

Radio System Upgrade at The Sacramento Regional Wastewater Treatment Plant

A PROJECT FROM PULSE SIGNAL SOLUTIONS/APEX SITE SOLUTIONS
SUBMITTED FOR SBC'S SAFE INSIDE PROJECT OF THE YEAR

DUE TO THE SENSITIVE NATURE OF THIS FACILITY VIDEOGRAPHY WAS BANNED AND PHOTOGRAPHY WAS LIMITED



Presentation Outline

About the Project
Facility Overview
Project Solution
Contribution to Reducing Noise and Interference
Quality of Workmanship
Unique Challenges of the Project
Delivering on Our Company Values
Meet the Team
Our Partners
Contact Us



About The Sacramento Regional Wastewater Treatment Plant Project

- For years Sacramento Regional SAN (Sanitation District) has been aware that the Sacramento Regional Radio Communication System (SRRCS) coverage was deficient throughout their existing facility.
- In 2013 Regional SAN began an expansion to their facilities known as the "EchoWater Project".
- In 2018 the district elected to enhance their communications throughout their current facilities in conjunction with the EchoWater project.



Sacramento Wastewater Treatment Plant



EchoWater Fast Facts



The EchoWater Project is among the largest public works projects in the Sacramento region's history. Once all new treatment processes are online and operational—expected by early 2023—the Sacramento Regional Wastewater Treatment Plant will produce about 120 million gallons per day of tertiary-treated water. This higher level of treatment will allow Regional San to increase the use of recycled water throughout the region.

ENTIRE ECHOWATER PROJECT



2.1 million cubic yards of soil excavated.

22 individual projects form the EchoWater Project.

BIOLOGICAL NUTRIENT REMOVAL PROJECT



20 acres of land* covered by this massive project.

Roughly equal to

18 football fields!



3.2 million feet of electrical wire and cable used.

Enough to stretch from Sacramento to Phoenix!



225,000 cubic yards of concrete used in construction.

TERTIARY TREATMENT FACILITIES PROJECT



142 pumps utilized when fully operational.

The largest pump is rated at

1,250 horsepower.



That's one and a half times the power produced by a **NASCAR race engine.**

75,000 cubic yards of concrete used in construction.

That's equivalent to **77 miles** of a 5-foot wide strip that is 1-foot thick.



COMBINED PROJECTS

41,350 tons of steel*

used on the Biological Nutrient Removal, Tertiary Treatment Facilities, and Nitrifying Sidestream Treatment Projects.

That's close to the **60,000 tons** used for the framework of the Empire State Building.



69% of the steel framework!

FLOW EQUALIZATION PROJECT

83,500 cubic yards of concrete used in construction.

That's enough to fill

22 Olympic swimming pools.



Take a look at this video to better understand the magnitude of the facility and project.





Project Solution

- The Radio System Upgrade Project supports all LMR communications within the Sacramento Regional Wastewater Treatment Plant. The Echo Water Project is the largest single project in the history of Sacramento, even surpassing the Sacramento International Airport and The Golden 1 Center in scope.
- Pulse equipped the entire campus with a hybrid Fiber/Coaxial Distributed Antenna Solution that delivers communication for all 19,000 SRRCs users, not just the local Fire Department.



Project Solution

- The system is comprised of a Fiplex Signal Booster, SOLiD Alliance DAS, and two local Motorola MSF 5000 base station repeaters.
- The passive components are capable of handling signals up to 2100 MHz.
- The system provides coverage to a 400 acre campus with miles of underground tunnels.

Contribution to Reducing Noise and Interference

Custom designed donor antenna to isolate and direct the signal to a single SRRCS radio site.

This project was designed for the eventual elimination of the over-the-air signal booster and to provide facilities with fiber connectivity to the SRRCS network.

The system was equipped with additional filtering to ensure compliance with FCC 90.219.

The license holder was engaged prior to the proposal submittal to ensure the system met the requirements of the FCC 90.219 as well as the specific needs of the local radio system.



"As a representative for the County of Sacramento 800Mhz P25 Public Safety Communications system licensee we appreciate the outstanding effort and care it took your company to help protect our system from undue interference and enhance RF Coverage in the Water Treatment Plant. Your design and testing far exceeded what we regularly see from many other vendors. We are regularly made aware of many ERRCS systems being installed in our area that do not reflect the best interest of the licensee and actually damage the performance of these communications systems for Public Safety First Responders. We applaud the efforts made by your company to ensure our First Responders communications needs were met along with the requirement that the licensee has the ultimate authority to determine what types of equipment and how that equipment will affect the Public Safety system as granted by the FCC. We continue to play an active part in the deployment of these ERRCS systems when we are made aware they are being installed... Pulse Signal Solutions did an outstanding job of informing us every step of the way and worked well with our staff to ensure a seamless process."

NATHAN HINKLE

SRRCS DEPARTMENT OF TECHNOLOGY

Quality of Workmanship



Quality of Workmanship



Voice of the Customer

"Great job on the water treatment plant, we were very impressed when we visited the site".

WESTEN ROGERS

SRRCS DEPARTMENT OF TECHNOLOGY

Voice of the Customer

Unique Challenges of Radio System Upgrade Project at SRWTP



Voice of the CTO

"If we dont follow protocol we could end up in some deep st, literally"**

GREG GLENN

There was no documentation pertaining to the facility's current condition because it was built in the 1970's.

As an EPA facility additional restrictions were placed on the construction processes including use of methane sensors and hazmat protocols.

The campus included bio-hazards, explosive areas, and significant areas of water exposure. Therefore the majority of coax and fiber had to be routed through corrosion and explosion resistant materials.

WHILE ALL LARGE SCALE PROJECs HAVE LOGISTICAL CHALLENGES, THE NATURE OF THIS FACILTY PRESENTED A UNIQUE SET OF OBSTACLES.

Delivering on Our Company Values

EVOLVING

Pulse tackles the trickiest RF problems. This was not a typical DAS project. The extremely unique environment required us to engineer and deploy a creative solution to meet the needs of all stake holders.

ACCOUNTABLE

Pulse was held to the standards, needs, and expectations of a multitude of stake holders. Because of our extreme internal accountability these needs were met and exceeded.

GRACIOUS & AUTHENTIC

Transparency of every aspect of the project and accessibility to our CTO, Greg Glenn, drove guidance and knowledge to achieve the desired result.

ENJOY THE RIDE

Pulse utilized project leadership principles to ensure a seamless deployment that minimized headaches for all involved.

RELENTLESS

Pulse overcame all challenges of this unique environment, allowing us to complete deployment ahead of deadlines.





KENNY BLAKESLEE
CHIEF EXECUTIVE OFFICER

Kenny Blakeslee brings 18 years of training and experience with multiple aspects of RF and RF theory. He is President of both Pulse Signal Solutions and Apex Site Solutions, which serves the macro tower side of the wireless industry.



GREG GLENN
CHIEF TECHNOLOGY OFFICER

Greg Glenn is a RF system engineer with over 40 years of practical design and troubleshooting experience. Greg has spent the last 20 years focusing on the DAS space serving both the public safety and carrier markets.



ROB MCCARTHY
WEST COAST REGIONAL SALES DIRECTOR

Rob McCarthy brings over a decade of experience focused on client delivery. Rob specializes in learning as much as possible about each client and their technology goals. Rob treats every project as a unique opportunity to turn an end user's aspirations into reality.



JESSE FRIEDMAN
CHIEF REVENUE OFFICER

Jesse brings over two decades of experience in the telecom business, with 18 years working on the Distribution side with Accu-Tech where he opened the Bay Area branch and was responsible for growing the Sacramento location as well.

Meet Us

Motivated team represents the highest creative standard.

Our Partners





Reach Us

For questions or more info

ADDRESS

9755 Kent St Suite 100, Elk Grove, 95624

PHONE NUMBER

916-770-0054

EMAIL ADDRESS

jesse@powerofpulse.com

Social Media Links

Linkedin

<https://www.linkedin.com/company/19023862/admin/>

Facebook

<https://www.facebook.com/PowerofPulse>

Instagram

<https://www.instagram.com/pulsesignalsolutions/>