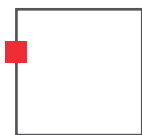




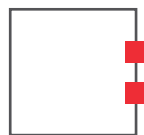
save **time** — save **energy** — save **money**

Statement of Qualifications Professional Engineering Services

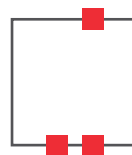
2024



Electrical



Instrumentation



Controls



SCADA

FIRM INTRODUCTION

SKM Engineering LLC (SKM) was founded on the principle of providing sound and proven electrical, instrumentation and control (EI&C) engineering, along with dependable and prompt service at the best value. The SKM team possesses the knowledge, training, and hands-on experience required to meet EI&C needs for your facilities. We possess a unique and fresh perspective and are recognized by our clients for our ability to solve challenging technical problems quickly with simple and cost effective solutions.

History

Established in 1989, SKM began providing these services primarily for power plants and oil refineries in the Rocky Mountain area. In the early 90s, we expanded our services to include water and wastewater facilities. In 1999 we began providing services to Aqua Engineering and permanently established our offices in Bountiful, Utah. Since then, we have provided our services to many other engineering firms and clients. We have had great success in the water/wastewater industry which now constitutes approximately 80% of our work. SKM now provides services for over 100 clients throughout the United States and Canada.

We have progressively built a well-rounded staff of engineers, designers, programmers, and field technicians who together are capable of providing a complete solution from design to integration to maintenance. About forty percent of our workload is providing EI&C design/engineering services. Forty percent of our workload is providing EI&C systems integration/ programming services and 20% is providing maintenance and on-call support for existing EI&C systems.

Dedicated to Client Service

With our extensive experience and expertise SKM is prepared to meet your electrical, instrumentation, and controls engineering needs. SKM employs a staff of highly trained and experienced electrical and control engineers with experience in electrical design, instrumentation and controls as well as technical expertise in PLC programming, HMI programming, design and implementation of SCADA/Telemetry systems and a variety of operator interfaces. SKM has developed a reputation of excellent customer service, resourcefulness, and sound engineering while servicing clients primarily in Utah, Nevada, Arizona, Idaho, California, Colorado, Wyoming and New Mexico. We believe in providing the client with the most innovative and cost-effective solutions for their system in order to optimize the process and maximize operator effectiveness. Our exclusive focus on wastewater and water systems provides clients with extensive process knowledge and understanding. We are dedicated to listening to our clients and working together we evaluate and select innovative and effective solutions.

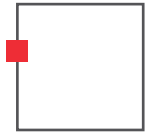
Quality Control

SKM's program to produce a quality project includes client progress meetings to achieve consensus and avoid surprises. It also includes regular independent reviews by a senior engineer not associated with the project. The project manager is responsible for the quality of the deliverables. They oversee project schedules, project scope and budget, review the project regularly and monitor quality control procedures. Reviews are performed by the project manager to insure the work effort is appropriate and technically sound and meets requirements.

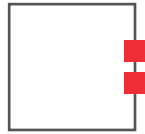


AREAS OF EXPERTISE

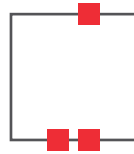
SKM offers the following services. We have listed some of the technologies we have experience with in each respective area. SKM is fully capable of providing the consulting services as outlined in the request for qualifications. Our company is setup as a professional service to provide engineering and integration services to our clients. We use subconsultants for panel construction and electrical installation services. We have used many different panel shops and electrical contractors based upon the needs and location of the client and the availability of these subconsultants. We also try to help our clients utilize their own resources if they are available to help be as efficient and cost effective as possible.



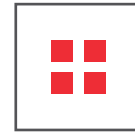
Electrical



Instrumentation



Controls



SCADA

Operator Interfaces	Network Design and Implementation	Radio Communications	Alarm Dialers
Process Diagrams	Drafting	Power Design and Distribution	3D HMI Graphics
Telemetry	Loop Drawings	Electrical Panels Design	System Integration
Control System Master Planning and Design	PLC Programming	HMI Programming	Instrumentation
Facility Maintenance & On-Call Service	Motor Controls	Communications Monitoring	Security Systems

AREAS OF EXPERTISE

PLC Programming

Our expertise includes programming of various manufacturers and models of PLCs. We have a sound understanding of how PLCs function and how to maximize their performance as well as the best methods of accessing data to/from operator interfaces and HMIs. We hold integrator service agreements and are particularly experienced with the following PLC families:

Allen-Bradley – GE – Modicon – Control Microsystems – Automation Direct – Siemens

HMI Programming

With a Variety of HMIs on the market, our expertise is with multiple HMI software packages. Each of these packages has distinct strengths and weaknesses applicable to larger control systems. We stress the importance of making the HMI simple for operators to use and visually obvious so learning new functionalities is quick for every operator, regardless of computer abilities. We are fully capable of implementing the following HMIs:

Proficy iFix – Proficy iHistorian – ClearSCADA – Wonderware – Allen-Bradley FactoryTalk View – Ignition Inductive Automation

Operators Interfaces

Operator interfaces play a key role in the local operation of water and wastewater systems. Operator interfaces enable operators to see data that is displayed on the SCADA at the local pump house. We have used and installed a variety of operator interfaces, including color and monochrome touch screens, text panels, and set point panels. We have installed from the following manufacturers:

Allen-Bradley – Modicon – Siemens – AutomationDirect – Red Lion – GE

Network Design and Implementation

Complex SCADA systems require the design of complex networks for communications. These networks are the backbone for the SCADA system, and reliability is always the key concern. We have designed many of these networks using the following:

Fiber Optics – Ethernet – RS-232 & 485 – Manufacturer Protocols (Like Modbus Plus)

Radio Communications

Wireless capabilities in the past decade have improved dramatically and are easily implemented into SCADA systems. We have used licensed and unlicensed radios to acquire data from remote locations, depending on distances and line-of-sight restraints. We understand the benefits and limitations of wireless communications and are capable of making reasonable recommendations. We have installed radios from the following manufacturers:

Microwave Data Systems (MDS) – Trio – Freewave – Radwin – Cambium – Ubiquiti

Electrical Panels Design

We have the capability of designing SCADA control panels as well as motor control panels with integrated PLCs. We use local panel shops and competitively bid out the panels to provide the client with the best possible price.



AREAS OF EXPERTISE

Alarm Dialers

Dialers have become an important part of SCADA systems with the recent homeland security policies. We include security features and alarming on failure of the SCADA system. These features coupled with traditional alarming make the control system function independently of external alarm systems.

Ignition – Win911 – Sensaphone – Raco

Drafting

We have a staff of CAD designers who have aided in the design of many control systems. They have experience with process and instrumentation diagrams, control diagrams, onelines, control panel design, and all associated power and control diagrams.

Instrumentation

We can recommend the selection of key instruments and manufacturers for a control system. We have installed, calibrated, and troubleshot many instruments within a variety of systems. Below is a partial list of instruments we have experience with:

Flow Meters – Level Sensors – Pressure Sensors – Temperature Sensors – Chlorination & De-Chlorination – Water Quality Analyzers

Power Design and Distribution

SKM is capable of full power distribution and motor control design, including variable frequency drives, reduced voltage soft starts, motor starters, transformers, standby generators and more.

3D HMI Graphics

We offer the option of using unique three-dimensional graphics for your HMI. This makes the operator experience much more dynamic and user-friendly than typical two-dimensional graphics. By converting your facility to 3D, you can visualize each room in each building as it exists. The 3D look is clean, accurate, cost effective and produced as quickly as 2D interfaces.



LEADERSHIP



Mark Jeppsen, P.E. – Principal

Mr. Jeppsen is an electrical, instrumentation and controls engineer with 21 years of experience in power design, controls engineering, process and instrumentation design, industrial network design, construction oversight, radio and telemetry systems, SCADA system design and integration and PLC and HMI design and integration. He has designed and integrated multiple potable water, secondary water, water treatment, wastewater collection and wastewater treatment systems. Design tasks include facility power, motor power and control, SCADA systems, instrumentation selection and control, process and instrumentation diagrams, communications networks and systems, control loop diagrams and descriptions. Integration tasks include control and PLC panel design and construction, PLC, OIT and HMI programming and commissioning, radio system integration and testing, instrument calibration, automated reporting systems and operator training and documentation.

Education:
BS Electrical Engineering
University of Utah, 2002

Professional Engineer:
UT, CA, NM, ID



L. Allen Rogers, P.E. – Principal

Mr. Rogers is a programmer and designer with experience in electrical design, control systems, and Telemetry and SCADA systems. Mr. Rogers has assisted in the design, programming, startup and maintenance on several source water, water treatment, wastewater collection, and wastewater treatment projects. Mr. Rogers has experience with many different aspects of SCADA systems. He has worked with many different programmable logic controllers including Allen Bradley, Control Microsystems, and Modicon. He has used many different operator interfaces including Allen Bradley, C-More, and Maple. He has experience with GE Fanuc iFix (Intellution) HMI software. He has assisted in the design and installation of new systems, replacement of old systems, and expansion of existing systems. Mr. Rogers has worked with several different communication systems including radio, Ethernet, serial, and proprietary communication systems. Mr. Rogers has also assisted in several path studies using licensed and unlicensed radios.

Education:
BS Electrical Engineering
University of Utah, 2010

Professional Engineer:
UT



Ryan Pack, P.E. – Principal

Mr. Pack has experience with many components of SCADA and controls. He has worked with controls as simple as relay logic and PID loop controllers through complex radio controlled SCADA systems. He has worked with many different programmable logic controllers and Operator interfaces including Allen Bradley, Control Microsystems, GE, Koyo, Modicon, Siemens, and others. He has utilized many software packages for human machine interface including Allen Bradley, GE Proficy (Intellution), Wonderware, and National Instruments Lookout. He has designed and installed new systems, replaced old systems, and expanded existing control systems. Mr. Pack has worked with many communications systems including radio, fiberoptics, ethernet, serial, and proprietary communications systems such as controlnet and profibus. He has conducted numerous path studies, for both licensed and non-licensed radio communications systems. He has designed and installed radio telemetry systems with over 50 remote sites.

Education:
BS Electrical Engineering
University of Utah, 2002
MBA Weber State University, 2005

Professional Engineer:
UT, NV, ID, WY, CO, HI, NM



Mark Taylor – Principal

Mr. Taylor is a programmer and field technician with experience in control systems design and integration, as well as control systems maintenance and support. His experience includes source water, irrigation, water treatment, wastewater collection, and wastewater treatment. In each of these areas, he has been responsible for SCADA system programming, implementation, commissioning, and maintenance. Mr. Taylor has also been responsible for operator coordination and training for many of these projects. He has designed and installed new systems, replaced old systems, and expanded existing control systems. Mr. Taylor has worked with communications systems including radio, fiberoptic, ethernet, serial, and proprietary communications systems such as controlnet. He has conducted numerous path studies, for both licensed and non-licensed radio communications systems. He has installed radio telemetry systems with over 40 remote sites.

Education:
B.S. Electronics Engineering Technology
Weber State University, 2002

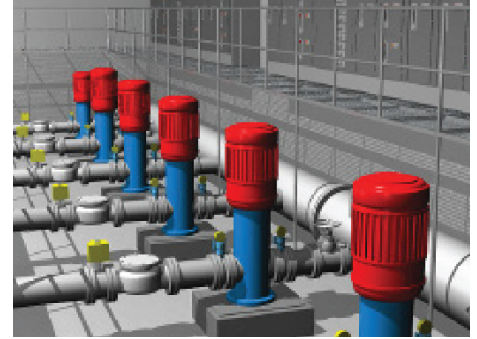
WORK EXPERIENCE

Mountain Regional Water SSD

Location: Summit County, UT

Duration: Under Service Contract

Mountain Regional Water was a newly formed water district combining the resources of many smaller, locally operated water systems. We retrofitted existing sites with new SCADAPacks, color touch screens, motion detector security, and addition of full monitoring and control. Mountain Regional selected Intellution's iFix for their HMI, with MDS radios for communication. Solar power was used for tanks at remote sites, with the ability to operate without sunlight for seven days. A dialer was installed, and internet connectivity was added for remote monitoring. There are over 55 remote sites controlled for this system including a treatment facility and a pump station operating at 500 PSI and 9000 GPM. SKM has been providing ongoing maintenance and upgrades since the original upgrade in 2002.



Reference:

Doug Evans, (435) 940-1916,
doug@mtregional.org

SCADA System Installation

In 2012 SKM worked with MRW to come up with criteria to upgrade their existing SCADA system. It was decided to stay with their current hardware platform due to the drastically lower costs of installation. Over the course of two years we installed and upgraded 55 remote sites and one water treatment plant. This was a turnkey project where we supplied the hardware, installation, programming, and training. A major portion of this project was to implement energy saving programs. Because of changes in logic we were able to adjust the rate structures at several facilities and have since paid for the cost of the SCADA upgrade. Since then we have worked with MRW to implement other cost saving programming such as mass balance work to identify water leaks before they are found by operators.

65,000 tags – 52 devices (40 SCADA Packs, 3 AB Logix PLCs, 9 Mod-bus Ethernet IO Units) – Up to 15 clients at a time – Redundant Architecture – MSSQL DB – 4,000 configured alarms – 3,000 historicized data points – 25 main screens, 120 pop-ups

Park City, UT

Park City Water – SCADA Upgrade

Location: Park City, UT

Duration: Under Service Contract

Park City was in dire need of upgrading their current control system. They were operating on three separate control systems across their water department and were using antiquated equipment that wasn't supplying the City with their control and data acquisition needs. SKM teamed with Carollo Engineers to design a new system and with a design build approach implemented a state of the art control system. The overall integration included 70 remote sites and two full water treatment plants. Ignition software, Allen-Bradley hardware, a Cisco network, and a Radwin radio system were used at the city to complete the approach. The construction took place during a six-month period where sites were slowly transitioned over to the new system. This was done without causing downtime and operational stress to the city so that they could continue to operate reliably through their high demand season.

135,000 tags – 103 devices (60 radios, 37 AB Logix Series PLCs, 5 Mod-bus devices) – Up to 20 clients at a time – Redundant Architecture with fallback – MSSQL Cluster DB – 6,000 configured alarms – 5,000 historicized tags – 35 main screens, 150 pop-ups

SKM received the Firebrand Award Winner at the 2018 Inductive Automation conference.

To learn more about the projects, visit: <https://www.inductiveautomation.com/resources/customerproject/two-customers-see-big-improvements-can-share-data>

Salt Lake City, UT

Salt Lake City Water Reclamation Facility

In 2011 SKM was awarded the contract to plan, design and implement a complete SCADA system upgrade which included new programming standards, replacement plan and phased implementation approach.

The first phase of this project was the SCADA Master Plan and to upgrade the plant network to a state-of-the-art redundant Cisco network. The second phase of the project was to replace most of their PLC panels and upgrade their SCADA software and screens. The third phase of the project is to upgrade the switchgear and pump plant PLC's and to provide on call services.

In addition to this project, SKM has been involved in many other projects at the facility including the WAS Thickening project and the current

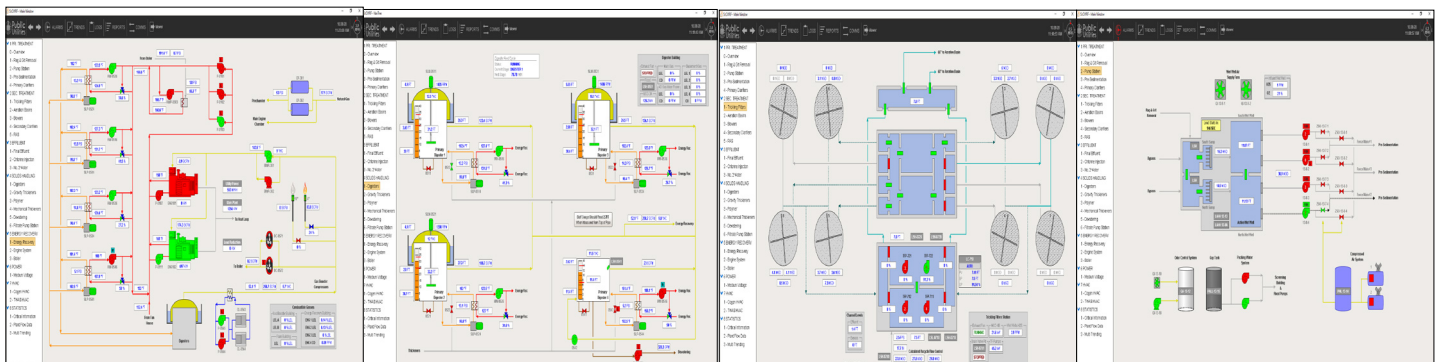


Details

Location: Salt Lake City, Utah
Completion: Under Service Contract
Contract Value: \$1.2M
Contact: Jamey West, (801) 799-4083
Email: jamey.west@slcgov.com

Highlights

- SCADA System Evaluation & New Programming Standards
- SCADA System Master Plan Workshops, Meeting
- Master Plan & Capital Spending Plan
- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management
- Improvements
- Hardware/Software Selection



Ogden, UT

Central Weber Sewer Improvement District

Central Weber Sewer Improvement District WWTP System Integration 2004-2019

SKM has been the Systems Integrator for Central Weber for the past 10 years. Over those years we have upgraded their antiquated PLC's, upgraded HMI software performed a 60MGD plant expansion and we upgraded their solids handling/dewatering controls. SKM successfully tied the SCADA system to their CMMS software. The SCADA system was setup with a redundant ring style network and we are utilizing Ignition for launching HMI clients over secure WiFi connections to tablets.



Central Weber Sewer Improvement District WWTP Expansion 2007-2012

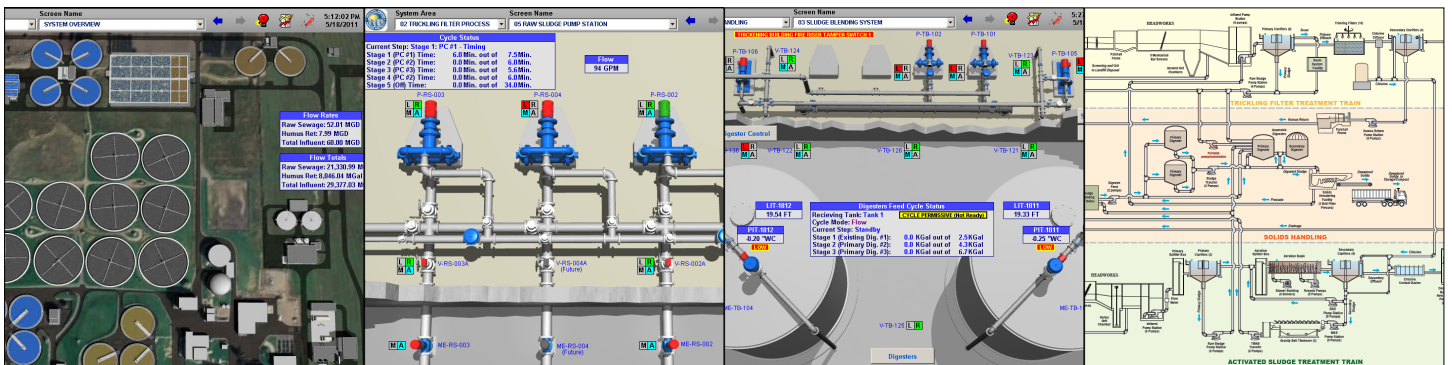
In 2007 SKM joined with MWH and performed instrumentation and controls engineering for a new activated sludge plant that was constructed adjacent to the existing plant. SKM provided construction management services for the project and is also acting as systems integrator. SKM will provide 19 PLC panels and network cabinets. As the systems integrator, SKM programmed the PLCs and the HMIs throughout the plant and seamlessly integrated the new plant with the existing plant. Along with the process control SKM was also contracted to do the HVAC controls for the new plant expansion. The project included 14 air handling units in eight buildings. Allen-Bradley ControlLogix were used in each building. Several buildings utilized AB Flex remote IO drops for air handling units. Operators were able to use Allen-Bradley OITs at each building to completely control the HVAC system. The HVAC system was also put on their overall SCADA system using the GE iFix platform.

Details

Location: Ogden, Utah
Completion: 2004 - Present
Contract Value: \$2.1M
Contact: Kevin Hall, (801) 731-3011
Email: kevinh@centralweber.com

Highlights

- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management



Bountiful, UT

South Davis Sewer District

Electrical Engineering & SCADA

SKM has been involved in numerous projects for South Davis.

SKM performed the Electrical, Instrumentation, and Control Design for the Wasatch Resource Recovery project at the South Plant, As well as performed the same design services for the South plant Nutrient upgrade currently in process. As part of the two projects at the south plant SKM also provided the SCADA system. The first phase was to install the Wasatch Resource Recovery control system utilizing Allen Bradley Control Logix PLCs with Redundant Ignition SCADA servers. Part of the design was the expansion of this system in the current south plant upgrade, which included installation of SCADA at the South plant. We are currently working on commissioning and starting up the south plant expansion of the SCADA system, and the re-location of the SCADA servers to the new Admin building.

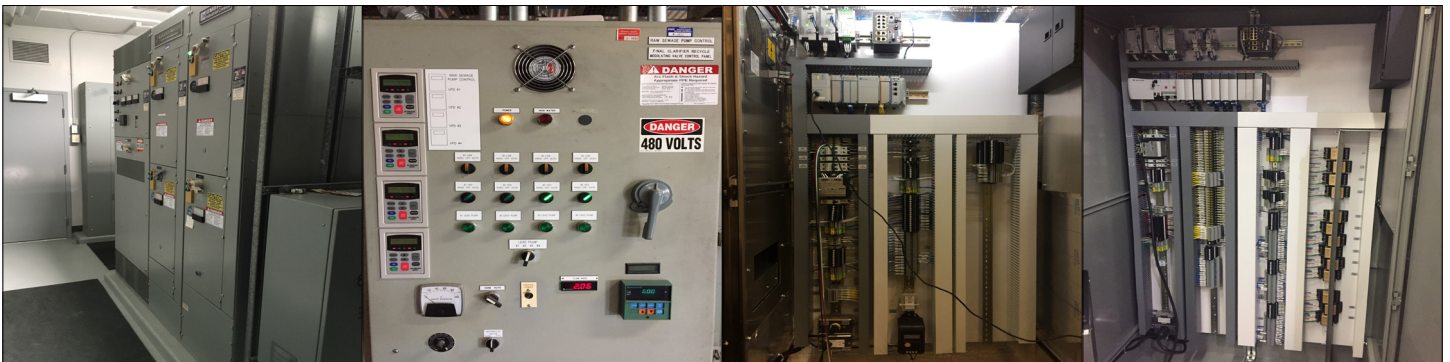


Details

Location: Bountiful, Utah
Completion: Current
Contract Value: Varies by Project Scope
Contact: Matt Myers, (801) 232-7017
Email: mmyers@sdsd.us

Highlights

- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management



skm

I For more information, Call (801) 677-0011 or Visit skmeng.com

Big Cottonwood Water Treatment Plant Electrical & SCADA Upgrade

Located at the mouth of the Big Cottonwood Canyon, the Big Cottonwood WTP is one of three water treatment facilities providing treated water to Salt Lake City (SLC), Utah. The utility distributes water through about 1,300 miles of transmission and distribution pipe to over 90,500 connections. SKM has been providing on call services for the Big Cottonwood Water Treatment Plant since 2005.

The original treatment plant was constructed in 1957. In the 1980's, the plant was renovated to treat 42 MGD (roughly 40 percent of the water treatment capacity for SLC) and a gas chlorine system was installed for disinfection. Due to increased concerns and risks associated with communication of the PLC system as stated by our client, "the old one was not reliable and required diligence".

In 2015 SKM was selected to perform a SCADA master plan for the facility and to design and integrate a complete SCADA upgrade. SKM recommended to include in the project a new electrical building adjacent to the filter building to remove as much electrical gear out of the filter building as possible. The facility was taken offline for only two weeks while all of the electrical and controls was transferred to the new building and the plant was brought back online seamlessly.

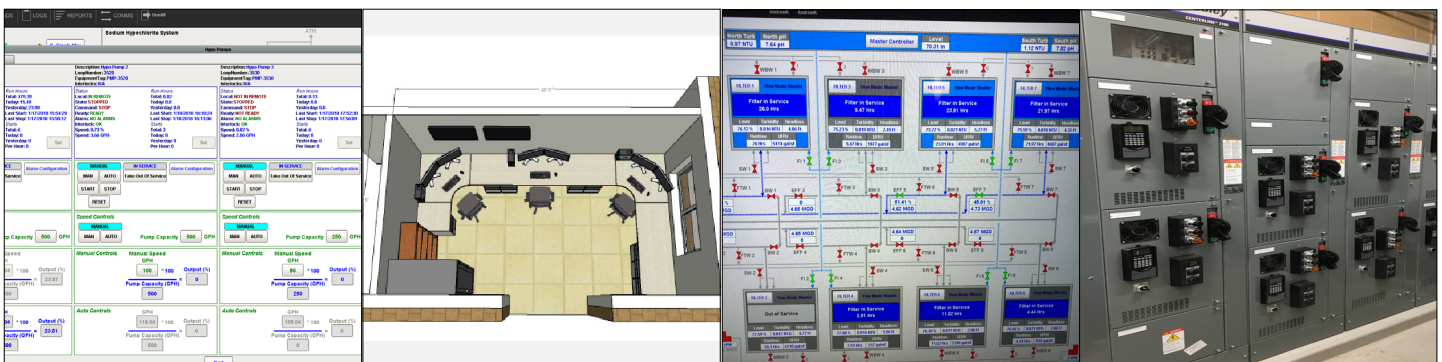


Details

Location: Cottonwood Heights, Utah
Completion: 2018
Contract Value: \$1.2M
Contact: Mike Gill, (801) 483-6812
Email: michael.gill@slcgov.com

Highlights

- SCADA System Evaluation & SCADA System Critical
- SCADA System Master Plan Workshops, Meeting
- Master Plan & Capital Spending Plan
- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management
- Improvements
- Hardware/Software Selection



Beaumont Treatment Plant Expansion & Salt Mitigation

The team of Webb, Aqua and SKM recently designed and is currently participating in the construction of the City of Beaumont's Wastewater Treatment Plant Expansion and Salt Mitigation Project. The existing facility had become antiquated, unreliable and had no means of removing brine. Brine disposal was an integral part of this project and a key driver in the selection of the new process. Without a safe, reliable, and cost-effective way to dispose of the brine, this project could not move forward and compliance with the Basin Plan would be impossible. The brine pipeline connecting to the Inland Empire Brine Line (IEBL) was determined to be the best option during the feasibility study, due to cost and certainty of operation. The brine line has been sized at 12-inches and will be approximately 23-miles long. The pipeline begins at the City's WWTP and ends near the City of San Bernardino's WWTP on Waterman Avenue.



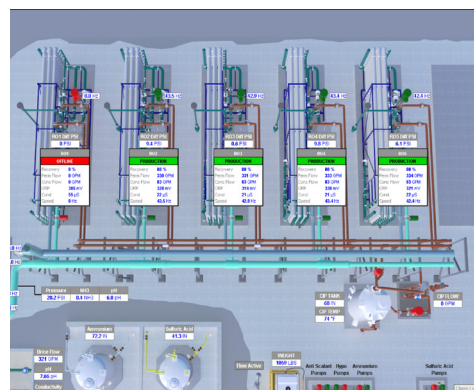
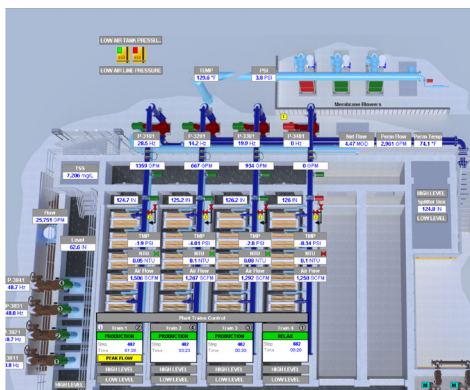
The work consists of a first phase which includes improvements at the headworks, influent pump station, new fine screens, a new aeration basin and a new MBR process. Following the completion of the first phase a second and final phase will add raw water equalization and solids handling which includes two centrifuges.

Details

Location: Beaumont, CA
Completion: 2019
Contact: Thaxton Van Belle, (909) 496-5689
Email: TVanBelle@beaumontca.gov

Highlights

- SCADA System Evaluation & SCADA System Critical
- SCADA System Master Plan Workshops, Meeting
- Master Plan & Capital Spending Plan
- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management
- Improvements
- Hardware/Software Selection



Western Riverside County Regional Wastewater WWTF

SKM provided electrical, controls and instrumentation design for the second phase of an expansion project bringing the facility from 8 to 14 MGD. The plant will be upgraded and expanded to meet future needs and improve treatment. Improvements include headworks, primary clarification, flow equalization, bio-reactor expansion, secondary clarification, tertiary filtration, chlorination, WAS thickening, conversion to anaerobic digestion, solar drying, and odor control. SKM's design efforts included rerouting the utility feed to the facility, modifications and additions to the existing power distribution, network and controls upgrades and efforts to enclose existing outdoor MCC's and control cabinets.

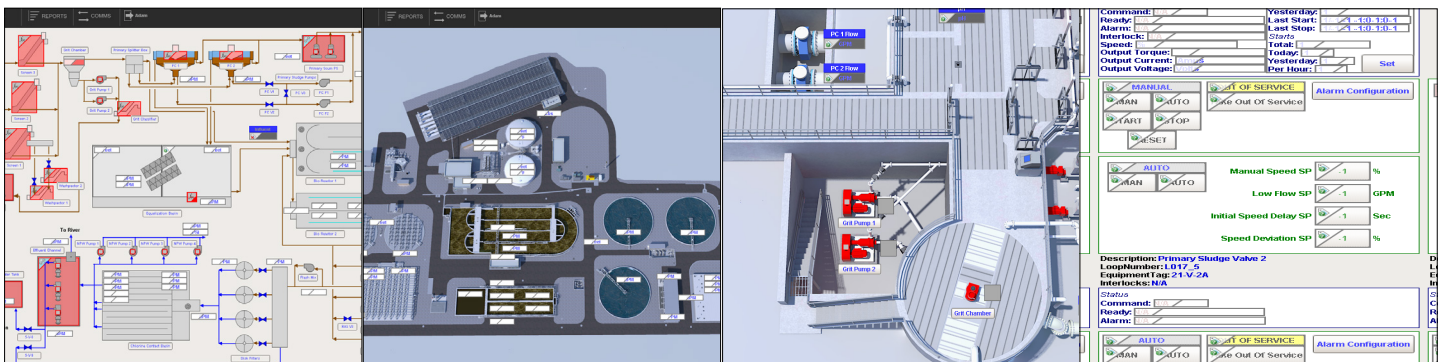


Details

Location: Eastvale, CA
Completion: 2019
Contact: Tony Pollak, (951) 789-5114
Email: tpollak@wmwd.com

Highlights

- SCADA System Evaluation & SCADA System Critical
- SCADA System Master Plan Workshops, Meeting
- Master Plan & Capital Spending Plan
- SCADA System Network Design
- Instrumentation & Controls Design
- System Integration
- Construction & Installation
- Startup & Commissioning
- Construction Management
- Improvements
- Hardware/Software Selection



ADDITIONAL REFERENCES

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(801) 799-4083

Chris Braun
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Mountain Regional Water
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Park City, Ut 84098
(435) 940-1916

Jill Jones, Manager
Central Davis Sewer District
2618 Pioneer Road
Ogden UT 84037
(801) 451-2190

Jake Nostrom, Superintendent
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Ogden, UT 84401
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