



WATERWORKS
ENGINEERS

July 14, 2026

PROPOSAL FOR

PROFESSIONAL ENGINEERING
DESIGN SERVICES FOR
**Hexavalent Chromium Treatment
Plants at Seven Well Sites**



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B. Transmittal Cover Letter

B. TRANSMITTAL COVER LETTER

July 14, 2026

RE: Proposal for Professional Engineering Design Services for Hexavalent Chromium Treatment Plants at Seven Well Sites to the City of Coachella

Dear Mr. Estrada and Distinguished Members of the Selection Committee:

Water Works Engineers, LLC (WWE) is pleased to submit four (4) copies, and one (1) electronic copy in PDF format, of our proposal for Professional Engineering Design Services for Hexavalent Chromium Treatment Plants at Seven Well Sites (Project) to the City of Coachella (City).

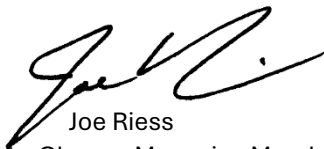
For the past 21-years, Water Works Engineers has dutifully provided Water, Wastewater, and Recycled Water expertise throughout California and across the Southwest. Water Works Engineers has been at the forefront of addressing emerging groundwater quality challenges in California for more than a decade, providing planning, pilot evaluation, and treatment design services for utilities impacted by hexavalent chromium (Cr(VI)). Our team has supported agencies and water providers throughout the region, including projects in Coachella, Desert Hot Springs, Indio, and other groundwater-dependent communities, evaluating and implementing technologies such as reduction/coagulation/filtration (RCF), strong-base anion exchange, and other advanced treatment solutions to meet evolving regulatory requirements. Drawing on extensive experience with groundwater treatment facilities and contaminant removal programs, Water Works brings a deep understanding of Cr(VI) compliance strategies, life-cycle costs, residuals management, and operational considerations, helping Southern California agencies deliver safe, reliable drinking water to their customers.

The Water Works team has already completed considerable research and has identified and developed innovative solutions and identified opportunities for additional value for the City as part of the Project. Because of this, Andrew Borgic, P.E., will continue to be the Project Manager, managing the nuts and bolts of the project out of our Torrance office. Andrew's extensive experience with groundwater and Cr(VI) projects, hands-on approach to design, attention to details, and exceptional communication skills are what make his projects successful.

If you have any questions regarding this proposal, please contact Andrew Borgic at (310) 750-7921 or andrewb@wwengineers.com.

Very Truly Yours,

WATER WORKS ENGINEERS, LLC



Joe Riess
Principal-In-Charge, Managing Member
(530) 240-6168, joer@wwengineers.com



Andrew Borgic
Project Manager, Primary Contact
(310) 750-7921, andrewb@wwengineers.com

Water Works Engineers, LLC
21515 Hawthorne Blvd, Suite 590, Torrance, CA 90503

Corporate Address
7500 N. Dobson Road, Suite 200, Scottsdale, AZ 85256

C. Executive Summary

C. EXECUTIVE SUMMARY

Project Background and Objectives

Coachella Water Authority (CWA) provides drinking water to the City of Coachella through 9,200 service connections. All seven of the existing/newly developed groundwater source wells have hexavalent chromium (Cr(VI)) concentrations above the newly adopted California State Cr(VI) maximum contaminant level of 10-µg/L and require treatment by of August 2031. Reduction coagulation filtration (RCF) has been identified through extensive Cr(VI) removal technology evaluation and Compliance Plan as the preferred treatment technology for Cr(VI) treatment at each of the approximately 2,000-gpm well sites. The treatment facilities required at each of the 7 well sites (Project) generally include: well pump replacement, new RCF Treatment Facilities (pressure contactors and filters; ferrous chem. feed), filter backwash residuals management, and the associated electrical, instrumentation, and controls for effective operation. A preliminary 3-D rendering of the initially planned Well 19 Site is provided below.

Unparalleled Project

Understanding and Support

Our Team understands the City's predicament – 100% of the City's groundwater wells require Cr(VI) treatment quickly and the City's associated financial burden to perform the required improvements is substantial. WWE will join CWA in their pursuit of federal and state grants and loans (DWSRF) for the Project providing the following approaches to facilitate Project funding:

- ✓ WWE's experience with DWSRF applications and our approach to modify the Basis of Design Report to serve as the "Engineering Report" required in the application will facilitate the City's ability **receive planning and engineering design costs reimbursement for the Project.**
- ✓ In order to meet the 90% Design Submittal deadline by the end of the year, WWE has taken considerable effort to develop the design delivery approach and team that is **committed to meeting a 90% Design Submittal delivery date to CWA of December 18, 2026** and a Final Design Submittal date of 9/1/2027.



Maintain Project Momentum

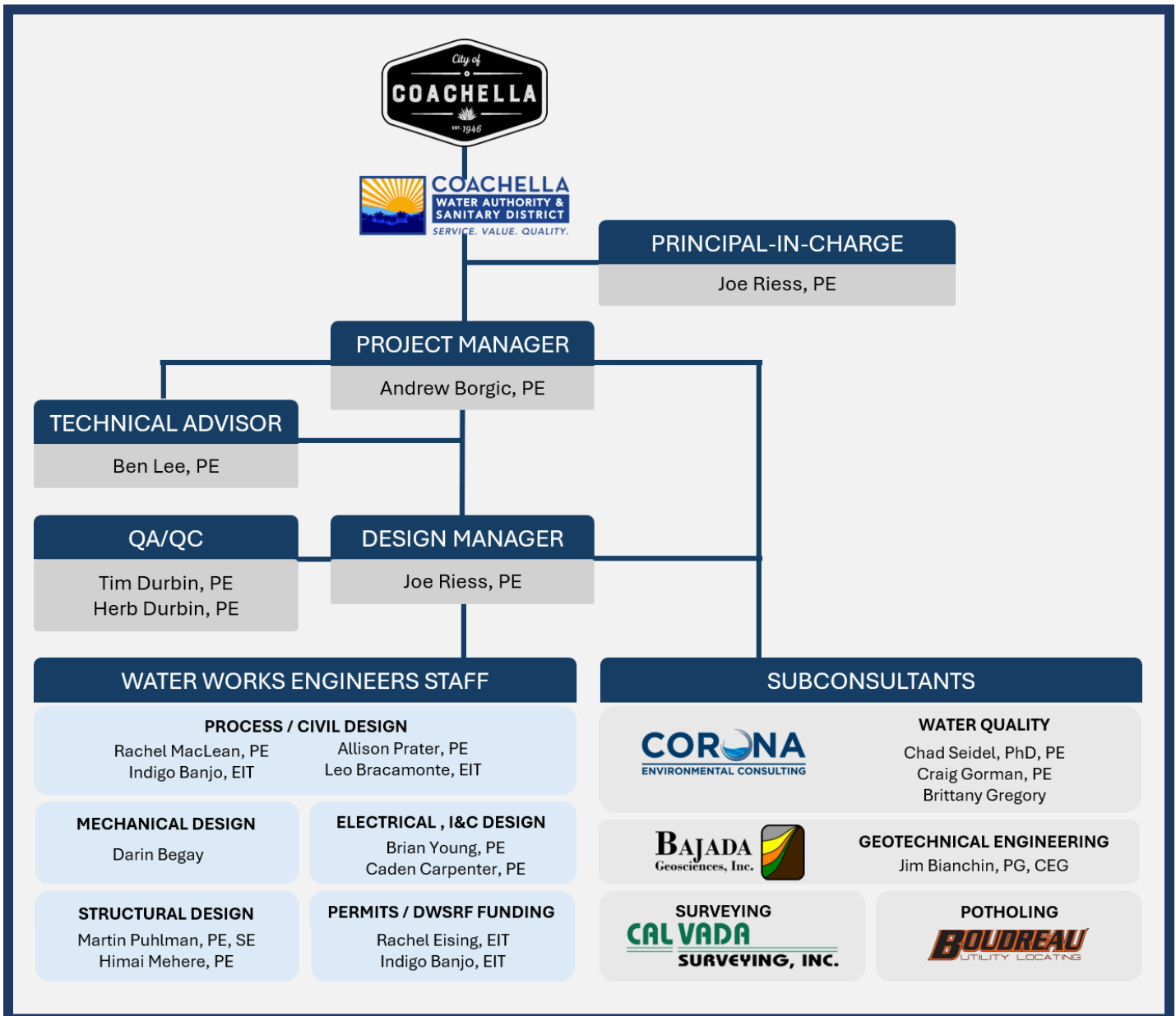
Our Team (WWE and Corona Environmental Consultants) will build upon the knowledge gained during the preliminary design to develop well thought-out detailed designs for each well site. Since performing pilot testing and submitting the preliminary design report, WWE and Corona continue to gain additional knowledge and experience centered around Cr(VI) treatment state-wide and within the Coachella Valley, including Cr(VI) removal technology evaluations, compliance planning, preliminary and final design services for over 8 clients (4 of which are in the Coachella Valley) at over 25 well sites in California alone. Our team will leverage similar design elements from our most recent 2,000-gpm Cr(VI) design project in Dixon, CA for the CWA Seven Wells Project, **conserving engineering effort and time to the benefit of CWA and their customers.**

D. Personnel

D. PERSONNEL

Water Works Engineers has assembled a highly qualified Project Team chosen for their high degree of experience in groundwater treatment and Cr(VI) removal and past project success as a team in the design and delivery of multiple groundwater treatment site projects simultaneously. WWE continues partnering with Corona Environmental Consulting (Corona) to leverage their knowledge of water quality, testing, and treatment processes to ultimately provide a more informed and flexible design. Corona and WWE have a strong history of partnering together and will continue to provide project continuity for CWA - from the first Cr(VI) MCL iteration in 2016, to the more recent 2024 Cr(VI) Compliance Alternatives Assessment, Compliance Plan and PDR, WWE and Corona is committed to CWA and Project success! Beyond the immediate CWA Project, our Project Team is embedded in hexavalent chromium solutions across the Coachella Valley with four different water agencies, over a period of 10-years, covering the characterization, planning, alternatives analysis, piloting, and design of Cr(VI) removal facilities at over 20 wells.

Our Project Team is summarized below in the Organization Chart with key staff bios following.





ANDREW BORGIC, PE
PROJECT MANAGER

22 Years of Experience

Civil PE - 73792

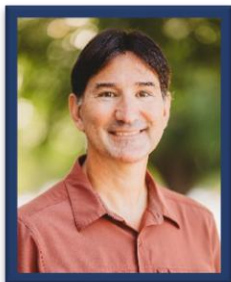
M.S. Civil/Environmental Eng., University of California, Davis

B.S. Civil Engineering, California State University, Chico

B.S. Mechanical Engineering, California State University, Chico

Relevant Technical Experience: Groundwater Treatment, Cr(VI) Removal, Chemical Feed, Pump Stations, Tanks, Pipelines, and Hydraulic Modeling

Andrew is a project manager specializing in groundwater supply, treatment, and water quality projects. He has extensive expertise in the planning, evaluation, and design of groundwater treatment facilities addressing chromium-6, PFAS, manganese, VOCs, iron, ammonia, and other drinking water contaminants. Mr. Borgic has led feasibility studies, pilot testing programs, alternatives evaluations, and the design and implementation of Reduction Coagulation-Filtration (RCF), ion exchange, granular activated carbon (GAC), and advanced treatment systems for municipal and investor-owned utility clients throughout California. His comprehensive understanding of groundwater treatment processes, regulatory compliance, and facility design enables him to deliver reliable, cost-effective solutions that improve water quality and ensure long-term system performance. Andrew has recently completed more than 18 Cr(VI) treatment system conceptual/preliminary design reports in collaboration with Corona for various agencies of the past 2-years in the Coachella Valley.



JOE RIESS, PE
PRINCIPAL-IN-CHARGE / DESIGN MANAGER

28 Years of Experience

Civil PE - 66413

M.S. Civil/Environmental Eng., University of California, Davis

B.S. Civil Engineering, California State University, Humboldt

Relevant Technical Experience: Water Treatment (including Cr (VI) and As removal), Chemical Storage/Feed, Hydraulics, Pump Stations, Solids Dewatering, Tanks, Small rural system design and DWSRF funding

Joe is a water/wastewater process design engineer with experience in large and small civil infrastructure (water and wastewater treatment) projects, including feasibility studies, alternatives analyses, and design for treatment plant upgrades, expansions, modifications, and collection and treatment system monitoring. He has specific experience in treatment process selection, closed-conduit and open channel hydraulic modeling, CADD design, GIS/GPS mapping, and other computer applications for designing and optimizing water and wastewater treatment and distribution systems. Typical duties include client interaction, permit review, technical report preparation and review, cost estimate preparation and review, preparation of contract drawings and specifications, contractor interaction, field visits, inspections, and engineering services during construction. Joe also has experience implementing large-scale river restoration projects, and coordinating with multiple local, state and federal agencies, stakeholders and landowners.



BEN LEE, PE
TECHNICAL ADVISOR

25 Years of Experience

Civil PE - 69826

M.S. Environmental Engineering, University of Illinois

B.S. Civil Engineering, Arizona State University

Relevant Technical Experience: Groundwater Water Treatment (including As treatment), Solids Management, Tanks, Chemical Storage/Feed, Hydraulics, Pump Stations

Ben has over 25 years of experience in civil and environmental engineering projects that have focused on the planning, optimization and design of water and wastewater treatment facilities and has provided technical assistance, assured inspection data was correctly documented and confirmed compliance to all specifications and procedures as a technical advisor. Ben has demonstrated his ability to work well with management, engineering, and operations staff in the evaluation, design, and implementation of water and wastewater facilities.



CORONA ENVIRONMENTAL CONSULTING

CHAD SEIDEL, PhD, PE
WATER QUALITY LEAD

25 Years of Experience

Registered PE in AZ, CO, GA, IL, MA, NY, NJ, PA, TX and WA

Ph.D., Civil and Environmental Engineering, University of Colorado Boulder

M.S. Civil and Environmental Engineering, University of Colorado Boulder

B.S. Environmental Engineering, Montana Tech of the University of Montana

Relevant Technical Experience: Piloting and removal of Cr (VI) utilizing RCF and SBA-IX; Cr (VI) Removal compliance technologies evaluation expert; Published dozens of peer-reviewed journal manuscripts and delivered more than 100 professional presentations regarding water quality and Cr(VI) treatment optimization.

Dr. Chad Seidel is the President and a founding partner at Corona, bringing more than 25 years of consulting experience providing small and large drinking water utilities with expert process engineering services. He is a nationally recognized authority on hexavalent chromium [Cr(VI)] occurrence and treatment, having spearheaded compliance, discovery, and testing initiatives for California drinking water supplies since 2000. His foundational expertise in this sector is anchored by a Ph.D. from the University of Colorado Boulder, where his doctoral dissertation focused explicitly on this topic: *"Investigation of Hexavalent Chromium as a Future Regulated Drinking Water Contaminant"*. Corona headed the novel pilot testing efforts that successfully achieved the very first permitted full-scale reduction coagulation filtration (RCF) and strong base anion exchange (SBA-IX) treatment systems in the state of California



ALLISON PRATER, PE
PROCESS DESIGN ENGINEER

8 Years of Experience

Civil PE - 91697

M.S. Civil/Environmental Engineering, California State Polytechnic University, SLO

B.S. Civil/Environmental Engineering, California State Polytechnic University, SLO

Relevant Technical Experience: Groundwater Treatment, Cr(VI) Removal, Chemical Feed, Pump Stations, Tanks, Pipelines, Surge Analysis, and Hydraulic Modeling

Allison is a civil engineer with experience with civil infrastructure projects including drinking water, wastewater, and stormwater planning and design. Her typical duties include detailed groundwater treatment system design, hydraulic analysis and pump selection; hydrology calculations; contract drawing, specification, and cost-estimate preparation; stormwater and LID design; chemical feed design; and permit preparation.



RACHEL MACLEAN, PE
PROCESS AND CIVIL DESIGN ENGINEER

9 Years of Experience

Civil PE - 95839

M.S. Chemical Engineering, University of Idaho, Moscow

B.S. Chemical Engineering, University of Idaho, Moscow

Relevant Technical Experience: Groundwater Treatment, Cr(VI) Removal, Chemical Feed, Pump Stations, Tanks, Permitting and Hydraulic Modeling

Rachel is a civil engineer focusing on drinking water design. She has experience, which includes performing engineering evaluations; preparing technical drawings, specifications, and cost estimates; developing conceptual designs and reporting; providing construction support services; and facilitating permitting. Rachel has recently completed more than 18 Cr(VI) treatment system conceptual/preliminary design layouts for various agencies of the past 2-years in the Coachella Valley.



DARIN BEGAY
MECHANICAL ENGINEER

18 Years of Experience

B.S. Mechanical Engineering, Arizona State University

Relevant Technical Experience: Mechanical design, pump stations, mechanical piping systems, Water Conveyance

Darin has experience providing mechanical engineering and design support for water and wastewater infrastructure projects. His expertise includes hydraulic systems, water conveyance facilities, mechanical piping, pumping stations, gravity and pressurized pipelines, hydraulic and surge analysis, and pump selection. Darin has contributed to numerous treatment and infrastructure improvement projects, including pump stations, treatment facilities, and utility system upgrades, providing mechanical design, evaluation, and construction support services.



BRIAN YOUNG, PE
ELECTRICAL ENGINEER

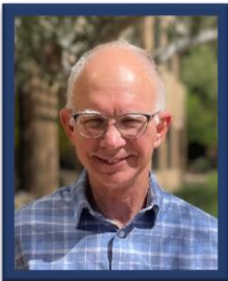
40 Years of Experience

Civil PE - 20743

B.S. Electrical Engineering, Ohio State University

Relevant Technical Experience: Electrical design, Instrumentation, pump stations, water treatment facilities

Brian provides electrical, instrumentation, controls, and SCADA engineering services for water, wastewater, and municipal infrastructure projects. He has extensive experience in the planning, design, analysis, and implementation of electrical distribution systems, standby power generation, instrumentation and control systems, life safety systems, and facility-wide power upgrades. Brian has served as lead electrical engineer and project manager on numerous treatment plant, pump station, reservoir, and utility infrastructure projects throughout the western United States, providing technical leadership, QA/QC oversight, power studies, and construction support. His expertise includes electrical evaluations and design, control system integration, emergency power systems, and the development of reliable, efficient infrastructure solutions for utility clients



MARTIN PUHLMAN, PE, SE
STRUCTURAL ENGINEER

42 Years of Experience

Structural PE - 3889

M.S. Civil/Structural Engineering, Brigham Young University

B.S. Civil/Structural Engineering, Brigham Young University

Relevant Technical Experience: Structural Design, Treatment, Groundwater, Surface Water

Martin has experience providing structural engineering services for water and wastewater infrastructure projects. His expertise includes the design and analysis of treatment plant structures, pump stations, reservoirs, retaining walls, reinforced and precast concrete structures, steel and masonry facilities, and seismic and wind load evaluations. Martin has extensive experience supporting groundwater and drinking water treatment projects, including arsenic, chromium-6, and PFAS treatment facilities, and provides structural design, condition assessments, construction administration, special inspections, and shop drawing reviews. His deep understanding of treatment plant infrastructure and collaborative approach help ensure projects are delivered safely, efficiently, and with long-term reliability.

WATER WORKS ENGINEERS (Water Works, WWE) is a limited liability company with no parent company. Formed in 2005, Water Works was assembled by engineers who believed that water and wastewater engineering and consulting could be done a better way by combining the best attributes of large and small firms: the technical expertise of a large firm and the efficiency and personal attention of a small one. Our vision was the formation and growth of a new kind of engineering firm: a firm built on providing exceptional local client services from highly experienced engineers in a “hands-on” and enjoyable environment.

Our leaner overall firm structure, high-level staffing, and cohesive teamwork are focused on delivering top tier work at best value, tailored to the unique needs of each project. This focus and approach have fueled a consistent increase in our clients and projects across 12 offices and 137 employees, with approximately \$40M in yearly revenue. By focusing exclusively on water and wastewater engineering, Water Works provides focused expertise rather than the broad umbrella approach of many civil engineering firms.



Subconsultants

Water Works Engineers has developed successful long-term relationships over the years with several trusted project partners throughout California. The proposed Water Works Team includes the following subconsultants specifically selected for the Project:

WATER QUALITY ENGINEERING –

Corona Environmental Consulting, LLC (Corona)

Corona Environmental Consulting was founded in 2013 by expert drinking water engineers and scientists driven by a passion to overcome complex water supply and treatment challenges with emerging scientific understanding and innovative technologies. Their staff include renowned senior scientists, engineers, statisticians, and technicians. Corona integrates innovative research and deep subject matter expertise with cutting edge technology and detailed engineering to deliver cost-effective real-world solutions. Corona’s approach to addressing water treatment and operations is to employ an unbiased evaluation of potential solutions. Approaching each client’s needs through clear eyes has established Corona as a recognized leader for innovating and identifying solutions to unique and emerging issues.



Corona is the most recognized drinking consulting firm to address hexavalent chromium [Cr(VI)] compliance concerns for drinking water utilities. Our team possesses a long, distinguished history of assisting public water utilities in navigating the technical and regulatory complexities of Cr(VI) groundwater treatment. We have supported CWA in evaluating Cr(VI) treatment starting in 2016-17 with the first MCL iteration and again more recently since 2024 to assess compliance alternatives and complete the preliminary design with WWE for the selected reduction coagulation filtration (RCF) options.

Corona’s unmatched Cr(V) expertise spans the entire project lifecycle - encompassing initial treatment evaluation and selection, bench- and pilot-scale testing, funding source identification, regulatory compliance planning, plant start-up, and permitting support. As industry leaders on this topic, Corona headed the novel pilot testing efforts that successfully achieved the very first permitted full-scale reduction coagulation filtration (RCF) and strong base anion exchange (SBA-IX) treatment systems in the state of California. Supported by more than two decades of dedicated engineering experience, localized expertise,

and an unmatched record of authoring peer-reviewed science, Corona remains a trailblazer of Cr(VI) treatment research, process design, and full-scale utility implementation. Key highlights include:

Corona led the innovative bench- and pilot-scale testing programs that directly resulted in the first state-permitted full-scale RCF and SBA-IX groundwater Cr(VI) treatment facilities in California.

- Dr. Chad Seidel, Corona's President, has been actively investigating and resolving Cr(VI) occurrence and treatment challenges for California drinking water utilities since 2000. He designed and led startup and operations of the foundational drinking water RCF Cr(VI) treatment pilot testing conducted at Glendale, CA in 2004. He completed his Ph.D. titled "*Investigation of Hexavalent Chromium as a Future Regulated Drinking Water Contaminant*" in 2006.
- Through bench- and pilot-scale optimization, Corona has delivered millions of dollars in capital and long-term operational savings for full-scale Cr(VI) treatment implementations.
- Corona holds localized knowledge of the Coachella Valley's distinct groundwater characteristics. Proven regional milestones include developing a consolidated clustered RCF master plan for the Coachella Valley Water District (CVWD), executing direct RCF pilot testing focused on residuals management at the Coachella Water Authority (CWA), operating a 14-week RCF recycling pilot for the Indio Water Authority (IWA), and establishing the Cr(VI) Treatment Roadmap for the Mission Springs Water District (MSWD).
- The team has published dozens of peer-reviewed journal manuscripts and delivered over 100 professional presentations establishing standard protocols, operational optimizations, and critical distribution risks for Cr(VI) treatment using RCF, SBA-IX, and alternative stannous chloride SnCl_2 applications.

GEOTECHNICAL ENGINEERING - Bajada Geosciences, Inc. (Bajada)

Bajada Geosciences is a geotechnical engineering and engineering geologic company whose professionals have practiced throughout California since 1983. Bajada personnel have extensive experience with tanks, treatment plants, pipelines, trenchless pipeline installation, and other infrastructure-related projects utilizing state of the practice technologies during exploration, laboratory testing, and geotechnical evaluations. Water Works Engineers and Bajada's founder, Jim Bianchin, PE, CEG, have teamed on hundreds of engineering projects over the past 20-years.

SURVEYING - CALVADA Surveying, Inc. (Calvada)

Calvada Surveying provides professional land surveying services of various industries, including Real Estate, Telecommunications, Construction, and Environmental industries. They pride themselves not only as a pioneer of advanced land surveying technology, but also as a family - oriented company with an immensely dedicated and experienced staff on which Calvada was built. These individuals include professional land surveyors, qualified field and office personnel, in house support staff, mapping technicians, and project managers, all of which maintain strict professionalism and expertise.

POTHOLING – Boudreau Utility Locating (Boudreau)

Boudreau Utility Services has been a trusted provider of utility infrastructure services to California communities since 1977, bringing more than 40 years of experience to manufactured housing and utility improvement projects.

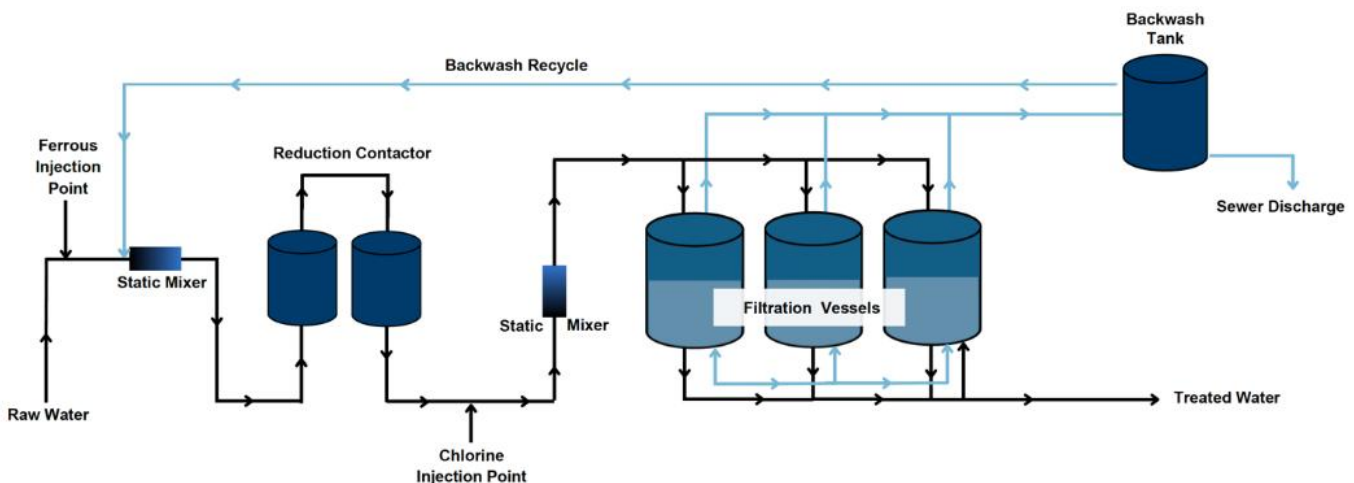
E. Understanding of Project

E. PROJECT UNDERSTANDING

Project Background

Coachella Water Authority (CWA) provides drinking water to the City of Coachella (City) through 9,200 service connections. All six of the existing groundwater source wells have hexavalent chromium (Cr(VI)) observed above the California State Water Resources Control Board Department of Drinking Water (DDW) newly adopted Cr(VI) maximum contaminant level of 10-µg/L and require treatment. It is anticipated that a seventh well, newly developed Well 20, will also need Cr(VI) treatment. This leaves the City with no potable water sources that will meet the new drinking water regulation without treatment. Reduction coagulation filtration (RCF) has been identified through extensive Cr(VI) removal technology evaluation and Compliance Plan as the preferred treatment technology for Cr(VI) treatment at each of the approximately 2,000-gpm well sites. The treatment facilities required at each of the 7 well sites generally include the following:

- New Well Pump – Implemented to maximize hydraulic well and treatment capacities
- Reduction Coagulation Filtration (RCF) System (2,000- to 2,200-gpm)
 - Chemical Storage (incl. chem. shed; <120-ft²) and Injection System Mods (Ferrous Chloride)
 - Reduction Contactor(s)
 - Chemical Storage and Injection System Modifications (12.5% SHC)
 - Filtration Vessel(s)
- Residuals Management System
 - Solids Management System
 - 2% Solids Metering to Sewer (Wells 11, 18)
 - Backwash Equalization Tank and 2% Solids Metering to Sewer (Wells 12, 16, 17, 20)
 - Backwash Reclaim System (Well 19)
 - Backwash Reclaim Tank
 - Backwash Reclaim Pump (80- to 160-gpm)
- Electrical, Instrumentation, and Controls associated with new facilities
- Yard Piping associated with new facilities



In order to best meet the rapid compliance schedule for Cr(VI) provided the substantial funding requirements to design and construct the Project, CWA is requesting expedited design services in order to facilitate construction funding efforts per the Revised Hexavalent Chromium Compliance Plan (September 25, 2025). Due to the City's foresight and desire to minimize the financial impact of the new drinking water requirements on their residents (severely disadvantaged community), CWA is actively seeking external funding for the Project from federal and state sources.

Project Success

Immediate project success is define as:

- ✓ Delivery of the 90% Design Deliverables to CWA for submission by CWA to SWRCB by January 31, 2026 to support the ongoing funding efforts.

The overall project success is defined as:

- ✓ Successful design, construction, and implementation of the most cost-effective and reliable Cr(VI) removal process, RCF, at each of the project sites
- ✓ Provide a safe continuous supply of potable water to the City of Coachella residents complying with the new Cr(VI) MCL of 10-µg/L by the anticipated compliance deadline of August 2031 (per Revised Compliance Plan and SB 466, accepted October 3, 2025)

Project Objectives

The overall objective of the Project is to treat raw water to below the finished water quality goals. The finished water quality goals based on full flow treatment is hexavalent chromium and total chromium below or equal to 8-µg/L and total iron (introduced with RCF treatment using ferrous iron) below or equal to 0.1-mg/L. Based on pilot testing performed by our Team during preliminary design, the treatment system will be designed based on the following design criteria:

Design Parameter	Value or Range
Ferrous Dose (as Iron)	0.5-mg/L
Reduction Time	2-minutes
Filter Hydraulic Loading Rate (HLR)	7-7.5-gpm/ft ²
Backwash Loading Rate	20-gpm/ft ²
Backwash Duration	5-min/vessel
Backwash Frequency	24-hrs

The following proposed treatment system for each well site will be further developed and confirmed during final design.

WELL SITE	PROPOSED PROJECT IMPROVEMENTS
Well 11	- Well Pump and Motor: sized to maintain design flow with new treatment system - Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels - Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels - Backwash Water/Sludge Process Equipment: Approx. 740-LF of 6” PVC sewer pipeline and 4-ft x 4-ft catch basin with air gap - Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building - Additional Chemical Feed/Storage Improvements: Replacement 500-gal sodium hypochlorite tank and additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer - General Site Improvements: Demolish existing fencing and provide new 8-ft tall concrete masonry unit (CMU) block wall
Well 12	- Well Pump and Motor: sized to maintain design flow with new treatment system - Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels - Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels - Backwash Water/Sludge Process Equipment: 28,200-gallon backwash tank, and approx. 340-LF of 4” PVC sewer pipeline - Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building - Additional Chemical Feed/Storage Improvements: Additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer
Well 16	- Well Pump and Motor: sized to maintain design flow with new treatment system - Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels - Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels - Backwash Water/Sludge Process Equipment: 56,900-gallon backwash tank, and approx. 355-LF of 4” PVC sewer pipeline - Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building - Additional Chemical Feed/Storage Improvements: Replacement 500-gal sodium hypochlorite tank and additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer - General Site Improvements: Demolish existing fencing and provide new 8-ft tall CMU block wall

Well 17

- Well Pump and Motor: sized to maintain design flow with new treatment system
- Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels
- Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels
- Backwash Water/Sludge Process Equipment: 47,700-gallon backwash tank, and approx. 65-LF of 4" PVC sewer pipeline
- Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building
- Additional Chemical Feed/Storage Improvements: Additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer
- General Site Improvements: Demolish existing fencing and provide new 8-ft tall CMU block wall

Well 18

- Well Pump and Motor: sized to maintain design flow with new treatment system
- Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels
- Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels
- Backwash Water/Sludge Process Equipment: Approx. 1,100-LF of 6" PVC sewer pipeline and 4-ft x 4-ft catch basin with air gap
- Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building
- Additional Chemical Feed/Storage Improvements: Replacement 500-gal sodium hypochlorite tank and additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer

Well 19

- Well Pump and Motor: sized to maintain design flow with new treatment system
- Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels
- Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels
- Backwash Water/Sludge Process Equipment: 69,000-gallon backwash tank, and 20-hp backwash recycle pump and piping
- Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within new chemical feed building
- Additional Chemical Feed/Storage Improvements: Additional sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer

Well 20

- Well Pump and Motor: coordinating size to maintain design flow with new treatment system
- Vertical Reduction Vessels: 8 – 4-ft diam. x 7-ft side shell vessels
- Filtration Vessels: 24 – 4-ft diam. x 5-ft side shell vessels
- Backwash Water/Sludge Process Equipment: 34,100-gallon backwash tank, and approx. 135-LF of 4” PVC sewer pipeline
- Ferrous Chloride Chemical Feed and Storage: Chemical storage pallet for storing chemical drums and chemical feed pump located within a new chemical feed building
- Additional Chemical Feed/Storage Improvements: 500-gal sodium hypochlorite storage tank, sodium hypochlorite feed pump, chemical conduit and injection points, and static mixer
- General Site Improvements: Provide new 8-ft tall CMU block wall

The Project will include preliminary design services, including utility research and potholing, project survey and geotechnical investigation, as well as a Basis of Design Report and 30% Design Plans. Final design will be split into four design deliverables, including: 60%, 90%, 100%, and Final Design Submittal.

In addition to the design services noted above, WWE will also provide assistance for environmental permitting coordination, bidding phase assistance, public outreach and communication (optional), engineering services during construction, and permitting support services.

Project Methodology

Project Funding Acquisition is Paramount - 90% Design by Dec. 18, 2026

Water Works Engineers project methodology is crafted around the primary project objectives to provide Cr(VI) compliant water to the City quickly and cost-effectively. The compliance deadline is quickly approaching, and significant funding is required to complete the design and construction of the Project improvements.

In order to meet the 90% Design deadline by the end of the year, WWE has taken considerable effort to develop the design delivery approach and team that is committed to meeting a **90% Design Submittal delivery date to CWA of December 18, 2026**.

Water Works Engineers is poised to assist CWA in securing project funding through the SWRCB, DFA – DWSRF Program. Water Works Engineers is currently involved with DWSRF design and construction funding assistance with the California Water Service on 4 PFAS removal projects, with the Washington Water Service on 6 PFAS removal projects, and for New Mexico Water Service on 2 PFAS removal projects. We are well practiced and knowledgeable in assisting our clients through the process and will leverage this experience on the CWA Cr(VI) Project.

WWE will assist CWA in developing the required engineering support documentation required to apply for **planning and engineering design costs reimbursement for the Project**. WWE will facilitate this valuable funding mechanism, joining with the City to save their customers significant money, through early communication with DFA and submission of various application packages. WWE will provide direction and support to CWA in obtaining planning and design cost reimbursement from the feds/state, including the adaptation of the BODR for the Project to serve as an “Engineer Report” (as required in the Technical Application Package).



Maintain Project Momentum

The Project Team will build upon the knowledge gained during preliminary design to develop well thought-out detailed designs for each well site. Since performing pilot testing and submitting the preliminary design report, WWE and Corona continue to gain additional knowledge and experience centered around Cr(VI) treatment state-wide and within the Coachella Valley. WWE/Corona offer continued insight and unbiased direction on and into long-term operation and insight on continued Cr(VI) removal development utilizing RCF and developing landscape for RCF Treat To Waste (TTW) and solids management approaches.

Thinking Ahead

As identified in the PDR, the Project Team will work to address additional design considerations as we head quickly into final design, including:

- Verify planned well flowrates and utilizations with CWA
- Provide input/coordination and review the Well 20 well site design, including:
 - Design, drill, and installing new well pump
 - Well capacity testing and reporting
 - Groundwater quality testing to confirm applicable treatment selection and sizing
- Assist with land procurement for Well 16
- Perform site surveys for each well site
- Prepare site-specific geotechnical reports for each well site

- Perform additional analysis on existing generator and other electrical equipment to confirm sufficient size to accommodate new treatment system loads
- Evaluating TTW needs based on additional information obtained from other projects since the PDR submittal

Hit the Ground Running!

WWE has spent significant time developing the CPM Project Schedule (See Appendix C – Proposed Schedule) during the preparation of this proposal. Through this detailed scheduling approach, intended to inform our project approach and staffing, we are taking the following delivery approach steps:

- Hit the ground running – Minimize startup and Project kickoff time
- “Right Timed” Tasks – Decouple long-lead time tasks (survey, geotechnical, and potholing tasks) from key 2026 design deliverables as appropriate – Provides additional effective 60% & 90% design time for the engineering team without sacrificing design quality.
- Provide a design and review respite after 90% delivery to provide CWA with additional time after the Winter Holidays for detailed review, operations equipment preference selection, etc. without affecting the overall project compliance deadline

Practiced Focused Team:

WWE has assembled a focused design team for the Project that is well-practiced in working together on similar projects (Groundwater Treatment, Pressure Filters, Multiple (up to 5-sites) project sites under one project at the same time) over the past 8-years. The same team proposed for this Project, including Corona Environmental Consulting, is currently working on a similar RCF Cr6 -removal project in Dixon, CA (60% and 100% Design delivery date of July 2026 and October 2026, respectively; effectively 3-4 months ahead of the CWA 7 Wells Project). Our team will leverage similar design elements from the Dixon project for the CWA Seven Wells Project, conserving engineering effort and time to the benefit of CWA and their customers.

Technical Competency – Reduction Coagulation Filtration (RCF)

Our Team (Water Works Engineers and Corona) brings industry-leading experience in the evaluation, pilot testing, and design of RCF systems. We have repeatedly demonstrated our ability to optimize RCF configurations to reduce capital footprints, manage backwash waste, and maximize treatment for other co-contaminants of concern.

- **California Water Service (Cal Water), Salinas District – Los Lomas LL-205 RCF Implementation:**



Cal Water had a well in their Las Lomas system with existing an ATEC iron and manganese treatment system that also required Cr(VI) treatment. Corona conducted novel first-of-its-kind laboratory bench-scale and on-site pilot testing was conducted to determine if the existing system could be retrofitted and optimized to simultaneously remove Cr(VI) and manganese. Corona’s successful pilot testing conducted at this site found that the reduction time, traditionally thought to take upwards of 45 minutes, could be reduced to less than 2 minutes, substantially reducing the cost and footprint of the

process and increasing its applicability to utilities across the e state of California. Additionally, subsequent oxidation of residual ferrous using free chlorine was successful, dramatically simplifying the overall process. These discoveries saved Cal Water rate payers nearly \$1M in capital costs and led to the installation of the first full scale RCF treatment unit for Cr(VI) removal at the Los Lomas LL-305 site. Corona developed the basis of design for this project, and the detailed design

and procurement was led by Cal Water Staff. Corona also led the start-up, permitting and development of the Operations and Maintenance plan for the treatment system.

- **City of Watsonville – Hexavalent Chromium Well Treatment Improvements:** Partnered to address Cr(VI) levels exceeding 10 µg/L across six municipal production wells, Corona's comprehensive pilot testing program successfully validated RCF as the optimal technology. By utilizing specialized high-rate, low-density filter media during testing, we proved the system could operate at higher loading rates. This drastically reduced the necessary equipment footprint and decreased instantaneous backwash rates by 75%, effectively eliminating the need for expensive backwash storage tanks and reducing upfront CapEx. Following the regulatory reinstatement of the MCL in 2024, our team re-confirmed RCF as the most cost-effective long-term solution. Corona continues to support the City as a technical advisor through the design phase and will be completing targeted RCF pilot-scale testing this summer to answer key design questions ahead of the 60% design submittal.
- **Soquel Creek Water District – Hexavalent Chromium Implementation Study:** Engaged to develop a unified compliance strategy for three groundwater wells impacted by the 10 µg/L Cr(VI) maximum contaminant level (MCL). The Corona team managed site-specific water quality analyses, developed 20-year net present worth estimates, and executed bench- and pilot-scale testing to validate full-scale configurations. Testing allowed us to optimize chemical dosing and operational run times, providing continuous treatment process guidance and engineering review through 100% design for a consolidated RCF treatment facility scheduled to be operational in 2027.
- **California Water Service (Cal Water), Dixon District – Stannous Chloride & RCF Transition Support:** Initially retained to study the feasibility of utilizing stannous chloride (SnCl₂) without filtration to reduce Cr(VI) at a newly constructed well site. Our advanced pilot-scale simulated distribution testing revealed that SnCl₂ caused severe tin and chromium accumulation on pipe surfaces, fouled in-home treatment devices, and generated water quality samples exceeding 50 times the regulated total chromium limit. Based on these critical failure points, we successfully transitioned the utility to an RCF approach. We continue to support Cal Water through the design phase, led by Water Works Engineers, providing test matrix development and technical oversight for upcoming vendor piloting.
- **Mission Springs Water District (MSWD) – Preliminary Design of Cr(VI) Treatment Facilities:** Building upon a previously compiled "Hexavalent Chromium Treatment Roadmap", the Corona/Water Works Engineers Team initiated preliminary design configurations for ferrous iron RCF installations across eight wells exhibiting historical Cr(VI) concentrations greater than 8.0 µg/L. This work directly leverages bench/pilot testing alongside the compilation of Class 5 capital and O&M cost estimates to ensure long-term operational resiliency and fiscal predictability for the District's water system.

Regional Expertise – Coachella Valley Qualifications

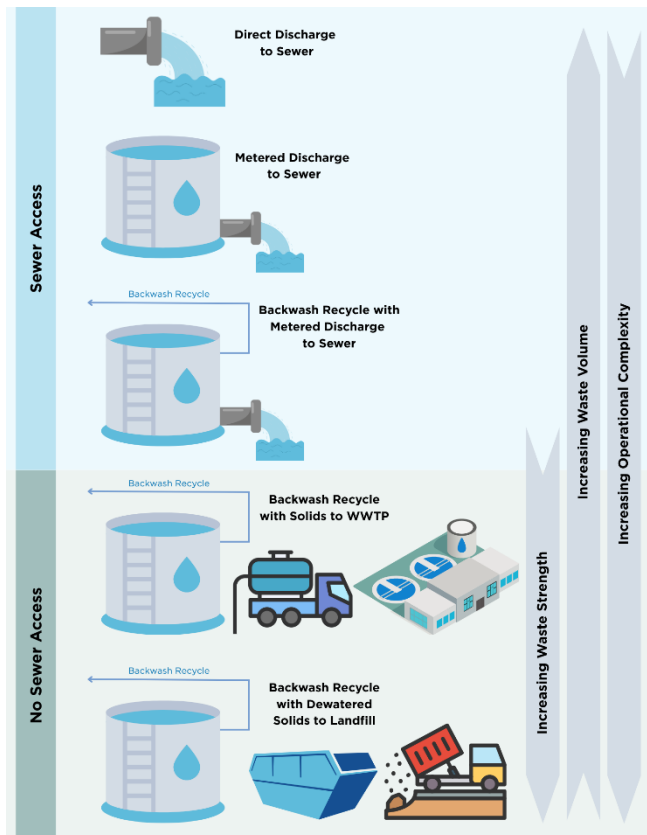
Our Team possesses significant localized experience within the Coachella Valley geographic region. We maintain knowledge of the valley's distinct groundwater quality parameters, local well infrastructure, and water utility operations through substantial work with regional entities. Corona's background and knowledge gained on the RCF process over the last decade will seamlessly complement partner groundwater treatment expertise.

Coachella Valley Water District (CVWD)

- **Regional Compliance Re-Evaluation:** Served as part of a multidisciplinary consulting team executing an in-depth long-term compliance evaluation to address the State Water Board's 10 µg/L Cr(VI) MCL. A primary focus was to protect water supply redundancy while drastically reducing the total number of physical treatment systems required across the service area.
- **Piloting:** Managed the bench- and pilot-scale testing protocol for alternative stannous chloride (SnCl_2) treatment without filtration, which included drafting the specialized permit amendment reviewed and approved by the Division of Drinking Water (DDW).
- **Proactive PFAS Discovery:** Proposed and developed a targeted water quality monitoring program during our investigations that successfully identified critical PFAS contamination in the Valley Zone system, enabling CVWD to address co-removal needs early.
- **Regional Treatment Clustering:** Authored final project recommendations establishing a consolidated regional treatment model featuring four large, clustered RCF treatment systems in La Quinta (two), Sun City, and Desert Hot Springs, supported by 14 new production wells, transmission main upgrades, and seven storage reservoirs.

Coachella Water Authority (CWA)

- **Comprehensive Program Management:** Retained as prime technical consultants to evaluate compliance technologies and provide complete regulatory and design support across all CWA groundwater sources impacted by the Cr(VI) MCL. Our project management encompasses schedule control, budgeting, resource allocation, and treatment alternatives analysis.
- **Targeted RCF Pilot Testing:** Corona recently completed operating an RCF pilot system at the Coachella Water Authority. This specialized testing was focused directly on developing a better understanding of backwash waste and residuals management—operational aspects that are critical to inform and optimize the future treatment selections for CVWD.
- **Regulatory and Funding Support:** Managed the authoring and submission of the formal compliance plan officially accepted by DDW. Additionally, our team provides active funding support to secure state resources through the California Department of Water Resources (DWR).



Indio Water Authority (IWA)

- Roadmap Development & Pilot Operations: Formulated a comprehensive Cr(VI) Treatment Roadmap comparing active production needs against state-approved Best Available Technologies (BATs). To resolve complex wastewater discharge constraints, we executed a 14-week RCF pilot study that verified ferrous iron doses, established precise hydraulic loading rates, and demonstrated successful backwash water recycling.
- SBA-IX Technical Advisory: Following an IWA policy decision to utilize a strong base anion exchange (SBA-IX) approach, we continue to provide technical advisory services. This includes developing detailed test plans to secure state regulatory approval for full-scale demonstrations of roll-up regeneration at an impacted municipal well site.

Key Project Approaches

Some of the key issues, concerns, and constraints that we have observed so far are summarized below. We have examined/developed the background documents provided in the RFP, designed, and permitted similar facilities, have visited the sites multiple times, researched the site- and equipment-specific permitting requirements, and have the following initial thoughts. Of course, we will work with CWA Staff, take advantage of their considerable institutional knowledge, and develop the design concepts during the basis of design and final design process. However, we will not be starting from scratch – we have done the work in the pursuit of this Project to consider what needs to be done, developed initial concepts about how to approach the major key project issues, and will carry the momentum that we have established in the conceptual design phase of the Project through final design.

Operations is the Ultimate Client

Water Works Engineers joins CWA Management and Engineering in our shared understanding that “Operations is the Ultimate Client”. Following the design, construction, and start-up of the facilities, CWA Operations Staff takes over the operation of the wells and needs to successfully operate and maintain the new facilities every day for years to come. Both the good, and potentially bad elements designed into the Project become apparent to Operations within the first weeks to months following start-up. WWE has met with CWA Operations Staff on facility tours and will continue to learn Operations’ priorities, preferences, and the constraints imposed upon them in the operation of water treatment facilities. WWE is committed to Operations and their satisfaction of the constructed facilities. We have scoped additional design review meetings at each major design deliverable in which key WWE Engineering Staff will sit down in person with CWA Operations Staff to gain their input prior and implement their preference and desires into the subsequent design deliverable (i.e., plans, standard details, specifications, Process Control Narrative, and Operation Plans). WWE will schedule these meetings and stress their importance to Operations early in the design process - when changes are easily made and less costly to implement.

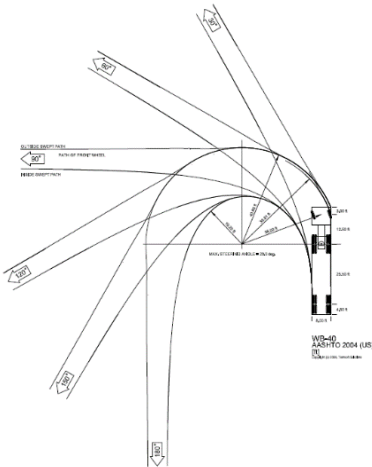


Areas of Concern and Potential Risk

The following area of concern and potential risk have been identified and accounted for by WWE in the approach to the Project as scoped in this proposal.

Schedule Maintenance

Critical to project controls is the effective and accurate updating and tracking of the project schedule throughout the life of the project. Water Works Engineers' Project Manager, Andrew Borgic, P.E., takes this to heart. He has completed the detailed base CPM Schedule (including the critical path) for the Project and has included this in the proposal (See Appendix C – Proposed Schedule). This base schedule will be expanded as additional tasks, subtasks, and dependencies present themselves during the life of the project. The schedule will be updated and presented at each meeting and provided to CWS in .mpp and .pdf formats so that the schedule updates may be utilized as a record to the performance of the project and as a “living document”, useful to WWE and CWA Management Staff. Water Works knows that when project managers control schedule, they control budget.



Site Access

In order to provide CWA Operations, Maintenance Vendors (e.g., well drillers), Chemical Supply Vendors, safe access to and on the site, WWE will perform interviews with CWA Operations and contact chemical supply, filter media, and diesel fuel vendors and perform swept path simulations to assure adequate and reasonable space is provided on site for vehicular and chemical supply/well drilling/equipment vehicles. Of particular concern to WWE is the provision of adequate space for (1) vehicles/trucks access at Wells 11 and 17 and (2) well maintenance activities at Well 11.

Cost Savings and Control Opportunities

Utilizing our recent project design, construction, and start-up experience on similar groundwater treatment facilities (utilizing RCF, As and Fe/Mn removal facilities, backwash reclaim and equalization tanks, chemical feed systems, and solids handling) we have listed a number of cost saving strategies and opportunities that can be explored by CWA during the preliminary design phase of the Project:

➤ Project Execution

- Seek planning and engineering design reimbursement through DWSRF
 - Modify the BODR to serve as the “Engineering Report” required in the DWSRF Technical Package
- Save time early in design - Combine the Basis of Design Report and 30% Design Deliverables
 - Provides focused early decision making leveraging Water Works Engineers-Corona’s recent experience (last 6-mos.) in the preliminary design of 15 RCF systems
- “Right Staffed” – Water Works Engineers has assembled a Project Team that is experienced in (1) the design of the planned Dixon Station 004 Cr(VI) Treatment Facilities and (2) with each other in a focused team (5-7 years)

➤ Design Approach

- Consistent/Common approach to each of the sites (Std Details, Common layouts, Equip.)
- Well Pump – VFD-driven pump motor versus constant-speed pump with pump control valve
- Backwash Pump (Well 19)
 - Metal Sound Enclosure, Rolling removable enclosure, or CMU-blockwall enclosure/part of Ferrous Building
- Backwash Tank Foundation Design – Ring foundation with true bottom drain
- Ferrous Storage and Handling – 55-gallon drums, totes, or permanent tank
- Chemical Feed Pumps - Complete skid-mounted systems
- Residuals Handling – Direct to sewer, Equalized to sewer, sludge hauling, or sludge dewatering and hauling
- Flexible Design Approach to Residuals Handling – Provide design capable of easily being modified to allow for future alternative residuals strategies (e.g., air gap to local drain inlet box and/or lift station)
- Site Surfacing – AC paving versus partial gravel surfacing
- Treat-to-Waste Line – Operations savings
- Removal of TTW Equalization/Waste tanks through mixing in onsite tanks



➤ Construction

- Gain the Contractor's Perspective Early - Perform 3rd-Party Contractor constructability review during 30% and 60% design preparation
- Limit the implementation of Owner-furnished equipment to that equipment needed to be procured early to meet schedule – Minimizes coordination and schedule risk during construction

Focused Final Design Delivery using Effective Tools

Final Design

Reviews of the construction contract documents and supporting calculations are done at four stages, corresponding to the four design deliverables. At each stage, the drawings and specifications are reviewed according to the check lists provided in the QA/QC Plan. The Project Engineers are responsible for reviewing the QC comments, distributing the comments to Project Team members (including subconsultants) and finally documenting a resolution to each comment.

Level 1 – 30% Design Submittal will check for completeness of the design report, preliminary process and hydraulic calculations, design loading rates against relevant regulations and industry standards.

Level 2 – 60% Design Submittal will check for more detailed items for all design disciplines including General, Civil, Architectural, Structural, Process Mechanical, HVAC and Plumbing and Electrical and I&C. This check will cover drawings presentation, scales, section call outs, drawing indexes, hydraulic elements, coordination between drawings and specifications, discipline coordination, etc.

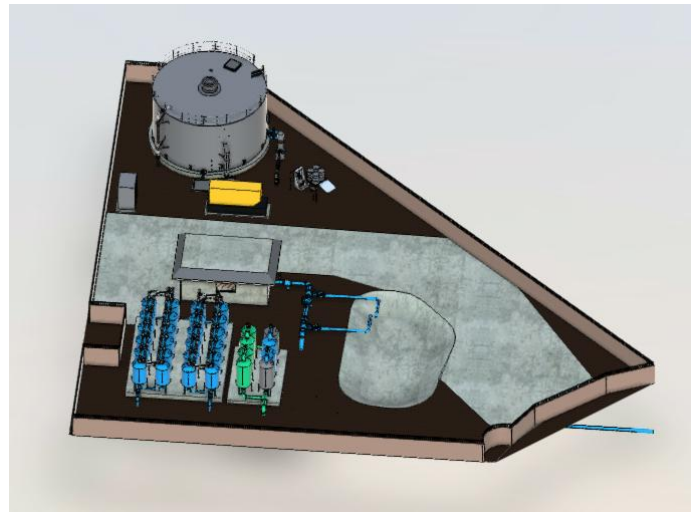
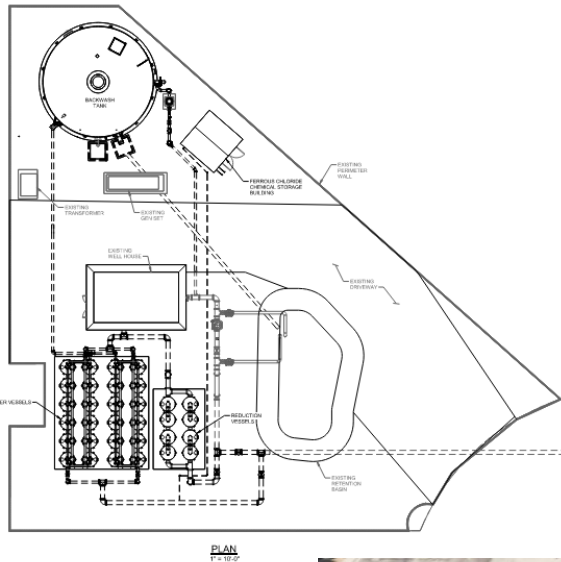
Level 3 – 90% Design Submittal will check for all design disciplines including General, Civil, Architectural, Structural, Process Mechanical, HVAC and Plumbing and Electrical and I&C.

Level 4 – 100% Design Submittal will be the final check for all design disciplines including General, Civil, Architectural, Structural, Process Mechanical, HVAC and Plumbing and Electrical and I&C.

Technical Skills and Tools

WWE offers skilled design engineers adept in the use of a mix of widely available/accessible software tools (MS Suite) and state of the art tools. The following is a list of the software that WWE will be utilizing on this Project, at a minimum:

- **MS Suite** – Including widely used apps: Teams, Word, Excel, PowerPoint, OneDrive and Project
- **AFT Fathom** – Closed conduit hydraulic modeling software with intuitive graphical interface
- **Revit** - CAD Software that enhances collaboration, accuracy, and efficiency in building design by integrating 3D modeling, data management, and multidisciplinary workflows. Compatible with AutoCAD Civil 3D
- **Twinmotion**: Real-time 3D visualization with seamless integration with Revit. Valuable in providing realistic 3-D architectural renderings, *Facilitates the quick production of high-quality graphics, views, site walk throughs, etc.*
- **HME** – Classification and hazard verification tool using IFC and IBC definitions



Project Management and Client Services

To ensure that CWA is well informed throughout the Project, WWE will hold weekly design update meetings. A critical path method (CPM) schedule has been developed and will be updated weekly. It will be presented with any schedule changes identified and a summary of critical path activities and status. WWE will prepare meeting minutes on screen for all to see and comment on live during the meetings and will distribute them at the close of each meeting. WWE will prepare and maintain a data request log, decision log, and risk register to facilitate clear communication between CWA and the project team.

F. References



California Water Service – Dixon Station 004 Well 04-02 Hexavalent Chromium Removal Project

Dixon, CA



Project Type

Water Treatment

Project Timeframe

January 2026- Present

Project Cost

In Progress

Team Members

Joe Riess, Principal Engineer
Andrew Borgic, Project Manager
Allison Prater, Senior Engineer
Rachel MacLean, Engineer
Rachel Eising, Engineer

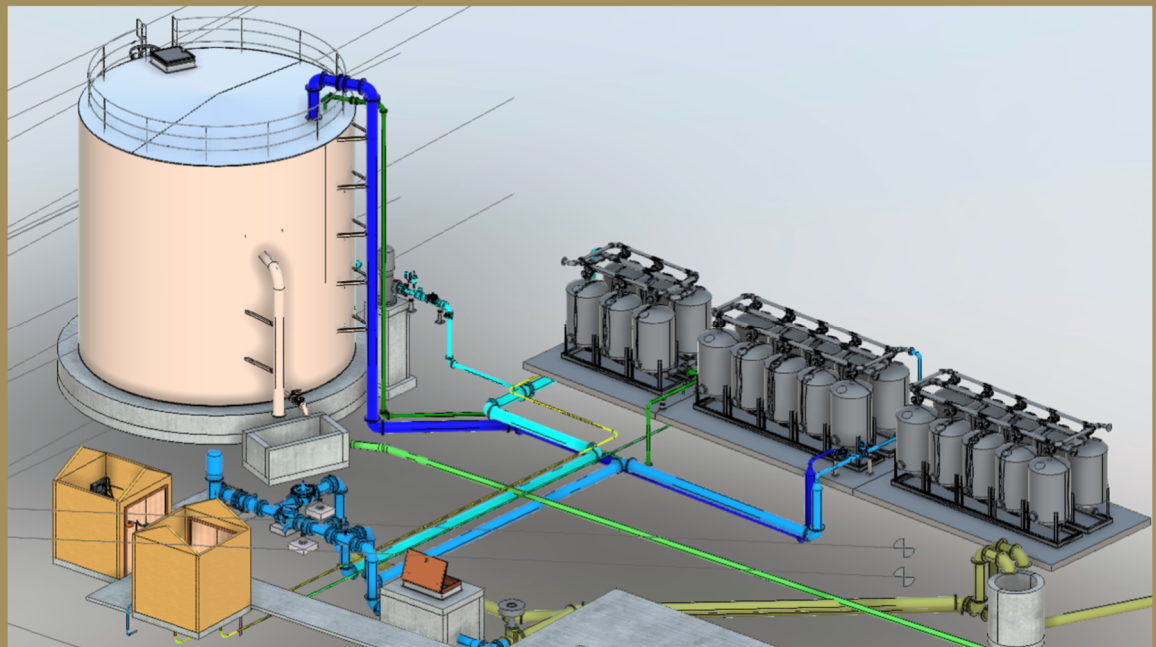
Project References

Lila Mahjoob
California Water Service
lmahjoob@calwater.com
(424) 323-0193

Water Works Engineering (WWE) was contracted by California Water Service (CWS) to provide preliminary through final design engineering services and permitting support services for the installation of reduction coagulation filtration (RCF) treatment system to treat hexavalent chromium (Cr(VI)) below the California MCL of 10-ug/L at the existing Dixon Station 004 Well 04-02 Site (Dixon 004).

Dixon 004 is an existing ~1,800-gpm potable water well head treatment facility located within the CWS Dixon District. The Dixon District services approximately 9,300 customers from multiple groundwater wells, some of which already implement Cr(VI) treatment through strong base anion exchange (SBA-IX). The implementation of Cr(VI) treatment at Dixon 004 is important to maintain system reliability.

WWE has completed preliminary design, including the basis of design report and the RCF equipment selection technical specifications to support pre-procurement of the treatment system. WWE is completing the 60% design submittal in mid-July 2026 and assisting with ATEC pilot testing efforts, which are to begin in late July 2026. The RCF treatment system design includes vertical reduction and filter vessels, chemical feed and storage facilities, residual handling facilities, including backwash equalization and recycle, and associated yard piping, site civil, electrical and instrumentation improvements.





California Water Service

Dominguez Well 300 – Well Improvements Project

990 W. Walnut Street, Compton, CA

Project Type

Water Treatment, Groundwater

Project Timeframe

April 2021- Present

Project Cost

\$5.3M

Team Members

Andrew Borgic, P.E., Project Manager

Joe Riess, P.E., Engineer of Record

Allison Prater, P.E., Project Engineer

Brian Young, P.E., Sr. Elec. Engineer

Project References

Clyde Arucan, P.E.

Manager, Capital Delivery

carucan@calwater.com

Office: (310) 257-1446 x71477

The Dominguez 300 (DOM 300) Treatment Plant Project was implemented by California Water Service (CWS) to bring the new well, DOM 300, online to supplement the Dominguez District water system. DOM 300 was constructed with a design pumping rate of 2,000-gpm. The DOM 300 wellsite is a 23,000-square foot site located in a heavy manufacturing zone in the City of Compton.

Corona Environmental Consulting (Corona), in association with Water Works Engineers (WWE) evaluated the water quality of the well and identified treatment needs to meet CWS water quality goals. Contaminants observed above water quality goals included ammonia, manganese, and dissolved oxygen levels dissimilar to Metropolitan Water District (MWD) water.

Water Works Engineers provided the design of the following for the DOM 300 wellsite:

- Well pump with VFD
- Chemical storage and injection systems for aqueous ammonia and sodium hypochlorite for formation of chloramines prior to filtration
- Three-cell horizontal pyrolusite pressure filter with automated valves
- Backwash reclaim tank with tank level sensors and transmitters
- Backwash reclaim pump with VFD
- 1,000-gallon surge tank
- Automated pump-to-waste valve and piping
- Mid-process waste piping with manual valves
- PAX Water Quality Station and Smart Controller (with chlorine analyzer and ORP probe)
- Electrical service and transformer by Southern California Edison
- Electrical panel board
- CMU building and site improvements
- Provisions for future breakpoint chlorination tank.

Water Works Engineers prepared a preliminary design report, 60%, 90%, 100% and final design drawings, specifications and bid documents. WWE provided engineering support during bidding, permitting support services, engineering services during construction, and start-up and commissioning support services.



Project Type

Water Treatment

Project Timeframe

2017-2018

Project Construction

Cost

\$1.0 M

Team Members

Sami Kader, Principal & QA/QC
Andrew Borgic, Project Manager
Joe Reiss, Lead Project Engineer
Jeremy Kellogg, Structural
Brian Young, Electrical

Project References

Benjamin Jimenez, P.E.
Golden State Water Company
Gardena, CA
(310) 436-6950 x 105

Southern Well No. 6 Southern Well No. 6 (located at 13503 S. Vermont Avenue, Gardena, CA) is a vital component in the Golden State Water Company (GSWC)'s Southwest Distribution System. The well capacity is approximately 1,000 gpm. Manganese levels in the well range from 34 µg/L to 49µg/L, according to lab sampling results during the period of 2010 through 2015. Although the manganese levels are below the Secondary Maximum Containment Level (SMCL) of 50 µg/L there is a potential that manganese will precipitate out in the water distribution system causing colored water and increase sedimentation in the mains.

To address the future potential for manganese precipitation issues in the water distribution system, GSWC hired Pacific Hydrotech/Water Works Engineers (WaterWorks) to design and construct the manganese treatment system at Well No.6. WaterWorks provided geotechnical analysis; surveying, civil, mechanical, and structural design services, and electrical design for:

- ✓ GSWC furnished 1,000-gpm Pressure Filter System and the Air Compressor
- ✓ 40,000-gal Backwash Storage Tank
- ✓ 100-gpm Backwash Decant Pump
- ✓ supporting yard piping
- ✓ Related Electrical and instrumentation improvements

The project required to provide a fully functioning facility with cost-effective solutions and cost-containment methodologies, ultimately leading to a minimized life-cycle cost of all facilities for the desired level of service within relatively short period of time.

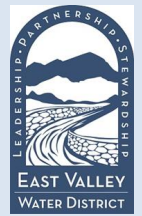
WaterWorks worked together with the Pacific Hydrotech in an integrated design process to accommodate the changes in the field, relative to the existing As-builts, and the GSWC's desire to locate the pressure filter and the backwash storage tank. WWE coordinated survey and geotechnical engineering services and self-performed the structural designs required for the pressure filter concrete support slabs.





Design/Build of Plant 134 Granular Activated Carbon Improvements

Highland, CA



Project Type

Design-Build, Water Treatment

Project Timeframe

Design: Jan. 2021 – Jan. 2022

Construction: Dec 2022 – Sept. 2023

Project Cost

Design and Construction: \$3.5M

Team Members

Andrew Borgic, Project Manager

Sami Kader, Principal in Charge

Joe Riess, Design Manager

Jeremy Kellogg, Structure Engineer

Jason Boyles, Electrical Engineer

Project References

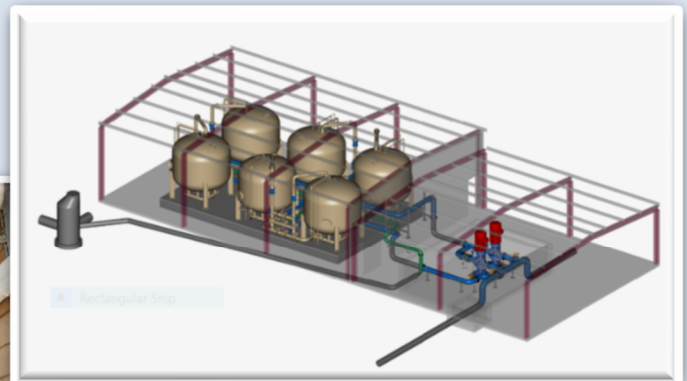
Jason Wolf, P.E., Sr. Engineer

East Valley Water District

(951) 943-8803

The East Valley Water District is a California Water District provides water and wastewater services to 103,000 residents within the City of Highland and portions of both the City and County of San Bernardino. The District's Plant 134 Water Filtration Facility treats local surface water from the Santa Ana River and raw water purchased from the State Water Project. Water Works Engineers provided the basis of design for the design and construction of a new GAC system, feed pumps, piping, related appurtenances, and access road at East Valley Water District's Plant 134 Water Filtration Facility. Water Works created a project plan and established design criteria and requirements for subsequent final design activities in Phase 1 and Phase 2 of this progressive design-build project.

The main purpose of this project was to reduce disinfection byproduct (DBP) precursors in the form of total organic carbon (TOC) from the treated water post-membrane treatment and prior to disinfection. A new side-stream granular activated carbon (GAC) system will be designed and constructed at the existing WTP, in addition to access improvements to facilitate the large carbon delivery vehicles. Based on the results of a pilot study performed by Calgon for EVWD, a GAC system capable of treating 4 mgd (50% of the plant capacity of 8 mgd) and operated at a variable flow rate is recommended and is the basis of design.





Town of Gilbert – North Water Treatment Plant

Gilbert, AZ

Project Type

Water Treatment

Project Timeframe

2020/2022 – In Progress

Project Cost

\$420M

Team Members

John Matta, Principal in Charge

Ben Lee, Project Manager

Brian Young, Electrical Engineer

Martin Puhlman, Structural Engineer

Herb Durbin, Project Engineer

Project References

Sarah Rogowski

Town of Gilbert

(480) 521-4172

The North Water Treatment Plant is a surface water treatment plant located in the Town of Gilbert, Arizona. The raw water quality and quantity is heavily subject to environmental impacts, SRP water resource management decisions, seasonal patterns, and common raw water conditions. As the source water varies seasonally, the facility needed greater treatment resilience to be able to reliably treat a wide spectrum of conditions – including high TOC, high turbidity, differing pH levels, and high bromide.

WaterWorks, as Prime Engineer, led a team of professionals to conduct a source water evaluation, evaluate and select treatment technologies, and develop detailed construction documents to expand and reconstruct the existing facility from 45 mgd to 60 mgd. The team evaluated system conditions and developed a priority list based on various evaluation criteria including reliability, expandability, operability, and maintainability. Cutting edge technologies are being employed at this facility, including ozonation, ballasted sedimentation, biologically active filtration, and post-filter granular activated carbon (GAC) adsorption.

- **Highlights:** Leading the largest water infrastructure project in the state of Arizona and completely reconstructing and expanding an existing operating facility from 45 mgd to 60 mgd.
- **Challenges:** Due to the extended construction duration (over 7 years), continued inflation, equipment delays, and labor shortages, cost control has been a key consideration. All this has been accomplished while maintain existing plant production.



G. List of Representative Projects

Proposal for Professional Engineering
Design Services for Hexavalent Chromium
Treatment Plants at Seven Well Sites

G. LIST OF REPRESENTATIVE PROJECTS

Water Works Engineers - Water Treatment Experience	Treatment and/or Non-treatment Evaluation	System Design	Construction Services or Project Management	Owner's Agent	Hexavalent Chromium, Cr(VI)	Arsenic	Per-Polyfluoroalkyl Substances, PFAS	Nitrate	Fluoride	Iron	Manganese	Uranium	Boron	TDS	Methane	Hydrogen Sulfide	Total Organic Carbon	Disinfection Byproducts	Copper
Clients	Number of Sites				Constituent														
Albuquerque Bernalillo County Water Utility Authority	2					X													
Algonquin Water System, AZ		1	1			X													
Arizona American Sun City West and Paradise Valley, AZ		10	10			X													
Arizona Water Company, Buckeye and San Manuel, AZ	2					X													
Buckeye Parkway Center, CA	2	2	2			X													
California Water Service Company, Bakersfield, CA	3			20		X													
California Water Service Company, Chico, CA				14		X													
California Water Service Company, Dixon, CA		1			X														
California Water Service Company, Dominguez Hills, CA	12	8	4							X	X				X	X	X	X	
California Water Services Company, East Los Angeles, CA	1			1		X				X	X				X	X	X		
California Water Service Company, Hawthorne, CA	1	1								X	X				X	X	X		
California Water Service Company, Livermore, CA				3		X													
California Water Service Company, Stockton				5		X													
Carson Colony Nitrate Removal Washoe Tribe, CA/NV	2	2	2					X											
City of Aurora, OR	1	1	1			X				X	X								
City of Avondale, AZ		1	1					X											
City of Ceres, CA		1				X				X	X								
City of Chandler, AZ	13	9	8			X													
City of Goodyear, AZ		3	3			X		X						X					
City of Lathrop, CA	6					X													
City of Live Oak, CA		4				X													
City of Mesa, AZ	18	2	2			X		X											
City of Modesto	3					X		X											
City of Peoria, AZ	7					X		X	X										
City of Phoenix, SR85 Landfill, AZ	1	1	1																X
City of Prescott, AZ	6	6				X													
City of Redding, CA	13					X				X	X					X			
City of Scottsdale, AZ	7					X													
City of Torrance, CA		3	3								X					X		X	
Coachella Water Authority, CA	7				X														
Deer Valley Unified School District	1	1	1			X													

Proposal for Professional Engineering
Design Services for Hexavalent Chromium
Treatment Plants at Seven Well Sites

Water Works Engineers - Water Treatment Experience	Treatment and/or Non-treatment Evaluation	System Design	Construction Services or Project Management	Owner's Agent	Hexavalent Chromium, Cr(VI)	Arsenic	Per-Polyfluoroalkyl Substances, PFAS	Nitrate	Fluoride	Iron	Manganese	Uranium	Boron	TDS	Methane	Hydrogen Sulfide	Total Organic Carbon	Disinfection Byproducts	Copper	
Clients	Number of Sites				Constituent															
East Valley Water District, CA		1																X	X	
Elsinore Valley MWD, CA	1	1	1															X		
Fallon Paiute-Shoshone Tribe, NV	2	2	2			X														
Ft. Devons RFTA Shepley's Hill, MA																				
Global Water Company, AZ	2	2	2							X	X									
Golden State Water Company, Gardena, CA		5	5								X									
Indian Health Service, Battle Mountain, NV		2				X														
Indian Health Service, Supai Village, AZ		5				X														
Indian Health Service, Suttcliffe, NV	2	2				X					X									
Indian Health Service, Yerington, NV		2				X						X								
Indio Water Authority, CA	4				X															
Lake County Sanitation District, CA	1												X							
Mammoth Community Services District, CA	3	3	3			X				X	X									
Mission Springs Water District, CA	7				X															
New Mexico Water Service, NM	2		2				X													
North Lakeport, Robin Hill WTP, CA	1	1	1							X	X									
Rainbow Acres Residential Ranch, AZ	2					X														
Scottsdale Community College, AZ	1					X														
Sierra Army Depot, Herlong, CA	3	3	3							X	X	X								
Sundance, Buckeye, AZ	7					X														
Suburban Water Systems, CA	1						X													
Thunderbird Farms WID EDR WTP, Maricopa, AZ	2	2	2			X		X	X											
Town of Cave Creek, AZ	3	3	3			X														
Town of Florence, AZ	3					X		X												
Town of Gilbert, AZ	1	1	1			X														
Truckee Meadows Water Authority, NV	3					X														
US Forest Service, San Diego County, CA	1	1	1			X				X	X									
Walker River Paiute Tribe, NV		2	2			X														
Washington Water Service, WA				11			X													
Zone 7 Water Agency, CA	3												X							

Proposal for Professional Engineering
Design Services for Hexavalent Chromium
Treatment Plants at Seven Well Sites

Water Works Engineers - Water Treatment Experience	Treatment and/or Non-treatment Evaluation	System Design	Construction Services or Project Management	Owner's Agent	Groundwater Treatment	Small Footprint	Mutiple Projects at Once	DWSRF	Filters	Backwash Tank	Pilot to Full-scale Implementation	Optimization	Hexavalent Chromium, Cr(VI)	Arsenic	Per-Polyfluoroalkyl Substances, PFAS	Nitrate	Fluoride	Iron	Manganese	Uranium	Boron	TDS	Methane	Hydrogen Sulfide	Total Organic Carbon	Disinfection Byproducts	Copper
	Number of Sites				CWA Cr(VI) Relevant Projects								Constituent														
California Water Service Company, Bakersfield, CA	3			20	X	X	X	X							X												
California Water Service Company, Chico, CA				14	X		X	X							X												
California Water Service Company, Dixon, CA		1			X				X	X			X														
California Water Service Company, Dominguez Hills, CA	12	8	4		X	X	X		X	X	X							X	X				X	X	X	X	
California Water Services Company, East Los Angeles, CA	1			1	X										X		X	X				X	X	X			
California Water Service Company, Livermore, CA				3	X		X								X												
California Water Service Company, Stockton				5	X		X								X												
City of Torrance, CA		3	3		X													X					X		X		
Coachella Water Authority, CA	7				X		X		X	X			X														
East Valley Water District, CA		1				X																		X	X		
Golden State Water Company, Gardena, CA		5	5		X		X		X	X								X									
Indian Health Service, Battle Mountain, NV		2			X									X													
Indian Health Service, Supai Village, AZ		5			X									X													
Indian Health Service, Suttcliffe, NV	2	2			X									X				X									
Indian Health Service, Yerington, NV		2			X									X						X							
Indio Water Authority, CA	4				X	X	X		X	X			X														
Mission Springs Water District, CA	7				X		X		X	X			X														
New Mexico Water Service, NM	2		2		X	X	X								X												
Suburban Water Systems, CA	1				X	X						X			X												
US Forest Service, San Diego County, CA	1	1	1		X									X				X	X								
Walker River Paiute Tribe, NV		2	2		X									X													
Washington Water Service, WA				11	X		X	X							X												

H. Disclosure of Claims/Lawsuits

H. DISCLOSURE OF CLAIMS/LAWSUITS

Water Works Engineers was involved in two (2) lawsuits with Elsinore Valley Municipal Water District. Both contracts were terminated. Both lawsuits involve differences in understanding regarding design criteria versus actual operating conditions and parameters. We have settled both contracts “no-fault” through arbitration.

- Elsinore Valley Municipal Water District. V. Water Works Engineers, LLC (October 11, 2024)
Riverside Superior Court Case No. CVR12302878
Sky Meadows Booster Pump Station Project, valued at \$414,534 and approximately 92% complete at the time of termination. The project involved modifications to increase booster pump station capacity from 150 gpm to 650 gpm to provide additional fire flow to a mountain community west of Lake Elsinore, California.
- Elsinore Valley Municipal Water District v. Water Works Engineers, LLC (April 11, 2024)
Riverside Superior Court Case No. CVR12105201
Railroad Canyon Project, valued at \$168,149 and 100% complete at the time of termination. The project involved minor modifications to the Railroad Canyon Water Reclamation Facility's headworks, reclaimed water ponds, and nitrification/denitrification conversion of the aeration basins.

Currently there are no additional claims against Water Works Engineers, LLC.

I. Cost Proposal

Client	Coachella Water Authority
Project	Hexavalent Chromium Treatment Plants at Seven Well Sites
Task Order No	1
Prepared by	A. Borgic
Date	7/13/2026



		Year		Hours and Fee																												
				Task 1 2026		Task 2 2026		Task 3 2026		Task 4 2026		Task 5 2026		Task 6 2026		Task 7 2026		Task 8 2026		Task 9 2027		Task 10 2027		Task 11 2028		Task 12 2026.5		Task 13 2028.5		Task 14 2027		
		Project Admin., Mgmt., & QA/QC		Environmental Coordination		Utility Research and Potholing		Project Survey		Geotechnical Investigation		BODR / 30% Design Submittal		60% Design Submittal		90% Design Submittal		100% Design Submittal		Final Design Submittal		Bid Phase Assistance		Public Outreach and Communication (Optional)		Engineering Services During Construction		Permitting Support Services				
Water Works Engineers	2026	Hourly Rate	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee	hrs	fee		
	AA2	Senior Administrative	\$124.00																													
	E1	Staff Engineer	\$156.00	16	\$1,984																											
	E1A	Staff Engineer II	\$175.00	16	\$2,496	80	\$12,480	80	\$12,480				320	\$49,920	400	\$62,400	840	\$131,040	360	\$57,845	360	\$57,845			40	\$6,333	315	\$52,909	240	\$38,563		
	E2	Associate Engineer	\$191.00																													
	E2A	Associate Engineer II	\$203.00																										240	\$47,215		
	E3	Project Engineer	\$215.00	16	\$3,248	80	\$16,240	24	\$4,872	16	\$3,248	8	\$1,624	320	\$64,960	320	\$64,960	600	\$121,800	360	\$75,272	360	\$75,272	12	\$2,584	40	\$8,241	315	\$68,849	160	\$33,454	
	E3	Project Engineer	\$215.00						24	\$5,160	16	\$3,440	12	\$2,580	160	\$34,400	320	\$68,800	480	\$103,200	240	\$53,148	240	\$53,148	16	\$3,649	40	\$8,728	461	\$106,717	160	\$35,432
	E3A	Project Engineer II	\$230.00												16	\$3,440	96	\$20,640	240	\$51,600	72	\$15,944	72	\$15,944								
	E3A	Project Engineer II	\$230.00																										70	\$17,335		
	E4	Senior Project Engineer	\$249.00	24	\$5,520										272	\$62,560	320	\$73,600	480	\$110,400	480	\$113,712	480	\$113,712				450	\$111,438	80	\$18,952	
	E4	Senior Project Engineer	\$249.00	450	\$112,050													96	\$23,904	144	\$35,856	48	\$12,311	48	\$12,311							
	E4A	Senior Project Engineer II	\$268.00															32	\$7,968	72	\$17,928	24	\$6,155	24	\$6,155							
	E4A	Senior Project Engineer II	\$268.00	550	\$147,400	40	\$10,720	12	\$3,216	12	\$3,216				320	\$85,760	192	\$51,456	240	\$64,320	240	\$66,250	240	\$66,250	16	\$4,549	80	\$21,759	73	\$21,064	100	\$27,604
E5	Principal Engineer	\$289.00												48	\$12,864	96	\$25,728	144	\$38,592	144	\$39,750	144	\$39,750									
E5A	Principal Engineer II	\$311.00																														
T1	CADD Tech 1 (Drafter/Jr. Technician)	\$95.00	240	\$74,640			8	\$2,488						96	\$29,856	96	\$29,856	144	\$44,784	72	\$23,064	24	\$7,688			8	\$2,525	40	\$13,394	40	\$12,813	
T1A	CADD Tech 1A (Drafter/Jr. Technician II)	\$106.00															480	\$45,600	720	\$68,400	600	\$58,710	600	\$58,710								
T2	CADD Tech 2 (Designer/Sr. Technician)	\$142.00						24	\$2,544																							
T2A	CADD Tech 2A (Designer/Sr. Technician II)	\$154.00															640	\$90,880	960	\$136,320	360	\$52,654	360	\$52,654								
T3	CADD Tech 3 (Senior Designer)	\$173.00						24	\$3,696	16	\$2,464															16	\$2,501					
T3A	CADD Tech 3A (Supervising Designer)	\$186.00						8	\$1,488	8	\$1,488						160	\$29,760	240	\$44,640	96	\$18,392	96	\$18,392								
Expenses																																
Water Works Expenses																																
Subconsultants				\$2,890			\$220		\$220			\$2,890		\$2,890		\$2,890		\$2,890		\$2,890			\$955		\$1,350				\$15,010			
Corona Environmental Consulting (Water Quality)																																
Boudreau Pipeline (Potholing)			43	\$13,040								54	\$17,625	54	\$17,625											\$660		164	\$45,460			
Calvada (Surveying)							160	\$63,990																								
Bajada (Geotechnical)									200	\$84,630																						
									500	\$125,500																						
Subconsultant/Expense Markup		10%																														
Annual Increase for WWE rates of		3%		\$1,593		\$0	\$6,421		\$8,485		\$12,550		\$2,052	\$2,052		\$289		\$289		\$0		\$96		\$201		\$0			\$6,047			
Subtask Total Hours			1,355		200		364		268		520		1,606		3,302		5,304		3,096		3,048		44		224		1,724		1,208			
Subtask Total Fee				\$364,861		\$39,440		\$106,575		\$107,191		\$142,254		\$366,327		\$618,119		\$972,059		\$596,385		\$577,830		\$11,833		\$52,298		\$391,706		\$287,176		
			Project Total																													
			Hours		Fee																											
Base Project			22,039		\$4,581,756		(Does not include Optional Subtask 12 - Public Outreach)																									
Base Project + Permitting Support			22,263		\$4,634,053		(Includes Optional Subtask 12 - Public Outreach)																									



J. No Deviations from the RFP

J. No DEVIATIONS FROM THE RFP

Water Works Engineers, LLC has carefully reviewed the Request for Proposals and confirms that our proposal is fully responsive to the requirements of the RFP. We take no exceptions, qualifications or deviations to the RFP requirements and agree to comply with all terms and conditions within the RFP.

Additionally, Water Works has carefully reviewed the Agreement for Professional Services provided in Attachment 3 of the RFP, particularly the insurance and indemnification provisions. We respectfully request discussion of the Professional Services Agreement Sample.

Appendix A - Resumes

ANDREW BORGIC, P.E.

Project Manager



Education

M.S. – Civil/Environmental Eng.
University of CA, Davis (2007)
B.S. - Civil Engineering,
CA State University, Chico (2004)
B.S. – Mechanical Engineering,
CA State University, Chico (2004)

Years of

Experience
19 years with
the firm / 22
years total

Registration

Registered Civil
Engineer
California - C73792

Certified QSP

Memberships

CWEA
AWWA

REPRESENTATIVE PROJECT EXPERIENCE

Cal Water – Dixon Station 004 CR-VI Removal Project – Dixon, CA (Design)

Mr. Borgic served as the Engineering Project Manager for the design of a reduction coagulation filtration (RCF) system to remove hexavalent chromium from groundwater at an existing drinking water well site. The project includes design of a 1,800-gpm rated well pump, pump-to-waste piping and valves, chemical treatment and storage, and the RCF treatment system including a backwash tank and reclaim system. Ms. Prater's responsibilities on the project include hydraulic analysis, treatment design, and preparation of the final technical drawings and specifications.

City of Pomona – Chino Basin VOC Plant Project – Pomona, CA (Design-Build)

Mr. Borgic oversaw the mechanical piping, structural improvements, and site civil design for the installation of three (3) dual 12-ft diameter GAC, skid mounted adsorption systems at three separate well sites for the removal of TCE, PCE and 1,1-DCE. Each adsorption system is run in lead-lag operation with a design flowrate of 1,100-gpm.

East Valley Water District – Plant 134 GAC Improvements Project – Highland, CA (Progressive D-B)

Mr. Borgic served as the Engineering Project Manager for design and construction of a new GAC system, feed pumps, piping, related appurtenances, and access road at EVWD's Plant 134 Water Filtration Facility (8-mgd). The purpose of the project was to remove disinfection by-product precursors (TOC) from two surface water sources to ultimately meet the District's TTHM concentration in the distribution system. The progressive design-build project included the design, permitting, construction, and start-up of six 12-ft diameter GAC vessels, two in-line centrifugal pumps on VFDs, and modifications to the existing building, piping, and controls system.

Golden State Water Company – Belhaven Plant Improvements Project – Los Angeles, CA (D-B)

Mr. Borgic served as the Engineering Project Manager for the design and construction of improvements at GSWC's Belhaven Plant (2,150-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including Fe/Mn, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of two 10-vessel ATEC pyrolusite filter systems, 60,000-gallon backwash recovery tank, DO Feed System, LOX Supply system, SHC and NH3 feed improvements and modifications to the existing piping and controls system.

Golden State Water Company – 129th Street Plant Improvements Project – Gardena, CA (D-B)

Mr. Borgic served as the Engineering Project Manager for the design and construction of improvements at GSWC's 129th Street Plant (1,250-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including Fe/Mn, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of two 6-vessel ATEC pyrolusite filter systems, 36,000-gallon backwash recovery tank, 32,000-gallon contact tank, DO Feed System, LOX Supply system, SHC and NH3 feed improvements and modifications to the existing piping and controls system.

Golden State Water Company – Doty Plant Improvements Project – Hawthorne, CA (D-B)

Mr. Borgic served as the Engineering Project Manager for the design and construction of improvements at GSWC's Belhaven Plant (1,800-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of a 42,000-gallon contact tank, DO Feed System, LOX Supply system, SHC feed improvements and modifications to the existing piping and controls system.

Golden State Water Company – Southern Wells Improvements Project – Gardena, CA (D-B)

Mr. Borgic served as the Engineering Project Manager for the design and construction of improvements at GSWC's Southern Wells Treatment Facility (1,900-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of a 26,000-gallon contact tank, DO Feed System, LOX Supply system, SHC feed improvements and modifications to the existing piping and controls system.

City of Torrance North Well Field Project Phase III Design Build Project – Torrance, CA (D-B)

Mr. Borgic served as the Engineering Project Manager to the design-build contractor, Pacific Hydrotech, for the NTWFP, which includes the design of three 3,000-gpm wells (one existing), 2.5-MG prestressed concrete tank, chemical feed systems, 10,000-gallon hydropneumatic tank and a 9,000-gpm booster pump station.

City of Oceanside – Robert A. Weese Water Filtration Plant, Chemical Facilities Upgrades Design-Build Project – Vista, CA (Design-Build)

Mr. Borgic served as the Engineering Project Manager and Project Quality Manager for the replacement and upgrade of 7 chemical feed systems at the 25-mgd surface water treatment facility. The design-build project includes the design, permitting, construction, and start-up of the following chemical feed systems, aluminum sulfate, aqueous ammonia, sodium hydroxide, sodium hypochlorite, sulfuric acid, anionic polymer, and cationic polymer. Each chemical facility includes the design and construction of the chemical truck delivery system, chemical tanks, secondary containment, feed pumps, associated piping, valves, and controls.

California Water Service – PFAS Compliance – CA (Owner's Agent)

Mr. Borgic serves as the technical project lead in the Owner's Agent role for Cal Water's largest company project in history covering the implementation of PFAS treatment (utilizing GAC adsorption) across 46 sites spanning California. Mr. Borgic is the project manager for WWE providing CWS with 46 preliminary designs for the sites within a 5-week period, achieving the project Phase 1 objectives ahead of schedule and under budget.

California Water Service Company Dominguez Treatment Facilities Project – Carson and Long Beach, CA (Study/Design/CM)

Mr. Borgic provided preliminary engineering analysis and design as well as services during construction to bring Well 275-01 and 294-01 back into operation while meeting CWSC's water quality goals including color, odor, sulfide and methane removal from the groundwater and the reduction of total trihalomethanes in the finished water. Mr. Borgic performed a cost/performance analysis for a range of treatment options that would meet or exceed their project goals. The facility improvements at Well 275-01 (800-gpm) and 294-01 (1,200-gpm) utilize the following process train: basket strainers, air stripping, gas scrubbers, booster pumps, ion exchange and disinfection through chloramination.



JOE RIESS, P.E.

Senior Project Engineer/Project Manager

Education

M.S. – Civil/Env. Engineering
UC Davis (2001/Honors)
B.S. – Env. Resources Engineering,
Humboldt State Univ. (1998/Honors)

Experience

18 years with
the firm / 28
years total

Registration

Registered Civil Engineer
California - C66413

REPRESENTATIVE PROJECT EXPERIENCE

Water Treatment

East Valley Water District – Plant 134 GAC Improvements Project – Highland, CA (Progressive D-B) Mr. Riess served as the Senior Engineer for design and construction of a new GAC system, feed pumps, piping, related appurtenances, and access road at EVWD's Plant 134 Water Filtration Facility (8-mgd). The purpose of the project was to remove disinfection by-product precursors (TOC) from two surface water sources to ultimately meet the District's TTHM concentration in the distribution system. The progressive design-build project included the design, permitting, construction, and start-up of six 12-ft diameter GAC vessels, two in-line centrifugal pumps on VFDs, and modifications to the existing building, piping, and controls system.

City of Torrance North Well Field Project Phase III Design Build Project – Torrance, CA (Design-Build) Mr. Riess is a Design Manager on this design-build project in which the City is expanding its groundwater pumping, storage and treatment capacity to obtain the City's full groundwater allotment and provide sufficient reserve capacity to participate in conjunctive use and enable additional groundwater extractions during a drought or emergency. The project includes demolition of an existing well, storage tank and chemical system, and construction of two new wells, a 2.5 Mgal prestressed concrete tank (mostly buried), Utility Building with booster pumps, chemical storage and feed systems, office and lab space, electrical room, restroom, and associated site improvements.

City of Oceanside – Robert A. Weese Water Filtration Plant, Chemical Facilities Upgrades Design-Build Project – Vista, CA (Design-Build) Mr. Riess was the Senior Engineer and Design Manager on the replacement and upgrade of 7 chemical feed systems at the City's 25-mgd surface water treatment facility. The design-build project included the design, permitting, construction, and start-up of the following chemical feed systems: aluminum sulfate, aqueous ammonia, sodium hydroxide, sodium hypochlorite, sulfuric acid, anionic polymer, and cationic polymer. Each chemical facility included the design and construction of the chemical truck delivery system, chemical tanks, secondary containment, feed pumps, and the associated piping, valves, and controls.

Golden State Water Company – Belhaven Plant Improvements Project – Los Angeles, CA (D-B) Mr. Riess served as the Senior Engineer for the design and construction of improvements at GSWC's Belhaven Plant (2,150-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including Fe/Mn, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of two 10-vessel ATEC pyrolusite filter systems, 60,000-gallon backwash recovery tank, DO Feed System, LOX Supply system, SHC and NH3 feed improvements and modifications to the existing piping and controls system.

Golden State Water Company – 129th Street Plant Improvements Project – Gardena, CA (D-B) Mr. Riess served as the Senior Engineer for the design and construction of improvements at GSWC's 129th Street Plant (1,250-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including Fe/Mn, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of two 6-vessel ATEC pyrolusite filter systems, 36,000-gallon backwash recovery tank, 32,000-gallon contact tank, DO Feed System, LOX Supply system, SHC and NH3 feed improvements and modifications to the existing piping and controls system.



Golden State Water Company – Doty Plant Improvements Project – Hawthorne, CA (D-B) Mr. Riess served as the Senior Engineer for the design and construction of improvements at GSWC's Belhaven Plant (1,800-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of a 42,000-gallon contact tank, DO Feed System, LOX Supply system, SHC feed improvements and modifications to the existing piping and controls system.

Golden State Water Company – Southern Wells Improvements Project – Gardena, CA (D-B) Mr. Riess served as the Senior Engineer for the design and construction of improvements at GSWC's Southern Wells Treatment Facility (1,900-gpm). The purpose of the project was to improve treatment at the site to address water quality issues including, color, odor, nitrification, and low dissolved oxygen. The design-build project included the design, construction, and start-up of a 26,000-gallon contact tank, DO Feed System, LOX Supply system, SHC feed improvements and modifications to the existing piping and controls system.

Mammoth Community Services District Groundwater Treatment Plant Upgrades – Mammoth Lakes, CA (Design) Mr. Riess prepared the preliminary design report for corrosion control improvements at two existing groundwater treatment plants receiving water from 8 wells. He Evaluated previous bench and pilot-scale studies and made recommendations for physical improvements. Prepared and managed design for upgrade of first plant with new air strippers to raise pH, structural improvements to existing building, piping modifications, new backwash recovery system, bolted steel clearwell replacement, and complete controls upgrade (4.3 mgd).

Sierra Army Depot Iron, Manganese and Uranium Removal Design-Build Project – Herlong, CA (Design, CM) Mr. Riess prepared designs for two new groundwater treatment plants and 2500 lf raw water pipeline. Both plants included a multi-cell greensand filter, backwash recovery system, 2400 sf metal building, sodium hypochlorite storage and feed systems to replace existing gas chlorine systems, and associated HVAC, electrical and controls. One of these plants also included an anion exchange system for uranium removal, and sodium bisulfite storage and feed for dechlorination upstream of ion exchange. Rehabilitated two groundwater wells and replaced lineshaft vertical pumps with submersible turbine pumps. Retrofit existing well pump and booster pump control system. He coordinated directly with installing contractor and US Army Corps of Engineers throughout design and construction process (1.2 and 1.6 mgd).

City of Ceres Blaker 32 Well Improvements – Ceres, CA (Design) Mr. Riess prepared the preliminary design report to evaluate backwash recovery, solids handling, chemical feed and various other improvements at existing groundwater treatment plant for manganese and arsenic. Mr. Riess managed the final design of recommended facilities, including new metal building for chemical storage and feed, backwash recovery tank and pumps, chemical feed system and site improvements (2.9 mgd).

City of Ceres Blaker Well 32 Filter Rehabilitation – Ceres, CA (Design) Mr. Riess prepared the design for retrofit of existing manganese dioxide pressure filtration system for manganese arsenic removal, with failed underdrain system. He evaluated different media options, and recommended replacing media with Greensand due to lower cost and backwash rates. Mr. Riess prepared the design to include static mixer for chemical mixing, and new underdrain system including concrete fill, reuse of existing inlet header, and owner-purchased nozzles (2.9 mgd).

Fallon Paiute Shoshone Tribe Arsenic Removal WTP – Fallon, NV (Design) Mr. Riess designed a new coagulation/microfiltration (C/MF) arsenic treatment plant with carbon dioxide pH adjustment, ferric chloride and sodium hypochlorite addition, microfiltration, carbon dioxide stripping, and residuals handling (0.5 mgd).

Ben Lee, PE

Technical Advisor



Education

M.S. - Environmental Engineering,
University of Illinois (2003)
B.S. - Civil Engineering,
Arizona State University (2001-
Cum Laude)

Years of Experience

19 years with
the firm/ 25
years total

Registration

Registered Civil Engineer:
Arizona - 47622
California - 69826

Memberships

AWWA

Representative Project Experience

Town of Gilbert North Water Treatment Plant Design and Improvements (Project Director/Manager)

The Gilbert NWTP is a 60-mgd drinking water plant that treats surface water and groundwater from four different sources. WaterWorks was the Design Engineer that led the team for this project that met an immediate need for improved Disinfection By-Product (DBP) compliance and maximized surface water supplies. The project was challenged by the differing sources of surface water and groundwater with primary sources changing based on the season. Both sources are extreme in their treatability with high turbidity and/or elevated TOC concentrations from one source and low turbidity, poor settleability, and poor filterability found from the other primary source. Water Works has performed water quality evaluations and identified treatability challenges, led the technology selection to replace and repair deficient and failing infrastructure, as well as expanded the treatment capacity from 45 mgd to 60 mgd to facilitate future capacity expansions. As Project Manager, Ben oversaw design and assisted with technology selection.

City of Scottsdale Water Resources Engineering Support Services (Project Manager)

The City of Scottsdale (COS) owns and operates a number of surface water, groundwater, wastewater, and advanced reclaimed water treatment facilities. These treatment facilities cover the range of technologies, including Conventional Surface Water Treatment (Coagulation, Sedimentation, Granular Media Filtration), Low Pressure Membrane Filtration (Ultrafiltration/Microfiltration), Cloth Media Filtration, Granular Activated Carbon (GAC) Adsorption, Biological Nitrification/De-Nitrification, Chlorination/Chloramination, Ozonation, Reverse Osmosis, Ultraviolet (UV), Vadose Zone Recharge, Air Stripping, Granular Iron Media Adsorption (Arsenic Removal), and Aquifer Storage and Recovery. Through this contract, Water Works, with Ben as Project Manager, provided process monitoring, technical support, training, and engineering analysis for process optimization.

Arizona Water Groundwater Treatment Projects, Arizona Water Company, AZ (Principal, Project Manager, Lead/Senior Project Engineer)

As part of the ongoing On-Call contract with Arizona Water Company, Water Works has provided design, evaluation, and construction services for various water treatment facilities around Arizona for the projects listed below:

- **Blue Horizon Arsenic Treatment Facility – Solids Handling Facilities Improvements** – Ben assisted Water Works Engineers as project engineer in the design engineering for demolition of the plate settler, installation of a floating decanter system and a sludge filter box as well as the conversion of an existing sludge vault to a filtrate vault with a submersible pump to return the filtrate to the Backwash Holding Tank.
- **Southwest Center Arsenic Treatment Facility** – Ben served as Senior Project Engineer for AZ Water Company's Southwest Center well site in Sedona to design a new facility to meet the Company's goal of reducing arsenic concentration to 7 ppb.



WATERWORKS
ENGINEERS

- **San Manuel Groundwater System Stability** – WaterWorks assessed the capability of the existing arsenic treatment facility to treat the water from the two new wells and to assess changes in the distribution system water quality when the two new wells are brought online. A desktop evaluation using Water!Pro™ was conducted to determine if post treatment pH adjustment will be required to stabilize the distribution system after treatment. Ben led the bench scale jar testing and regression modeling to support these recommendations.
- **Arsenic Removal Facilities at Rimrock Well No. 2 and Montezuma Haven Wells No. 2 and No. 3** – Ben served as project manager to provide design and permitting services as part of a Design/Build team with MGC Contractors for the design and construction of new arsenic removal facilities at the existing Rimrock Well No. 2 site and the existing Montezuma Haven Wells No. 2 and No. 3 site. The Rimrock Well No. 2 facility was designed, permitted, and constructed in 3 months from award of contract to the MCESD Approval of Construction permit being issued.
- **Pinal Valley Well 34 and Arizona City Tank Site Arsenic Removal Facility** – The Pinal Valley Well 34 and Arizona City Tank Site ARF is owned and operated by Arizona Water Company. The ACARF included a coagulation filtration arsenic removal facility, a water storage tank and a booster pump station and was constructed, alongside PV Well 34, to increase capacity to accommodate additional water demands. The ACARF included the addition of a pressure filter vessel, chemical storage and feed facility (FeCl₃ and NaOCl), backwash tank, decant, sludge and supernatant pump stations, yard piping and site improvements. The new PV Well 34 consisted of well development coordination, well pump sizing, and well site design. Ben was the Principal-in-Charge through design and construction of the ACARF and the new PV Well 34.
- **Pinal Valley Well 13 and Cross Creek Ranch**
The Pinal Valley Well 13 Water Facility is owned and operated by Arizona Water Company and supplies potable water to the Pinal Valley Water System. The Water Facility includes a 1,600 gpm onsite well, a 1,600 gpm adsorption arsenic removal facility, a 0.86 Mgal tank, and water storage tank, and 2,300 gpm (firm) booster pump station. PV Well 42 (offsite well) supplies groundwater to the Water Facility. Ben has acted as the Principal-in-Charge through expansion of the Water Facility and the addition of the new PV Well 42 site.
- **Baseline Arsenic Removal Facility Expansion**
The Baseline ARF is owned and operated by Arizona Water Company. The Baseline ARF supplies potable water to the Company's Apache Junction service area. The Baseline ARF includes a coagulation filtration arsenic removal facility, a water storage tank and a booster pump station and was expanded to increase capacity to accommodate additional water demands. The expansion included the addition of a pressure filter vessel, reconfiguration of filter headers to accommodate the addition of a new filter vessel and construction sequence, new chemical storage and feed facility (FeCl₃ and NaOCl), temporary relocation of an existing backwash tank, new backwash tank, new decant, sludge and supernatant pump stations, yard piping and site improvements. Ben was the Project Manager and oversaw preliminary design of the ARF, design services, and construction phase services.

City of Prescott PFAS/Technology Selection, Prescott, AZ (Technical Advisor)

Water Works evaluated PFAS and Arsenic for 10 wells at two production areas. Blending options for the two production areas were evaluated utilizing water quality and piping costs. Several GAC and IX vendors (Vessel and Media) were contacted for capital and treatment cost estimates to perform 20-year net present worth cost evaluations. Ben acted as Technical Advisor and provided technical input during the PFAS and arsenic evaluation.





Tim Durbin, PE

Quality Assurance Manager

Education

M.S. – Civil/Environmental Engineering, University of California, Berkley (2002)
B.S. – Chemical Engineering, Pennsylvania State University (2000)

Years of Experience

20 years with the firm / 23 years total

Registration

Registered Civil Engineer: California – C75456

Mr. Durbin is a civil/environmental engineer with 23 years of experience in the field of water and wastewater treatment and pumping systems. He started his career doing advanced research in wastewater chemistry, with a focus on strategies to minimize the formation of disinfection by-products. He has since applied his knowledge of chemistry and treatment processes to the design of water and wastewater treatment facilities. Mr. Durbin has worked on projects in California and other Western states related to treatment facility design, pumping of water and wastewater, chlorination, energy recovery, and chemical storage and feed system design. He currently serves as Quality Assurance Manager, where he oversees QA/QC procedures and technical reviews for projects across the firm.

As the Quality Assurance Manager, Mr. Durbin has firm-wide responsibilities for overseeing all QA and QC activities. His responsibilities include:

- Refining the existing QA program and QC procedures
- Creating new procedures and guidelines to help ensure the quality of our work products
- Overseeing QC reviews for all project deliverables. Mr. Durbin performs some QC review activities himself and delegates some activities to other engineers
- Revising master guide specifications and standardized calculation spreadsheets as necessary
- Helping resolve conflicts or differences of opinion that arise
- Providing general assistance regarding engineering design to employees throughout the firm

Prior to becoming Quality Assurance Manager, he worked as project manager and engineer on a wide range of water and wastewater projects, with a focus on process and mechanical design. Mr. Durbin has worked on the following projects either in his quality control capacity or as project manager or project engineer.

Representative Project Experience

California Water Service DOM Well 30 Treatment – Compton, CA

Town of Gilbert North Water Treatment Plant – Gilbert, CA

Golden State Water Company 129th Street, Bellhaven, Southern & Doty Improvements – Gardena, Los Angeles, and Hawthorne, CA

Casitas Municipal Water District Ojai Water Pipeline Replacement – Ojai CA

Contra Costa Water District Chemical Storage Improvements Phase 2 – Oakley, CA

County of San Mateo CSA No. 7 Treatment Plant Improvements Project – Redwood City, CA

East Valley Water District Plant 134 GAC Improvements Project – Highland, CA

City of Goodyear Brine Management Project – Goodyear, AZ

Amy's Kitchen, Process Water Treatment Facility – Pocatello, ID

City of Scottsdale Thomas Groundwater Treatment Facility Detailed Design – Scottsdale, AZ

City of Millbrae Water System Improvement Project – Millbrae, CA

Casitas Municipal Water District Casitas Dam Drainage Improvements – Ventura, CA

Casitas Municipal Water District, Ojai Water Pipeline Replacement – Ojai CA



City of Davis, Phase 1 Recycled Water Facilities – Davis, CA
California Water Service DOM 272 Well Improvements – Compton, CA
Phillipsville Community Services District Water Quality, Storage, and Distribution Improvements Project – Phillipsville, CA
City of San Bruno Sneath and Lake Pump Station Rehabilitation Project – San Bruno, CA
Arizona Water Company East Sedona Water Storage and Booster Pump Station Design – Sedona, AZ
Valley of the Moon Water District Saddle Rd. Tank – Glen Ellen, CA
City of Prescott Water Production Facility and Intermediate Pump Station Facility – Prescott, AZ
City of Roseville West Side Tank and Pump Station Design and CM – Roseville, CA
San Jose Water Belgatos Reservoirs Replacement – Los Gatos, CA
California Water Service, Palos Verdes Stations 22, 23, and 30 Surge Tank Project – Palos Verdes, CA
Oakland Zoo, California Trail Exhibit Pump Stations – Oakland, CA
Paradise Irrigation District Engineering Services – Paradise, CA
City of Scottsdale Engineering Support Services – Scottsdale, AZ
Redway Community Services District WWTP Biosolids Master Plan – Redway, CA
Paradise Irrigation District Disaster Recovery Management Services – Paradise, CA
City of Carmichael La Vista Tank Replacement – Carmichael, CA
City of Roseville West Side Tank and Pump Station Design and CM – Roseville, CA
City of Roseville West Side Tank and Pump Station Design and CM – Roseville, CA
City of Redding Stillwater Wastewater Treatment Plant Odor Scrubber Replacement – Redding, CA
City of Provo WATRR Center Phase 1 2020 Improvement Project – Provo, UT
Hawaii Water Services Co., Pukalani WWTP – Maui, Hawaii
Albuquerque Bernalillo County Water Utility Authority Ammonium Sulfate Storage and Feed Facility – Albuquerque, NM
Oro Loma Sanitary District, Aeration Modifications Project – San Lorenzo, CA
Salt Lake City 1800 North Sewer Realignment – Salt Lake City, UT
City of Morro Bay WRF Lift Station and Offsite Pipelines – Morro Bay, CA
Ross Valley Sanitation District Pump Stations 12 & 13 Rehabilitation Project – Greenbrae, CA
City of Redding, North Market Lift Station – Redding, CA
Alameda Bay Farm Island Sewer Lift Station Upgrade – Alameda, CA
City of Flagstaff On-Call – Flagstaff, AZ
City of Redding Stillwater Facility Plan Update – Redding, CA
S.T. Rhoades Construction Incorporated, Monterey Presidio Surge Relief Project – Redding, CA
City of Goodyear Rainbow Valley Reclamation Facility Centrifuge Upgrades – Goodyear, AZ





Herb Durbin, PE

Project Engineer

Education

B.S. - Civil Engineering,
Arizona State University (2000)

Years of Experience

12 years with
the firm/ 26
years total

Registration

Registered Civil
Engineer:
Arizona - 43538

Memberships

AWWA
AZ Water

Representative Project Experience

Indio Water Authority - Hexavalent Chromium Treatment Concept Development and Conceptual Design – Indio, CA (Project Engineer)

Mr. Durbin provided preliminary design services in collaboration with Corona Environmental Consulting for the treatment of hexavalent chromium utilizing ferrous iron reduction coagulation filtration (RCF) and/or strong-base anion exchange at two well treatment plants and two individual well sites. Mr. Durbin developed filtration and chemical feed system sizing, assisted with site layouts, conceptual level cost estimates, and evaluated backwash waste alternatives based on hard and soft cost analysis. Mr. Durbin drafted a procurement specification for the pre-purchase of the treatment system so the design and construction could be performed.

Engineering Services for Design and Construction of Municipal Water Supply Wells Arsenic Reduction Facilities, Lathrop, CA (Project Engineer)

Mr. Durbin, as project engineer, designed arsenic treatment processes for six of the City's drinking water wells. As part of this project, we prepared an Engineering Report as a requirement of the Safe Drinking Water State Revolving Fund (SDWSRF) application. Our team recommended coagulation filtration at a centralized facility to treat five of the impacted wells for a total flow of 6,250 gpm (9 MGD). Conducted detailed analyses of design alternatives to determine the most optimal facility configuration including pH adjustment with CO₂ carbonic acid feed and aeration for CO₂ stripping, finished water equalization and booster pumping, and residuals handling equipment including a filter press to facilitate virtually 100% recycle of water through the treatment system. The arsenic treatment equipment was procured through a supplier pre-selection contract that was ultimately pre-purchased and provided to the general contractor for installation.

Engineering Services for Design of the Arsenic Mitigation Project Water Treatment Facility, Keyes Community Services Water District, CA (Project Engineer)

Mr. Durbin, as project engineer, designed arsenic treatment processes for Districts drinking water wells. As part of this project, we prepared an Engineering Report as a requirement of the Safe Drinking Water State Revolving Fund (SDWSRF) application. Our team recommended coagulation filtration at a centralized facility to treat the four impacted wells. Conducted detailed analyses of design alternatives to determine the most optimal facility configuration including piping, finished water equalization and booster pumping, and residuals handling equipment including a filter press to facilitate virtually 100% recycle of water through the treatment system. The arsenic treatment equipment was procured through a supplier pre-selection contract that was ultimately pre-purchased and provided to the general contractor for installation.

Arizona American Water, Paradise Valley Arsenic Removal Facility (Project Engineer)

Arizona American Water (Currently EPCOR) owns and operates the water system serving portions of the Town of Paradise Valley and the City of Scottsdale. Water is supplied from a total of seven wells located throughout the service area. Due to the wells' naturally occurring arsenic levels, treatment is required to ensure that arsenic concentrations in the finished water will be consistently below the pending MCL.

The Paradise Valley Arsenic Removal Facility (PVARF) has been designed and constructed under the design-build process by the design-build team with DL Norton. This facility consolidates water from multiple well sources and



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treats the water using a coagulation-filtration process in a split stream mode of operation to produce a blended water quality containing not more than 8 µg/L of arsenic with full solids handling.

City of Tempe As-Needed Engineering Services – Water Treatment Projects (Deputy Project Manager/Project Engineer)

Mr. Durbin acted as Deputy Project Manager/Project Engineer for all projects performed under the City of Tempe's As-Needed Engineering Services contract. These projects included chlorination improvements at the South Plant, upgrades to the Johnny G. Martinez Water Treatment Plant (JGM WTP) Disinfection Byproducts processes reservoir upgrades including liners, baffle walls, beam repairs, new aluminum roofs and aeration to lower the DBPs leaving the reservoirs.

Water Quality Upgrades Disinfection By-Products Control Project (Deputy Project Manager)

The project consisted of several upgrades to the 50 MGD Johnny G. Martinez Water Treatment Facility. The upgrades included a new Carbon Dioxide Feed System with Carrier Water Pumps for pH reduction, a new Caustic Feed System for pH readjustment, an upgraded Powder Activated Carbon Feed System for DBP reduction, North Reservoir Modifications and miscellaneous plant upgrades. The North Reservoir Modifications included new baffle walls, a new liner, 60-inch diameter pipe connections, and installation of Six Surface Aerators to remove DBPs. As Deputy Project Manager, Mr. Durbin provided design and project coordination services.

City of Phoenix On-Call Engineering/Consulting Services (Various Contracts)

Remote Facilities Job Order Contracting, Design, Construction Administration and Inspection Services and As-Needed Assistance (Project Engineer)

The City of Phoenix owns and operates a large number of wells, booster stations and reservoirs throughout the City. The City uses the JOC delivery method to perform preventive maintenance and upgrades for these systems. Starting in early 2007, WaterWorks has been involved with various JOC projects, many of which were involved in the Remote Facilities Program. In general, WaterWorks' scope of work included hydraulic analyses, system upgrades, the development of construction documents, performing cost estimating, coordinating with the JOC contractor and City team, and obtaining all necessary permits including Maricopa County Environmental Services Department (MCESD) and City Annual Facilities Permit (AFP) Program. Coordination with the City included attending the JOC meetings, presenting design concepts and construction documents in a workshop setting and interfacing with/managing the subconsultants. Through this program, WaterWorks has provided service at over 30 of the City's Remote Facilities. Mr. Durbin acted as the Project Engineer providing design services at various booster station locations.

City of Scottsdale, As-Needed Engineering Support Services (Project Engineer)

Mr. Durbin acted as Project Engineer to provide engineering services associated with evaluation, design and construction administration in support of the As-Needed Engineering Support Services program for the City of Scottsdale. The City of Scottsdale (COS) owns and operates a number of surface water, groundwater, and advanced reclaimed water treatment facilities. Water Works was retained under the Job Order Contract program to provide engineering evaluation, design and construction administration for various projects including the following:

- **Chaparral WTP Chlorine System** – WaterWorks evaluated three onsite chlorine generation systems and assisted the City in selecting the preferred unit. WaterWorks developed the construction documents, acquired MCESD permits and supervised the construction phase.
- **Central Arizona Project WTP Residual Chlorine Control** – WaterWorks developed a control strategy and designed the instrumentation needed to provide the required CT value.
- **North Groundwater Treatment Facility** – WaterWorks was retained to design a 4 MGD Granular Activated Carbon Facility that uses chlorine for disinfection. WaterWorks performed the design of the GAC and chlorination systems within 6 months. The chlorination system used liquid hypochlorite and include storage pumping and dose control.



Rachel MacLean, PE

Project Engineer



Education

M.S. – Chemical Engineer,
University of Idaho (2017)
B.S. - Chemical Engineering,
University of Idaho (2015)
B.S. – Chemistry,
University of Idaho (2015)

Years of

Experience
4 years with
the firm/ 7
years total

Registration

Registered Civil
California - 95839

Memberships

AWWA

Representative Project Experience

California Water Service - Per-and Polyfluoroalkyl Substances (PFAS) Treatment Evaluation – Visalia & Bakersfield, CA (Design)

Ms. MacLean provided preliminary design services in collaboration with Corona Environmental Consulting for the PFAS treatment of three groundwater wells. The project included the evaluation of treatment alternatives for the removal of PFAS in three wells ranging in flow from 600-1,350-gpm. Ms. MacLean evaluated treatment alternatives based on hard and soft cost analysis for non-regenerable strong base anion exchange and granular activated carbon. She developed site layouts for each treatment alternative at each site and developed conceptual level capital and operations & maintenance cost estimates.

Indio Water Authority - Hexavalent Chromium Treatment Concept Development and Conceptual Design – Indio, CA (Design)

Ms. MacLean provided preliminary design services in collaboration with Corona Environmental Consulting for the treatment of hexavalent chromium utilizing ferrous iron reduction coagulation filtration (RCF) and/or strong-base anion exchange at two well treatment plants and two individual well sites. Ms. MacLean developed site layouts, conceptual level cost estimates, and evaluated backwash waste alternatives based on hard and soft cost analysis.

California Water Service - Per-and Polyfluoroalkyl Substances (PFAS) Program Engineering Assistance: RFP Development and Bidding Assistance – CA (Owner's Agent)

Water Works Engineers was contracted to provide engineering assistance as Owner's Agent in support of Cal Water's PFAS program. The program includes the design-build of 48 PFAS treatment systems in four districts throughout California. Ms. MacLean developed conceptual design site layouts for 12 sites for inclusion in the request for proposal packages. Site layouts took into consideration specific site challenges, such as existing treatment and water quality concerns other than PFAS, existing water storage tanks, limited site footprint, fluidized bed wastewater disposal options, constructability, and site access. Ms. MacLean continues to support for later phases of the project including technical review of owner furnished equipment submittals from treatment system suppliers, technical review of materials submittals from design-build entities, and as-needed support for request for information submittals from the design-build entities.

Mission Springs Water District: Hexavalent Chromium Treatment Engineering Support –Desert Hot Springs, California (Design)

Ms. MacLean provided preliminary design services in collaboration with Corona Environmental Consulting for the treatment of hexavalent chromium utilizing ferrous iron reduction coagulation filtration (RCF). Ms. MacLean developed site layouts for RCF treatment for eight of MSWD's wells, including centralized treatment alternatives. In addition to site layout development, Ms. MacLean assisted with the



development of cost estimates, existing well pump and motor evaluation, and backwash waste alternatives analysis including options for recycling and sewer discharge.

Coachella Water Authority: Hexavalent Chromium Treatment Preliminary Design – Coachella, California (Design)

Water Works Engineers provided preliminary design services in collaboration with Corona Environmental Consulting for ferrous iron reduction coagulation filtration treatment system for the removal of hexavalent chromium at six existing groundwater wells and one future groundwater well. Ms. MacLean supported the development of the preliminary design report, including site layouts at the seven groundwater wells identified for treatment. In addition to site layouts, the preliminary design report included cost estimates, existing well pump and motor evaluation, and backwash waste alternatives analysis including options for recycling and sewer discharge. Ms. MacLean coordinated with CWA's sewer hydraulic modeler, Akel Engineering Group, to support the sewer discharge alternatives and recommendation.

Suburban Water Systems – Sativa Plant 804 PFAS Treatment – Willowbrook, California (Design)

Water Works Engineers was contracted by Suburban Water Systems in association with Corona Environmental Consulting (Corona) to evaluate the existing groundwater quality, develop PFAS treatment alternatives, and provide a conceptual design of the preferred treatment alternative at the Sativa Well No. 3. Ms. MacLean supported the development of the conceptual design report, which included the evaluation of non-regenerable strong base ion exchange and granular activated carbon treatment systems. Ms. MacLean took the design parameters developed by Corona for each treatment technology and developed conceptual site layouts, cost estimates including net present worth analysis, and relative advantages and disadvantages to ultimately recommend GAC treatment at the Sativa Well No. 3. The conceptual design report also included anticipated permitting requirements and a summary of wastewater discharge considerations associated with both treatment technologies and spent media disposal. Conceptual design was developed for the implementation of GAC treatment at the well site.

New Mexico Water Service (NMWS) – PFAS Program: Elephant Butte Unit 5 and Unit 27 PFAS Treatment Preliminary Design – Elephant Butte, New Mexico (Design)

New Mexico Water Service contracted Water Works Engineers to provide preliminary design services for PFAS treatment at two groundwater well sites using granular activated carbon (GAC) treatment. Ms. MacLean assisted with the development of the basis of design reports (BODRs) for both Unit 5 and Unit 27. The BODRs included preliminary equipment sizing, development of process flow diagrams, development of site layouts with special consideration to other potential future treatment needs, cost estimate development including net present worth analysis, and anticipated permitting. Typical operational parameters were considered, including GAC fluidize supply water and fluidize water discharge locations, as well as GAC media fill and replacement.



ALLISON PRATER, P.E.

Project Engineer



Education

M.S. – Civil/Environmental Eng.
Cal Poly, San Luis Obispo, CA (2018)
B.S. – Civil Engineering
Cal Poly, San Luis Obispo, CA (2017)

Experience

8 years with
the firm / 8
years total

Registration

Registered Civil
California – 91697
Washington – 2601739!
Colorado – 0063109

REPRESENTATIVE PROJECT EXPERIENCE

Golden State Water Company – Willowbrook Well 4 Equipping – Compton, CA (Design)

Ms. Prater completed final design for the equipping of a new drinking water well and treatment system at an existing facility. The project included a 1,800-gpm rated well pump, pump-to-waste piping and valves, chemical treatment and storage, and site improvements including a concrete masonry building.

Cal Water – Dixon Station 004 CR-VI Removal Project – Dixon, CA (Design)

This project includes the design of a reduction coagulation filtration (RCF) system to remove hexavalent chromium from groundwater at an existing drinking water well site. The project includes design of a 1,800-gpm rated well pump, pump-to-waste piping and valves, chemical treatment and storage, and the RCF treatment system including a backwash tank and reclaim system. Ms. Prater's responsibilities on the project include hydraulic analysis, treatment design, and preparation of the final technical drawings and specifications.

City of Folsom – Oak Avenue Lift Station – Folsom, CA (Design)

Ms. Prater completed steady-state hydraulic and surge transient analysis for the existing Oak Avenue Lift Station and force mains utilizing AFT Impulse. AFT Impulse is a dynamic simulation and analysis software used to calculate pressure surge transients in liquid piping systems caused by waterhammer. The AFT Impulse model was calibrated using recorded pressure, flow, and pump speed data for both steady-state operation and pump shutdowns. The analysis results were used to identify areas in the forcemain experiencing negative pressures and determine which of the existing air valves should be replaced with anti-surge air valves.

City of Prescott – Lyon Sundog C3 Lift Station – Prescott, AZ (Design)

Ms. Prater completed surge transient analysis and recommended surge mitigation practices for the Lyon Sundog C3 Lift Station and forcemain utilizing AFT Impulse. The project consists of a 10.5-MGD lift station and almost four miles of HDPE piping. Recommended surge mitigation system included anti-surge air valves at select locations in the forcemain.

Village of Ruidoso – Two Rivers Water Intake – Ruidoso, New Mexico (Design)

Ms. Prater completed surge transient analysis and recommended surge mitigation practices for the Two Rivers Intake and Transmission system. The project consists of connecting to an existing 350-gpm pump station and reservoir with a new intake, 500-gpm pump station and pipeline. Recommended surge mitigation system included bladder surge tanks at both pump stations and anti-surge air valves on the new pipeline.

Palo Verde Generating Station – Redhawk Return Line – Ruidoso, New Mexico (Design)

Ms. Prater completed surge transient analysis and recommended surge mitigation practices for the Redhawk Return Line. Recommended surge mitigation system included anti-surge air valves.

Casitas Municipal Water District – Ventura County/Santa Barbara County Water Intertie – Santa Barbara, CA (Design)

Ms. Prater is a project engineer for the VTA/SB County Intertie Project. The purpose of the project is to construct a bidirectional pipeline between the Ventura and Santa Barbara counties. Major components of the project include design of new pump stations, pipeline, pressure reducing stations, surge control, and modifications to



existing water storage tanks and pipeline. Ms. Prater's responsibilities for the project include design of the pump stations, chemical treatment system, and surge tanks.

City of Brentwood – Biosolids Dryer Project – Brentwood, CA (Design)

Ms. Prater is a project engineer for the Brentwood Biosolids Dryer Project. The purpose of the project is to dewater waste active sludge utilizing centrifuges, biodryers, and pyrolysis units. The end-product of the pyrolysis process is biochar, at over 95-percent solids. Biochar is a marketable charcoal that is produced by pyrolysis of biomass in the absence of oxygen; it is typically used as a soil amendment. Her contributions to the project include preliminary design and solids loading calculations.

Cal Water – Dominguez 215/216 Improvements Project – Carson, CA (Design/Construction)

Ms. Prater was the responsible engineer Dominguez 215/216 Project and is now providing engineering services during construction. The purpose of the project is to centralize treatment of two existing drinking water wells and improve water quality in the system. The project includes the following improvements: piping and control valves to centralize treatment, baffled chlorine contact pressure vessels, liquid oxygen storage and feed system, and chemical feed system improvements. The new treatment facilities will be rated for 2,700 gpm. The project will also include flow control and pressure sustaining valves, to allow for the finished water to be split between two distributions systems.

Cal Water – Dominguez 301 Improvements Project – Long Beach, CA (Preliminary Design)

Ms. Prater completed the preliminary design report for the Dominguez 301 Project. The Dominguez 301 project is a new drinking water well site. The project includes the following components: new well pump, baffled chlorine contact pressure vessel, chemical feed system, and mechanical and electrical buildings. The new treatment facility will be rated for 2,500 gpm.

Cal Water – Dominguez 219 Improvements Project – Carson, CA (Design)

Ms. Prater completed the preliminary design report for the Dominguez 219 Project. Dominguez 219 is an existing well site. The project includes the following components: new well pump, granular activated carbon filtration, breakpoint chlorination, greensand filtration, building improvements. The new treatment facility will have a capacity of 1,000 gpm and will address various water quality concerns including trichloroethylene, ammonia, color, odor, iron and manganese.

Cal Water – Dominguez 272 Well Improvements Project – Compton, CA (Design)

Ms. Prater is providing design services for the Dominguez 272 Project. The purpose of the Project is to address water quality concerns in the system including: color and odor; methane; hydrogen sulfide; and low dissolved oxygen in the system water. The Project included the design of the following improvements at the existing wellsite: well pump, air stripper system for methane and hydrogen sulfide removal, booster pumps, chlorine contact tank, and chemical feed system. Ms. Prater's responsibilities on this project have included mechanical drawing development, technical specification development, chemical feed calculations, hydraulic calculations, and permit coordination.

Golden State Water Company – Southwest Well Improvements Project – Torrance, CA (Design-Build)

The Southwest Well Improvements Project includes the design and construction of treatment facilities to address water quality concerns at four different wellsites (7 wells total): 129th St, Belhaven, Southern, and Doty. The new treatment facilities include: chlorine contact tanks, pyrolusite media filtration systems, filter backwash tanks, dissolved oxygen augmentation, and chemical feed improvements. Ms. Prater has contributed to the hydraulic modeling, chemical feed design, and process design and also provided engineering services during construction for this project.

Bracamonte Leo, EIT

Staff Engineer



Education

B.S. - Civil Engineering,
University of California,
Irvine (2024)

Years of Experience

2 years with the
firm/ 2 years total

Registration

Registered
Engineer-in-Training

Memberships

ASCE

Representative Project Experience

City of Coachella Chromium-6 Treatment Conceptual Design – Coachella, CA

Contracted by Corona Environmental Consulting, Water Works Engineers provided engineering support for the preliminary design for the removal of hexavalent chromium for Coachella Water Authority (CWA) through ferrous iron reduction coagulation filtration (RCF). Ms. Bracamonte contributed to the design and planning of an alternative chromium-6 groundwater treatment system for the City of Coachella. She supported the preparation of conceptual layouts and capital cost summaries and aided during internal reviews. Her work contributed to the evaluation of treatment technologies aimed at regulatory compliance and long-term sustainability.

Mission Springs Water District Cr(VI) Conceptual Design – Desert Hot Springs, CA

Water Works Engineers was contracted by Mission Springs Water District (MSWD) to provide preliminary design services for the installation of temporary hexavalent chromium treatment systems. Ms. Bracamonte supported conceptual design development for chromium-6 removal at eight well sites using Reduction Coagulation/Filtration (RCF) treatment. The study involved comparison of centralized and decentralized treatment options, including capital/O&M cost evaluations and wastewater impacts. Ms. Bracamonte contributed to layouts, cost opinion summaries, and permitting research for authorities having jurisdiction.

California Water Service Company PFAS Engineering Assistance Phase 2 – California (Statewide)

Water Works Engineers is providing engineering assistance as Owner's Agent in support of Cal Water's PFAS treatment program across multiple districts involving design-build installations across 47. Ms. Bracamonte contributed to program-level engineering support by reviewing design and material submittals, participating in internal and external coordination meetings, and supporting QA/QC of design packages. Her responsibilities included layout reviews, design reports reviews, and vendor submittal review to ensure consistency with design criteria and specifications.

California Water Service Company ELA Station 64 Treatment Facility (PFAS/Planning) – Montebello, CA

Water Works Engineers provided conceptual design and initial permitting assistance for a new groundwater treatment facility at East Los Angeles Station 64. The project included development of a new 3,000-gpm well, future well capacity planning, iron and manganese removal using greensand filtration, PFAS treatment using GAC, chemical feed systems, and supporting site infrastructure including a treatment building, surge tank, stormwater LID features, and electrical improvements. Ms. Bracamonte led development of site layout alternatives, process flow diagrams, and treatment system configurations for multiple design scenarios. Her responsibilities included preparing planning-level cost estimates, supporting development of the conceptual design report, and evaluating constructability and site constraints.

California Water Service Company PFAS Phase 2 – Justification Support – California (Statewide)

Ms. Bracamonte provided engineering assistance for Cal Water's PFAS Phase 2 Justification Support effort, aimed at developing planning-level design and cost justifications for proposed PFAS treatment facilities



across multiple districts. She supported the preparation of project-specific planning memos, evaluated vessel configurations and chemical feed assumptions, and assisted in compiling site-specific summaries for over 40 locations. Her work helped ensure technical alignment and supported regulatory and funding documentation across Cal Water regions.

Suburban Water Systems – Sativa Plant 804 PFAS Treatment – Willowbrook, California

Water Works Engineers was contracted by Suburban Water Systems in association with Corona Environmental Consulting (Corona) to evaluate the existing groundwater quality, develop PFAS treatment alternatives, and provide a conceptual design of the preferred treatment alternative at the Sativa Well No. 3. Ms. Bracamonte supported early project planning and coordination efforts, including participation in project kickoff activities and assisting with development of report outlines and technical documentation. Her role included supporting team coordination, organizing project materials, and contributing to the initial stages of conceptual design development and project setup.

Washington Water Service PFAS Program Engineering Assistance Phase 1 – Washington (Statewide)

Water Works Engineers was contracted to provide engineering assistance as Owner's Agent for Washington Water Service's PFAs Program in Western Washington. This project involves the design-build of 18 existing groundwater systems for PFAS treatment. Ms. Bracamonte's role included conceptual layout development, review of site constraints, equipment sizing coordination, and preparation of 15% design exhibits to support RFP development. She also participated in coordination meetings with engineering, operations, and environmental teams to finalize preliminary design.

California Water Service Company DOM 301 Preliminary Design – Long Beach, CA

Ms. Bracamonte provided design support for the DOM 301 Treatment Facility rated for 2,500-gpm. The project included ammonia and hypochlorite chemical systems, a CMU building, yard piping, and electrical upgrades. Her role included working on facility layout markups, equipment selection support, and documentation for stakeholder meetings and QA/QC reviews. She also contributed to the development of the preliminary design report.

California Water Service Company Bakersfield SWTP Cyanotoxins Evaluation – Bakersfield, CA

Ms. Bracamonte supported the conceptual design and treatment alternatives evaluation for the removal and mitigation of cyanotoxins at the Northeast and Northwest Surface Water Treatment Plants in Bakersfield. Her contributions included assisting in site condition assessments, compiling general equipment evaluations, and supporting the development of layout figures and cost comparison tables for treatment options including PAC, GAC, and ozonation. She also participated in the preparation of the Conceptual Design Report, which included 20-year cost analyses and a recommendation for the preferred treatment solution.

California Water Service Palos Verdes (PV) Narcissa Pipeline Replacement Project – Rancho Palos Verdes, CA

Ms. Bracamonte provided design and engineering services during construction support for the PV Narcissa Pipeline Replacement Project, which also involves replacing pipeline within the Portuguese Bend Landslide Complex. She worked on PRV (Pressure Reducing Valve) enclosure drawings, collaborating with the project team to ensure detailed design accuracy and coordinating layout updates to support pipeline replacement design under challenging geotechnical conditions during construction.



Indigo Banjo, EIT

Staff Engineer



Education

B.S. - Environmental Engineering,
California Polytechnic State
University, San Luis Obispo (2025)

Years of Experience

1 year with
the firm/ 1
year total

Registration

Registered Engineer in
Training - 183909

Memberships

AWWA

Representative Project Experience

Mission Springs Water District: Hexavalent Chromium Treatment Engineering Support –Desert Hot Springs, California (Design)

Contracted by Corona Environmental Consulting, Water Works Engineers is providing engineering support for the preliminary design for the removal of hexavalent chromium for Mission Springs Water District (MSWD) through ferrous iron reduction coagulation filtration (RCF). Ms. Banjo supported the design effort by developing preliminary site layouts for eight wells within the district, including centralized treatment alternatives and various residual management options. She also assisted with project cost estimating, applying FEMA floodplain regulations to the design, and developing a backwash waste alternatives analysis. This analysis included evaluating the fate of chromium if backwash waste was discharged to local wastewater treatment plants.

Mission Springs Water District: Well 24 Hexavalent Chromium Removal Project – Preliminary Engineering Support – Desert Hot Springs, California (Design)

Water Works Engineers was contracted by Mission Springs Water District (MSWD) to provide preliminary design services for the installation of temporary hexavalent chromium treatment system equipment through Strong Base Ion Exchange Roll-up Regeneration (IX-RUR). Ms. Banjo is assisting in design efforts by developing a basis of design report, including preliminary site layouts with centralized treatment options for 2 nearby wells.

Coachella Water Authority: Hexavalent Chromium Treatment Preliminary Design – Coachella, California (Design)

Contracted by Corona Environmental Consulting, Water Works Engineers provided engineering support for the preliminary design for the removal of hexavalent chromium for Coachella Water Authority (CWA) through ferrous iron reduction coagulation filtration (RCF). Ms. Banjo assisted with the design by supporting the development of preliminary site layouts for seven wells within the district, including different residual management options and hydraulic loading rates. She further assisted in the development of cost estimates, sewer analysis, and existing well pump and motor evaluations.

New Mexico Water Service (NMWS) – PFAS Program: Elephant Butte Unit 5 and Unit 27 PFAS Treatment Preliminary Design – Elephant Butte, New Mexico (Design)

Water Works Engineers was contracted by New Mexico Water Service (NMWS) to provide preliminary design services for PFAS treatment for two groundwater well sites through granulated activated carbon (GAC) treatment. Ms. Banjo supported the project by assisting with the development of site layouts, cost estimates, and process flow diagrams.

California Water Service – Dominguez 215/216 Improvements Project – Carson, CA (Construction)

Water Works Engineers was contracted by California Water Service to provide centralized treatment of two existing drinking water wells and to improve the overall water quality of the system. This involved the design of centralized baffled chlorine contact pressure vessels and a liquid oxygen storage and feed



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system. Ms. Banjo has been providing support with the engineering services during construction portion of this project. She has assisted in structural observations and start-up and commissioning activities.

California Water Service Company Palos Verdes (PV) Station 15 Rebuild Project – Rolling Hills Estates, CA (Design)

Water Works Engineers was contracted by California Water Service to provide preliminary and final engineering design services to rebuild booster pump station PV 15. This includes the replacement of four vertical turbine booster pumps, the addition of a new vertical turbine booster pumps, two surge tank replacements, and the replacement and redesign of existing pressure reducing and pressure relief control valves. Ms. Banjo is supporting the design by assisting in preliminary layouts, cost estimates and developing project specifications.

California Water Service Dominguez Well 300 (DOM 300) Engineering Services During Construction – Compton, CA (Construction)

Water Works Engineers was contracted by California Water Service to provide chloramination and pyrolusite filtration to a water well that would supplement the Dominguez District water system. Ms. Banjo has been providing support with the engineering services during construction of this project. She has assisted in field observations, start-up and commission activities and post construction mark-ups.

California Water Service Company - Per-and Polyfluoroalkyl Substances (PFAS) Program Engineering Assistance: RFP Development and Bidding Assistance– Various Locations, CA (Owner's Agent)

Water Works Engineers was contracted to provide engineering assistance as Owner's Agent for California's Water Service's PFAs Program across four districts in California. This project involves the design-build of 46 existing sites requiring PFAS treatment. Ms. Banjo supported the program through project coordination, submittal reviews, and CEQA permitting support services.

Washington Water Service – PFAS Program Engineering Assistance: RFP Development and Bidding Assistance – Various Locations, WA (Owner's Agent)

Water Works Engineers was contracted to provide engineering assistance as Owner's Agent for Washington Water Service's PFAs Program in Western Washington. This project involves the design-build of 18 existing groundwater systems for PFAS treatment. Ms. Banjo assisted in development process flow diagrams for each site, NEPA environmental coordination and general project management.

Casitas Municipal Water District – Ventura County/Santa Barbara County Water Intertie – Santa Barbara, CA (Design)

Water Works Engineers was contracted by Casitas Municipal Water District to construct a bidirectional pipeline between Ventura and Santa Barbara counties. Ms. Banjo has been providing support for this project by performing submittal reviews sent by the construction contractor by cross-referencing the equipment specs with WWE's Bid Ready Specifications and WWE's Bid Ready Design Drawings.



Darin Begay, EIT

Mechanical Engineer

Education

B.S. - Mechanical Engineering,
Arizona State University (2008)

Years of Experience

15 years with the firm/
18 years total

Registration

EIT

Representative Project Experience

Surprise Special Planning Area (SPA) 2 Water Reclamation Facility (WRF), Surprise, AZ (Mechanical Engineer)

The City of Surprise assumed operation and maintenance of the SPA 2 WRF, a Developer Plant that has previously been privately operated and maintained. WaterWorks was retained to identify any repairs or rehabilitation needed before the City takes over the plant. Mr. Begay acted as Mechanical Engineer to provide condition assessments, mechanical assessments, and HVAC assessments of the facility structures.

Surprise Special Planning Area (SPA) 3 Water Reclamation Facility (WRF), Surprise, AZ (Mechanical Engineer)

The City of Surprise assumed operation and maintenance of the SPA 3 WRF, a Developer Plant that has previously been privately operated and maintained. WaterWorks was retained to identify any repairs or rehabilitation needed before the City takes over the plant. Mr. Begay acted as Mechanical Engineer to provide condition assessments, mechanical assessments, and HVAC assessments of the facility structures.

West Deer Valley Water Group BPS and Reservoir, Surprise, AZ (Mechanical Engineer)

Mr. Begay was the Mechanical Engineer for this project which included the conceptual, detailed design and permitting of a regional booster pump station and reservoir site in west Surprise. The booster pump station consisted of vertical turbine pumps phased for an ultimate build-out of 19,600 gpm split between two pressure zones. Site planning and design was completed for an ultimate storage of (4) 2MG above grade steel water reservoirs.

As-Needed Engineering Support Services, City of Scottsdale, AZ (Mechanical Engineer)

Mr. Begay acted as mechanical engineer in support of the As-Needed Engineering Support Services at various sites and facilities including the evaluation of three onsite chlorine generation systems and assisting the city in selecting the preferred unit as well as developing construction documents, acquiring MCESD permits and supervising the construction phase; developing a control strategy and designing the instrumentation needed to provide the required CT value; providing planning for a 3 mgd Reverse Osmosis facility and associated pH adjustment chemical feed systems, site planning and coordination with various departments; and designing a 4 mgd Granular Activated Carbon Facility that uses chlorine for disinfection – the design of the GAC and chlorination systems were performed within 6 months.

Rancho Mercado Water Facility, City of Surprise, AZ (Mechanical Engineer)

WaterWorks was retained by the City of Surprise to design the Rancho Mercado Water Facility that supplies potable water to the Rancho Mercado Water System within the City's SPA2 Pressure Zone 2C master planned area. Groundwater is supplied to the water facility via an onsite well (Well E1). The planned centralized water production facility was designed to include water treatment, water storage tanks, booster pump stations, and other ancillary equipment required to supply potable water to the surrounding development. It was determined that the best course of treatment of the groundwater in this area was a 6,000 gpm adsorption system for arsenic removal without pH adjustment. The treatment site included the design of adsorption vessels, backwash tanks, dewatering bins, sludge and recycle pump stations, and chemical storage and feed facilities. Mr. Begay provided mechanical engineering services.



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Desert Oasis Arsenic Treatment Facility, Surprise, AZ (Mechanical Engineer)

The City of Surprise partnered with the SPA2 Water Group developers, including Altamira, Asante, Sunrise Range, and Verdugo, to develop a permanent arsenic treatment system (ATS) to replace a temporary system built around 2006. WaterWorks was retained to design the ATS to treat groundwater from Desert Oasis Well No.1 and 2 and four future well sites through the use of coagulation-filtration pressure filters. Treated water will be stored onsite within two existing potable water reservoirs. Additionally, additional pumping capacity will be added to the existing booster pump station to pump potable water from the reservoirs to the distribution system. The centralized ATS design also included chemical storage and handling facilities and solids handling facilities – including a backwash tank, sludge and decant pumps, and a dewatering roll off bin. Mr. Begay acted as the Mechanical Engineer for this project.

Arizona Public Service (APS) Reverse Osmosis (RO) Replacement, Tonopah, AZ (Mechanical Engineer)

The Reverse Osmosis sub-system was nearing the end of its life with aging membrane vessels and outdated membrane technology. This project updated the system with new membranes and associated equipment including pumps, pre-treatments, and a control system. Development of the conceptual design included pre-treatment and reverse osmosis units and chemical feed systems to address operability, redundancy, maintenance, and constructability as well as produce an equipment procurement specification. As Mechanical Engineer, Mr. Begay assisted in the investigation of the performance of the media filters and if they could be improved through “tighter” gradation media, review the capacity versus the number of RO units with respect to average flow, peak demand, redundancy, and building size and footprint, and to evaluate the system layout while taking into consideration operational accessibility, RO skid size, and constructability.

CWS DOM 272 Well Improvements, Compton, CA (Mechanical Engineer)

The Dominguez 272 (DOM 272) Well Improvements Project was implemented by California Water Service (CWS) to bring DOM 272 back online and improve water quality in the Rancho Dominguez system. DOM 272 was constructed in 1993 but has remained offline since 2014 due to several customer complaints of odor and discolored water. Prior to being taken offline, the well produced approximately 800-gpm. However, the design assumed 1,000-gpm production rate, and the design production rate will be reconsidered after well rehabilitation. The DOM 272 wellsite is a 6,200-square foot, irregularly shaped site in an industrial area.

Mr. Begay acted as Mechanical Engineer in the design of the following:

- Air stripper system for dissolved oxygen augmentation and removal of hydrogen sulfide and methane.
- Granular Activated Carbon (GAC) gas scrubber to treat exhaust from air strippers (hydrogen sulfide removal)
- Booster pumps to boost up to system pressure after aeration system
- Breakpoint chlorination vessel for reducing color and odor
- Aqueous ammonia chemical system for formation of chloramines
- Building, site, and mechanical improvements to support the operation of the DOM 272 wellsite.

As-Needed Engineering Support Services, City of Scottsdale, AZ (Mechanical Engineer)

Mr. Begay acted as mechanical engineer in support of the As-Needed Engineering Support Services at various sites and facilities including the evaluation of three onsite chlorine generation systems and assisting the city in selecting the preferred unit as well as developing construction documents, acquiring MCESD permits and supervising the construction phase; developing a control strategy and designing the instrumentation needed to provide the required CT value; providing planning for a 3 mgd Reverse Osmosis facility and associated pH adjustment chemical feed systems, site planning and coordination with various departments; and designing a 4 mgd Granular Activated Carbon Facility that uses chlorine for disinfection – the design of the GAC and chlorination systems were performed within 6 months.



Brian Young, PE

Electrical Engineer



Education

B.S. - Electrical Engineering,
Ohio State University (1986)

Years of

Experience
10 years with
the firm/ 40
years total

Registration

Registered Electrical
Engineer:
Arizona - 52847
California – E20743
Utah – 8841511-2202

Certifications

MSHA Trained
OSHA 10Hr
Trained

Representative Project Experience

Town of Gilbert North Water Treatment Plant Design and Improvements (Senior Electrical Engineer)

The Gilbert NWTP is a 60-mgd drinking water plant that treats surface water and groundwater from four different sources. WaterWorks was the Design Engineer that led the team for this project that met an immediate need for improved Disinfection By-Product (DBP) compliance and maximized surface water supplies. The project was challenged by the differing sources of surface water and groundwater with primary sources changing based on the season. Both sources are extreme in their treatability with high turbidity and/or elevated TOC concentrations from one source and low turbidity, poor settleability, and poor filterability found from the other primary source. Water Works has performed water quality evaluations and identified treatability challenges, led the technology selection to replace and repair deficient and failing infrastructure, as well as expanded the treatment capacity from 45 mgd to 60 mgd to facilitate future capacity expansions. As Senior Electrical Engineer, Brian assisted with project meetings and workshops, evaluation of existing facilities, cost evaluation, pre-design, quality control/quality assurance, design-phase project master docs, 60%, 90%, and 100% detailed design, permitting, value engineering and differential design GMPs, and construction administration services.

City of Scottsdale Water Resources Engineering Support Services (Senior Electrical Engineer)

The City of Scottsdale (COS) owns and operates a number of surface water, groundwater, wastewater, and advanced reclaimed water treatment facilities. These treatment facilities cover the range of technologies, including Conventional Surface Water Treatment (Coagulation, Sedimentation, Granular Media Filtration), Low Pressure Membrane Filtration (Ultrafiltration/Microfiltration), Cloth Media Filtration, Granular Activated Carbon (GAC) Adsorption, Biological Nitrification/De-Nitrification, Chlorination/Chloramination, Ozonation, Reverse Osmosis, Ultraviolet (UV), Vadose Zone Recharge, Air Stripping, Granular Iron Media Adsorption (Arsenic Removal), and Aquifer Storage and Recovery. Through this contract, Water Works provided process monitoring, technical support, training, and engineering analysis for process optimization. As Senior Electrical Engineer, Brian assisted with system design, construction administration, and specialty inspections.

City of Scottsdale Thomas Groundwater Treatment Facility (Senior Electrical Engineer)

Water Works was retained by the City of Scottsdale as the lead consultant team to evaluate alternatives and provide the design of the City of Scottsdale Thomas Groundwater Treatment Facility. The TGTF is a treatment extension of the Central Groundwater Treatment Facility (CGTF) which treats TCE contaminated groundwater from Superfund Sites in Scottsdale. The project included treatment evaluation, including municipal site planning, space planning, reverse osmosis facility design, concept and development, cost estimating, and preparation of construction documents, coordination of agency review, bidding, public outreach services, and construction administration. As Senior Electrical Engineer, Brian assisted with construction phase services.



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Arizona Water Company (AWC) Groundwater Treatment Projects, Arizona Water Company, AZ (Principal, Project Manager, Lead/Senior Project Engineer)

As part of the ongoing On-Call contract with Arizona Water Company, WaterWorks has provided design, evaluation, and construction services for various water treatment facilities around Arizona for the projects listed below:

- **Pinal Valley Well 13 and Cross Creek Ranch**
The Pinal Valley Well 13 Water Facility is owned and operated by Arizona Water Company and supplies potable water to the Pinal Valley Water System. The Water Facility includes a 1,600 gpm onsite well, a 1,600 gpm adsorption arsenic removal facility, a 0.86 Mgal tank, and water storage tank, and 2,300 gpm (firm) booster pump station. PV Well 42 (offsite well) supplies groundwater to the Water Facility. As Senior Electrical Engineer, Mr. Young provided design phase services and office engineering and construction phase services.
- **Baseline Arsenic Removal Facility Expansion**
The Baseline ARF is owned and operated by Arizona Water Company. The Baseline ARF supplies potable water to the Company's Apache Junction service area. The Baseline ARF includes a coagulation filtration arsenic removal facility, a water storage tank and a booster pump station and was expanded to increase capacity to accommodate additional water demands. The expansion included the addition of a pressure filter vessel, reconfiguration of filter headers to accommodate the addition of a new filter vessel and construction sequence, new chemical storage and feed facility (FeCl_3 and NaOCl), temporary relocation of an existing backwash tank, new backwash tank, new decant, sludge and supernatant pump stations, yard piping and site improvements. As Senior Electrical Engineer, Mr. Young assisted with design phase services and office engineering and construction administration services.

Arizona Water Company: Pinal Valley Well 11 (PV 11) Fluoride Blending Plan and Fluoride Removal Facility Pilot Test and Conceptual Design (Design/Build Project with Hunter Contracting Company)

Mr. Young, as Electrical Engineer, has assisted with the creation of design documents for the following:

Fluoride Blending Plan

PV 11 supplies potable water to the Company's Pinal Valley Water System. The PV Well 11 groundwater has fluoride above the Safe Drinking Water Act (SDWA) maximum contaminant level (MCL) of 4.0 mg/L. To comply with the fluoride and arsenic MCLs, the Company considered blending PV Well 11, PV 13 and PV Well 42 to reduce arsenic and fluoride and meet the MCLs. A PV 11, PV 13 and PV 42 blending plan was required to comply with the MCLs. WaterWorks, provided engineering services to develop blending plans, coordinate with agency for blending plan permits, and obtain blending plan permits. Additionally, WaterWorks provided design and construction services to the addition of a chlorination system at PV 42, addition of fluoride analyzers at PV 11 and PV 42.

Fluoride Removal Facility

The PV Well 11 groundwater has fluoride above the Safe Drinking Water Act (SDWA) maximum contaminant level (MCL) of 4.0 mg/L. WaterWorks provided engineering services to review fluoride removal technology for PV 11. The review included preliminary bench scale testing and assessment to determine initial parameters, conduct pilot test with the Company and equipment supplier, develop pilot testing evaluation and recommendations, and develop a preliminary design report for the PV 11 Fluoride Removal Facility.

Caden Carpenter, PE

Electrical Engineer



Education

B.S. – Electrical Engineering Electrical
Power and Energy Systems
Arizona State University (2019)
A.S. – Engineering Technology
Chandler/Gilbert Community College
(2017)

Years of

Experience
2 years with the
firm/ 7 years total

Registration

Registered Electrical Engineer:
Arizona - 81342
California – 25956
New Mexico – 30993
Utah – 14244508-2202
Washington - 25025948

Representative Project Experience

Town of Gilbert North Water Treatment Plant Design and Improvements (Electrical Engineer)

The Gilbert NWTP is a 60-mgd drinking water plant that treats surface water and groundwater from four different sources. WaterWorks was the Design Engineer that led the team for this project that met an immediate need for improved Disinfection By-Product (DBP) compliance and maximized surface water supplies. The project was challenged by the differing sources of surface water and groundwater with primary sources changing based on the season. Both sources are extreme in their treatability with high turbidity and/or elevated TOC concentrations from one source and low turbidity, poor settleability, and poor filterability found from the other primary source. Water Works has performed water quality evaluations and identified treatability challenges, led the technology selection to replace and repair deficient and failing infrastructure, as well as expanded the treatment capacity from 45 mgd to 60 mgd to facilitate future capacity expansions. As Electrical Engineer, Caden has assisted with value engineering and differential design GMPs as well as GMP construction administration services.

City of Scottsdale Water Resources Engineering Support Services (Electrical Engineer)

The City of Scottsdale (COS) owns and operates a number of surface water, groundwater, wastewater, and advanced reclaimed water treatment facilities. These treatment facilities cover the range of technologies, including Conventional Surface Water Treatment (Coagulation, Sedimentation, Granular Media Filtration), Low Pressure Membrane Filtration (Ultrafiltration/Microfiltration), Cloth Media Filtration, Granular Activated Carbon (GAC) Adsorption, Biological Nitrification/De-Nitrification, Chlorination/Chloramination, Ozonation, Reverse Osmosis, Ultraviolet (UV), Vadose Zone Recharge, Air Stripping, Granular Iron Media Adsorption (Arsenic Removal), and Aquifer Storage and Recovery. Through this contract, Water Works provided process monitoring, technical support, training, and engineering analysis for process optimization. As Electrical Engineer, Caden assisted with 90% and 100% system design.

California Water Service PFAS Program Engineering Assistance: Phase 2 – Engineering Services During Design and Construction (Electrical Engineer)

WaterWorks has been providing engineering services and assistance to California Water Service (CWS) as an Owner's Agent in support of CWS' "Design-Build Services – PFAS Water Treatment Program" (Program). This program has involved design-build projects for installing and commissioning 47 PFAS treatment systems in four separate design-build packages. During these packages, Water Works has been taken on a Technical Engineering Lead role, which has included design review and as-needed engineering services. We have also performed select project management tasks and submittal reviews, and design reviews for each of the 47 sites. As Electrical Engineer, Caden has assisted with design reviews and construction technical support.

Mission Springs Water District (MSWD) On-Call General Engineering Support Services (Electrical Engineer)

Water Works was contracted by Mission Springs Water District (MSWD) to provide preliminary design services for the installation of temporary hexavalent chromium (Cr(VI)) treatment system equipment to treat the Cr(VI) below the anticipated State of California MCL of 10-ug/L for the City of Desert Hot Springs – owned and operated by MSWD. The designated treatment equipment has been decided to be Strong Base Ion Exchange Roll-up



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Regeneration (IX-RUR). As Electrical Engineer, Caden has been assisting with treatment equipment coordination support services and basis of design technical memorandum.

Arizona Water Company Rainbow Well No. 6 Forever Chemical Removal Facility (Electrical Engineer)

The United States Environmental Protection Agency ("EPA") wanted to institute a Maximum Contaminant Level ("MCL") and Hazard Index ("HI") for Forever Chemicals including PFOA, PFOS, PFBS, GenX, PFHxS, and PFNA. Arizona Water Company discovered Forever Chemicals in Sedona Rainbow Well No. 6. The well had a production capacity of 353,000 gallons per day. The well pumps directly to the Rainbow Arsenic Removal Facility ("Rainbow ARF") located in the same site, followed by a 255 GPM booster pump station that pumps into the water system. Water Works has been assisting Arizona Water Company by performing a technology evaluation to determine the best available, cost-effective, and efficient technology to remove Forever chemicals from Sedona Rainbow Well No. 6. Caden, as Electrical Engineer, has assisted with making a drafty study technical memorandum, performing final study engineering services, and conducting preliminary design.

Arizona Public Water Service PVGS Reverse Osmosis Water System (Electrical Engineer)

The Palo Verde Water Resources Facility (PVWR) has been using well water treated through a reverse osmosis (RO) system for drinking water and other clean uses. The existing RO system, installed in the 1980s, had reached the end of its useful life. Water Works provided a study that recommended its replacement with newer RO membrane technology to improve performance and operability, reduce water usage, and facilitate procurement of replacement parts. Subsequently, Water Works has been performing the design and construction administration of the new RO system including replacing four RO units and constructing a new RO building. The new RO system is expected to last at least 27 years and utilize thin film composite (TFC) membranes, raising recovery rates to over 80%. and integrating seamlessly into existing systems at PVWR. As Electrical Engineer, Caden has been assisting with design changes and work breakdown structures.

California Water Service Dominguez 301 (Electrical Engineer)

California Water Service (Cal Water) contracted Water Works to provide preliminary and final design services for the Dominguez 301 Treatment Facility Project, which is expected to bring the new Dominguez Well 301 online to supplement the Dominguez District water system. The project includes the design and construction of a well pump, breakpoint reaction tanks, sodium hypochlorite and liquid ammonia sulfate storage and feed systems, and a new concrete masonry unit (CMU) building to house chemical storage, instrumentation, and electrical equipment. DOM 301 is in Long Beach, California, in an area served by Cal Water's Dominguez District, which supplies approximately 32,800 customers across multiple cities. The new treatment facility is anticipated to enhance water quality by implementing breakpoint chlorination to remove in-situ ammonia and chloramination for secondary disinfection, ensuring compliance with water quality regulations and operational goals. Additionally, site improvements include yard piping, pump-to-waste infrastructure, and site drainage considerations to manage stormwater while maintaining compliance with regulatory entities. As Electrical Engineer, Caden has been assisting with preliminary engineering.

Martin Puhlmann, PE, SE

Structural Engineer



Education

M.S. - Civil Engineering,
Brigham Young University (1984)
B.S. - Civil Engineering,
Brigham Young University (1983)

Years of
Experience
8 years
with the
firm/ 42
years total

Registration

Registered Civil Engineer:
Ariz. – 24051 - Structural
Calif. – S3889 - Structural
Calif. – C43331 - Civil

Certifications

City of Phoenix
Special
Inspector

Representative Project Experience

Town of Gilbert North Water Treatment Plant Design and Improvements (Senior Structural Engineer)

The Gilbert NWTP is a 60-mgd drinking water plant that treats surface water and groundwater from four different sources. WaterWorks was the Design Engineer that led the team for this project that met an immediate need for improved Disinfection By-Product (DBP) compliance and maximized surface water supplies. The project was challenged by the differing sources of surface water and groundwater with primary sources changing based on the season. Both sources are extreme in their treatability with high turbidity and/or elevated TOC concentrations from one source and low turbidity, poor settleability, and poor filterability found from the other primary source. Water Works has performed water quality evaluations and identified treatability challenges, led the technology selection to replace and repair deficient and failing infrastructure, as well as expanded the treatment capacity from 45 mgd to 60 mgd to facilitate future capacity expansions. As Senior Structural Engineer, Martin has assisted with evaluation of existing facilities, pre-design, project meetings and review workshops, design phase-project master docs, 60%, 90%, and 100% detailed design development, quality control/quality assurance, review of RFIs, and value engineering and differential design GMPs.

City of Scottsdale Water Resources Engineering Support Services (Senior Structural Engineer)

The City of Scottsdale (COS) owns and operates a number of surface water, groundwater, wastewater, and advanced reclaimed water treatment facilities. These treatment facilities cover the range of technologies, including Conventional Surface Water Treatment (Coagulation, Sedimentation, Granular Media Filtration), Low Pressure Membrane Filtration (Ultrafiltration/Microfiltration), Cloth Media Filtration, Granular Activated Carbon (GAC) Adsorption, Biological Nitrification/De-Nitrification, Chlorination/Chloramination, Ozonation, Reverse Osmosis, Ultraviolet (UV), Vadose Zone Recharge, Air Stripping, Granular Iron Media Adsorption (Arsenic Removal), and Aquifer Storage and Recovery. Through this contract, Water Works provided process monitoring, technical support, training, and engineering analysis for process optimization. As Senior Structural Engineer, Martin has assisted with detailed design and permitting coordination.

City of Scottsdale Thomas Groundwater Treatment Facility (Senior Electrical Engineer)

Water Works was retained by the City of Scottsdale as the lead consultant team to evaluate alternatives and provide the design of the City of Scottsdale Thomas Groundwater Treatment Facility. The TGTF is a treatment extension of the Central Groundwater Treatment Facility (CGTF) which treats TCE contaminated groundwater from Superfund Sites in Scottsdale. The project included treatment evaluation, including municipal site planning, space planning, reverse osmosis facility design, concept and development, cost estimating, and preparation of construction documents, coordination of agency



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review, bidding, public outreach services, and construction administration. As Senior Electrical Engineer, Martin assisted with detailed design.

Arizona Water Company Rainbow Well No. 6 Forever Chemical Removal Facility (Senior Structural Engineer)

The United States Environmental Protection Agency ("EPA") wanted to institute a Maximum Contaminant Level ("MCL") and Hazard Index ("HI") for Forever Chemicals including PFOA, PFOS, PFBS, GenX, PFHxS, and PFNA. Arizona Water Company discovered Forever Chemicals in Sedona Rainbow Well No. 6. The well had a production capacity of 353,000 gallons per day. The well pumps directly to the Rainbow Arsenic Removal Facility ("Rainbow ARF") located in the same site, followed by a 255 GPM booster pump station that pumps into the water system. Water Works has been assisting Arizona Water Company by performing a technology evaluation to determine the best available, cost-effective, and efficient technology to remove Forever chemicals from Sedona Rainbow Well No. 6. Martin, as Senior Structural Engineer, has been assisting with final study technical memorandum and 30% preliminary design.

Arizona Water Company: Pinal Valley Well 13 Arsenic Removal Facility (Design Build)

Mr. Puhlmann, as structural engineer, provided engineering and construction administration services.

The PV 13 ARF is part of the PV 13 Water Facility that supplies potable water to the Pinal Valley Water System. WaterWorks provided design and construction administration for the two PV 13 expansions. The PV 13 expansions included two 800 gpm arsenic removal adsorption vessel systems, bypass blending, back tank, backwash recycle pump station, sodium hypochlorite storage and feed facility, new submersible well pump, electrical and instrumentation controls, civil site and yard piping.

Arizona Water Company: Pinal Valley Well 11 (PV 11) Fluoride Blending Plan and Fluoride Removal Facility Pilot Test and Conceptual Design (Design/Build Project with Hunter Contracting Company) (Senior Structural Engineer)

As Senior Structural Engineer, Mr. Puhlmann helped with the creation of 15% conceptual design documents for the following projects.

[Fluoride Blending Plan](#)

PV 11 supplies potable water to the Company's Pinal Valley Water System. The PV Well 11 groundwater has fluoride above the Safe Drinking Water Act (SDWA) maximum contaminant level (MCL) of 4.0 mg/L. To comply with the fluoride and arsenic MCLs, the Company considered blending PV Well 11, PV 13 and PV Well 42 to reduce arsenic and fluoride and meet the MCLs. A PV 11, PV 13 and PV 42 blending plan was required to comply with the MCLs. WaterWorks, provided engineering services to develop blending plans, coordinate with agency for blending plan permits, and obtain blending plan permits. Additionally, WaterWorks provided design and construction services to the addition of a chlorination system at PV 42, addition of fluoride analyzers at PV 11 and PV 42.

[Fluoride Removal Facility](#)

The PV Well 11 groundwater has fluoride above the Safe Drinking Water Act (SDWA) maximum contaminant level (MCL) of 4.0 mg/L. WaterWorks provided engineering services to review fluoride removal technology for PV 11. The review included preliminary bench scale testing and assessment to determine initial parameters, conduct pilot test with the Company and equipment supplier, develop pilot testing evaluation and recommendations, and develop a preliminary design report for the PV 11 Fluoride Removal Facility.





Himai Mehere, PE
Structural & Architectural
/ Structural Design Engineer

Education

M.S. - Civil Engineering (Structural)
Arizona State University (2017)
B.Tech. - Civil Engineering,
College of Engineering (2013)

Years of Experience

4 years with the
firm/ 9 years total

Registration

Registered Civil
Engineer:
California – C97018

Ms. Mehere has over 9 years of experience in structural design engineering with projects in residential, mixed-use, and commercial building sector. Proficient in steel, concrete, timber, masonry, and light-gage steel design. Detail oriented, team player with proven ability to deliver fast paced projects from planning, design, permitting to construction phase.

Representative Project Experience

- San Jose Water Mountain Springs Reservoir Evaluation, San Jose
- Paradise Irrigation District Water Treatment Plant Equalizer Tank Replacement, Paradise, CA
- City of Redding Organics Diversion to Energy Project, Redding, CA
- City of Ruidoso On-Call Water and Sewer Improvements, Ruidoso, NM
- West Bay Sanitary District Bayfront Recycled Water Treatment Plant, Santa Clara, CA
- San Jose Water More Ave Pump Station Design, San Jose, CA
- Placer County Water Agency Bowman Water Treatment Plant Phase 3, Rocklin, CA
- City of Roseville Pleasant Grove Wastewater Treatment Plant Pump Station Rehabilitation, Roseville, CA
- Zone 7 Water Agency, Paterson Pass Water Treatment Plant Electrical Enclosure, Livermore, CA
- California Water Service Company, DOM 215/216 ESDC
- The True Life Companies, Pioneer Place Lift Station Basis of Design Report, Cameron Park, CA
- California Water Service Company DOM Well 300 Treatment Project, Torrance, CA
- El Dorado Irrigation District, Various Projects
 - Echo Lake Conduit Emergency Replacement, El Dorado County, CA
 - Diversion Fish Screen A11 Gates Analysis, Placerville, CA
 - Sly Park Intertie Improvements Project, El Dorado County, CA
 - Reservoir A Valve Replacement, El Dorado County, CA
- Pacific Hydrotech Corporation, City of Needles Well 11 Treatment Plant Upgrade, Needles, CA
- Anderson Pacific, City of Palo Alto Regional Water Quality Control Plant Secondary Treatment Upgrade Project Temporary Bypass Systems, Palo Alto, CA
- Contra Costa Water District, Bollman Water Treatment Plant Phase 2 Design Engineering During Construction, Concord, CA
- San Jose Water, Belgatos Pump Station Design, San Jose, CA
- City of Redding, Wastewater Treatment Plant Bisulfite Facilities Structural Design, Redding, CA
- California Water Service Company, Palos Verdes Station 22 Sound Wall Project, Rolling Hills Estates, CA
- San Jose Water Idylwild Pump Station Project
- Paradise Irrigation District Reservoir B Replacement Project, Paradise, CA
- City of Morro Bay Water Reclamation Facility Project, Morro Bay, CA
- Contra Costa Water District Randall Bold Water Treatment Plant Chemical Conversion, Contra Costa, CA
- South Placer Municipal Utility District On-Call Structural Plan Review, Rocklin, CA
- TTL Pioneer Place Lift Station, El Dorado County, CA



WATERWORKS
ENGINEERS



Rachel Eising, EIT

Staff Engineer

Education

B.S. - Civil Engineering,
California State University (2024)

Years of Experience

2 years with the
firm/ 2 years total

Registration

Registered Engineer
in Training - 188236

Representative Project Experience

California Water Service PFAS Design-Build Engineering Services – Various locations, CA

Ms. Eising provided engineering services during design and construction for 47 existing groundwater treatment stations across 6 of Cal Water Districts in California with varying flow rates. The project included administrative services to support the Design-Build Services – PFAS Water Treatment Program.

Washington Water Service PFAS Program Engineering Assistance – Various locations, WA

Ms. Eising provided engineering services for RFP development and bidding assistance for 22 existing groundwater treatment stations across Northern and Southern Washington with varying flow rates. The project included administrative services to support the installing and commissioning 22 PFAS treatment systems.

Placer County Water District 2024 Operations & Maintenance 2025 – Rocklin, CA

Ms. Eising assisted with updating digital Operations Guides for all 8 of the Agency's water treatment plants. The Operations Guides serve as a central location for plant information such as equipment O&M manuals, as-built drawings, and SOPs.

Contra Costa Water District Randall Bold Water Treatment Plant Clearwell, Piping, Valve, and Chemical Improvements – Contra Costa, CA.

Ms. Eising provided engineering services for the Randall Bold Water Treatment plant project. The project included replacing the aqueous ammonia feed lines and installing a secondary caustic soda feed line. Aqueous ammonia feed lines were replaced from their origin at the bulk chemical storage area to the clearwell. New caustic soda feed line was installed from the bulk storage tanks to the clearwell.

Placer County Water District 2024 Operations & Maintenance Manual Project – Rocklin, CA

Ms. Eising assisted with developing digital Operations Guides for all 8 of the Agency's water treatment plants. The Operations Guides serve as a central location for plant information such as equipment O&M manuals, as-built drawings, and SOPs. The Operations Guides include clickable links to relevant documents and are easily navigable for both Operations and Engineering Staff.

Santa Cruz County Sanitation District East Cliff Main Relocation at Murray St. Bridge – Santa Cruz, CA

Ms. Eising served as staff engineer working under the project manager on the Murray Street Bridge Sewer Force Main Relocation which was part of the Murray Street Bridge Improvement project. Water Works proved construction support services during the construction phase of the project. The project involved the widening and seismic retrofitting of the 9-span structure over the Santa Cruz Harbor. The relocation of the existing Santa Cruz County Sanitation District's sewer forcemain consists of one of the utility relocations necessitated by the widening/retrofit project. The project involves multiple construction phases/sequences to facilitate constructability while minimized public impacts.

El Dorado Irrigation District On-Call Services 2023-2025

Ms. Eising assisted in the design and preparation of the bid documents for the El Dorado Irrigation District (EID) Wastewater Treatment Plant (WWTP) Filter rehab project. This project included rehabilitation of



two of the six existing tertiary treatment filters, which are trident adsorption clarification/ filtration units. The project addressed the failure of two of the underdrain systems, inclusive of air scour piping, granular filter media and buoyant adsorption clarifier media and retaining screens.

El Dorado Irrigation District Sly Park Intertie Improvements Project – Pollock Pines, CA

Ms. Eising served as the Staff Engineer collaborating with the team on design to this multi-facility, cross country project. This project included the replacement of a vital transmission main pipeline and booster pump station to connect two surface water treatment and distribution systems with different water quality constraints in Pollock Pines area in El Dorado County. This allowed for the shut down and maintenance of respective surface water treatment facilities, allowing for blending, and reduced pumping costs.

Casitas Municipal Water District Ventura County/Santa Barbara Intertie – Ojai, CA

Ms. Eising served as the staff engineer working with the team for the preliminary design, PS&E for a bi-directional potable water transmission project between Santa Barbara and Ventura counties. The project provides mitigation to multiple hazards threatening regional water infrastructure for coastal communities with limited water supplies. Water Works Engineers developed the technical engineering report and identified constraints, a range of alignments, and recommended a project alternative that incorporated the bi-directional 8000-LF of 16" FPVC & CMCL steel pipe (design flow: 4500 gpm @ 150 to 450 PSI), 2x booster pump stations to pump water up to and along the Rincon mountain transmission main (built by USBR in the 1960s) to Casitas, and a dual treatment system to convert Free Chlorine (Carp. Valley) to/from Chloramine residual in the water supply.

Paradise Irrigation District Disaster Recovery Management Services – Paradise, CA

Ms. Eising provided engineering services for the development and recommendation of recovery effort strategies as well as procedures the Paradise Irrigation District (PID) water distribution system following unprecedented damage resulting from the 2018 Camp Fire. Mr. Roy modeled different water distribution system scenarios in WaterGEMS to assist with recovery planning. Results of the model were integrated with GIS data to provide figures to convey results.

City of Roseville West Side Tank and Pump Station – Roseville, CA

Ms. Eising assisted with design, plans and specifications for two pre-stressed concrete tanks, booster pump station, and new crew facility. The water tanks and pump station were delivered using the City's design assist CM at Risk project delivery method and the crew build as design- build. Improvements to the greenfield site included:

- ✓ Two 6 MG partially buried AWWA D110 Type I pre-stressed concrete tank(s).
- ✓ Booster Pump Station – four 3800 GPM @ 170' TDH vertical turbine pumps and controls.
- ✓ CMU block building with pump, E&IC and chemical feed rooms
- ✓ Site design to minimize material off-haul and provide post construction drainage water quality enhancements
- ✓ Mechanical stabilized earth foundation improvements under tank to minimize differential settlement
- ✓ Crew building with office, training, lavatory, showers, kitchen and shop to support water operations and maintenance staff
- ✓ Architectural features of the site followed master planned community CC&Rs.



Dr. Chad Seidel is the President and a founding partner at Corona, bringing more than 25 years of consulting experience providing small and large drinking water utilities with expert process engineering services. He is a nationally recognized authority on hexavalent chromium [Cr(VI)] occurrence and treatment, having spearheaded compliance, discovery, and testing initiatives for California drinking water supplies since 2000. His foundational expertise in this sector is anchored by a Ph.D. from the University of Colorado Boulder, where his doctoral dissertation focused explicitly on this topic: *“Investigation of Hexavalent Chromium as a Future Regulated Drinking Water Contaminant”*.



Licenses

Registered Professional Engineer – AZ, CO, GA, IL, MA, NY, NJ, PA, TX, WA

Education

Ph.D., Civil Engineering, University of Colorado Boulder, 2006

M.S., Civil Engineering, University of Colorado Boulder, 2000

B.S., Environmental Engineering, Montana Tech of the University of Montana: Valedictorian, 1998

Representative Projects

Hexavalent Chromium Compliance, Coachella Water Authority, CA: All of Coachella Water Authority's (CWA) groundwater sources are impacted by the Division of Drinking Water's (DDW) 10 µg/L Cr(VI) maximum contaminant level (MCL). CWA has retained Corona to evaluate the most appropriate treatment technology to achieve Cr(VI) compliance, as well as to support them through regulatory requirements and preliminary design. As the Principal in Charge for this project, Chad is directing the team's efforts, including treatment alternatives analysis, bench- and pilot-scale testing, DDW permitting, and collaboration with design partners. He is also supporting communications with leadership and customers.

Evaluation of Options to Comply with California's Proposed Hexavalent Chromium Level, Coachella Valley Water District, California: The Coachella Valley Water District (CVWD) selected a multidisciplinary team consisting of West Yost, Confluence Engineering, and Corona to evaluate long-term options for complying with the California State Water Resources Control Board's Cr(VI) MCL of 10 µg/L. A primary focus of this effort was minimizing the total number of treatment systems required while maintaining an adequate water supply and system redundancy. This project included in-depth bench- and pilot-scale evaluations of stannous chloride without filtration, alongside other best available technologies. As the Principal in Charge, Chad directed the testing and assessment of both treatment and non-treatment compliance alternatives. He collaborated with CVWD staff to present these outcomes to the CVWD Board.

Hexavalent Chromium Well Treatment Improvements, Watsonville, CA: In collaboration with Carollo Engineers, Corona assisted the City of Watsonville in addressing Cr(VI) in six wells with concentrations exceeding 10 µg/L. Initially engaged in 2014, Corona identified Reduction Coagulation Filtration (RCF) as the preferred technology due to lower lifecycle costs and the City's ability to discharge backwash residuals to the sewer. This recommendation was validated via pilot testing, which also identified methods to reduce equipment footprints using high-rate, low-density filter media. This approach decreased instantaneous backwash rates by 75%, eliminating the need for storage tanks. Following the reinstatement of the MCL in 2024, the team was re-engaged to confirm these recommendations against updated water quality data. Corona confirmed RCF as the most cost-effective solution and identified several wells requiring PFAS co-removal. Corona continues to serve as the treatment process technical advisor throughout the design phase.

Hexavalent Chromium Implementation Study, Soquel Creek Water District, CA: Soquel Creek Water District (District) requires treatment for three groundwater wells to maintain compliance for DDW's Cr(VI) MCL of 10 µg/L. Accordingly, the District engaged Corona to summarize the recommended treatment approach required for the District to achieve compliance, while accounting for the considerable efforts already expended to comply with the previous iterations of the MCL. This study included an overview of the available hexavalent chromium treatment technologies, site-specific water quality and production for the impacted wells, and the associated cost impacts for consolidated treatment of the impacted wells. This project also included a pilot study to inform full-scale design of a consolidated reduction coagulation filtration treatment facility for hexavalent chromium removal and ongoing design review. The new facility is expected to be operational in 2027.

Relevant Publications

Chad has published dozens of peer reviewed journal manuscripts and delivered over 100 presentations regarding water quality issues including Cr(VI). Selected relevant examples include:

Kennedy, A., Gregory, B., Medina, M., Whichard, D., Edjan, E., Henrie, T., Seidel, C., & Gorman, C. (2024). Risks of stannous chloride without filtration for hexavalent chromium treatment. *AWWA Water Science*, 6(4), e1381.

Gorman, C., Kennedy, A., Samson, C., Plummer, S., Townsend, E., & Seidel, C. (2023). Improvements in the reduction coagulation filtration process for hexavalent chromium treatment. *AWWA Water Science*, 5(1), e1315.

Henrie, T., Plummer, S., Orta, J., Bigley, S., Gorman, C., Seidel, C., Shimabuku, K., & Liu, H. (2019). Full-scale demonstration testing of hexavalent chromium reduction via stannous chloride application. *AWWA Water Science*, 1(2), e1136.

Moffat, I., Martinova, N., Seidel, C., & Thompson, C. M. (2018). Hexavalent chromium in drinking water. *Journal-American Water Works Association*, 110(5), E22-E35.

Gorman, C., Seidel, C., Henrie, T., Huang, L., & Thompson, R. (2016). Pilot testing strong base anion exchange for Cr(VI) removal. *Journal-American Water Works Association*, 108(4), E240-E246.

Li, X., Green, P. G., Seidel, C., Gorman, C., & Darby, J. L. (2016). Chromium removal from strong base anion exchange waste brines. *Journal-American Water Works Association*, 108(4), E247-E255.

Li, X., Green, P. G., Seidel, C., Gorman, C., & Darby, J. L. (2016). Meeting California's hexavalent chromium MCL using strong base anion exchange resin. *Journal-American Water Works Association*, 108(9), E474-E481.

Seidel, C. J., & Corwin, C. J. (2013). Total chromium and hexavalent chromium occurrence analysis. *Journal-American Water Works Association*, 105(6), E310-E319.

Seidel, C. J., Najm, I. N., Blute, N. K., Corwin, C. J., & Wu, X. (2013). National and California treatment costs to comply with potential hexavalent chromium MCLs. *Journal-American Water Works Association*, 105(6), E320-E336.

McGuire, M. J., Blute, N. K., Seidel, C., Qin, G., & Fong, L. (2006). Pilot-scale studies of hexavalent chromium removal from drinking water. *Journal-American Water Works Association*, 98(2), 134-143.

Qin, G., McGuire, M. J., Blute, N. K., Seidel, C., & Fong, L. (2005). Hexavalent chromium removal by reduction with ferrous sulfate, coagulation, and filtration: a pilot-scale study. *Environmental science & technology*, 39(16), 6321-27.

Craig has nearly 20 years of experience specializing in the treatment of groundwater contaminants. His technical expertise includes lead roles in technology selection, bench- and pilot-scale evaluations, cost estimating, and design for a variety of constituents including hexavalent chromium [Cr(VI)], arsenic, nitrate, fluoride, boron, uranium, and radium. Recently, he led Corona's support for multiple utilities in California to identify optimal treatment configurations for Cr(VI) impacted wells while ensuring a congruent understanding of production needs. His work focuses on evaluating Best Available Technologies (BAT) to address complex water quality profiles, specifically evaluating the technical and economic viability of Reduction Coagulation Filtration (RCF) and ion exchange to meet stringent regulatory limits. Craig is proficient in navigating the California State Water Resources Control Board regulatory framework and has extensive experience conducting pilot studies to validate treatment processes for full-scale implementation.



Licenses

Registered Professional Engineer – Colorado

Education

M.S. Civil Engineering, University of Colorado at Boulder, Boulder, CO, August 2005

B.S. Environmental Science, State University of New York at Plattsburgh, Plattsburgh, NY, December 1999

Representative Projects

Evaluation of Options to Comply with California's Proposed Hexavalent Chromium Level, Coachella Valley Water District, California: This multifaceted project re-evaluated water supply and treatment needs for the Coachella Valley Water District (CVWD) based on the current understanding of Cr(VI) treatment. A primary objective was to minimize the number of required treatment systems by maximizing the use of CVWD's low-chromium groundwater supplies. Corona led the bench-scale evaluation of stannous chloride (SnCl_2) without filtration and developed the pilot-scale testing protocol. While initially considered a promising, low-cost alternative, testing identified several critical failure points for this approach. Consequently, efforts shifted to evaluating other Best Available Technologies (BATs), which determined that reduction coagulation filtration (RCF) offered the lowest capital, operational, and lifecycle costs for CVWD. Additionally, Corona proposed and developed the water quality monitoring program that identified PFAS contamination in the system requiring treatment. The project culminated in a recommendation to achieve compliance by installing four clustered RCF systems in La Quinta (two), Sun City, and Desert Hot Springs, along with 14 new production wells, the rehabilitation of one existing well, transmission main improvements, and seven storage reservoirs.

Hexavalent Chromium and PFAS Well Treatment Improvements, City of Watsonville, CA: In collaboration with Carollo Engineers, Corona assisted the City of Watsonville in addressing Cr(VI) in six wells with concentrations exceeding 10 $\mu\text{g/L}$. During the initial 2014 regulatory period, the City engaged Corona to identify the appropriate treatment approach. RCF was identified as the preferred technology due to lower lifecycle costs and the City's ability to discharge backwash residuals to the sewer system. This recommendation was validated through comprehensive pilot testing, which also identified ways to reduce equipment footprints by implementing high-rate, low-density filter media. This approach decreased instantaneous backwash rates by 75%, eliminating the need for backwash storage tanks. After the initial maximum contaminant level (MCL) was rescinded and subsequently reinstated in 2024, Watsonville re-engaged the project team. Corona confirmed that RCF remains the most cost-effective solution. During the study's initial water quality analysis, Corona identified data gaps, requested additional sampling, and discovered several wells requiring PFAS co-removal. Corona continues to serve as the treatment process technical advisor through the design phase with MKN & Associates.

Indio Water Authority Hexavalent Chromium Compliance Support, Indio, CA: In anticipation of the Division of Drinking Water (DDW) Cr(VI) MCL, the Indio Water Authority (IWA) engaged Corona to develop a Cr(VI) Treatment Roadmap. This involved evaluating current water quality and production needs against the current state of science for BATs. A primary consideration was the handling of discharge waste. Corona completed a 14-week RCF pilot study to validate ferrous dosing, characterize backwash quantity and quality, establish hydraulic loading rates, and demonstrate backwash water recycling. The outcomes verified the iron dose and contact time, characterized the waste, and confirmed the filter media configuration. Since this study, IWA elected to pursue a strong base anion exchange (SBA-IX) treatment approach for compliance. Corona continues to provide technical advisory services as IWA evaluates roll-up regeneration for their existing SBA-IX systems, including the development of a test plan to seek approval for a full-scale demonstration of the roll-up regeneration process at a Cr(VI)-impacted well site.

Stannous Chloride Evaluation, California Water Service, Dixon District, CA: The application of SnCl_2 , an NSF-certified corrosion inhibitor, was considered a potential compliance alternative for Cr(VI) treatment. In this application, SnCl_2 is added at the wellhead to reduce Cr(VI) to trivalent chromium without filtration. While successful at maintaining concentrations below the MCL, this method raises concerns regarding the fate, accumulation, and potential release of chromium in distribution systems and premise plumbing. Corona designed a simulated system at the pilot scale using representative pipe materials to study chromium accumulation. The system included in-home appurtenances, such as sediment and water filters, to understand how SnCl_2 treated water impacts these items. Results showed significant accumulation of tin and chromium on pipe surfaces, fouling of in-home filtration devices, and samples with total chromium results more than 50 times the regulated limit. These findings prompted the client to proceed with RCF for compliance. Corona continues to provide support through the design phase, including developing the test matrix for upcoming vendor piloting.

Hexavalent Chromium Implementation Study, Soquel Creek Water District, CA: The Soquel Creek Water District (District) required treatment for three groundwater wells to comply with the Cr(VI) MCL of 10 $\mu\text{g/L}$. Corona was engaged to summarize the recommended treatment approach, accounting for previous compliance efforts. The study provided an overview of available technologies, site-specific water quality and production data, and cost impacts for consolidated treatment. The project also included a pilot study to inform the full-scale design of a consolidated RCF treatment facility, along with an ongoing design review. The new facility is expected to be operational in 2027.

Relevant Publications

Gorman, C., Kennedy, A., Samson, C., Plummer, S., Townsend, E., Seidel, C. (2023), Improvements in the Reduction Coagulation Filtration Process for Hexavalent Chromium Treatment. AWWA Water Science.

Kennedy, A., Gregory, B., Medina, M., Whichard, D., Edjan, E., Henrie, T., Seidel, C., Gorman, C. (2024) "Risks of stannous chloride without filtration for hexavalent chromium treatment". AWWA Water Science.

Li, X. , Green, P. G., Seidel, C. , Gorman, C. and Darby, J. L. (2016), Meeting California's Hexavalent Chromium MCL Using Strong Base Anion Exchange Resin. Journal - American Water Works Association, 108: E474-E481.

Plummer, Sarah & Gorman, Craig & Henrie, Tarrah & Shimabuku, Kyle & Thompson, Robert & Seidel, Chad. (2018). Optimization of strong-base anion exchange O&M costs for hexavalent chromium treatment. Water Research.

Gorman, C. , Seidel, C. , Henrie, T. , Huang, L. and Thompson, R. (2016), Pilot Testing Strong Base Anion Exchange for CrVI Removal. Journal - American Water Works Association, 108: E240-E246.

Brittany is a Senior Water Process Engineer with experience in drinking water and wastewater research, as well as environmental remediation. She is focused on maximizing treatment performance and solving complex drinking water challenges for utilities by providing technical leadership on projects involving prevalent inorganic contaminants, including arsenic, manganese, and hexavalent chromium [Cr(VI)]. While Brittany primarily focuses on treatment process optimization through bench- and pilot-scale testing and water quality modeling, she also has extensive experience in distribution system water quality, data management, data visualization, and process modeling. She has a proven ability to lead multidisciplinary teams from initial process selection and treatment validation through full-scale implementation to ensure successful regulatory compliance. Recently, Brittany has been helping utilities in California on their path for compliance with Cr(VI), manganese, and PFAS.



Licenses

Registered Professional Engineer – New Brunswick, Nevada, IntPE and APEC

Education

MASc., Civil and Resource Engineering, Dalhousie University, Halifax, Nova Scotia, 2017

BScE., Geological Engineering, University of New Brunswick, Fredericton, New Brunswick, 2015

Representative Projects

Hexavalent Chromium Compliance, Coachella Water Authority, CA: With all Coachella Water Authority (CWA) groundwater sources were impacted by the Cr(VI) MCL, CWA retained Corona to evaluate treatment technologies and provide regulatory and design support. As the project manager, Brittany oversaw the schedule, budget, and resource planning. She also managed the development of the treatment technology evaluation that identified reduction coagulation filtration (RCF) as the optimal treatment at all wellsites, planned and executed bench- and pilot-scale testing, and assisted in developing the preliminary design report for the impacted well sites. Additionally, Brittany assists with regulatory communications, including customer notifications, the submission of the compliance plan accepted by the Division of Drinking Water (DDW), and ongoing funding support from the California Department of Water Resources

Evaluation of Options to Comply with California's Proposed Hexavalent Chromium Level, Coachella Valley Water District, California: The Coachella Valley Water District (CVWD) selected a multidisciplinary team consisting of West Yost, Confluence Engineering, and Corona to evaluate the most effective long-term compliance options for the DDW Cr(VI) maximum contaminant level (MCL) of 10 µg/L. A primary focus of this effort was to minimize the total number of treatment systems required for compliance while maintaining an adequate water supply and system redundancy. This work included an in-depth evaluation of stannous chloride (SnCl₂) without filtration at both bench and pilot scales, as well as an assessment of other best available treatment technologies for Cr(VI) removal. Brittany helped develop the permit amendment approved by the DDW for the pilot-scale evaluation of SnCl₂ without filtration.

She also assisted with the development, execution, and data analysis for bench- and pilot-scale testing. Additionally, Brittany proposed and developed the water quality monitoring program that identified PFAS contamination in the system requiring treatment. Ultimately, the pilot-scale testing identified several critical failure points for the SnCl₂ approach, shifting the project focus toward alternative treatment technologies. Brittany assisted in developing the final deliverable that recommended RCF as the optimal treatment for CVWD. She also planned and executed RCF bench-scale testing to refine the project team's understanding of the reduction times and ferrous doses required for the specific wells designated for Cr(VI) treatment.

Hexavalent Chromium and PFAS Well Treatment Improvements, City of Watsonville, CA: In collaboration with Carollo Engineers, Corona assisted the City of Watsonville in addressing Cr(VI) levels in six wells that exceeded the upcoming MCL. Corona developed Class 5 capital and operations and maintenance cost estimates for various blending and treatment scenarios, ultimately supporting the selection of RCF as the most cost-effective and operationally familiar technology for long-term compliance. Brittany completed the initial water quality analysis for this study and identified several wells that also required the co-removal of PFAS. This discovery led to a separate treatment alternatives analysis and cost estimates for the co-removal of these contaminants. Corona continues to support the City as a technical advisor through the design phase with MKN & Associates.

Stannous Chloride Evaluation, California Water Service, Dixon District, CA: The California Water Service (Cal Water) Dixon water system has multiple groundwater sources with Cr(VI) concentrations exceeding the DDW MCL. While three of these wells use regenerable SBA-IX for removal, a newly constructed well lacks treatment. Cal Water contracted Corona to determine the feasibility of using SnCl₂ without filtration to reduce Cr(VI) to trivalent chromium prior to distribution. Bench- and pilot-scale testing were conducted to evaluate required SnCl₂ doses and reduction times, as well as the impact on various pipe materials and premise plumbing fixtures. Brittany aided in the test plan development and implementation, completed the data analysis, and co-authored a peer-reviewed article on the study findings published in *AWWA Water Science*. She continues to support Cal Water through the design phase for the implementation of RCF treatment, including test matrix development and technical oversight for the upcoming vendor piloting of the proposed design.

Hexavalent Chromium Implementation Study, Soquel Creek Water District, CA: The Soquel Creek Water District engaged Corona to develop a treatment approach for three groundwater wells to maintain compliance with the Cr(VI) MCL. This study included an overview of available treatment technologies, site-specific water quality and production analysis, and cost impacts for consolidated treatment. The project also featured a pilot study to inform the full-scale design of an RCF treatment facility. Brittany developed the treatment implementation study report, which included 20-year net present worth estimates, and executed the bench- and pilot-scale testing for the selected technology. She also managed project tasks, including supervising pilot staff and providing operational updates for progress meetings. Brittany presented the pilot findings at the 2025 AWWA ACE conference and provided treatment design support through 100% design.

Indio Water Authority Hexavalent Chromium Compliance Support, Indio, CA: In anticipation of the DDW Cr(VI) MCL, Indio Water Authority (IWA) engaged Corona to develop a Cr(VI) Treatment Roadmap. This included an evaluation of current water quality and production needs against the BATs. A primary consideration was the handling of discharge waste. Brittany supported a 14-week RCF pilot study to validate ferrous dosing, characterize backwash quantity and quality, establish hydraulic loading rates, and demonstrate backwash water recycling. The outcomes verified the iron dose and contact time, characterized the waste, and confirmed the filter media configuration. Since this study, IWA elected to pursue an SBA-IX treatment approach for compliance. Corona continues to provide technical advisory services as IWA evaluates roll-up regeneration for their existing SBA-IX systems, including the development of a test plan to seek approval for a full-scale demonstration of the roll-up regeneration at a Cr(VI) impacted well site.

Publications

Kennedy, A., Gregory, B., Medina, M., Whichard, D., Edjan, E., Henrie, T., Seidel, C., Gorman, C. (2024) "Risks of stannous chloride without filtration for hexavalent chromium treatment". *AWWA Water Science*. 6(4), August 2024

Gorman, C., Kennedy, A., Gregory, B., Butler, C., Corwin, C., Johnson, S., Seidel, C. (2023) "Identifying Causes and Controls for Intermittent Nitrate Release from Granular Activated Carbon". Water Research Foundation, Project Number 2046 (2023)

Mathieu Medina is a Water Process Engineer with experience in drinking water quality and water treatment process evaluation and optimization. Through desktop analysis and bench- and pilot- scale testing he has assisted systems across the country in achieving their treated water and distribution system water quality goals with a focus in water quality and treatment process modeling and data analysis and visualization. Recently, Mathieu has been supporting utilities in California on their path for compliance with hexavalent chromium and in Arizona to improve and optimize their ion exchange treatment operations and performance.



Education

M.S.E., Environmental and Water Resources Engineering, University of Texas at Austin, Austin, Texas, 2023

B.S., Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, 2021

Representative Projects

Hexavalent Chromium Compliance, Coachella Water Authority, CA: Coachella Water Authority (CWA) engaged Corona to evaluate the most appropriate treatment technology to achieve compliance at their hexavalent chromium [Cr(VI)] impacted groundwater wells, as well as supporting them through regulatory requirements and preliminary design with the support of Water Works Engineers (WWE). Mathieu developed a treatment implementation study report comparing strong base anion exchange (SBA-IX), weak base anion exchange (WBA-IX), and reduction coagulation filtration (RCF) treatment options for the six wellsites, including 20-year net present worth estimates based on capital and operations and maintenance (O&M) costs. He planned and executed RCF bench-scale testing to evaluate ferrous chloride for all of CWA's Cr(VI) impacted wells. Mathieu supported pilot-scale testing at one of the impacted CWA wells to answer key design questions for full scale RCF treatment and backwash disposal options through on-site activities, data analysis, and client communication. He prepared the final pilot report which detailed the outcomes and implications of the pilot and bench-scale studies to inform preliminary design and treatment implementation for CWA.

Evaluation of Options to Comply with California's Proposed Hexavalent Chromium Level, Coachella Valley Water District, California: Coachella Valley Water District (CVWD) selected a multi-disciplinary team, consisting of West Yost, Confluence Engineering, and Corona to evaluate the best long-term option for CVWD to comply with the California State Water Resources Control Board Division of Drinking Water (DDW) Cr(VI) maximum contaminant level (MCL) of 10 µg/L. A primary focus of this effort was to minimize the total number of treatment systems that would be needed to comply with the rule, while still maintaining adequate water supply and system redundancy. This included an in-depth evaluation of stannous chloride without filtration at bench-scale and the pilot-scale, as well as the evaluation of other best-available treatment technologies to achieve Cr(VI) removal. Mathieu supported the execution of bench-scale testing with stannous chloride without filtration; following, he supported the development and execution of bench-scale testing of RCF with ferrous chloride reductant to inform reduction times and ferrous doses required for wells expected to be treated for Cr(VI) compliance.

Stannous Chloride Evaluation, California Water Service, CA: California Water Service's (Cal Water) Dixon Water system has multiple groundwater sources with Cr(VI) at concentrations exceeding the DDW MCL of 10 µg/L. Three of these wells utilize regenerable SBA-IX to remove Cr(VI) to below the anticipated MCL; however, a newly constructed groundwater well with elevated Cr(VI) is not yet equipped with treatment. CalWater contracted Corona to determine the feasibility of applying stannous chloride without filtration to reduce Cr(VI) to trivalent chromium to achieve the anticipated MCL prior to distribution. Mathieu conducted

bench-scale testing to evaluate the required stannous chloride doses and reduction times to achieve sufficient Cr(VI) reduction, along with its impact on various pipe materials and typical premise plumbing fixtures in parallel with pilot testing. The results obtained from this study were summarized in a peer-reviewed article co-authored by Mathieu and published in AWWA Water Science.

Hexavalent Chromium Implementation Study, Soquel Creek Water District, CA: Soquel Creek Water District (District) requires treatment for three groundwater wells to maintain compliance for DDW's Cr(VI) MCL of 10 µg/L. Accordingly, the District engaged Corona to summarize the recommended treatment approach required to achieve compliance, while accounting for the considerable efforts already expended to comply with the previous iterations of the MCL. This study included an overview of the available Cr(VI) treatment technologies, site-specific water quality and production for the impacted wells, and the associated cost impacts for consolidated treatment of the impacted wells. Mathieu supported a pilot study to inform full-scale design of a consolidated reduction coagulation filtration treatment facility for Cr(VI) removal and ongoing design review. On-site pilot testing activities included sample collection, water quality analysis, and backwash water characterization.



JAMES A. BIANCHIN, PG, CEG

Position

Principal Engineering
Geologist

Years of Experience

43

Education

B.A - Geology
California State University
at Humboldt

Registration

Professional Geologist
CA - 5966

Certified Engineering
Geologist
CA - 1644
OR - E1989

Associations

Association of
Environmental &
Engineering Geologists

American Society of Civil
Engineers

American Public Works
Association

Redding West Rotary Club

Jim is a Principal Engineering Geologist with more than 43 years of experience in managing and providing engineering geologic services for complex geotechnical projects located in Oregon, Nevada, throughout California, and in the former Soviet Union. He specializes in managing multifaceted, detailed geotechnical studies for difficult access sites and characterization of complex, geologically impacted sites.

Representative Project Experience

The following are brief project descriptions that highlight Jim's experience:

Oakland to San Francisco Bay Bridge Replacement Jim managed the preliminary geotechnical studies for the onshore components at Yerba Buena Island for the replacement of the Bay Bridge. These services included extensive onshore coring and geophysical surveys, offshore coring and downhole in-situ testing, extensive laboratory testing and geotechnical modeling, and preparation of a preliminary geotechnical report for the project.

Coastal Aqueduct Extension (Phase II) of the California State Water Project. Jim was the manager of geotechnical services and responsible engineering geologist for the design of the Central Coast Water Authority's components of the Coastal Aqueduct Extension (Phase II) of the California State Water Project. This project included 73 miles of large-diameter flexible pipeline, three 2-million-gallon pre-stressed concrete tanks, a 40-million gallon-per-day water treatment plant, a pump station, a scour evaluation of the pipeline crossing of the Santa Maria River, and a microtunnel alignment beneath the Santa Ynez River.

Marathon Oil's Sakhalin Island, Russia, Feasibility Study. Marathon Oil obtained the first offshore oil and gas lease within Russia following the breakup of the Soviet Union. To develop the offshore oil field extraction and onshore infrastructure to support the processing and shipping of petroleum in this remote eastern margin of Russia, Marathon performed the first Environmental Impact Statement prepared using western standards. Jim interacted with Russian representatives while on Sakhalin Island, managed the collection and dissemination of geologic and geotechnical data relative to the project, and managed a team of geologists and geotechnical engineers in preparing the Geologic Resources section for the environmental document.

Redwood Creek Levee Stability Evaluation, Humboldt County. Jim managed geotechnical services for the evaluation of the 3.4-mile-long levee system (twin levees - 6.8 miles total), which was constructed in 1968 and was in the process of being recertified. The studies included performing explorations at 92 locations using sonic cores, cone penetrometer soundings, and conventional hollow-stem auger drill holes. The project involved extensive laboratory testing and transient seepage, slope stability, liquefaction, and settlement analyses for 18 cross sections along the levee to evaluate potential deficiencies for the levee system.



**Levees, Treatment
Plants and
Processing
Facilities**

Blue Lake Levee Geotechnical Evaluation, Humboldt County, CA;
Jacobs Avenue Levee, Eureka, CA;
Redwood Creek Levee Geotechnical Evaluation, Orick, Humboldt County, CA;
Olney Creek Levee, Redding, CA;
City of Shasta Lake WWTP Expansion project, Shasta Lake, CA;
Clear Creek WWTP Levee Certification Study, Redding, CA
Clear Creek WWTP Facilities Expansion, Redding, CA
Sierra Army Depot, Herlong, Lassen County, CA;
Battle Mountain WTP – Battle Mountain, NV;
Dominguez Hills Well No. 203 – Carson, CA;
Burney Creek Floodwall Study, Shasta County, CA;
Stillwater WWTP Expansion, Redding, CA
City of Fort Bragg Newman Gulch Reservoir, Mendocino County, CA;
Port Orford Wastewater Treatment Plant, Port Orford, OR;
Willows Wastewater Treatment Plant Expansion, Willows, CA;
Fall River Mills Wastewater Facility Modification, Shasta County, CA;
Coastal Aqueduct Extension (Phase II) CA Water Project, Kern, San Luis Obispo & Santa Barbara Counties;
Polonio Pass Water Treatment Plant, San Luis Obispo County, CA;
Santa Barbara El Estero Wastewater Treatment Plant, Santa Barbara, CA;
Exxon's Las Flores Oil Processing Facility, Santa Barbara County, CA;
Unocal's Platform Irene Oil Processing Facility, Santa Barbara County, CA;
Calleguas Filtration Plant, Ventura County, CA;
Santa Barbara Desalination Facility, Santa Barbara, CA;
MWD's Jensen Filtration Plant, Los Angeles County, CA;
Guadalupe Wastewater Treatment Plant, Santa Barbara County, CA;

**Pipelines, Tanks,
and Pump
Stations**

Delta Diablo's Bay Point Sewer Repairs, Contra Costa County, CA
Columbine Station, San Jose, CA
Vickery Tank Replacement Project, Saratoga, CA
Overlook Tank, Los Gatos, CA;
12 large diameter steel tanks, San Jose Water Co.
McKean Tank and Pipeline, San Jose, CA;
Belgatos Reservoir, Los Gatos, CA;
Santa Rosa Tanks, Los Gatos, CA;
Franciscan Station, San Jose, CA;
Cambrian Station, Campbell, CA;
City of Redding's North Market St. HDD project, Redding, CA;
City of Redding's North Market St. Lift Station, , Redding, CA
City of Redding's Jenny Creek Sewer Pipeline & Lift Station, Redding, CA
City of Redding's Mistletoe Sewer Replacement, Redding, CA;
City of Redding's San Francisco Sewer Replacement, Redding, CA;
City of Redding's Lake Redding Interceptor Pipeline, Redding, CA;
City of Redding's Butte Street Water Pipeline Pipe Ramming Project, Redding, CA;
Stillwater Business Park Sewer Pipelines, Shasta County, CA;
Coastal Aqueduct Extension (Phase II) California State Water Project;
City of Eureka's Martin Slough Conveyance Project, Eureka, CA;
City of Port Orford's Wastewater Outfall Project, Port Orford, OR;
Nacimiento Water Supply Project, San Luis Obispo County, CA;
Whale Rock Pipeline Vulnerability Assessment, San Luis Obispo County, CA;
All American Pipeline Project, Santa Barbara, Ventura & Los Angeles Counties, CA;
Westside Conveyance Pipeline, Santa Barbara, CA;
Exxon Company USA's Las Flores Oil Storage Tanks, Santa Barbara County, CA;
Texaco Transportation Corp's Gaviota Storage Facility, Santa Barbara County, CA;
Carpinteria Valley Water District's Water Storage and Conveyance Project, Carpinteria, CA;
Camarillo Wastewater Treatment Plant, Camarillo, CA



**Roadway,
Transportation,
Airport, and
Bridge Projects**

JAMES A. BIANCHIN, PG, CEG

RESUME

Modoc County Roads 1, 91, 111N
Sacramento Drive Bridge, Redding, CA;
Inwood Road Bridge, Shasta County, CA;
Beaver Creek Bridge, Lassen County, CA;
Stillwater Creek Bridges, Shasta County;
Caltrans Highway 299, Buckhorn Grade Realignment Project, Phase I, Shasta County, CA;
Caltrans Highway 89, Lake Britton Bridge, Shasta County, CA;
Caltrans, San Francisco to Oakland Bay Bridge Replacement Project, Oakland & San Francisco, CA;
Caltrans Highway 5, Gibson Maintenance Facility Expansion, Shasta County, CA;
Klamath Falls International Airport Taxiway F Improvement Project, Shasta County, CA;
Shasta County Old 44 Bridge Replacement, Shasta County, CA
Caltrans Highway 154 Realignment, Santa Barbara County, CA;
Caltrans Highway 1 Realignment, Santa Barbara County, CA;
Santa Rosa Road Realignment Project, Santa Barbara County, CA;
USAF Honda Ridge Road Stabilization Project, Vandenberg Air Force Base, Santa Barbara County, CA;
Exxon USA's Santa Ynez Development Emergency Access Road, Santa Barbara County, CA;
Susanville Airport, Lassen County, CA;
Redding Municipal Airport (three studies), Redding, CA;
Oregon Air National Guard -173rd Fighter Wing, Kingsley Field, Klamath County, CA;
Little River Airport, Mendocino County, CA
Round Valley Airport, Covelo, Mendocino County, CA;
Benton Airport, Redding, CA;
Lampson Field, Lake County, CA;

**Landslides,
Faults,
Liquefaction,
Geohazards
Assessments, and
Mitigation Projects**

Battle Creek, Eagle Canyon Rockfall Mitigation, Manton, Shasta & Tehama Counties, CA;
Shannon fault location study, Los Gatos, CA
Exxon Company USA's Corral Canyon Tributary Landslide, Santa Barbara County, CA;
USAF Honda Ridge Road Landslide Stabilization Project, Vandenberg AFB, Santa Barbara County, CA;
USAF Pillar Point Tracking Station Landslide and Coastal Retreat Studies, San Mateo County, CA;
Aera Energy's Devil's Slide Study, Ventura County, CA;
Whale Rock Pipeline Vulnerability Assessment, San Luis Obispo County, CA;
Nacimiento Water Supply Project Vulnerability Assessment, San Luis Obispo County, CA;
Honey Lake Paleoseismic Study, Lassen County, CA;
Ventura Fault Paleoseismicity Study, Ventura, CA;
Malibu Fault Paleoseismicity Study, Los Angeles County, CA;
Oak Ridge, Red Mountain, Simi-Santa Rosa, Garlock, and Hosgri Fault Location Studies;
San Andreas Fault Study, Palmdale, CA;
Harbor Sanitation District Chetco River Crossing, Brookings, OR;
Port Orford Sewer Outfall Project, Port Orford, OR;
Panorama Landslide Expert Witness Services, Dunsmuir, CA;

**School,
Educational,
Hospital, Critical
Facility, &
Recreational
Projects**

Central Valley High School Additions, Shasta Lake, CA;
Buckeye School General Purpose Addition, Shasta County, CA;
Shasta County Juvenile Rehabilitation Facility, Shasta County, CA;
Law Enforcement Center, City of Shasta Lake, CA;
Weed Public Safety Facility, Weed, CA;
Ambrosini School Expansion, Fortuna, CA;
Mercy Medical Center New Parking Structure, Redding, CA;
Mercy Medical Center, New Operating Complex, Mt. Shasta, CA;
Fairchild Medical Center, Critical Care Nursing Facility, Yreka, CA;
Mercy Medical Center, South Parking Lot Failure Study, Redding, CA;
Arcata Schools New Child Care Facility, Arcata, CA;
Big League Dreams Sports Complex, Redding, CA;
U.C. Santa Barbara, numerous new buildings, Goleta, CA;



David V. Cymanski, PE, GE

Dave is a principal geotechnical engineer with over 35 years of experience as a consultant in the areas of geotechnical engineering. His experience has covered a wide variety of engineering projects throughout California, Oregon, and throughout the United States. His experience includes roadways, pipelines, heavy industrial facilities, airports, erosion control, characterization of site conditions, evaluations of geologic hazards, and surface and subsurface drainage facilities.



Position

Principal Geotechnical
Engineer

**Years of
Experience**
35

Education

B.S. - Civil Engineering
California State University
at Chico

Registration

California Registered Civil
Engineer (C51421)
California Registered
Geotechnical Engineer
(GE 2585)
Oregon Registered Civil
Engineer (80732)

Affiliations

American Society of Civil
Engineers
California Geotechnical
Engineers Association

Representative Experience

- Responsible charge of geotechnical engineering, materials testing, special inspection and environmental consulting.
- Manage and perform subsurface investigation and geotechnical design activities.
- Manage Environmental Site Assessments.
- Perform geotechnical Expert Witness services; construction materials evaluations, and forensic studies of distressed structures, concrete foundations, pavements, retaining walls, drainage & landslides.
- Engineering oversight and compaction testing for all grading, excavation and earthwork filling operations.
- Evaluate and test subsurface ground improvement construction & underground utility backfill placement.
- Analyze and recommend pavement designs including lime & cement modification and stabilization.
- Foundation design and review including piling, drilled piers, caissons, footings & post-tension slabs.
- Provide soil criteria and analysis of soil nail, tie-back, MSE, CMU & conventional retaining walls.
- Evaluate and analysis of global slope stability, landslides & earth movement.
- Bridge, dams and canal studies.

TERRASEARCH, INC., Fairfield & Dublin, CA, 1989-1996

- Project Engineer & Staff Engineer.
- Perform geotechnical engineering investigations for commercial, industrial, residential and public works.
- Perform compaction testing of earthwork operations.
- Perform special inspections of reinforced and pre-stressed concrete, structural masonry & structural steel.
- Supervise engineering technicians and laboratory during grading and foundation operations.
- Review civil and structural plans for geotechnical conformance.
- Evaluate distressed structures and perform forensic investigations of earthwork projects.

Appendix B - Scope of Work

SCOPE OF WORK

The following services will be provided by Water Works Engineers (WWE) for the CWA Hexavalent Chromium Treatment Design at Seven Well Sites (Project). This Scope of Work has been split into Tasks and Subtasks as follows:

Task	Title
1	Project Administration, Management, and Quality Assurance/Quality Control
2	Environmental Coordination
3	Utility Research and Potholing
4	Project Survey
5	Geotechnical Investigation
6	Basis of Design Report / 30% Design
7	60% Design Submittal
8	90% Design Submittal
9	100% Design Submittal
10	Final Design Submittal
11	Bid Phase Assistance
12	Public Outreach and Communication (Optional)
13	Engineering Services During Construction
14	Permitting Support Services

Task 1 – Project Administration, Management, and Quality Assurance/Quality Control

Under this subtask, WWE will monitor and track the project budget and schedule to help ensure that all deadlines are met and that the project budget is not exceeded. WWE will coordinate with the Project Team to address items such as project schedule, project budget, and current issues of concern. WWE will also monitor progress and submit monthly progress reports to CWA. The following will be performed under this subtask:

- 1) Project Kick-off Meeting and Site Visit (to be conducted at local CWA Office followed by pre-design site visits at each well site)
 - a) WWE introductions to local CWA staff
 - b) Familiarize WWE with all project facilities
 - c) Gather operational data
 - d) Agree on Project Objectives
 - e) Agree on Project Components
- 2) Project Communication and Control
 - a) Coordination of all of WWE's Project Team activities
 - b) Communication of project progress and issues to CWA staff
 - c) Project schedule maintenance and control of project tasks to keep project schedule on track
 - d) Cost tracking of all engineering activities and active cost control of fees.
 - e) Project Data Request Log (updated and disseminated as needed)
 - f) Project Decision Log (updated and disseminated as needed)
 - g) Ongoing State Water Resources Control Board, Department of Financial Assistance - Drinking Water State Revolving Fund (SWRCB, DFA – DWSRF) assistance
- 3) Quality Assurance/Quality Control
 - a) Plan and implement Quality Assurance/ Quality Control Policy with the entire project team
 - b) Ensure QA/QC procedures are being followed at each step in the design process

Meetings	• Project Kick-Off and Field Reconnaissance Meeting (In-person/Teleconference and follow-up site walk) • Weekly Project Update Meetings (Virtual; 1-hr./meeting)
Deliverables	• Project Kick-Off Meeting – Agenda and Meeting Notes (Elec., .docx and .pdf) • Weekly Project Update Meeting – Agenda and Meeting Notes (Elec., .msg and .pdf) • Monthly Status Reports, including Project Schedule and Project financials • Monthly Invoicing with Budget Summary Table

Task 2 – Environmental Coordination

WWE will provide support for CWA and CWA's consultant, Terra Nova Planning & Research, Inc. (Terra Nova), to complete California Environmental Quality Act (CEQA) and CEQA-Plus documentation. Terra Nova will complete the CEQA and CEQA-Plus analysis for the Project, ensuring that the CEQA documentation will comply with applicable federal EPA NEPA requirements to support CWA's application for funding through the SWRCB-DFA Drinking Water State Revolving Fund (DWSRF). CWA will act as the Lead Agency and the SWRCB will serve as the NEPA reviewer.

WWE will support CWA and Terra Nova in completing the CEQA-Plus documentation. WWE's support will include attending coordination meetings, providing input on the project description, maps, schedules, and exhibits, and assistance in responding to public comments, if applicable.

Meetings	• Environmental Compliance Coordination Meetings (Virtual; Up to 6 mtgs.; 1-hr./mtg.)
Deliverables	• Cultural Resources Analysis Review Comments (Elec., .docx or.xlsx., and .pdf) • Biological Resources Analysis Review Comments (Elec., .docx or.xlsx., and .pdf) • Air Quality and GHG Analysis - Design/Construction assumptions Review (Elec., .docx or.xlsx., and .pdf) • IS/MND Review Comments (Elec., .docx or.xlsx., and .pdf)

Task 3 – Utility Research and Potholing

WWE will conduct utility research within the project areas, including along with the proposed sewer connection alignments to identify existing underground utilities. Based on available utility information, WWE will prepare a potholing plan showing the anticipated utility locations and utility types for CWA review prior to field investigation.

Following CWA review of the potholing plan, WWE's subconsultant, Boudreau Pipeline Corporation (Boudreau) will perform utility potholing to verify the horizontal location and depth of existing underground utilities. This scope assumes up to five potholes per site, for a total of 35 potholes. Boudreau will document the findings in a Utility Potholing Report that will be provided to CWA and utilized by WWE in the design of the Project.

Meetings	• Pothole Plan Review Meeting (Virtual; 2-hrs.)
Deliverables	• Draft and Final Pothole Plan (Elec., .pdf) • Utility Potholing Report (Elec., .pdf)

Task 4 – Project Survey

WWE's design surveying subconsultant, Calvada Surveying, Inc. (Calvada), will perform the following general design survey services (prevailing wage) in support of the design documents provided by WWE for the Project for each of the seven sites:

Surveying and Mapping - Surveying shall utilize researched benchmark data to provide planimetric and topographic to create a topographic base file, using NAVD 88 for vertical control and CCS83 for horizontal control.

The topographic survey information (based on 1-ft contour intervals) will include, but is not limited to:

- Identification of project control and benchmarks.
- Location of property corners and lines, permanent structures, and any relevant roadway features
- Labeling of road names and property owners.
- Location of significant obstacles such as fences, trailers, sheds, vaults, power poles, light poles, trees, signs, etc. within and near project area.
- Location of existing fire hydrants, water valves, sewer manholes, and utility risers/boxes/vaults.
- Setting construction benchmark(s) for listing on plans (northing, easting, elevation, description).
- Location of existing connection points to the existing water distribution schematics with associated appurtenances
- Location of aboveground utilities
- Location of underground utilities identified by USA striping if USA striping performed prior to site survey
- Record of Survey – Well 12 and Well 18 only

Meetings	• None
Deliverables	• Site Survey CADD Files, including 3D surface file(s) (Elec., AutoCAD Civil 3D) • Signed/stamped Topographic Survey (Elec., .pdf) • Record of Survey for Well 12 and 18; Total of 2 (Elec., .pdf)

Task 5 – Geotechnical Investigation

WWE's geotechnical subconsultant, Bajada Geosciences, Inc. (BAJADA), will perform a geotechnical investigation in support of the design documents prepared by WWE for the Project. BAJADA will prepare a comprehensive geotechnical report characterizing subsurface conditions and provide geotechnical recommendations necessary for construction of all Project components. Geotechnical investigation services include the following:

Subtask 5.1 – Pre-Exploration

Prior to subsurface exploration, BAJADA will mark proposed exploration locations at each well site and will contact Underground Service Alert (USA) to assist in identifying potential buried utility conflicts, as required by law. During this task, BAJADA will review selected, available, geologic and geotechnical data pertinent to the Project. Those data will likely include:

- Geotechnical data related to existing improvements located at the existing wells, if available;
- Geologic hazard studies and zonation for the project region;
- Historical aerial photographs of the project region;
- Regional geologic information; and
- LiDAR data for the site from open-source databases.

Subtask 5.2 – Subsurface Exploration

BAJADA will explore each well site using exploratory drill holes advancing the following number of drill holes:

PROPOSED EXPLORATIONS	
Well No.	Number & Depths of Explorations
11	1 x 50' deep, 1 x 20' deep, & 1 x 10' deep
12	1 x 50' deep, 1 x 20' deep, & 1 x 10' deep
16	1 x 50' deep, 1 x 20' deep, & 1 x 10' deep
17	1 x 50' deep & 1 x 20' deep
18	1 x 50' deep & 1 x 10' deep
19	1 x 50' deep & 1 x 20' deep
20	1 x 50' deep & 1 x 20' deep

Drilling will be performed using hollow-stem auger and/or rotary wash drilling methods. Sampling will be performed at approximately 5-foot-depth increments or less using a California-modified split spoon (CM) or Standard Penetration Test (SPT) sampler. CM and SPT samplers will be driven using a 140-pound auto-trip hammer in accordance with standard test methods ASTM D3550 and ASTM D1586. California modified split-spoon samples will be collected in 2.5-inch diameter by 6-inch-long brass or stainless-steel sleeves. Those sleeves will be capped, labeled, and transported to a laboratory for testing.

BAJADA personnel will log the soils and rocks exposed in the explorations using the Unified Soil Classification System (USCS). BAJADA will estimate exploration locations using a handheld Global Position System (GPS) receiver. Drill holes will be destroyed immediately following completion of sampling and logging. Cuttings will be spread and disposed of on site.

In addition, infiltrometer tests will then be performed at each well site using a modified Philip Dunne Infiltrometer in accordance with standard test method ASTM D8152. The infiltrometer testing will provide a hydraulic conductivity value for use in designing retention/detention basins and can be converted to percolation rates, if needed. Up to three infiltrometer tests will be performed at each well site.

Subtask 5.3 – Laboratory Testing

Soil samples obtained during Subtask 5.2 will be delivered to a laboratory for testing. It is anticipated that the following laboratory tests will be performed during the course of this study:

ANTICIPATED LABORATORY TESTING SCHEDULE										
Test	Standard Test Method	Well No.								Total
		11	12	16	17	18	19	20		
In-Situ Moisture Density	ASTM D2937	15	15	15	12	12	12	12		93
Grain-Size Distribution	ASTM D6913	6	6	6	4	4	4	4		34
Direct Shear	ASTM D3080	1	1	1	1	1	1	1		7
Consolidation	ASTM D2435	1	1	1	1	1	1	1		7
Collapse	ASTM D5333m	1	1	1	1	1	1	1		7
Max. Dry Density/Opt. Moisture Content	ASTM D1557	1	1	1	1	1	1	1		7
R-Value	Cal 301	1	1	1	1	1	1	1		7
Soil Chemistry	AASHTO T290/291	1	1	1	1	1	1	1		7

The actual types and numbers of tests that will be performed will be determined after the field exploration has been completed.

Subtask 5.4 – Geotechnical Analysis

Upon completion of the above-noted Task 5 subtasks, BAJADA will perform geotechnical evaluations for each of the well sites. Those evaluations will include the following for each well site:

- Geologic hazards that could impact each site;
- Subsurface soil profiles at the sites;
- Evaluation of groundwater depths and distribution, if encountered;
- Excavatability of the on-site soils and rocks;
- 2025 CBC seismic design parameters;
- Collapse potential of underlying soils;
- Anticipated total and differential settlement values;
- Static and dynamic lateral earth pressures for retention structures;
- Evaluation of expansive soil influence on project foundations and improvements;
- Allowable bearing capacities, friction coefficients, passive pressures, etc.;
- Modulus of soil reaction (E'N) for pipeline design;
- Hydraulic conductivity of near-surface soils; and
- Evaluation of structural pavement sections.

Subtask 5.5 – Geotechnical Reporting

Results of the field investigation, laboratory testing, and engineering analyses will be summarized and concluded in a separate geotechnical report for each well site, as specified in the RFP. Those reports that will contain, at a minimum, the following:

- A description of the proposed project including a site plan showing the approximate location of the explorations advanced for this study;
- A description of select, existing, available data collected, reviewed, and utilized during this study;
- A discussion regarding geologic hazards that could impact each well site;
- A description of the site surface and subsurface conditions encountered at the time of our field investigation;
- A geologic map showing the distribution of earth materials across each well site;
- Estimates of collapse potential exists beneath each site;
- Estimates of total and differential settlement that could impact on the proposed improvements;
- Estimated excavatability of soil and rock materials at the site;
- Modulus of soil reaction (E’N) at each site;
- Hydraulic conductivities estimated for each well site;
- 2025 CBC seismic design parameters;
- Recommendations related to geotechnical aspects of:
 - Site grading and drainage, including compaction criteria and potential reuse of on-site soils as select backfill materials;
 - Allowable bearing capacities for structure foundations & slabs;
 - Allowable passive pressures for foundations, thrust blocks, and piers;
 - Lateral earth pressures (active, at-rest, and passive) under static and dynamic conditions for retention structures;
 - Coefficients of friction for soil materials;
 - Temporary excavations and shoring; and
 - Structural pavement sections
- An appendix presenting a summary of the field investigation including exploration logs denoting sampling intervals and laboratory test results;
- An appendix presenting the results of our laboratory testing; and
- An appendix presenting the results of the infiltrometer testing.

Meetings	• None
Deliverables	• Geotechnical Report (Elec., .pdf)

Task 6 – Basis of Design Report/30% Design

WWE will produce a Basis of Design Report (BODR) and 30% design plan set for each of the seven well sites. The BODR and 30% design plan set will include, at a minimum, the following information for each of the seven well sites:

- 1) Executive Summary
- 2) Introduction and Background
 - a) Description of existing facilities
 - b) Project location and site conditions
 - c) Nearby utilities, easements, and additional land requirements, if any
- 3) Project Purpose
 - a) Problem Description
 - b) Project Overview
- 4) Design Criteria
 - a) Applicable building codes
 - b) Seismic, wind, and other structural design criteria
 - c) Treatment design parameters and assumptions
- 5) Project Description
 - a) Process description
 - b) Simplified Process and Instrumentation Diagram (P&ID)
 - c) Hydraulic analysis, including anticipated pressure losses through the treatment process
 - d) Major equipment description, including lead times and estimated useful life
 - e) Facility Layout/ Site Plan/ Drainage
 - f) Ancillary Systems
 - i) Electrical (including single-line diagram)
 - ii) Instrumentation and Controls
 - iii) Plumbing
- 6) 30% Design Drawings
 - a) Simplified P&ID
 - b) Civil, structural, and mechanical site plan
 - c) Electrical and instrumentation site plan
 - d) Electrical single-line diagram showing existing and proposed facilities
 - e) Sewer pipeline alignment and connection location, as required per site
- 7) Draft Control Strategy
- 8) Opinion of Probable Construction Cost and Operation and Maintenance Cost
- 9) Project Schedule
- 10) Additional Project Support – Water Quality Monitoring and Baseline Confirmation (as provided by Corona) to include:
 - a) Continue to monitor and verify the historical water quality against ongoing groundwater monitoring results across all seven wellsites to safeguard full-scale RCF operations from potential water quality changes.
 - b) Develop a targeted water quality sampling protocol and provide data analysis following Well 16's rehabilitation. This work will be used to verify that 2025 bench-scale results remain valid for full-scale design criteria and ensure no other contaminants of concern challenge the RCF treatment process at the intended design flow rate.
 - c) Establish baseline water quality conditions for the newly developed Well 20 wellsite once drilling is finished and well development is complete. Corona will review the water quality data at the design flow rate and confirm treatment sizing and provide treatment recommendations.

The BODR will be submitted to CWA twice; once in Draft form and then a Final BODR will be issued. Prior to the submittal of the Draft and Final BODR, the work product will be reviewed internally through the QA/QC process and, upon submittal to CWA, will have been reviewed and revised in accordance with the QA/QC plan. After the Draft BODR is prepared and submitted, WWE will hold the DRAFT BODR Review Workshop with CWA. Following the BODR Review Workshop, CWA will have 10 working days to review and to provide comments to WWE. WWE will meet with CWA to obtain feedback and solicit questions and clarifications, as required, for inclusion in the Final BODR.

Meetings	Draft BODR (30% Design) Review Workshop, total of 2-3 mtgs. (In-person/Online Video Confs; 1-hr./site)
Deliverables	- Draft BODR, total of 7, 1 per site (Elec., .docx and .pdf) - DRAFT BODR Review Workshop Agenda and Meeting Notes (Elec., .pdf) - Final Draft BODR, total of 7, 1 per site (3 Hard copies per site, if requested; Elec., .pdf) - Updated Data Request and Decision Logs (Elec., native format)

Final Design

WWE will prepare the necessary contract documents (construction plans, typical details, specifications, and cost estimates) for the Project, based on the design criteria and recommendations included in the Final BODR. The preparation of the final design will be completed in four submittals: 60%, 90%, 100%, and Final Bid Documents. WWE will provide separate deliverables for each site if requested by CWA. However, WWE recommends a consolidated package through 90% to accelerate DDW and DWSRF review and to improve overall project coordination. The 100% Design and Final Bid Documents submittals will be split by well site, for a total of seven design deliverable packages to facilitate permitting, construction, and Record Drawings.

Prior to each submittal, the work product will be reviewed through WWE's QA/QC process and, upon submittal to CWA, will have been reviewed and revised in accordance with the QA/QC plan. Presentation of the 60%, 90%, and 100% submittals will occur at the Project Review Workshops (1-day following the submittal) with the entire Project Team. The contents of the submittal will be presented to CWA to familiarize the group with the information being submitted and the design thought process behind the work. Per the Proposed Schedule, following the design submittal, CWA will generally have 10-working days to review and provide any additional comments which were not brought forward in the Project Review Workshops. Please note that additional review time for CWA has been assumed in the Proposed Schedule to account for an assumed 2-week CWA schedule blackout dates during the 2026/2027 Winter Holidays.

The design will include all of the Project facilities specifically listed and described in the RFP, the associated referenced PDR, and this Proposal which generally include the following facilities at each well site:

- 1) Small diameter vertical reduction vessels
- 2) Small diameter vertical filter vessels
- 3) Ferrous chloride chemical feed and storage facilities
- 4) Well pump and motor replacement (as needed)
- 5) Yard piping to support treatment system
- 6) Backwash processing equipment, as needed
 - a. Catch basin with air gap
 - b. Sewer pipeline connection
 - c. Equalization/Settling Tank
 - d. Recycle pump and piping (Well 19 only)

- 7) Ancillary Facility Upgrades (fencing, electrical, lighting, grading and drainage)
- 8) Electrical, Instrumentation, and Controls Upgrades
- 9) Off-site sanitary sewer piping (excluding Well 19)

Specifications will be provided by WWE for the equipment and materials needed to construct the facilities listed above, at a minimum. The following tasks will be performed:

- 1) Preparation of 60% Design Documents (option for single design package)
- 2) Preparation of 90% Design Documents (option for single design package)
- 3) Preparation of 100% Design Documents (seven packages, one per well site)
- 4) Preparation of Final Bid Documents (seven packages, one per well site)

Task 7 - 60% Design Submittal

The 60% Design Submittal will communicate to CWA the project design so that meaningful discussion can take place and the core project decisions can be made as a group. WWE will use a combination of design drawings, 3-dimensional CADD models, manufacturers' information, and other communication tools to allow CWA an opportunity for significant input into the design process. WWE will incorporate all comments from 30% design into the 60% Design Submittal. The following deliverables will be provided by WWE with this submittal:

- 1) 60% Design Drawings:
 - a) Site Plans
 - b) Grading and Utility plans
 - c) Yard Piping Plans
 - d) Tie-in and Connection Details
 - e) Hydraulic Profiles
 - f) Electrical Site Plans
 - g) Single Line Diagrams, Load Schedules, and Ladder Diagrams
 - h) Conduit Layouts
 - i) Motor control center and PLC designs
 - j) Telemetry Designs
 - k) Mechanical Plans and Sections, including structure geometries
 - l) Structural Plans and Elevations
 - m) Standard Construction Details
 - n) Sewer Pipeline Designs (as needed by site)
 - i) Plan and Profiles
 - ii) Location of tie-ins and connections
 - iii) Construction Details
 - o) Process and Instrumentation Diagrams (P&ID) and Control Block Diagrams
- 2) 60% Technical Specifications:
 - a) Draft of Division 26, 33, 40, 43 and 46 specifications
- 3) Revised Opinion of Probable Construction Cost
- 4) 60% Process Control Narrative
- 5) Draft Operations Plan

WWE will conduct an independent constructability review of the 60% design submittal to identify long lead items, potential construction challenges, and ways to minimize risk. Key findings and comments from the constructability review will be discussed with CWA and addressed in the 90% design submittal.

Meetings	60% Design Review Workshop, total of 2-3 mtgs. (In-person/Online Video Confs; 1-hr./site)
Deliverables	60% Design Drawings (3 hardcopies, 11x17; Elec., .pdf) 60% Specifications (Elec., .pdf) - Revised Cost Estimate (Elec., .pdf) 60% Process Control Narrative (Elec., .pdf) - Draft Operations Plan (Elec., .pdf) 60% Design Review Workshop Agenda and Meeting Notes (Elec., .pdf) - Updated Data Request and Decision Logs (Elec., native format)

Task 8 - 90% Design Submittal

In general, the 90% Design Submittal will be a complete project package, with all design drawings, details and specifications, draft front-end documents, and draft bid documents completed. The 90% Design Submittal will incorporate resolution of design review and constructability comments received on the 60% Design Submittal. The 90% Design Submittal will also be submitted to the City of Coachella, Engineering and Utilities Department and Division of Drinking Water (DDW) for review. In the 90% submittal, 2-dimensional plan and section drawings are incorporated with 3-dimensional isometrics to clearly show how complex piping systems are to be constructed.

Meetings	90% Design Review Workshop, total of 2-3 mtgs. (In-person/Online Video Confs; 1-hr./site)
Deliverables	90% Design Drawings (3 hardcopies, 11x17; Elec., .pdf) 90% Specifications (Elec., .pdf), including DIV 0 and Div 1 (w/ Bid Item Sched. & Desc.) - Revised Cost Estimate (Elec., .pdf) 90% Process Control Narrative (Elec., .pdf) - Revised Operations Plan (Elec., .pdf) 90% Design Review Workshop Agenda and Meeting Notes (Elec., .pdf) - Updated Data Request and Decision Logs (Elec., native format)

Task 9 - 100% Design Submittal

The period between 90% and 100% will be dedicated to addressing City comments, addressing the available authority having jurisdiction (including IID, RCFD, and DDW) comments, minor inter-disciplinary coordination, final QA/QC checking of all documents. In general, the 100% Design Submittal will be a complete project package, with all design drawings, details and specifications completed for each well site. The 100% Design Submittal will incorporate resolution of comments received on the 90% Design Submittal. In the 100% submittal, 2-dimensional plan and section drawings are provided, as needed, to clearly show how the piping system is to be constructed. The 100% Design Submittal will be submitted to all authorities having jurisdiction for review and comment.

Meetings	100% Design Review Workshop, total of 2-3 mtgs. (In-person/Online Video Confs; 1-hr./site)
Deliverables	100% Design Drawings for each site (3 hardcopies per site, 11x17; Elec., .pdf) 100% Specifications for each site (Elec., .pdf) - Revised Cost Estimate (Elec., .pdf) 100% Process Control Narrative (Elec., .pdf) 100% Operations Plan (3 hard copies per site, Elec., .pdf) 100% Design Review Workshop Agenda and Meeting Notes (Elec., .pdf) - Updated Data Request and Decision Logs (Elec., native format)

Task 10 - Final Design Submittal

WWE will prepare the Final Design Submittal (Bid Documents), incorporating resolution of comments received on the 100% design submittal. The final package will include signed and stamped plans, specifications, CWA front-end documents, and calculations by a California Registered Engineer, as applicable.

The Final Design Submittal will include final design calculations for all facilities, final Bid Items Schedule and Description, Final Engineer's Construction Cost Estimate, Final Process Control Narrative, and Final Operations Plan. Prior to submittal, WWE will conduct QA/QC reviews of the project bid drawings, CWA front-end contract specifications, technical specifications, final bid items schedule and description, and final construction cost estimate.

Meetings	None
Deliverables	- Bid Ready Design Drawings for each site (11x17), 4 copies per site - Bid Ready Design Drawings for each site (22x34), 2 copy per site - Bid Ready Specifications for each site, 4 copies per site - Final Process Control Narrative (Elec., .pdf) - Final Operations Plan (3 hardcopies per site; Elec., .pdf) - PDF of Drawings and Specifications (via secure file sharing site) - CADD Files of Drawings (AutoCAD; via secure file sharing site)

Task 11 – Bid Phase Assistance

WWE will support CWA during the bidding process for the Project. Services will include assisting with contractor pre-qualification evaluations, attending one Pre-Bid Conference, assisting CWA with preparation of the Pre-Bid Conference presentation, responding to technical questions from bidders, and preparing up to three addenda to clarify or amend the Contract Documents. Addenda will be signed and stamped by the Engineer of Record, as required.

CWA will be responsible for advertising the bid package, reviewing and tabulating bids, and preparing the Board Action Item to award the construction contract.

Meetings	- Contractor Pre-qualification Evaluation Meeting (In-person/Online Video Confs; 2-hrs.) - Pre-Bid Conference (Online Video Confs; 1-hr.) - Pre-Bid Conference - Site Visits (In-person; 4-hrs.)
Deliverables	- Contractor Pre-qualification Evaluations (Elec.; .xls or .pdf) - Pre-Bid Conference Agenda, Presentation, and Meeting Notes (Elec., .pdf) - Pre-Bid Conference - Site Visits Agenda and Meeting Notes (Hardcopies and Elec., .pdf) - Bid-Phase RFI Responses (Elec., native format and .pdf) - Addenda Preparation (up to 3; Elec., .pdf) - Bid Phase Agenda (3 copies ; Elec., .pdf)

Task 12– Public Outreach and Communication (Optional)

WWE will develop a public outreach and communication plan to support public understanding of the Project and its objectives throughout the planning and design process, if requested by CWA (optional per RFP). The outreach plan will identify key project messages and communication strategies to facilitate consistent and effective public information sharing.

WWE will prepare public information materials, as appropriate, including project fact sheets, frequently asked questions (FAQs), maps, diagrams, website content, and construction impact notifications for affected residents and stakeholders.

Meetings	- Initial Public Outreach Communication Strategy Meeting (In-person/online Video Conf; 2-hrs.) - Draft Engagement Plan Review Meeting (Online Video Confs; 2-hrs.)
Deliverables	- Draft Engagement Plan Presentation (Elec.; .ppt and .pdf) - Draft and Final Project Fact Sheets, FAQs, maps, and diagrams, includes website content information and graphics (Elec.; native format and .pdf) - Draft and Final Construction Impact Notification Fliers/Bill Insert (Elec.; native format and .pdf)

Task 13 – Engineering Services During Construction

WWE will provide the following engineering services during construction, assuming a 15- to 18-month construction schedule per the attached Proposed Schedule:

- 1) Submittal Reviews (up to 525 submittals; 75 submittals per well site)
- 2) RFI Reviews (up to 210 RFIs; 30 per well site)
- 3) Change Order Request Review Assistance (up to 35 CORs; 5 per well site)
- 4) Participation in Weekly Project Conference Calls/Meetings

Meetings	Weekly Project Conference Calls (up to 73 meetings, Online Video Conf., 1-hr. each)
Deliverables	- Submittal Reviews (Up to 525, Elec., .pdf) - RFI Reviews (Up to 210, Elec., .pdf) - COR Reviews (Up to 35, Elec., .pdf)

Task 14 – Permitting Support Services

WWE will assist CWA in securing permits required for project completion. WWE will engage with appropriate agencies to determine applicable permit requirements for the project. WWE will provide necessary permit application documents and drawings, fill out permit applications, and respond to review comment questions. WWE will perform coordination with the following agencies to obtain all required permits for each of the sites:

- 1) City of Coachella Engineering and Utilities Department
 - a) Initial Project Coordination (Permit Kick-off/Coordination Meeting incl. presentation of the 30% Design)
 - b) 60% Design Submittal and Review
 - c) 90% Design Submittal and Review
 - d) 100% Design Submittal and Review (Acceptance/Conditional Approval)
 - e) Final Design Submittal (Final Approval/Final Building Permit)
- 2) Imperial Irrigation District (IID) Utility Coordination, As Needed
 - a) Initial Project Coordination (Permit Kick-off/Coordination Meeting incl. presentation of the 30% Design)
 - b) 90% Design Submittal and Review
 - c) 100% Design Submittal and Review (Acceptance/Conditional Approval)
 - d) Final Design Submittal (Final Approval/Final Permit)
- 3) Riverside County Fire Department
 - a) Initial Project Coordination (Permit Kick-off/Coordination Meeting incl. presentation of the 30% Design)
 - b) 90% Design Submittal and Review
 - c) 100% Design Submittal and Review (Acceptance/Conditional Approval)
 - d) Final Design Submittal (Final Approval/Final Permit)
- 4) Department of Drinking Water (DDW), including Drawings and Operations Plan submittal
 - a) Initial Project Coordination (Permit Kick-off/Coordination Meeting incl. presentation of the 30% Design)
 - b) 90% Design Submittal and Review (Incl. PCN and Ops Plan Review)
 - c) 100% Design Submittal and Review (Acceptance/Conditional Approval)
 - d) 100% Operations Plan Submittal and Approval
 - e) Final Design Submittal (Final Approval/Final Permit)
 - f) DDW Permit Amendment

WWE will provide the following additional, site-specific, technical permitting support to CWA:

- Well 11 - Right-of-Way permit applications required from Coachella Valley Water District (CVWD) and Union Pacific Railroad (UPRR)
- Well 16 - Land acquisition activities

Meetings	• Initial Project Coordination Meeting - 1-hr. virtual meetings/calls with each Agency (In-person; Total of 4 Meetings; 1-hr/mtg) • Submittal Review/Discussion Meetings - Up to four 1-hr. meetings/calls with ea. Agency (Total of 16 Meetings; Online Video Conf.; 1-hr/mtg)
Deliverables	• Meeting Agenda and Meeting Notes (Elec., .pdf) • Meeting Presentation Packages (Elec., native format/.ppt, and .pdf) • Permitting Application, as required per permitting agency • Permitting Application Support Documents, as required per permitting agency

Assumptions

The following assumptions have been made in the development of this scope and fee. Additional Task Orders would be required in order to perform any of the work which is not listed in this scope or has been specifically identified as out of scope in the assumptions below:

- 1) The Project will be designed, bid, and constructed as a single Project including the 7 decentralized treatment facilities.
- 2) The RFP and the associated referenced PDR serve as the basis for the facility improvements included in the Project and this Proposal
- 3) Survey Services:
 - a. Fee based on prevailing wage rates
 - b. The site will be accessible and clear of obstructions at the requested time of survey. The survey will take place during normal business hours.
- 4) Geotechnical Services:
 - a. Fee based on prevailing wage rates, as required
 - b. A source of water to be used during exploration will be made available by the City
 - c. By contacting USA regarding utility locations on-site, BAJADA will have performed the standard of care and due diligence required to avoid encountering buried utilities during exploration. If mislocated or unlocated utilities are encountered during exploration, BAJADA cannot be held responsible for the adverse effects caused by encountering those utilities.
 - d. No unsuitable or hazardous material are on site.
- 5) Potholing Services:
 - a. Fee based on prevailing wage rates
 - b. By contacting USA regarding utility locations Boudreau will have performed the standard of care and due diligence required to avoid encountering buried utilities during exploration.
 - c. Normal 8 hour work day Monday thru Friday between the hours of 7:00 AM and 3:30 PM
 - d. All paving is temporary AC Cold Mix to a thickness of +/-4" to be maintained and/or replaced by others
- 6) CEQA/NEPA permitting to be performed by Terra Nova Planning & Research, Inc.
- 7) No owner-furnished equipment will be utilized in the Project

- 8) Project Funding
 - a. Project will be funded partially or in whole through state and federal funds received by CWA through the SWRCB-DFA DWSRF Program (DWSRF Funding)
 - b. WWE will assist in DWSRF Funding acquisition through the following, at a minimum:
 - i. Preparation of Technical Documents (i.e., Design Submittals: 30% through Final Bid) used in DWSRF Funding application
 - ii. Reference, adaptation, and summarization of Technical Documents for application and DFA review comment responses
 - iii. Preparation of the BODR in accordance with DWSRF Program's "Engineering Report" requirements for CWA's use in applying for DWSRF Fund reimbursement of the engineering-related Project costs
- 9) Assumes one set of Standard Details and Specifications, common to all 7 project sites, will be developed for the 60% and 90% Design Submittals
- 10) All permit fees will be paid by CWA.
- 11) Assumes CWA will provide review comments within 10 working days, with the exception of the 90% Submittal Review (additional 15-working days due to Winter 2026/2027 Holidays).
- 12) No hazardous material testing is included.
- 13) CWA will provide a current title report for all project site-related parcels, per RFP
- 14) Well 20
 - a. Well development and design, by Others
 - b. Site design for typical wellhead treatment (excluding the RCF Facilities identified in the Project), by Others.
 - i. Wellhead treatment design schedule for all design deliverables will precede the equivalent Project design deliverables by at least 3-months
 - ii. All engineering reports and CAD files will be provided by CWA to Water Works Engineers to inform the Project design
 - c. CWA will coordinate meetings between the Well 20 Engineer and Water Works Engineers to facilitate the Project design coordination
 - d. Survey Services – If Water Works Engineers may utilize the survey completed for the Wellhead Treatment Project and it meets all of the Water Works Engineers' design needs under the Project, Water Works Engineers scope and fee (\$11,308) for the Well 20-related survey services for this site may be removed from the Project.
 - e. Geotechnical Services – If Water Works Engineers may utilize the geotechnical completed for the Wellhead Treatment Project and it meets all of the Water Works Engineers' design needs under the Project, Water Works Engineers scope and fee (\$12,000) for the Well 20-related geotechnical services for this site may be removed from the Project.

Excluded from Scope:

- 1) The following Water Quality Support Services:
 - a) Water quality sampling, testing, and reporting (except those services provided in Task 6)
 - b) Pilot and bench-scale testing
 - c) Analytical testing fees stemming from Well 16's return to service or Well 20's raw water matrix characterization are excluded from this budget and will be billed directly to CWA by their designated certified laboratory
- 2) The following Survey Services:
 - a) Title Reports by CWA, per RFP
 - b) A Record of Survey (except for Well Sites 12 and 18)
 - c) Lot Tie Agreement and Lot Line Adjustment efforts
 - d) Legal descriptions and exhibits for dedications/easements
- 3) The following Potholing Services:
 - a) Fee based on prevailing wage rates
 - b) By contacting USA regarding utility locations Boudreau will have performed the standard of care and due diligence required to avoid encountering buried utilities during exploration.
 - c) No engineering , bonds, inspection fees, restoration, compaction testing , or waivers of subrogation included.
 - d) No screening of backfill material included.
 - e) No import of soils/slurry included.
 - f) No Soils Report provided with plans.
 - g) Removal, protection and/or restoration of existing landscape, irrigation, trees, roots, hardscape, paving and/or other existing or proposed improvement
 - h) Removal of USA paint markings, permanent paving, concrete work, and/or overlay.
- 4) Site percolation/infiltration testing
- 5) Landscaping and irrigation design, assumed not needed relative to the existing facilities exclusion of landscape and irrigation
- 6) Hydraulic modeling beyond the water treatment site point of entry (i.e., distribution and collection system)
- 7) Transient analysis and/or surge facilities design
- 8) Arc flash and utility coordination studies, performed by Contractor
- 9) Radio Study
- 10) Environmental engineering services/studies, by CWA (Terra Nova)
- 11) Specialty printing (e.g., Mylars)
- 12) Public outreach campaigning and signage
- 13) Permitting fees
- 14) Traffic Control and/or traffic control plan during construction
- 15) Construction Management, by Others
- 16) Construction inspection/observation, by Others or under separate future contract
- 17) Materials testing, by Others
- 18) Application programming, provided by Contractor under Construction Contract
- 19) Project Start-up and Close-out
- 20) SWPPP, Contractor responsible for preparing SWPPP prior to construction.
- 21) Well-head equipping and completion of well-head design for Well 20, by Others.

Appendix C - Proposed Schedule

ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	1, 2026 M M	Half 2, 2026 J S N	Half 1, 2027 J M M	Half 2, 2027 J S N	Half 1, 2028 J M M	Half 2, 2028 J S N	Half 1, 2029 J M M	Half 2, 2029 J S N
38			Submit 60% Design Submittal, 60% PCN and Draft Ops Plan	0 days	Mon 10/26/26	Mon 10/26/26	36,37								
39			60% Design Review Workshop	1 day	Tue 10/27/26	Tue 10/27/26	38								
40			WWE Constructability Review Period	10 days	Tue 10/27/26	Mon 11/9/26	38								
41			CWA Review Period	10 days	Wed 10/28/26	Tue 11/10/26	39								
42			Task 8 - 90% Design	64 days	Tue 10/27/26	Fri 1/22/27									
43			Prepare 90% Design Submittal	39 days	Tue 10/27/26	Fri 12/18/26	38,23FF-20 days								
44			Submit 90% Design Submittal, Revised PCN and Ops Plan	0 days	Fri 12/18/26	Fri 12/18/26	43								
45			90% Design Review Workshop	0 days	Fri 12/18/26	Fri 12/18/26	44								
46			CWA Review Period	25 days	Mon 12/21/26	Fri 1/22/27	44								
47			Task 9 - 100% Design	70 days	Mon 1/25/27	Fri 4/30/27									
48			Prepare 100% Design Submittal	60 days	Mon 1/25/27	Fri 4/16/27	46,18								
49			Submit 100% Design Submittal, PCN and Ops Plan	0 days	Fri 4/16/27	Fri 4/16/27	48								
50			100% Design Review Workshop	0 days	Wed 4/21/27	Wed 4/21/27	49FS+3 days								
51			CWA Review Period	10 days	Mon 4/19/27	Fri 4/30/27	49								
52			Task 10 - Final Design Submittal	25 days	Tue 7/13/27	Mon 8/16/27									
53			Prepare Final Design and Bidding Documents	25 days	Tue 7/13/27	Mon 8/16/27	51,11,108,114,120,126								
54			Submit Final Design and Bidding Documents	0 days	Mon 8/16/27	Mon 8/16/27	53								
55			Funding Acquisition	261 days	Fri 1/1/27	Mon 1/3/28									
56			Submit to DWSRF	0 days	Fri 1/1/27	Fri 1/1/27	45FS+9 days,11,34								
57			DWSRF Review (1-yr assumed)	260 days	Mon 1/4/27	Fri 12/31/27	56								
58			DWSRF Approval	1 day	Mon 1/3/28	Mon 1/3/28	57								
59			Task 11 - Bid Phase Assistance	90 days	Tue 12/7/27	Mon 4/10/28									
60			RFP Development	30 days	Tue 12/7/27	Mon 1/17/28	58FF+10 days								
61			RFP Release	0 days	Mon 1/17/28	Mon 1/17/28	60								
62			Proposals Preparation	40 days	Tue 1/18/28	Mon 3/13/28	61								
63			Proposal Due	0 days	Mon 3/13/28	Mon 3/13/28	62								
64			Contracting and Award	20 days	Tue 3/14/28	Mon 4/10/28	63								
65			Task 12 - Public Outreach and Communication (Optional)	255 days	Tue 8/25/26	Mon 8/16/27									
66			Public Outreach During Design	255 days	Tue 8/25/26	Mon 8/16/27	5								
67			Task 13 - Engineering Services During Construction	370 days	Tue 4/11/28	Mon 9/10/29									
68			Group 1 Sites (3 Well Sites)	200 days	Tue 4/11/28	Mon 1/15/29									
69			Submittals	120 days	Tue 4/11/28	Mon 9/25/28	64								
70			Mobilization	5 days	Tue 5/9/28	Mon 5/15/28	102,64,69SS+20 days								
71			Construction Period	185 days	Tue 4/11/28	Mon 12/25/28									
72			Demolition	10 days	Tue 5/16/28	Mon 5/29/28	70								
73			Underground Utility Work	40 days	Tue 5/30/28	Mon 7/24/28	72								

Project: CWA Cr6 Design_Projec

Date: Mon 7/13/26

Task

Split

Milestone

Summary

Project Summary

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

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ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	1, 2026 M M	Half 2, 2026 J S N	Half 1, 2027 J M M	Half 2, 2027 J S N	Half 1, 2028 J M M	Half 2, 2028 J S N	Half 1, 2029 J M M	Half 2, 2029 J S N
74			Foundation/Civil Work	30 days	Tue 7/25/28	Mon 9/4/28	73								
75			Long-lead Equipment Procurement	120 days	Tue 4/11/28	Mon 9/25/28	69SS								
76			Mechanical Installation	40 days	Tue 9/5/28	Mon 10/30/28	75FF+20 days,74								
77			Elec., Instr. & Controls	40 days	Tue 10/31/28	Mon 12/25/28	76								
78			Final Grading	10 days	Tue 10/31/28	Mon 11/13/28	76								
79			Startup and Commissioning	15 days	Tue 12/26/28	Mon 1/15/29	78,77								
80			Group 2 Sites (2 Well Sites)	285 days	Tue 4/11/28	Mon 5/14/29									
81			Mobilization	5 days	Tue 9/5/28	Mon 9/11/28	74								
82			Construction Period	270 days	Tue 4/11/28	Mon 4/23/29									
83			Demolition	10 days	Tue 9/12/28	Mon 9/25/28	81								
84			Underground Utility Work	40 days	Tue 9/26/28	Mon 11/20/28	83								
85			Foundation/Civil Work	30 days	Tue 11/21/28	Mon 1/1/29	84								
86			Long-lead Equipment Procurement	120 days	Tue 4/11/28	Mon 9/25/28	69SS								
87			Mechanical Installation	40 days	Tue 1/2/29	Mon 2/26/29	86FF+20 days,85								
88			Elec., Instr. & Controls	40 days	Tue 2/27/29	Mon 4/23/29	87								
89			Final Grading	10 days	Tue 2/27/29	Mon 3/12/29	87								
90			Startup and Commissioning	15 days	Tue 4/24/29	Mon 5/14/29	89,88								
91			Group 3 Sites (2 Well Sites)	370 days	Tue 4/11/28	Mon 9/10/29									
92			Mobilization	5 days	Tue 1/2/29	Mon 1/8/29	85								
93			Construction Period	355 days	Tue 4/11/28	Mon 8/20/29									
94			Demolition	10 days	Tue 1/9/29	Mon 1/22/29	92								
95			Underground Utility Work	40 days	Tue 1/23/29	Mon 3/19/29	94								
96			Foundation/Civil Work	30 days	Tue 3/20/29	Mon 4/30/29	95								
97			Long-lead Equipment Procurement	120 days	Tue 4/11/28	Mon 9/25/28	69SS								
98			Mechanical Installation	40 days	Tue 5/1/29	Mon 6/25/29	97FF+20 days,96								
99			Elec., Instr. & Controls	40 days	Tue 6/26/29	Mon 8/20/29	98								
100			Final Grading	10 days	Tue 6/26/29	Mon 7/9/29	98								
101			Startup and Commissioning	15 days	Tue 8/21/29	Mon 9/10/29	100,99								
102			Task 14 - Permitting Support Services	326 days	Mon 6/15/26	Mon 9/13/27									
103			City of Coachella Engineering and Utilities Dept Review	224 days	Wed 10/14/26	Mon 8/23/27									
104			Initial Coordination	5 days	Wed 10/14/26	Tue 10/20/26	33								
105			60% Review	10 days	Wed 11/11/26	Tue 11/24/26	41								
106			90% Review	10 days	Mon 1/25/27	Fri 2/5/27	46								
107			100% Review	10 days	Mon 4/19/27	Fri 4/30/27	49								
108			Acceptance/Conditional Approval	1 day	Mon 5/3/27	Mon 5/3/27	107								
109			Final Approval	5 days	Tue 8/17/27	Mon 8/23/27	54,108,120,11								
110			Imperial Irrigation District (IID) Utility Coordination	326 days	Mon 6/15/26	Mon 9/13/27									

Project: CWA Cr6 Design_Projec

Date: Mon 7/13/26

TaskInactive Task

SplitInactive Milestone

MilestoneInactive Summary

SummaryManual Task

Project SummaryDuration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

External Tasks

External Milestone

Deadline

Critical

Critical Split

Progress

Manual Progress

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ID		Task Mode	Task Name	Duration	Start	Finish	Predecessors	1, 2026 M M	Half 2, 2026 J S N	Half 1, 2027 J M M	Half 2, 2027 J S N	Half 1, 2028 J M M	Half 2, 2028 J S N	Half 1, 2029 J M M	Half 2, 2029 J S N
111			Initial Coordination	5 days	Wed 10/14/26	Tue 10/20/26	33								
112			90% Review	20 days	Mon 6/15/26	Fri 7/10/26									
113			100% Review	40 days	Mon 4/19/27	Fri 6/11/27	49								
114			Acceptance/Conditional Approval	1 day	Mon 5/3/27	Mon 5/3/27	107								
115			Final Approval	20 days	Tue 8/17/27	Mon 9/13/27	54,108								
116			Riverside County Fire Department	326 days	Mon 6/15/26	Mon 9/13/27									
117			Initial Coordination	5 days	Wed 10/14/26	Tue 10/20/26	33								
118			90% Review	20 days	Mon 6/15/26	Fri 7/10/26									
119			100% Review	40 days	Mon 4/19/27	Fri 6/11/27	49								
120			Acceptance/Conditional Approval	1 day	Mon 5/3/27	Mon 5/3/27	107								
121			Final Approval	20 days	Tue 8/17/27	Mon 9/13/27	54,108								
122			Department of Drinking Water (DDW)	199 days	Wed 10/14/26	Mon 7/19/27									
123			Initial Coordination	5 days	Wed 10/14/26	Tue 10/20/26	33								
124			DDW Permit Amendment	60 days	Mon 4/19/27	Fri 7/9/27	49								
125			100% Operations Plan Approval	60 days	Mon 4/19/27	Fri 7/9/27	49								
126			Acceptance/Conditional Approval	1 day	Mon 7/12/27	Mon 7/12/27	124,125,11								
127			Final Approval	5 days	Tue 7/13/27	Mon 7/19/27	126								

Project: CWA Cr6 Design_Projec
Date: Mon 7/13/26

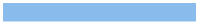
Task

Split

Milestone

Summary

Project Summary











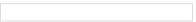
Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only











Manual Summary Rollup

Manual Summary

Start-only

Finish-only

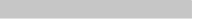
External Tasks











External Milestone

Deadline

Critical

Critical Split

Progress











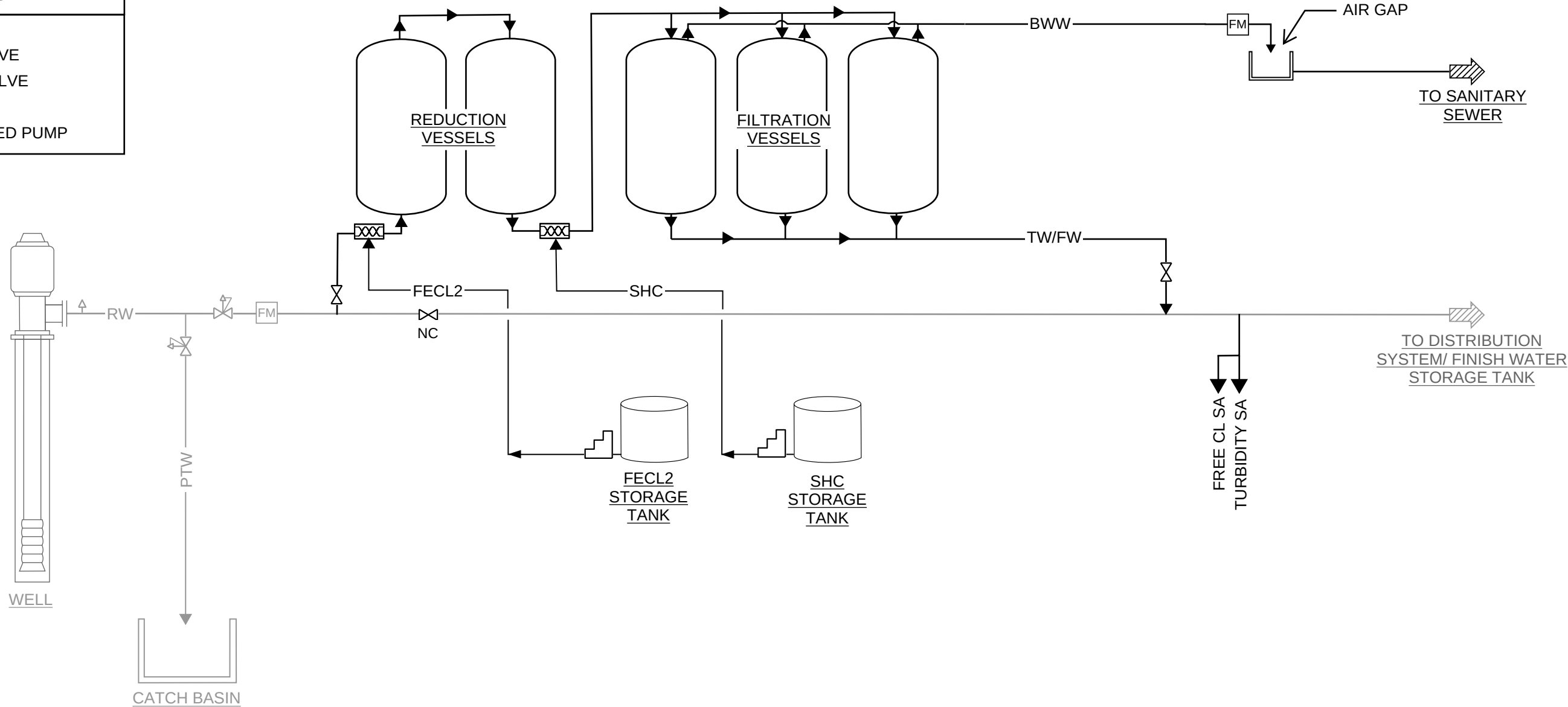
Manual Progress

Appendix D - Drawings

LEGEND:

BWR BACKWASH RECYCLED
BWW BACKWASH WASTEWATER
FECL2 FERROUS CHLORIDE
FM FLOW METER
FW FINISHED WATER
FTW FINISHED WATER TO WASTE
PTW PUMP TO WASTE
RW RAW WATER
SA SAMPLE
SD STORM DRAIN
SHC SODIUM HYPOCHLORITE
TW TREATED WATER
TTW TREAT TO WASTE

⊗ GATE VALVE
⊗ CONTROL VALVE
↑ AIR RELIEF VALVE
XXX STATIC MIXER
⌋ CHEMICAL FEED PUMP



VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

NO.	DATE	REVISION	BY	APVD

DESIGN
Designer
DRAWN
Author
CHECKED
Checker
APPROVED
Approver



CITY OF COACHELLA -
COACHELLA WATER
AUTHORITY

DIRECT TO SEWER
WELL 11 AND WELL 18
GENERALIZED PROCESS FLOW DIAGRAM

DATE JULY 2026
PROJECT NUMBER 24-034
DRAWING NUMBER
SHEET NO.

LEGEND:

BWR

BACKWASH RECYCLED

BWW

BACKWASH WASTEWATER

FECL2

FERROUS CHLORIDE

FM

FLOW METER

FW

FINISHED WATER

FTW

FINISHED WATER TO WASTE

PTW

PUMP TO WASTE

RW

RAW WATER

SA

SAMPLE

SD

STORM DRAIN

SHC

SODIUM HYPOCHLORITE

TW

TREATED WATER

TTW

TREAT TO WASTE

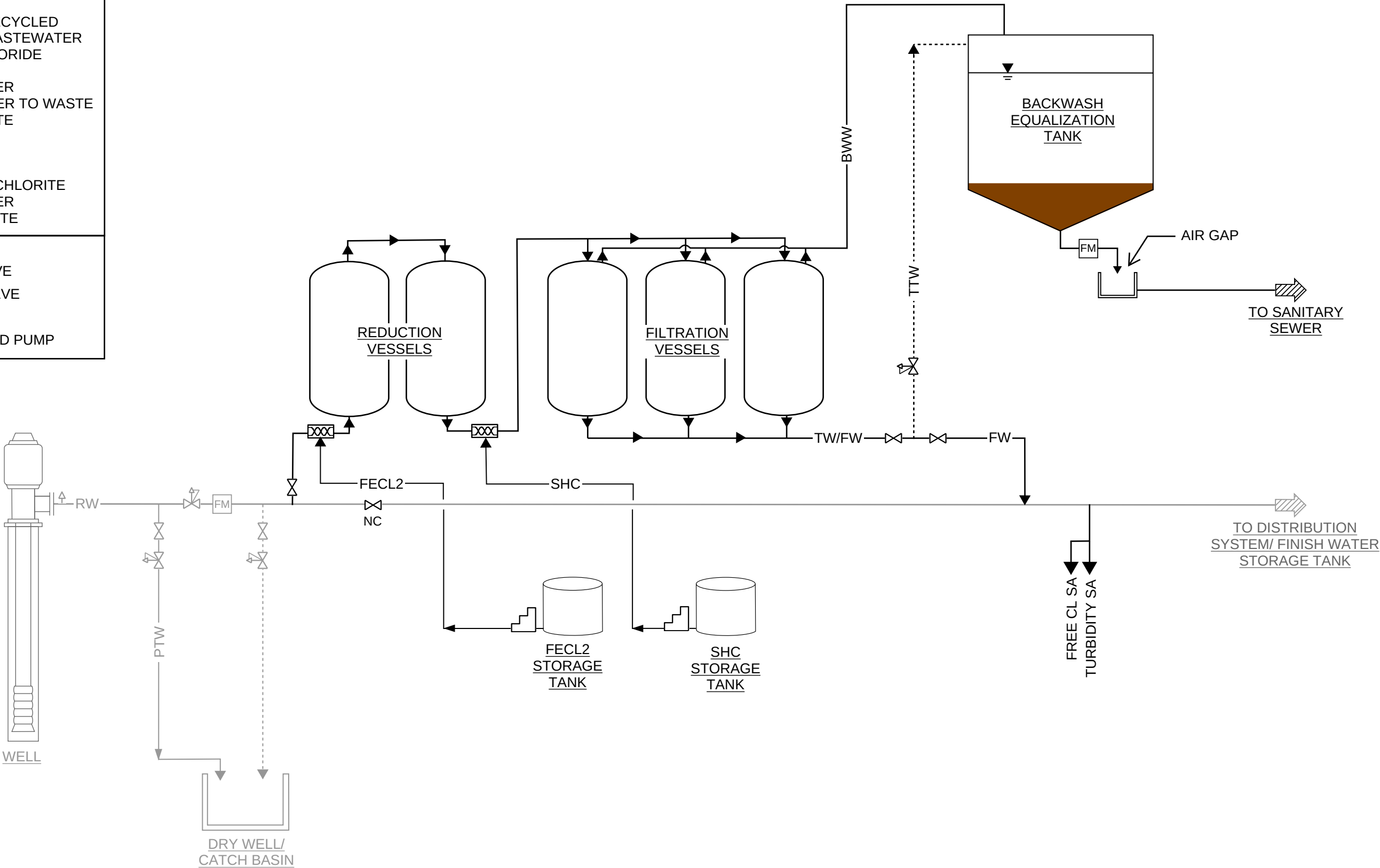
GATE VALVE

CONTROL VALVE

AIR RELIEF VALVE

STATIC MIXER

CHEMICAL FEED PUMP



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Designer
DRAWN
Author
CHECKED
Checker
APPROVED
Approver



CITY OF COACHELLA -
COACHELLA WATER
AUTHORITY

EQUALIZATION TO SEWER
WELL 12, WELL 16, WELL 17, AND WELL 20
GENERALIZED PROCESS FLOW DIAGRAM

DATE
JULY 2026
PROJECT NUMBER
24-034
DRAWING NUMBER
SHEET NO.

LEGEND:

BWRBACKWASH RECYCLED

BWWBACKWASH WASTEWATER

FECL2FERROUS CHLORIDE

FMFLOW METER

FWFINISHED WATER

FTWFINISHED WATER TO WASTE

PTWPUMP TO WASTE

RWRRAW WATER

SASAMPLE

SDSTORM DRAIN

SHCSODIUM HYPOCHLORITE

TWTREATED WATER

TTWTREAT TO WASTE

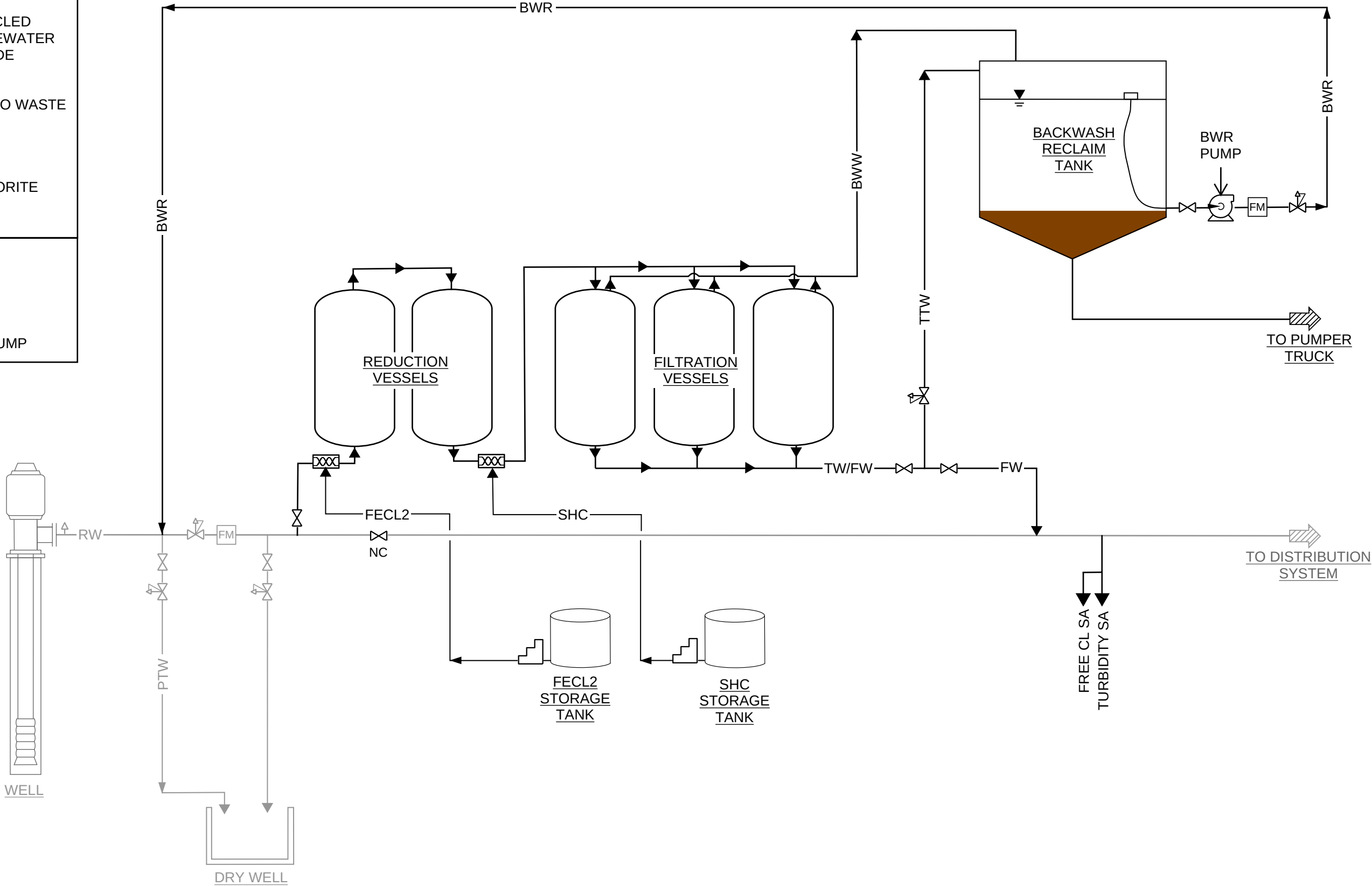
GATE VALVE

CONTROL VALVE

AIR RELIEF VALVE

STATIC MIXER

CHEMICAL FEED PUMP



VERIFY SCALE					
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DRAWN
Author
CHECKED
Checker
APPROVED
Approver



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CITY OF COACHELLA -
COACHELLA WATER
AUTHORITY

BACKWASH RECYCLE
WELL 19
GENERALIZED PROCESS FLOW DIAGRAM

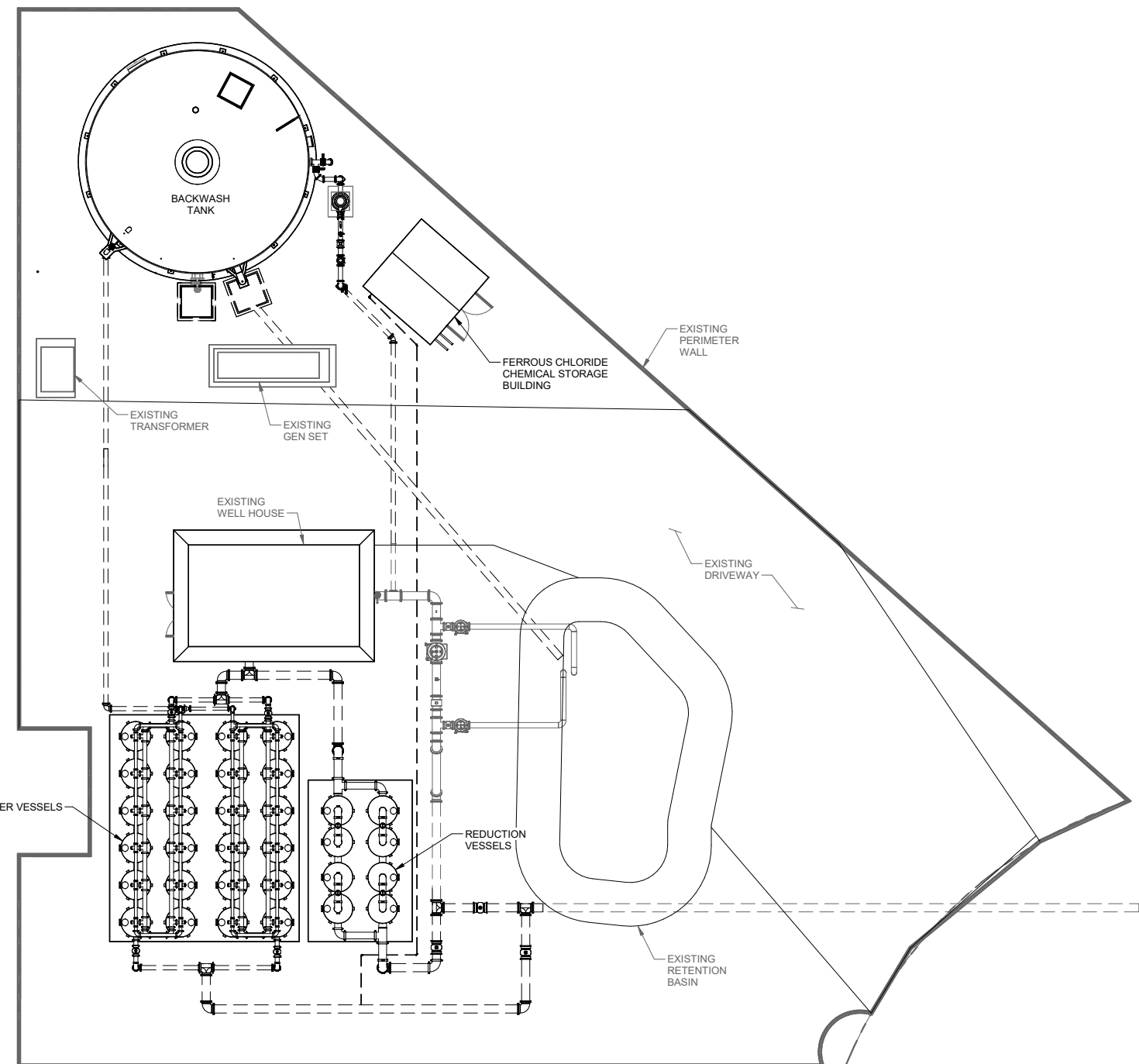
DATE	JULY 2026
PROJECT NUMBER	24-034
DRAWING NUMBER	
SHEET NO.	

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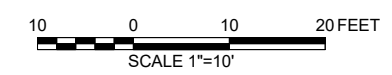
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PLAN
1" = 10'-0"



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	NO.	DATE	REVISION	BY	APVD						PROJECT NUMBER 24-034
											DRAWING NUMBER G-100
											SHEET NO.

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DRAWN
Author
CHECKED
Checker
APPROVED
Approver



CITY OF COACHELLA -
COACHELLA WATER
AUTHORITY

WELL 19 - CR6 TREATMENT
FACILITY IMPROVEMENTS

3D RENDERING
WELL 19 - AERIAL VIEW

DATE JULY 2026
PROJECT NUMBER 24-034
DRAWING NUMBER
SHEET NO.

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VERIFY SCALE					DESIGN Designer DRAWN Author CHECKED Checker APPROVED Approver 					 CITY OF COACHELLA - COACHELLA WATER AUTHORITY WELL 19 - CR6 TREATMENT FACILITY IMPROVEMENTS					3D RENDERING WELL 19 - NORTH FACING VIEW					DATE JULY 2026				
BAR IS ONE INCH ON ORIGINAL DRAWING.																				PROJECT NUMBER 24-034				
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.																				SHEET NO.				
NO.	DATE	REVISION	BY	APVD																				



VERIFY SCALE				DESIGN				CITY OF COACHELLA - COACHELLA WATER AUTHORITY				DATE			
BAR IS ONE INCH ON ORIGINAL DRAWING.				DRAWN				WELL 19 - CR6 TREATMENT FACILITY IMPROVEMENTS				JULY 2026			
0 1"				AUTHOR								PROJECT NUMBER			
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.				CHECKED								24-034			
				CHECKER								DRAWING NUMBER			
				APPROVED											
				APPROVER								SHEET NO.			
NO.				DATE											
				REVISION											
				BY											
				APVD											



VERIFY SCALE					DESIGN Designer				CITY OF COACHELLA - COACHELLA WATER AUTHORITY	3D RENDERING WELL 19 - SITE ENTRANCE	DATE
BAR IS ONE INCH ON ORIGINAL DRAWING.											PROJECT NUMBER
0  1"											24-034
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.											DRAWING NUMBER
											SHEET NO.
NO.	DATE	REVISION	BY	APVD	APPROVED Approver				WELL 19 - CR6 TREATMENT FACILITY IMPROVEMENTS		



VERIFY SCALE					DESIGN Designer															CITY OF COACHELLA - COACHELLA WATER AUTHORITY					3D RENDERING WELL 19 - EAST FACING VIEW					DATE JULY 2026				
BAR IS ONE INCH ON ORIGINAL DRAWING.					DRAWN Author																									PROJECT NUMBER 24-034				
0  1"					CHECKED Checker																									DRAWING NUMBER				
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E N G I N E E R S

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andrewb@wwengineers.com