



Purple Pipe

Volume XI Spring 2017



CWEA NEWSLETTER OF THE YEAR

VWRA Waste to Energy Program Saves Millions

Program drastically cuts electricity and natural gas costs



2G generators



Gas storage bubble

Since its launch in 2014, VWRA's Waste to Energy Program has been a big success providing our plant green, renewable energy which will save our ratepayers millions of dollars. Treating wastewater is a very energy intensive process that cost a lot of money. In fact, energy is VWRA's second highest operational cost behind personnel. Electricity is needed to power huge turbo blowers that provide oxygen to the aeration basins where the majority of the wastewater treatment process takes place. A great deal of electricity is also needed to power VWRA's UV disinfection process which uses powerful ultra violet lights to disinfect microorganisms. VWRA General Manager Logan Olds envisioned the Waste to Energy Program after looking out his office window and watching our biogas (methane) being burned off with a flare. Recognizing the potential for renewable energy, Olds began looking at ways to utilize the biogas that was being burned off and put it to use creating electricity. Plans were developed to collect a portion of the biogas from our digesters in a large soft sided bubble container and then run the biogas through a cleaning or scrubbing process.



Primus Power battery storage at another facility.

The scrubbed biogas is used to power a pair of large 800,000 kwh generators. Much of this equipment was provided at no up front cost through an innovative power purchase agreement (PPA). The PPA guarantees VWRA below market cost electricity for the next 20 years. With the

help of staff and the VWRA Board of Commissioners, the Waste to Energy Program now produces 73% of our plants electricity. This is energy that is environmentally friendly and carbon neutral. Our goal is to produce 100% of our own power by the end of 2018. The reduced reliance on traditional utility power sources has been dramatic. In 2014, VWRA spent nearly \$1.2 million on electricity provided by Southern California Edison. By 2015, the annual cost fell to \$787,000 and in 2016 VWRA paid SCE less than \$500,000 for power. In addition, VWRA has managed to cut natural gas expenses by more than \$40,000 per month. These figures point to money that has already been saved, but there is more to come. Research shows that VWRA will save more that \$20 million in natural gas and electricity costs between 2015 and 2034.

Generating electricity is a big part of the Waste to Energy Program, but managing energy can also be a challenge. VWRA will be taking a big step forward in energy management and distribution with the installation of a microgrid and flow cell battery storage system this Fall. The microgrid and flow cell battery storage system is being funded entirely by a \$1.7 million dollar California Energy Commission grant.

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Scare Yourself! A Message from our General Manager

In the public utility industry, "risk" can be a four letter word. We often use this word to stifle creativity, denounce projects or worse yet create a culture where doing nothing more than the minimum is rewarded. Above my desk is a list labelled the **Seven Steps to Stagnation** (it is used in a variety of contexts from religion to safety training) it states:

1. We've never done it that way
2. We're not ready for that yet
3. We're doing all right without it
4. We tried it once and it didn't work out
5. It costs too much
6. That's not our responsibility
7. It won't work

To that I respond:

1. Why not do it now then?
2. What steps are being taken to become ready?
3. You might be, but what about your rate payers?
4. How can you succeed if you have not failed?
5. Be creative; ask other industry innovators how they work through this issue.
6. Then whose is it and how do we work with, around or through them?
7. Try again; how many light bulb trials did Edison fail before success?

I think that everyone would agree that Michael Jordan was a remarkably successful basketball player, yet he failed to score points in 50.3% of his attempts. How many of us would risk trying something if we knew that despite our best efforts we would repeatedly fail? Mr. Jordan stated, "I can accept failure. Everybody fails at something. But I can't accept not trying. Fear is an illusion." How many of us have the strength of character to overcome our fears and accept risk as part of our daily experience? I think Eleanor Roosevelt said it best when she stated "Do one thing every day that scares you."



Logan Olds
Logan Olds, General Manager

VWVRA Receives Better Project Award from DOE

VWVRA was honored to receive the 2017 Better Project Award from the U.S. Department of Energy. The award recognizes VWVRA's installation of two 800 kw generators that are fueled by biogas or methane. Together, the 2G generators are capable of producing up to 1.6 megawatts of clean, carbon neutral energy. As a result of the 2G generators, VWVRA has achieved \$473,000 in annual energy savings. As part of VWVRA's waste to energy program, the 2G generators are currently providing for about 73% of our treatment plants power needs. With the planned addition of a microgrid and a flow cell battery backup system, we expect to be 100% carbon neutral by the end of 2017. The microgrid and flow cell battery system is being paid for by a \$1.7 million dollar grant from the California Energy Commission.



2G generators at VWVRA.



Purple Pipe
newsletter

VWVRA
Board of Commissioners

- Russ Blewett / Hesperia
- Jim Kennedy / Victorville
- Scott Nassif / Apple Valley
- Jeff Rigney / SB CSA 42 & 46

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Purple Pipe named CWEA Newsletter of the Year



VVWRA Safety/Communications Officer David Wylie accepts the CWEA Newsletter of the Year award from past CWEA President Garry Parker (l) and incoming CWEA President Debi Lewis (r).

Upper Narrows Pipeline Project also wins CWEA award

Palm Springs--The Purple Pipe was named the Newsletter of the Year by the California Water Environment Association (CWEA) at their annual conference in Palm Springs. "We are excited and honored to receive this award", said VVWRA Safety/Communications Officer. The Purple Pipe newsletter has the unique task of reaching out to our community, regional leaders, industry experts and our employees. VVWRA strives to make the Purple Pipe informative and entertaining articles on a variety of topics along with a colorful layout. VVWRA also took home a second place award for Engineering Achievement for the Upper Narrows Pipeline Project. The pipeline project included the installation of 4,300 feet of 48 inch sewer pipe. Construction crews had to tunnel under railroad tracks, below the Mojave River, through a mountain and beneath city streets to install the pipe. Five unique pipeline construction methods were used to install the line. The project became necessary after a series of storms in late-2010 ruptured a 36 inch vitrified clay pipeline in the Mojave Narrows. The new pipeline bypasses environmentally sensitive areas where the previous pipeline was located while bringing wastewater from Apple Valley, Victorville, Spring Valley Lake and Hesperia to the main VVWRA treatment plant.

LEADERSHIP 2017 A PROGRAM OF THE VICTOR VALLEY CHAMBER OF COMMERCE

VVWRA hosts business and civic leaders



VVWRA GM Logan Olds explains the aeration process to Leadership group.

VVWRA hosted a number of local business and civic leaders taking part in the Victor Valley Chamber of Commerce Leadership 2017 program. The interactive program provides a behind-the-scenes view of the issues that impact the region's economic prosperity and quality of life while developing individual skills to better serve in leadership roles within their organization and in our community. The class and tour focused on the recovery and use of natural resources.

Senator Wilk Tours VVWRA



State Senator Scott Wilk (r) visits with VVWRA GM Logan Olds (l) during a tour of the Victorville treatment plant. Senator Wilk was on an informational visit to learn more about our operations and the waste to energy program.



Around the Plant



Mike Koncur-Employee of the Quarter

Congratulations to Maintenance Mechanic Mike Koncur for being named VVWRA's Employee of the Quarter. Mike joined VVWRA in March of 2009 and is an integral part of our maintenance team which makes sure the treatment plant runs properly. His favorite part about his job is that there is "something different everyday". Before coming to VVWRA, Mike worked as a roofer, a truck driver and installing underground communications for Verizon. He also spent 30 years racing motorcycles. When Mike isn't fixing things here at VVWRA, he enjoys prospecting and golf. He is also known for making some fantastic beef jerky. VVWRA is grateful to have Mike on our staff.



New Position!



Congratulations to Johnny Bustos who has been promoted to Senior Operator.



Fire!

The staff at VVWRA are constantly undergoing training to make sure we have the safest work place possible. Recently, our employees took part in the annual fire extinguisher training class, which culminated with each one of them getting the chance to put out a controlled fire. Real life exercises like this help prepare everyone who works at the plant should their be an emergency. VVWRA Maintenance Supervisor Marcos Avila (l) was pretty focused when it was his turn to extinguish the flames.

Chamber Talk



VVWRA General Manager Logan Olds spoke on "How to turn waste into money" at the Hesperia Chamber of Commerce monthly luncheon in April.

New Employee!



We welcome Julio Espinoza as our new Septage Receiving Attendant.

Tech



eLogger

VWRA begins implementing new software to improve recordkeeping and operations.

VWRA is embarking on a new program to improve recordkeeping. Wastewater treatment facilities, like VWRA, operate around the clock, with multiple shifts and multiple stations. There is a large amount of data to track, numerous pieces of equipment to monitor, multiple locations, and many users requiring access. Traditionally, the data has been collected on daily, handwritten log sheets or log books. As you can imagine, that becomes tedious and difficult to pull informational trends which are key in operating a wastewater treatment facility. VWRA is transitioning to a more modern approach to collecting and tracking this data with the implementation of eLogger software. The new software will replace paper log books while giving our staff a better way to look at and analyze data. The eLogger electronic logbook software meets the rigorous logging requirements of facilities like ours. It makes log entries legible, searchable and quantifiable so by the end of every shift our operators can have a pretty clear idea of what is happening at our treatment facility. eLogger is already in use at a number of high profile water and wastewater treatment facilities including DC Water in Washington DC, San Francisco Public Utilities and the city of Montreal. VWRA has been using eLogger on a trial basis for a number of weeks and plans to fully implement the program on June 14th.



Traditional paper log

Protecting you and your computer!



Bruce Correia

Using the internet and e-mail has become a vital part of many employee's work day. The internet has made conducting business much easier, but it's also made things easier for the bad guys. It gives them an opportunity to implement schemes to steal your information, solicit their unwanted products or even infect your pc, with malicious software. Your IT department and service providers do their best to keep these individuals and their nefarious activities at bay.

that ask you to click a link to go to the "company's website" to log in and/or confirm information, open up a separate browser window instead and type the legitimate website address yourself. Check on the website for any announcements about phishing attacks. In some cases, you may need to call the customer service number or a company directly to verify the validity of the suspicious email. If you determine that a website is legitimate, make sure it encrypts your data by using SSL (Secure Socket Layer). When SSL is in use, a lock icon will appear somewhere on your browser. However, even SSL can be spoofed, by using incorrect certificates. If you get a dialog box asking to install a certificate, confirm that the certificate is signed by a trusted source, such as Thawte or Verisign. If it is not, or if it is self-signed, contact the Website owner through other means, like a phone call.

Here are some of the most common issues you may face:

1. Spam, or junk mail, is any unwanted email sent to your Inbox. Most spam is sent to advertise a product, service, or event, and although it is annoying to have to sift through and delete these emails, they are otherwise harmless. However, some spam can bring more serious consequences (e.g. Phishing).
2. Phishing is the attempt to get your personal information through electronic communication by masquerading as a legitimate entity, such as a trustworthy company or organization. Phishing is mainly done through phony emails and Websites, meant to look like the real thing. The goal is to fool the recipient into providing personal information, which can include usernames, passwords, credit card numbers, social security numbers, and other sensitive information.

Protect yourself

However, there are some things that you can do to help stop the bad guys from ruining your day. By following these simple guidelines you can have a tremendous impact in stopping these cyber criminals before they can do any harm. Ignore/delete unsolicited emails and do not click on any attachments, links, and forms in them, especially when sent by unknown senders. If you know the sender, but have any doubt, verify separately with them. For emails



Do not provide your personal information via email. Reputable companies, will never ask for your personal information via email. Lastly, don't visit untrustworthy websites or download unevaluated freeware or shareware. Following these steps will go a long way in protecting you and your computer.

Bruce Correia is VWRA's MIS Coordinator

Meeting of the Mascots



VWRA's Mr. Dingle met up with "Walter Drop" from the Mojave Water Agency at an Earth Day event in Helendale.



It's a dirty job!

There is no doubt that working at a wastewater plant can be very dirty job, but as the saying goes, "someone has to do it!" On any given day, employees at VWRA can be taking on any variety of dirty jobs, from repairing pumps to going down a manhole to cleaning out various tanks and enclosures. Our maintenance department was recently tasked with cleaning out a dissolved air flotation thickener or DAFT. This particular DAFT is used to store incoming fats, oil and grease (FOG) before it is sent to our digesters to help create biogas. It requires periodic cleaning in which our staff uses a large vacor truck to vacuum out the debris and grit that has accumulated at the bottom of the tank. Our team entered the tank wearing PPE's (personal protective equipment) such as rubber boots, white tyvek suits, gloves and face shields. They also wear fall protection harnesses to help keep them from falling in the slippery muck. It is difficult, smelly and dirty work, but all part of our employees daily routine so that VWRA can provide the best wastewater treatment possible and create the perfect environment for generating biogas. The biogas (methane) is used to power a pair of large 800 kwh generators that currently provide 73% of our power. VWRA hopes to be energy neutral by the end of 2018.



Maintenance mechanic Mike Koncur uses a suction tube from a vacor truck to clean fats, oils, grease and grit from the bottom of a DAFT tank.

Look out below!

VWRA EC Inspector Robert Townsend is lowered into a manhole in Spring Valley Lake as part of our effort to assist the staff from the city of Hesperia and San Bernardino County in monitoring wastewater flow and pipeline capacity.

VVC students learn about Waste to Energy



VWRA welcomed students from the Department of Agriculture and Natural Resources at Victor Valley College for a tour of our Waste to Energy program. VWRA Sr. Operator Johnny Bustos and Safety/Communications Officer David Wylie explain how our 2G generators generate clean, renewable energy.

CWEA/DAM's Calendar of Events

- June 22--Installation Luncheon, El Pescador, Victorville
- August 24--Air Pack Derby, Big Bear
- November TBD--Collections Workshop, Hesperia
- December 2--DAMS Awards Dinner, TBD

SALUTE TO SERVICE

HONORING OUR MEMBERS WHO SERVED
tristateseminar.com
 Sept. 26-28, 2017
 South Point Hotel/Casino, Las Vegas, NV

Subregionals Update

**VWRA is currently building subregional water reclamation plants in Hesperia and Apple Valley. Both are set to open in 2017. When fully operational, each site will be capable of producing up to one million gallons per day of recycled water. The water will be used for above ground irrigation saving our precious drinking water.*

HESPERIA



The Hesperia subregional is nearly complete with the first round of testing expected to begin in June of 2017. Construction crews are currently completing final electrical, architectural and mechanical items. New fencing and landscaping has been installed around the entire property. The startup and commissioning processes are expected to begin in mid June. It will include at least six weeks of testing using regular potable water to ensure that all the processes and machinery are working properly. The testing will allow our staff and engineers to make any adjustments to equipment that are needed.

APPLE VALLEY



The Apple Valley subregional is more than 70 percent complete as crews are currently busy installing electrical conduit, wiring and mechanical piping. They will also be finalizing interior architectural items over the next 2 months. In July, they will start paving, fencing and commissioning. These activities will carry into November when completion is expected. At that point, the plant will undergo six weeks of testing with potable water so operators can monitor and adjust the processes and machinery.



The back side

Keeping kitchens FOG free!



VVWRA's Environmental Compliance Inspector Robert Townsend with our new FOG Free brochure.

Some of the worst things for our sewer system are fats, oil and grease or FOG. VVWRA discourages residents from putting these items down the drain because they clog our pipes. Restaurants and other businesses are required to keep FOG out of the sewer system.



VVWRA offers a brochure with tips and suggestions on how businesses can stay FOG FREE. The brochures are available during environmental compliance inspections or can be obtained by sending a request to info@vwwra.com.

Dingle's Corner



No one can resist posing as Mr. Dingle! Michael Stowe, a Senior Energy Engineer with Advanced Energy took this memorable photo during a recent visit to VVWRA!

Ask Johnny!



Q. Hi Johnny, I'm confused. How do you guys make electricity out of wastewater?

Isabel, Victorville

A. Hi Isabel! That's a great question. Let me start with a little history. VVWRA kicked off its Waste to Energy program in 2014 with the goal of producing all of our power needs from the waste that is treated at the plant. While it is a complicated process, the general concept is fairly simple. When wastewater comes to the VVWRA plant, one of the first things we do is separate the solid waste from the water. The bio-solids are then sent to large structures called digesters. While being treated in

the digesters, a natural byproduct of the bio-solids is a gas called methane or biogas. We use biogas much like you use natural gas in your home. But instead of a flame on a stove, our biogas is used to power two specially designed generators. Together, the 2G generators are capable of producing up 1.6 megawatts of green, carbon neutral electricity. The electricity is then distributed for use at our plant. We are also installing a battery storage and microgrid system that will allow us to store electricity and better manage how it is used.



VVWRA's digesters can hold up to 1.3 million gallons of bio-solids each.

We currently produce about 73% of our own power and plan to reach 100% in the coming months. This will help us keep costs down for those in our service area.

Know Your Microbe



Tardigrade (Water Bear)

Tardigrades or Water Bears look a lot like little caterpillars with claws. They are aggressive feeders who like to eat other microbes like nematodes, rotifers and protozoans. They help clean the water by eating. Tardigrades are most often found in our aeration basins where 90% of the wastewater treatment process takes place.