUTHORITY HEREBY RESOLVES AS FOLLOWS:

1. The Board of Directors has reviewed the Recommended Operating Budgets and Capital Projects Budget, and the funds included herein for the period of July 1, 2024 through June 30, 2025 and hereby finds that such budgets, as reviewed, are sound plans for the financing of required SEJPA operations and capital improvements during Fiscal Year 2024-25. Such budgets are hereby adopted.

San Elijo JPA Operations and Maintenance Fund	$ 9,279,720
San Elijo JPA Water Reclamation Operating Fund	3,615,326
San Elijo JPA Capital Projects Fund	3,666,000
Total	$ 16,561,046

2. The Board of Directors authorizes carrying forward unexpended capital project appropriations and encumbered operating funds for the Fiscal Year 2024-25.

3. The Board of Directors authorizes the SEJPA Treasurer to deposit any surplus FY 2024-25 budgeted funds, meaning appropriated funds that are not expended or otherwise encumbered by June 30, 2025, into the SEJPA PARS Public Agencies Post-Employments Benefits Trust Program.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the San Elijo Joint Powers Authority, California, held on this 18th day of June, 2024 by the following vote:

Ayes:	Boardmembers:
Noes:	Boardmembers:
Abstained:	Boardmembers:
Absent:	Boardmembers:

Attest:

Signature: _____
Kellie Hinze, Chairperson

Signature: _____
Michael T. Thornton, P.E.
Secretary of the Board

Attachment 2

RESOLUTION NO. 2024-05

RESOLUTION APPROVING THE SAN ELIJO JOINT POWERS AUTHORITY INVESTMENT POLICY AND GUIDELINES AND APPOINTMENT OF SEJPA TREASURER

WHEREAS, the San Elijo Joint Powers Authority (SEJPA) General Manager has submitted for the consideration of SEJPA's Board of Directors, the proposed SEJPA Investment Policy and Guidelines;

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE SAN ELIJO JOINT POWERS AUTHORITY HEREBY RESOLVES AS FOLLOWS:

1. SEJPA Treasurer has prepared an Investment Policy and Guidelines, attached hereto as Exhibit A, and incorporated herein by reference as if set forth in full. In order to comply with prudent financial management practices, these guidelines are reviewed and approved on an annual basis in conjunction with the annual budget adoption.

2. The policy is intended to provide guidelines for the prudent investment of SEJPA's temporary idle cash and outline the policies for maximizing the efficiency of SEJPA's cash management system.

3. The investment goal is to enhance the economic condition of SEJPA while ensuring the safety of funds invested.

4. The assignment of Christopher Trees as SEJPA Treasurer for the 2024-25 fiscal year.

5. The Board of Directors of the San Elijo Joint Powers Authority does hereby approve the Investment Policy and Guidelines attached hereto as Exhibit A.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the San Elijo Joint Powers Authority, California, held on this 18th day of June, 2024 by the following vote:

Ayes:	Boardmembers:
Noes:	Boardmembers:
Abstained:	Boardmembers:
Absent:	Boardmembers:

Attest:

Signature: _____
Kellie Hinze, Chairperson

Signature: _____
Michael T. Thornton, P.E.
Secretary of the Board

EXHIBIT A
TO
RESOLUTION NO. 2024-05

SAN ELIJO JOINT POWERS AUTHORITY INVESTMENT POLICY AND GUIDELINES AND APPOINTMENT OF SEJPA TREASURER

1. PURPOSE

This Statement is intended to provide guidelines for the prudent investment of San Elijo Joint Powers Authority's (SEJPA) temporary idle cash, and outline the policies for maximizing the efficiency of SEJPA cash management system. The investment goal is to enhance the economic condition of SEJPA while ensuring the safety of funds invested.

2. OBJECTIVE

SEJPA cash management system is designed to accurately monitor and forecast expenditures and revenues, thus enabling SEJPA to invest funds to the fullest extent possible. SEJPA attempts to obtain the highest yield on its investments consistent with the criteria established for safety and liquidity.

3. POLICY

SEJPA Treasurer is responsible for investing the surplus funds in SEJPA Treasury in accordance with the California Government Code, Sections 53600 et seq. and 53635 eq seq. SEJPA makes investments in accordance with California Government Code 53600.3, which states "all governing bodies of local agencies or persons authorized to make investment decisions on behalf of those local agencies investing public funds pursuant to this chapter are trustees and therefore fiduciaries subject to the prudent investor standard. When investing, reinvesting, purchasing, acquiring, exchanging, selling, or managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, including, but not limited to, the general economic conditions and the anticipated needs of the agency, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the agency. Within the limitations of this section and considering individual investments as part of an overall strategy, investments may be acquired as authorized by law."

The three principal factors of safety, liquidity and yield are to be taken into consideration when making investment decisions.

A) Safety. Safety and the minimizing of risk associated with investing refer to attempts to reduce the potential for loss of principal, interest or a combination of the two. SEJPA invests only in those instruments that are considered very safe.

B) Liquidity. Liquidity refers to the ability to convert an investment to cash promptly with a minimum risk of losing some portion of principal or interest. A portion of the portfolio should be maintained in liquid short-term securities which can be converted to cash, if necessary, to meet disbursement requirements.

C) Yield. Yield is the average annual return on an investment based on the interest rate, price, and length of time to maturity. SEJPA attempts to obtain the highest yield possible, provided that the basic criteria of safety and liquidity have been met.

4. INVESTMENT INSTRUMENTS

SEJPA may invest in the following instruments under the guidelines as provided herein:

A) Local Agency Investment Fund (LAIF). Investment of funds in the California LAIF which allows the State Treasurer to invest through the Pooled Money Investment Account. Maximum investment is subject to state regulation.

B) County of San Diego County Treasury. Investment of funds in the Treasury of the County of San Diego that allows the County Treasurer to invest through the Pooled Money Investment Account.

C) Money Market Fund. Investment of funds in the Money Market Fund which allows investment in short-term dollar-denominated securities that are issued by diversified management companies and registered with the Securities and Exchange Commission under the Investment Company Act of 1940 (15 U.S.C. Sec. 80a-1 et seq.) in accordance with Government Code 53601(l)(2) and subject to the criteria and restrictions set forth in Government Code 53601(l)(4) and (5).

5. SAFEKEEPING

All investments of SEJPA shall have the San Elijo Joint Powers Authority as registered owner or shall be kept in the custody of SEJPA or by a qualified safekeeping institution.

6. INVESTMENT REPORTS

A) SEJPA Treasurer shall submit a monthly investment report to SEJPA's General Manager and Board of Directors containing the following information:

- Financial institution
- Type of investment
- Amount of deposit
- Rate of interest

B) SEJPA Treasurer shall annually render a Statement of Investment Policy to the Board of Directors.

7. INVESTMENT OF BOND FUNDS

In accordance with Government Code Section 53601, moneys held by a trustee or fiscal agent and pledged to the payment or security of bonds, may be invested in accordance with the statutory provisions governing the issuance of those bonds, ordinance, resolution, or indenture of trust.

* * * End of Policy * * *

AGENDA ITEM NO. 16

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: PURCHASE OF REPLACEMENT MEMBRANE MODULES FOR THE ADVANCED WATER PURIFICATION SYSTEM

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute Purchase Order with Aria Filtra in an amount not-to-exceed $381,668 for membrane modules, ancillary parts, and installation supervision; and

2. Discuss and take action as appropriate.

BACKGROUND

In 2012, SEJPA constructed an advanced water purification (AWP) system at the San Elijo Water Campus to enhance water quality and increase recycled water production. The AWP system uses microfiltration followed by reverse osmosis, with design capacities of 1.3 million gallons per day (mgd) and 0.5 mgd, respectively. Microfiltration is performed by two PALL Corporation AP-6 skids with Microza Hollow fiber membrane racks, each containing 60 modules, totaling 120 modules.

The Pall AP-06 microfiltration system was selected through a competitive process based on criteria such as operating performance, maintenance requirements, energy and chemical needs, and cost.

The industry life cycle for these modules is approximately 10 years. Despite being in service for 12 years and performing beyond expectations, recent evaluations indicate the modules are nearing the end of their life cycle. In 2023, Trussell Technologies reviewed the system and suggested increased cleaning frequency might extend the membrane life by 1-2 years. However, reduced performance after recent cleanings indicates immediate replacement is necessary.

DISCUSSION

Staff contacted Aria Filtra (formerly PALL Corporation) for a quote on replacement membranes. The proposal includes 120 modules and necessary ancillary parts such as gaskets, o-rings, couplings, caps, clamps, specialized wrenches, and hoses. SEJPA staff will install the new modules, reducing costs and time associated with outsourcing. Aria Filtra will provide a field service engineer for supervision and guidance, along with a 10-year warranty (full replacement cost for the first 5 years, prorated for the last 5 years) and a review of operating protocols based on water quality and operating data from the past 12 years. Process engineers will recommend settings and protocols to optimize system performance, potentially improving membrane cleaning, increasing run time, and extending service life.

To ensure compatibility with existing equipment skids, SEJPA requested a proposal from Aria Filtra under a sole-source procurement, as allowed by SEJPA Purchasing Policy. The proposed price of $2,700 per module was validated as competitive against other recent publicly-bid contracts.

Section 3.6(f) of SEJPA's Purchasing Policies and Procedures permits the General Manager to participate in sole-source procurement when competitive proposals or bids would be incongruous and would not result in any advantage to SEJPA. Additionally, Section 3.6(i) allows the General Manager to sole-source if the purchase item is only available from a specific vendor based on availability and compatibility criteria, or if an emergency arises requiring an expeditious purchase.

Here, both circumstances apply. Staff validated Aria Filtra proposal as competitive and is confident that a competitive bid process would be incongruous and would not result in any advantage to SEJPA. Furthermore, the membranes are only available from the proposed vendor, as Aria Filtra has exclusive rights to sell these membranes in the Western Hemisphere. Finally, SEJPA’s Pall AP-06 skids microfiltration membranes have exceeded their life cycle and are in immediate need of replacement. Therefore, General Manager seeks Board approval for the purchase order due to Aria Filtra's compatible modules, necessary ancillary parts, and installation supervision that will successfully replace existing filtration membranes. Replacement of the filtration membranes will mitigate the expenses associated with a comprehensive overhaul of the AWP system if left untreated and system underperformance persists.

Therefore, sole-source procurement is justified under either 3.6()f) or 3.6(i). Written documentation to support procurement under 3.6(i) is enclosed hereto, and has been approved and authorized by the General Manager. In light of the contract amount, the General Manager requires Board authorization to proceed with awarding the contract.

FISCAL IMPACT

The membrane replacement project will be funded as a capital project through Recycled Water Program reserves. Although this purchase was planned for FY 2025-26, the FY 2024-25 budget projects an end-of-year capital fund balance of $8.35 million, which is adequate for this purchase and other planned capital projects.

RECOMMENDATION

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to execute Purchase Order with Aria Filtra in an amount not-to-exceed $381,668 for membrane modules, ancillary parts, and installation supervision; and

2. Discuss and take action as appropriate.

Respectfully submitted,

Michael T. Thornton, P.E.
General Manager

Attachment 1: Proposal, Scope and Fee Estimate – Aria Filtra

Attachment 2: June 11, 2023 Staff Memo Supporting Sole Source Procurement of PALL Corporation Membrane Modules

Attachment 1

Customer: San Elijo

Scope of Services

Technical Scope of Supply – MF System Module Replacement

Aria Filtra is pleased to propose providing labor and materials described below for replacing 60 Microfiltration Modules on each of 2 filtration racks on the San Elijo water filtration system, for a total of 120 modules. Module replacement will be performed one rack at a time.

Item 1 - Modules and associated items: Aria Filtra will provide the following materials for module replacement:

- 120 ea Aria Filtra Microfiltration modules
- 2 Gal. Lubricant for module nuts
- 240 ea Module nuts
- 252 ea Module O-rings
- 6 ea XR Gaskets
- 6 ea XR Nuts
- 120 ea Clear couplings
- 120 ea Upper end caps
- 120 ea Lower end caps
- 2 each module wrenches
- 2 each torque wrenches
- 2 each clear coupling wrenches
- 122 each XR hoses
- 123 each 1.0-inch clamps
- 123 each 2.0-inch clamps

Item 2 – Installation Supervision: Aria Filtra will provide a qualified Field Service Engineer (FSE) to supervise and assist with removing the old modules and installing the new modules. This module replacement project will

require an additional crew of 2 people for 3 days in addition to the Aria Filtra FSE complete. Additional labor crew is by others.

Overall, Aria Filtra expects this work to take up to 4 days to complete, including set up at the beginning and clean up at the end. As part of this work, Aria Filtra will also provide a new Operating Protocol, and update the system Process & Instrumentation Diagram (P&ID) drawing. The Operating Protocol is a document created by Aria Filtra's Process Engineers based on a review of your MF system together with incoming water quality*, and includes recommended settings and protocols for Flux Maintenance (FM), Enhanced Flux Maintenance (EFM) and Clean-In-Place (CIP) operations. The OP is designed to give operators the information and guidance to achieve optimal system performance results. Potential benefits from following Aria Filtra's Operating Protocols include improved cleanings, increased up time, and extended service life.

Copies of both the P&ID and the Operating Protocol will be provided shortly after completion of the installation work.

*Incoming water quality data is provided by the customer. Aria Filtra can provide the comprehensive water quality analysis needed for the Operating Protocol at additional cost.

Change-Out Plan and Schedule

The Aria Filtra Field Service Engineer will arrive at the site a full day before the start of the module removal process to meet with site personnel, review the site where the work will be performed, and make preparations for the module change-out process.

Once full drainage of the cleaned rack has been verified the old modules will be removed and the new ones installed. The old modules will be set aside for disposal. The new modules will need to be drained of preservative prior to installation on the module rack. Aria Filtra will provide a Material Safety Data Sheet for the module preservative upon receipt of order. Disposal of old modules and module preservative is by others.

Once the full set of modules is installed on each rack, the rack will then be filled and rinsed in place to ensure all preservative has been removed from the modules. The FSE will then verify the operating set points, oversee the start-up of the rack, and verify proper operation.

PLEASE NOTE: If the customer has any safety concerns over potential exposure to collected contaminants while working with the old membrane modules, Aria Filtra recommends performing CIP's just prior to module removal for change-out.

Freight charges are not included.

Disclaimer: This proposal is based on information and conditions known at the time of quotation. AriaFiltra reserves the right to revise this proposal through change order(s) should conditions vary significantly from those known at the time of quotation and require additional work or materials.

Proposal Summary

Modules	$324,000.00
Ancillary Parts	$37,373.66
Installation Supervision	$20,293.83

Total amount for purchase order: **$381,667.49**
Currency: USD

- Modules are subject to availability at receipt of PO. Delivery to be confirmed at time of order confirmation.

Service Reports: If service reports are required by your site to comply with your company or state regulations, please indicate on your order that service report documents are required. Service reports detailing the visit and recommendations will then be provided.

Materials: This proposal covers parts and services.

Module Recycling: AriaFiltra has invested in a process to recycle modules for short-term and/or less critical applications. If your modules qualify for recycling, AriaFiltra will take possession of them after removal saving the costs associated with module disposal. To determine if your modules qualify for recycling please complete the attached "Module History" questionnaire and return it to AriaFiltra for evaluation. AriaFiltra may request a module for further evaluation based to determine suitability for recycling following review of the information provided**.**

Validity: This proposal is for 30 days (or Specific Date). If a purchase order is not agreed upon by Seller and Buyer within the price validity period, the pricing set forth in this proposal shall not apply.

Module Availability: We are currently experiencing a shortage of modules due to the high global demand for PVDF (the raw material used to manufacture modules). Modules have been allocated for this proposal for the validity period stated above. We cannot guarantee module availability beyond this time. A contract must be executed with agreed upon T&C's to secure the module supply.

Payment Terms and Milestones: Net 30 days

Terms of Sale: Standard Terms and Conditions of Sale Non-Systems – The Americas

Terms of Service: Regular minimum service charge is for a 10-hour day.

Module Warranty: The modules are warrantied for defects in material and workmanship for a period of 12 months from the date of delivery. Where AriaFiltra provides installation and/or installation supervision as part of

the replacement module order, the modules carry an extended warranty of five year absolute and 5 years pro-rated. The module warranty is subject to the AriaFiltra Warranty Submittal (attached).

Service Order acceptance and payment terms: AriaFiltra Advanced Separations Systems requires all accounts outstanding beyond 30 days to be paid in full prior to order acceptance. Your account status will be verified at the time of order placement, and you will be notified if you have a balance due. To avoid order processing, goods shipment or service scheduling delays, please insure your account is up to date in advance of placing your order. Charges per the proposal will be billed automatically upon completion of the service, and sign-off of the service report, and become payable within 30 business days of receipt of the invoice.

Changes: AriaFiltra shall not implement any changes in the scope of services described in AriaFiltra's proposal unless the Customer and AriaFiltra agree to the details of the change. Any resulting price, schedule or other contractual modifications, will require a verbal change called into AriaFiltra's Customer Service Department, with a follow up written confirmation. This includes any changes necessitated by a change in applicable law.

A Purchase Order or written authorization to accept the contract of work as described, along with a signed copy of the attached Customer authorization for service is required in advance of PASS providing the service defined in this proposal.

Please Address Your Order to: AriaFiltra to the below contacts:

Please direct your purchase order to:

For US / Mexico / Latin American Customers	For Canadian Based Customers
Trojan Technologies Corp P.O. Box 5630, 839 State Route 13 Cortland, New York 13045-5630 Phone: 866-475-0115 Email: AriaFiltraCS@TrojanTechnologies.com Attn: Customer Service	**Trojan Technologies** 3020 Gore Rd., London, ON, Canada N5V 4T7 Phone: 866-475-0115 Email: AriaFiltraCS@TrojanTechnologies.com Attn: Customer Service

AriaFiltra Systems Support

To obtain support for your AriaFiltra systems installation, our Customers can contact AriaFiltra via our toll free number at 866-475-0115 or by email to AriaFiltraCS@TrojanTechnologies.com. Through this channel, you gain access to warranty assistance, technical support as well as our service and spares team.

AriaFiltra Customers have access to this 24/7 Service Hotline. AriaFiltra System Engineers are on full-time rotation to provide around-the-clock availability of live technical support. This service is charged at $300? for support time for the first 30 minutes, during normal workday hours between 9:00-AM and 4:00-PM EST, excluding weekends and holidays.

If your system is out of warranty or does not have a 24/7 service support contract, there will be a charge when technical support is to be provided for intervals longer than 30 minutes, or after-hours technical support to resolve the issue. Extensive off-site support will require a purchase order or credit card. Billing is based on a minimum 1-hour charge at AriaFiltra's off-site hourly service rate. You will be asked to provide your credit card number or service contract purchase order number that will be billed at AriaFiltra's Off-Site Service Rates, with a minimum 1-hour charge. If the problem cannot be resolved over the telephone, the Customer can request a AriaFiltra System Service Representative to visit the site location. You will be quoted an Emergency Service Rate and billed for last-minute travel expenses.

Please feel free to call me at your convenience with any questions or comments. We look forward to providing you with field services to assist you with system operation and await your purchase order.

Respectfully Submitted,

AriaFiltra
By: Alexander Braman
Title: Regional Sales Manager
Cell: 720-202-6536
E-mail: alexander.braman@trojantechnologies.com

CUSTOMER AUTHORIZATION FOR SERVICE FORM

I am an authorized representative of the Customer, and I accept the Terms and Conditions of this Service Agreement on behalf of the Customer. I authorize AriaFiltra Systems to perform the work defined in this agreement, and accept the costs and charges defined in this agreement.

Company:

Print Name	**Title/Position**
Signature	**Date**

Purchase Order No. or Reference for Billing: _____

Requested Date(s) to Schedule Service Visit(s): _____

(unless deemed emergency service, please allow a 4-week window to accommodate scheduling by Aria Filtra.)

Remit this form & PO# to our AriaFiltra Customer Service email: AriaFiltraCS@TrojanTechnologies.com

Effective Date and Duration: This Agreement will be effective as of the date signed above, and will remain in effect:

- for 12 consecutive months (or as indicated in the annual or multi-year contract)
- or until 30 days after receipt of written notice of termination by either party.

Customer Billing Address:	**Customer Shipping Address (Spare Parts):**

Customer Comments: _____

Terms and Conditions of Sale

This document sets forth the Terms & Conditions of Sale for goods manufactured and/or supplied, and services provided, by the seller entity identified on the purchase order ("SELLER") and sold to the original purchaser thereof ("BUYER"). The term "SELLER" includes only SELLER, and none of its affiliates. Unless otherwise specifically stated in a previously-executed written purchase agreement signed by authorized representatives of SELLER and BUYER, these Terms & Conditions of Sale establish the rights, obligations and remedies of SELLER and BUYER which apply to this offer and any resulting order or contract for the sale of SELLER's goods and/or services ("Products").

1. APPLICABLE TERMS & CONDITIONS: These Terms & Conditions of Sale are contained directly and/or by reference in SELLER's proposal, offer, order acknowledgment, packing slip, and/or invoice documents. The first of the following acts constitutes an acceptance of SELLER's offer and not a counteroffer and creates a contract of sale ("Contract") in accordance with these Terms & Conditions of Sale: (i) BUYER's issuance of a purchase order document against SELLER's offer; (ii) acknowledgement of BUYER's order by SELLER; or (iii) commencement of any performance by SELLER pursuant to BUYER's order. Provisions contained in BUYER's purchase documents (including electronic commerce interfaces) that materially alter, add to, or subtract from the provisions of these Terms & Conditions of Sale are not a part of the Contract.

2. CANCELLATION AND RETURN: The whole or any part of this order may be cancelled only with the prior written consent of SELLER. If SELLER does consent to a cancellation, such consent will be given only upon payment of reasonable cancellation charges in an amount determined by SELLER and which will include recovery of costs plus reasonable profit. In addition, with respect to any Products returned on cancellation, BUYER will pay SELLER's cost of placing the returned Products in a saleable condition, sales expenses incurred by SELLER in connection with such returned Products, a reasonable restocking charge and freight costs incurred in connection with the original shipment and in connection with returning such Products to SELLER, all in such amounts as are advised to the BUYER by SELLER. SELLER may cancel all or part of any order prior to delivery without liability if the order includes any Products that Seller determines may not comply with export, safety, local certification, or other applicable compliance requirements. If SELLER'S offer contains a cancellation schedule, such schedule shall apply in lieu of the cancellation charges stated above.

3. DELIVERY: Delivery will be accomplished FCA SELLER's determined shipping point; or on SELLER's discretion it will ship CPT foreign port unless otherwise expressly agreed between the parties using Incoterms 2020. Legal title and risk of loss or damage pass to BUYER upon transfer to the first carrier, regardless of final destination and mode of transit. SELLER will use commercially reasonable efforts to deliver the Products ordered herein within SELLER's normal lead-time necessary for SELLER to deliver the Products sold hereunder. Upon prior agreement with BUYER and for an additional charge paid by BUYER, SELLER will deliver the Products on an expedited basis. Parties may agree that the BUYER may accept partial deliveries of Products; if so, each delivery will constitute a separate sale, and BUYER shall pay for the units shipped whether such shipment is in whole or partial fulfillment of Contract.

Products will be boxed or crated as determined appropriate by SELLER for protection against normal handling and there will be an extra charge to the BUYER for additional packaging required by the BUYER with respect to waterproofing or other added protection. BUYER has sole responsibility for off-loading, storage and handling of the Products at the site. Where Buyer is responsible for any delay in the delivery date or installation date, the earlier of the date of delivery or the date on which the Products are ready for shipment by SELLER may be treated as the delivery date for purposes of determining the time of payment of the purchase price. Moreover, BUYER will be responsible for storage and insurance expenses with respect to such Products. Should BUYER fail to effect pick-up of Product as previously agreed in a timely manner, SELLER may, at its discretion, assess storage charges and a surcharge to the account of BUYER.

4. INSPECTION: BUYER will promptly inspect and accept any Products delivered pursuant to this Contract after receipt of such Products. In the event the Products do not conform to any applicable specifications, BUYER will promptly notify SELLER of such nonconformance in writing. SELLER will have a reasonable opportunity to repair or replace the nonconforming Product at its option. BUYER will be deemed to have accepted any Products delivered hereunder and to have waived any such nonconformance for such Products unless a written notification pursuant to this paragraph is received by SELLER within fourteen (14) days of delivery to BUYER destination on order.

5. PRICES & ORDER SIZES: Prices do not include any charges for services such as insurance; brokerage fees; sales, use, inventory, or excise taxes; import or export duties; special financing fees; value added tax, income, or royalty taxes imposed outside the U.S. or Canada; consular fees; special permits or licenses; or other charges imposed upon the production, sale, distribution, or delivery of Products. BUYER will either pay any and all such charges or provide SELLER with acceptable exemption certificates, which obligation survives performance under this Contract. Installation, maintenance and any other services which relate to the Products are not included unless specifically set forth in the offer. SELLER reserves the right to establish minimum order sizes and will advise BUYER accordingly. Any orders below the minimum order size are subject to a fee as set out by SELLER. If SELLER's delivery of Products surpasses one (1) year in length, except as otherwise agreed by SELLER, SELLER shall be entitled to (i) an increase in the purchase price of undelivered Products by an amount equal to the rate of increase in the Producers Price Index from the start date of this Contract; or (ii) terminate this Contract without penalty.

6. PAYMENTS: All payments must be made in agreed-to currency, normally Canadian or U.S. Dollars. Unless other payment terms are expressly set forth in the purchase order or otherwise required by the SELLER, invoices are due and payable NET 30 DAYS from date of the invoice, without regard to delays for inspection or transportation, with payments to be made by check to SELLER at the address listed in the purchase order or by bank transfer to the account obtainable from SELLER's Accounts Receivable Manager. In the event payments are not made or not made in a timely manner, SELLER may, in addition to all other remedies provided at law, either: (a) declare BUYER's performance in breach and terminate this Contract for default; (b) withhold future shipments until delinquent payments are made; (c) deliver

future shipments on a cash-with-order or cash-in-advance basis even after the delinquency is cured; (d) charge interest on the outstanding balance at a rate of 1.5% per month or the maximum rate permitted by law, if lower, for each month or part thereof that there is an outstanding balance plus applicable storage charges and/or inventory carrying charges; (e) repossess the Products for which payment has not been made; (f) pursue other collection efforts and recover all associated costs including reasonable attorney's fees; or (g) combine any of the above rights and remedies as is practicable and permitted by law. BUYER is prohibited from setting off any and all monies owed under this Contract from any other sums, whether liquidated or not, that are or may be due to the BUYER, which arise out of a different transaction with SELLER or any of its affiliates. Should BUYER's financial condition become unsatisfactory to SELLER in its discretion, SELLER may require payment in advance or other security. If BUYER fails to meet these requirements, SELLER may treat such failure as reasonable grounds for repudiation of this Contract, in which case reasonable cancellation charges shall be due to SELLER. BUYER hereby grants SELLER a security interest in the Products, wherever located, and whether now existing or hereafter arising or acquired from time to time, and in all accessions thereto and replacements or modifications thereof, as well as all proceeds of the foregoing, to secure payment in full of all amounts to Seller, which payment releases the security interest but only if such payment could not be considered an avoidable transfer under applicable laws. The security interest granted hereby constitutes a purchase money security interest under the applicable Uniform Commercial Code or Personal Property Security Act or other applicable law, and SELLER is authorized to make whatever registration or notification or take such other action as SELLER deems necessary or desirable to perfect such security interest. BUYER's insolvency, bankruptcy, assignment for the benefit of creditors, or dissolution or termination of the existence of BUYER, constitutes a default under this Contract and affords SELLER all of the remedies of a secured creditor under applicable law, as well as the remedies stated above for late payment or non-payment.

7. LIMITED WARRANTY: Unless specifically provided otherwise in SELLER's offer, SELLER provides the following Limited Warranty. SELLER warrants that Products sold hereunder will be free from defects in material and workmanship and will, when used in accordance with the manufacturer's operating and maintenance instructions, conform to any express written warranty pertaining to the specific goods purchased, which for Products is for a period of twelve (12) months from delivery. SELLER warrants that services furnished hereunder will be free from defects in workmanship for a period of ninety (90) days from the completion of the services. Products repaired or replaced are not covered by any warranty except to the extent repaired or replaced by SELLER, an authorized representative of SELLER, or under specific instructions by SELLER, in which cases, the Products will be covered under warranty up to the end of the warranty period applicable to the original Products. The above warranties do not include the cost of shipping and handling of returned items. Parts provided by SELLER in the performance of services may be new or refurbished parts functioning equivalent to new parts. Any non- functioning parts that are repaired by SELLER shall become the property of SELLER. Except as included in SELLER'S offer, no warranties are extended to consumable items and for normal wear and tear. SELLER's special warranties may include additional limitations. All other guarantees, warranties, conditions and representations, either express or implied, whether arising under any statute, law, commercial usage or otherwise, including implied warranties of merchantability and fitness for a particular purpose, are hereby excluded. The sole remedy for Products not meeting this Limited Warranty is replacement, repair, credit

or refund of the purchase price, as determined by SELLER in its sole discretion. This remedy will not be deemed to have failed of its essential purpose so long as SELLER is willing to provide such replacement, credit or refund. To make a warranty claim, BUYER must notify SELLER in writing within 5 days of discovery of the defect in question. This notification must include a description of the problem, a copy of the applicable operator's log, a copy of BUYER's maintenance record and any analytical results detailing the problem. Any warranty hereunder or performance guarantees shall only be enforceable if (a) all equipment is properly installed, inspected regularly, and is in good working order, (b) all operations are consistent with SELLER recommendations, (c) operating conditions at the installation site have not materially changed and remain within anticipated specifications, and (d) no reasonably unforeseeable circumstances exist or arise.

8. INDEMNIFICATION: Indemnification applies to a party and to such party's successors-in-interest, assignees, affiliates, directors, officers, and employees ("Indemnified Parties"). SELLER is responsible for and will defend, indemnify and hold harmless the BUYER Indemnified Parties against all losses, claims, expenses or damages to the proportional extent caused by SELLER's breach of the Limited Warranty. BUYER is responsible for and will defend, indemnify and hold harmless SELLER Indemnified Parties against all losses, claims, expenses, or damages which may result from accident, injury, damage, or death due to the negligence or misuse or misapplication of any Products or the breach of any provision of this Contract by the BUYER or any third party affiliated or in privity with BUYER.

9. PATENT PROTECTION: Subject to all limitations of liability provided herein, SELLER will, with respect to any Products of SELLER's design or manufacture, indemnify BUYER from any and all damages and costs as finally determined by a court of competent jurisdiction in any suit for infringement of any U.S. or Canadian patent (or European patent for Products that SELLER sells to BUYER for end use in a member state of the E.U. or the U.K.) that has issued as of the delivery date, solely by reason of the sale or normal use of any Products sold to BUYER hereunder and from reasonable expenses incurred by BUYER in defense of such suit if SELLER does not undertake the defense thereof, provided that BUYER promptly notifies SELLER of such suit and offers SELLER either (i) full and exclusive control of the defense of such suit when Products of SELLER only are involved, or (ii) the right to participate in the defense of such suit when products other than those of SELLER are also involved. SELLER's warranty as to use patents only applies to infringement arising solely out of the inherent operation of the Products according to their applications as envisioned by SELLER's specifications. In case the Products are in such suit held to constitute infringement and the use of the Products is enjoined, SELLER will, at its own expense and at its option, either procure for BUYER the right to continue using such Products or replace them with non-infringing products, or modify them so they become non-infringing, or remove the Products and refund the purchase price (prorated for depreciation) and the transportation costs thereof. The foregoing states the entire liability of SELLER for patent infringement by the Products. Further, to the same extent as set forth in SELLER's above obligation to BUYER, BUYER agrees to defend, indemnify and hold harmless SELLER for patent infringement related to (x) any goods manufactured to the BUYER's design, (y) services provided in accordance with the BUYER's instructions, or (z) SELLER's Products when used in combination with any other devices, parts or software not provided by SELLER

hereunder.

10. TRADEMARKS AND OTHER LABELS: BUYER agrees not to remove or alter any indicia of manufacturing origin or patent numbers contained on or within the Products, including without limitation the serial numbers or trademarks on nameplates or cast, molded or machined components.

11. SOFTWARE AND INTELLECTUAL PROPERTY: All licenses to SELLER's separately provided software products are subject to the separate software license agreement(s) accompanying the software media. In the absence of such express licenses and for all other software, SELLER grants BUYER only a personal, non-exclusive license to access and use the software provided by SELLER with Products purchased hereunder solely as necessary for BUYER to enjoy the benefit of the Products. A portion of the software may contain or consist of open source software, which BUYER may use under the terms and conditions of the specific license under which the open source software is distributed. BUYER agrees that it will be bound by all such license agreements. Title to software remains with the applicable licensor(s). All SELLER contributions to the Products, the results of the services, and any other work designed or provided by SELLER hereunder may contain or result in statutory and non-statutory Intellectual Property, including but not limited to patentable subject matter or trade secrets; and all such Intellectual Property remains the sole property of SELLER; and BUYER shall not disclose (except to the extent inherently necessary during any resale of Product sold hereunder), disassemble, decompile, or any results of the Services, or any Products, or otherwise attempt to learn the underlying processes, source code, structure, algorithms, or ideas.

12. PROPRIETARY INFORMATION AND PRIVACY: "Proprietary Information" means any information, technical data, or know-how in whatever form, whether documented, contained in machine readable or physical components, mask works or artwork, or otherwise, which SELLER considers proprietary, including but not limited to service and maintenance manuals. BUYER and its customers, employees, and agents will keep confidential all such Proprietary Information obtained directly or indirectly from SELLER and will not transfer or disclose it without SELLER's prior written consent, or use it for the manufacture, procurement, servicing, or calibration of Products or any similar products, or cause such products to be manufactured, serviced, or calibrated by or procured from any other source, or reproduce or otherwise appropriate it. All such Proprietary Information remains SELLER's property. No right or license is granted to BUYER or its customers, employees or agents, expressly or by implication, with respect to the Proprietary Information or any patent right or other proprietary right of SELLER, except for the limited use licenses implied by law. In respect of personal data supplied by BUYER to SELLER, BUYER warrants that is duly authorized to submit and disclose these data, including but not limited to obtaining data subjects´ informed consent. SELLER will manage BUYER's information and personal data in accordance with its Privacy Policy, a copy of which is available to Buyer upon request. In respect of other data and information that SELLER may receive in connection with BUYER´s use of the Products including without limitation data that are captured by the Products and transmitted to SELLER, BUYER hereby grants SELLER a non-exclusive, worldwide, royalty-free, perpetual, non-revocable license to use, compile, distribute, display, store, process, reproduce, or create derivative works of such data as needed for

Product operation and maintenance, and to aggregate such data for use in an anonymous manner, solely to facilitate marketing, sales and R&D activities of SELLER and its affiliates.

13. SPECIAL TOOLS, DIES, JIGS, FIXTURES AND PATTERNS: Any tools, dies, jigs, fixtures, patterns and similar items which are included or required in connection with the manufacture and/or supply of the Products will remain the property of SELLER without credit to the BUYER. SELLER assumes the cost for maintenance and replacement of such items and shall have the right to discard and scrap any such item after it has been inactive for a minimum of one year, without credit to the BUYER.

14. CHANGES AND ADDITIONAL CHARGES: SELLER reserves the right to make design changes or improvements to any products of the same general class as Products being delivered hereunder without liability or obligation to incorporate such changes or improvements to Products ordered by BUYER unless agreed upon in writing before the Products' delivery date.

15. SITE ACCESS / PREPARATION / WORKER SAFETY / ENVIRONMENTAL COMPLIANCE: In connection with services provided by SELLER, BUYER agrees to permit prompt access to equipment. BUYER assumes full responsibility to back-up or otherwise protect its data against loss, damage or destruction before services are performed. BUYER is the operator and in full control of its premises, including those areas where SELLER employees or contractors are performing service, repair, and maintenance activities. BUYER will ensure that all necessary measures are taken for safety and security of working conditions, sites, and installations during the performance of any services. BUYER is the generator of any resulting wastes, including without limitation hazardous wastes. BUYER is solely responsible to arrange for the disposal of any wastes at its own expense. BUYER will, at its own expense, provide SELLER employees and contractors working on BUYER's premises with all information and training required under applicable safety compliance regulations and BUYER's policies. SELLER has no responsibility for the supervision or actions of BUYER's employees or contractors or for non-SELLER items (e.g., chemicals, equipment) and disclaims all liability and responsibility for any loss or damage that may be suffered as a result of such actions or items, or any other actions or items not under SELLER's control.

16. LIMITATIONS ON USE: BUYER will not use any Products for any purpose other than those identified in SELLER's catalogs and literature as intended uses. Unless SELLER has advised the BUYER in writing, in no event will BUYER use any Products in drugs, food additives, food, or cosmetics, or medical applications for humans or animals. In no event will BUYER use in any application any Product that requires FDA 510(k) clearance unless and only to the extent the Product has such clearance. BUYER will not sell, transfer, export, or re-export any SELLER Products or technology for use in activities which involve the design, development, production, use, or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Products or technology in any facility which engages in activities relating to such weapons. Unless the "ship-to" address is in California, U.S.A., the Products are not intended for sale in California and may lack markings required by California Proposition 65; accordingly,

unless BUYER has ordered Products specifying a California ship-to address, BUYER will not sell or deliver any SELLER Products for use in California. Any warranty granted by SELLER is void if any goods covered by such warranty are used for any purpose not permitted hereunder.

17. EXPORT AND IMPORT LICENSES AND COMPLIANCE WITH LAWS: Unless otherwise expressly agreed, BUYER is responsible for obtaining any required export or import licenses necessary for Product delivery. BUYER will comply with all laws and regulations applicable to the installation or use of all Product, including applicable import and export control laws and regulations of the U.S., E.U., and any other country having proper jurisdiction, and will obtain all necessary export or import licenses in connection with any subsequent export, re-export, transfer, and use of all Product and technology delivered hereunder. BUYER will not sell, transfer, export, or re-export any SELLER Product or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Product or technology in any facility which engages in activities relating to such weapons. BUYER will comply with all local, national, and other laws of all jurisdictions globally relating to anti-corruption, bribery, extortion, kickbacks, or similar matters which are applicable to BUYER's business activities in connection with this Contract, including but not limited to the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"). BUYER agrees that no payment of money or provision of anything of value will be offered, promised, paid, or transferred, directly or indirectly, by any person or entity, to any government official, government employee, or employee of any company owned in part by a government, political party, political party official, or candidate for any government office or political party office to induce such organizations or persons to use their authority or influence to obtain or retain an improper business advantage for BUYER or for SELLER, or which otherwise constitute or have the purpose or effect of public or commercial bribery, acceptance of or acquiescence in extortion, kickbacks, or other unlawful or improper means of obtaining business or any improper advantage, with respect to any of BUYER's activities related to this Contract. SELLER asks BUYER to "Speak Up!" if aware of any violation of law, regulation, or our Code of Conduct ("CoC") in relation to this Contract.
See http://www.danaherintegrity.com/ and https://www.danaher.com/coc/en/home.html for a copy of the CoC and for access to our Helpline portal.

18. RELATIONSHIP OF PARTIES: BUYER is not an agent or representative of SELLER and will not present itself as such under any circumstances, unless and to the extent it has been formally screened by SELLER's compliance department and received a separate duly-authorized letter from SELLER setting forth the scope and limitations of such authorization.

19. FORCE MAJEURE: SELLER is excused from performance of its obligations under this Contract to the extent caused by acts or omissions that are beyond its control, including but not limited to Government embargoes, blockages, seizures or freezing of assets, delays, or refusals to grant an export or import license, or the suspension or revocation thereof, or any other acts of any Government; fires, floods, severe weather conditions, or any other acts of God; quarantines; epidemics and pandemics; labor strikes or lockouts; riots; strife; insurrections; civil disobedience or acts of criminals or terrorists; war; material

shortages or delays in deliveries to SELLER by third parties. In the event of the existence of any force majeure circumstances, the period of time for delivery, payment terms, and payments under any letters of credit will be extended for a period of time equal to the period of delay. If the force majeure circumstances extend for six months, SELLER may, at its option, terminate this Contract without penalty and without being deemed in default or in breach thereof.

20. NON-ASSIGNMENT AND WAIVER: BUYER will not transfer or assign this Contract or any rights or interests hereunder without SELLER's prior written consent. Failure of either party to insist upon strict performance of any provision of this Contract, or to exercise any right or privilege contained herein, or the waiver of any breach of the terms or conditions of this Contract, will not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same will continue and remain in force and effect as if no waiver had occurred.

21. FUNDS TRANSFERS: BUYER and SELLER both recognize that there is a risk of banking fraud when individuals impersonating a business demand payment under new mailing or banking transfer instructions. To avoid this risk, BUYER must verbally confirm any new or changed mailing or banking transfer instructions by calling SELLER and speaking with SELLER's Accounts Receivable Manager before transferring any monies using the new instructions. Both parties agree that they will not institute mailing or banking transfer instruction changes and require immediate payment under the new instructions, but will instead provide a ten (10) day grace period to verify any mailing or banking transfer instruction changes before any new or outstanding payments are due using the new instructions.

22. LIMITATION OF LIABILITY: None of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees will be liable to any BUYER Indemnified Parties under any circumstances for any special, treble, incidental, or consequential damages, including without limitation, damage to or loss of property other than for the Products purchased hereunder; damages incurred in installation, repair, or replacement; lost profits, revenue, or opportunity; loss of use; losses resulting from or related to downtime of the Products or inaccurate measurements or reporting; the cost of substitute products; or claims of any of BUYER's Indemnified Parties' customers for such damages, howsoever caused, and whether based on warranty, contract, and/or tort (including negligence, strict liability or otherwise). The total liability of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees arising out of the performance or nonperformance hereunder, or SELLER's obligations in connection with the design, manufacture, sale, delivery, and/or use of Products, will in no circumstance exceed the amount actually paid to SELLER for Products delivered hereunder.

23. APPLICABLE LAW AND DISPUTE RESOLUTION: All issues relating to the construction, validity, interpretation, enforcement, and performance of this agreement and the rights and obligations of SELLER and the BUYER hereunder shall be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein; provided that if SELLER is Trojan Technologies Corp., then the applicable governing laws shall be the State of New York and the applicable federal laws therein. Any provisions of

the International Sale of Goods Act or any convention on contracts for the international sale of goods shall not be applicable to this agreement. The parties submit to and consent to the non-exclusive jurisdiction of courts located in the Province of Ontario; provided that if SELLER is Trojan Technologies Corp., then the parties submit to and consent to the non-exclusive jurisdiction of courts located in the State of New York.

24. ENTIRE AGREEMENT & MODIFICATION: These Terms & Conditions of Sale constitute the entire agreement between the parties and supersede any prior agreements or representations, whether oral or written. Upon thirty (30) days prior written notice, SELLER may, in its sole discretion, elect to terminate any order for the sale of Products and provide a pro-rated refund for any pre-payment of undelivered Products. No change to or modification of these Terms & Conditions shall be binding upon SELLER unless in a written instrument specifically referencing that it is amending these Terms & Conditions of Sale and signed by an authorized representative of SELLER. SELLER rejects any additional or inconsistent Terms & Conditions of Sale offered by BUYER at any time, whether or not such terms or conditions materially alter the Terms & Conditions herein and irrespective of SELLER's acceptance of BUYER's order for the described goods and services.

San Elijo Joint Powers Authority

Memo

To: File

From: Christopher Trees

cc: Michael Thornton

Date: June 11, 2024

Re: Sole-Source Procurement of PALL Corporation Membrane Modules

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BACKGROUND

In 2012, SEJPA constructed an advanced water purification (AWP) system at the San Elijo Water Campus. The AWP system uses two PALL Corporation AP-6 skids with Microza Hollow fiber (UNA-620A) membrane racks, each containing 60 modules, totaling 120 modules.

The Pall AP-06 microfiltration system was selected through a competitive process based on criteria such as operating performance, maintenance requirements, energy and chemical needs, and cost. One of the driving reasons SEJPA selected the Pall AP-06 is the membrane modules (UNA-620A membrane) which its entire wall thickness is a functional proprietary blend of PVDF manufactured using a patented Thermally Induced Phase Separation (TIPS process). This provides for a high quality, durable, membrane that provides superior chemical and mechanical strength which allows these membranes to provide a useful service life in excess of the industry standard 10 years. In addition, these membranes have the lowest fiber break incident in the industry which maximized run time and results in lower maintenance costs.

DISCUSSION

Staff recommends sole-source procurement of the UNA-620A membranes to replace the existing UNA-620A membranes for the following reasons:

1. Compatibility: The Pall AP-6 system was designed around the UNA-620A membrane.

2. Availability: Aria Filtra has exclusive rights to sell these membranes in the Western Hemisphere.

3. Quality and Performance: The UNA-620A membrane has been shown to comply with strict industry specifications, with a proven track record of over 25 years of online service at numerous facilities. It offers superior chemical and mechanical strength, ensuring a useful service life that exceeds the industry standard of 10 years with low fiber break incidents.

4. Price Competitiveness: The price offered by Aria Filtra, $2,700 per module, is competitive with recently bid project by Aria Filtra (shown below).

Temple, TX - $2,850/Module

Spencer, TN - $2,962/Module

Swansea, MA - $2,850/Module

Yucaipa, CA - $2,650/Module (High Volume Order/Special Expansion Project)

Considering these factors, procuring replacement micro-filtration membranes from Aria Filtra would be in line with the sole-source procurement policy and further bidding may not result in any advantage to SEJPA.

AGENDA ITEM NO. 17

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: Director of Infrastructure and Sustainability

SUBJECT: CAPITAL PROGRAM UPDATE

RECOMMENDATION

No action required. This memorandum is submitted for information only.

BACKGROUND

SEJPA implements capital projects at the San Elijo Water Campus and remote facilities in accordance with agency policies and its adopted budget. Projects are aligned with SEJPA's mission to protect the environment and public health. The Capital Program supports the mission through responsible management of SEJPA and member agency assets to promote reliable, sustainable operations and value-added services to the community and customers.

SEJPA is implementing the 3-Year Capital Plan consisting of prioritized projects with a total estimated cost of $32.6 million. These projects are now estimated to be complete by the end of 2026, delivered through the traditional design-bid-build process. Major projects are typically bid as standalone construction contracts. Smaller asset management scopes may be grouped to reduce administrative burden on the agency, to leverage economies of scale, and to encourage bidder participation which should yield lower overall project delivery costs.

The 3-Year Capital Plan will be funded by cash contributions collected from wastewater customer agencies through annual budgeting process, recycled water revenues, and outside funding sources including state and federal grants and recycled water incentive programs. SEJPA's budgeting and financial practices allocate capital project expenses to the benefiting program in accordance with defined asset ownership or leased capacity.

DISCUSSION

The 3-Year Capital Plan delivery schedule and estimated cost are summarized in Figure 17-1. Following, Table 17-1 highlights notable progress over the past quarter (April – June 2024) and anticipated major activities in the next 3 to 6 months. Three capital projects are under construction and three projects will be going out to bid in the next six months.

FIGURE 17-1: 3-YEAR CAPITAL PLAN SCHEDULE AND COST SUMMARY

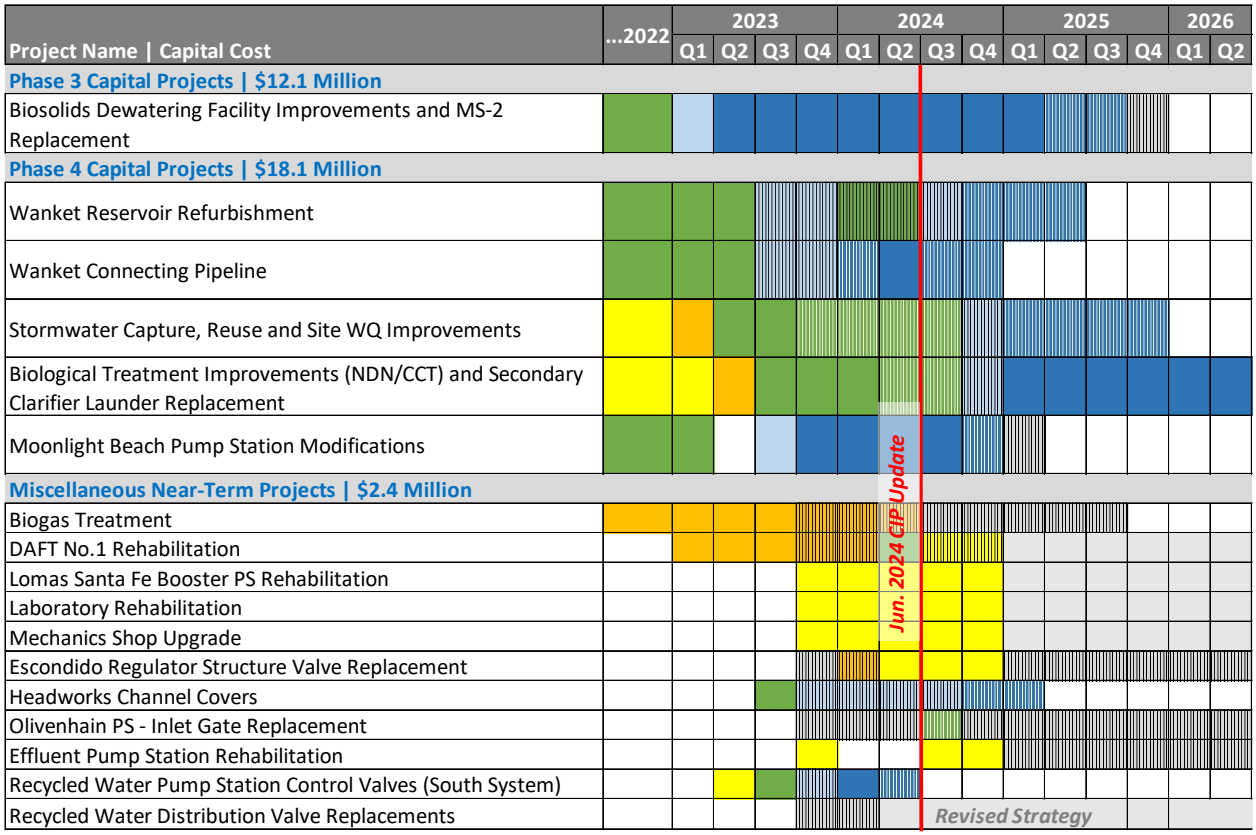


TABLE 17-1: 3-YEAR CAPITAL PLAN, PROJECT STATUS SUMMARY

Project Name (Status)	Progress as of June 2024
Phase 3 Capital Projects	
Biosolids Dewatering Facility Improvements and MS-2 Replacement (Construction)	✓ Major process equipment delivery in Summer/Fall 2024 ✓ Electrical equipment delivery expected Fall 2024 ✓ Anticipate further schedule impacts due to supply chain challenges
Phase 4 Capital Projects	
Wanket Reservoir Refurbishment (Bidding)	✓ Bidding in May/June 2024 ✓ Anticipate Award in July 2024 ✓ Construction anticipated Fall 2024 – Summer 2025
Wanket Recycled Water Pipeline (Construction)	✓ Pre-construction activities in progress ✓ Finalized pipeline easement, License Agreements, and received right-of-way permits from City of Encinitas ✓ Material delivery expected June 2024 ✓ Construction to start September 2024, after restricted bird nesting season has ended
Stormwater Capture, Reuse and Site WQ Improvements (Design)	✓ Refining strategy to enhance onsite stormwater capture on Water Campus and optimize capital investments ✓ Received 75% design for Water Campus erosion control and drainage scope – under review by SEJPA ✓ Anticipate construction bid/Award in Q4, 2024
Biological Treatment Improvements (NDN/CCT) and Secondary Clarifier Launder Replacement (Design)	✓ Received/Reviewed 50% design package; 75% design in progress expected in July ✓ Workshops (3 total) with design team: 50% design submittal review, scoping decisions, and SCADA integration. ✓ Conducted assessment of existing building HVAC systems
Moonlight Beach Pump Station Modifications (Construction)	✓ Submittals and pre-construction activities ongoing ✓ Wetwell rehab to begin July 2024 ✓ Mechanical upgrades to begin in July/August 2024
Miscellaneous Near-Term Projects	
Biogas Treatment (Pre-Design)	✓ Recommendations to be prioritized in Facility Plan update
DAFT No.1 Rehabilitation (Pre-Design)	✓ Condition assessment and project scoping in conjunction with Facility Plan update
Lomas Santa Fe Booster PS Rehabilitation (Planning)	✓ Condition assessment and project scoping in conjunction with Facility Plan update
Laboratory Rehabilitation (Planning)	✓ Needs assessment in conjunction with Facility Plan update
Mechanics Shop Upgrade (Planning)	✓ Needs assessment in conjunction with Facility Plan update
Escondido Regulator Structure Valve Replacement (Planning)	✓ Condition assessment and project scoping in conjunction with Facility Plan update
Headworks Channel Covers (Design)	✓ Construction procurement, Q2, 2024
Olivenhain PS - Inlet Gate Replacement (Design)	✓ Commenced design for gate replacement
Effluent Pump Station Rehabilitation (Planning)	✓ Condition assessment and project scoping in conjunction with Facility Plan update
Recycled Water PS Control Valves (Complete)	✓ Control valve on Pump #1 complete (February 2024) ✓ Control valve on Pump #2 complete (April 2024)
Recycled Water Distribution Valve Replacements (ready for construction)	✓ Exploring options and strategies for phasing replacement of high priority valves

SEJPA received proposals for an update to the Facility Plan that will assess the condition of existing assets and conduct targeted technical studies for current and future operations. Noted above in Table 17-1, many of the previously identified asset management projects will be assessed and defined in the forthcoming update to the Facility Plan. The prioritized projects will be the foundation for the capital program starting in FY 2025/26.

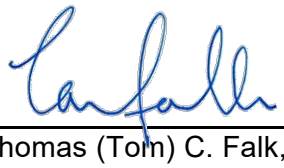
FINANCIAL IMPACT

There is no financial impact associated with this staff report.

RECOMMENDATION

No action required. This memorandum is submitted for information only.

Respectfully submitted,



Thomas (Tom) C. Falk, P.E., PMP
Director of Infrastructure and Sustainability

AGENDA ITEM NO. 18

SAN ELIJO JOINT POWERS AUTHORITY
MEMORANDUM

June 18, 2024

TO: Board of Directors
San Elijo Joint Powers Authority

FROM: General Manager

SUBJECT: AWARD OF PROFESSIONAL SERVICES FOR FACILITY PLAN UPDATE

RECOMMENDATION

It is recommended that the Board of Directors:

1. Authorize the General Manager to execute Professional Services Agreement with Black & Veatch in an amount not-to-exceed $416,600 for the Facility Plan Update; and

2. Discuss and take action as appropriate.

BACKGROUND

SEJPA completed the last Facility Plan in 2015, outlining a phased capital improvement program. Identified facility needs were prioritized to smooth capital spending, streamline project delivery, minimize community impacts, and reduce cost through economies of scale. A total of 7 major projects totaling nearly $50 million have been executed over the past 10 years, funded through the 2017 bond measure, wastewater cash contributions, recycled water revenues, and grant funding. Phase 4 of the capital program, in progress now, is anticipated to be complete by 2026.

It is industry best practice for a public agency to update foundational planning documents to align infrastructure investments and operational strategies. For SEJPA, sound facility planning allows staff to communicate with our customer agencies to forecast financial needs and to make informed decisions on managing our aging assets for responsible, sustainable, and reliable operations. Facility planning also serves as basis for pursuing outside funding, leveraging local dollars to cost effectively deliver our mission, “to serve our communities by providing safe and reliable recycled water and wastewater services in order to protect the environment and public health.”

DISCUSSION

As SEJPA enters the fourth and final phase of the ongoing capital program, it is time to update the Facility Plan to identify, prioritize, and plan for the next generation of capital projects. The focus for the Facility Plan update will be:

1. Asset Management – understanding the condition of existing infrastructure, projecting remaining useful life and planning for asset renewal
2. Capital projects – identifying, defining, and planning capital projects that address
    a. Ease of operations and maintenance (e.g., automation, modernization of equipment, retiring obsolete components),
    b. OSHA compliance,
    c. Resiliency to climate change impacts; and
    d. Cost effectiveness.
3. Capital improvement Programming – Prioritize and schedule capital improvements recommended to meet SEJPA's needs for a 10-year planning period.

In developing the facility planning scope of work, SEJPA reached out to its customer agencies and with their concurrence, included condition assessment and planning for the wastewater pump stations operated and maintained by SEJPA. SEJPA also conferred with the Regional Water Quality Control Board (RWQCB), identifying future permitting requirements that will influence the SEJPA's approach to asset management.

In anticipation of this facility planning effort, SEJPA reached out to the local engineering community over the past year including announcements at regional and statewide industry events. As follow-up to these public announcements, SEJPA was contacted by and shared project background with six engineering firms. In February 2023, SEJPA advertised a request for proposals (RFP) through its online procurement portal, PlanetBids. Prospective proposers were given the opportunity to visit the site and discuss the project with SEJPA staff including a formal pre-proposal meeting on March 12, 2024. A total of 16 engineering consulting companies registered as prospective proposers.

SEJPA received four proposals by the due date of April 11, 2024 from (alphabetically): Black & Veatch Corporation (B&V), Carollo Engineers, Inc. (Carollo), Hazen and Sawyer, and Hoch Consulting APC. Three other consultants provided formal notice declining to propose, citing current backlog constraints and prior commitment of key staff to other projects. The four responsive teams offered comparable levels of effort, ranging between 1,743 to 1,990 labor hours, a comparable amount of labor-hours indicating that the requested scope of work was well understood by all consultants. A selection panel consisting of SEJPA staff reviewed the proposals and rated the teams in accordance with the selection process defined in the RFP that included the following criteria: the strength of the project team members, the firm's experience and technical competence, the approach to the project, and overall firm qualifications and strength. Through the proposal process, two teams, B&V and Carollo, exhibited exceptional understanding of SEJPA's facilities, the objective of the facility planning and offered tailored approaches to deliver the requested scope. B&V and Carollo were invited to interview on May 22, 2024.

The interviews provided the consultants the opportunity to explain their unique approach and demonstrate how their industry expertise will benefit SEJPA through this important facility planning process. The selection panel's consensus scoring is represented in **Table 1**.

Table 1 – Proposal and Interview Rating (Consensus Scoring)

Rating Criteria	Max Score	B&V	Carollo
Strength of Project Team Members	40	36	33
Firm Experience and Technical Competence			
Approach to the Project			
Overall Firm Qualifications and Strength			
Level of Effort, Labor-Hours		1,764(1)	1,743
Proposed Fee Estimate		$416,600(1)	$434,819

(1) Fee estimate, revised to match level-of-effort expectations and project budget goals.

The B&V team has provided exceptional service to SEJPA on recent projects at the SEWC, presented a clear understanding of the project objectives and SEJPA's expectations for project execution. B&V proposed a tailored approach to meeting our scope, schedule, and budget objectives. B&V demonstrated strong qualifications and local expertise with recent condition assessment of wastewater facilities throughout southern California. B&V's core team has been supporting SEJPA for many years, including condition assessment and planning for the solids treatment facilities and the subsequent design of the Biosolids Dewatering Improvements Project. B&V proposed an appropriate staffing plan (level of effort and mix of resources) and are committing key personnel with the skillset and commitment most closely aligned with SEJPA's needs for this project.

Staff met with the highest ranked team, B&V, to review scope assumptions, clarify project objectives, and confirm expectations for project delivery. Staff also reviewed the proposed level of effort (labor hours) and compared billing rates against typical market rates, determining that the scope, level of effort, and fee are reasonable. Based on the outcome of scope and fee negotiations, Staff recommends award of the Facility Plan Update to B&V for a not-to-exceed fee of $416,600, which is within the amount budgeted for this capital project.

FISCAL IMPACT

The Facility Plan Update is budgeted as a capital project in FY 2024-25 with an appropriation of $453,000, funded through capital cash contributions from member agencies and the Recycled Water Program capital reserves.

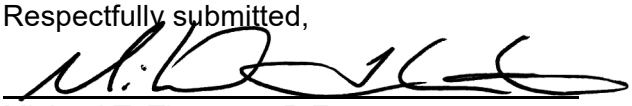
RECOMMENDATION

It is therefore recommended that the Board of Directors:

1. Authorize the General Manager to execute Professional Services Agreement with Black & Veatch in an amount not-to-exceed $416,600 for the Facility Plan Update; and

2. Discuss and take action as appropriate.

Respectfully submitted,



Michael T. Thornton, P.E.
General Manager

Attachment 1: Proposal, Scope and Fee Estimate – Black & Veatch Corporation

Attachment 1

BLACK & VEATCH

SAN ELIJO | JOINT POWERS AUTHORITY

San Elijo Joint Powers Authority

Facility Plan Update

April 11, 2024

April 11, 2024

Tom Falk, PE, Director of Infrastructure & Sustainability
San Elijo Joint Powers Authority (SEJPA)
2695 Manchester Avenue
Cardiff by the Sea, CA 92007

BLACK & VEATCH CORPORATION
300 Rancheros Drive, Suite 250, San Marcos, CA 92069
P +1 760-525-6843 | **E** DavisKN@bv.com

RE: Facility Plan Update

Your Facility Plan Update is an exciting opportunity to both improve and reimagine what your facility can achieve, and we are eager to support your vision for the next decade and beyond. Continuing our relationship with you as trusted partners, we will work closely with you to develop your 10-year plan, starting with a condition assessment of your existing facilities and progressing into asset management recommendations, supporting current and emerging regulatory requirements, and ultimately, a Capital Improvement Plan (CIP). We offer the following key benefits:

COLLABORATION. Your staff must be co-owners of the Facility Plan Update for the project to be a success. To ensure co-ownership of the plan, we will collaborate closely with you to understand the day-to-day operations of your facilities, your challenges, and your long-term vision for your facility. We will host workshops, site visits, and condition assessments so that we can develop innovative, technically sound recommendations, gaining your direction at every step on the way to your CIP.

PRACTICAL INTEGRATION. Building on your past successes developing thoughtful, creative solutions at your facility (from membrane treatments to solar improvements), we will help you plan innovative updates that can be seamlessly integrated into your existing facility. We will help you build a plan that will ensure near-term projects will positively impact future projects and support day-to-day operational needs without disruption of your facility. To maximize future funding, the plan will also integrate climate change considerations and the need for increased water resiliency measures.

TRUSTED ADVISOR. We have been honored to act in a trusted capacity with you for the past two decades, developing some of your most important projects with you, from your original recycled water master plan, to construction management of your headworks, to your current dewatering facilities improvements. We look forward to continuing our relationship, bringing you expertise in treatment, condition assessment, and cutting-edge practices for sustainable water practices.

The second page of our cover letter contains an executive summary of our proposal. It highlights our experience, goals, and approach to providing SEJPA with a comprehensive Facility Plan Update that meets the needs of the community **for the next 10 years and beyond.**

Executive Summary

A Team You know and Trust

Having partnered with SEJPA for the past 30 years, we have a deep understanding of your facilities, staff, and operations. Our team is committed and well-equipped to achieve your project objectives.

Achieving Goals Together: Leadership Who Understand Your Needs

You know our Project Manager John Bekmanis well as he has delivered your recent projects — on time and on budget. He knows what's important to you. He will be supported by Engineering Manager Rika Evans, a water reclamation specialist who is also well known to your staff. Together, John and Rika will stay focused on your project goals.

In-House Experts to Perform your Assessments

Local and experienced with SEJPA, Clinton McAdams and Keene Matsuda will perform your onsite condition assessment. They will be supported by Raghu Kadava, who will lead the pump assessment. Leveraging their industry expertise, they will identify necessary improvements to aid in the development of your CIP.

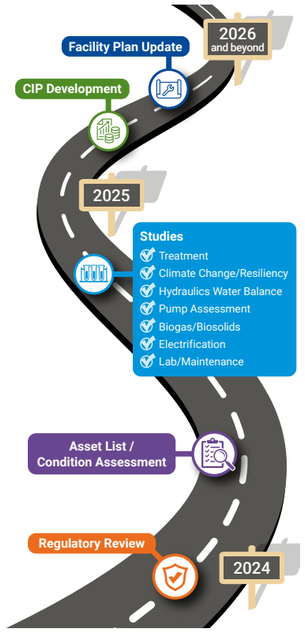
Process Leaders to Identify Your Future Capital Improvements

Our treatment and process experts Jon Liberzon, Arun Subramani, Lori Overhaug, and Scott Carr will bring decades of experience to identify process improvement for your facility that will be practical to integrate and serve your needs for decades to come.

LEVERAGING OUR EXPERIENCE TO ENHANCE YOUR WATER CAMPUS

We know your facilities well, which means we can perform our work efficiently while limiting impacts to your operations. By gathering input from your staff and using our in-house expertise, we will develop a Facility Plan Update that meets your project objectives. Ultimately, we will optimize your existing facilities and available space to accomplish your near-term projects while keeping your long-term vision in front of us.

PLANNING FOR THE NEXT 10 YEARS AND BEYOND

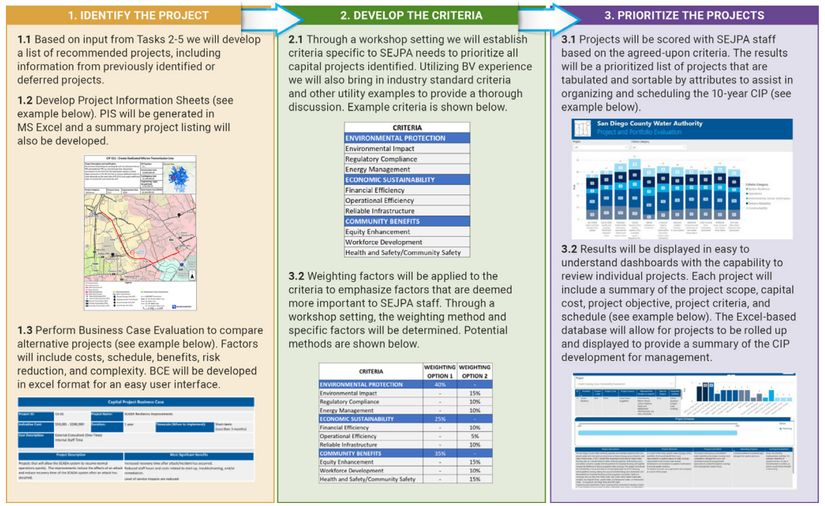


Our plan follows the structure of your RFP and outlines the steps we will take to develop your updated Facility Plan. From regulatory review, to condition assessments, to reviewing of technical studies, we will work collaboratively with your staff to create a concise Facility Plan Update.

Once completed, you will have the confidence to take the recommended Plan to your Board, as it will be transparent, practical to integrate, and work within your financial models.

PROVEN APPROACH TO PRIORITIZE YOUR NEEDS

Our step-by-step prioritization process, along with transparent analytics, will allow us to select, quantify, and optimize your CIP. Supported by a robust financial analysis, **we will deliver a Facility Plan update that is data-driven and defensible**.



Please feel free to call us with questions or comments at 760-525-6843 (Kevin) or 619-846-8112 (John)

Kevin N. Davis, PE, BCEE | Project Director, Vice President

John T. Bekmanis, PE | Senior Project Manager

TABLE OF CONTENTS

1. Identification of Responder

Legal Name & Address
Black & Veatch Corporation
11401 Lamar Ave.,
Overland Park, KS 66211

Legal Status of Contractor
Black & Veatch is a Corporation

Parent Company
Not Applicable

San Diego County Office
300 Rancheros Dr., Suite 250
San Marcos, CA 92069

Years Office Maintained in San Diego County
41 years

Number of Employees in San Diego County
74

Authorized Contact
Kevin Davis, PE, BCEE
Vice President
300 Rancheros Dr., Suite 250
San Marcos, CA 92069
760-621-8419
DavisKN@bv.com

2. Experience & Technical Competence

Trusted Advisor with Proven Expertise

Having partnered with you for more than two decades, we have become a trusted advisor in the development of your Water Campus. Utilizing our extensive experience in facility master planning, we will collaborate with you to deliver a clear and concise roadmap for the next decade and beyond.

Facility Planning Expertise

Black & Veatch stands out as a specialist in the development of facility master plans. Our professionals are experts in all aspect of your project needs from condition assessment, to treatment, biosolids, and electrification. We provide all these services in house without the need to rely on sub-consultants. Our team is fully integrated and will bring proven solutions that will provide a practical integration of your CIP for the next decade. **SEJPA will benefit from our in-house expertise. And having performed similar work for clients around the country, we bring a proven approach with practical solutions.**

Water Campus Experience

We have worked with you for over two decades and have a deep familiarity with your Water Campus. Project Director Kevin Davis was involved with your original master plan 20 years ago; more recently, we have supported your headworks construction management and your biosolids program. **This insider knowledge will allow us to quickly and efficiently get up to speed** to perform your condition assessment, develop a transparent CIP prioritization process, and **ultimately, produce a clear and concise Facility Plan Update.**

By utilizing our in-house expertise, we will deliver a Facility Plan Update that will be practical to integrate.

- ✓ Regulatory Review
- ✓ Asset Management
- ✓ Condition Assessment
- ✓ Climate Change / Resiliency
- ✓ Hydraulics
- ✓ Pump Assessments
- ✓ Biogas
- ✓ Biosolids
- ✓ Electrification
- ✓ CIP Development

1 Encina 2040 Master Plan

ENCINA WASTEWATER AUTHORITY (EWA) | CARLSBAD, CA

Black & Veatch developed a 25-year master plan for the Encina Wastewater Authority (EWA) called "Vision 2040" to evaluate how the EWA could adapt or adjust operations, infrastructure, and approaches to meet various future conditions.

SERVICES PROVIDED

EWA retained Black & Veatch to develop a 2040 Master Plan Document, "Vision 2040." The intent of this 25-year master plan was to consider different future scenarios and to determine how EWA could adapt or adjust the operations, infrastructure, and approaches to meet these various conditions.

The master plan included development of wastewater flow and solids loading projections and a plant-wide hydraulic profile, reflective of various improvements that had been completed.

The master plan also included an evaluation of a baseline projected condition as well as how EWA may adapt to potential scenarios, including major water cost escalation, major electrical cost escalation, major financial challenges, or more stringent air emission regulations. **Black & Veatch's evaluations provide unique insight on regional planning considerations that are relevant to SEJPA.**

For the baseline condition and the future scenarios, tactics (i.e., specific approaches or actions) were identified to address the changing conditions. The tactics were assessed and prioritized based on the ability to address the challenges, relative costs, relative risk, and consistency with EWA branding.

HIGHLIGHTS

Flow Projections & Hydraulic Profile Update
Flow and solids loading projections and an updated hydraulic profile for the plant were developed based on available planning documents published by member agencies and previous studies.

Scenario Planning
By developing baseline as well as extreme scenarios, the project team was able to develop robust and resilient strategies.

Tactics Prioritization & Implementation Plan
A wide range of tactics were identified, assessed, and prioritized to provide EWA with a roadmap for implementation.

Stakeholder Coordination
Key stakeholders, such as SEJPA, participated in workshops to provide valuable input in developing the scenarios and tactics.

Board-Friendly Executive Summary
The final report was complemented by a board-friendly executive summary that conveyed technical information in a way that is easy for Board members to understand.

Role
Project Management | Regulatory Impact Assessment | Scenario Planning & Analysis | Tactics & Implementation Strategy Development | Master Plan Preparation

Project Dates
2012 - 2014

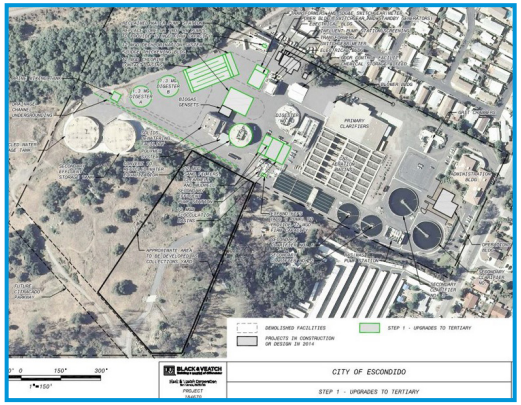
Key Team Members
Kevin Davis | Principal-in-Charge
Dave Cover | Assistant Project Manager and Technical Lead
Rika Evans | Lead Project Engineer

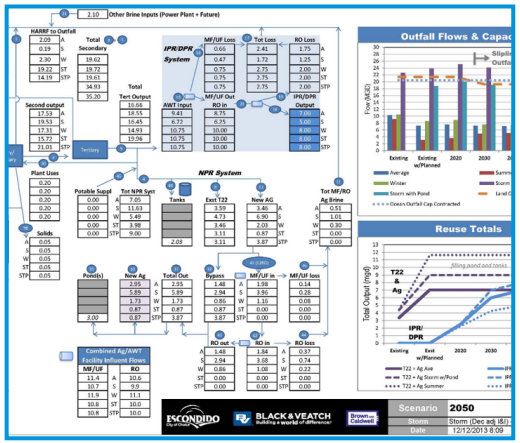
Client Reference
James Kearns
Senior Construction Manager
Direct: (760) 268-8843
E-mail: jkearns@encinajpa.com

2 POTABLE REUSE PROGRAM / HARRF MASTER PLAN

CITY OF ESCONDIDO | ESCONDIDO, CA

Development of the City's long-term direct potable reuse plan included phased facility improvements required at the Hale Avenue Resource Recovery Facility.





SERVICES PROVIDED

The City of Escondido has been a pioneer in the use of non-potable recycled water, collecting and treating wastewater at the Hale Avenue Resource Recovery Facility (HARRF) since 2001. The treated effluent is recycled and used for landscape irrigation and for cooling water at a local power plant. Black & Veatch partnered with the City on its Potable Reuse Program (Program), comprising planning, preliminary design, final design, and construction in capital improvements related to expanding non-potable and potable reuse facilities, while offsetting flows to the ocean outfall.

The project included a Programmatic planning study that developed near-and long-term improvements at the HARRF. **The phased reuse improvements allow the City to meet its long-term potable reuse goals while improving its ocean outfall constraints.** In addition to reuse improvements, planned wastewater improvements/upgrades included aeration basin diffuser replacement, additional aeration basins, digesters, sludge thickening system, and power supply. These improvements were developed in collaboration with City staff.

HIGHLIGHTS

Regulatory Compliance
Recommended improvements were developed to ensure treatment and discharge requirements met all regulatory compliance, while ensuring outfall capacity was not exceeded.

Implementation Strategy Development
A conceptual sequencing plan was developed for the HAARF expansion and upgrades to maintain plant operation during demolition and construction.

Stakeholder Workshops
Black & Veatch held a series of workshops with the City to refine improvements and develop phasing and construction sequencing.

Flow Allocation Model (Water Balance)
A detailed flow allocation model was developed to understand the requirements and limitation of the existing and proposed facilities. Inflows to HARRF, treatment process, reuse demands (NPR and DPR), storage, and discharges to the outfall were all considered.

Role
Program Management | Regulatory Impact Assessment Scenario Planning & Analysis | Implementation Strategy Development | Master Plan Preparation | Cost Estimates

Project Dates
2014 - 2024

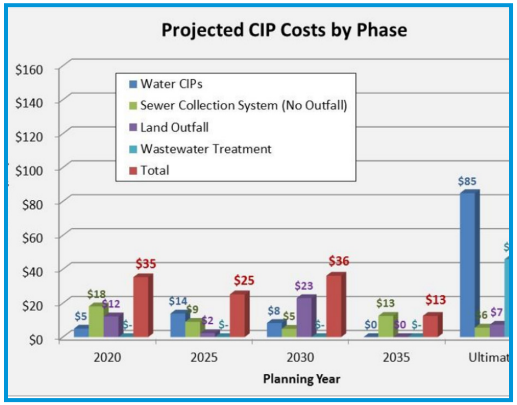
Key Team Members
Kevin Davis | Principal-in-Charge
Dave Cover | Technical Lead
John Bekmanis | Project Manager
Rika Evans | Engineering Manager

Client Reference
Angela Morrow, PE
Interim Director of Utilities
Direct: (760) 839-6290, ext 7030
E-mail: amorrow@escondido.org

3 Water, Wastewater, & Recycled Water Master Plan | Asset Management Plan

VALLECITOS WATER DISTRICT | SAN MARCOS, CA

Through these plans, the District has a roadmap for their facility improvements based on level of service, condition, and expenditure goals.



SERVICES PROVIDED

Water, Wastewater & Recycled Water Master Plan

Black & Veatch worked with the District to develop an Integrated Water, Wastewater, and Recycled Water Master Plan that provided the District with short- and long-term capital improvement needs for all their infrastructure systems. The Master Plan Black & Veatch developed for the District recommended more cost-effective improvement projects than the previous Master Plan, thus reducing the District's long-term capital improvement needs.

Asset Management Plan

Black & Veatch assisted the District with the development of an overall Asset Management Plan to organize future investments to their assets. Steps of the plan development included review of level of service, development of asset registry and fact sheets, desktop condition assessment, a business risk exposure analysis, renewal and replacement schedule, and funding strategy.

HIGHLIGHTS

CIP Development

The team developed short-, mid-, and long-term capital improvement projects, including implementation and cost schedules.

System Analysis

Impacts to existing facilities, including lift stations, force mains, treatment plants, and the outfall were analyzed and needed improvements identified.

Condition Assessment

A desktop condition assessment was performed to determine current state, establish processes and procedures, and to determine remaining useful life of the asset.

Financial Summary

Assets were evaluated by their risk models to determine the ideal replacement year based on different financial forecast models. Results were used to prioritize renewal and replacements expenditures.

Role

CIP Development | System Analysis | Cost Estimates | Desktop Condition Assessment | Asset Management Renewal and Replacement Analysis

Project Dates

2022 - 2024

Key Team Members

Kevin Davis | Principal-in-Charge
John Bekmanis | Project Manager
Caitlin Schell | Asset Management Lead

Client Reference

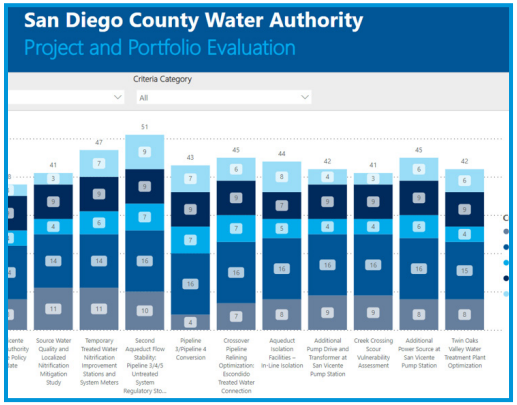
James Gumpel, PE
General Manager
Direct: (760) 744-0460, ext 274
E-mail: jgumpel@vwd.org

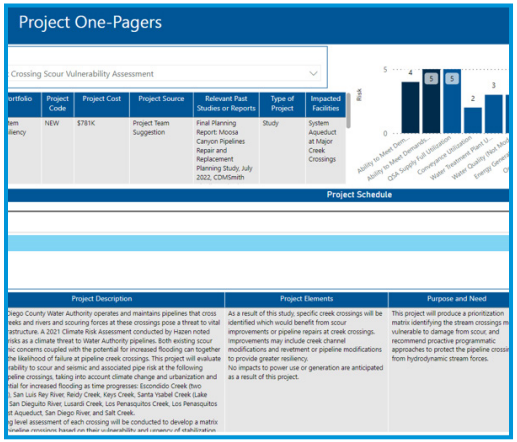
Eric Bennet
Assistant O&M Manager
Direct: (760) 752-7173
E-mail: ebennett@vwd.org

4 2023 Water Facilities Master Plan

SAN DIEGO COUNTY WATER AUTHORITY | SAN DIEGO, CA

Through this master plan update, new capital improvement projects will be identified and prioritized to ensure uninterrupted supply to the Water Authority's member agencies. A focus of the master plan is resiliency and reliability.





SERVICES PROVIDED

The Water Authority has led Southern California in securing long-term, drought resilient water supplies for the residents of San Diego County. Prolonged droughts and state mandates have created a much different paradigm driving the Water Authority's conservation requests and member agency investments in local supplies, primarily through water reuse. The resulting decrease in regional demand has created long hydraulic retention times, which affects water quality and operational effectiveness.

This master plan will assure member agencies' water demands are met by the Water Authority in a reliable and cost-effective manner through the 2045 planning horizon. The master plan will demonstrate the criticality of water infrastructure in supporting a diverse water supply portfolio for the region and highlight water infrastructure planning recommendations to address near-term and long-term challenges.

HIGHLIGHTS

CIP Development and Prioritization
New capital improvement projects provide system resiliency and reliability. Projects were prioritized to help establish implementation schedules and cost expenditures.

Alternative Analysis
New and existing projects were evaluated against performance criteria, including costs, risk, environmental, operations, reliability, and other attributes to establish performance goals.

Cost Estimates
High-level costs were developed for each newly identified project, including capital costs, soft costs, and contingencies.

Stakeholder Workshops
Workshops with all stakeholders with operations staff and member agencies were held to gather input and discuss findings of the work performed.

Role
CIP Development and Prioritization | Facility Planning | Cost Estimates | Resiliency Planning | Stakeholder Coordination | Climate Change

Project Dates
2022 – Ongoing

Key Team Members
Kevin Davis | Principal-in-Charge
John Bekmanis | Project Manager

Client Reference
Jeremy Crutchfield, PE
Senior Engineer
Direct: (858)522-6600
E-mail: jcrutchfield@sdcwa.org

5 CONDITION ASSESSMENT PROJECT EXPERIENCE

We have developed advanced techniques and technologies to assess the condition of infrastructure and identify potential issues before they become major problems. Our team of experts uses a comprehensive approach to evaluate the structural, mechanical, and electrical components of assets, providing clients with accurate and actionable information to make informed decisions.

RWF Pump Station Condition Assessment | City of San Jose, CA

Black & Veatch is conducting a condition assessment of three pump stations within the RWF to assess deficiencies and identify improvements needed to keep them operational for the next 30 years. Structural, mechanical, electrical, and instrumentation and controls assets were assessed for the 200+ MGD pump stations. The plan for condition assessment activities were closely coordinated with O&M to minimize RWF disruptions. The plan included assessment and testing approaches, identifying division of responsibilities, work sequencing, site-specific safety plans, and confined space and wet well dewatering planning. Based on the results, Black & Veatch developed an implementation plan that will be the basis for the next phase.

Role
Project Management | Condition Assessment | Cost Estimating | Constructability Review | CIP Development

Project Dates
2022-Ongoing

Key Team Members
Clinton McAdams, *Engineering Mgr* | Raghu Kadava, *Pump Technical Specialist*

Client Reference
Tie Feng
Senior Engineer
Direct: (408) 635-4025
E-mail: tie.feng@sanjoseca.gov

P1-126 Primary Clarifier Replacement & Improvements | OCSAN

Black & Veatch performed a condition assessment on 42- to 72-inch pipelines to determine which construction method - rehabilitation or replacement was the most appropriate cost-effective solution for the Primary Sedimentation Basins 3-5 improvement project. The condition assessment used a combination of robotic and person entry inspection. Through the analysis, it was determined rehabilitation of three 42-inch pipes, a 68-inch pipe, and a 72-inch pipe was feasible and a better, cost-effective solution than replacing the existing pipelines. CIPP was recommended for the 42-inch and 72-inch pipelines. A carbon fiber epoxy resin structural repair of the 68-inch pipe was recommended due to the pipeline having a curve in the alignment.

Role
Project Management | Condition Assessment | Cost Estimating | Alternative Analysis | Final Design

Project Dates
2022-Ongoing

Key Team Members
Clinton McAdams, *Technical Lead*
Keene Matsuda, *Lead Electrical Engineer*

Client Reference
Bob Tran, PE
Senior Engineer
Direct: (714) 593-7463
E-mail: btran@ocsan.gov

Asset Management Program and Engineering On-Call | Coachella Valley Water District

We were selected to undertake an enterprise Asset Management implementation program. Through this effort, our we worked closely District staff to stand up the CMMS program, NEXGEN. Our team was tapped to also aid CVWD with GIS data structuring and database cleanup giving us firsthand knowledge of system record data. Black & Veatch partnered with CVWD to perform key engineering design at WRPs 4, 7, and 10 (three of their key critical facilities) and wastewater lift stations 81-07 and 55-12 to develop construction drawings and specifications for expansions and improvements to the tertiary treatment and odor control facilities. As a previous and current consultant on the District's engineering on-call list, we have been asked to work on urgent and/or critical tasks.

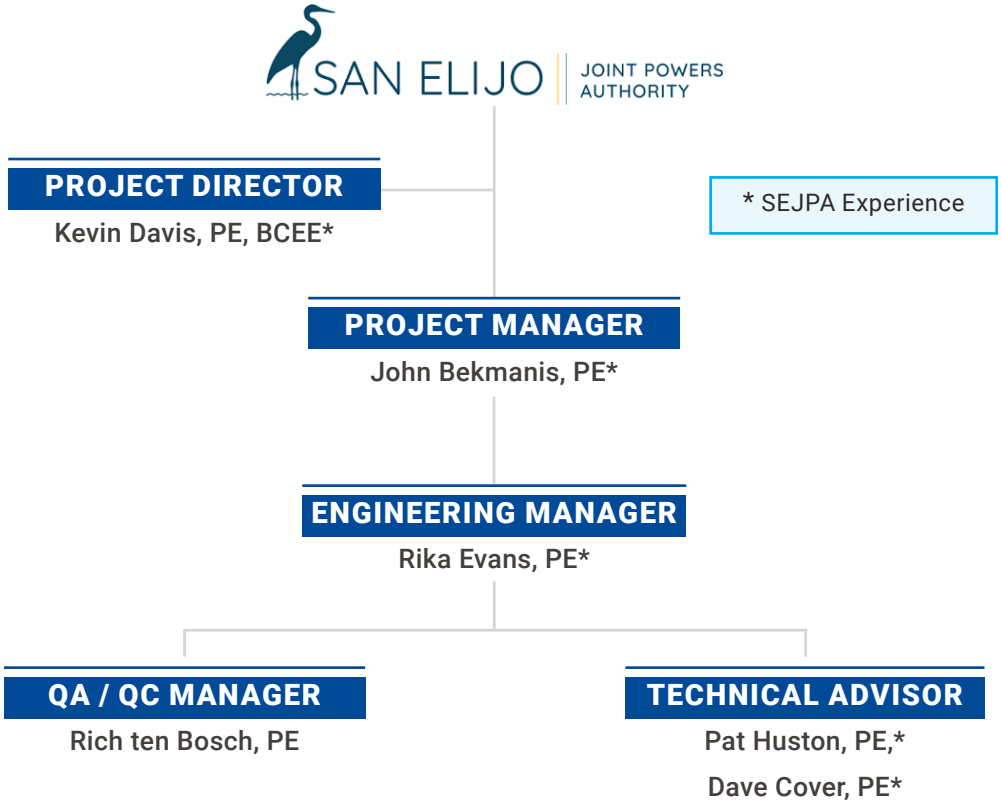
Role
Project Management | Condition Assessment | Cost Estimating | Climate Change / Resiliency Alternative Analysis | Final Design | Electrification

Project Dates
2017-Ongoing

Key Team Members
Clinton McAdams, *Engineering Mgr*
Marina Kopytkovskiy, *Project Planner*
Vince Faraone, *Lead Design Engineer*

Client Reference
Dan Charlton
Assistant GM
Direct: (760) 398-2714
E-mail: dcharlton@cvwd.org

3. Project Organization & Key Personnel



REGULATORY REVIEW
Ufuk Erdal, PhD, PE

CLIMATE CHANGE / RESILIENCY
Marina Kopytkovskiy, PE

BIOGAS UTILIZATION
Lori Overhaug, PE*

ASSETS / CIP DEVELOPMENT
Caitlin Schell

CONDITION ASSESSMENT
Clinton McAdams, PE*
Keene Matsuda, PE*

HYDRAULIC ANALYSIS / WATER BALANCE
Vince Faraone, PE

BIOSOLIDS REUSE
Scott Carr, PE, BCEE*

COST ESTIMATING
Steve Hull, LEED AP

TREATMENT
Jon Liberzon, PE (Conventional)
Arun Subramani, PE (Traditional)

PUMP ASSESSMENT
Raghu Kadava, PE

ELECTRIFICATION
Cheshta Balwani

Key Personnel with Expertise and Trusted Leadership

This project's success depends on personnel having the right expertise and facility knowledge. Our key personnel are experts in the development of facility master plans, many of whom have worked on projects at your water campus.

Our team offers trusted leadership who have demonstrated their effectiveness in similar projects and have a proven history in working with you. **Our Management Team has worked on your recent Biosolids Program, including our Project Manager John Bekmanis and Engineering Manager Rika Evans.** Moreover, John and Rika have a strong history of working collaboratively with your staff, know your facility, and are highly responsive.

John brings the ideal combination of leadership and management skills to galvanize the team toward a common goal. He will oversee the project schedule and budget, and communicate day-to-day with your project manager. Rika will lead the day-to-day execution of the technical work. She will work with our experts on the various aspects of the project to ensure the technical delivery meets your expectations, is clear and concise and is founded upon decisions that will lead to practical solutions.

EXPERIENCE YOU CAN TRUST

John and Rika's experience with SEJPA's Biosolids Program gives them a deep understanding of SEJPA's goals, operations, and stakeholders.

Key Personnel

PROJECT DIRECTOR

Kevin Davis
PE, BCEE

Kevin will provide oversight to the project and quality review. He will ensure that all necessary resources are available to complete the project successfully.

WHY KEVIN?

- Trusted advisor with over 20 years of experience with SEJPA
- Served as PM for SEJPA's Recycled Water Optimization and Expansion Study
- Skilled at overseeing the development of master plans for water and wastewater infrastructure projects

OFFICE LOCATION
San Marcos, CA

PROJECT MANAGER

John Bekmanis
PE

John will be your day-to-day interface. He is accessible and collaborative, and will proactively manage this interdisciplinary team to deliver results.

WHY JOHN?

- Over 28 years of experience in the design and management of water facilities
- Served as PM for SWEC Biosolids Study and Dewatering Facilities Upgrades and is very familiar with your facilities
- Relevant experience executing master plan development and performing condition assessment work

OFFICE LOCATION
San Marcos, CA

ENGINEERING MANAGER

Rika Evans
PE

Rika will work closely with John and the technical specialists to oversee all engineering aspects of studies and effectively orchestrate the Facility Plan Update.

WHY RIKA?

- Over 20 years of experience in design of water pollution control and resource recovery facilities
- Served as EM for SEWC Biosolids Study and Dewatering Facilities Upgrades and is very familiar with your facilities
- Relevant experience executing master plan development

OFFICE LOCATION
San Marcos, CA

Our team brings over 20 years of experience in working at your water campus. We will build upon our knowledge of your facility and relationships with your staff to deliver a project that will exceed your project objectives and deliver a roadmap for the next decade and beyond.

Key Personnel

Our team of technical advisors and subject matter experts will work closely with SEJPA to understand your unique needs and goals, and develop customized solutions that meet your specific requirements. With our expertise in asset management, condition assessment, and data analytics, we can help SEJPA prepare a comprehensive facility plan that optimizes your assets, reduces costs, and improves overall operational efficiency.

QA/QC

Rich ten Bosch, PE

OFFICE LOCATION: Irvine, CA

Rich has over 40 years of experience in water and wastewater engineering, specializing in planning, treatment, design, and construction. Rich will guarantee a high-quality Facility Plan Update that is clear and concise and make certain that errors are prevented.

TECHNICAL ADVISOR

David Cover, PE

OFFICE LOCATION: San Marcos, CA

David specializes in providing technical advice for the development of master plans for water and wastewater projects. With over 25 years of experience, he possesses an in-depth knowledge of water quality, treatment, and infrastructure design, making him an invaluable technical advisor for SEJPA's master planning efforts.

CONDITION ASSESSMENT - CIVIL/MECH

Clinton McAdams, PE

OFFICE LOCATION: Los Angeles, CA

Clinton's experience includes conducting condition assessments, developing risk-based capital improvement plans, providing asset management program support, managing engineering design and construction services, and overseeing contract administration. His expertise in these areas will allow him develop tailored solutions to maximize SEJPA's infrastructure investments.

CLIMATE CHANGE / RESILIENCY

Marina Kopytkovskiy, PE

OFFICE LOCATION: Denver, CO

Marina brings extensive experience in water resources and resiliency to SEJPA's master plan development. With her expertise managing complex programs and projects, she can prioritize resiliency and sustainability in the face of environmental changes.

TECHNICAL ADVISOR

Pat Huston, PE

OFFICE LOCATION: San Marcos, CA

Pat's 30 years of experience in water, wastewater, and reclamation service areas and successful completion of dozens of projects for SEJPA will allow him to provide insight on effective facilities management strategies that benefit the community and the environment.

REGULATORY REVIEW

Ufuk Eradal, PhD, PE

OFFICE LOCATION: Irvine, CA

Dr. Erdal has over 30 years of experience and has delivered key water reuse projects globally, providing sustainable and cost-effective design solutions. He has contributed to the development of water reuse regulations in several states, and has served as the director on the Water Research Foundation Board to develop sustainable water management solutions.

CONDITION ASSESSMENT - ELECTRICAL

Keene Matsuda, PE

OFFICE LOCATION: Irvine, CA

Keene's extensive experience in condition assessment enables him to provide valuable insights into the condition of electrical power distribution systems. With his expertise, he can identify any potential issues and provide recommendations to ensure that systems are maintained at optimal levels.

HYDRAULICS / WATER BALANCE

Vincent Faraone, PE

OFFICE LOCATION: Denver, CO

Vince has over 15 years of experience in preliminary and detailed design, cost estimating, and specification for municipal facilities. His expertise in pumping stations, wastewater treatment plants, collection systems, and support facilities makes him a valuable asset for SEJPA's master plan development.

Key Personnel

TREATMENT - CONVENTIONAL

Jon Liberzon, PE

OFFICE LOCATION: Irvine, CA

Jon specializes in wastewater process design, optimization, and commissioning with expertise in novel technologies such as Proteus©, AMX©, FMX©, and high-rate A-stage industrial pretreatment. With his help, SEJPA can implement sustainable and innovative wastewater treatment solutions, optimizing resource utilization and reducing operating costs.

PUMP ASSESSMENT

Raghu Kadava, PE

OFFICE LOCATION: Overland Park, KS

Raghu brings extensive experience in pump station design and assessment to SEJPA's master plan development. With over 17 years of experience, he has worked on a variety of water, wastewater, and storm water projects involving pump station design, construction, and evaluation.

BIOGAS / BIO SOLIDS

Scott Carr, PE

OFFICE LOCATION: Kansas City, MO

Scott has 38 years of experience in biosolids management, including master planning and construction administration. He led the rewriting of the thermal drying section in the WEF MOP8 Wastewater Process Design Manual, and contributed to the EPA's revised Sludge Processing Manual and the ASCE/AWWA/USEPA Technology Transfer Handbook for Management of Water Treatment Plant Residuals.

CIP DEVELOPMENT

Caitlin Schell

OFFICE LOCATION: Las Vegas, NV

Caitlin's proficiency in hydraulic analysis, water distribution modeling, water quality, and system optimization makes her an asset in the development of critical infrastructure and prioritization of CIP projects.

TREATMENT - ADVANCED

Arun Subramani, PE

OFFICE LOCATION: Irvine, CA

Arun's ability to identify the latest technologies and techniques in water treatment will be invaluable in the development of a master plan for SEJPA that is both innovative and practical. His extensive experience in the industry will enable him to navigate the complexities of the water treatment landscape in the cities SEJPA serves.

BIOGAS UTILIZATION

Lori Overhaug, PE

OFFICE LOCATION: Overland Park, KS

Lori's expertise in digester gas utilization and treatment design will help her develop innovative biogas utilization solutions for SEJPA's Facility Plan Update. With her knowledge, SEJPA can achieve sustainability goals, reduce operating costs, and maximize energy utilization.

ELECTRIFICATION

Cheshta Balwani, PE

OFFICE LOCATION: Walnut Creek, CA

Cheshta will apply her extensive experience in clean energy and transportation solutions to developing SEJPA's master plan with a specific focus on sustainability and energy efficiency. Her expertise in high-power charging, fuel use cases, distributed energy, and fleet electrification will enable her to identify and implement energy-efficient solutions for the project.

COST ESTIMATING

Steve Hull, LEED AP

OFFICE LOCATION: Denver, CO

Steve's experience in estimating water and wastewater treatment facilities and heavy civil projects will be valuable in SEJPA's master plan development. He will provide detailed, accurate, and cost-competitive estimates, which are essential in a comprehensive and effective master plan.

4. Project Approach

Planning for the Next 10 Years and Beyond

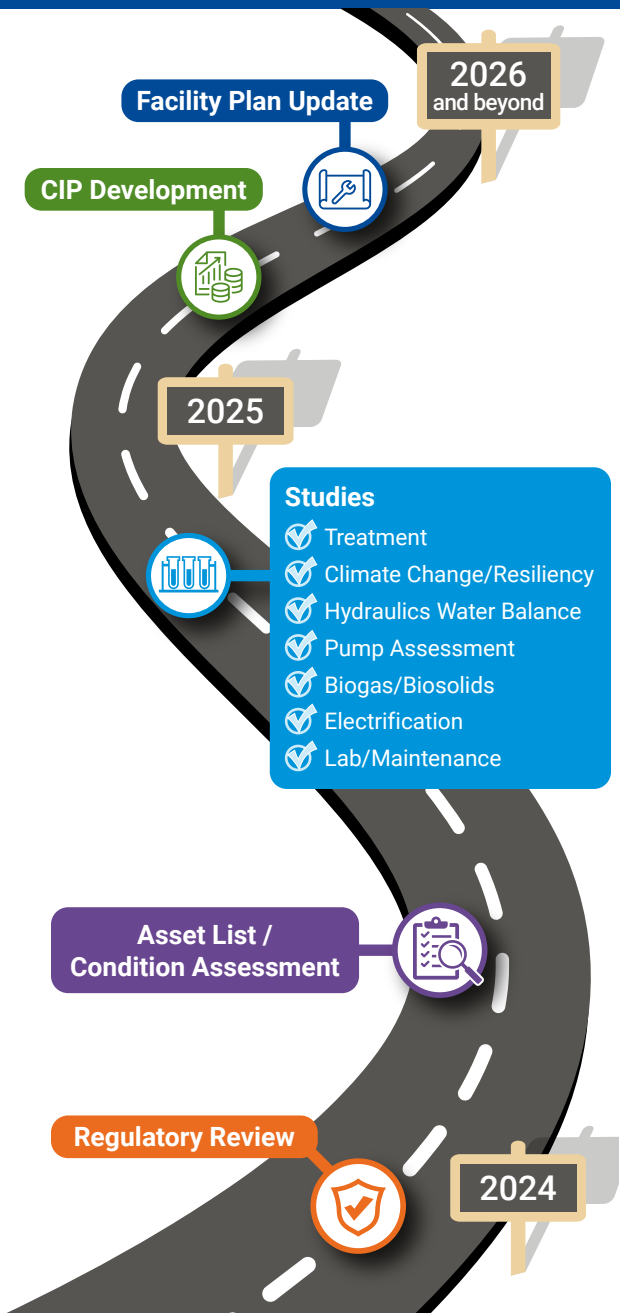
For over 60 years, the SEJPA Water Campus and associated facilities have served the cities and communities of Solana Beach, Rancho Santa Fe, Encinitas, and Del Mar flawlessly, in regulatory treatment and beneficial use of recycled water. Through this RFP, SEJPA is seeking to plan the next decade of improvements by assessing the condition of the existing major facilities to meet future performance expectations and to present a prioritized plan that best meets those needs.

Our approach in helping SEJPA accomplish those goals is shown in the figure to the right and is presented in more detail in the following pages. As illustrated, our plan follows the structure of your RFP and outlines the steps we will take to develop the updated Facility Plan. Starting with initial regulatory review and moving on to performing condition assessments (both in field and desktop), to review of technical studies, to developing and prioritizing your a capital improvements plan, we will collaboratively create a concise Facility Plan Update that will be practical to integrate.

Several Critical Success Factors

With the information gained from our meetings with SEJPA staff and contained in the RFP, we developed the following critical factors for project success. On the pages that follow, we summarize our key understanding for the major work items by facility area and describe the work approach in detail.

CRITICAL SUCCESS FACTOR	BENEFITS THE BLACK & VEATCH TEAM BRINGS TO SEJPA
Meet budget expectations while helping to identify facility needs	We will utilize our expertise in performing both in-field and desktop condition assessment work to effectively and efficiently identity risks and find ways to repair, replace, or extend the life of your major facilities. This will be the back-bone for the Facility Plan Update.
Plan for the future and meet current needs	Projects identified from the work effort will need to work with one another and be adaptable. Projects will need to consider client change and resiliency as well account for triple bottom line impacts to be eligible for the types of fund-ing that the SEJPA has been so successful at achieving in the past.
Provide a plan that is practical to integrate while working within your spending limits	We will collaborate with your staff to create a plan that addresses your most critical items first. The plan will work in concert with your anticipated yearly budgets based upon grants, pay go, or financing.



APPROACH TO EVALUATE THE WORK AT YOUR WATER CAMPUS

We will work efficiently and effectively to minimize disruption to your operations and staff. Our team will evaluate the overall condition of the water campus and perform hydraulic analysis of its main components. We have highlighted below, areas our team will evaluate based on understanding of your project objectives.

By leveraging our expertise and incorporating input from your staff, we will develop a Facility Plan Update that aligns with your 10-year planning horizon and beyond. You can present the recommended Plan to your Board with confidence, as it will be transparent, practical to integrate, and financially feasible.

1 PRIMARY TREATMENT

- 1.1 Evaluate the addition of a third screen channel to pass peak storm events
- 1.2 Wet weather storage
- 1.3 Pump assessment

2 SECONDARY TREATMENT

- 2.1 Review proposed nitrification / de-nitrificaiton improvements
- 2.2 Additional storage
- 2.3 Pump assessment

3 SOLIDS TREATMENT

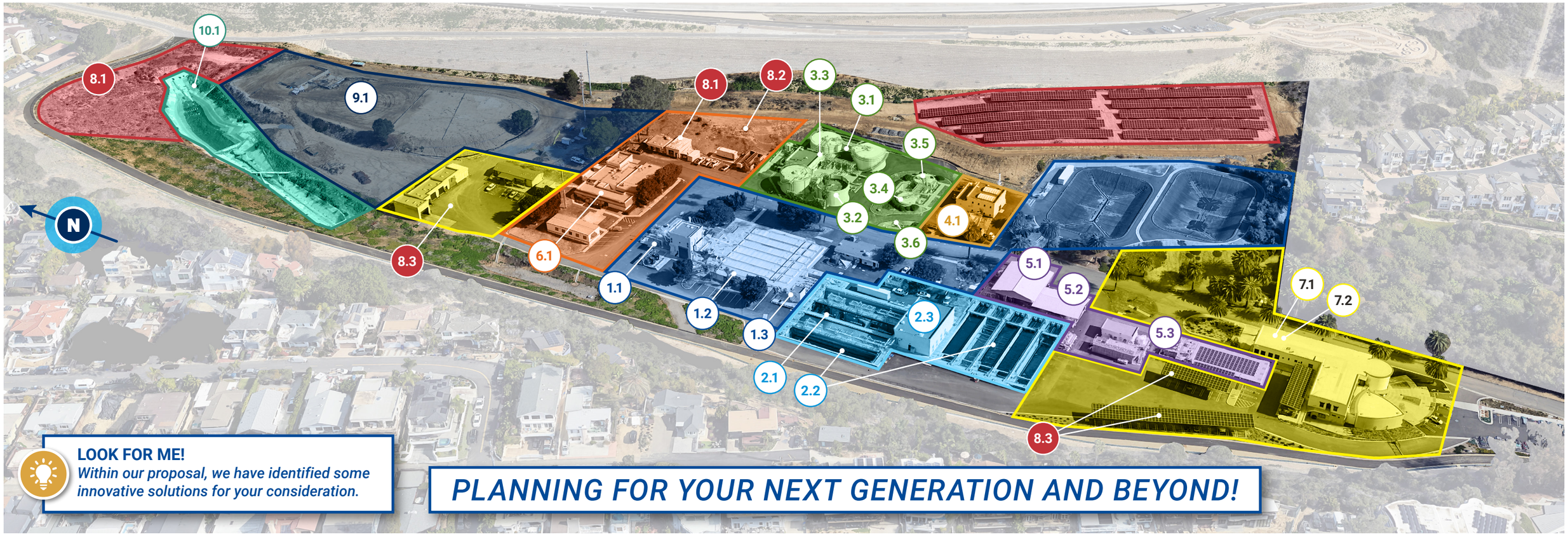
- 3.1 Review previous solids master plan
- 3.2 Evaluate digester rehab or replacement
- 3.3 Biogas treatment for usage in boiler
- 3.4 DAF rehab or replace with SAF
- 3.5 Pump assessments
- 3.6 Flare replacement

4 BIOSOLIDS DEWATERING

- 4.1 Review previous solids mater plan and dewatering improvements. Likely no CIP needed.

5 TERTIARY / ADVANCED TREATMENT

- 5.1 Review previous studies
- 5.2 Membrane treatment rehab and/or expansion
- 5.3 Pump assessment



6 LABORATORY / MECHANIC

- 6.1 Incorporate findings for lab and mechanic shop recommendations

7 ADMIN / OPS / CITY COLLECTIONS

- 7.1 Evaluate cyber security (optional service)
- 7.2 Evaluate SCADA updates (optional service)

8 SOLAR / ELECTRIFICATION

- 8.1 Evaluate additional solar
- 8.2 Evaluate battery storage
- 8.3 Evaluate fleet electrification charge stations

9 DIRECT POTABLE REUSE

- 9.1 Incorporate Direct Potable Resue

10 STORMWATER CAPTURE

- 10.1 Evaluate stormwater capture / reuse

Regulatory Review

We understand that potential future changes in regulations and associated permit conditions could impact your decisions on future facility planning. Key regulations include a variety of water quality regulations for disposal and reuse of treated effluent, biosolids regulations, air emissions regulations, and building codes.

Our regulatory experts have in-depth knowledge of the latest regulatory landscape, which includes federal and state regulations associated with beneficial use of Class B cake. Currently, Class B cake is hauled to Arizona for land application, but navigating the complex and fluid regulations can be challenging. Our experts are well-versed in the latest State of Arizona legislation, such as House Bill 2669, which pertains to land application of Class B biosolids. Additionally, they can provide guidance on federal and state per- and polyfluoroalkyl substances (PFAS) legislation, as well as Senate Bill (SB) 1383, which focuses on reducing short-lived climate pollutants (SLCPs) like methane.

We will review a draft regulatory review by Dr. Welch and provide expert input to further enhance the memorandum to support prioritization of future capital projects.

Your pending upgrades to your secondary treatment process will aid in meeting regulatory requirements and assist in your goals of providing high quality reuse water.

United States Environmental Protection Agency

ADEQ Arizona Department of Environmental Quality

San Diego County Air Pollution Control District

- Biosolids beneficial use
- Air emissions, including flares, odor control facilities, potential energy recovery project
- Effluent discharge and water reuse
- Building code compliance

California Water Boards San Diego - R9

California Water Boards | State Water Resources Control Board

California

Black & Veatch has successfully partnered with Dr. Welch on regulatory review, permit renewal, and other regulatory support services projects for many clients in Southern California. We're familiar with the anticipated work product by Dr. Welch and will be able to efficiently and effectively incorporate the key findings into the body of the Facility Plan Update to help you navigate the planning decisions.

ASSET LIST

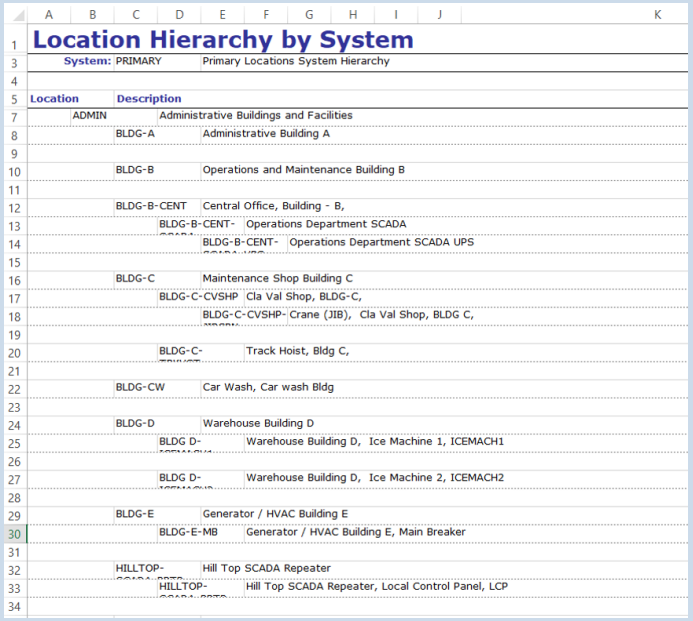
SEJPA currently supports over 600 existing assets within your eMaint database computerized maintenance management system (CMSS), in support of preventive work orders for your water campus, pump stations, and recycled water systems. While performing the condition assessment work, Black & Veatch will identify deviations or deficiencies from the asset list. Any changes noted will be updated into the eMaint database system; in addition, all assets both existing and newly identified will receive a condition score to aid in the development of the CIP project list and ranking.

Innovative Idea:
Utilize user-friendly PowerBI dashboards to illustrate asset and condition

Black & Veatch has a strong history of working with various CMSS systems around the country as our clients all have different likes and needs. From shelf-ready systems to client-developed systems, we will utilize proven experience to efficient identify, score, and update your assets. Assets will be developed in an easy-to-use interface so any users, from operations staff to management, can quickly review the assets and current condition. **The goal of this work assignment will be to provide you with a means to clearly understand the condition of your various assets, which will then aid in the development of your project rankings.**

REVIEW DATA FROM eMAINT

- BV experience will help optimize review of data
- Incorporate condition data for all assets



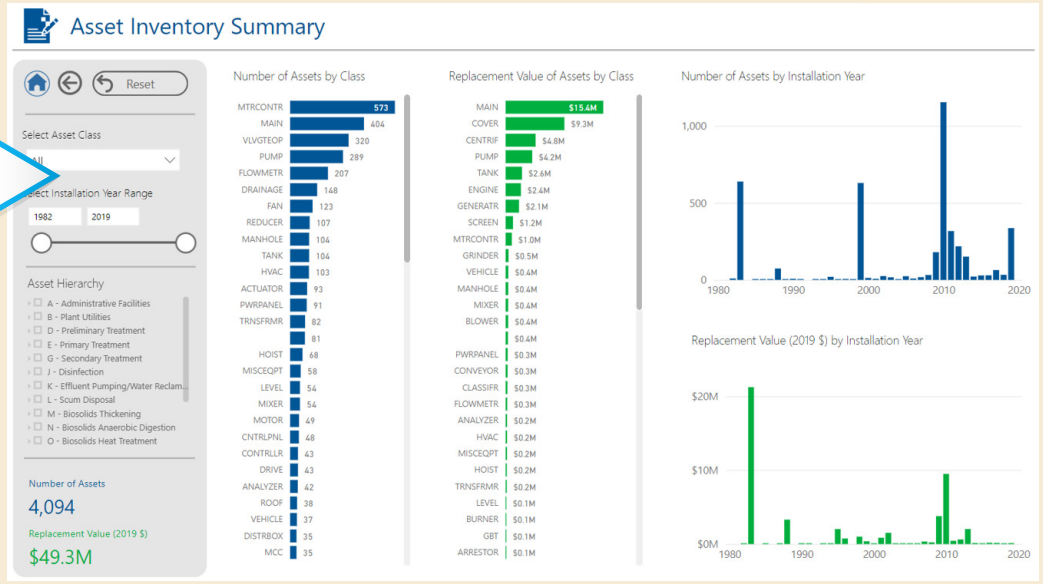
Location Hierarchy by System

System: PRIMARY — Primary Locations System Hierarchy

Location	Description
ADMIN	Administrative Buildings and Facilities
BLDG-A	Administrative Building A
BLDG-B	Operations and Maintenance Building B
BLDG-B-CENT	Central Office, Building - B,
BLDG-B-CENT-	Operations Department SCADA
BLDG-B-CENT-	Operations Department SCADA UPS
BLDG-C	Maintenance Shop Building C
BLDG-C-CVSHP	Cla Val Shop, BLDG-C,
BLDG-C-CVSHP-	Crane (JIB), Cla Val Shop, BLDG C,
BLDG-C-	Track Hoist, Bldg C,
BLDG-CW	Car Wash, Car wash Bldg
BLDG-D	Warehouse Building D
BLDG D-	Warehouse Building D, Ice Machine 1, ICEMACH1
BLDG D-	Warehouse Building D, Ice Machine 2, ICEMACH2
BLDG-E	Generator / HVAC Building E
BLDG-E-MB	Generator / HVAC Building E, Main Breaker
HILLTOP-	Hill Top SCADA Repeater
HILLTOP-	Hill Top SCADA Repeater, Local Control Panel, LCP

UTILIZE GRAPHICS FOR ANALYSIS

- Visualize data through Excel or PowerBI for thorough analysis
- Where gaps are present, include information to updated in eMaint
- Develop desktop buried yard pipe inventory



We will build from our decades of experience in the use of CMMS to quickly and efficiently add and/or update your assets. Visual graphics will be developed to aid your staff, both operations and management, to understand current condition and help foster the development of your CIP.

ASSET INVENTORY UPDATE AND STRATEGY FOR CONDUCTING CONDITION ASSESSMENTS

Fast-Start for Effective Success

In 2007, you defined your assets into two groups, very good and very poor condition. We will leverage those definitions to quickly update your asset condition rankings and develop condition decay curves for better informed decision making. In the last five years, we have supported 25+ other California agencies with asset inventories and condition assessments. Clinton McAdams will be the condition assessment lead, having led similar projects for your neighbors in Southern California.

We will use ESRI Survey123 to collect field data in an organized manner and for seamless integration into SEJPA's database. An example form is shown to the right. Survey123 is an off-the-shelf product that we will train your staff while onsite for future use, like we did for Coachella Valley Water District and Irvine Ranch Water District. Leveraging available data, we will pre-populate electronic field forms, saving your staff time while onsite and highlighting anticipated worse-case conditions to focus on. We used this same approach for the Coachella Valley Water District, efficiently and effectively assessing their four treatment facilities. Based on the condition assessment results, we will make project recommendations for consideration as part of the CIP development. We will complete the assessment in the following timeframes:

- SEWC = 2 days
- Pump stations = 4 days
- Total = 6 days

Efficient field data allows for quick decision-making based on accurate and up-to-date information.

In just one day, our team efficiently collected field data using Survey123 and completed a full assessment of a 200+ MGD pump station at the San Jose-Santa Clara Regional Wastewater Facility.

Innovative Ideas

- ***Seamless data integration with SEJPA database***
- ***Pre-populated forms for onsite efficiency***

PRE-DEFINED CONDITION RANKINGS STREAMLINE FACILITY ASSESSMENTS

We will use your pre-defined condition rankings from the 2015 Facility Plan (show below) for the remote facility condition assessments. This provides a normalized condition to prioritize assets between different disciplines and facilities (e.g., plot if pipe or MCC in worse condition to know where to allocate resources). We used this same approach for Irvine Ranch Water District to assess their facilities, creating a repeatable and defensible process.

2015 Comments:

2015 Performance score:
3 - Moderate Deterioration

2015 Physical score:
3- In Service, but Function is Impaired

Site Name/Location *
Example
South Pump Station

Asset Discipline *
Example
Mechanical

Asset Name/Description *
Example
Main Pump 2

Asset ID
Example

Installation Date
Example
2008

Last Major Refurbishment
Example

2015 Update Notes:

We provide pre-populated forms to evaluate onsite efficiency and changing conditions, simplifying data collection and providing a structured framework for assessments.

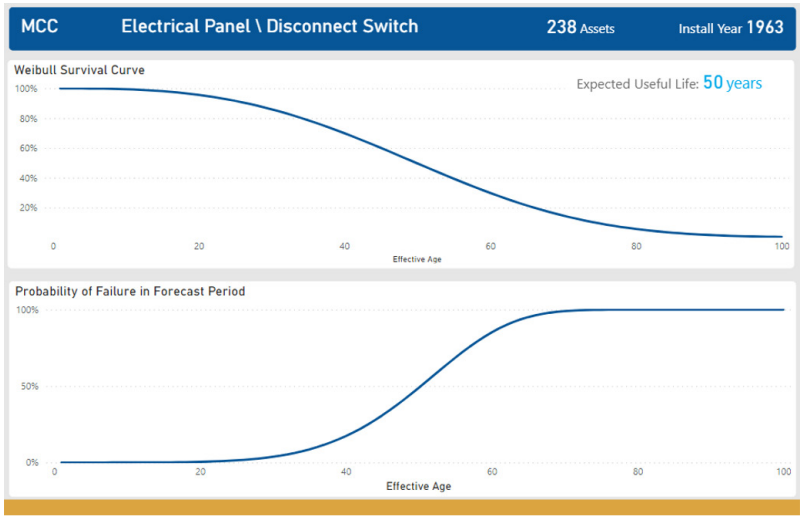
ASSET INVENTORY UPDATE AND STRATEGY FOR CONDUCTING CONDITION ASSESSMENTS

Led by Clinton McAdams, licensed civil engineer and certified asset manager, our team will consist of Keene Matsuda, licensed electrical engineer, and Raghu Kadava, licensed mechanical engineer and certified pump systems assessment professional. We are providing you the same team that has worked together for other California wastewater agencies, like OC San, Western MWD, City of San Jose, and City of West Sacramento.

Our in-house team is experienced with condition assessment and design, enabling us to best identify needed improvements and understand costs, schedule, and constructability to implement recommended improvements.

Clinton McAdams has led assessments of similar sized pump stations for other Southern California wastewater agencies like Encina Wastewater Authority, City of Vista, Western MWD, Inland Empire Utilities Agency, Moulton Niguel Water District, and Coachella Valley Water District. Clinton and **Raghu Kadava** provided similar pump capacity assessments for the Cities of San Jose and West Sacramento. Clinton and **Keene Matsuda** provided a similar treatment facility assessment for OC San, which effectively prioritized replacement and rehabilitationof existing electrical equipment and instrumentation of existing concrete structures and odor control systems.

We will expand the 12 existing useful lives used in the 2015 Facility Plan to better prioritize future repair, rehabilitation, and replacement (e.g., MCC = 50 years, rather than all Electrical = 30 years). **Below is an example asset deterioration / decay curve we developed for the Irvine Ranch Water District.**



Irvine Ranch Water District Asset Deterioration Curve: Enhancing Prioritization of Repairs and Replacements

Innovative Ideas:
Leverage past data to focus onsite efforts and update decay curves

While assessing all your assets at SEWC**, we will focus on the following areas for significant changes in condition:**

- Headworks (bar screens, compactor, gates, hoppers, channels, grit chamber covers)
- Primary Sedimentation (gates, flights, piping)
- Flow Equalization (arc flash, building)
- Aeration (blowers, piping)
- Secondary Sedimentation (scum collectors, troughs, channels)
- DAFs (pumps, mechanisms)
- Sludge Dewatering (electrical, pumps, hoppers, roof, mezzanine, instrumentation)
- Digesters (roof, piping, concrete)
- Recycled Water (control enclosures)
- Disinfection (pumps, motor starters, PLCs)
- Odor Control (control panel)
- Critical Electrical (main switchboard)
- Admin & Ops Buildings (pavement, safety)

For the pump stations, we will collect the same condition data collected for the 2015 Facility Plan and to be collected in 2024 for SEWC. This will provide a normalized approach to assessing assets across the SEJPA service area. Based on our experience assessing similarly-sized pump stations, we will focus on the following areas while assessing all your pumping system assets and recording SEJPA staff knowledge:

- Wet wells (corrosion, coatings, access, redundancy)
- Dry wells (temperature, noise, vibration, corrosion, leaks / seepage, access, redundancy)
- Electrical (temperature, corrosion, part obsolescence, access)
- Instrumentation (part obsolescence)
- Buildings (safety, settlement, access)
- Site (drainage, access)

Technical Studies

Treatment

SEWC operates a conventional activated sludge plant polished by granular media filters and disinfected with chloramines. The plant has an RO system for production of low-TDS water that is blended with filtered effluent for non-potable reuse, with discharge of the balance of flow. Based on the 2023 Recycled Water Quality Improvement Plan and previous planning efforts published since 2015, SEWC plans to adopt large-scale potable reuse by upgrading secondary treatment for biological nitrogen removal, switching to free chlorine disinfection, replacing GMF with MF, expanding advanced treatment capacity with RO and AOP, and developing potable reuse conveyance.

Using our extensive experience with biological nutrient removal and indirect potable reuse upgrades, Black & Veatch can help SEWC refine its roadmap to meet the primary goals of resiliency, sustainability, and efficiency. Below, we have identified additional improvements and recommendations that could optimize and enhance the plant's existing capital improvement plan using the latest in treatment innovations.

Innovative Ideas:

- ***Low-DO Ecology***
- ***Advanced Primary Treatment***
- ***Carbon management with fermentation***
- ***Suspended air flotation***
- ***Digital twin***

PRIMARY

- Advanced Primary Treatment for:
  - Reduced footprint
  - Increased biogas production
  - Reduced aeration
  - Improved wet weather flow mgmt
- Fermentation of APT sludge to eliminate chemical & improve carbon management

SECONDARY

- Low-DO ecology reduces aeration cost, blower sizing, and carbon footprint
- Mitigate GHG emissions by preventing N2O production
- Large bubble anoxic zone mixing for easy retrofit, low maintenance, and low energy use

TERTIARY

- Additional membrane filtration & optimal utilization of chlorine contact basin
- Minimize disinfection byproduct
- Advanced source-control monitoring tools to protect potable reuse quality goals

ADVANCED

- Providing connections and space to make DPR ready
- Direct coupling of MF/RO cuts footprint & cost by avoiding break tank
- 2-stage high-recovery RO saves energy over 3-stage and produces more water

OTHER

- Digital Twin to identify real-time operational benefits for energy and carbon optimization
- Suspended Air Flotation to eliminate DAF mechanical air systems and reduce process footprints or increase throughput and reduce polymer carry over to advanced treatment

Technical Studies

Climate Change / Resiliency

Recent hazard events and projected climate impacts highlight the importance of being prepared to adapt to and mitigate the impacts of extreme weather events and other risks.

In today's planning of resources to most efficiently maximize investments, it's critical to consider future impacts of a changing climate on infrastructure assets. During this facility plan, we will develop infrastructure improvements and prioritize recommendations that are considerate of system vulnerabilities to changing future conditions. We will build upon our review and understanding of the regional Climate Action Plans from our Biosolids Program work and leverage those findings with our experience. The specific decision-criteria will be collaboratively developed with your staff, and we recommend examining a few significant factors further as illustrated below.

INCREASING EXTREME TEMPERATURES

Multi-decade drought in the western United States continues to stress water resources, impacting water supplies and forcing agencies to develop alternative supplies for system resiliency and reliability. Items to consider:

- Temperature impacts to operations — both equipment tolerance and staffing
- Thermal impacts to equipment sizing and selection, as well as operational regimes
- Ability of staff to address equipment issues in extreme temperatures
- Increased outages due to power outages and other hazard events

EXTREME PRECIPITATION EVENTS

Whether an atmospheric river, increased flooding due to runoff from wildfire scars, or other unforeseen events, wet weather impacts on asset reliability must be evaluated. Items to consider:

- Floodplain evaluations compared to recent events and future projections
- Prioritize resilience bolstering to assets that cannot be relocated (such as flood mitigation to pump stations), avoiding future infrastructure in flood plains or along major floodways subject to runoff

PROACTIVE FUNDING & REGULATORY APPROACH

Our resilience team is experienced with obtaining funding from FEMA and other governmental agencies, and knows how to position projects such that they are most eligible for public funding. Black & Veatch will:

- Strategize with your team to evaluate and prioritize projects to maximize state and federal public funding
- Leverage our knowledge of climate policy developments both nationally and locally to help you proactively plan for potential future policy drivers and regulations

Together with your team, we will help you establish a defensible, proactive, and fundable expenditure plan that moves you toward a resilient future

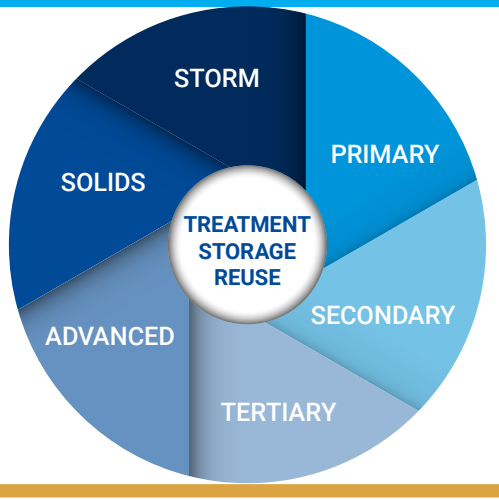
Technical Studies

Hydraulics / Water Balance

An MS Excel-based spreadsheet model will be built to perform a hydraulic analysis for the SEWC. The model will utilize the Hazen-Williams equation, a widely used empirical pipe flow equation for circular conduits flowing full and Manning's equation for open channel flow. Available information, including hydraulic profiles, plans, and reports relevant to the SEWC facility hydraulics will be collected and used to verify structure dimensions, weir elevations, piping diameters, and potential operating and flow scenarios. The projected water surface elevations on the hydraulic profiles will be utilized to calibrate the spreadsheet.

Diurnal flow patterns, peak hour factors for dry weather and wet weather events, and seasonal characteristics to be used in the analysis will be determined based on our experience performing work for similar facilities in the region and input provided by the SEJPA. Hydraulic constraints for each condition will be identified, if any, and potential solutions will be discussed.

Water balance will also be prepared to account for the available on-site storage, flow equalization basins, and off-site storage under various flow scenarios, including peak wet weather conditions and potential additional flows being diverted to the SEWC. Constrains will be identified and opportunities to add additional on-site or off-site storage will be explored.



Our hydraulic analysis will evaluate all aspects of the plant from headworks to peak flow storage to discharge. We will work with your staff to understand the current restrictions and look for cost effective solutions.

Pump Inventory And Capacity Assessment

With any water reclamation facility, pumping is a key component to the overall operation and success of the facility. By ensuring your existing pumping systems are performing correctly and providing for needed redundancy/reliability, you can mitigate potential risks associated with unforeseen failures. Under this task, Black & Veatch will review available pump documentation, including nameplate data to create an overall pump inventory for your various pumping systems. In addition, a pump capacity assessment will be performed based on nameplate and performance data provided by SEJPA staff. This assessment will look at the installed vs. firm pumping capacity of the pumping systems, as well gather important feedback from your operations staff on the overall performance of the various pumping systems. Other aspects of this work could include energy optimization; e.g., should VFDs or soft start equipment be provided to limit in-rush and optimize energy usage.

By utilizing our in-house pumping experts, we will be able to help you quickly identify which pumping systems need rehabilitation, complete replacement, or other system improvements. Results from this work will lead to the development of potential capital improvements projects to be included within the overall Facility Plan Update.

PUMP INVENTORY

- 40 individual pumps
- Gather nameplate data (hp, capacity, speed, voltage, amps, etc)
- Review documentation
- Determine physical condition from the condition assessment work

CAPACITY ASSESSMENT

- Workshop with operations staff to discuss pumping system operation (hydraulic and mechanical)
- Identify capacity limitations / shortfalls

RECOMMENDATIONS

- Rehabilitation
- Replacement
- Field testing (nameplate/factory curve data vs. real-time conditions)
- Other system improvements (VFDs, soft starters, more capacity, redundancy, etc.)

Technical Studies

Biogas Utilization

Being a forward-thinking industry leader in sustainability, SEJPA implemented a microturbine system in the past and has completed multiple rounds of studies to evaluate energy recovery opportunities with beneficial use of biogas. Biogas is currently utilized in Boiler No. 1, which was replaced in 2020, and it satisfies building and process heating demands.

In the 2015 Facility Plan, cogeneration or combined heat and power (CHP) options were evaluated (no CHP, internal combustion engines, microturbines, and fuel cells), and the IC engine alternative was recommended as the 17th ranked CIP project.

In the 2020 Solids Treatment Analysis, energy recovery opportunities were further studied as one of the four core project areas. Various CHP options (IC engine, microturbines, gas turbines, and fuel cells) as well as gas upgrading to Renewable Natural Gas (RNG) were evaluated. Based on the results of the life-cycle cost analysis, coupled with non-economic comparison of the alternatives, a CHP system with IC engines was recommended for further consideration. However, due to the long-anticipated payback period and another method of renewable energy project (i.e., photovoltaic project) being implemented, the CHP project was not included in the implementation plan for the Baseline projects.

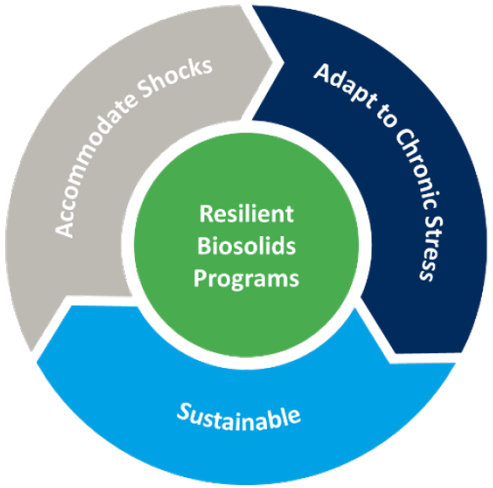
Leveraging the in-depth knowledge of the analysis performed in 2020, our team will be able to streamline the study by focusing on key elements that may impact the outcome of the updated analysis.

Our team will update the biogas utilization evaluations by reviewing the latest available information on the current and planned operational conditions and relevant regulations, such as APCD emission requirements, and applying the current cost indices. We will also incorporate the findings from the 2023 Biogas Treatment Alternatives Memo, which recommended addition of a biogas handling system with hydrogen sulfide scrubbing and moisture removal.

Biosolids

The current biosolids management program has served SEJPA well for many years, and recent upgrades to the dewatering facilities have improved the overall reliability of the system. The digestion process serves as the backbone of the program, creating a biosolids product that is beneficially used as a fertilizer.

Since the completion of the 2020 analysis, there have been national concerns of adverse effects on land application related to regulation of emerging contaminants like PFAS. In addition, Arizona's legislature briefly considered potential restrictions on Class B biosolids, but then dropped the legislation. Therefore, a key element of the 2025 update will be to revisit SEJPA's biosolids quality, especially relative to recent PFAS sampling results, to understand any potential restrictions. Our experience with other programs and through our frequent interactions with EPA and state regulators has shown that most agencies will not be impacted by potential PFAS rules.



Accommodate Shocks
- Sudden regulatory changes
- Biosolids outlet changes

Adapt to Chronic Stresses
- Climate impacts (wet fields/storage, etc.)
- Cost-pressures

Are Sustainable
- Founded on resource recovery
- Cost-effective in terms of resource allocations

The 2020 analysis evaluated potential processes for creating a Class A product in the event additional processing is needed. These process are substantially more expensive, and the drivers weren't present for near-term implementation. However, Black & Veatch will revisit the technologies that were initially considered in the 2020 analysis, update their status, and identify how more relevant technologies could be implemented in the future if conditions warrant.

Technical Studies

Electrification

Building upon your recently-completed solar addition, Black & Veatch will further evaluate the feasibility to expand your water campus electrification as part of this Facility Plan Update. Items to be evaluated will include additional solar, battery storage, and electric fleet charging infrastructure. **Our evaluation will look for ways to balance usage, generation, site constraints, and peak load shaving.** Below we have outlined our approach for each of these main criteria. Results from this analysis will be used for development of potential stand-alone projects, incorporated into the project rankings, cumulating into the Facility Plan Update.

SOLAR PV ASSESSMENT

- Utilizing available space, assess on-site solar generation potential using internal analytical tools.
- Evaluate site based on suitability with industry-standard hardware from established manufacturers to determine production estimates.

BATTERY ENERGY STORAGE SYSTEM (BESS) ASSESSMENT

- Utilizing available space, on-site solar generation, utility rates, and interconnection considerations, evaluate up to two battery sizing scenarios.
- Consider peak load shaving and emergency back-up power operation scenarios.

ELECTRIC VEHICLE CHARING STATION ASSESSMENT

- Evaluate site electrical information in conjunction with the solar PV and battery storage systems to understand service capacity of the EV charging stations.
- Review Level 2 and 3 charger equipment options to provide assessment for number of charging stations for both SEJPA and City of Encinitas Collection vehicles.

FINANCIAL ANALYSIS

- Develop Level 5 opinion of probable construction costs for the solar, BESS, and EV charging projects.
- Identify financial incentives for the projects, such as federal and state tax credits, grants, or rebates.

BLACK & VEATCH RENEWABLE ENERGY GENERATION AND STORAGE PROJECTS

- **25** GW+ Solar PV Experience
- **150+** Behind-the-Meter Battery Energy Storage Installations
- **12+** GWh BESS Owner's Engineer/Studies
- **20+** GWh of BESS Project Experience, Globally

As an industry leader in the assessment, design, and construction of renewable energy projects, Black & Veatch has the expertise to efficiently evaluate SEJPA's options for electrifying your water campus. Our experience allows us to determine the best course of action for meeting state regulations while optimizing energy use.

Other (Lab and Mechanic Shop)

To serve your Water Campus for the next decade and beyond, SEJPA has authorized studies to identify lab and maintenance facility needs. Your staff are the heartbeat of your campus and providing them the means to perform their jobs in a user-friendly environment is important. As part of this Facility Plan Update, our team will review the recommendations and evaluate how these new or improved facilities will fit within the overall site development. We will take into consideration and identify projects to ensure existing facilities and lands are being used to their fullest extent to ensure continued optimal treatment while meeting regulatory requirements. In addition, the overall plant electrification will also be a key consideration for these improvements. For example, providing charging stations within the maintenance shop may prove to be cost effective.

CIP Development

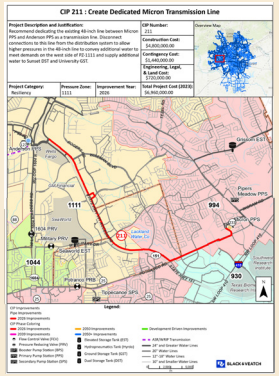
Building Upon Our Proven Prioritization Process to Develop Your Capital Project Development

Our approach for CIP development includes a three-step process (shown below). We'll use information gathered from Tasks 2-5 and our proven prioritization process to establish an initial 10-year CIP. Project criteria will be established to begin the prioritization process and projects will be scored using consistent criteria to develop an initial prioritized CIP

1. IDENTIFY THE PROJECT

1.1 Based on input from Tasks 2-5, we will develop a list of recommended projects, including information from previously identified or deferred projects.

1.2 Develop Project Information Sheets (see example below), generated in MS Excel, and a summary project listing.



1.3 Perform Business Case Evaluation to compare alternative projects (see example below), developed in excel format for easy user interface. Factors will include costs, schedule, benefits, risk reduction, and complexity.

Capital Project Business Case					
Project ID:	CS-01	Project Name:	SCADA Resiliency Improvements		
Indicative Cost:	$50,001 - $200,000	Duration:	1 year	Timescale (When to implement):	Short-term (Less than 3 months)
Cost Description	External Consultant (One-Time) Internal Staff Time				

Project Description	Most Significant Benefits
Projects that will allow the SCADA system to resume normal operations quickly. The improvements reduce the effects of an attack and reduce recovery time of the SCADA system after an attack has occurred.	Increased recovery time after attack/incident has occurred. Reduced staff hours and costs related to start-up, troubleshooting, and/or remediation. Level of service impacts are reduced.

2. DEVELOP THE CRITERIA

2.1 Through a workshop setting, we will establish criteria specific to SEJPA needs to prioritize all capital projects identified. Utilizing our experience, we will also bring in industry standard criteria and other utility examples to provide a thorough discussion. Example criteria is shown below.

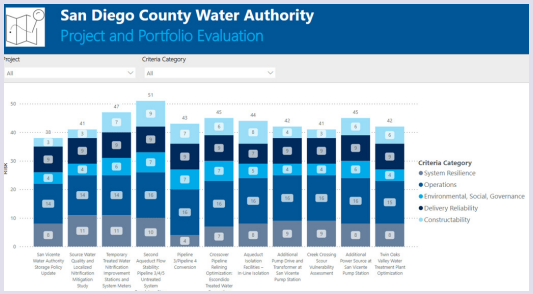
CRITERIA
ENVIRONMENTAL PROTECTION
Environmental Impact
Regulatory Compliance
Energy Management
ECONOMIC SUSTAINABILITY
Financial Efficiency
Operational Efficiency
Reliable Infrastructure
COMMUNITY BENEFITS
Equity Enhancement
Workforce Development
Health and Safety/Community Safety

3.2 Weighting factors will be applied to the criteria to emphasize factors that are deemed more important to SEJPA staff. Through a workshop setting, the weighting method and specific factors will be determined. Potential methods are shown below.

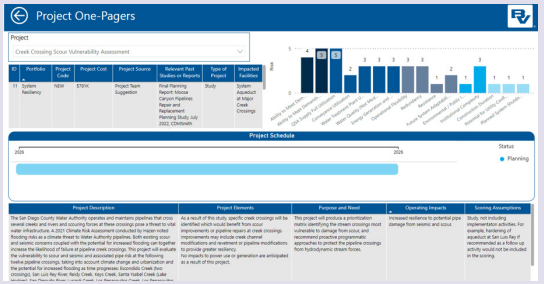
CRITERIA	WEIGHTING OPTION 1	WEIGHTING OPTION 2
ENVIRONMENTAL PROTECTION	40%	-
Environmental Impact	-	15%
Regulatory Compliance	-	10%
Energy Management	-	10%
ECONOMIC SUSTAINABILITY	25%	-
Financial Efficiency	-	10%
Operational Efficiency	-	5%
Reliable Infrastructure	-	10%
COMMUNITY BENEFITS	35%	-
Equity Enhancement	-	15%
Workforce Development	-	10%
Health and Safety/Community Safety	-	15%

3. PRIORITIZE THE PROJECTS

3.1 Projects will be scored with SEJPA staff based on the agreed-upon criteria. The results will be a prioritized list of projects tabulated and sortable by attributes to assist in organizing and scheduling the 10-year CIP (see example below).



3.2 Results will be displayed in easy-to-understand dashboards with the capability to review individual projects. Each project will include a summary of the project scope, capital cost, project objective, project criteria, and schedule (see example below). The Excel-based database will allow for projects to be rolled up and displayed to provide a summary of the CIP development for management.



Facility Plan Update

Optimize Your CIP Plan

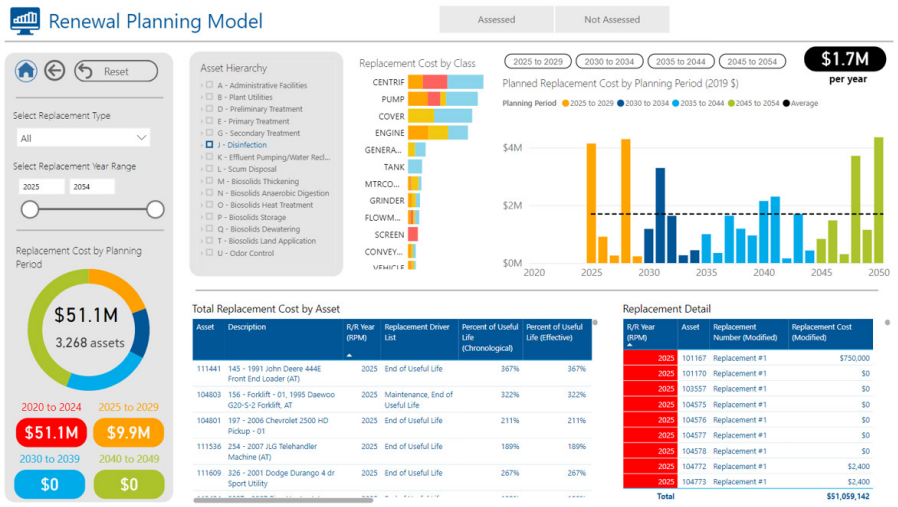
The 10-year capital plan will be optimized using our proven, risk-based prioritization method based on ISO 31000. Optimization of the capital projects identified in the 10-year CIP will begin with a risk assessment for each project identified. We will work with SEJPA staff to understand the consequence of each project not being implemented. Understanding that there are financial, scheduling, and resourcing constraints that prevent the prioritized CIP from being executed exactly as planned, the optimization of the CIP will help further prioritize those projects, focusing on minimizing system risk and scheduling critical projects first. The optimization process will consider spending limitations and potential funding/grant opportunities. **The optimized 10-year CIP will allow SEJPA to make data-informed decisions and assist in developing a capital budget.**

Easy-to-Follow Roadmap for the Future

We will develop a Facility Plan that clearly defines capital projects for the next 10 years and document the basis of the prioritization. The 2025 PREP Plan will be organized into two volumes— Volume 1 for SEWC assets and Volume 2 for remote facilities—as outlined in the RFP and will include a Project Information Sheet (PIS) that summarizes each of the recommended capital projects. **The results of the Facility Plan Update will be transparent, defendable and one that you have the confidence to present to your Board.**

Board-Ready Documents to Gain Support

Our team can also produce a stand-alone executive summary brochure (as an optional service) that bring the outcome of the technical studies and the prioritized capital project list into a board-ready, easy-to-understand facility plan document. Gaining approval from your Board of Directors will rely on accurate documents that are well thought out and succinct. Black & Veatch will prepare a clearly written and well-organized document underpinned by trusted technical work.



Similar to the example above, PowerBI dashboards can be created to provide a quick and easy to understand summary of where your Facility Plan stands. From management level to operations staff, different levels of dashboard can provide the details needed to make decisions.

SIMPLIFIED RESULTS FOR STREAMLINED DECISION MAKING

Black & Veatch prepared a "Board-Friendly" executive summary for the EWA's 2040 Master Plan that made it easy for their Board to understand the key issues they were facing and resulted in unanimous support for staff's future vision.

Level of Effort

SUPERSEDED - SEE NEGOTIATED SOW, LOW, AND FEE

TASK ITEM	PROJECT MANAGER	TECHNICAL ADVISOR	SENIOR QA/QC	TECHNICAL SPECIALISTS	ENGINEERING MANAGER	PROJECT ENGINEER/ SCIENTIST	STAFF ENGINEER	ELECTRIFICATION	ESTIMATING	PROJECT CONTROLS	FINANCE	TOTAL LABOR HOURS
1	114		16	46	90	12				32	64	374
2		23		8	6							37
3				136	4	120						260
4				128	4	88						220
5			16	90	102	110	132	10	8			468
6				68	16		138		24			246
7				28	30	120						178
Total	**114**	**23**	**32**	**504**	**252**	**450**	**270**	**10**	**32**	**32**	**64**	**1783**

TASK	ASSUMPTION / CLARIFICATION
1	**Meetings** ▪ One in-person kick-off meeting (2-hour meeting) attended by Project Manager (PM) and Engineering Manager (EM) assumed. ▪ Fifteen (15) virtual monthly project management meetings (1-hour calls) attended by PM assumed. ▪ Thirty-two (32) virtual bi-weekly progress update calls (45-minute calls) attended by PM and/or EM assumed.
1	**Workshops** ▪ Black & Veatch will conduct 2 additional workshops as follows: 1. Electrification Opportunities 2. SEWC Fundamental Design Criteria / Hydraulic Analysis and Water Balance Review ▪ Assumed that each workshop will be 2 hours. Project Manager PM and EM to attend in-person. Task lead or subject matter expert to attend virtual.
2	It is assumed that the draft regulatory review prepared by Dr. Welch covers all regulations applicable to SEJPA, including but not limited to beneficial reuse of recycled water, surface discharge, beneficial use of biosolids and biogas, air emissions, building codes, PFAS, etc. Consultant will provide input based on experts' opinion. Up to thirty-two (32) hours of budget is allocated for this effort. It is assumed that Consultant is not required to prepare an independent regulatory trend assessment memo. If it is determined that Consultant will need to develop supplemental content to be added to the draft memo and requires the level of effort beyond the allocated budget, it can be provided as an additional service.
3	Two (2) days of site visit by a condition assessment engineer (civil) and an electrical engineer assumed.
3	Mechanical engineer (pump expert) site visit can be provided as an additional service.
4	Two (2) days of site visit by a condition assessment engineer (civil), electrical engineer, and Mechanical engineer (pump expert) assumed
5	**Climate Change Vulnerability and Resiliency Analysis** ▪ Analysis consists of infrastructure screening-level assessment to address climate vulnerability. Consultant will develop a priority projects list to be considered by the client. ▪ Comprehensive analyses of climate change vulnerability and resiliency can be provided as an additional service.
5	**SEWC Fundamental Criteria** ▪ Based on review of the available record drawings and reports, Consultant will develop a summary of current and future design criteria for SEJPA's review. It is assumed that the basis for the summary is readily available (e.g. extract tables from past studies/reports), and review and analysis of raw monitoring data will not be required. The criteria will be refined by incorporating SEJPA's input.
5	**Hydraulic Analysis** ▪ The design criteria established in the "Fundamental Criteria" task above will be utilized in the hydraulic analysis. ▪ Diurnal flow patterns, peak hour factors, and seasonal flow characteristics for maximum and minimum month to be used in the analysis will be determined based on typical values used in similar facilities within the region and based on input provided by SEJPA (i.e. no raw monitoring data analysis). ▪ Black & Veatch will prepare a hydraulic profile of the main forward liquid processes through secondary clarification for the San Elijo Water Campus (SEWC). The calculations will be performed using the standard proprietary Black & Veatch spreadsheet tool. The hydraulic profile will be calculated for up to 3 flow conditions to be provided by San Elijo Joint Powers Authority (SEJPA). Hydraulic calculations will be limited to a single geometry or configuration. Equal flow splits will be assumed among similar tanks. ▪ The hydraulic profile calculations will include the main existing forward liquid flow processes from the headworks to the effluent pump station wet well. The wet well level at the effluent pump station will provide the known starting water surface elevation, to be provided by SEJPA. The effluent pump station, tertiary treatment facilities, and side stream facilities are not included in the hydraulic analysis. ▪ It is assumed that all the information required to prepare the hydraulic profile can be found in the following contract drawing sets: Contract No. 1 (1994) and Preliminary Treatment Upgrades (2017). ▪ Deliverable: hydraulic profile AutoCAD drawing with water surface elevations called out for up to two flow conditions.
5	**Water Balance** ▪ Black & Veatch will prepare a spreadsheet calculation to demonstrate water balance in the system utilizing alternative storage scenarios. It is assumed that this is a rudimentary accounting of flow volume through the plant. The water balance will be prepared for up to three flow scenarios and one configuration. It is assumed that SEJPA will provide locations of diversions, capacities of unit processes, and capacity limits of alternative storage facilities. ▪ Deliverable: spreadsheet document summarizing water balance calculation.
5	**Pump Inventory and Capacity Assessment** ▪ Capacity assessment of up to forty (40) pumps located at SEWC assumed. ▪ Capacity assessment of pumps at remote facilities are not included in the base scope of services but can be provided as additional services.
5	**Biogas Utilization** ▪ It is assumed that the biogas utilization analysis performed in the Solids Treatment Project Analysis will be updated by adjusting the input values, such as influent flow rate, CapEx, and OpEx, including power cost, etc.). ▪ It is assumed that the findings from Biogas Treatment Alternatives will be utilized without significant modifications that will require engineering analyses.
5	**Biosolids Reuse** ▪ It is assumed that the biosolids use analysis performed in the Solids Treatment Project Analysis will be reviewed, and the previous assessment will be either validated, or if any of the previous assumptions will need to be modified, they will be identified and how they may impact the previous conclusions will be assessed.
5	**Data Requests** 1. Available project drawings, site assessments or parcel maps 2. Project goals and objectives a. Findings from the Climate Change Vulnerability and Resiliency Analysis 3. Site arrangement and boundary drawings/documents a. Understanding of space available for energy generation and storage equipment and any site/operational constraints 4. Architectural drawings/documents a. Building arrangement and structural drawings b. Roof warranty information 5. Electrical drawings/documents a. Electrical one-line diagrams 6. Electric utility information a. List of utility service providers b. Electric utility bills for the past 1-2 years, at 15 minute or 1-hour readings c. Anticipated electrical load impacts based on future project additions 7. Site redundancy/resiliency needs 8. SEJPA EV Fleet needs, including number of vehicles parked at the SEWC site, vehicle usage patterns and charging requirements. a. Any fleet decarbonization assessments or studies
5	No travel, in-person meetings or site visits will be performed as part of this study.
5	Meetings will be conducted via Microsoft Teams®.
5	Black & Veatch will attend one (1) kickoff meeting, up to four (4) online meetings with SEJPA, each one (1) hour long. Meetings will typically be attended by two (2) Black & Veatch professionals (Project Manager and Project Discipline Engineer).
5	SEJPA will supply all requested information prior to the project kick-off meeting.
5	**Electrification Opportunities** ▪ *Solar PV Assessment* • Based on the understanding of available space, based on correspondence with SEJPA, Black & Veatch will access on-site solar generation potential for the SEWC site to supplement the existing 0.6MW solar PV system. Black & Veatch will also identify the physical space available for possible battery energy storage system installation. • The SEWC site will be evaluated for suitability, considering industry-standard hardware from established manufacturers as typical, and based on applicable electrical codes. This will be a desktop exercise, done using internal analytical tools as well as industry tools such as Aurora Solar, Helioscope and Google Earth. • Black & Veatch team will review this solar PV assessment with SEJPA, to review the potential equipment location and address any high-level design considerations, during a project check-in meeting. The assessment would also include budgetary solar production estimate. ▪ *Battery Energy Storage System Assessment* • Based on the site constraints, on-site solar generation, utility rate and interconnection considerations, and consideration of other existing on-site generation sources, Black & Veatch team will evaluate up to two (2) battery sizing scenarios, for peak load shaving and emergency back-up power operations. ▪ *Electric Vehicle Charing Station Assessment* • Black & Veatch team will review site electrical information, to determine the capacity for installing EV charging stations at the SEWC site, in combination with the solar PV and battery energy storage systems. Based on the correspondence with SEJPA, Black & Veatch team will review Level 2 and Level 3 charger equipment options and provide a high-level assessment of the number of chargers that can be installed using the existing electrical service at the site. Black & Veatch team will also summarize this against the SEJPA EV fleet needs to identify, at a high level, the additional EV charging station needs. ▪ *Financial Analysis* • Black & Veatch will estimate the construction cost of the solar PV, BESS, and EV charging station project (including equipment, labor, permits, and upgrades) to AACE class-5 standards. They will also identify financial incentives, such as tax credits, grants, and rebates. Funding sources will be analyzed, and the best grant options for electrification of the SEWC site will be assessed ▪ *Final Presentation* • Black & Veatch will present their findings on the site solar PV, BESS and EV charger assessment and discuss phased installation of project components with the SEJPA team during a final presentation. This presentation will also include a site electrification roadmap.
5	Value Add Scope of Work (Currently not included in the scope, but can be priced if requested): ▪ Site visit to SEWC and 40 pump station sites, to collect on-site information and better understand site operational conditions and constraints. ▪ Fleet Decarbonization Assessment: • Review SEJPA fleet information, including vehicle duty cycle, age/replacement, usage pattern (during normal operations and emergency response), and parking locations. • Assess SEJPA fleet vehicles replacement options with zero-emission vehicles available in the market (currently or to be released in near future). • Analyze SEJPA zero-emission fleet energy charging pattens and energy needs. • Create a SEJPA fleet replacement roadmap and corresponding charging/refueling infrastructure and energy requirement forecast. ▪ Assessment of Solar PV & BESS at the 40 pump station sites, for their energy and resiliency needs.
5	▪ It is assumed that the Laboratory Needs Assessment Report will be provided by SEJPA, and its findings will be incorporated into the Facility Plan. It is assumed that Consultant will not be required to provide any independent assessment.
5	**Mechanics Shop Needs Assessment.** ▪ It is assumed that the Mechanics Needs Assessment Report will be provided by SEJPA, and its findings will be incorporated into the Facility Plan. It is assumed that Consultant will not be required to provide any independent assessment.
5	**San Elijo Water Campus Site Master Plan Map** ▪ A draft map in a PDF format will be submitted to SEJPA for review and comments. It is assumed that one round of consolidated comments will be provided to BV for incorporation into the final map. ▪ AutoCAD file and a PDF of the final map will be provided to SEJPA.
6	Assumes evaluation of one optimization scenario. Additional scenarios can be evaluated as an additional service.
6	Assumes evaluation of two business case evaluations. Additional evaluations can be performed as an additional service
6	Dashboard does not include PowerApps, but can be provided as an additional service.
6	Individual project dashboards can be provided as an additional service.
6	For capital cost of projects that have been previously identified, it is assumed that the planning level cost estimate previously developed as part of past studies and reports will be reviewed, if available, and adjusted to today's dollars. Projects without previous cost estimates will receive conceptual level estimates for prioritization. The base scope of services includes up to 20 hours for cost estimation.

5. CONSULTANT SCHEDULE ESTIMATE

The adjacent schedule was developed in concert with your scope of work and implementation plan to meet your project objectives and deadlines noted within your RFP. Sufficient staff will be assigned throughout the project duration to ensure every milestone is met in accordance with your requirements. Having worked with the SEJPA for over 20 years, we know your standards and systems which will eliminate any learning curves and allow our team to start quickly while eliminating surprise. Also, by utilizing our extensive knowledge and expertise in facility planning, sewer pump stations, treatment plants, and recycled water facilities, we will be able to meet your schedule needs, while exceeding your quality and budget expectations.

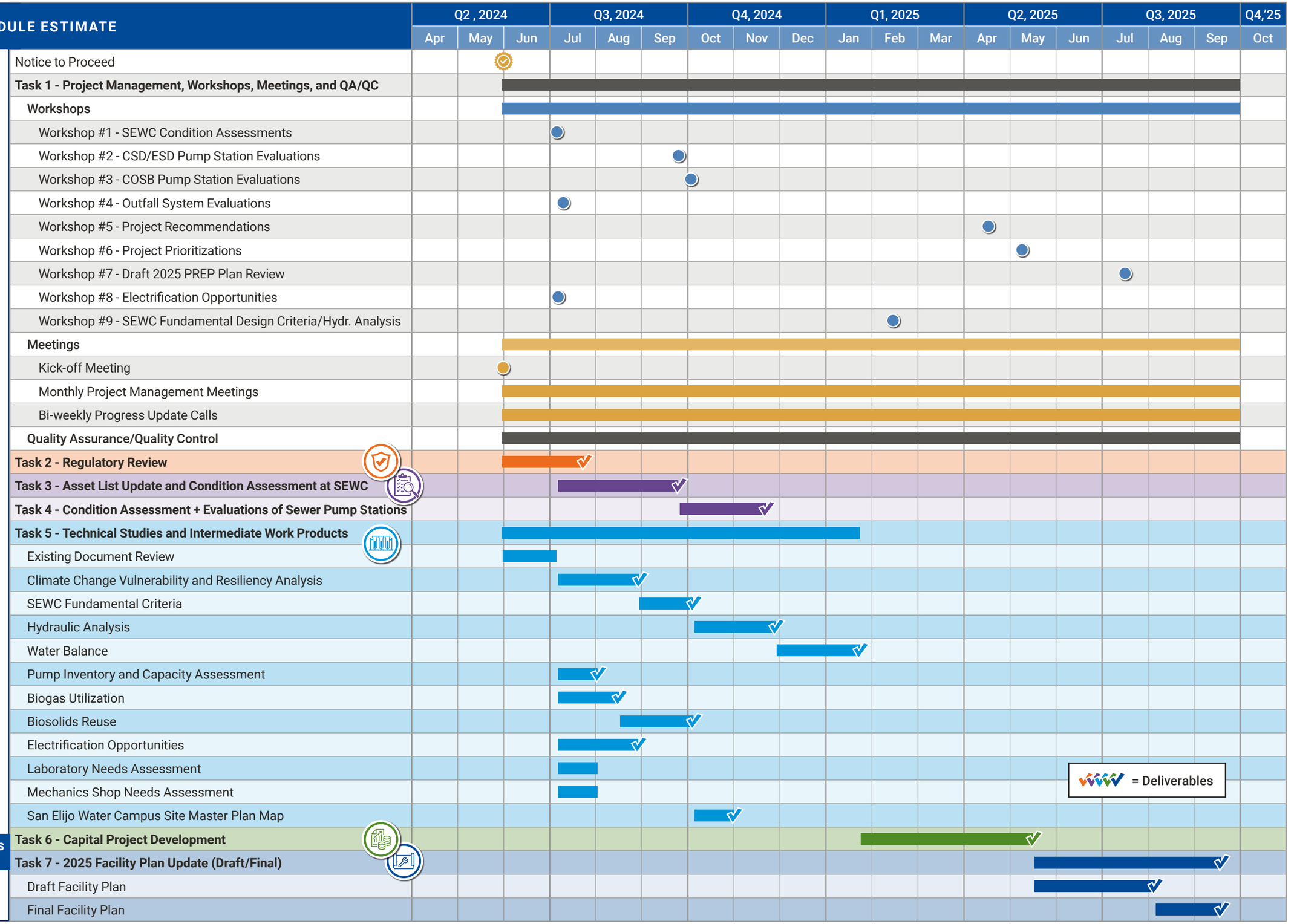
Our Strategy for On-Time Delivery includes the following:

Communication.
Our proposed project manager, John Bekmanis, will communicate with the SEJPA's Project Management Team on a monthly basis to review the schedule in detail, modify as required and add additional staff to accelerate activities when required.

Collaboration.
We understand how important this project is to the SEJPA and we will work closely with all SEJPA staff from start to finish and will facilitate that strategy throughout the project.

6. Consultant Comments to Sample Agreement

We take no exceptions



Resumes

OFFICE LOCATION
San Marcos, CA

EDUCATION
- MS, Civil Engineering, California State University, San Diego, 1997
- BS, Civil Engineering, Water, California State University, San Diego, 1993

PROFESSIONAL REGISTRATION
PE –2004, AZ, 40049
PE – 2004, NV, 16335
PE – 1996, CA, C55460

PROFESSIONAL ASSOCIATIONS
- American Water Works Association
- Water Environment Federation
- American Society of Civil Engineers
- American Academy of Environmental Engineers - Member/Diplomat/Board Certified Environmental Engineer
- California Water Environment Association
- Water Environment Federation

YEAR CAREER STARTED
1993

YEAR STARTED WITH BV
1993 – 1998
2005 – Present

KEVIN DAVIS, PE, BCEE

PROJECT DIRECTOR

Kevin is a Professional Engineer at Black & Veatch focusing on water, wastewater and recycled water projects. He brings more than two decades of expertise in the analysis and detailed design of water and wastewater treatment plants, pump, pipelines, reservoirs, and flow control facilities. His specialized experience includes preparing hydraulic studies, process evaluation, detailed design drawings, specifications, site work and cost estimating systems for wastewater treatment plants, pump stations, major pipeline projects and wastewater infrastructure projects. His experience in wastewater treatments and process is well suited to develop innovative solutions to challenging conditions involved in water and wastewater treatment, storage and conveyance.

Vallecitos Water District | Water, Wastewater & Recycled Water Master Plan; San Marcos, CA

Principal-in-Charge. Black & Veatch work with the District to develop and integrated Water, Wastewater and Recycled Water Master Plan that provided the District with short- and long-term capital improvement needs for all their infrastructure systems. Landuse based water demand analysis and incorporation of future conservation efforts resulted in more cost effective improvements as compared to previous Mater Plan, thus reducing the District's long-term capital improvement needs. Key components of the work included hydraulic modeling, CIP cost estimates, supply/storage evaluations and system analysis.

City of Escondito | Potable Reuse Program; Escondito, CA

Principal-in-Charge. The project included a Programmatic planning study that developed near-term and long-term improvements at the HARRF. The phased reuse improvements allow the City to meet its long-term potable reuse goals while improving its ocean outfall constraints. In addition to reuse improvements, planned wastewater improvements/upgrades included aeration basin diffuser replacement, additional aeration basins, digesters, sludge thickening system, and power supply. These improvements were developed in collaboration with City staff.

Encina Wastewater Authority | 2040 Master Plan; Carlsbad, CA

Principal-in-Charge. Development of a new, innovative 2040 Master Plan for EWA's Water Pollution Control Facility (WPCF) and related infrastructure. The Master Plan, which includes a wide range of "tactics" or technical solutions from improvements to liquid treatment processes to biosolids management strategies and beneficial use of biogas, effectively serves as a long-range planning document for EWA's infrastructure needs and an umbrella over the five-year asset management planning processes currently employed by EWA. A long–range planning process was used to meet the study objectives of providing a roadmap to address baseline (expected) conditions, and to position EWA to be able to meet selected adaptive (extreme) conditions.

San Diego County Water Authority | 2023 Water Facilities Master Plan; San Diego, CA

Principal-in-Charge. The Water Authority has secured long-term, drought-resilient water supplies for San Diego County, driven by prolonged droughts and state mandates. The resulting decrease in demand has created long hydraulic retention times, affecting water quality and operational effectiveness. A master plan will ensure reliable and cost-effective water supply for member agencies through 2045, addressing near-term and long-term challenges and highlighting critical water infrastructure planning recommendations. Key components included CIP development and prioritization, alternative analysis, development of project cost estimates and stakeholder workshops.

San Elijo Joint Powers Authority | Recycled Water Optimization and Expansion Study; Cardiff-by-the-Sea, CA

Project Manager. Kevin was responsible for the preparation of a comprehensive study to evaluate the financial and physical limitations of the San Elijo Joint Powers Authority's recycled water program. The study included a detailed hydraulic analysis using MWH Infonet software; a comprehensive, 25-year forecast, financial analysis; a plant unit process analysis, a plant and distribution system capacity analysis, and a recycled water market analysis.

In addition to the technical challenges of the project, multi-agency ownership and contributions added to the complexity of the study. Participating members influencing the study included the City of Encinitas, the City of Solana Beach, San Dieguito Water District, Santa Fe Irrigation District, and the SEJPA.

San Elijo Joint Powers Authority | Escondido Outfall Connection Pipeline; Cardiff-by-the-Sea, CA

Project Manager. Kevin the Project Manager on this award winning project for the San Elijo Joint Powers Authority. Working in partnership with San Elijo, developed a pipeline design that eliminated the need for pumps, reduced electricity and chemical use, and maximized the use of existing infrastructure. The design focused on using automated valves and programmable logic controllers (PLCs) to maintain hydraulic pressure within the land outfall that connects Escondido to the San Elijo Ocean Outfall. With an estimated construction price of under $500,000 and a reduction in O&M costs for the San Elijo, the Escondido Outfall Connection Project made good sense to improve the TDS concentrations in the recycled water by utilizing Escondido's effluent.

Rancho California Water District | Santa Rosa Water Reclamation Facility Planning Studies; Temecula, CA

Project Director - Black & Veatch. Served as the Project Director for various planning and technical studies at the Santa Rosa Water Reclamation Facility, including replacement of the grit removal equipment, improvements to the tertiary disinfection systems, and preventing corrosion within the District's recycled water distribution system.

City of San Diego | Recycled Water Study; San Diego, CA

Project Director. Mr. Davis served as a Project Lead/Project Manager for the Recycled Water Study for the City of San Diego. This project evaluated:

- All the reservoirs within San Diego County
- Water delivery systems throughout San Diego County
- Water and recycled water demands throughout the County
- Potential connections of highly purified water to the Water Authority's aqueduct system
- Locations for potential Indirect Potable Water Treatment Plants, pump stations, and conveyance facilities
- Financial planning of the project; rate impacts
- CIP development for the various facilities
- Implementation plans

The project involved a diverse stakeholder group including the City of San Diego, the Water Authority, Participating Agencies throughout the County, Non-Government Organizations (Surfrider and Coast Keepers), and City oversight activist groups.

OFFICE LOCATION
San Marcos, CA

EDUCATION
- BS, Civil Engineering, California State University of Fresno, 1995

PROFESSIONAL REGISTRATION
PE – 2000, CA, C59947

PROFESSIONAL ASSOCIATIONS
- Water Environmental Federation
- California Water Environmental Association
- American Water Works Association
- American Society of Civil Engineers

YEAR CAREER STARTED
1995

YEAR STARTED WITH BV
1995

JOHN T. BEKMANIS, PE

SENIOR PROJECT MANAGER

John is a Senior Project Manager in Black & Veatch's San Marcos office. Starting his career in 1995, he has been involved in the analysis, detailed design and construction of various water and wastewater infrastructure projects. John has been serving clients in San Diego County, Southern California, and the greater southwest for the last 18 years, and is highly familiar with local and regional design standards and guidelines. John's communication and organizational skills is a key reason why clients request him for their projects.

City of Escondito | Potable Reuse Program; Escondito, CA

Project Manager. The project included a Programmatic planning study that developed near-term and long-term improvements at the HARRF. The phased reuse improvements allow the City to meet its long-term potable reuse goals while improving its ocean outfall constraints. In addition to reuse improvements, planned wastewater improvements/upgrades included aeration basin diffuser replacement, additional aeration basins, digesters, sludge thickening system, and power supply. These improvements were developed in collaboration with City staff.

Vallecitos Water District | Water, Wastewater & Recycled Water Master Plan; San Marcos, CA

Project Manager. Black & Veatch worked with the District to develop and integrated Water, Wastewater and Recycled Water Master Plan that provided the District with short- and long-term capital improvement needs for all their infrastructure systems. Landuse based water demand analysis and incorporation of future conservation efforts resulted in more cost effective improvements as compared to previous Mater Plan, thus reducing the District's long-term capital improvement needs. Key components of the work included hydraulic modeling, CIP cost estimates, supply/storage evaluations and system analysis.

San Diego County Water Authority | 2023 Water Facilities Master Plan; San Diego, CA

Project Manager. The Water Authority has secured long-term, drought-resilient water supplies for San Diego County, driven by prolonged droughts and state mandates. The resulting decrease in demand has created long hydraulic retention times, affecting water quality and operational effectiveness. A master plan will ensure reliable and cost-effective water supply for member agencies through 2045, addressing near-term and long-term challenges and highlighting critical water infrastructure planning recommendations. Key components included CIP development and prioritization, alternative analysis, development of project cost estimates and stakeholder workshops.

San Elijo Joint Powers Authority (SEJPA) I Solids Treatment Study | San Elijo, CA

Project Manager. The SEJPA owns and operates the San Elijo Water Reclamation Facility (SEWRF). To continue to meet goals of regulatory compliance, environmental protection, and resources recovery and reuse, SEJPA authorized Black & Veatch to develop a Project Definition Report to determine current and future solids quantities, review and screen technology alternatives, and develop a business case analysis. The project focused on four core areas: digestion system, sludge thickening, biosolids dewatering, and energy recovery. Activities included development of a solids mass balance; structural, mechanical, and electrical inspections; evaluation of Class A bi8osolids residuals handling technologies, primary sludge thickening, dewatering technologies, and energy recovery options; review of climate action plans; and development of a business case analysis.

San Diego County Water Authority | 2013 Regional Water Facilities Optimization and Master Plan Update; San Diego, CA

Engineering Manager. Using the 2003 Master Plan as a foundation, the 2013 Master Plan builds on the successful efforts of the Water Authority and its member agencies to diversify the region's water supplies. This new 2013 Master Plan was prepared to provide the region's road map to a secure water future for the Water Authority's planning horizon of 2035 and beyond. The focus of the 2013 Master Plan is on optimizing existing systems and maximizing flexibility to adjust to a range of future conditions. Project components include reviews of available regional and local planning studies, evaluations of projected water demand forecasts and projected supplies, evaluations of current infrastructure capabilities, assessment of opportunities for integrated local storage management, development of options addressing new infrastructure needs and supply options, and facility optimization. Key deliverables included a series of focused letter reports that served as draft chapters to be incorporated into the overall final report.

Vallecitos Water District | Asset Management Plan; San Marcos, Ca

Project Manager. The District is embarking on the development of an overall Asset Management Program to organize their future investment in their assets. To start this process, Black & Veatch is helping with the development of a Asset Management Plan to provide a roadmap for this program. Key components of the plan include review of service, levels, development of asset registry and fact sheets, desktop condition assessments, business risk exposure analysis, renewal and replacement schedule and funding strategies. Collaborative workshops were help will all staff levels from operators to management. Action plans where developed to prioritize the list of recommended improvements.

RIKA EVANS, PE

ENGINEERING MANAGER

Rika is an engineering manager, providing design and engineering services and technical support for water and wastewater projects, including treatment facilities, pipelines, and pump stations. With over 15 years of experience, she has managed preparation of technical reports, detailed design drawings, technical specifications, and cost opinions for a wide variety of projects, including disinfection upgrades with on-site generation, biosolids processing and management, and water recycling with advanced treatment. Rika also has extensive experience in engineering services during construction. A selection of Ms. Evans representative experience is highlighted below.

OFFICE LOCATION
San Marcos, CA

EDUCATION
- MS, Civil Engineering, Environmental Engineering, San Diego State University, 2005
- BS, Marine Science/Physics Path, University of San Diego, 2002

PROFESSIONAL REGISTRATION
- PE – 2009, CA, #C73816

PROFESSIONAL ASSOCIATIONS
- Chi Epsilon National Civil Engineering Honor Society
- Engineers without Borders
- American Society of Civil Engineers

YEAR CAREER STARTED
2002

YEAR STARTED WITH BV
2007

San Elijo Joint Powers Authority | San Elijo Water Campus (SEWC) Solids Treatment Study; Cardiff by the Sea, California, United States

Engineering Manager. Ms. Evans led a study related to the replacement, rehabilitation, and asset management of solids processing facilities at the San Elijo Water Campus. As part of the study, the following topics were evaluated, and findings were summarized in a series of technical memoranda (TMs) and a project definition report: development of solids mass balance, including future solids projections; structural, mechanical, and electrical inspections; evaluation of Class A biosolids residual handling technologies; evaluation of dewatering technologies; evaluation of energy recovery options; evaluation of potential solids transport options; review of climate action plans; development of a business case analysis.

Encina Wastewater Authority | 2040 Master Plan; Carlsbad, CA

Lead Project Engineer. Development of a new, innovative 2040 Master Plan for EWA's Water Pollution Control Facility (WPCF) and related infrastructure. The Master Plan, which includes a wide range of "tactics" or technical solutions from improvements to liquid treatment processes to biosolids management strategies and beneficial use of biogas, effectively serves as a long-range planning document for EWA's infrastructure needs and an umbrella over the five-year asset management planning processes currently employed by EWA. A long–range planning process was used to meet the study objectives of providing a roadmap to address baseline (expected) conditions, and to position EWA to be able to meet selected adaptive (extreme) conditions.

City of Escondido | Hale Avenue Resource Recovery Facility (HARRF) Diffuser Replacement; Escondido, CA

Engineering Manager. The project included replacement of the aeration diffusers in the activated sludge basins at HARRF, 18-MGD water reclamation facility. Ms. Evans assisted with selection of diffuser type, established basis of design, managed process modeling to confirm aeration requirements, and prepared a pre-procurement package for the diffuser equipment. Black & Veatch also provided engineering services during construction.

Encina Wastewater Authority | Microgrid Feasibility Study; Carlsbad, CA

Engineering Manager. Managed the study to evaluate the feasibility of developing a self-sufficient energy microgrid system for a 40 MGD facility. The study analyzed the energy consumption and generation capability based on various generation technologies. Client goals for the study included energy decarbonization & diversification, decreasing the utility energy bills and heading in the direction of creating an energy self-sufficient microgrid; while not increasing their emissions.

Rancho California Water District | Santa Rosa Water Reclamation Facility (SRWRF) Rehabilitation; Murrieta, CA

Engineering Manager. The project includes improvements to the headworks, influent pump station, grit facility, sequencing batch reactors (SBRs), tertiary clarifiers, and a new solids handling facility, including an 1 million-gallon sludge holding tank, a sludge pumping station, rotary drum thickeners, and screw presses for the 5.0 MGD WRF. Ms. Evans has led the feasibility study, preliminary design, detailed design, and is currently managing the engineering services during construction.

County of San Diego | Phase II Preliminary Design for Jamacha Pump Station Improvements and La Presa Trunk Sewer Realignment; Spring Valley, CA

Engineering Manager. Preliminary design of the Jamacha Pump Station Improvements, including an emergency storage evaluation, pump impeller modification evaluation, and a wet well expansion assessment. Results from the evaluations, proposed improvements, an implementation plan, and a cost opinion were presented in a preliminary design report.

San Bernardino Municipal Water Department | San Bernardino Water Reclamation Plant Unit #1 Primary Clarifier and Aeration Basin Improvement; CA

Lead Project Engineer. Process and preliminary design through construction phase engineering support of the improvements to the SBWRP Unit 1 Primary Clarifier and Aeration Basin system. This project includes evaluation and development of the process design strategies to help support elevated levels of biological nutrient removal in the existing aeration basin along with replacement of the existing primary clarifier mechanism.

OFFICE LOCATION
Irvine, CA

EDUCATION
- BS, Agricultural Engineering, California Polytechnic State University at San Luis Obispo, 1982
- MS, Civil Engineering, University of California at Los Angeles, 1986

PROFESSIONAL REGISTRATION
- PE – 1990, CA C45340

PROFESSIONAL ASSOCIATIONS
- Water Environmental Federation
- CWEA, Santa Ana River Basin Section

YEAR CAREER STARTED
1982

YEAR STARTED WITH BV
1993

RICH TEN BOSCH, PE

QA/QC

Rich has extensive experience in wastewater engineering with expertise in planning, design, and construction. He has prepared numerous Facility/Master Plans for southern California clients and has designed most types of treatment processes within the plant boundaries from the headworks to the effluent pumping station and including advanced treatment facilities, odor control facilities, septage receiving stations, and solids handling. Rich conducts QA/QC reviews of projects for Black & Veatch.

Orange County Sanitation District | P1-126 Primary Sedimentation Basins No. 3-5 Replacement at Plant No. 1; Fountain Valley, CA

Technical Advisor, QA/QC. Replacement of three circular primary sedimentation basins and support systems due to corrosion and end of useful life. New basins will be raised to allow gravity flow to secondary process and abandonment of primary effluent pump station. Project included thorough condition assessment which included review of previous condition assessments and new condition assessments performed by the team. The project also included hydraulic evaluation for the diversion of flows during construction and for the final facility arrangement.

Orange County Water District | Groundwater Replenishment (GWRS) System Initial and Final Expansion; Fountain Valley, CA

Engineering Manager/Construction Coordinator. OCWD implemented the $327 million GWRS Initial and Final Expansion Project, which increased the capacity of the Advanced Water Purification Facility (AWPF) by 60 mgd to a total of 130 mgd. Rich served as the Engineering Manager and day-to-day on-site construction coordinator. Responsibilities included leading the design team through the preliminary and final designs for the two projects. Construction support included responding to RFIs, submittal and change order review, and startup and commissioning services.

Orange County Sanitation District | Task Design Manager, Secondary Activated Sludge Facility 2 at Plant No. 1, Project P1-102; Fountain Valley, CA.

Engineering Manager/Construction Coordinator. The $210 million project developed 60 mgd of additional secondary treatment capacity. Specific task responsibilities included directing preliminary and final design of blower building, aeration basins, and piping tunnels. As the on-site construction coordinator responsibilities included responding to RFIs, submittal and change order review, and startup and commissioning services.

City of Carlsbad | Carlsbad Water Recycling Facility; Carlsbad, CA

Project Engineer. Directed preliminary and final design of a new 4 mgd water recycling facility to produce unrestricted Title 22 water from secondary effluent. The facility included continuous backwash filters, microfiltration, reverse osmosis, chlorine contact basins, solids thickening, and chemical feed systems. Influent secondary treated flow was proportioned between the filter and MF/RO treatment trains to obtain a blended effluent meeting targeted TDS requirements.

Eastern Municipal Water District/Hemet-San Jacinto RWRF | Facilities Improvements Preliminary Design Report; San Jacinto, CA

Staff Engineer. Preparation of a Facilities Improvements Report. Evaluated various alternatives for expansion or improvement of the existing primary, secondary, solids handling and support facilities. Included were solid storage capacity expansion, architectural improvements, control building layout, and other miscellaneous improvements.

Eastern Municipal Water District/Hemet-San Jacinto RWRF | Tertiary Expansion Preliminary Design Report; San Jacinto, CA

Project Engineer. Preparation of Tertiary Expansion Preliminary Design Report. The expansion would provide 7.0 mgd of capacity with provisions for expansion up to 28 mgd. Included hydraulic analysis, preliminary design of the equalization basins, tertiary influent pump station, tertiary filters, and flocculation basins.

Encina Water Pollution Control Facility | 2020 Facility Plan Update; Carlsbad, CA

Project Manager/Project Engineer. Updated the 2020 Master Plan. The update included alternative analysis for the expansion of treatment and support facilities based on projected flow, potential disinfection requirements, and potential for future reclamation. The report also provided a detail review of staffing requirements and resultant support building and parking space.

City of San Bernardino; San Bernardino Water Reclamation Plant; San Bernardino, CA

Project Engineer. Evaluated increasing the treatment capacity without the addition of any new major facilities. Detailed hydraulic analysis, unit process performance evaluation, mass balances, and future facility planning and performance.

Encina Water Pollution Control Facility | 2020 Facility Plan; Carlsbad, CA

Project Manager/Project Engineer. Prepared a Facilities Plan which provides facilities master planning to year 2020. Evaluated treatment plant performance, expansion alternatives, facilities modifications, digester gas utilization, ocean outfall facilities, phased construction and local financing.

Orange County Sanitation District | 1989 Collection, Treatment, and Disposal Facilities Master Plan; Fountain Valley, CA

Sanitary Engineer. Prepared a detailed facilities master plan to the year 2020. The Master Plan includes extensive operational evaluation of the existing treatment units, long-term planning and design, present and future regulatory requirements, sludge management, hydraulic reliability analysis, alternative analysis, odor control facilities, and cost estimates.

OFFICE LOCATION
San Marcos, CA

EDUCATION
- Master of Science, Civil Engineering, San Diego State University, 1995
- Bachelor of Science, Civil Engineering, San Diego State University, 1992

PROFESSIONAL REGISTRATION
- PE – CE 54225 – CA, 1995

PROFESSIONAL ASSOCIATIONS
- American Council of Engineering Consultants Water, Energy and Environment Committee Co-Chair
- Design Build Institute of America
- Association of Metropolitan Water Agencies.
- American Public Works Association, Ventura County Chapter Past President

YEAR CAREER STARTED
1992

YEAR STARTED WITH BV
2022

PAT HUSTON, PE

TECHNICAL ADVISOR

Mr. Huston is a civil engineer with 20 years of experience in water, wastewater, and reclamation service areas including treatment facilities, pump stations, storage reservoirs, and distribution systems. His involvement in these areas has included project management, planning, analysis, design, construction, and permit coordination.

San Elijo Joint Powers Authority | Advanced Water Treatment System

Principal-in-Charge – Kennedy/Jenks. Design of an advanced water treatment system that utilizes microfiltration followed by reverse osmosis to both increase reclaimed water production capacity and enhance the water quality of the recycled water stream. Mr. Huston worked with the owner to develop financing solutions for the project, which resulted in a unique alternative delivery approach to deliver project financing and construction completion within the owner's budget.

Padre Dam Municipal Water District | Full Advanced Water Treatment Program

Principal-in-Charge – Kennedy/Jenks. This project will provide advanced water treatment of secondary effluent from the Ray Stoyer Water Reclamation Facility using MF/RO and Advanced Oxidation Process to produce water for potable reuse through groundwater recharge and extraction. A pilot plant project is currently being designed and will be operated for 12 months as part a demonstration project to CDPH for permit approval.

Encina Wastewater Authority | Energy Program Implementation

Principal-in-Charge – Kennedy/Jenks. This project aims to implement the recommendations from the Energy and Emissions Strategic Plan, including a fats, oils and grease receiving station, emissions system improvements, and various energy efficiency measures throughout the treatment facility. As part of this project, Mr. Huston developed a project proforma to demonstrate the payback periods of various financing, phasing, delivery alternatives. The project is being implemented in three phases, with the first phase being delivered through a design-build approach. Kennedy/Jenks serves as the owner's representative for this first-phase project which includes the FOG receiving station and ancillary facilities.

City of San Buenaventura | Wastewater Master Plan

Project Engineer – Kennedy/Jenks. This master planning project involved 20-year facilities planning for both the collection system and the City's wastewater treatment plant. As part of the project, City-wide GIS and hydraulic models were developed, and a GPS-X model utilized to evaluate wastewater treatment processes. Capital improvements were recommended for existing, near-term and ultimate development levels.

San Elijo Joint Powers Authority | Energy Optimization Project

Principal-in-Charge – Kennedy/Jenks. Mr. Huston led a team which evaluated alternatives for reducing energy consumption at the San Elijo JPA Water Pollution Control Facility. Studies of the plant's energy

usage and treatment systems determined that about 800,000 KwH per year could be saved through various plant upgrades. Following the study, Kennedy/Jenks provided final design and construction management for various plant upgrades to improve the plant's energy efficiency, including: chemically enhanced primary treatment, stepped aeration, blower and air piping modifications, improved SCADA controls, and automation of the FEB pump-back system.

Vallecitos Water District | Meadowlark Water Reclamation Facility Modifications

Project Engineer - Kennedy/Jenks. This project included preliminary design, final design, and services during construction for a series of plant upgrades including the following: a microscreen and microscreen building, replacing influent pumps, upgrading the 300-hp effluent pumping station, a flow control facility, SCADA system, three packed tower odor scrubbers and one activated carbon adsorption unit. His responsibilities included finalizing design drawings and specifications, shop drawing review, responding to RFI/RFCs, and coordinating start-up activities.

City of Fontana | Water Reclamation Facility Phase I Design, Fontana, California

Project Engineer - Kennedy/Jenks. Participated in the preliminary design for a new 12-mgd wastewater treatment facility, expandable to 32-mgd, to serve the City of Fontana. This preliminary design effect addressed partial nutrient removal, tertiary filtration, and complete solids handling. His responsibilities for the project included evaluation of biological nutrient removal processes (including anoxic/aeration, oxidation ditches, biofilters, and sequencing batch reactors), examination of sludge digestion/stabilization alternatives, development of site layouts, and identification of capital and O&M costs.

Metropolitan Water District | As-Needed Plant Engineering Contract

Project Director – Kennedy/Jenks. Various improvement projects at Mills and Diemer Water Filtration Plants, including preliminary design for the rehabilitation of a 160 mgd process train at the Mills Filtration plan. Eighteen projects were executed under this as-needed contract, including: site civil improvements, entrance road and security improvements, administration building improvements, HVAC improvements, miscellaneous plant piping improvements, and seismic retrofit upgrades.

San Diego County Water Authority | Treated Water Feasibility Study

Project Engineer – Kennedy/Jenks. Project included projecting water demands to the year 2015, locating and sizing new water treatment plants up to 235 mgd, and expanding existing plants throughout San Diego County.

Vallecitos Water District | Update Water, Wastewater and Reclaimed Water Master Plan:

Project Engineer – Kennedy/Jenks. This project included addressing the feasibility of a District-operated treatment plant; use of underlying groundwater as a water supply source; identification of emergency water supplies; determination of requirements for a wastewater treatment facility; mitigation of peak wastewater flows; analysis of wholesale versus retail sale of reclaimed water; development of water and wastewater hydraulic models; development of a geographic information system (GIS); preparation of a Supplemental Environmental Impact Report (SEIR); completion of project financial modeling; and completion of AB1600 documentation.

OFFICE LOCATION
San Marcos, CA

EDUCATION
- MS, Civil Engineering, University of California, Berkeley, 1997
- BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, 1994

PROFESSIONAL REGISTRATION
- PE – 1998, CA, #C57916

PROFESSIONAL ASSOCIATIONS
- American Academy of Environmental Engineers
- Water Environmental Federation

YEAR CAREER STARTED
1995

YEAR STARTED WITH BV
2006

DAVE COVER, PE

TECHNICAL ADVISORS

Mr. Cover is a project manager and senior project engineer providing project management, engineering, and technical support for water and wastewater projects, including treatment facilities, pipelines, pump stations, reservoirs, dams, and hydroelectric facilities. With over 20 years of experience, Mr. Cover possesses an in-depth knowledge of water quality, treatment, and water/wastewater infrastructure design.

Encina Wastewater Authority, 2040 Master Plan, Carlsbad, CA

Assistant Project Manager and Technical Lead. This project incorporates recent advances in adaptable planning theory to develop a master plan document that will be robust and flexible for achieving EWA's goals and objectives across a wide range of plausible future scenarios. The project team worked closely with EWA and their stakeholders to develop planning scenarios, strategies, and tactics that will be included in their baseline CIP and those that will be incorporated if certain future scenarios are found to occur.

City of Escondito | Potable Reuse Program; Escondito, CA

The project included a Programmatic planning study that developed near-term and long-term improvements at the HARRF. The phased reuse improvements allow the City to meet its long-term potable reuse goals while improving its ocean outfall constraints. In addition to reuse improvements, planned wastewater improvements/upgrades included aeration basin diffuser replacement, additional aeration basins, digesters, sludge thickening system, and power supply. These improvements were developed in collaboration with City staff.

San Bernardino Municipal Water Department, Clean Water Factory Planning Study and Environmental Impact Report, San Bernardino, CA

Project Manager. Led planning and technical studies related to SBMWD's Clean Water Factory (CWF) Project, which will reduce the region's dependence on imported water and establish a reliable, sustainable source of clean water. The proposed CWF will treat effluent from the San Bernardino Water Reclamation Plant to a quality approved for recharge and reuse by CDPH and the RWQCB. The treated effluent will be conveyed to the Waterman Basins and the East Twin Creek Spreading Grounds. Recycled water spread at these facilities will artificially recharge the Bunker Hill Groundwater Basin (Bunker Hill Basin) and the Bunker Hill A Management Zone. The CWF will also treat a side stream of SBWRP effluent to a quality approved for potable reuse and convey the tertiary treated recycled water to customers that can benefit from a non-potable water supply.

City of San Diego, Ozone and Membrane Filtration Feasibility Studies for the Otay Water Treatment Plant, San Diego, CA

Project Engineer for the evaluation of ozone as the primary disinfectant at the 40 mgd Otay Water Treatment Plant owned by the City of San Diego. The purpose of this study was to determine the feasibility of using ozone to satisfy upcoming changes to the microbial and disinfection byproduct (M-DBP) rules, which simultaneously require increased disinfection requirements and reduced MCLs for

disinfection byproducts. High influent bromide concentrations and high bromate formation potential were found to be of particular concern for this application. A separate study was also performed to compare the feasibility and costs of using either membrane filtration or ozone treatment at the Otay Water Treatment Plant. Both microfiltration and ultrafiltration membrane systems were also considered in this evaluation. Various disposal methods for spent membrane cleaning solutions were also evaluated, including evaporative drying beds and disposal to the sanitary sewer.

City of Escondido | Rincon Penstock Replacement Project; Escondido, CA

Project Engineer. As Project Engineer for the Rincon Penstock Replacement Project, assisted with the analysis and detailed design of 2,200-feet of high-pressure (up to 350 psi), 16-inch pipeline. Performed analysis for both above-grade and below-grade piping options, prepared detailed design drawings and specifications, coordinated multiple engineering disciplines, and assisted in the coordination of the environmental and FERC permitting.

City of Escondido | Wohlford Penstock Replacement Project; Escondido, California, CA

Project Engineer. As Project Engineer for the 48-inch diameter (75-cfs) Wohlford Penstock Replacement Project, assisted with hydraulic analysis, preliminary design report, detailed design drawings and specifications, and permitting coordination with FERC, DSOD, and environmental agencies. In addition to the pipeline, this project includes design of outlet tower facilities (including piping, valves, and fish screens) and emergency reservoir drainage system.

Lytle Creek Water Reclamation Plant; San Bernardino County, California; San Bernardino, CA

Senior Project Engineer. Served as a senior project engineer on the design of the secondary and tertiary wastewater treatment processes for this 1.75 MGD water reclamation plant, which includes an oxidation ditch, UV disinfection, and filtration to achieve State of California Title 22 requirements for recycled water. Nutrient removal and reverse osmosis processes are also being considered for the plant to comply with the strict basin plan objectives for discharge of the plant effluent. Percolation ponds, reclaimed water storage, pumping and distribution system, and pre-treatment of wastewater from a nearby correctional facility are additional elements of this design-build project.

City of Long Beach | Seawater Treatment and Desalination Project; Long Beach, CA

Engineer. Worked closely with the Long Beach Water Department, Long Beach Department of Oil Properties, and the Aquarium of the Pacific to evaluate and develop design concepts for a new seawater well and two-stage nanofiltration treatment facility to treat the polluted water in Long Beach Harbor and provide low cost, reliable supplies of clean seawater and freshwater for use at the Aquarium and the surrounding community. Goals of the project also included arsenic removal, organic removal, iron and manganese removal, nitrogen and phosphate removal, and salinity control.

City of Reno | Disinfection System Design for the Truckee Meadows Water Reclamation Facility; Reno, NV

Lead Project Engineer. Served as lead project engineer for the upgrade and expansion of the chlorine disinfection systems at the Truckee Meadows Water Reclamation Facility, which includes advanced nutrient control processes to comply with the requirements for live stream discharges in a watershed with extremely stringent water quality objectives. This project included evaluation of the existing chlorine gas feed systems and design of new temporary and permanent sodium hypochlorite feed systems for the plant to support an expansion from approximately 40 to 50 MGD. This project also included a feasibility analysis for converting from the existing chlorination system to UV disinfection.

OFFICE LOCATION
Irvine, CA

EDUCATION
- PhD, Civil Engineering, Virginia Tech University, 2002
- MS, Civil and Environmental Engineering, The Ohio State University, 1996
- BS, Civil and Environmental Engineering, Istanbul Technical University, 1988, Istanbul, Türkiye

PROFESSIONAL REGISTRATION
- PE, Civil – 2010, CO, #PE.0044108

PROFESSIONAL ASSOCIATIONS
- American Membrane Technology Association – Voting Member
- American Water Works Association
- California Water Environment Association
- International Water Association
- Water Environment Federation
- Water Research Foundation, Past Board Director
- WateReuse Association, Committee Chair
- International Ultraviolet Association

YEAR CAREER STARTED
1988

YEAR STARTED WITH BV
2023

UFUK ERDAL, PHD, PE

REGULATORY REVIEW

Ufuk leads Black & Veatch's Global Water Reuse practice with 30 years of diverse experience in planning, pilot testing and technology validation, concept development, facility design, equipment procurement, commissioning and permitting of water reuse facilities ranging from 0.3 to 100 MGD, serving public and private clients in the U.S. and around the world.

With expertise in potable reuse's three key technical processes (wastewater treatment, water reuse and drinking water), along with his understanding of regulatory requirements and his proven success in incorporating innovative approaches to potable reuse trains, Ufuk has unique qualification to lead potable reuse projects.

He has contributed to the DPR framework development in Georgia, California and Arizona. He demonstrated the capabilities of AI/ML at three separate indirect potable reuse (IPR) treatment trains in predicting reverse osmosis (RO) permeate TOC, energy consumption of the RO system and fouling behavior of RO membranes. Ufuk is currently collaborating with two universities and the California State Water Board to develop alternative DPR trains that will make DPR more robust and cost-effective, eliminating the need for ozone and BAC in the post-treatment phase.

Principal among his many achievements is the site-specific challenge testing to demonstrate pathogen removal capabilities of an MBR facility (Henderson Water Reclamation Facility), which led the first regulatory approval (in 2012) for pathogen credits for an MBR system in the U.S. This approval opened the door for similar credits in California and other states.

City of Phoenix | DPR Demonstration Project; Phoenix, AZ

Water Reuse Technical Lead. Provides subject matter expertise for developing and executing a pilot testing program to test and validate carbon and membrane-based process trains for performance and DPR compliance in Arizona. He incorporates advanced monitoring in critical control points and extensively collaborates with Arizona Department of Environmental Quality (ADEQ) for DPR permitting.

Metropolitan Water District | Pure Water Southern California IPR/DPR Demonstration Facility Operations Services; Carson, CA

QA/QC Lead. Provides QA/QC services on reviewing primarily MBR demo facility performance for chemical and pathogen removal and establishing pathogen log removal (LRV) credits which are critical for permitting the full-scale facility.

Confidential Industrial Client | Feasibility and Conceptual Design Services Treating Sewer and Waste Streams from a Large Lithium Battery Manufacturing Facility for DPR; Queen Creek, AZ

Water Reuse Expert. Works closely with local Black & Veatch team and ADEQ to develop first industrial-waste-dominant DPR train in Arizona. After evaluating several treatment trains, he recommended a mixed approach utilizing coagulation-flocculation-high rate settling, back-washable nanofiltration, RO and UVAOP

for further evaluation and validation for DPR. Ufuk is currently developing a comprehensive strategy for permitting.

Valley Water | Owner Engineering Services for Purified Water Program; Santa Clara, CA

Water Reuse Technical Lead. Provides critical technical support for the potable reuse program, including development and design of a direct potable reuse demonstration plant at Palo Alto Advanced Water Purification Facility. He also coordinates with Valley Water, regulators, and the program team to validate performance of a DPR train as required by the California State Water Board, as well as two alternative DPR trains.

City of Santa Monica | Sustainable Water Infrastructure Program Progressive Design-Build Services; Santa Monica, CA

QA/QC Design Lead. Served as the QA/QC lead for reviewing the design basis, procurement, and 60%, 90% and 100% design documents for an advanced treatment facility that will treat stormwater and wastewater with MBR, RO, and chlorine-based UVAOP, and post-treatment via calcium chloride and caustic to produce recycled water for IPR via sub-surface injection. He worked with the team to secure the first pathogen credits from the California State Water Board for MBR and cartridge systems.

City of Oxnard | Advanced Water Purification Facility Preliminary and Final Design Services; Oxnard, CA

Process Design Lead. Led the process design services for an advanced treatment facility consisting of pre-treatment, microfiltration (MF), RO, peroxide-based UVAOP, and post-treatment, to produce 6.5 MGD (initial) and 25 MGD (ultimate) purified recycled water for IPR via groundwater augmentation. Led the proof pilot testing design and executed testing to validate MF and RO performance. Ufuk also played a key role for validation of the full-scale UV reactors that demonstrated 1.2-log NDMA removal per earlier IPR regulations.

Water Replenishment District of Southern California | Leo Vander Lans Advanced Water Purification Facility Design Services; Lakewood, CA.

Process Design Lead. Led the process design services that expanded the Leo Vander Lans Advanced Treatment Facility from 4 to 8 MGD for IPR via groundwater augmentation. The design included chloramination, MF, RO, peroxide-based UVAOP, and MF backwash treatment and recovery systems to minimize liquid discharges. Ufuk bench-tested liquid lime, micronized calcium carbonate and calcium chloride-caustic to select the best post-treatment approach. He also led the pilot testing of the secondary RO concept (the first high-recovery RO testing in U.S.) to increase overall recovery of the RO from 85% to 92%, which allows RO concentrate to be discharged to a hydraulically limited sewer. He worked with regulatory agencies to assess the fate of pathogen credits for IPR systems that use MF backwash recovery and high-recovery RO systems.

Hampton Roads Sanitation District | Sustainable Water Infrastructure for Tomorrow (SWIFT) Program Management Services; Norfolk, Virginia

Process Design Lead. Validated the preliminary design concept (coagulation, flocculation, settling, ozone, BAC, GAC, UV disinfection) developed by the Owner's Engineer. Developed alternative treatment approaches to control disinfection byproduct formation during ozonation while reliably meeting stringent pathogen removal criteria and all other IPR criteria for groundwater injection at Williamsburg WWTP (12 MGD) and five other treatment facilities with total treatment capacity greater than 100 MGD.

CAITLIN SCHELL

CIP DEVELOPMENT

Caitlin is an asset management consultant certified by the Institute of Asset Management. She has over ten years of experience in the water and wastewater sector. Caitlin has worked with numerous utilities performing risk assessments, utilizing risk-based and value-based prioritization processes for capital projects, system optimization, and developing asset management plans.

OFFICE LOCATION
Las Vegas, NV

EDUCATION
- BS, Civil/Environmental Engineering, University of Kansas, 2013

PROFESSIONAL REGISTRATION
- IAM Certificate in Asset Management

PROFESSIONAL ASSOCIATIONS
- American Society of Civil Engineers
- Institute of Asset Management

YEAR CAREER STARTED
2013

YEAR STARTED WITH BV
2013

City of Stillwater | Capital Prioritization and Optimization (Water Quality Study); Stillwater, OK

Asset Management Lead. Leading the asset management team through performing a risk-based capital improvement project prioritization and optimization. Defining consequence of failure criteria for both water and wastewater capital projects and assessing the projects with operations staff. Final deliverable will include an optimized CIP schedule meeting the City's budget, resourcing, and scheduling constraints.

Gulf Coast Authority (GCA); Authority-Wide Master Plan; Houston, TX

Asset Management Lead - Black & Veatch. Leading the technical team through the asset management portions of an authority-wide master plan. The work includes developing a risk management framework, on-site condition assessments of the Client's five wastewater treatment plants, performing a risk assessment for all plant assets, developing a replacement forecast, developing capital projects, capital improvement project prioritization and optimization. Additionally, a review of their CMMS will be conducted and AM system recommendations will be developed.

Vallecitos Water District; Asset Management Plan; San Marcos, CA

Asset Management Lead - Black & Veatch. Led the technical team through developing an Asset Management Plan. The work included developing an asset inventory, performing a desktop condition assessment, developing levels of service, and performing a risk analysis for water, wastewater, and reclaimed assets. A 75-year renewal and replacement forecast was developed for both water and wastewater linear and vertical assets. The final Asset Management Plan includes a summary of the work, lifecycle management strategies, condition assessment strategies, maintenance strategies, capital prioritization, and financial strategies.

San Antonio Water System (SAWS); Potable Water Infrastructure Plan; San Antonio, TX

Hydraulic Modeler. Updated existing hydraulic model to incorporate recently completed facilities and pipelines. Calibrated and validated model with average day and maximum day SCADA data. Analyzed and identified critical facilities for emergency outage scenarios. Performed hydraulic and water quality analyses for the system to identify future capital improvements. Evaluated the existing system and developed capital improvement projects for capacity restraints, fire flows, pressure zone modifications, and water quality optimization for future planning years.

Charleston Water System | Asset Management Services, Phases 1-4; Charleston, SC

Asset Management Consultant. Developed a unit rate dataset for the Client's linear assets including base rates for all assets, replacement value, O&M forecasting, and historic asset acquisition costs. Reviewed existing CMMS data, conducted a gap assessment, led on-site condition assessments, developed a complete asset inventory for all water and wastewater plant assets, evaluated asset useful life, and performed an asset risk assessment. A Rehabilitation and Replacement Forecast was developed for all water and wastewater assets.

Southern Nevada Water Authority (SNWA) | Horizon Lateral; Las Vegas, NV

Asset Management Consultant. Created a risk register to identify design, construction, and operational risks throughout the project. Identified mitigation efforts to minimize the risk impact resulting in a safer and more cost-efficient project. Developed Power BI dashboards to optimize analyzing results.

City of Glendale Integrated Water Master Plan; Glendale, AZ

Hydraulic Modeler. Performed hydraulic and water quality analyses for the system to identify future capital improvements. Evaluated the existing water system and capacity restraints. Assessed pressure zones, fire flows, outage scenarios, and water quality optimization for future planning years.

Various Utilities; America's Water Infrastructure Act (AWIA) Risk and Resiliency Assessment (RRA); United States

R&R Assessment Team. Managed several clients through the RRA to meet the EPA-mandated deadlines. Coordinated efforts with internal subject matter experts to develop risk scores and prioritize mitigation efforts for cybersecurity and physical security. Analyzed natural hazard probabilities, consequences, and the specific assets' vulnerabilities. Developed an Emergency Response Plan to include new procedures based on results from the RRA.

Johnson County Wastewater; Tomahawk Creek WWTF Expansion; Leawood, KS

Civil Design Engineer. Performed preliminary and detail design for a brownfield 57mgd wastewater plant. Led the detailed design effort for the original Compressible Media Filter Complex and the final Cloth Disk Filter Complex. Designed the Solids Processing building, focusing on rotary drum thickeners. Assisted the PM with contract amendments, scope of services, and sub-consultant agreements. Assisted the lead EM with the project schedule and workflow model.

City of Lawrence; Wakarusa Wastewater Treatment Plant and Conveyance Corridor; Lawrence, KS

Design Engineer. Performed preliminary design, detailed design, and construction phase services for a new 2.5MGD wastewater treatment facility. Conducted detailed hydraulic profile calculations for the entire plant and designed the BNR basin through preliminary design. Led the design of final clarifiers, RAS/WAS pump station, UV disinfection, and the plant outfall. Coordinated work with three subconsultants. Responded to RFIs, review submittals, and other various construction phase issues.

OFFICE LOCATION
Los Angeles, CA

EDUCATION
- BS, Civil Engineering, California State University, 2013

PROFESSIONAL REGISTRATION
- PE—2017, CA, #88281
- NASSCO PACP, MACP, & LACP, #U-114-0619893, 2014
- Envision Sustainability Professional, 2014
- Lean Six Sigma Green Belt Trained, 2021
- Institute of Asset Management Certification, 2021

PROFESSIONAL ASSOCIATIONS
- American Society of Civil Engineers – M.ASCE
- American Water Works Association
- Water Environment Federation / California Water Environment Association
- Institute of Asset Management
- Association for Materials Protection and Performance

YEAR CAREER STARTED
2013

YEAR STARTED WITH BV
2018

CLINTON MCADAMS, PE, ENV SP

CONDITION ASSESSMENT SME

Clinton empowers utilities with asset management strategies for optimal infrastructure lifecycles. Emphasizing the importance of resolution and coverage during data collection has enabled him to provide successful cost-effective programmatic solutions. Past projects include engineering design and construction services, condition assessments, risk-based capital improvement planning, asset management program support, and contract administration.

City of San Jose | Regional Wastewater Facility Pump Station Condition Assessment; San Jose, CA

Engineering Manager. Black & Veatch is conducting a condition assessment of 3 pump stations within the RWF in order to assess deficiencies and identify improvements needed to keep them operational for the next 30 years. Structural, mechanical, electrical, and instrumentation and controls assets were assessed. Based on the condition assessment results, Black & Veatch developed recommendations, opinion of probable construction costs, and preliminary implementation schedules. A combination of indirect and direct inspection methods were used, including record review, visual inspection, concrete sampling and testing, ultrasonic testing, CCTV inspection, hazardous materials investigation, static motor testing, and pump capacity testing.

Vallecitos Water District | Asset Management Plan; San Marcos, CA

Technical Lead. The Vallecitos Water District provides water, wastewater, and reclamation services to San Marcos and parts of Carlsbad, Escondido, Vista, and unincorporated areas in north San Diego County. Black & Veatch is developing an Asset Management Plan (AMP) encompassing all horizontal and vertical assets for the District. The comprehensive AMP will document asset condition rating criteria, remaining useful life determination, renewal and replacement decision making methodologies, preventive and predictive maintenance programs, development of an asset renewal and replacement schedule, and near- and long-term funding requirements to meet service level standards. This AMP will be the foundation for the future enhancement of the Maximo CMMS for code-based asset management best business practices.

Coachella Valley Water District | Asset Management Program Development; Palm Desert, CA

Engineering Manager. Black & Veatch is currently providing asset management program implementation services for CVWD's over $7B+ portfolio of water, wastewater, recycled water, irrigation, groundwater replenishment, stormwater, general district, and fleet assets. This comprehensive program built a foundation of field validated asset inventories, baseline visual condition assessments, opinions of valuation, and risk-based prioritization criteria for all existing horizontal and vertical assets. CMMS implementation support with a third-party software vendor included business process mapping for both as-is and to-be work order processes, user acceptance testing, system integration testing, and training plan development. Currently, Black & Veatch is developing KPI dashboards for maintenance management.

Orange County Sanitation District | P1-126 Primary Sedimentation Basins No. 3-5 Replacement; Fountain Valley, CA

Technical Lead. The primary project purpose is to replace the circular Primary Clarifiers (PCs) 3, 4, and 5 at Plant 1, which are nearing the end of their useful life. The project will also replace all ancillary facilities necessary for the operation of the clarifiers, such as electrical facilities, yard piping, and utilities, and demolish the old control center and PCs 1 and 2. The project includes the replacement of the primary scrubber facility with a new facility adequate to treat odors from the circular and rectangular PCs 3 through 31. A condition assessment was performed of the existing pipelines and odor control center associated with the primary clarifiers, with the purpose to support design decisions, determine whether existing assets are recommended for reuse, and influence decisions regarding the phased construction approach for the new hydraulic structures.

San Diego County Sanitation District | Comprehensive Asset Management Program; San Diego, CA

Project Engineer. In 2017, the County began a comprehensive asset management program for their entire wastewater system, including 432 miles of sewer lines, 8,200 manholes, 8 pump stations, and 3 wastewater treatment plants in largely rural and unincorporated areas of San Diego County. This is the first program of its kind for the County and will develop and implement a comprehensive asset management and condition assessment program over a 5-year period. Project elements include: • Enhancing the County's GIS to support asset management and condition assessment initiatives • Developing inspection policies and procedures for consistent and structured condition assessment information of pipes and manholes • Creating competitive vendor inspection and assistance with vendor selections • Targeted inspection and condition assessments of large diameter sewer lines • Developing risk and capital project prioritization tools to identify high risk infrastructure, aggregate into executable projects, and develop a defendable CIP program. • Develop design packages such as the Jamacha Force Main and Gravity Sewer Improvements. • Support with public outreach and utility coordination.

City of Oakland | Wastewater Master Plan Update; Oakland, CA

Technical Lead. Project includes expanding the City's hydraulic model to include the entire system, evaluating I/I reduction progress since 2012, managing GIS/CMMS asset registry data, developing GIS tools, improving the GIS asset inventory through extensive field work and GIS analytics, evaluating private-property I/I reduction policy and funding options, developing an O&M Master Plan including preventative and predictive maintenance and inspection programs, and conducting a wastewater rate and connection fee study. Currently working with the City's maintenance division on business intelligence enhancements through CMMS integrations with GIS, hydraulic and risk models, and online telemetry data from level sensors and flow meters. Developing custom SOP tools and calculators to streamline emergency response and regulatory compliance efforts.

City of San Jose | Regional Wastewater Facility Yard Piping Improvements; San Jose, CA

Engineering Manager. The RWF has 67,000 linear feet of wastewater process piping that carry raw sewage, liquids, and sludge between the various unit treatment process areas. Process piping at the RWF varies in age, material, condition, reliability, redundancy, and diameter (from 8 inches to 144 inches). Seventy percent of the process pipes at the RWF are more than 25 years old, with more than ten percent over 50 years of age. Black & Veatch developed a framework for piping condition assessments within the RWF and provided a prioritized list of critical pipes for more extensive inspection, repair, and rehabilitation. As part of the project, Black & Veatch directed and oversaw physical inspections using inspection and condition rating protocols to maintain consistency across multiple inspection vendors. As the owner's advisor, Black & Veatch is implementing the 8-year CIP and providing rehabilitation design packages, CEQA support, and engineering services during construction. Rehabilitation alternatives such as CIPP and CFRP have been designed and installed to address identified damage.

OFFICE LOCATION
Irvine, CA

EDUCATION
- BS, Electrical Engineering Computer Science, University of California at Berkeley, 1981

PROFESSIONAL REGISTRATION
- PE – Year, CA, E011758
- PE – Year, OR, 17586PE
- PE – 1995, WA, 31686
- PE – 1995, HI, PE-8493
- PE – 2000, NY, 77571
- PE – 2000, FL, 55874
- PE – 1996, AZ, 29965
- PE – 2011, NV, 011622

PROFESSIONAL ASSOCIATIONS
- IEEE/PES, Senior Member
- IEEE/PES Governing Board, Past Member
- IEEE/PES Working Group on Distributed Resources Integration, Member
- IEEE/PES Working Group 15.09.02/15.09.08-Lightning Performance of Transmission/ Distribution Lines

YEAR CAREER STARTED
1981

YEAR STARTED WITH BV
2006

KEENE MATSUDA, PE

CONDITION ASSESSMENT SME - ELECTRICAL

Keene has 43 years of extensive experience with electrical power distribution systems for a wide variety of utility, industrial, aviation, energy, institutional, and health care types of projects. His particular expertise includes medium and high voltage substations, low voltage distribution networks, engine=generator and cogeneration power plants, solar photovoltaic arrays, battery energy storage systems, ground grid systems, lightning and surge protection systems, building and parking lot lighting, roadway and tunnel lighting, water and wastewater treatment plants, pump stations, desalination plants, airport runway and taxiway lighting and signage, airfield navigational aids (CAT II), 400 Hz aircraft ground power units and illumination for aircraft parking aprons, heavy rail and light rail mass transit systems, grade separations, intelligent transportation systems, instrumentation and control, SCADA, fire alarm, CCTV, security, telecommunications systems, and condition assessments.

Keene uses sophisticated computer software to perform power systems analysis and calculations for voltage drop, equipment sizing, load flow, short circuit, motor starting, coordination studies for protective relay and circuit breaker settings, and arc flash calculations per IEEE 1584 and NFPA 70E. He also uses computer-based software to prepare a photometric analysis for lighting design and layouts. In conjunction with design drawings, he prepares construction cost estimates, and electrical equipment and installation specifications. During construction activities, he reviews equipment submittals and shop drawings, requests for information, performs on-site inspection of work in progress, and provides general technical support. In addition, Mr. Matsuda is an IEEE Distinguished Lecturer for the Power and Energy Society where he has delivered his specialty topic, High Reliability Power System Design, internationally numerous times.

San Elijo Joint Powers Authority | Biosolids Dewatering Facilities Improvements; Cardiff by the Sea, CA

Lead Electrical Engineer. Responsible as lead electrical engineer of design for two dewatering centrifuge systems. Electrical design included replacement of existing service entrance 480 V switchgear and ATS, to a new service entrance 480 V switchboard, ATS and distribution switchboard, and new 480 V feeders to existing MCCs, and replacement of existing MCC to new MCC in dewatering building. Step-by-step details for phased construction with temporary motor controllers for critical loads, and portable diesel engine-generators to minimize downtime for the remainder of the plant.

Orange County Water District | Ground Water Replenishment System Upgrade, Phase II; Fountain Valley, CA

Lead Electrical Engineer. Responsible for electrical system design for the phase II expansion of the existing GWRS plant. Design elements include 12 kV switchgear, 12-4 kV isolation transformers, 4 kV and 480 V variable frequency drives and motors, motor control centers, lighting, grounding, underground duct banks and raceway, for the reverse osmosis, microfiltration, ultraviolet, product water pump process areas.

Irvine Ranch Water District | Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities Project; Irvine, CA

Lead Electrical Engineer and Electrical Inspector. Responsible for the design of a power distribution system for a new biosolids facility at the existing water recycling plant with thickening/dewatering centrifuges, odor control, methane digesters, and 5-200 kW microturbines. The power system design includes a new electric utility service from SCE and 4.16 kV switchgear for two separate unit substations feeding MCCs, VFDs, and other biosolids and solids handling process equipment. Also responsible as electrical engineer of record during construction phase and performing daily electrical inspection duties for construction in progress.

City of Riverside | Riverside Regional Water Quality Control Plant, Phase I Plant Expansion; Riverside, CA

Lead Electrical Engineer. Responsible for electrical system design for the phase I expansion of the existing water quality control plant. Design elements include 12 kV switchgear and site-wide distribution, step-down transformers, 480 V motor control centers, variable frequency drives and motors, lighting, grounding, underground duct banks and raceway, for the aeration basin, fine screen facility, scour blower, ferric chloride, and biofilter process areas.

Padre Dam Municipal Water District | Eastern Service Area Secondary Connection Project & SDCWA Flow Control Facility; San Diego County, CA

Lead Electrical Engineer. Responsible for electrical design of new pump station for three 600 Hp pumps with AFDs/soft starters and 1500 kW standby generator, and a flow control facility with separate electric utility service. Electrical design included 480 V switchboards, power panels, UPS units, general power distribution, lighting, and special external perimeter security lighting with motion sensors and automatic closed circuit television cameras with manual override.

Orange County Sanitation District | P1-102, Secondary Activated Sludge; Fountain Valley, CA

Lead Electrical Engineer. Responsible for all electrical issues with respect to construction support. Services include responding to RFIs, reviewing contractor submittals, analyzing contractor claims, and inspection of electrical construction in progress. Major electrical equipment includes 12.47 kV to 4.16 kV and 480 V transformers, 4.16 kV and 480 V switchgear and MCCs, UPS units, power monitors, and 1500 Hp, 4000 V blower motors with reduced voltage soft starters.

City of Escondido & Vista Irrigation District | Escondido/VID Water Treatment Plant On-Site Chlorine Generator System; Escondido, CA

Lead Electrical Engineer. Responsible for the electrical design for a new on-site chlorine generator system at existing WTP. Also responsible for complete overhaul and design of new incoming power system from the electric utility with a new 480 V main service entrance metal-clad switchgear system and a standby diesel engine-generator system sized for full plant back-up.

Eastern Municipal Water District | Perris Desalter; Perris, CA

Lead Electrical Engineer. Responsible for the design of the electrical system for a new 5 MGD desalination facility. Design included main switchboards and motor control centers for the reverse osmosis system, CIP, flush, decarbonator, forebay, chlorine contact, finished water, brine pump station, and chemical feed system areas.

Southern Nevada Water Authority | Hacienda Pump Station Upgrades; Las Vegas, NV

Project Electrical Engineer. Member of electrical design team responsible for the design for an upgrade to an existing pump station with seven 2000 hp pumps for Southern Nevada Water Authority. Project includes change-out of the 4.16 kV switchgear, and intertie with a new 69 kV substation, controls, and a new DC battery system for relay and breaker controls.

OFFICE LOCATION
Denver, CO

EDUCATION
- BS, Construction Management, Purdue University, West Lafayette, IN, 1998

PROFESSIONAL REGISTRATION
- LEED Accredited Professional
- U.S. Army Corps of Engineers Construction Quality Management

YEAR CAREER STARTED
1998

YEAR STARTED WITH BV
2011

STEVE HULL, LEED AP

COST ESTIMATING

Steve is a principal estimator with 24 years of experience in the municipal, industrial, commercial and U.S. Federal Government construction sectors. He has estimated projects in a variety of scope including water and wastewater treatment facilities, water delivery systems, heavy civil, military base facilities, power plants and commercial and public projects. He has led estimating teams in the development of cost estimates including coordinating with engineering, operations and procurement groups providing detailed, accurate and cost competitive estimates. He performs quantity takeoffs and production-based cost estimates, evaluates subcontractor bids and scopes, and reviews procurement packages for bidding. Mr. Hull is proficient in the working knowledge of Timberline estimating software. He has prepared bids for both traditional design-build and bid-build project delivery methods.

Southern Nevada Water Authority | Horizon Lateral Conveyance System Project; Henderson, NV

Lead Estimator. Pipeline Estimator. Led estimating activities for the pipeline and Black & Veatch facility scopes of work. Project is designed to convey up to 375 MGD of potable water. Major scopes of the project include 36 miles of pipelines sized up to 120 inches in diameter and up to eight miles of tunneling through hard rock and soft ground. Additional project scopes include two large pumping stations, one or two small pumping stations, multiple rate of flow structures (ROFCs), interconnections with an existing transmission lateral, and a new reservoir. Estimated all pipeline work for project as well as overseeing the Black & Veatch facility scopes. Coordinated the project scope with BV engineering teams. $2.6B

Metropolitan Water District of Southern California | Second Lower Feeder Reach 3A/3B; Los Angeles County, CA

Lead Estimator. Pipeline Estimator. Led estimating activities for the pipeline scope. The project includes roughly 25,300 lineal feet of 78” PCCP pipe that will be re-lined with 75” OD steel lining at 5/8” thickness, and 274 lineal feet of 84” PCCP that will be lined with 81” OD steel lining at 5/8” thickness. The existing pipeline will be accessed at nine locations to facilitate the re-lining process. The annular space will be pumped with grout while the inside will be lined ½” of cement mortar lining. Estimated all pipeline work for project. Project responsibilities included estimating all civil, structural, process mechanical scopes of work, managing the estimating team, and coordinating the project scope with the engineering group. $102M

Natel Energy | Red River Lock and Dam 3 Hydro Engineering Services; Colfax, LA

Lead Estimator. Civil/Structural/Process Mechanical Estimator. Led the estimating effort in the development of the detailed cost estimate to add a hydroelectric powerhouse facility to the west of the current lock and dam structure. Major scope items included: new powerhouse structure, new intake and tailrace channels, new substation and sitework modifications. Project responsibilities included managing the estimating team and estimate, as well as estimating all civil, structural, process mechanical equipment and process piping scopes. $165M

Eagle River Water and Sanitation District | Vail WWTP Master Plan Improvements Phase 1; Vail, CO

Lead Estimator. Civil/Structural/Process Mechanical/Architectural Estimator. Led the estimating team in the development of the detailed opinion of cost estimates for the project. Project scope included modifications and improvements to the existing facility. Project responsibilities included estimating all civil, structural, process mechanical and architectural scopes of work, managing the estimating team, coordinating the project scope with the engineering group and reviews of the contractor cost estimates. $6.2M

City of Columbus, Department of Public Utilities | Hap Cremean Water Plant Intake Structure and Low Head Dam Rehabilitation Project; Columbus, OH

Lead Estimator, Civil, Structural & Process Mechanical Estimator. Led the estimating team in the development of the detailed cost estimate for the proposal. Project scope included modifications to the existing cast-in-place intake structure and dam, new screen equipment and civil work at the intake and river. Project responsibilities included managing the estimating team and estimate, as well as estimating all civil, process equipment and mechanical piping work. $14M

Clark County Water Reclamation District |Whitney Lift Station Rehabilitation; Clark County, NV

Lead Estimator, Civil/Structural/Process Mechanical Estimator. Led the estimating team in the development of the detailed cost estimate for the project. Project scope included demolition of existing facilities as well as the addition of new facilities including a Screenings Building, Bypass and Conditioning Pump Stations. Existing Facility modifications included the Lift Station Wet Well, Dry Well, Electrical Building and Odor Control areas. Project responsibilities included managing the estimating team and estimate, as well as estimating all process equipment and piping, civil and structural scopes. $64.8M

MAWC | Joplin Reservoir Project; Joplin, MO

Lead Estimator, Civil/Structural/Process Mechanical Estimator. Led the estimating effort in the development of the detailed cost estimate to construct a new earthen dam reservoir, spillway and pump station. Project responsibilities included estimating all civil, structural, architectural and process mechanical work, coordinating the project scope with engineering and procurement. $247M

Colorado Springs Utilities | Crystal Dam Improvements; El Paso County, CO

Lead Estimator, Civil/Structural/Process Mechanical Estimator. Led the estimating effort in the development of the detailed cost estimate to perform repairs on the existing dam, outlet tunnel and process piping. Project responsibilities included estimating all civil, structural, architectural and process mechanical work, coordinating the project scope with engineering and procurement. $6M

Tualatin Valley Water District, City of Hillsboro and City of Beaverton | Reservoir Storage Project (RES_1.0), Willamette Water Supply Program; Beaverton, OR

Lead Civil Estimator. Led the estimating effort for the development of the detailed cost estimate. Project scope comprised overall site development including site excavation, blasting and hauling of 100,000 cy of rock material, a soil nail/rock bolt retaining wall; two 15MG prestressed 300-ft diameter concrete storage tanks; water quality facility; 66” diameter inlet and outlet pipelines; yard piping and vaults; stormwater collection and treatment systems. $72M

OFFICE LOCATION
Denver, CO

EDUCATION
- MS, Civil/Environmental Engineering, Colorado School of Mines, 2012
- BS, Civil/Environmental Engineering, University of Washington, 2008

PROFESSIONAL REGISTRATION
- PE – 2018, CO, 0055031

PROFESSIONAL ASSOCIATIONS
- RMWEA Public Education and Outreach Committee
- ASCE Water Resources and Sustainability

YEAR CAREER STARTED
2013

YEAR STARTED WITH BV
2022

MARINA KOPYTKOVSKIY, PE

CLIMATE CHANGE / RESILIENCY

Marina is an experienced water resources and resilience planner, integrating resource management with utility planning. Her background includes managing complex programs and projects to support strategic initiatives. She has led multi-disciplinary teams to develop creative and collaborative solutions with diverse stakeholder groups to foster sustainable communities.

Parker Water & Sanitation District (PWSD) | Master Plan Update; Parker, CO

Planning Projections, Regulatory Evaluation, Implementation Planning Lead. Marina is leading the development of future land use projections for the District, driving future demands and projections. She is also developing a trigger-based regulatory roadmap impacting future infrastructure and treatment improvements with an associated schedule and alternatives. Finally, she will use the findings of the master planning effort to develop an implementable capital expenditure schedule that is defensible for the District and meets future growth and regulatory needs.

Coachella Valley Water District (CVWD) | Hazard Mitigation Plan, CA

Project Planner. Support the planning process for the development for the Multi-Hazard Multi-jurisdictional Mitigation Plan update. The plan benefits CVWD and the community service area by identifying risk reduction strategies to prevent future losses from hazards. The plan includes community engagement, risk assessment and mitigation strategies.

WaterOne | Climate Adaptation Plan and Master Plan, KS

Climate Adaptation Planning. Marina supported the collaborative, workshop driven-planning process to develop a Climate Adaptation Plan and Master Plan for WaterOne. The Climate Plan was included within the latest version of the utility's master plan. Climate adaptation strategies were developed for a number of scenarios including: drought, flood, extreme heat/cold, supply chain disruptions and encompassed WaterOne facilities from source watersheds, raw water intakes, treatment plants, to the distribution system assets.

Verily Life Sciences, LLC | WastewaterSCAN Program, Nationwide

Project Lead. Marina led the programmatic outreach and onboarding of wastewater utilities and treatment plants to the WastewaterSCAN Program. The WastewaterSCAN Program is a national wastewater sampling initiative to detect and monitor infectious disease levels in wastewater streams to proactively inform public health officials and support public policy decision-making. Responsible for project and staff management, regional coordination and facilitation of presentations to utilities, and coordination of contract execution.

PWSD; Parker, CO

Senior Project Manager. Parker Water & Sanitation District is a special district that provides water and sanitation services for a rapidly growing community of approximately 60,000 residents. Marina managed a variety of projects.

PWSD | Platte Valley Water Partnership (PVWP) and the District's Long-Term Water Supply Strategy; Parker, CO

Program Manager. Development of feasibility and risk assessments on PVWP components including project permitting, schedule, infrastructure, water rights and resources, while continuously refining and managing future cost estimates. Led utility and agriculture stakeholder discussions and agreement negotiations and advised the District's leadership and Board of Directors. Managed the District's water resources portfolio to support the future project. Development and refinement of the District's capital program and projects to support the $800 Million PVWP and maintain a feasible fiscal and permittable schedule for an online date of 2040. Responsibilities include developing and refining project strategy and vision, cultivating numerous external relationships of diverse stakeholders, safeguarding program progress, and ongoing engagement and leadership in regional work groups.

PWSD | Integrated Water Resources Master Plan Update and Engineering Capital Program Plan and Implementation; Parker, CO

Project Manager. Led the 2020 Update with predominantly District staff, including a complete revamp of future water demand projections, wastewater flows, distribution and wastewater system hydraulic modeling, existing and future water resources portfolio (including water rights) projections, and capital improvement program plan and cost estimates. Used Plan results to inform the 10-year CIP Program and Rate and Fee Study.

Parker Water & Sanitation District (PWSD) | South Water Reclamation Facility Wastewater Improvements

Project Manager. Managed the condition assessment of the South Water Reclamation Facilities (SWRF) Advanced Water Treatment (AWT) process improvements and disinfection conversion from chlorine gas to sodium hypochlorite. Developed a CMAR scope of work for the AWT from the condition assessment and managed the critical improvements to improve the reliability and resiliency of the over 22-year-old AWT process. Upgrades included identification and replacement of obsolete equipment and instrumentation, AWT tank sand blasting and re-coating for another 10–15-year facility life extension, removal and replacement of the WesTech clarifier and nutrient removal system, I&C upgrades, and ancillary improvements required to support. The project required close collaboration with operations staff to maintain SWRF operations while taking individual filter tanks offline and bypassing the flows to a nearby lift station and to secondary storage. Successful project completion ensures the District's ability to meet discharge limit requirements, inclusive of Phosphorous and Nitrogen nutrient limitations.

PWSD | Water Infrastructure and Supply Efficiency (WISE) Program; Parker, CO

Program Manager. Led the organizational effort for the WISE program with PWSD as the WISE operator. This included creating and managing programs and resources for leadership, operations and maintenance, to execute the necessary functions. She also developed the annual budget for these operations. Also project managed the capital projects (pipeline and pump station) required for the WISE infrastructure to wheel water to project partners.

PWSD | Water Efficiency Program; Parker, CO

Program Manager. Managed the District's Water Efficiency Program, including community engagement, rebate, and HOA irrigation system audits. Evaluated existing HOA high users to understand impacts on annual water supplies and identify water efficiency opportunities. Collaborated with land use agencies for code improvements to implement water efficient regional strategies. Collaborated with the South Metro Water Supply Authority for comprehensive regional water efficiency resources and implementation of initiatives.

OFFICE LOCATION
Irvine, CA

EDUCATION
- BS, Civil Engineering, California Polytechnic University, Pomona, CA

PROFESSIONAL ASSOCIATIONS
- PE – 2007, CA, #71543

YEAR CAREER STARTED
2003

YEAR STARTED WITH BV
2018

VINCE FARAONE, PE

HYDRAULIC ANALYSIS / WATER BALANCE

Vince has more than 15 years of experience in the preliminary design, conceptual layout, detailed design, specification and cost estimating for municipal facilities. These include pumping stations, wastewater treatment plants, collection systems, and related support facilities such as the process improvement at the silver lake reservoir complex. He specializes in development of utility assessments, system layouts, equipment layouts, design discipline coordination and development of project-specific site and construction constraints. Vince led the technical design of the phase 1 silverlake aeration project and is overseeing the conceptual development of the phase 2 recirculation project.

Coachella Valley Water District | Asset Management Program Development; Palm Desert, CA

Black & Veatch is currently providing asset management program implementation services for CVWD's over $7B+ portfolio of water, wastewater, recycled water, irrigation, groundwater replenishment, stormwater, general district, and fleet assets. This comprehensive program built a foundation of field validated asset inventories, baseline visual condition assessments, opinions of valuation, and risk-based prioritization criteria for all existing horizontal and vertical assets. CMMS implementation support with a third-party software vendor included business process mapping for both as-is and to-be work order processes, user acceptance testing, system integration testing, and training plan development. Currently, Black & Veatch is developing KPI dashboards for maintenance management.

Los Angeles Department of Water and Power | Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System – Phase 1; Los Angeles, CA

Lead Design Engineer/Discipline Coordinator. Design of the Phase 1 Aeration System consisted of repurposing the existing liquid chlorine storage station to a mechanical process area to house four blowers, four after coolers, a Motor Control Center, and a Programable Logic Controller. Rotary lobe blowers were specified for the Ivanhoe reservoir; because of the depth and volume of the Silver Lake Reservoir, rotary screw blowers were specified. Blower sizing and quantity of diffuser assemblies were sized to minimize stratification within the reservoirs. Final Design completed Q2 of 2018.

Los Angeles Department of Water and Power | Silver Lake and Ivanhoe Reservoirs Aeration and Recirculation System – Phase 2; Los Angeles, CA

Lead Design Engineer/Discipline Coordinator. Phase 2 Recirculation System is currently in preliminary design. The project intent is to pump a portion of the Silver Lake reservoir contents to the Ivanhoe reservoir; the water surface elevation in Ivanhoe will be controlled by the spillway between the two reservoirs; flow into Ivanhoe will result in equal flow from Ivanhoe to Silverlake; the recirculation project will provide additional mixing in both reservoirs. The existing piping and distribution manifold structures provide LADWP some operational flexibility though they were designed flow in / flow out type of water management system; with the revivors completely separated from the potable water network, the recirculation system will provide LADWP greater operational flexibility. Preliminary design is scheduled through Q1 of 2019; final design completion is anticipated for Q3 2019.

City of San Diego | Point Loma Wastewater Treatment Plant Primary Sedimentation Basins 1 thru 12 Rehabilitation Design-Build Project – Intake Pumping Station; San Diego, CA

Assistant Project Manager/Lead Design Engineer. Primary design engineer for this $6.33 million rehabilitation design-build project that included removal of the existing sludge collectors (total of 36 longitudinal and 12 cross collectors) and replacement with new standardized sludge collection systems.

South Orange County Wastewater Authority | J.B Latham Treatment Plant Construction Package "C"; Dana Point, CA

Lead Design Engineer/Discipline Coordinator. Replacement of the Plant No. 2 power supply; mechanical rehabilitation of the thirteen rectangular secondary clarifiers; implementation of structural and seismic improvements. The power supply replacement included replacement of an SDGE transformer; a new electrical building to house the meter/main, a 480 volt switchgear and the SCADA servers; power feeder to seven (7) MCCs were constructed in addition to power and control conductors between the process equipment and the MCCs / PLCs; three new MCCs were constructed to replace existing MCCs in place. A detailed set of construction constraints was developed to ensure that adequate hydraulic and treatment capacity was maintained throughout construction; trailer mounted engine generators were utilized during electrical cut-overs to maintain plant operations.

Inland Empire Regional Composting Authority | Process Improvements at the Inland Empire Regional Composting Facility (IERCF); Rancho Cucamonga, CA

Lead Design Engineer/Discipline Coordinator. Responsible for overseeing development of the preliminary design report, detailed design, and engineering services during construction for the $4.2 million IERCF process improvements project. The project included extensive site investigations to develop accurate as-is documentation, including laser scanning of the existing screening area, to determine critical utility conflicts associated with piping, conduits, and conveyors. In addition to the mechanical as-is investigation, an electrical investigation was performed to confirm the availability of spare MCC buckets / spaces in the exiting electrical line up to ensure that new process equipment could be integrated into the system without adding additional MCC sections. The IERCF is capable of processing 150,000 tons of dewatered biosolids per year and receiving 150,000 tons per year of amendment materials including bulking agents and feedstocks to produce approximately 250,000 cubic yards (90,000 tons) per year of high quality, wood based, nutrient rich, compost.

South Orange County Wastewater Authority | Coastal Wastewater Treatment Plant Primary Treatment Upgrades – Phases II and III; Dana Point, CA

Project Manager/Lead Design Engineer. Rehabilitation and upgrade of the primary treatment facility; including replacing covers on the grit basins and primary sedimentation basins (PSBs); replacement of chain and flight sludge collectors, helical scum collectors, drive units, field control panels (FCPs), convenience receptacles, and conductors between the FCPs / drives and the MCC; repairing aged/corroded spalling concrete around the grit basins and PSBs; and repairing leaky construction joints.

OFFICE LOCATION
Kansas City, MO

EDUCATION
- MS, Environmental Systems Engineering, Clemson University, 1985
- BS, Agricultural Engineering, Auburn University, 1983

PROFESSIONAL REGISTRATION
- PE – 2009, IA, #19206
- PE – 2008, KS, #20243
- PE – 2008, MO, #2008031312
- PE – 1994, NC, #20503
- PE – 1989, MA, SA 34345

PROFESSIONAL ASSOCIATIONS
- Water Environment Federation

YEAR CAREER STARTED
1985

YEAR STARTED WITH BV
1985 – 2006
2015 - Current

SCOTT CARR, PE, BCEE

BIOGAS / BIOSOLIDS REUSE

Scott is Black & Veatch's Global Practice and Technology Leader for biosolids and residuals management, with 39 years of experience. He has focused his career on biosolids and residuals management, including processing and beneficial use of biosolids. His expertise encompasses all aspects of biosolids management, from master planning through design and construction administration.

Industry Related Professional Activities. Scott participated in the preparation of the WEF sponsored documents looking at the future of biosolids, including Charting the Future of Biosolids Management, Enabling the Future: Advancing Resource Recovery in Biosolids, and Accelerating Resource Recovery: Biosolids Innovations and Opportunities. He also participated in the WEF MOP8 Wastewater Process Design Manual revision, serving as the lead author for the rewriting of the thermal drying section. He also served as an author of the Emerging Technologies chapter for the EPA's revised Sludge Processing Manual. He participated in the development of the EPA/USDA task force to develop a manual on the storage of biosolids and lead a Dryer Taskforce for the WEF BioEnergy Subcommittee.

San Elijo Joint Powers Authority | Condition Assessment and Biosolids Master Plan; Cardiff by the Sea, CA

Technical Director. Black & Veatch recently completed a condition assessment and biosolids master plan for SEJPA. The Authority currently anaerobically digests, dewaters, and transports biosolids to Arizona for beneficial use. Unthickened primary sludge and thickened waste activated sludge (DAF process) are fed to the digesters. One aspect of the evaluation was to determine the digestion capacity to meet long-term needs and identify alternatives for increasing capacity. It was determined that primary sludge thickening using a rotary drum thickener will most cost-effectively extend the capacity of the digestion system to meet future needs. In addition, the existing belt filter press dewatering equipment is near the end of its useful life and alternatives for replacing the equipment were evaluated. New BFPs, centrifuges, and screwpresses were evaluated and BFPs were recommended for future needs. Finally, consideration was given to the need to shift to Class A stabilization processes to meet future needs.

Narraganset Bay Commission | Digestion Capacity Assessment; Providence, RI

Senior Biosolids Process Engineer. As part of an anaerobic digester upgrade at the Bucklin Point facility, NBC engaged Black & Veatch to assess current digester operations and capacity, with a goal of identifying the co-generation energy potential once the upgrades are completed as well as consideration for the potential boost in biogas production if co-digestion was initiated. Scott oversaw the development of a digestion process model that identifies the effects of high strength wastes on biogas and biosolids production. The model showed that with the upgrades the existing engine should be able to operate at approximately 68% of its rated capacity on biogas. The model was also used to demonstrate that, depending on waste characteristics, the biogas production could be boosted by as much as 97%. Another application for the model was to help determine the effects of different construction sequencing scenarios.

Trinity River Authority | Biosolids Beneficial Reuse Options Analysis; Arlington, TX

Biosolids Process Engineer. Black & Veatch is currently assisting TRA with an assessment of biosolids processing and management strategies for its five reclamation facilities. Black & Veatch is currently developing a biosolids product market assessment to help provide information as to the best outlets for the THP/digested biosolids from the Central Regional Wastewater System (CRWS), as well as potential outlets for products that could be developed by processing solids at the four other regional systems. This information will be used to screen and evaluate technologies to identify the best practice for managing the solids from all the systems. Scott is leading the evaluation of transportation options associated with CRWS and will assist with the development and evaluation of complete management alternatives.

San Bernardino Municipal Water Department | Biosolids Strategic Plan; San Bernardino, CA

Technical Director. Black & Veatch is designing a new anaerobic digester to replace a structurally unsound existing digester. The Department requested that a strategic plan be developed prior to the design to help determine key elements needed for digestion. Scott served as the Technical Director for development of the strategic plan. Developing the strategy required conducting a detailed biosolids product analysis and using that information to develop alternatives for evaluation. Alternatives considered advanced digestion processes including TPAD, THP/mesophilic digestion, as well as thermal drying and composting. Emerging technologies were also considered, including gasification and pyrolysis, but identified as technologies to consider in the future if regulations or other factors warrant. The evaluation concluded that the new digester should be constructed to serve as a thermophilic digester, which would allow the Department to more cost-effectively implement a TPAD process if current conditions change and warrant the production of a Class A cake. In addition, the evaluation provided a roadmap for implementation of a future drying facility if product market conditions change.

Metro Denver | Biosolids Facilities Plan; Denver, CO

Technical Manager. Scott served as the technical manager for the development of a biosolids facility plan for Metro Denver. The plan included an evaluation of the existing land application and composting programs. A broad range of alternative technologies were included in the evaluation. Metro Denver established a Citizen's Participation Group during the project and members of the CPG participated in the evaluation process.

Gwinnett County Department of Water Resources | Biosolids Master Plan and Preliminary Design; Lawrenceville, GA

Technical Advisor. Black & Veatch assisted the County with the development of a biosolids master plan that will address management for the County's three wastewater treatment facilities. The County currently landfills all solids, but recent issues with landfilling in Georgia have driven up costs, making the practice no longer economically viable for the long-term. Black & Veatch conducted a detailed market analysis to help identify the type of product and affiliated treatment technology to evaluate. Black & Veatch completed the market assessment and developed and evaluating regional management alternatives. The preferred plan is based on thermal drying and producing a high-quality pellet for marketing. Black & Veatch developed preliminary design criteria for the solids upgrade, which will include improvements or expansion to dewatering, digestion, and thermal drying. Scott has served as a Technical Advisor to the Black & Veatch team throughout the project.

OFFICE LOCATION
Walnut Creek, CA

EDUCATION
- Master of Science, Engineering Management, Energy Systems, University of North Carolina at Charlotte, 2015, United States
- Bachelors, Engineering Technology, Mechanical, University of North Carolina at Charlotte, 2011, United States

YEAR CAREER STARTED
2011

YEAR STARTED WITH BV
2013

CHESHTA BALWANI

ELECTRIFICATION

Cheshta is a Clean Energy and Transportation Solutions Architect at Black & Veatch, with almost a decade of clean energy and mobility experience. At her current role, Cheshta focuses on defining solutions for high power charging/high energy density fuel use cases, including maritime and aviation. She also works on distributed energy and fleet electrification projects and is collaborating with various technology startups to bring innovative solutions to project challenges. She has experience with project development and infrastructure planning.

Placer County Water Agency | PCWA Zero Emission Fleet Infrastructure Planning Study | Auburn, CA

Distributed Energy Subject Matter Expert. PCWA is planning for a zero-emission fleet for their Water Treatment Plant site. This study studied the energy needs of a fully decarbonized fleet, the renewable energy generation and storage potential on site as well as considerations for fleet resiliency during a long duration utility grid outage.

City of Glendale | City of Glendale Solar + Storage Owner's Engineering | Glendale, CA

Engineering Manager. Glendale Water & Power is exploring the possibility of deploying distributed solar PV and energy storage projects on City owned properties. Additionally, the City is also looking to study their distribution system to ensure they are ready for upcoming solar PV projects in the area.

Crowley | Bay Wide Maritime Electrification Study; CA

Clean Transportation Solutions Architect. Supporting workshops and meetings regarding the Megawatt Charging Standard creation. - Conducting charging infrastructure assessment on port locations.

Napa Sanitation District | EV Charging and Fleet Electrification Implementation Plan; Napa, CA

Project Manager. Provided a phased plan approach to NSD regarding their EV infrastructure plan (employee, visitor and fleet charging) - Provided conceptual layout, budgetary cost estimate, level 1 schedule and overview of available grants for their first phase of EV infrastructure, which was EV chargers for their employees and visitors.

San Joaquin RTD | Solar Roadmap Services | Stockton, CA

Study Manager. Assessed the space at the RTD sites for solar PV and BESS to offset the energy requirement for the growing electric fleet. RTD aims to reduce operational costs as well as their GHG emissions with the help of solar PV installations. RTD wanted to understand the relative priority of installing solar at different sites, to maximize the effectiveness of their investments - the priority was based on a variety of technical feasibility and value addition parameters.

Distributed Generation; CA

Project Development Manager. Responsible for the project management of distributed generation project development, including photovoltaic, batteries, fuel cells, hydrogen, and other distribution scale technology types. Work with a close-knit team to perform early-stage project diligence, prepare high level project schedules and budgets, shepherd projects through permitting and interconnection, and complete other project development activities to advance the project to a construction-ready state. Optimize project value within the expectations and limitations of potential long-term owners. Identify, quantify, and manage risks within the expectations of Sr. Leadership, equity investors, and lenders. Drive decisions and prioritize resource deployment based on a deep understanding of schedule dependencies and economic impact. Lead investor acquisition due diligence processes.

Encina Wastewater Agency | Microgrid Feasibility Phase 1; San Diego, CA

Study Manager. Analyzed the capability of the plant to be a self-sufficient energy microgrid and created a phased approach for the same on a high level. Analyzed the energy consumption needs of the site and the energy generation capability based on various generation technologies.

Client goals for the study included energy decarbonization & diversification, decreasing the utility energy bills and heading in the direction of creating an energy-self- sufficient microgrid; while not increasing their emissions.

Fairfax County/Noman Cole PCP; EV Charging Infrastructure Planning Study; Fairfax, VA

Clean Transportation Solutions Architect. Analyzed different charging layout options for the Noman Cole PCP Employee and Visitor Parking lot, based on the County's climate goals. Assessed zero-emission fleet charging requirements at the plant and created a charger layout. Provided a summary of planning and cost considerations to the client.

Sioux City | Solar PV Assessment; Sioux City, IA

Solar Technology Lead. Assessed City owned property for potential for solar PV generation. Assessed project economics for selected projects, including researching available grants and incentives for deployment of Solar PV projects.

Confidential Client | Hydrogen Refueling Hubs | TX

Project Manager. Feasibility Study to assess the site for deployment of hydrogen refueling station. Strategy for deployment of hydrogen refueling station at multiple sites.

Tallgrass Energy Partners | Pony Express Distributed Energy Assessments

Project Manager. Assessed various oil pipeline pumping station locations for their potential for solar PV, BESS, fuel cells and generators.

NRG (Confidential) | Concentrix Renewable Energy Project; CO

Project Manager. Consulted with client regarding their rooftop & carport solar PV and BESS potential. Assessed project economics. Consulted on expected project schedule, EPC considerations, and permitting & interconnection processes.

PRMRWSA | Renewable Energy Study; FL

Engineering Manager. Analyzing the rooftop, carport and ground mount solar potential and comparing the project economics of different solar PV sizing scenarios.

Fairfax County Noman M. Cole, Jr. Pollution Control Plant | Solar Energy Summary Review; VA

Solar PV Specialist. Reviewed rooftop and ground mount solar PV systems. Compared the economics of cash purchase versus PPA options for the solar PV projects.

Confidential | DER Pilot Study

Engineering Manager. Analyzing a portfolio of potential rooftop solar PV sites for solar PV potential and economics.

OFFICE LOCATION
Irvine, CA

EDUCATION
- Doctor of Philosophy, Ph.D. Student in Civil & Environmental Engineering, University of California Irvine, 2026, United States
- Master of Science, Agricultural Engineering Sciences, Limnology, Technion University, Haifa, Israel, 2011, Israel
- Bachelor of Science, Environment; Creative Writing, University of Michigan, Ann Arbor, MI., 2006, United States

PROFESSIONAL ASSOCIATIONS
- PMP - Project Management Professional, Project Management, 2755593, California, United States

YEAR CAREER STARTED
2014

YEAR STARTED WITH BV
2024

JOHN LIBERZON

TREATMENT

Jon is experienced in municipal and industrial wastewater process design, analysis, optimization, testing and commissioning. He has worked on piloting or installing first references for several novel technologies including Advanced Primary Filtration & wet weather upflow filtration (Proteus©), two-stage deammonification (AMX©), anti-fouling membranes (FMX©), and high-rate A-stage industrial pretreatment. He has also participated in design and commissioning of conventional treatment processes such BAF, MBBR, DAF, etc.

LA Sanitation | AMX Pilot; Hyperion WRF, Los Angeles, CA

Process Engineer & Client Manager. Sidestream & Mainstream Deammonification (Anammox) pilots at LASD's 330MGD Hyperion WRF. Process development, monitoring and analysis for a multi-year pilot of 2-stage deammonification process for shortcut nitrogen removal treating up to 300gal/d of high-strength thermophilic centrate.

Milwaukee MSD | Advanced Primary Filter Pilot; Hyperion WRF, Milwaukee, WI

Project Manager & Process Engineer. Six-month pilot of a novel Advanced Primary Filtration technology intended for retrofit of a 275MGD secondary treatment facility for carbon redirection, BNR optimization and improved peak flow handling.

Digested Organics | Brown County Organics; Brown County, WI

Process Engineer. Design and commissioning support for BOD and nitrogen polishing of high-load RO effluent using biological aerated filter.

Southern Company | FGD Treatment Pilot; Location Confidential

Project Manager & Process Engineer. Three-month pilot (>2.3MG treated) of membrane-based treatment for flue gas desulphurization wastewater from a coal-fired power plant. Technologies included vortex-enhanced antifouling nanofiltration and reverse osmosis.

AB InBev| Hypertrophic Pretreatment System; Idaho Falls, ID

Commissioning Engineer, Pilot Engineer, Client Manager. Piloted and commissioned a novel 1.5MGD biological treatment process for malting wastewater. Process technologies included SBR, DAF, thermal drying, dewatering & chemical feed.

IsraAID | Rural Water Supply Program; Tongoa, Vanuatu

Design & Field Engineer. Surveyed, designed & managed onsite installation & rehabilitation of piped water systems to rural villages on a World Bank funded project totaling >$400k and serving >1500 beneficiaries. Designed, surveyed & installed >5km of direct gravity-feed (GF) water mains and rainwater capture infrastructure. Repaired and upgraded GF and solar pump systems.

ARUN SUBRAMANI, PHD, PE, PMP, CAPM

TREATMENT

Dr. Subramani serves as a Senior Process Engineer and West Region Process Engineering Lead at Black & Veatch. With a career emphasis on membrane-based treatment processes (microfiltration, ultrafiltration, nanofiltration, reverse osmosis), he has experience implementing membrane technologies for wastewater reuse applications, surface water treatment, brackish ground water desalination and seawater desalination.

His expertise includes “market-pull” and “technology-push” innovation with specialization in TRL 3 – 6 levels. Full-scale facility design along with applied research experience with more than 40+ publications in peer-reviewed journals and conference proceeding papers on the application of membrane technologies.

City of Phoenix | Cave Creek Wastewater Reclamation Plant (WRP) Rehabilitation Design-Build; Phoenix, AZ

Senior Process Engineer. Responsible for the design of an 8.0 MGD reverse osmosis (RO) facility as part of an advanced water purification facility (AWPF) to treat raw wastewater using biological nutrient removal (BNR)/membrane bioreactors (MBR), RO, ultraviolet (UV)/advanced oxidation process (AOP) to meet indirect potable reuse (IPR) standards. Significant process flexibility was factored into the design to account for highly variable process flows and water quality. The project also includes the design of a 0.2 MGD demonstration facility to meet direct potable reuse (DPR) standards.

Santa Clara Valley Water District Purified Water Program Owners Engineer (2022 – 2023)

Senior Process Engineer. As owners engineer, responsible for preliminary sizing and selection of a process train for the design of a 12.0 MGD advanced water treatment facility that includes ultrafiltration (UF), reverse osmosis (RO) and ultraviolet (UV)/advanced oxidation process (AOP) to meet indirect potable reuse (IPR) standards. Lead engineer for designing a pilot/demonstration facility for direct potable reuse (DPR) involving ozone and biological activated carbon (BAC) processes. Responsibility also includes preparing technical information for developing request for proposals (RFP), development of source selection criteria for proposal evaluation, reviewing/evaluating submittals to RFP and assisting the District in shortlisting firms for design services.

Soquel Creek Water District

Lead Process Engineer. Led the development of operation and optimization plan (OOP) for Soquel Creek’s advanced water purification facility to meet IPR standards. Responsible for leading multiple consultant teams and coordination with client and State Water Resources Control Board’s Department of Drinking Water (DDW) to meet the waste discharge requirements (WDRs) and water reclamation requirements (WRR) permits.

Morro Bay Advanced Water Purification Facility, City of Morro Bay

Process Engineer. Responsible for the commissioning and startup up of a 1.0 MGD RO facility as part of AWPF to treat raw wastewater using biological nutrient removal (BNR)/membrane bioreactor (MBR), RO, UVAOP to meet IPR standards.

OFFICE LOCATION

Irvine, CA

EDUCATION

- PHD, Chemical & Environmental Engineering, University of California, Riverside , 2007
- MS, Chemical Engineering , Mississippi State University , 2002
- Bachelor of Technology, Chemical Engineering , National Institute of Technology, Trichy, India , 1997, India

PROFESSIONAL REGISTRATION

- PE- Environmental., OK
- PE-Environmental., CO
- PE-Environmental., FL

PROFESSIONAL ASSOCIATIONS

- Water Research Foundation - Project Advisory Committee for WRF CBAT reuse and produced water projects
- AWWA Membrane Process & Research Committee - Committee member

YEAR CAREER STARTED

2007

YEAR STARTED WITH BV

2022

The Metropolitan Water District of Southern California Pure Water Program

Senior Process Engineer. Metropolitan is partnering with the Los Angeles County Sanitation Districts to produce up to 150 MGD of treated water to meet IPR standards. As a process engineer, responsible for operations and maintenance support of RO for a 0.5 MGD advanced water treatment demonstration facility with MBR, RO and ultraviolet (UV)/advanced oxidation process (AOP) to meet IPR standards.

Brisbane Seawater Desalination Reference Design

Process Lead. Technical lead for the design of a 40 – 80 MGD seawater desalination facility consisting of DAFF, 2-pass RO, post-treatment and residuals management. Incharge for leading the development of 30% process design, equipment specifications and Class 3 cost estimates.

Renewable Energy Utilization and Energy Minimization Strategis for Seawater Desalination

Co-Principal Investigator. Developed a guidebook for the implementation of renewable energy technologies (wind, solar, geothermal, wave, osmotic power, biogas) and integration methods for seawater desalination plants in Israel, Singapore and Australia. Developed energy efficiency and greenhouse gas (GHG) emission reduction strategies for both large-scale desalination and wastewater reuse facilities.

Standard Methods for Integrity Testing and On-line Monitoring of RO Membranes, Water Reuse Research Foundation

Co-Principal Investigator. Collaborated with Prof. Stephen Gray (Victoria University, Australia). Responsibility included the development of novel integrity monitoring techniques for RO membranes to validate more than 4-log removal of viruses. Developed pilot testing protocols to evaluate fluorescent dyes, nanoparticles, adenosine triphosphate (ATP) and online sulfate monitoring for IPR facilities in the United States and Australia.

High Recovery RO for Brine Management at Inland Desalination Facilities, Eastern Municipal Water District

Senior Process Engineer. As process engineer, responsible for the evaluation of high recovery RO technologies (Pulsed Flow RO, Closed Circuit RO, Flow Reversal RO, MaxH20 Brine Concentrator) to maximum feed water recovery of a 3.6 MGD inland desalination facility.

Enhancement of RO Feed Water Recovery for Ground Water Desalination, City of San Diego

Process Engineer. Developed concentrate management strategies and evaluated various technologies (Vibratory Shear Enhanced Process, Bipolar Membrane Electrodialysis, Intermediate Chemical Demineralization, Secondary RO) for concentrate volume minimization.

OFFICE LOCATION
Kansas City, MO

EDUCATION
- MS, Mechanical Engineering, University of Missouri-Rolla, 2004
- BS, Mechanical Engineering, Jawaharlal Nehru Technological University, India, 2002

PROFESSIONAL REGISTRATION
- PE – 2010, NM, 19994
- PSAP – 2019, Hydraulic Institute.
- Certification, Pump Systems Assessment Professional, #20, NJ, 2019
- Certified Vibration Analyst (Cat II)

PROFESSIONAL ASSOCIATIONS
- Hydraulic Institute - Contributing Member

YEAR CAREER STARTED
2004

YEAR STARTED WITH BV
2006

RAGHU KADAVA, PE

PUMP CAPACITY

Raghu is a subject matter expert on pumping and hydraulics with more than 17 years of experience as a mechanical engineer on projects involving design, construction and evaluation of pump stations for water, wastewater and storm water systems, pump selections, and technical specifications. He also has extensive experience in hydraulic and transient analyses, and design of surge control systems.

City of San Jose | Regional Wastewater Facility Pump Station Condition Assessment; San Jose, CA

Pump Technical Specialist. Black & Veatch is conducting a condition assessment of 3 pump stations within the RWF in order to assess deficiencies and identify improvements needed to keep them operational for the next 30 years. Structural, mechanical, electrical, and instrumentation and controls assets were assessed. Based on the condition assessment results, Black & Veatch developed recommendations, opinion of probable construction costs, and preliminary implementation schedules. A combination of indirect and direct inspection methods were used, including record review, visual inspection, concrete sampling and testing, ultrasonic testing, CCTV inspection, hazardous materials investigation, static motor testing, and pump capacity testing.

City of Burbank | Valley Pumping Plant; Burbank, CA

Pump Technical Specialist. Performed site evaluation of the existing pumps at the potable water pump station and suggested improvements. Designed the new pump station configuration, sized and selected pumps for the application, and presented transient analysis observations to the Owner. Interfaced with the Owner and the O&M staff for a significant time to understand pump station operation philosophy and designed replacement to suit client preferences.

Eastern Municipal Water District | EM 11 Pump Station; CA

Pump Technical Specialist. Provided conceptual level design services for 140 cfs potable water booster pump station with tandem engine and motor driven pumping units with horizontal split case pumps. Provided economic evaluation of the pumping station for various alternatives.

Tualatin Valley Water District Oregon | River Intake Pump Station; Willamette, OR

Design Engineer. Designed a 105 mgd river intake pump station, system hydraulics, and transient analysis of 66-inch raw water pipeline. Provided hydraulic calculations for the system, provided pump sizing and assisted in the intake wetwell design of a 105 mgd river intake pump station involving 1500 hp vertical turbine pumps. Worked with the pump manufacturers on the seismic design of the pumping units for improved reliability and resiliency of the pump station in case of a large seismic event. Performed transient analysis, and provided specifications, drawings and control description for pumps, hydropneumatic tanks, compressors, bearing lubrication booster pumps and other mechanical equipment on the project.

California Water Service Company | Crenshaw Boulevard Pump Station; Palos Verdes, CA

Pump Specialist. Designed the Crenshaw Blvd pump station, assisted in the analysis of pump station layout for wetwell vs barrels, operation strategy of the pump station, surge control system design, etc. Assisted in the procurement of pumps and motors.

Salt River Project | SCIF pump station; Phoenix, AZ

Pump Technical Specialist. Provided engineering services to the Owner on the interconnect facility project between Salt River Project and Central Arizona Project on the design of 250 cfs SCIF pump station. Reviewed technical drawings and specifications, and provided guidance on improvements to the design.

MWRDGC | Mainstream Pumping Station; Overland Park, IL

Pump Technical Specialist - Black & Veatch. Assessment of mainstream pump station hydraulics, provided recommendations for hydraulic modifications of the existing 17000+ hp pumping units.

San Jacinto River Authority; Lake Houston Pump Station; Houston, TX

Pump Technical Specilaist. Condition assessment of existing pump station, rehabilitation of entire pump station with replacement pumping units 4x 40 mgd low lift vertical pumps with siphon, improvements to control system, incorporated variable frequency drives into the control system.

City of Charlotte (CMUD)| Catawba River Pump Station; Charlotte, NC

Pump Technical Specialist. Condition assessment and general engineering services of the existing 250 mgd Catawba River Pump Station, provided guidance on vibration characteristics of the pumps and motors, general system hydraulics, replacement of existing cells with new intake design concepts, etc.

City of Charleston | Concord Pump Station; Charleston, SC

Pump Technical Specialist. Provided design advice, and technical supervision on the rehabilitation of 390 cfs axial flow pump station for flood control. Provided technical advice on hydraulics and pump selection for the dewatering pumps, design of intakes to mitigate solids settling in the wetwell, and control description.

Winston Salem Forsyth County; 65 West Pump Station Emergency Repairs; Winston-Salem, NC

Pump Technical Specialist. Provided forensic analysis of failure of pump station piping and associated damage to the pump station. Provided detailed report on Cause of Failure and recommended repairs to the pump station to regain operation of the pump station.

City of Springfield Clean Water Services | James River Pump Station Condition Assessment; Springfield, MO

Pump Technical Specialist. Performed condition assessment of 24 mgd James River Pump Station, performed condition assessment of the pump station with drawdown testing for hydraulic assessment, vibration testing and visual inspections. Performed condition assessment of the forcemain and provided recommendations for increased capacity of the forcemain.

Miami-Dade Water and Sewer District | Preston WTP High Service Pump Station Improvements; Miami, FL

Pump Technical Specialist. Reviewed the existing pump operations and usage statistics of the existing 165 mgd high service pump station. Reviewed existing pump curves and provided system curves to identify optimized operating procedures with addition of Variable Frequency Drives (VFD) for the pumps. Recommended modifications to existing pump station in technical memoranda by removal of two smaller pumps and addition of VFDs to larger pumps. Provided technical oversight for Contract Specifications and Drawings for replacement of existing synchronous motors with induction motors. Existing pump station has DeLaval and Worthington horizontal split-case pumps.

OFFICE LOCATION
Overland Park, KS

EDUCATION
- BS, Mechanical Engineering, University of Missouri-Columbia, 2006

PROFESSIONAL REGISTRATION
- PE – 2020, CA, 40337

YEAR CAREER STARTED
2007

YEAR STARTED WITH BV
2007

LORI R. OVERHAUG, PE

BIOGAS UTILIZATION

Lori is a mechanical engineer in the Systems Engineering department at Black & Veatch. She has served as a design team member for wastewater treatment plant design, water treatment plant design, digester gas utilization design, and incineration flue gas treatment design for a combination of traditional and design build projects.

San Elijo Joint Powers Authority | Sludge Dewatering Facilities Upgrades; CA

Lead Mechanical Engineer. This 5.25 mgd wastewater treatment plant utilizes secondary treatment to dewater digested sludge. The Sludge Dewatering Facilities Upgrades project replaces belt filter presser with centrifuges. Mechanical design included the design of four new screw conveyors, emergency roll off bin and truck loading bin evaluation. Duties included screw conveyor design and calculation, building layout, and equipment specification along with centrifuge and truck scale design consulting.

San Jose San Clara Regional Wastewater Facility | Digester Sludge Dewatering Facility; CA

Engineering Manager and Lead Mechanical Engineer. The San Jose-Santa Clara Regional Wastewater Facility (SJSCRWF) transitions from drying beds to mechanical treatment for dewatering and hauling of dewatered solids. The Digester Sludge Dewatering Facility includes storage and transfer of an ultimate digested sludge load of 15,500 lb/hr, sludge and polymer feed to centrifuges, mechanical dewatering with centrifuges, conveyance and storage of dewatered solids, and truck loading. Dewatering equipment design lead includes progressing pump sizing, piping layout, pipe support design, centrate system with storage and pumping, centrifuge design, solids conveyance via shaftless screw conveyors, live bottom bins for cake storage and truck loading, truck scale design, odor control system sizing and design and polymer system design for sludge thickening.

San Francisco Public Utilities Commission | SEWPCP Biosolids Digester Facilities; San Franciso, CA

Mechanical Engineer. This wastewater treatment plant utilizes a thermal hydrolysis process (THP) to heat the sludge before digestion. Steam is generated from three 600 hp, natural gas boilers. 35,000 lb/hr of 175 psig steam is produced and then conveyed to THP for sludge heating and excess steam is utilized for building heating. Duties included site and facility layout, pump and pipe design, process calculations, steam generation equipment system design including boilers, deaerators, blowdown system, and water treatment equipment design. Additional coordination responsibilities included waste gas burners and pipe stress analysis.

City of Salem | Boiler Replacement Project; Salem, OR

Engineering Manager. The Willow Lake Water Pollution Control Facility provides heating water to heat the digesters and for building heat. Heat is supplied from heat recovery from the cogeneration engine generators or the backup boiler. Design included one new boiler, relocation of one boiler, boiler building upgrades, heating system modifications, and heating water pumps.

City of Salina | Salina Wastewater Treatment Plant; Salina, KS

Lead Mechanical Engineer. Salina Wastewater Treatment treats an annual average of 6.4 million gallons per day through full secondary treatment. Plant upgrades include digesters, digester control building, sludge gas system, heating water system, and blower piping. Design includes heat exchangers, rerouting of sludge piping, digester sludge recirculation pumps, sludge transfer pump, digester mixing, digester covers, waste gas burner, foam separator, boilers, heating water pumps and heating water system accessories. All system include design, calculations, layouts, coordination and specifications.

Winston-Salem, Forsyth County Utility Commission | Muddy Creek WWTP Power Generation Upgrade; Winston-Salem, NC

Mechanical Engineer. Muddy Creek shifted how digester gas was utilized. Upgrades included new power generation in a cogeneration engine, heat recovery from the exhaust system, gas treatment to remove hydrogen sulfide and moister, gas compression to 5 psig for utilization or 70 psig for storage. Additional digester and digester building upgrades included flare modifications, digester gas valve replacements, new compressed air system, heating water system upgrades of new pumps, heat exchangers, and flow control, and hot water boiler upgrades.

Bedford Regional Water Authority; Smith Mountain Lake Water Treatment Plant; Bedford, VA

Technical Procurement Lead and Mechanical Engineer. This 4 MGD water treatment plant is near Bedford, Virginia. This design build job had a dozen procurement and subcontractor packages including pumps, GAC, PEMB, valves, and glass lined tank. Duties included writing scope documents, bid tab reviews pump station design and coordination.

Metropolitan Saint Louis Sewer District; Bissell and Lemay; Saint Louis, MP

Mechanical Engineer. Design consisted of two plants with a total of seven incinerator flue gas treatment systems in Saint Louis. Each system included a combination of refurbishing existing equipment and adding new equipment. This fast paced project was designed and the major equipment was pre-procured in only a few months.

NEGOTIATED SCOPE OF SERVICES, LEVEL OF EFFORT, AND FEE ESTIMATE
JUNE 6, 2024

SCOPE OF WORK:

Task 1 – Project Management, Workshops, Meetings, and QAQC

Meetings: Consultant shall plan/schedule and prepare agendas and notes for a kickoff meeting (to be conducted within 10 days of contract signing), monthly project management meetings with SEJPA (virtual, set day/time during first week of month), and bi-weekly progress update calls (assume 45-minute calls).

- One in-person kick-off meeting (2-hour meeting) attended by Project Manager (PM) and Engineering Manager (EM) assumed.
- Fifteen (15) virtual monthly project management meetings (1-hour calls) attended by PM assumed.
- Thirty-two (32) virtual bi-weekly progress update calls (45-minute calls) attended by PM and EM assumed.

Workshops: Consultant shall plan/prepare for and conduct the following in-person workshops; produce workshop materials, agendas and consolidated notes:

1. SEWC Condition Assessments
2. CSD/ESD Pump Station Evaluations
3. CoSB Pump Station Evaluations
4. Outfall System Evaluations
5. Project Recommendations
6. Project Prioritization
7. Draft 2025 PREP Plan Review
8. *Electrification Opportunities
9. *SEWC Fundamental Design Criteria / Hydraulic Analysis and Water Balance Review

** Consultant shall assume two additional workshops to those listed above in accordance with their approach and project delivery plan. The two additional suggested workshops listed in green.*

- Assumed that each workshop will be 2 hours and attended in-person by Project Manager, and Engineering Manager. Task lead or a subject matter expert will attend virtually.

Project Management & Reporting: Provide overall project management for the duration of the contract including technical oversight of the project team, resourcing, invoicing and related management activities. Invoices and progress reports shall be submitted monthly. Invoices shall include: current monthly charges broken down by professional and support staff (name and classification in accordance with the approved schedule of charges); charges to date; amount remaining; percent billed; subconsultant invoices; receipts for allowable direct costs and reimbursables. Monthly progress reports shall be submitted to SEJPA and include the following: summary of work accomplished over previous month, summary of current project activities, identification of action items and issues including recommendations for solutions, schedule updates as appropriate.

Quality Assurance / Quality Control (QAQC): Consultant shall administer QAQC procedures in accordance with Consultant's quality plans, policies and procedures and industry best practice. Consultant shall employ a qualified, senior individual of the prime firm, experienced in facility planning and sewer pump stations, treatment plants and recycled water facilities to serve as the QAQC Manager.

Task 2 – Regulatory Review

SEJPA operates under 34 permits issued by 6 regulatory agencies. SEJPA retained Michael Welch in 2021 to provide a regulatory review. Consultant shall review the regulatory review prepared by Michael Welch, provide recommendations for updates to the latest working draft of this evaluation, and provide input where in its expert opinion the Consultant anticipates regulations over the 10 year planning horizon may influence facility planning decisions including the need for process upgrades to alleviate operational constraints, opportunities to improve sustainability or beneficial reuse of recycled water, biosolids, or biogas, and to support the prioritization process of recommended capital projects. The anticipated deliverable is a coordinated and organized list of comments or suggested edits to the regulatory review memo prepared by Michael Welch. SEJPA will have the memo updated and provide a final version to Consultant to be appended to the final Facility Plan update. Within the body of the Facility Plan update document, the Consultant shall summarize findings of the regulatory review to extent they influence facility planning decisions.

- It is assumed that the draft regulatory review prepared by Dr. Welch is comprehensive and covers all regulations applicable to SEJPA, including but not limited to beneficial reuse of recycled water, surface discharge, beneficial use of biosolids and biogas, air emissions, building codes, PFAS, etc. Consultant will review the draft memo and provide comments and input based on experts' opinion. Up to thirty-four (34) hours of budget is allocated for this effort. It is assumed that Consultant is not required to prepare an independent regulatory trend assessment memo. If it is determined that Consultant will need to develop supplemental content to be added to the draft memo and requires the level of effort beyond the allocated budget, it can be provided as an additional service.

Task 3 – Asset List Update and Condition Assessment at SEWC

SEJPA will provide Consultant with an exported list of assets from its eMaint database, its computerized maintenance management software (CMMS) used for preventive maintenance work orders at the SEWC. SEJPA will update the asset database to reflect facility information through 2023. The existing asset database includes approximately 600 assets, consisting of approximately 450 assets assigned to SEWC plant areas, approximately 70 associated with remote pump stations, and the balance associated with recycled water distribution facilities, generators, vehicles, and general maintenance/service work orders. The 2007 Facility Plan assigned unique asset identification numbers, establishing a precedent for equipment tagging, in the absence of pre-defined convention in the original record drawings. Consultant shall review the existing asset list in conjunction with site inspections, noting condition information for equipment assets. As Consultant conducts site inspections, deviations from the asset list shall be noted and updated information identified so that eMaint can be updated. Consultant shall populate the asset list in a format suitable to be loaded into eMaint. Consultant shall assume 30 existing assets that need to be re-characterized and/or added to the database such as pre-existing buildings, HVAC, process equipment, and electrical equipment. All existing assets shall receive a "condition" score.

Consultant shall perform a condition assessment led by a competent civil engineer to conduct an independent visual observation and compile a list of deficiencies in addition to those already identified by SEJPA with respect to general civil/structural/concrete deterioration, electrical and instrumentation issues identified by SEJPA's O&M team, and mechanical systems condition. The inspection shall be

documented with photos and description of visual observations. Condition assessments should be conducted on the following SEWC above ground facilities:

- Area 1 – Primary Treatment
    - Screening channels and equipment
    - Grit tank and pumping
    - Scum wet well and pump station
    - Headworks Odor Scrubber
    - Primary Sedimentation Tanks and Pumps
    - Primary equalization basins and return flow pump station
- Area 2 – Secondary Treatment
    - Aeration Basins, Blowers and RAS/WAS pumping: Not Necessary as major upgrade is in progress
    - Secondary Clarifiers tanks and mechanical systems
- Area 3 – Solids Treatment
    - Digester Control Building
    - Dissolved air floatation thickeners (DAFT)
    - Digester 1 – utilize evaluation conducted by B&V
    - Digester 2 – update evaluation conducted by B&V
    - Digester 3 & 4 – utilize evaluation conducted by PSE
    - Mechanical systems – sludge pumping, digester mixing, heat exchangers, etc.
- Area 4 – Biosolids Dewatering
    - Not Necessary as major upgrade is in progress
- Area 5 & AWT – Recycled Water Facilities
    - Sand Filters and ancillary systems
    - MFRO: utilize evaluation by others
    - Chlorine contact tank: not necessary as major upgrade in progress.
- Outfall
    - Escondido Land Outfall Regulator Structure
    - Effluent Pump Station

Consultant shall perform a desktop assessment of buried yard piping. Using existing information (e.g., record drawings, reports, operational data and anecdotal evidence), prepare an inventory of buried yard piping and appurtenances, including age (based on install date), material, redundancy, service, diameter, and status of cathodic protection (if applicable). Consultant shall develop a yard piping condition rating system based on available information. Present recommendations for yard piping investigations, rehabilitation, and/or replacement, based on criticality (risk scoring as a function of pipe service, disruption to plant operations, and repair-response sensitivity) and options for mitigating risk.

- Three (3) days of site visit by a condition assessment engineer (civil), and a one (1) day of site visit by mechanical engineer (pump expert) assumed.
- Consultant anticipates capturing institutional knowledge of O&M working information on equipment and processes through scheduled workshop budgeted in Task 1 of this scope. This meetings will be held prior to field walks. This information will be captured in condition assessment surveys for reference in risk analysis.

Task 4 – Condition Assessment and Evaluations of Sewer Pump Stations

Consultant shall perform a condition assessment led by a competent civil engineer to document independent visual observation and compile a list of deficiencies including input provided by SEJPA with respect to general civil/structural/concrete deterioration, electrical and instrumentation issues identified by SEJPA's O&M team, and mechanical systems condition. The inspection shall be documented with photos and description of visual observations. **Appendix A** to this Scope of Work includes a table summarizing the eight sewer pump stations and one recycled water booster pump station outlining area of focus for facility plan update.

- Two (2) days of site visit by a condition assessment engineer (civil) and one (1) day of site visit by a mechanical engineer (pump expert) assumed.
- 8 hours of electrical engineer time have been budgeted for desktop analysis which will be based on photographs and site visit notes to be provided by condition assessment and mechanical engineers.
- Consultant anticipates capturing institutional knowledge of O&M working information on equipment and processes through scheduled workshops budgeted in Task 1 of this scope. These meetings will be held prior to field walks. This information will be captured in condition assessment surveys for reference in risk analysis.

Task 5 – Technical Studies and Intermediate Work Products

Consultant shall prepare technical studies necessary to support the facility planning process. The following technical studies are anticipated. Where recent pertinent studies or reports are available, Consultant shall reference those analyses and/or build on those findings. Level-of-effort and costs for each of the following studies shall be tracked separately.

Existing Document Review. Consultant shall review existing documents and reports related to SEWC, the remote pump stations, ocean outfall, and recycled water system. This shall include record drawings, planning documents, climate action planning, geotechnical studies, engineering reports, as well as plant performance data, as necessary. Consultant is expected to be familiar with prior planning documents and to incorporate pertinent policies and infrastructure planning strategies into the facility plan update. Provide a concise summary of each report/study's findings and pertinent information that will be incorporated into Facility Plan Update.

Climate Change Vulnerability and Resiliency Analysis. Through the use of a climate change specialist (in- house or subconsultant), assess vulnerabilities of SEJPA's facilities to climate change hazards, in particular wildfire exposure, weather cycles (frequency and intensity of storm events), temperature changes (annual/seasonal averages and frequency of extreme weather days), and longer-term trends in drought cycles. Reference SEJPA's Climate Change Action Plan and Climate Action Plans prepared by local agencies. Use publicly available data for temperature change projections, for example Intergovernmental Panel on Climate Change (IPCC) and/or Cal-Adapt. Present findings in a memorandum that includes, in particular, parameters that would influence decision making for SEJPA infrastructure planning, for example, temperature trends and wet weather/drought patterns that would impact plant hydraulic capacities. Estimates for climate change parameters through 2040 should include confidence levels around projected temperatures (annual/seasonal averages and extreme weather day frequency) and storm events (frequency and intensity). Hazard analysis shall be compared to an established "baseline". Also, provide comparison of projected values against historical data,

notably the following periods that correlate with design criteria established in major SEWC facility upgrades: 1980s (leading up to Secondary Treatment Expansion), 1990s (leading up to Recycled Water Program), and 2000s and 2010s (preceding recent facility upgrades and ongoing secondary process improvements).

- Analysis consists of infrastructure screening-level assessment to address climate vulnerability. Consultant will develop a priority projects list to be considered by SEJPA.
- Comprehensive analyses of climate change vulnerability and resiliency can be provided as an additional service.

SEWC Fundamental Criteria. Consolidate plant flow, loading, and capacity criteria from most current liquid and solids treatment projects. Include information on potential future diversions to SEWC including secondary effluent from City of Escondido (via the land outfall) and raw wastewater from Encinitas Sanitation Division (Moonlight Beach PS).

- Based on review of the available record drawings and reports, Consultant will develop a summary of current and future design criteria for SEJPA's review. It is assumed that the basis for the summary is readily available (e.g. extract tables from past studies/reports), and review and analysis of raw monitoring data will not be required. The criteria will be refined by incorporating SEJPA's input.

Hydraulic Analysis. Prepare hydraulic analysis for liquid stream and identify any hydraulic constraints that would hinder SEWC's ability to convey permitted hydraulic capacity. Hydraulic analysis shall define diurnal flow patterns, peak hour factors for dry weather and wet weather events, and seasonal flow characteristics for maximum month and minimum month. Create an updated hydraulic profile in AutoCad correcting to current plant datum per most recent site survey.

- The design criteria established in the "fundamental Criteria" task above will be utilized in the hydraulic analysis.
- Diurnal flow patterns, peak hour factors, and seasonal flow characteristics for maximum and minimum month to be used in the analysis will be determined based on typical values used in similar facilities within the region and based on input provided by SEJPA (i.e. no raw monitoring data analysis).
- Consultant will prepare two excel-based hydraulic model files for SEWC: Spreadsheet 1) a hydraulic profile of the main forward liquid processes from the headworks through secondary clarification, ending at the effluent pump station wet well and Spreadsheet 2) a system head and loss calculation for the pumped effluent from the effluent pump station to the land and ocean outfall.
    - The calculations will be performed using the standard proprietary Black & Veatch spreadsheet tools. A PDF of inputs and results will be provided (excel files will not be provided).
    - The hydraulic profile will be calculated for up to three (3) flow conditions to be provided by SEJPA. Hydraulic calculations will be limited to a single geometry or configuration. Equal flow splits will be assumed among similar tanks.
    - Assumptions for Spreadsheet 1:
        - The hydraulic profile calculations will include the main existing forward liquid flow processes from the headworks to the effluent pump station wet well. The wet well level at the effluent pump station will provide the known starting

water surface elevation, to be provided by SEJPA.

- It is assumed that hydraulic calculations for the secondary process segment, from Primary Effluent Channel through Secondary Clarifier launder weirs, were completed as part of a past study and will be made available for Black & Veatch team for review, and pertinent results of the calculations will be incorporated into the overall hydraulic profile calculations.
- The flow downstream of the effluent pump station wet well will be assessed in a separate spreadsheet (Spreadsheet 2), but a summary of results will be incorporated into a worksheet within Spreadsheet 1.
- Tertiary treatment facilities and MFRO facilities are not included in the hydraulic analysis.
- It is assumed that all the information required to prepare the hydraulic profile can be found in the spreadsheet to be provided by SEJPA for the secondary process and the following contract drawing sets: Contract No. 1 (1994) and Preliminary Treatment Upgrades (2017).

o Assumptions for Spreadsheet 2:

- The system head calculations will be performed for the effluent pump station, from the wet well to the land and ocean outfall. Pump lateral and system losses will be calculated, and system curves will be plotted. Pump curve for the existing pumps (to be provided by SEJPA from the O&M manual) will be overlayed on the system curves.
- It is assumed that all the information required to prepare the system head calculations can be found in the following record drawing sets: Contract No. 1 (1994), San Elijo Land Outfall Replacement Project (2017), and San Elijo Ocean Outfall (multiple sets to be provided by SEJPA). A summary of operational data on the system pressure and flow will also be provided by SEJPA.

o A budget allocation of up to one-hundred ten (110) hours is assumed for this effort. If more detailed analyses, beyond the level of effort assumed for the allocated budget is required, they will be identified as recommended future studies.

Deliverable: Hydraulic profile AutoCAD drawing with water surface elevations called out for up to three (3) flow conditions and a PDF copy of the hydraulic calculations.

Water Balance. Prepare water balance of influent flow, storage, equalization, and offsite storage (e.g., recycled water tanks) under various loading scenarios including historic peak influent flows and projected flows with and without potential future diversions to SEWC. Identify constraints and opportunities for onsite or offsite storage to alleviate hydraulic bottlenecks.

- Upon completion of the Hydraulic Analysis and prior to commencement of the Water Balance task, a workshop will be held (i.e. 9th workshop identified under Task 1) with SEJPA to:
  - Review the existing hydraulic constraints and current flow equalization practices
  - Review anticipated future conditions, planned upcoming projects, such as the Wanket Tank project, and brainstorm options for improving water management under peak wet weather conditions and peak recycled water demand periods.
  - Agree on improvement options (additional on-site and off-site storage/flow equalization locations and capacity) to be assessed in the water balance analysis

- Consultant will prepare a spreadsheet calculation to demonstrate water balance in the system for the existing condition and with the improvement options that were carried forward for assessment at the workshop. Potential conditions/scenarios to be assessed could include:
    - Peak wet weather condition with additional flow equalization basin
    - Peak recycled water demand condition with average dry weather influent with additional off-site storage
- It is assumed that this is a rudimentary accounting of flow volume through the plant. It is assumed that SEJPA will confirm the rated treatment capacities of existing unit processes. The hydraulic capacities will be confirmed in the task above.
- A budget allocation of up to forty (40) hours is assumed for this effort. If additional analyses for scenarios and configurations beyond the level of effort assumed for the allocated budget is required, they will be identified as recommended future studies.

Deliverable: Spreadsheet document summarizing water balance calculation

Pump Inventory and Capacity Assessment. Review available documentation and pump nameplate data to create an inventory of pumping equipment, capacity (installed and firm pumping) and current performance based on pump operating data provided by SEJPA. Assume up to 40 individual pumps associated with following processes: grit pumps (3 ea.), primary scum pumps (2 ea.), primary sludge pumps (4 ea.), dewatering feed pumps (3 ea.), waste activated sludge pumps (2 ea.), return activated sludge pumps (5 ea.), flow equalization basin pumps (5 ea.), digester 2 mixing pumps (2 ea.), plant drain return flow pumps (3 ea.), thickened sludge wasting pump (3 ea.), and microfiltration feed pump (4 ea.).

- Capacity assessment of up to forty (40) pumps located at SEWC assumed.
- Capacity assessment of pumps at remote facilities are not included in the base scope of services but can be provided as additional services.

Biogas Utilization. Referencing evaluations presented in the 2015 Facility Master Plan (Section 5.8) and refined in the Solids Treatment Project Analysis, review assumptions (e.g., gas volume/flow for projected future flow/loading up to 5.25 mgd; gas quality/fuel content; SDG&E power costs), update costs (CapEx and OpEx) using industry-standard cost indices to current cost basis for the facility plan update, and update alternative comparison for biogas utilization (no cogeneration, reciprocating gas engine, microturbines, fuel cells). Consider input from regulatory review (i.e., San Diego APCD emission standards). Utilize findings from Biogas Treatment Alternatives Memo (CDM Smith 2023) for biogas treatment strategies. Present recommendations for biogas system improvements. If it is determined that the conclusions of prior studies are no longer valid, the Consultant shall make recommendations for a future study.

- It is assumed that the biogas utilization analysis performed in the Solids Treatment Project Analysis will be updated by adjusting the input values, such as influent flow rate, CapEx, and OpEx, including power cost, etc.)
- It is assumed that the findings from Biogas Treatment Alternatives will be utilized without significant modifications requiring engineering analyses.

Biosolids Reuse. Reference biosolids treatment and reuse evaluation(s) in the 2015 Facility Master Plan (Section 5.10) and further refined in the Solids Treatment Project Analysis. Identify where assumptions in these prior studies may have changed, or are expected to change in the planning period, and qualitatively assess the impact such changes may have on opportunities for biosolids reuse or

alternative disposal options. Prepare a memo presenting the applicability of prior findings and recommendations and update cost data accordingly using industry-standard cost indices to current cost basis for the facility plan update. If it is determined that the analysis or conclusions of prior studies are no longer valid, Consultant shall make recommendations for a future study.

- It is assumed that the biosolids use analysis performed in the Solids Treatment Project Analysis will be reviewed, and the previous assessment will be either validated, or if any of the previous assumptions will need to be modified, they will be identified and how they may impact the previous conclusions will be assessed.

Electrification Opportunities. Consultant shall evaluate feasibility of expanding solar power, battery storage backup, and electric vehicle fleet charging infrastructure. Consultant shall review historic energy usage and projected energy demands through the planning horizon (i.e., 2026 – 2035). Analyze incremental increases in photovoltaic solar panels from current 0.6MW system to achieve an optimal solar power capacity that balances usage, generation capabilities, site space constraints, and sensitivity for utility power rate increases. Evaluation should analyze cost effectiveness of battery backup for peak load shaving and/or emergency operations and should consider available grants under applicable electrification and/or wild fire resiliency programs. Incorporate information provided by SEJPA for member agency EV fleet needs and evaluate options for Level 2 and Level 3 charging stations at the SEWC.

Solar PV Assessment

Based on the understanding of available space, based on correspondence with SEJPA, Consultant will access on-site solar generation potential for the SEWC site to supplement the existing 0.6MW solar PV system. Consultant will also identify the physical space available for possible battery energy storage system installation.

The SEWC site will be evaluated for suitability, considering industry-standard hardware from established manufacturers as typical, and based on applicable electrical codes. This will be a desktop exercise, done using internal analytical tools as well as industry tools such as Aurora Solar, Helioscope and Google Earth.

Consultant will review this solar PV assessment with SEJPA, to review the potential equipment location and address any high-level design considerations, during a project check-in meeting. The assessment would also include budgetary solar production estimate.

Battery Energy Storage System Assessment

Based on the site constraints, on-site solar generation, utility rate and interconnection considerations, and consideration of other existing on-site generation sources, Consultant will evaluate up to two (2) battery sizing scenarios, for peak load shaving and emergency back-up power operations.

Electric Vehicle Charging Station Assessment

Consultant will also review site electrical information, to understand available service capacity for installing EV charging stations at the SEWC site, in combination with the solar PV and battery energy storage systems. Based on the correspondence with SEJPA, Consultant will review Level 2 and Level 3 charger equipment options and provide a high-level assessment of the number of chargers that can be installed using the existing electrical service at the site. Consultant will also summarize this against the SEJPA EV fleet needs to identify, at a high level, the additional EV charging station needs.

Financial Analysis

Consultant will develop an AACE class-5 opinion of probable construction cost for the solar PV, BESS and EV charging station project, including equipment, labor, permits, and any necessary upgrades. Consultant will also identify available financial incentives for the project, such as federal and state tax credits, grants, or rebates. Consultant will analyze available funding sources and provide an assessment as to the available grant options that are best suited for electrification of the SEWC site.

Final Presentation

Consultant will also deliver a final presentation that covers the site solar PV, BESS and EV charger assessment findings. During this presentation, Consultant will also review phased installation of project components with the SEJPA team (site electrification roadmap).

Data Requests will likely include:

1. Available parcel maps
2. Relevant architectural and structural drawings that have not be previously provided to the Consultant and additional information on the existing structures such as roof warranty information
3. Relevant electrical drawings, such as one-line diagrams
4. Electric utility bills for the past 1-2 years, at 15 minute or 1-hour readings
5. SEJPA EV Fleet needs, including number of vehicles parked at the SEWC site, vehicle usage patterns and charging requirements. Any past fleet decarbonization assessments or studies, if any.

Assumptions and Clarifications for Base Scope of Services:

- No travel, in-person meetings or site visits will be performed as part of this study.
- Meetings will be conducted via Microsoft Teams®.
- Consultant will attend one (1) kick-off meeting (specific to this task), up to four (4) online meetings with SEJPA, each one (1) hour long. Meetings will typically be attended by two (2) Black & Veatch professionals (Project Manager and Project Discipline Engineer).
- SEJPA will provide all requested information prior to the project kick-off meeting.

Laboratory Needs Assessment. SEJPA is preparing a needs assessment of the Laboratory. Report, (by others) is expected to be complete by May 2024. Consultant shall incorporate the findings of that assessment into the Facility Plan and include recommended project(s) in the prioritized capital improvement plan.

- It is assumed that the Laboratory Needs Assessment Report will be provided by SEJPA, and its findings will be incorporated into the Facility Plan. It is assumed that Consultant will not be required to provide any independent assessment.

Mechanics Shop Needs Assessment. SEJPA is preparing a needs assessment of the Laboratory. Report, (by others) is expected to be complete by May 2024. Consultant shall incorporate the findings of that assessment into the Facility Plan and include recommended project(s) in the prioritized capital improvement plan.

- It is assumed that the Mechanics Needs Assessment Report will be provided by SEJPA, and its findings will be incorporated into the Facility Plan. It is assumed that Consultant will not be required to provide any independent assessment.

San Elijo Water Campus Site Master Plan Map. Using recently completed (August 2023) aerial

topographic survey, prepare site plan exhibits for existing, near-term planned, and long-term future site plan improvements. Map shall be prepared in AutoCad and provided in native file format as well as an editable/layered PDF document.

- A draft map in a PDF format will be submitted to SEJPA for review and comments. It is assumed that one round of consolidated comments will be provided to BV for incorporation into the final map.
- AutoCAD file and a PDF of the final map will be provided to SEJPA.

Task 6 – Capital Project Development

Based on findings of Tasks 2 – 5 and outcome of workshops in Task 1, Consultant shall develop a list of recommended capital projects. These projects should incorporate information on previously identified projects including those included in the 3-Year Capital Plan (2023-25), deferred projects from the 2015 Facility Plan or Solids Treatment Project Analysis (2020) as applicable, and potable reuse project improvements outlined in the San Elijo Water Campus Recycled Water Quality Improvement Plan (2023). Where alternative projects are identified, a business case evaluation shall be used to compare the alternatives and provide justification for recommendations.

Each identified project shall be represented in a spreadsheet-based CIP database summarizing key project information including project scope, plant area/process, objective or driver, benefits, and capital cost. Spreadsheet shall be formatted to allow printing of CIP entries in a consistent and organized manner. Provide fields within the spreadsheet to designate project numbering and funding sources that will be provided by SEJPA to the Consultant. A summary project listing shall allow for projects to be prioritized using a weighted scoring system, sorted by prioritization attributes, and tabulated to assist in organizing and scheduling the capital program. A stand-alone Excel-based dashboard page shall be provided to present summarized project data including: project name, priority, stage (e.g., pre-design/planning, design, bidding, construction, commissioning), capital cost and percent complete.

Capital project prioritization should include weighted factors that account for:

- Environmental Protection – Compliance with permits and future regulations and resilience to climate change
- Economic Sustainability – Managing assets and balancing cost of facility improvements within financial constraints
- Community Benefits – Beneficial reuse of resources (e.g., water, gas, biosolids, nutrients)

It is assumed that:

- Evaluation of one optimization scenario is included. Additional scenarios can be evaluated as an additional service.
- Business case evaluation (BCE) is anticipated to be used to help make informed decisions between alternatives being considered, or it could also be used to support decisions to pursue a discretionary project. The methodology (e.g. analysis of benefit to cost, payback period, and/or risk avoidance) to be used and the level of effort required for each BCE is anticipated to vary depending on the nature and scope of each project. The quantity of BCE's to be performed and the approach for each BCE shall be discussed with SEJPA prior to commencement of work. An allocation of up to eight (8) hours is included for BCEs (e.g. 4 simple BCE's or 2 more complex BCE's, etc.). Additional evaluations can be performed as an

additional service.

- Dashboard will be developed utilizing MS Excel and does not include PowerApps, which can be provided as an additional service.
- Individual project dashboards can be provided as an additional service.
- For capital cost of projects that have been previously identified, it is assumed that the planning level cost estimate previously developed as part of past studies and reports will be reviewed, if available, and adjusted to today's dollars. For the projects without a previous cost estimate, Consultants will develop conceptual level estimates for use in the prioritization process. An allocation of up to twenty (20) hours is included in the base scope of services for the cost estimating effort.

Task 7 – 2025 Facility Plan Update (Draft/Final)

With SEJPA's concurrence of the capital project list and prioritization, Consultant shall prepare the 2025 Facility Plan update report that defines capital projects for the next ten years, FYE 2026 – FYE 2035. The 2025 Facility Plan update report shall incorporate the intermediate deliverables, memorandums, workshop information and project development information prepared in Tasks 1 – 6. For each recommended project, provide a Project Information Sheet (PIS) that summarizes scope, capital cost, project objective or fundamental project criteria. The 2025 Facility Plan update shall present the prioritized capital project list as aggregated and annualized capital program. The 2025 Facility Plan update is anticipated to consist of two volumes: a volume organized for assets at the San Elijo Water

Campus and a volume for remote facilities, organized by chapter for facilities owned by City of Encinitas, City of Solana Beach, SEJPA, and the ocean outfall system. Content presented consistent with the 2015 Facility Plan.

SECTION	TITLE
Volume 1 – San Elijo Water Campus	
1	Executive Summary
2	Introduction and Background
3	Regulatory Review
4	Facility Condition Assessment
5	Capital Improvement Projects
6	Capital Plan
7	Site Master Plan App. A CIP
Cost Estimates	
App. B	Business Case Evaluations
App. C	Regulatory Review Report, 2024 App. D
	Maps and Hydraulic Profile
App. E	Asset List Update and Condition Assessment Reports
Volume 2 – Remote Facilities	
1	Executive Summary
2	Cardiff Sanitation Division Pump Stations
3	Encinitas Sanitation Division Pump Stations
4	City of Solana Beach Pump Stations
5	Lomas Santa Fe Booster Station
6	Effluent Pump Station and Ou/all Regulator Structure
7	Capital Plan
App. A	Condition Assessment Reports App. B
	CIP Cost Estimates

Assumptions and Exclusions

Consultant may consider the following assumptions in scoping and estimating level of effort:

a. Environmental services will be performed by an independent consultant hired by the SEJPA.
b. Regulatory Review memorandum will be prepared by Michael Welch under separate contract. Expectation is that this assessment of regulatory changes that may influence SEJPA operations and project prioritization will be incorporated into the Facility Plan update as a standalone document. Consultant is expected to be fully familiar with this assessment and to incorporate

findings into decision making process for recommended facility upgrades.

c. This facility planning effort is not anticipated to require any new permits; permitting needs for recommended projects should be identified and will be secured in subsequent project implementation phases under separate contract(s).
d. SEJPA's most recently completed a sitewide topographic survey with data for key spot elevations within the treatment plant in September 2023 that will be made available to selected consultant.
e. Planning documents pertinent to this Facility Plan Update are available on SEJPA's website. Supplemental plant records (record drawings, geotechnical reports, condition assessment reports) and data will be made available to selected consultant.

SAN ELIJO JOINT POWER AUTHORITY
FACILITY PLAN UPDATE
PREPARED BY BLACK & VEATCH

SAN ELIJO JOINT POWERS AUTHORITY	PHASE	Senior Project Manager	Regulatory Advisor 6	Environmental Scientist 7	Environmental Scientist 4	Civil Engineer 6	Civil Engineer 5	Civil Engineer 4	Civil Engineer 3	Civil Engineer 2	Asset Consultant 7	Asset Consultant 5	Process Engineer 7	Process Engineer 6	Electrification Consultant 6	Electrification Consultant 7	Electrical Engineer 7	Electrical Engineer 6	Estimator 7	CAD Technician 5	Project Controls	Finance & Admin	Total Labor	Labor Fee	Total Expenses	Total Fee
		$340.00	$375.00	$260.00	$190.00	$255.00	$220.00	$190.00	$180.00	$160.00	$265.00	$190.00	$330.00	$300.00	$275.00	$300.00	$315.00	$255.00	$285.00	$190.00	$175.00	$125.00				
Task 1 - Project Management, Workshops, Meetings, QA/QC	**1000**	**112**	**-**	**-**	**12**	**124**	**-**	**-**	**-**	**-**	**10**	**-**	**-**	**6**	**-**	**-**	**-**	**-**	**-**	**-**	**32**	**64**	**360**	**$ 90,030**	**$ 1,200**	**$ 90,030**
1.1 Project Administration	**1010**	**40**				**8**															**32**	**64**	**144**	**$ 29,240**	**$ 1,200**	**$ 29,240**
1.2 Workshops	**1020**	**36**			**12**	**48**																				
Workshop #1 - SEWC Condition Assessments		4			4	8																	16	$ 4,160	$ -	$ 4,160
Workshop #2 - CSD/ESD Pump Station Evaluations		4			4	8																	16	$ 4,160	$ -	$ 4,160
Workshop #3 - COSB Pump Station Evaluations		4			4	8																	16	$ 4,160	$ -	$ 4,160
Workshop #4 - Outfall System Evaluations		4				4																	8	$ 2,380	$ -	$ 2,380
Workshop #5 - Project Recommendations		4				4																	8	$ 2,380	$ -	$ 2,380
Workshop #6 - Project Prioritizations		4				4																	8	$ 2,380	$ -	$ 2,380
Workshop #7 - Draft 2025 PREP Plan Review		4				4																	8	$ 2,380	$ -	$ 2,380
Workshop #8 - Electrification Opportunities		4				4																	8	$ 2,380	$ -	$ 2,380
Workshop #9 - Placeholder		4				4																	8	$ 2,380	$ -	$ 2,380
1.3 Meetings	**1030**	**36**				**32**																				
Kick-off Meeting		4				8																	12	$ 3,400	$ -	$ 3,400
Monthly Project Management Meetings		16																					16	$ 5,440	$ -	$ 5,440
Bi-weekly Progress Update Calls		16				24																	40	$ 11,560	$ -	$ 11,560
1.4 QA/QC	**1040**					**36**					**10**			**6**									**52**	**$ 13,630**	**$ -**	**$ 13,630**
Task 2 - Regulatory Review	**2000**	**-**	**20**	**-**	**-**	**6**	**-**	**-**	**-**	**-**	**-**	**-**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**34**	**$ 11,670**	**$ -**	**$ 11,670**
2.1 Regulatory Review	**2010**		**20**			**6**							**8**										**34**	**$ 11,670**	**$ -**	**$ 11,670**
Task 3 - Asset List Update and Condition Assessment at SEWC	**3000**	**2**	**-**	**-**	**120**	**124**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**	**-**	**-**	**-**	**-**	**-**	**266**	**$ 61,400**	**$ 3,850**	**$ 61,400**
3.1 Asset List Update and Condition Assessment at SEWC	**3010**	**2**			**120**	**124**											**20**						**266**	**$ 61,400**	**$ 3,850**	**$ 61,400**
Task 4 - Condition Assessment and Evaluations of Sewer Pump Stations	**4000**	**-**	**-**	**-**	**88**	**100**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**	**-**	**-**	**-**	**-**	**-**	**196**	**$ 44,740**	**$ 3,850**	**$ 44,740**
4.1 Condition Assessment and Evaluations of Sewer Pump Stations	**4010**				**88**	**100**											**8**						**196**	**$ 44,740**	**$ 3,850**	**$ 44,740**
Task 5 - Technical Studies and Intermediate Work Products	**5000**	**10**	**-**	**8**	**8**	**212**	**86**	**26**	**28**	**60**	**-**	**-**	**8**	**-**	**10**	**6**	**8**	**16**	**8**	**22**	**-**	**-**	**516**	**$ 119,810**	**$ -**	**$ 119,810**
5.1 Existing Document Review	**5010**	**2**			**8**	**48**		**26**								**6**	**8**	**16**	**8**				**122**	**$ 30,060**	**$ -**	**$ 30,060**
5.2 Climate Change Vulnerability and Resiliency Analysis	**5020**	**2**		**8**		**32**				**60**													**102**	**$ 20,520**	**$ -**	**$ 20,520**
5.3 SEWC Fundamental Criteria	**5030**	**2**				**8**																	**10**	**$ 2,720**	**$ -**	**$ 2,720**
5.4 Hydraulic Analysis	**5040**					**40**	**58**													**12**			**110**	**$ 25,240**	**$ -**	**$ 25,240**
5.5 Water Balance	**5050**					**12**	**28**																**40**	**$ 9,220**	**$ -**	**$ 9,220**
5.6 Pump Inventory and Capacity Assessment	**5060**					**6**			**12**														**18**	**$ 3,690**	**$ -**	**$ 3,690**
5.7 Biogas Utilization	**5070**					**20**							**4**										**24**	**$ 6,420**	**$ -**	**$ 6,420**
5.8 Biosolids Reuse	**5080**					**20**							**4**										**24**	**$ 6,420**	**$ -**	**$ 6,420**
5.9 Electrification Opportunities	**5090**	**2**				**6**									**10**								**18**	**$ 4,960**	**$ -**	**$ 4,960**
5.10 Laboratory Needs Assessment	**5100**					**4**			**8**														**12**	**$ 2,460**	**$ -**	**$ 2,460**
5.11 Mechanics Shop Needs Assessment	**5110**					**4**			**8**														**12**	**$ 2,460**	**$ -**	**$ 2,460**
5.12 San Elijo Water Campus Site Master Plan Map	**5120**	**2**				**12**														**10**			**24**	**$ 5,640**	**$ -**	**$ 5,640**
Task 6 - Capitol Project Development	**6000**	**4**	**-**	**-**	**-**	**20**	**12**	**-**	**-**	**110**	**-**	**40**	**-**	**-**	**-**	**-**		**-**	**24**	**-**	**-**	**-**	**214**	**$ 42,400**	**$ -**	**$ 42,400**
6.1 Capitol Project Development	**6010**	**4**			**-**	**20**	**12**			**110**		**40**					**4**		**24**				**214**	**$ 42,400**	**$ -**	**$ 42,400**
Task 7 - 2025 Facility Plan Update	**7000**	**12**	**-**	**-**	**-**	**42**	**-**	**-**	**120**	**-**	**-**	**-**	**-**	**-**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**178**	**$ 37,650**	**$ -**	**$ 26,540**
7.1 Draft Facility Plan	**7010**	**8**				**32**			**80**								**4**						**124**	**$ 26,540**	**$ -**	**$ 26,540**
7.2 Final Facility Plan	**7020**	**4**				**10**			**40**														**54**	**$ 11,110**	**$ -**	**$ -**
TOTAL HOURS		**140**	**20**	**8**	**228**	**628**	**98**	**26**	**148**	**170**	**10**	**40**	**16**	**6**	**10**	**6**	**44**	**16**	**32**	**22**	**32**	**64**	**1,764**			
TOTAL FEE		**$ 47,600**	**$ 7,500**	**$ 2,080**	**$ 43,320**	**$ 160,140**	**$ 21,560**	**$ 4,940**	**$ 26,640**	**$ 27,200**	**$ 2,650**	**$ 7,600**	**$ 5,280**	**$ 1,800**	**$ 2,750**	**$ 1,800**	**$ 13,860**	**$ 4,080**	**$ 9,120**	**$ 4,180**	**$ 5,600**	**$ 8,000**		**$ 407,700**	**$ 8,900**	**$ 416,600**