



SANTA CLARA VALLEY WATER DISTRICT

NON-AGENDA

April 29, 2022

Board Policy EL-7 Communication and Support to the Board
The BAOs shall inform and support the Board in its work.

Page		<u>CEO BULLETIN & NEWSLETTERS</u>
		CEO Bulletin: None.
3		Palo Alto Weekly Article- Purified Water
		<u>BOARD MEMBER REQUESTS & INFORMATIONAL ITEMS</u>
19		BMR/IBMR Weekly Reports: 04/28/22
		<u>INCOMING BOARD CORRESPONDENCE</u>
21		Board Correspondence Weekly Report: 04/28/22
22		Email from Atif Hashmi to the Board of Directors, dated 04/20/22, regarding Homeless Encampments near Guadalupe Creek Trail (C-22-0073).
29		Email from Carol Matthews, to the Board of Directors, dated 04/22/22, regarding Homeless Activity along Stevens Creek Trail (C-22-0074).
		<u>OUTGOING BOARD CORRESPONDENCE</u>
31		Email from Chair Pro-Tem Varela, to runs_chop.0q@icloud.com , dated 04/20/22, regarding Valley Water's Religious Exemptions (C-22-0071).
32		Email from Director Santos, to Daniela Velazquez, Office of Councilmember Magdalena Carrasco, dated 04/26/22, regarding Encampments within Upper Penitencia Creek (C-22-0070).

Board correspondence has been removed from the online posting of the Non-Agenda to protect personal contact information. Lengthy reports/attachments may also be removed due to file size limitations. Copies of board correspondence and/or reports/attachments are available by submitting a public records request to publicrecords@valleywater.org.

CEO BULLETIN

by **Sue Dremann** / Palo Alto Weekly

Uploaded: Fri, Apr 22, 2022, 6:48 am 6

Time to read: about 10 minutes

It's a well-known meteorological principle that when barometric pressure drops, rainstorms typically follow. But along the Peninsula in early April, nearly a week of low pressure failed to produce any precipitation. Not a drop fell from the sky — let alone 3 to 4 inches of rain that daily storms should have produced.

California's faced the same problem for three straight years, and it seems to be growing worse. The [state's snowpack level on April 1](#) was just 38% of average, according to the California Department of Water Resources.

What if the rains don't return for a long time?

Water agencies such as Santa Clara Valley Regional Water District, known as Valley Water, have sounded the alarm for more than a year. Cutbacks in water usage, which they say will be necessary, are likely to become a reality by this summer, staff said during a San Francisco Public Utilities Commission (SFPUC) meeting last month. The SFPUC owns Hetch Hetchy reservoir, a major water source for local counties and cities.

But Valley Water is looking for ways to not only conserve but also reclaim the precious crystal-clear liquid. In December, the agency's board of directors approved an agreement to work with the city of Palo Alto to build an advanced water-purification facility in Palo Alto. The 6.4-acre plant would be located at the old Los Altos Regional Wastewater Plant at the eastern end of San Antonio Road.

Wastewater from the separate Palo Alto Regional Water Quality Control Plant on Embarcadero Way would flow into the new facility, which would purify it to a usable cleanliness. The recycled water would be an additional source for irrigation, so-called "purple pipe" water that is used in industry and construction projects, and in agriculture. The plant would double the district's current supply of recycled water from the current 5% to 10% of its total water portfolio, the district said.

What's more, the water from the purification plant — millions of gallons of it — could be used for drinking after a little chemical tweaking and the state's approval.

Valley Water already has a similar 5-acre facility in San Jose. The Silicon Valley Advanced Water Purification Center currently cleans 10% of the water coming out of the nearby San Jose-Santa Clara Regional Wastewater Facility.

The purified but non-potable water is used at 800 companies, including businesses at Levi's Stadium and PayPal Park, for construction projects to keep dust down, and for irrigation and agriculture, said Gina Adriano, public information representative for the water district.

"This is the future of how to get water into our county. It's much more sustainable," Gary Kremen, Valley Water board member, said during a recent tour of the San Jose plant.

If the thought of drinking sewage water is a turnoff, consider this: By the time the purification plant strains, cleans and disinfects the wastewater, it contains no viruses, protozoa, bacteria or dangerous chemical contaminants. It also has fewer particles than Santa Clara County's regular tap water: 40 mg/Liter compared to 250 mg/Liter, according to Valley Water data.

From toilet to tap



Intake pumps receive treated wastewater from the nearby San Jose-Santa Clara Wasterwater Facility, the white buildings on right side of the frame, at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. Photo by Magali Gauthier.

The journey from mean water to clean water begins at the nearby San Jose-Santa Clara Wastewater Facility, which can treat up to 100 million gallons per day. The wastewater goes through three cycles of cleaning and disinfecting, Adriano said.

Most of this treated wastewater is sent to San Francisco Bay or is used as "purple pipe" water for landscapes and businesses. But up to 10 million gallons a day make their way in underground pipes to the purification center, resulting in about 8 million gallons of clean water each day, Adriano said.

A giant, 2.25-million-gallon metal holding tank towers over the home base of the Silicon Valley Advanced Water Purification Center, which opened in 2014 at the edge of the southernmost tip of the baylands between state Route 237 and Interstate Highway 880.

A labyrinth of pipes and intake pumps receive the wastewater, which is the color of weak tea, and pressurize it to 40 pounds per square inch, or psi. The 40 pounds psi is the equivalent of forcing the water through an area about the

Water first passes through four stainless steel mesh screens, which remove solid particles that are 300 microns or larger. Every 30 minutes a reverse flow flushes the screens, which are back-washed on the opposite side, sending the trapped particles back to the treatment plant.

Then the fun part begins.

"If you're a nerd, this is just the coolest thing ever," Kremen said as he entered the microfiltration room.



Gary Kremen, a Santa Clara Valley Regional Water District board member, at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. Photo by Magali Gauthier.

Inside a large warehouse, 896 vertical microfilter vessels reach nearly from floor to ceiling. Each contains 6,300 tiny straw-like tubes that filter out dissolved solids, protozoa, bacteria and large viruses bigger than 0.1 microns, or about 300 times smaller than the width of a human hair, according to the district.

The particles cling to the walls of each strand while the cleaned water passes through tiny holes at the center of each tube.

The water continues its journey to the 250,000-gallon inter-process tank located outside of the building, which helps regulate the pressure flow. An anti-scaling agent is added to prevent buildup of any microscopic matter in the next stage: reverse osmosis.

"It's like a spa for water. It gets pampered," Kremen said.

As the water is sent back into the warehouse, three reverse osmosis pumps raise the water pressure to 140 psi to help force the water through 240 reverse osmosis cartridges. The water is pushed through long, horizontal tubes containing rolls of special plastic membrane sheets in 1,000 layers, Adriano said.

The thin membranes allow the water to pass through while trapping compounds based on their size, shape and electrical charge. Contaminants larger than water molecules

don't pass through, including most chemical contaminants, salt and organic compounds, small viruses and all remaining microorganisms, Adriano said.

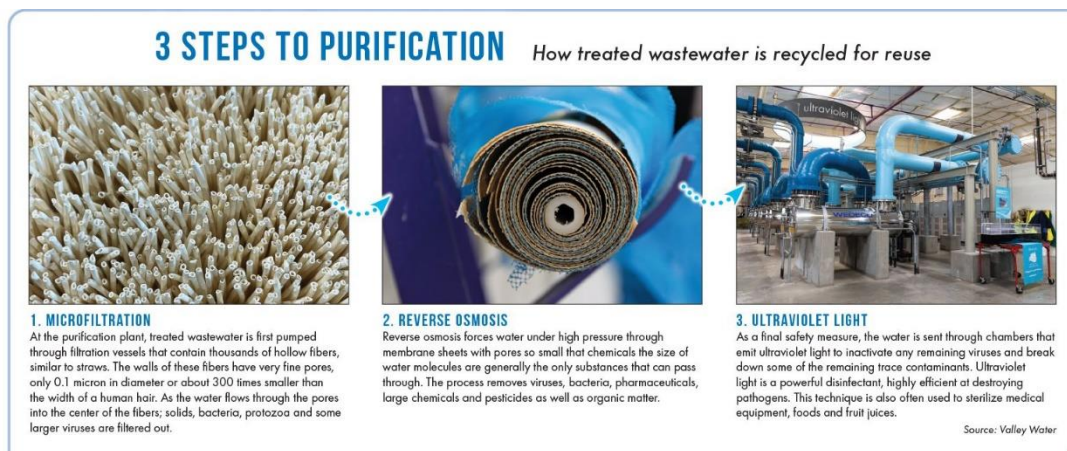
While the clean water flows out of the vessels, the remaining water, contaminated with salt and other substances, flows out another outlet to start the process all over again, thus enabling more water to be recovered.

About 82% of all the original water becomes purified water, Adriano said.

But the water still has a way to go. Sent to two towering decarbonation tanks, it gets the Wiffle ball treatment. The towers contain 53,000 plastic super-frame balls, which look much like Wiffle balls, that remove carbon dioxide and reduce the water's acidity, which can corrode the water system.

The surface area of all the balls is equivalent to the size of an American football field, according to Valley Water. In a process similar to how soda in an open can loses its carbonation, the ball surfaces strip carbon dioxide from the water. While the water pours down into the lower part of the towers, the CO₂ dissipates from the top.

Finally, ultraviolet light is used to turn water from pure into ultra-pure. The water is exposed to 40 high-intensity UV bulbs in 12 UV light reactors. After 30 seconds, the light has broken down any remaining pathogen DNA so it can't replicate. The exposure to this light is 20,000 times more effective than boiling water, according to Valley Water.



At the Palo Alto plant, testing of the water will ensure that chemical contaminants aren't present, Kremen said.

The purified water would be exported by a new 20-mile pipeline to existing percolation ponds on a 70-acre site in Campbell where it would seep down to recharge the underground water aquifer. Such water is known as indirect potable water, since it would be pumped up from wells before it is treated at a drinking water treatment plant, Kremen said.

To get recycled water to the drinking water state, Valley Water plans to add another step to the purification plant — advanced oxidation technology, which combines the UV light treatment and hydrogen peroxide. The process destroys all organic compounds, including those from pharmaceuticals, pesticides and personal-care products that might have been missed by other processes. The water would then meet the state's Division of Drinking Water's regulations for using purified water as a direct drinking source, so it will either go into the aquifer or be blended with other sources of water, which could be sent through water pipes directly to homes and businesses.

The future of drinking water?



Four flasks contain water from different stages of the wastewater purification process at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. On the left is treated wastewater the center receives from the San Jose-Santa Clara Wastewater Facility. On the far right is crystal clear purified water after going through the purification process. Photo by Magali Gauthier.

Thirty percent of Valley Water's supply comes from rainfall and 70% from Hetch Hetchy, state and federal water programs. Those sources are slowly drying up and are predicted to become increasingly limited in the next decades.

"It's getting harder and harder to get water into Santa Clara Valley" from outside sources, Kremen said.

Half of the reservoir rainwater storage for Santa Clara County is also out of commission. Anderson Reservoir currently has only 4% capacity, according to current district data, due to mandated seismic retrofitting. It won't return to full capacity for at least a decade, Kremen said.

To offset some of the shortfall, recycled water must become more than a drop in the bucket. The district wants to increase its recycled water capacity from the current 5% to 20% of its supply by 2028, according to its 2021 Countywide Water Reuse Master Plan.

In Palo Alto, new pipes will need to be built along the U.S. Highway 101 on the east side to connect the two water plants. The purified water would be sent to Los Gatos Percolation Ponds in Campbell in the Santa Cruz Mountains near state Routes 85 and 17, which would feed the water into the gravel of a deep underground aquifer.

'It's getting harder and harder to get water into Santa Clara Valley.'

-Gary Kremen, board member, Valley Water

The price tag for the project buildout, including the pipeline to Los Gatos/Campbell, isn't cheap. Capital costs are an estimated \$600 million, Kremen said. The district is looking to obtain low-interest loans, such as those offered under the federal Water Infrastructure Finance and Innovation Act, the Clean Water State Revolving Fund Loan Program, the Infrastructure State Revolving Fund Loan Program, and state and federal reclamation and water recycling construction grants.

Funding could also come from the Department of Water Resources and State Water Resources Control Board, which received a share of an additional \$22.5 million allocated for water and drought resilience that the state announced on March 13.

The majority of the funding, though, would come from a public/private partnership between the water district and a private contractor, who would pay for most of the costs to build and operate the facility. The district would pay a flat rate for the purified water

and would buy back the facility at a low cost after 25 to 30 years, Kremen said. A third-party contractor is currently being considered.

The new facility will produce nearly as much purified water as the Silicon Valley Plant in San Jose, Valley Water said.

The cities of Palo Alto and Mountain View would have a first right to the potable groundwater if there's a drinking-water shortage, Kremen said. The cities would pay a fee if they opt to use it, he added.

Catherine Elvert, Palo Alto's Utilities communications manager, said the city and water district are still negotiating the land-lease agreement. She didn't have an estimate for when a deal might be inked. In addition to the lease, Valley Water would also pay about \$1 million a year to purchase the effluent from the Regional Water Quality Control Plant for purification. Palo Alto would receive about one-third of that sum, she said. Other cities that send wastewater to the regional plant would receive payment for their proportional shares. Mountain View would receive about half of the money, Elvert said.

If all goes as planned, the facility could potentially be completed and operational by 2028.

Plans for the 6.4-acre purification plant would still leave room for another planned project on the 13-acre site, the [Project Homekey emergency housing complex](#).

Will water rates increase?



The 250,000-gallon inter-process tank that receives treated wastewater that has passed through the microfiltration treatment stage at the Silicon Valley Advanced Water Purification Center in San Jose on March 21, 2022. Photo by Magali Gauthier.

Valley Water's purification facility will not impact Palo Alto water rates because the purified water will be used in other parts of the county to augment groundwater, which Palo Alto does not use, Elvert said.

On average, county residents who use the groundwater system would pay an additional \$1 to \$2 a month for the water, according to [Valley Water's Countywide Water Reuse Master Plan](#).

"Santa Clara County is rapidly approaching a tipping point where purified water is cost competitive with other supplies," the Valley Water reuse master plan noted.

But though the water would not be used by Palo Alto residents, the city will benefit in numerous ways, including through the district's payments for Palo Alto's treated wastewater and through the land lease. For utilities customers, the new wastewater revenue would theoretically lead to lower sewer rates.

More broadly, the increased use of recycled water is a strategy that both Palo Alto and Mountain View fully support.

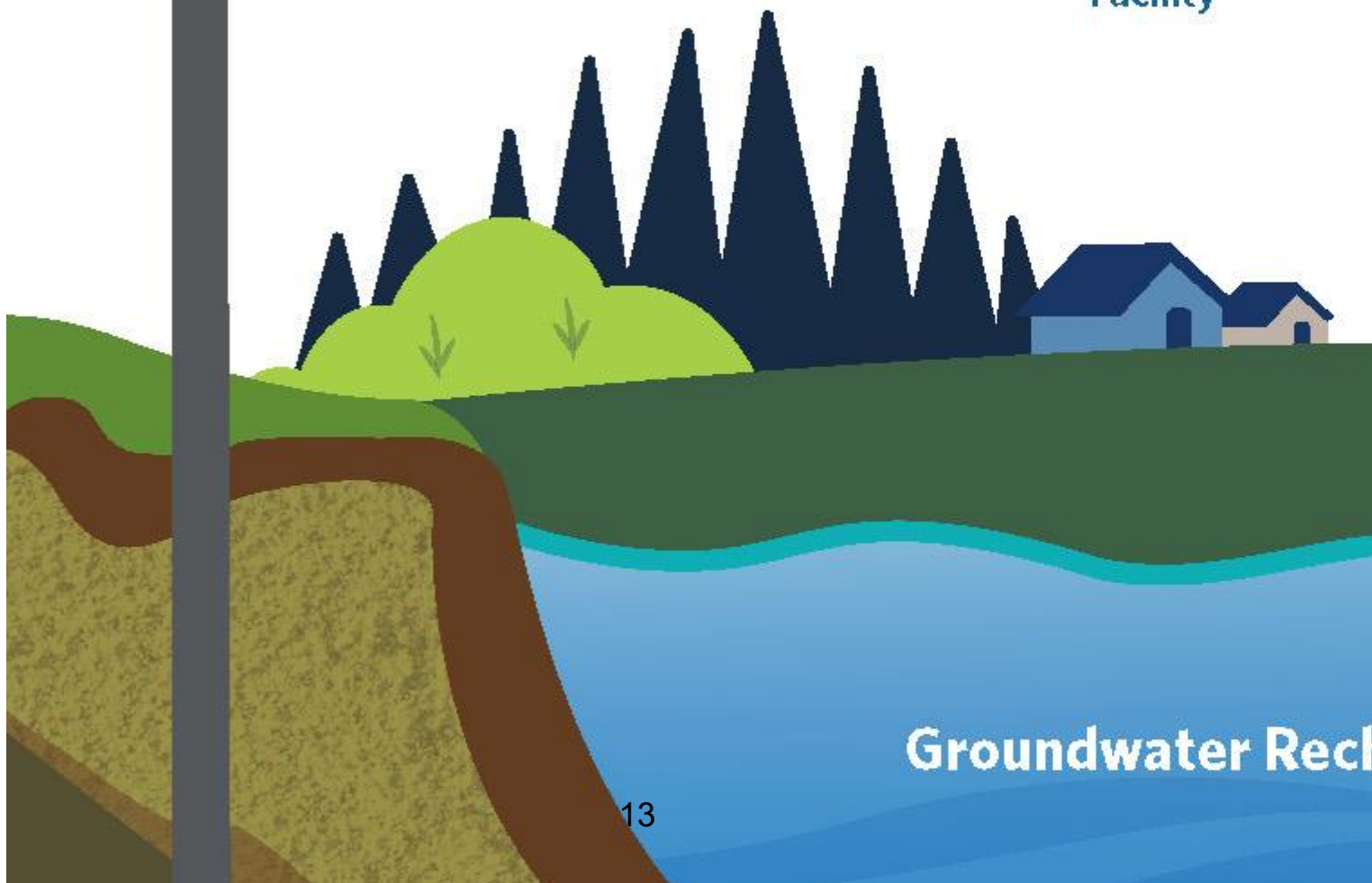
Groundwater



Homes and Businesses



Wastewater Treatment
Facility



Courtesy Valley Water.

Palo Alto is currently developing its One Water Plan, an approach that integrates water resource planning with a comprehensive examination of non-potable water options such as captured stormwater and recycled water. The aim is to supplement and preserve the potable water supply.

The city's plan includes consideration of all potential non-potable water sources including the purification plant and the continued use and expansion of recycled water from the Regional Water Quality Control Plant, Elvert said.

Mountain View, meanwhile, wants to expand its current 4% recycled water usage by adding to its infrastructure to serve additional customers, according to the city's [Recycled Water Feasibility Study Update](#) from March 22. The city has also moved to standardize the use of recycled water: Its 2017 Dual Plumbing Ordinance also requires private commercial development greater than 25,000 square feet to include separate plumbing for recycled water uses such as toilets and landscaping as well as for drinking water.

The purification plant isn't the only piece of infrastructure that could boost the local supply of recycled water: Plans for a separate, smaller plant that could remove salt from treated water are also under development, following a [December 2019 agreement](#) between Palo Alto, Mountain View and Valley Water.

'Santa Clara County is rapidly approaching a tipping point where purified water is cost competitive with other supplies.'

-Countywide Water Reuse Master Plan, Valley Water

Currently, however, the entities are negotiating over the funding. In 2019, Valley Water committed \$16 million to the project. The remaining costs for the desalination plant were to be paid for by Palo Alto (25%) and Mountain View (75%). But project costs have risen from \$22.3 million to \$51.4 million due to supply-chain issues, increased construction costs and modifications to address potential sea-level rise, according to a March 22 update to the Mountain View City Council.

In addition, during discussions with Palo Alto and Mountain View, Valley Water said that \$12 million of its \$16 million will come from refunds it had agreed to give the cities

related to a tax that supported the State Water Project through Valley Water. The cities have voiced their objections, according to the Mountain View City Council report.

Kremen said by phone on Monday that the desalination operation might be added to the large purification facility as a way to potentially cut costs.

He took a pragmatic view of additional costs.

"What is the price of water if you don't have any? It's incalculable," he said.

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Comments

Bystander

Registered user

Another Palo Alto neighborhood

on Apr 22, 2022 at 11:24 am

Instead of additional water rationing to those of us who have already taken measures to use less water over the time we have lived here, we should have many types of innovations to increase our water supply. We have more people living in Santa Clara County and a diminishing supply. We can't keep squeezing more people in without serious measures to increase our water supply. Desalination and water purification are necessary.

[Report Objectionable Comment](#) |

[Email Moderator](#)

Consider Your Options.

Registered user

Another Palo Alto neighborhood

on Apr 22, 2022 at 11:26 am

Great Article. Question: How does the purification process eliminate salts from the water? In Australia, they have been using recycled water to irrigate farms for many years. Over time, there has been an accumulation of salts in the soil that has destroyed farm soil quality, making some of it unusable.

[Report Objectionable Comment](#) |

[Email Moderator](#)

Nayeli

Registered user

Midtown
on Apr 22, 2022 at 11:36 am

Other states already have been doing this for years. Yet, in those states, there are questions about how healthy the water is.

[Report Objectionable Comment](#) |

[Email Moderator](#)

Anonymous

Registered user
Duveneck/St. Francis
on Apr 23, 2022 at 1:25 pm

Keep those of us here in north SC county on SF Hetch Hetchy water system. This is what we signed up for when we bought here and we've paid into SF repairs of Hetch Hetchy, etc. NO to this recycled water scheme in Pal Alto!!

[Report Objectionable Comment](#) |

[Email Moderator](#)

Online Name

Registered user
Embarcadero Oaks/Leland
on Apr 23, 2022 at 4:21 pm

Totally agree that we can't keep shoving millions (literally) more people into the SF Bay Area while making all the present residents cut back. It's lunacy.

[Report Objectionable Comment](#) |

[Email Moderator](#)

tmp

Registered user
Downtown North
on Apr 23, 2022 at 6:00 pm

Totally agree with the above poster. It is lunacy to keep imagining that we can add more and more people to an area when the water supply will continue to decrease. It is not a "drought" despite what the media and politicians keep calling it. It is the norm now and we will have less and less water over time.

We need growth and population limits and to stop Sacramento from forcing cities to house more people. Living on this planet is going to become difficult and the sooner our government buckles down and faces the real issues the better it will be for everyone. They should be discussing costs of growth and providing quality of life for current residents. If our government was based on quality

of life and not just focused on money and adding more people, they would worry more about good schools, quality open space, clean air, other animal species on the planet and enough water for a reasonable population and so much more. But all we get is growth, growth, growth. We can exist without constant growth. Let's stop electing fools pushing a growth mantra and find people who know how to help those who elect them.

BOARD MEMBER REQUESTS and Informational Items

Report Name: Board Member Requests

Request	Request Date	Director	BAO/Chief	Staff	Description	20 Days Due Date	Expected Completion Date	Disposition
R-22-0003	04/12/22	Keegan	Gibson	Rocha	Provide information on the last two years of polling, what we polled for, and what the costs were for those polls.	05/09/22		
R-22-0004	04/12/22	Varela	Baker	Gin	Staff to respond to Mr. Peter Drekmeier's 4/12/22 public comment regarding participating in a shared water purchase savings program.	05/11/22		
R-22-0005	04/12/22	Varela	Baker	Williams Chatwani	Staff to respond to Margaret's public comment during 4/12/22 meeting asking how Valley Water is managing North County requests for new wells in neighborhoods already served by Valley Water.	05/12/22		