



Purple Pipe

Volume XXI Fall 2020



VWVRA teams with Anaergia & SWG for renewable energy project *Plant capacity will expand while creating biogas*

VWVRA has teamed with Anaergia Inc. and Southwest Gas (SWG) on an exciting new project that will expand our plants treatment capacity while also providing a new source of publicly accessible green energy. VWVRA and Anaergia Inc., a global leader in wastewater and clean energy technologies, are in the process of rehabilitating and restarting the original three digesters built in 1978. The 300,000-gallon digesters have been mostly offline for more than 10 years. New mixers, valving and electrical components are being added to digesters #1, #2, and #3.

A new soft sided, bio-membrane roof will be put on digester #2. The complex piping and



Aerial view of the 3 original digesters that are being rehabbed at VVWRA.



VWVRA is working with Anaergia and Southwest Gas on the renewable natural gas project.

valving in the digesters shared basement are being completely reconfigured for easier and more efficient operation. The digesters will be used primarily to treat FOG (fats, oil and grease), and food waste. A byproduct of treating waste in an anaerobic digester is methane or biogas. As part of the project, Southwest Gas will be taking the biogas produced in all our digesters, cleaning it via a process that will scrub the hydrogen sulfide and other impurities from the gas. Once it meets natural gas standards, it will become renewable natural gas. It will be pressurized and injected into a major Southwest Gas pipeline that runs through the west side of VWVRA's property. The clean biogas will mix with traditional natural gas and be distributed to commercial and residential customers of SWG. Project planning has been ongoing for several years. Construction began in September and is expected to be completed by the middle of 2021.



Some of the reconfigured piping in the digester basement.



A worker with W.M. Lyles cuts rebar at the bottom of digester #2.

VWVRA currently uses about half the biogas it produces to power a pair of 800 kwh generators. The generators provide about 70% of the electricity VWVRA needs to power the main plant in Victorville. The remaining biogas is burned off by a flare. The new renewable energy project will assure that virtually all the biogas produced at VWVRA is reused.



VWRA the focus of career opportunities video

Video by Mountain and Desert Career Pathways looks at wastewater jobs

It can be a challenge to find a rewarding and good paying career in the High Desert, but Mountain and Desert Career Pathways (MDCP) is shining a light on local opportunities. MDCP recently shot a video at VWRA focusing on mechatronics and the many jobs available in the wastewater industry. The video, aimed at high school students, specifically looks at career opportunities such as a wastewater operator, a maintenance mechanic, IT technician and electronics and instrumentation technician. The idea behind the video is to give young people a chance to see local job opportunities in the wastewater industry and give them direction in pursuing such a career. MDCP is a collaborative of 9 local school districts that coordinates with industry, government and higher education to build better opportunities for the region's students. The video is expected to be released in late 2020.



General Manager Darron Poulsen



Plant Superintendent
Brad Adams



Daniel Kessell
Operations intern



Latif Laari
Business Applications
Manager



The VisitUS welcome page for visitor check-in.

Keeping track of everyone who is visiting our 350+ acre plant can be a logistical nightmare. As such, VWRA has begun using VisitUS Reception software for guests and contractors visiting our facility. It enables us to better engage with visitors and maintain physical distancing with contact-free electronic check in. When a guest checks in at the iPad stations within our Administration or O & M Buildings, VisitUs sends a text to the person they have come to see, notifying them of their arrival. For contractors who frequently visit our facility for several weeks at a time, they are sent a QR code that makes the daily check-in even easier. With a large facility like VWRA, it's important to know who is on the grounds at any given time. Plus, in case of an emergency, we can easily send evacuation notices via text messages to every person who is visiting.

Purple Pipe
newsletter

VWRA
Board of Commissioners

- Larry Bird / Hesperia
- Jim Cox / Victorville
- Scott Nassif / Apple Valley
- Robert Lovingood / SB CSA 42 & 46

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Around the Plant

CONGRATULATIONS!



Latif Laari earned a Project Management certificate from Cal Poly Pomona.



Mike Koncur earned certificates in Collections Maintenance from CSU Sacramento.



Derek Evans earned his Grade 2 E & I certificate.



Mario Leos has been promoted to Maintenance Supervisor.



Mechanic Mike Koncur puts out a fire during our annual fire extinguisher training.



Michelle Quintana received her Operator in Training certificate.



Daniel Kessell received his Operator in Training certificate.

CWEA/DAMS Updates Logo



CWEA

The CWEA Desert and Mountain Section (DAMS) has updated its logo. While remaining faithful to the original, the new logo removes the green feathering around the outer circle, changes the text colors and font, and adds the new CWEA logo underneath. CWEA recently unveiled their new logo, which replaces the ying and yang styled logo first introduced in 1977. The new CWEA logo features a California golden sun and a gradient "W" as a nod to CWEA members who treat wastewater.

VWVRA welcomes new staff members!



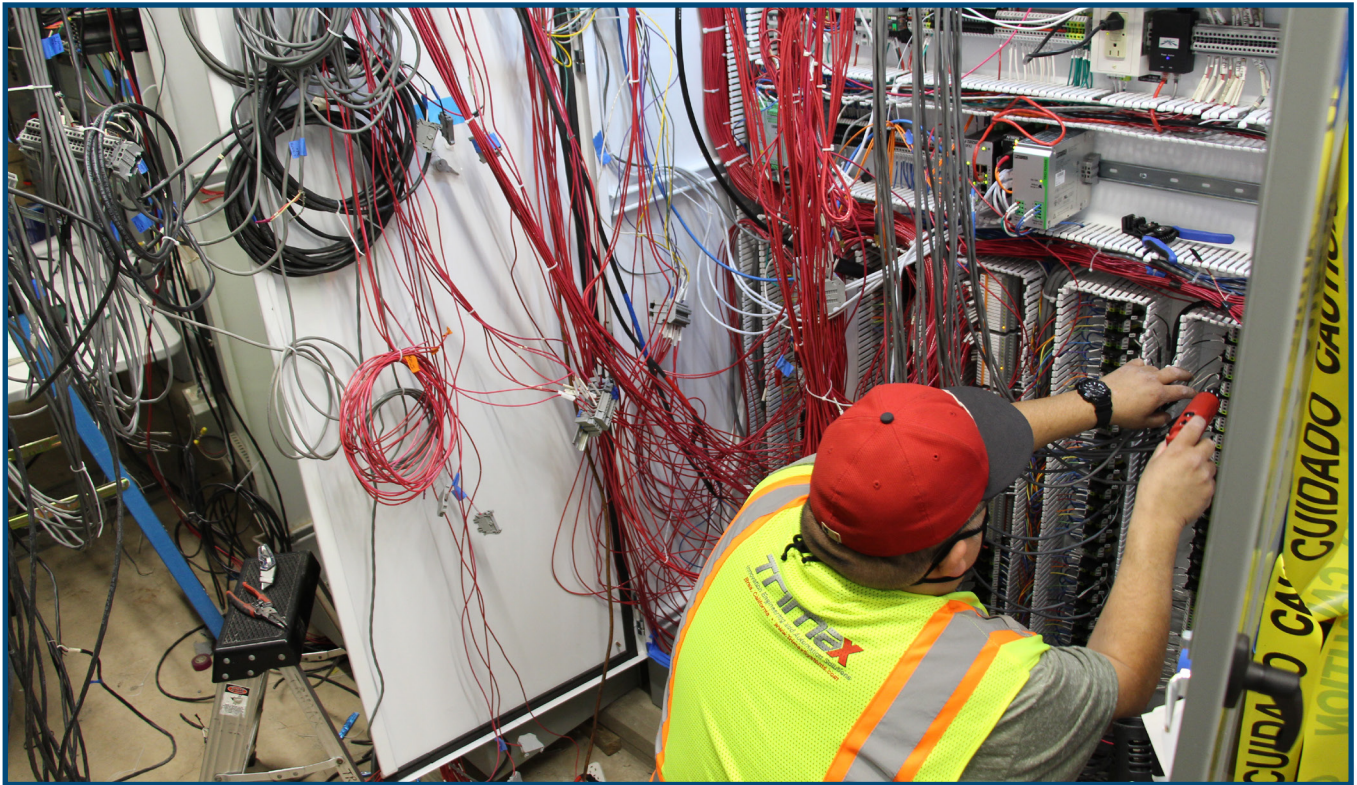
Adalberto Arteaga
E & I intern



Anne Mazzarella
Accounting Technician



Phase 2 of PLC Project Continues



Trimax wireman Jose Marin is tasked with making some 500 connections inside this PLC alone.

VVWRA treats roughly 10.7 million gallons of wastewater a day. The treatment process involves numerous pumps, blowers, engines, and compressors, that all need to work together. That is where a programmable logic controller (PLC) comes in. A PLC is essentially an industrial computer that controls machinery. It gives our operators the ability to remotely monitor and adjust virtually any of the plant processes from a PC or mobile device. A recent assessment of the 23 PLC's at VVWRA's regional plant, found that 12 of them had been discontinued by the manufacturer and are now obsolete. As part of the Phase 2 PLC replacement project, VVWRA contracted with Trimax Systems Inc. to design and install four new ControlLogix and CompactLogix PLC's. The new PLC's will improve control speed and reliability while also increasing security. The installation of these PLC's is very complicated and is expected to take several months to complete. The new PLC's will specifically control the digesters, sludge system, equalization, percolation ponds and our aeration process. The third and final phase of the PLC replacement project is expected to take place in fiscal year 2021/2022.



Real life Frogger

Many of you may remember the popular 1980's video game **Frogger** in which a frog had to cross a busy highway without becoming roadkill. Well, VVWRA recently became the site of a real life Frogger scenario. This large frog was found sitting in a high traffic area on our plant. Concerned about his safety, Environmental Compliance aid Emily Wilson scooped him up in a large sample jar and relocated him to one our percolation ponds. VVWRA's main plant in Victorville manages to attract all types of animals. It's not unusual to encounter things like raccoons, snakes, coyotes, various birds and, of course, frogs. Normally our staff leaves the wildlife alone, but on the rare occasion they find themselves in a precarious position, we are happy to lend a hand!



★ VWRA Salutes our Veterans ★



As our Nation marks Veterans Day, VVWRA pauses to salute the military veterans on our staff. (From l-r, Sr. Operator Eugene Davis, U.S. Navy; E & I Technician Derek Evans, U.S. Marines; Asset Management Technician Daniel Enriquez, U.S. Marines; Operator Eric Schweizer, U.S. Army; Operator Kyle Regis, U.S. Marines.)

Running with Trakstar

Employee performance reviews can be time-consuming, and it's easy to get disorganized. With that in mind, VVWRA is implementing Trakstar, a cloud based, user friendly performance evaluation software that will help managers focus on employee development and goals. It does this by providing communication and clear objectives that our staff and managers can get on board with.



Trakstar provides real-time data to find areas of staff strength and areas that need development. Some of the Trakstar features include:

- Real-time 360-Degree Feedback to Ensure Meaningful Feedback
- Goal Setting and Tracking with Real-Time Reporting
- Note Taking, Check-Ins, and Automated Email Notifications
- Self-Reviews
- Flexible Reports Stacked with Rich Data To Identify Top Performers

VVWRA is confident Trakstar will help motivate and engage our team.

Hesperia Hosts Tire Amnesty Day



Have unwanted tires? Dispose of them for FREE during the City of Hesperia's Tire Amnesty Day on October 24th from 7:30 am to 12:00 pm. Hesperia households may drop off up to 9 passenger car tires (with rims removed), across the street from Advance Disposal, located at 17105 Mesa St. The next Tire Amnesty Day will be held February 6th, 2021.

Guidelines and Restrictions

- These events are open to Hesperia residents only.
- Please bring valid id (i.e. driver license, water bill) as proof of residency.
- Under terms of the grant, tires from commercial dealers cannot be accepted.
- A maximum of 9 rimless tires per vehicle or address will be accepted
- Semi-tractor tires over 44" or tires with rims will *not* be accepted.



For full information, visit www.CityofHesperia.us/tires.



"A work of cart"



The new cart barn will feature lighting and individual charging stations.



Carts crowded in maintenance shop.

VVWRA's main plant in Victorville is big. Spanning 352 acres, it is the largest piece of public infrastructure in the high desert. Operating and maintaining our facility requires our staff to travel in golf carts to work more effectively and efficiently. More than a dozen carts have been stored inside our maintenance workshop for several years. To alleviate the overcrowded conditions and return the shop to our maintenance department, a new cart barn is being built on the north side of our Operations and Maintenance (O&M) building. The covered cart barn features assigned parking spaces and power stations for each vehicle. The expansion will allow our staff to better care for the carts, protect them from the elements while opening up workspace for our maintenance dept.



Maintenance Mechanics Marcos Avila (l) and Richard Swatzell (r) work on replacing a valve on the air header in the early morning hours. They were on a lift about 12' off the ground. The large pipe carries pressurized air to our aeration basins which provide oxygen to sludge eating microbes.

Struvite: A Hidden Wastewater Battle

Wastewater operators and mechanics face many obstacles when performing their jobs, but one of the most hidden and insidious problems is struvite. Struvite is a stone like material that leaves deposits inside our pipes. Struvite is typically created in high pH conditions when magnesium, ammonia and phosphate come together in the wastewater. When they combine and crystallize, they turn into a rock like formation that restricts or blocks pipes and pumps. Anyone who has had kidney stones has firsthand experience with struvite. Magnesium is a major component in hard water while ammonia is a byproduct of urine and phosphate can be found in various soaps and detergents. At wastewater facilities like VWRA, struvite crystallizes into a hard white or yellowish mineral material that can clog pipes and damage pumps.



Before

Struvite covers the impeller on a pump.



After

Same impeller after struvite was cleaned off.



Struvite found inside a pump cavity.

Getting rid of struvite can be time consuming and costly. Traditionally,

the options to solve this issue, include chiseling or grinding the material off, using a hydro-jet to clear the clog or replacing the pipe altogether. In some cases, chemicals like ferric can be used to prevent the accumulation of struvite. Interestingly, in some places, struvite is recovered and sold as a fertilizer. It is very effective in growing flowers and vegetables because of the high levels of nitrogen and magnesium. At this time, the amount of struvite collected at VWRA is relatively low and not used as fertilizer.

The Fathers of Struvite?

Struvite was first described in 1845 by German chemist Georg Ludwig Ulex who found crystals of struvite in what had been a medieval refuse heap in Hamburg, Germany. He named the new mineral after local geologist Heinrich Christian Gottfried von Struve, who was known for his extensive mineral collection.

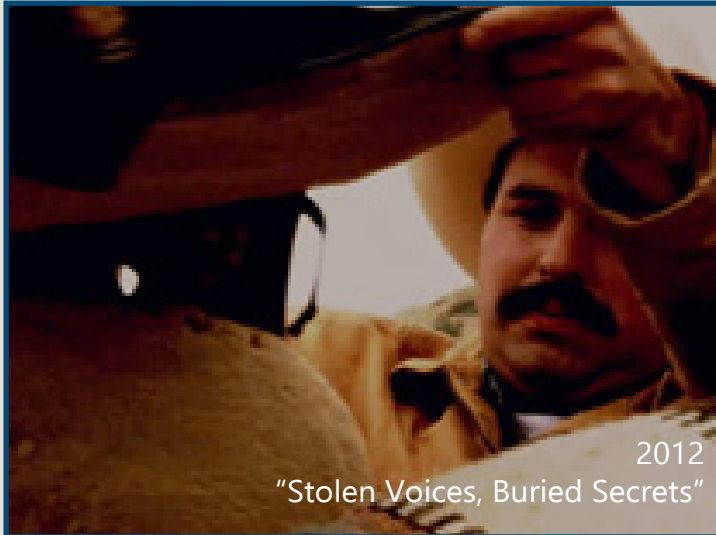


Heinrich von Struve



The Back Side...

VWRA Mechanic once appeared on TV Crime Show



There's a chance you may have spotted VWRA maintenance mechanic Richard Swatzell on TV or at a major holiday production in the past. When Richard worked on a ranch in Chino several years ago, it was not unusual for entertainment companies to contract with the ranch owner. That led to Richard appearing in the true crime TV series "Stolen Voices, Buried Secrets." The 2012 episode focused on a missing Yucaipa teacher, and Richard portrayed a member of the mounted posse sent out to look for him. Richard also appeared numerous times as a Roman soldier in the Crystal Cathedral's production of "The Glory of Christmas." So, is acting in his blood? Probably not. "They didn't discover me back then, so I guess I have to move on," joked Richard.

Metal Disk Marks the Spot!



A small metal marker embedded in the concrete at VWRA's head works has largely gone unnoticed over the years. But the marker played a key role in expanding our facilities. The disk served as a survey mark during a plant expansion in 1993. The marker, which sits at 2613' above sea level, was the elevation used to base all the surrounding construction. According to City of Victorville Surveyor Dave Cockrum, the letters VVCE referred to VVCE, Inc., a local engineering and surveying firm at that time. CP-1 stands for control point one. The marker is still used on occasion today to assure that new projects properly align with the original construction.