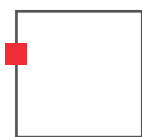




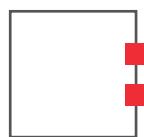
save **time** — save **energy** — save **money**

Statement of Qualifications Professional Engineering Services

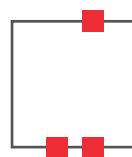
2023



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.

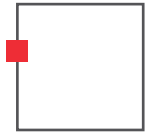
Quality Control

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.

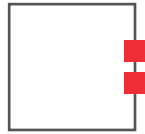


AREAS OF EXPERTISE

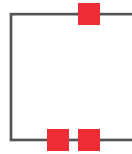
SKM offers the following services. We have listed some of the technologies we have experience with in each respective area. SKM is fully capable of providing the consulting services as outlined in the request for qualifications. Our company is setup as a professional service to provide engineering and 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.



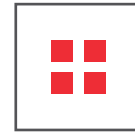
Electrical



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

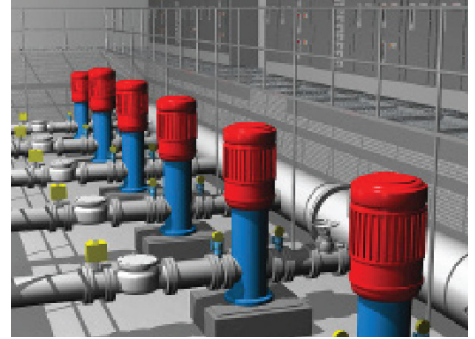
WORK EXPERIENCE

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 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 Plant Expansion.

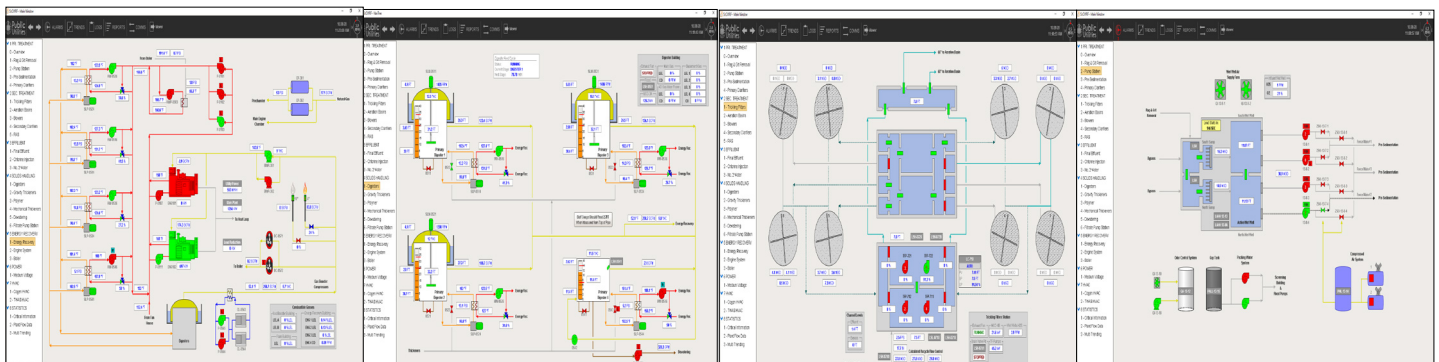


Details

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

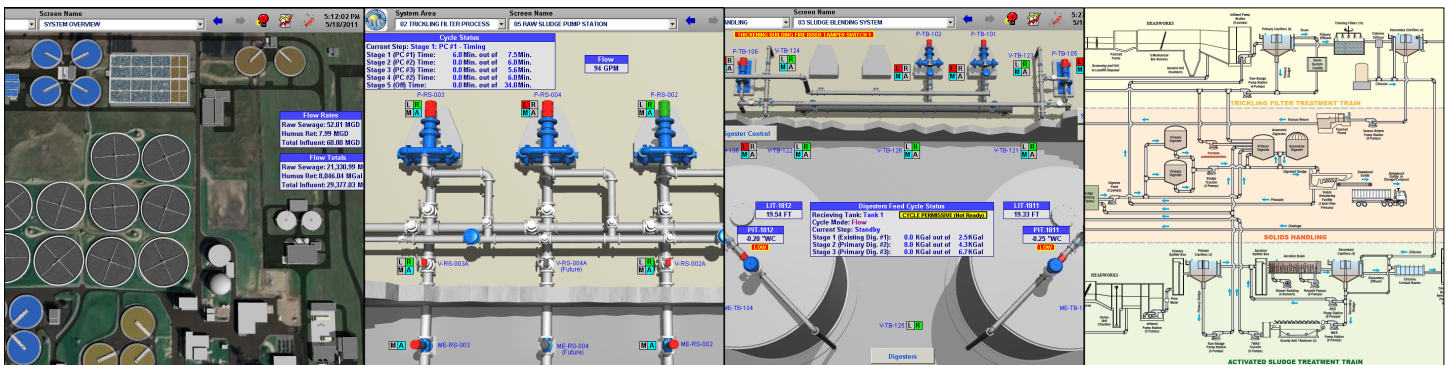
In 2007 SKM joined with MWH and performed instrumentation and controls engineering for a new activated sludge plant that was constructed adjacent to the existing plant. SKM provided construction management services for the project and is also acting as systems integrator. SKM will provide 19 PLC panels 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.

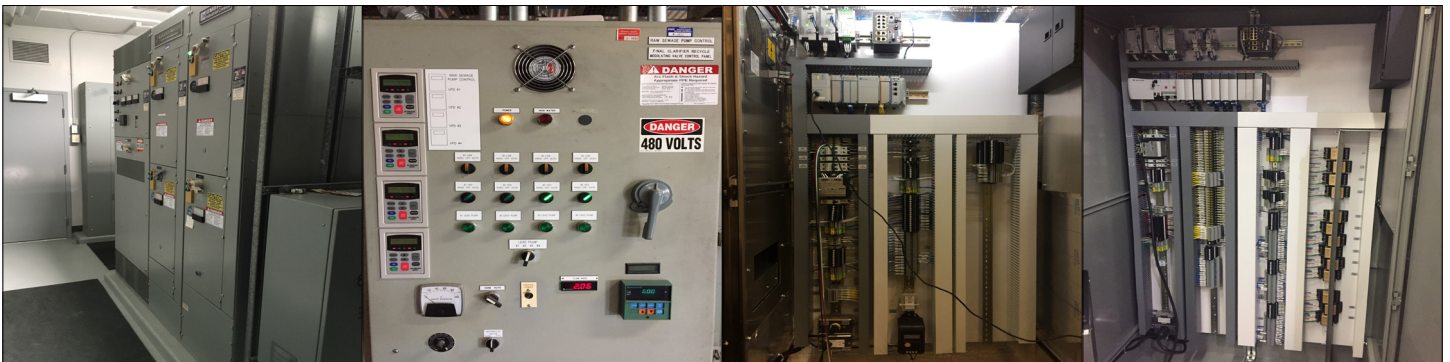


Details

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

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

Salt Lake City, UT

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.

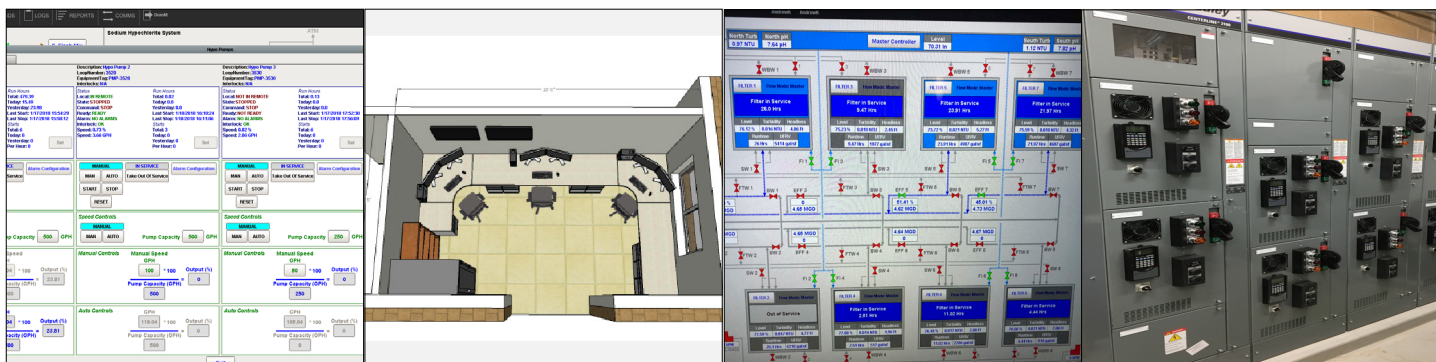


Details

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



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

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.



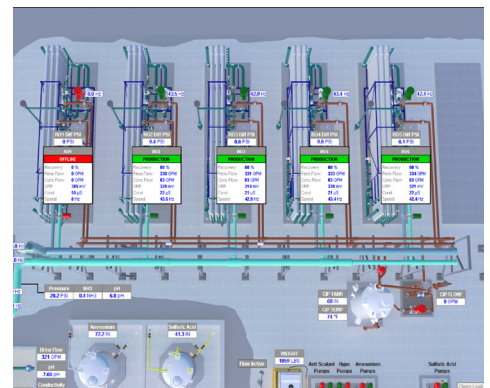
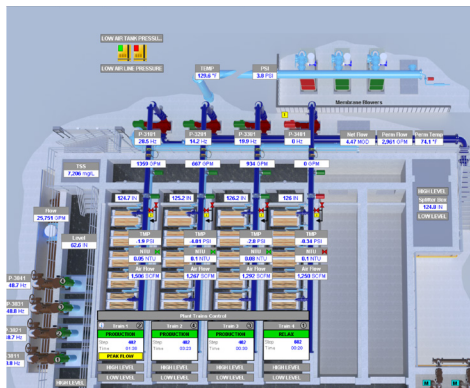
The work consists of a first phase which includes improvements at the headworks, influent pump station, new fine screens, a new aeration basin and a new MBR process. Following the completion of the first phase a second and final phase will add raw water equalization and solids handling which includes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

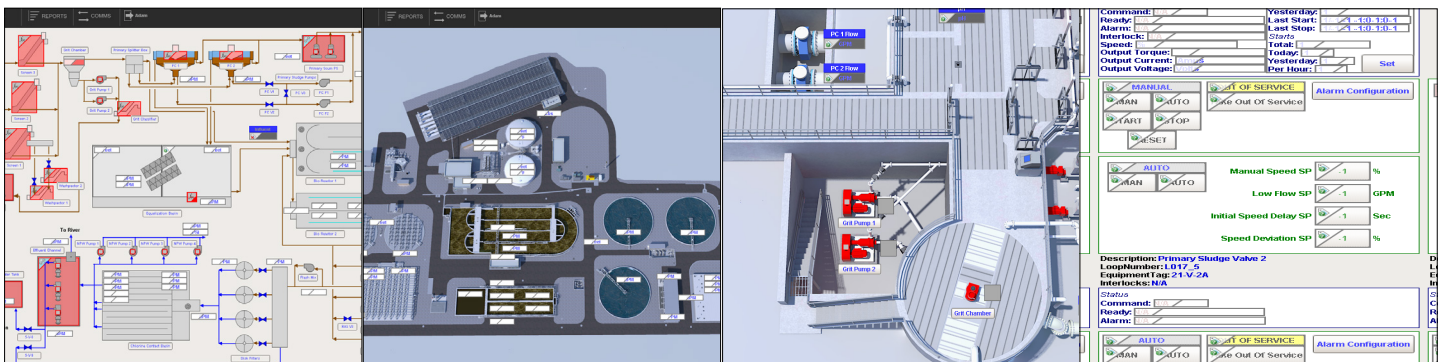


Details

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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2618 West Pioneer Road
Ogden, UT 84404
(801) 731-3011

Jamey West, Plant Manager
Salt Lake City WRF
2400 N 1365 W
Salt Lake City, UT 84116
(801) 799-4083

Chris Braun
Engineering Manager
Mountain Regional Water
PO Box 982320
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
Springville City
50 South Main Street
Springville, UT 84663
(801) 830-5027

Keith J. Hanson, Manager
Salt Lake County Service Area #3
P.O. Box 920067
Snowbird, Utah 84092-0067
(801) 278-9660

Raul Naranjo, Public Works
City of West Wendover
1875 Florence Way
West Wendover, NV 89883
(775) 664-3081

Jamie Grandpre, Public Works Director
Tooele City
90 N. Main
Tooele, UT 84074
(435) 882-1952

Corey Pierce, Superintendent Spanish
Fork City
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Spanish Fork, UT 84660
(801) 804-4466

Jeff Hiatt, Superintendent
Payson City
1050 North Main Street
Payson, UT 84651
(801) 465-5277

Mike Gill, Water Treatment Plant Manager
Salt Lake City Dept of Public Utilities
1350 W. Temple
Salt Lake City, UT 84115
(801) 867-6485

Brady Herd, Public Utilites Manager
Ogden City
2549 Washington Blvd.
Ogden, UT 84401
(801) 629-8000



Mark P. Jeppsen, P.E. - Principal

(801) 683-3760 - mark.jeppsen@skmeng.com

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.

Project Role

Electrical & Controls Engineer

Work Experience

21 Years

Education

BS Electrical Engineering
University of Utah, 2002

Registration

Professional Engineer:
Utah

Certification

Ignition Gold Certification

Specialties

- Electrical Engineering
- Control and SCADA Systems
- Design & Integration
- Network and Communications
- Design and Integration
- Water & Wastewater
- Facilities Process Control and Optimization
- Project Management
- Construction Management

Project Experience

2009 - 2021:

Jurupa Community Services District (JCSD), Jurupa, CA | Electrical and Controls Engineer

Mark has worked with JCSD on various projects over the years including the Regional Lift Station and various other lift stations. He has also been the lead electrical engineer on Wells 13, 27 & 28 as well as the JCSD-RCSD Booster Pump Station. Mark has worked closely with the District's controls engineer and O&M staff to develop designs drawings that are tailored to the District's standards.

2009 - Present:

Western Riverside County Regional Wastewater Authority (WRCRWA), Eastvale, CA | Electrical and Controls Engineer

In 2009 Mark led the electrical and control design for an aeration upgrade at the WRCRWA plant. This included a new blower building with associated controls for the existing oxidation ditches. In 2012 Mark was the lead electrical engineer for a complete plant expansion at WRCRWA which also included new network, PLC, and HMI systems. Since the completion of the expansion, Mark has provided services for several projects and has provided on-call support for the facility.

2006 – Present:

Salt Lake City, UT | Electrical and Controls Engineer

SKM has been providing services to Salt Lake City for their various water and wastewater facilities since 2006. Mark is currently overseeing the implementation of a complete control system upgrade at the 50 MGD Water Reclamation Facility which includes control panel upgrades, PLC replacements and new HMI screens. SKM has designed a new WAS thickening facility and is currently designing a new Headworks facility. Mark is the lead engineer and project manager for electrical and controls upgrades at the 20 MGD Big Cottonwood Water Treatment Plant that will be completed in 2018.

2004 – Present:

Central Weber Sewer Improvement District, UT | Electrical and Controls Engineer

SKM has been working for Central Weber Sewer Improvement District (CWSID) since 2004 by providing electrical designs, controls upgrades and system maintenance. Mark has managed upgrades at the plant as they have come, including upgrades for the influent pump building, utility water pump building and PLC & HMI upgrades. In 2006 design began for a complete 60 MGD plant expansion and SKM was an integral part of the design and integration team. Construction for this project began in 2008 and was completed in 2012.

2004 – Present:

Sandy City, UT | Electrical and Controls Engineer

SKM provided the complete and operational SCADA System for Sandy City's Water System that was completed in 2005. Since then, SKM has provided incremental additions, improvements and maintenance including a new storm water system. The system consists of nearly 40 remote sites that consist of tanks, boosters and wells. In 2016 SKM provided an HMI system upgrade for the water and storm water systems.

2003 – Present:

Park City, UT | Electrical and Controls Engineer

SKM began working for Park City by providing the system integration for an iron, arsenic and manganese removal process at the Spiro Water Treatment Plant in 2003. In 2012, SKM provided the complete and operational SCADA System for the Quinn's Junction Water Treatment Plant, a microfiltration membrane process. This included PLC & HMI programming, custom reports and historical data gathering and startup and commissioning. In 2016 SKM upgraded Park City's complete SCADA system which included their two water treatment plants and approximately 70 remote boosters, tanks, metering stations, PRV stations and well houses.

Mark P. Jeppsen, P.E. - Principal

Project Experience (continued)

2003 – Present:

City of Tooele, UT | Electrical and Controls Engineer

Mark began working for the City of Tooele by providing electrical and controls maintenance at the City's Water Reclamation Facility. In 2011 Mark was the lead electrical engineer for the design, construction and integration of a plant expansion at the Water Reclamation Facility. In 2015 SKM began providing electrical and controls services for the City's culinary water system.

2002 – Present:

City of Payson, UT | Electrical and Controls Engineer

The Payson Wastewater Treatment Plant was upgraded in 2002. Mark successfully implemented the electrical design for the project, oversaw the construction, and integrated the control system. A new fiber optic network was successfully installed and improved the operation and reliability of the SCADA system.

1999 – Present:

Springville City, UT | Electrical and Controls Engineer

Mark successfully designed and implemented the electrical and controls for two plant expansions at the Springville Wastewater Treatment Plant. The first expansion was in 1999 and the second in 2009. The expansions consisted of a new electrical service, new SCADA system and PLC replacements. SKM has been providing integration and maintenance services to the City since 1999.

1999 – Present:

Spanish Fork City, UT | Electrical and Controls Engineer

In 1999 SKM began working for Spanish Fork City by upgrading the electrical and controls system for their primary pump station at the Wastewater Treatment Plant. In 2004, the plant was expanded and Mark was the lead electrical and controls engineer for the project. He successfully implemented the electrical design for the project, oversaw the construction, and integrated the control system. A new fiber optic network was successfully installed and improved the operation and reliability of the SCADA system.

1998 – Present:

West Wendover, NV | Electrical and Controls Engineer

Since 1998 SKM has been providing services to the City of West Wendover for their water and wastewater systems. In 1999-2000 SKM performed a SCADA System replacement for both systems that incorporated new radios and equipment for their well field and pipeline located 20 miles from the City. In 2011-2012 SKM provided the design engineering and integration for a new MBR facility at the Water Reclamation Facility.

Other Project Experience

Present: Beaumont City, CA. WWTP MBR and RO Expansion

Present: Las Gallinas, CA. WWTP Expansion

Present: City of Imperial, CA. WWTP MBR Facility Expansion

Present: Central Davis Sewer District, Kaysville, UT. WAS Thickening Addition

2016: Ogden City, UT. Water System SCADA Upgrade

2016: Provo City, UT. WWTP UV Building Addition and Headworks Upgrade

2015: Ogden City, UT. WTP Microfiltration Upgrade

2015: Provo City, UT. WWTP Master Plan

2014: Imperial, CA. WTP Controls Upgrade

2013: City of Elko, NV. WWTP Upgrade

2013: Fort Shafter Flats, HI. WWTP MBR Facility

2011: Las Gallinas, CA. WWTP Microfiltration Addition

2011: Provo City, UT. WWTP Centrifuge Facility Upgrade

2011: Orem City, UT. WWTP Expansion

2010: Taos, NM: WWTP MBR Facility Expansion

2010: Moroni, NM: WWTP MBR Facility

2009: Brigham City, UT. WWTP Expansion

2008: Heber, CA. WWTP Expansion

2008: Inscription Canyon Ranch, AZ. WWTP MBR Plant

2008: Edgewood City, NM. WWTP MBR Facility

2007: Gallup, NM. WWTP Expansion

2006: Jerome City, ID. WWTP MBR Facility

2005: Hyrum City, UT. WWTP MBR Facility

2003: Oakley City, UT. WWTP MBR Facility





Allen Rogers, P.E. - Principal

(801) 683-3765 - allen.rogers@skmeng.com

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.

Work Experience

13 Years

Education

BS Electrical Engineering
University of Utah, 2010

Registration

Professional Engineer:
Utah

Specialties

- Programming
- Project Management
- Design
- Electrical Design, Control
- Systems, Telemetry and SCADA systems
- Programmable Logic Controllers
- HMI
- Radios

Project Experience

Gallup Water SCADA Replacement, Gallup, NM | Programmer

Mr. Rogers assisted in the programming of the HMI and PLCs of the city's SCADA system. The project replaced over twenty remote sites during an installation time of two weeks.

Gallup Wastewater Expansion, Gallup, NM | Programmer

Mr. Rogers assisted in the programming of plant PLCs and the creation of loop diagrams for additions to the wastewater plant.

Lost Creek and Rockport Boosters, Summit County, UT | Programmer

Mr. Rogers programmed the PLCs, operator interfaces, and HMI for the Lost Creek Booster expansion and the Rockport Booster stations. The main pump station had 10 pumps running at 500 PSI.

Mountain Regional Water, Summit County, UT | Programmer/Project Manager

The system includes 40 remote sites, a treatment plant, and large booster pump system. Mr. Rogers is currently involved in setting up new radio networks and upgrading hardware and HMI software for the system.

Elko WWTP Upgrade, Elko, NV | Designer

Mr. Rogers assisted in the electrical design, load calculations, conduit schedules, and lighting plan for the Elko WWTP Headworks expansion project.

Elko WWTP Reporting, Elko, NV | Programmer

Mr. Rogers was responsible for the design and programming of a complete reporting package that integrated all reporting aspects of the plant from the lab, operator field readings, and HMI historical data into one database. Reports were then automatically generated from information contained in the database.

CWSID WWTP Upgrade, Ogden, UT | Designer

Mr. Rogers assisted in the design of the control system of the Central Weber Sewer Improvement District WWTP 60 MGD upgrade. He was responsible for developing many control loop specifications and aided in the creation of the process and instrumentation diagrams.

Intrepid Potash, Carlsbad, NM | Programmer

Mr. Rogers was responsible for a large portion of the programming of an underground stacker/reclaimer system that involved a stacker, several conveyor belt systems, and a loading system.

Quinns Junction WTP, Park City, UT | Project Manager

Mr. Rogers was in charge of the integration of the Quinn's plant which included programming the plant PLC, HMI Software, and reporting for the plant. Mr. Rogers's was also responsible for integrating the OEM Pall system into the plant HMI to create a seamless operating experience for the plant staff.

Salt Lake City WRF, Salt Lake City, UT | Project Manager

Mr. Rogers just completed a network upgrade at the plant that installed a new fiber backbone throughout the plant and new CTC cabinets using Layer 2 and 3 Cisco switches in nineteen locations. Mr. Rogers is currently designing the replacement of the antiquated remote IO system throughout the plant with new PLCs.

Las Gallinas Re-use Water Project, San Rafael, CA | Project Manager

Mr. Rogers led the design team for the closed filter re-use water project in Las Gallinas. The system consisted of treating effluent with a GE Zpak system for irrigation use. Mr. Rogers recently finished construction oversight on the electrical portion of the project.



Ryan Pack, P.E. - Principal

(801) 683-3761 - ryan.pack@skmeng.com

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.

Work Experience

21 Years

Education

BS Electrical Engineering
University of Utah, 2002

MBA
Weber State University, 2005

Registration

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

Specialties

- Electrical and Controls
- Design
- Construction Oversight
- Control Systems
- Telemetry and SCADA Systems
- Design
- Control Testing
- Programming
- Startup and Maintenance
- Contracts

Project Experience

Lost Creek Project, Summit County, UT | Electrical/Controls Engineer

Mr. Pack worked on this project in all aspects from the shallow wells to the treatment facility. Ryan designed Mountain Regional Water's SCADA system, and has continued working on the system since original installation. He oversaw the programming and startup of the existing Lost Creek Canyon control system, and is extremely familiar with its layout, configuration, and applications. Ryan also worked on the design for the motor controls, power distribution, lighting, and instrumentation for this system.

Mountain Regional Water SCADA, Summit County, UT | Controls Engineer

SKM designed a new SCADA system for the district that included all of the water distribution, raw water collection, and treatment. He worked with the water district to design a new SCADA system that included all of the water distribution, raw water collection, and treatment. He worked with the water district to meet their monitoring, reporting, and control needs. Ryan coordinated the installation with their staff, and programmed much of the system. This included reporting, monitoring, alarming, and full control of the system. He continues to maintain the system with SKM's staff of service personnel.

Idaho Falls Water SCADA, Idaho Falls, ID | Controls Engineer

SKM designed a backup power generation system for the water department, as well as the control interface between the Generator and the SCADA system. Mr. Pack is currently maintaining their water system SCADA and controls, and is under contract to perform programming on their upcoming additions.

Santaquin SCADA, Santaquin, UT | Controls Engineer

SKM designed a new SCADA system for the city that included all of the water distribution, wastewater collection, and wastewater treatment facility. Mr. Pack worked with the city to meet their monitoring and control needs, and provide a system that would work for them. He coordinated the installation with local trades, and aided in the programming of the system. This included reporting, monitoring, alarming, and full system control.

Summit Park Boosters, Summit County, UT | Electrical/Controls Engineer

SKM worked on the electrical and controls design for the two pump stations, and flow control station required for this project. Mr. Pack designed the motor controls, instrumentation, and controls required to operate the facilities as required by Mountain Regional Water.

Bountiful City Water, Bountiful, UT | Electrical/Controls Engineer

SKM has worked on numerous projects for the City of Bountiful. Mr. Pack has designed numerous motor control and distribution systems for wells and boosters for the city. He has worked with the department head to incorporate complete system control from the motor control enclosure for each of these sites.

Davis and Weber Counties Canal SCADA, Weber County, UT | Controls Engineer

SKM is currently working on installation of a new SCADA monitoring system for the canal company. This includes the monitoring of all canal discharge flows, as well as monitoring of the primary canal flow. Ryan designed the radio network, control system, and aided the district in coordinating installation of required hardware. East Zion SCADA, East Zion SSD, UT. Electrical/Controls Engineer. Ryan Designed the Electrical, Controls, and SCADA system for this community's water system. This included phase conversion for the booster pumps, tank level monitoring, well control and communications between the sites. Ryan designed all of the motor controls and instrumentation for this project.



Mark Taylor, E.I.T. - Principal

(801) 683-3762 - mark.taylor@skmeng.com

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.

Work Experience

21 Years

Years with Current Firm

20 Years

Education

BS Electronics Engineering Technology,
Weber State University, 2002

Registration

EIT

Project Experience

Sandy City SCADA, Sandy, UT | Programmer

Mr. Taylor programmed the PLCs, the HMI computers, and the operator interfaces for the city's entire freshwater system. This included reporting, monitoring, alarming, and full system control. The project involved over 40 remote sites. Mr. Taylor was also responsible for operator training and commissioning. SKM and Mr. Taylor are under contract with Sandy for SCADA system support and expansion.

Santaquin WRF- Santaquin, Utah | Continues to support the plant with upgrades, maintenance, and on call services

SKM was selected as the owner's system integrator to build SCADA for the plant. There are two vendor supplied solids handling packages, 4 vendor supplied MBR trains, and a vendor supplied UV system. SKM provided PLC programming for headworks, influent lift station, blowers, dewatering, drain, recycle, aeration, and reuse. SKM integrated all PLCs into a GE iFIX HMI with Win911 for alarm notification and DreamReport for reporting. SKM programmed GE PLC equipment included RX3i Processors with VersaMax IO. The SCADA/HMI has roughly 3200 PLC IO points

Snyderville Basin Water Reclamation District- Park City, Utah | Continues to support the plant with upgrades, maintenance, and on call services

SKM has provided system integration services for SBWRD for over 15 years. First as on call services and support for East Canyon and Silvercreek plants, then as owner's integrator for plant upgrades at East Canyon, owner's integrator at the new Silvercreek plant (2019), and as integrators for the collections SCADA system. SKM assisted the treatment plants with conversion from GE 90-30 PLCs to GE RX3i, PLCs and conversions from Wonderware to Inductive Automation Ignition. SKM developed PLC and HMI programming standards at the East Canyon plant that were then used for the new Silvercreek plant. SKM has programmed 17 GE RX3i PLCs for SBWRD. The 3 SCADA systems (East Canyon, Silvercreek, and Collections) currently have roughly 71,000 tags.

Central Davis Sewer District- Kaysville, Utah | Continues to support the plant with upgrades, maintenance, and on call services

SKM has provided system integration services for CDSO for over 20 years. First as on call services and support for the plant and collections systems, then as owner's integrator for plant upgrades and new collections pump stations and monitoring sites. On the PLC side, SKM has provided additions, upgrades, standardization, and support. On the HMI side, SKM has provided upgrades, migrations, vendor integration, and support. On the network side, SKM has provided design, implementation, and support on fiber and copper networks for the plant, as well as radio design, implementation, and support for collections. Currently the SCADA connects to roughly 22 remote devices and has approximately 30,000 tags.

Toana Vista Golf Course SCADA, West Wendover, NV | Programmer/Field Technician

Mr. Taylor programmed the PLCs, designed the PLC panels, and programmed the HMI computer. This included reporting, monitoring, alarming, and system control. The project involved interfacing with the existing SCADA system at the wastewater plant to pump water to the golf course for water feature/irrigation purposes.

Magna WWTP SCADA, Magna, UT | Programmer/Field Technician

Mr. Taylor programmed the PLC and operator interface for part of the plant that was being upgraded, and then did all of the programming involved in upgrading the entire plant's existing HMI. He was also responsible for commissioning and operator training. Mr. Taylor and SKM maintain the plant's SCADA and controls, and are under contract to perform programming on upcoming additions.



Mark Taylor, E.I.T. - Principal

Project Experience (continued)

Kennecott Daybreak SCADA, South Jordan, UT | Programmer

Mr. Taylor programmed the HMI computer. This included reporting, monitoring, alarming, and system control. He also picked up where a previous control system integration company had left off, and worked with the system operators to successfully commission the entire automatic control system. Mr. Taylor and SKM are currently under contract with Daybreak to maintain and expand their SCADA system.

Moroni WWTP SCADA, Moroni, UT | Programmer

Mr. Taylor programmed the PLC and HMI computer for the entire WWTP facility. This included reporting, monitoring, alarming, and system control as well as commissioning and operator training. Mr. Taylor and SKM are currently under contract with Moroni to maintain and expand their SCADA system.

Mountain Regional Water SCADA, Summit County, UT | Programmer

SKM designed a new SCADA system for the district that included all of the water distribution, raw water collection, and treatment. Mark assists in maintaining the system.

Pureflow Filtration Systems, Whittier, CA | Programmer

Mr. Taylor has programmed several PLCs and operator interfaces for Pureflow Filtration System's proprietary freshwater filters. These projects often involved interfacing with existing SCADA systems and coordinating with other control system integrators, as well as system operators. SKM and Mr. Taylor are currently working with Pureflow on several new projects in several different states.

West Wendover SCADA, West Wendover, NV | Programmer/Field Technician

Mr. Taylor performed all of the programming involved in upgrading the city's HMI computers for their existing SCADA system. The SCADA system includes the WWTP, freshwater, waste water collections, and wastewater reuse. Mr. Taylor and SKM continue to work with West Wendover, assisting them in all of their SCADA maintenance and expansion needs.

Magna EDR and BioBrox Facility, Magna, UT | Programmer

Mr. Taylor programmed the PLC and HMI for the EDR and BioBrox facility, and was also responsible for commissioning and operator training.

Other Project Experience

Payson, UT - WWTP SCADA system support, Reuse facility programming and commissioning

Spanish Fork, UT - WWTP SCADA system support, pump station, screw press, aerator program and commission

Davis Weber Canal Company, UT - SCADA system support and expansion

Santa Rosa, NM - SCADA System/Instrumentation upgrade

Snyderville Basin, UT - WWTP SCADA system support

Tooele, UT - WWTP SCADA system support

Central Davis SID, UT - WWTP SCADA System support and expansion

Springville, UT - Lift Station Programming/Commissioning, WWTP SCADA system support

Springer, NM - WWTP programming and commissioning

Grantsville, UT - SCADA system expansion and support

Little Mountain, UT - WWTP programming and commissioning

Orem, UT - Headworks programming, SCADA system support

Snowbird, UT - SCADA system support and expansion

Moroni City, UT - SCADA system support, HMI upgrade

EA Miller, UT - Cloth filter programming and commissioning

Hyrum, UT - SCADA system support

Payson, UT - WWTP SCADA system support, Reuse facility programming and commissioning

Spanish Fork, UT - WWTP SCADA system support, pump station, screw press, aerator programming



skm

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WORK EXPERIENCE

Select Project Experience Table

Project	Contract Duration	System Planning & Programming	Integration	Software Application	Hardware Manufacturing	Installation	Training	Startup & Commissioning	Turn-Key Project	Consultant	Implementation	System Wide
Idaho Falls Water System Expansion – Idaho Falls, ID	Current	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Salt Lake City SCADA Consulting Services – Salt Lake City, UT	Current	✓	✓				✓	✓	✓	✓	✓	
Salt Lake City Big Cottonwood SCADA Upgrade – Salt Lake City, UT	2018	✓	✓				✓	✓	✓	✓	✓	
Snyderville Basin East Canyon Water Reclamation Facility – Summit County	2017	✓	✓				✓	✓	✓	✓	✓	
Ogden City Water System SCADA Upgrade – Ogden, UT	2016 - 2017	✓	✓	✓	✓		✓	✓		✓	✓	
Sandy City SCADA Upgrade – Sandy, UT	2016	✓	✓	✓			✓	✓	✓	✓	✓	✓
Park City Water SCADA Upgrade – Park City, UT	2015 - 2016	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Idaho Falls Water System SCADA Upgrade – Idaho Falls, ID	2015 - 2016	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Salt Lake City Water Reclamation Facility SCADA Upgrade – Salt Lake City, UT	2013 - 2015	✓	✓				✓	✓		✓	✓	
Mountain Regional Water SSD SCADA System Installation – Park City, UT	2013 - 2015	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quinn's Junction – Park City, UT	2013		✓	✓			✓	✓			✓	
Central Weber SID WWTP Expansion – Ogden, UT	2007 - 2012	✓	✓	✓			✓	✓		✓	✓	✓