TRUCKEE MEADOWS WATER AUTHORITY

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TMWA Board Meeting

Wednesday, November 19, 2014

Press Clippings

February 10,2016 through March 9, 2016

Ann Matya (Desert Heights Elementary School)
2010 Poster Art Contest – Third Place, Grades K-3

TMWA storing water in wells

By Colin Lygren |

Posted: Fri 7:30 PM, Feb 26, 2016 |

Updated: Sat 7:18 AM, Feb 27, 2016

The warm temperatures are bringing us some earlier-than-hoped-for snow melt, but not all that water flowing down stream is simply passing us by; some of it is being saved.

"We are taking some of that water right now at our Chalk Bluff Treatment Plant, treating that and injecting that back into the ground," said Bill Hauck, Senior Hydrologist with Truckee Meadows Water Authority.

TMWA has well sites that are scattered across various parts of the Truckee Meadows. Right now, instead of pulling water out of the ground, the utility is pumping water into the ground.

"Last year we did about 4,000 acre feet," said Paul Miller with TMWA.

4,000 acre feet equals about 1.3 billion gallons of water. That is enough water for 8,000 homes for a year.

"It is like having a big tank that you can draw from. You are keeping that tank full, and then when you want to turn that well on in the summer time. It is full," said Miller.

TMWA recharges ground wells by pulling extra water from the Truckee River at Highland Ditch. The utility then treats the water at the Chalk Bluff Water Treatment Plant. The water is distributed through the system and pumped it into the ground through 21 wells throughout the region.

"Looks like about 10 million gallons a day right now we are sticking back into the ground and enhancing the ground water levels and preventing any significant drawdowns from our productions wells this summer," said Hauck.

The well recharge program is useful not only because it gives us extra water; it also ensures that the wells will not go dry as has happened in other drought-stricken parts of the country

Sen. Feinstein Introduces California Drought Bill

Submitted by Josh Abel on Wed, 02/10/2016 - 1:24pm

in

- Federal Relations
- Federal Affairs Committee
- Water News

Senator Dianne Feinstein (D-CA) on Wednesday introduced a sweeping piece of legislation to combat the years-long California drought. The drought bill, her third such attempt in the last two years, was cast by the Senator as an amalgam of the best ideas from previous bills.

“Drafting this bill has been difficult, probably the hardest bill I’ve worked on in my 23 years in the Senate,” Feinstein said. “But it’s important, and that’s why we’ve been working so hard, holding dozens and dozens of meetings and revising the bill over and over again.”

The bill’s release was accompanied by expressions of support from a diverse group of stakeholders and elected officials.

California Long-Term Provisions for Water Supply and Short-Term Provisions for Emergency Drought Relief Act

Bill Summary

Overview

The bill includes long-term and short-term provisions to help cope with the

historic drought in the West.

Long-term:

With local sponsors as lead, and the federal and state governments providing financial support, the 137 projects identified by **this bill could produce upwards of 1.4 *million* acre feet in "new" water**, whether through recycling or desalination. The bill does this by:

☐ Re-authorizing the Desalination Act and providing $100 million for research, design, and construction of desalination projects (*Sec. 121*).

☐ The bill increases funding for WaterSMART from $350 million to $500 million and authorizes another $200 million for recycling through Title XVI (*Sec. 101*).

☐ The bill funds RIFIA—a new Reclamation loan and loan guarantee program—at the full $200 million (*Sec. 131-141*).

☐ The bill establishes a new program under Reclamation for providing assistance to communities that have run out of water (*Sec. 101*).

☐ **The bill also authorizes $600 million for storage projects** for storing water from the wet years for use during the dry ones. (*Sec. 112*)

Short-term:

The bill provides maximum assurances that the bill does not violate any environmental law, like the Endangered Species Act or the biological opinions. Here's how:

☐ **Information from real-time monitoring determines pumping rates**, not specific congressional mandates or targets.

☐ **Real-time monitoring will produce the information necessary to operate the system more precisely**. (*Section 301*)

- The bill authorizes **daily boat monitoring to survey for smelt near the pumps** when turbidity levels are high and the smelt are often attracted to the pumps. (*Sec. 301*)
- This bill also authorizes studies to **identify smelts' location in the Delta**

on a real-time basis, so pumping can be increased when the fish are not near the pumps and reduced when fish are present. (*Sec. 301*)

- The bill commissions a Delta Smelt Distribution Study to **identify how many smelt are in different parts of the Delta** in drier and wetter years, information that is key to running pumps in a manner that isn't harmful to fish.

☐ **The bill includes a savings clause** that makes clear the drought bill is consistent with all environmental laws, including the Endangered Species Act and biological opinions. (*Section 701*)

Four key goals guide this legislation:

☐ **Help communities** most at risk of running out of clean water.

☐ Provide $1.3 billion in funding and support for **long-term solutions including water storage, desalination and recycling**.

☐ **Protect and attempt to restore threatened and endangered species**.

☐ Modify how the Central Valley Project and State Water Project are operated to **maximize efficiency during the governor's drought emergency declaration** in a manner that adheres to all environmental laws.

LONG-TERM INVESTMENTS

(*Title I*)

☐ *This bill authorizes $1.3 billion in federal support for State and local efforts to increase their drought resiliency.*

☐ *Here's the ways in which the bill increases investments in California's drought resiliency:*

Assistance for drought-stricken communities

☐ **Allows rural and disadvantaged communities with fewer than 60,000 residents to apply for grants through a new Reclamation program to help stabilize their water supplies**. Funds can be used for both short-term solutions such as emergency bottled water supplies as well as long-term solutions such as water treatment facilities, wells and connecting homes to centralized water distribution systems. *(Section 101)*

☐ Prioritizes State Revolving Funds for communities most at risk of running out of

water. Last year, California received more than $180 million in these funds. **By directing some of these funds to at-risk communities**, the bill provides California with the tools necessary to provide water for public health and safety and to increase drought resiliency. *(Section 102)*

Storage projects
(*$600 million through 2025*)
Storing water during wet years for use in dry years is vital, given the consensus that droughts will grow more severe.

☐ Authorizes $600 million for water storage projects in California and other Western states. These may include both federal projects (Shasta) and non-federal projects (Sites, Temperance Flat, Los Vaqueros). (*Sections 111 and 112)*

☐ Establishes **deadlines** for the Bureau of Reclamation **to complete feasibility studies** to allow Calfed storage projects to compete for Proposition 1 bond funds. California's Proposition 1—approved by two-thirds of voters in 2014—**provides $2.7 billion in storage funding**. This means California projects are expected to compete strongly for the matching federal funds made available by this bill. *(Section 115)*

☐ **Updates Army Corps dam operations** to increase water supply while reducing
flood risk. *(Section 113)*

Desalination
(*$100 million through 2020*)

☐ Identifies **27 desalination projects throughout California** capable of producing
more than 352,000 acre-feet of water per year. The Secretary of the Interior would be required to consider these projects for funding. *(Section 121)*

☐ Reauthorizes the *Desalination Act* and authorizes the following funds *(Section 122)*:

- This section also authorizes $50 million over five years for desalination research projects, such as **improving existing reverse osmosis and membrane technology**, reducing the environmental effects of seawater desalination and developing next-generation technologies to reduce the cost of desalination.
- $50 million over five years for feasibility and design for both sea and brackish water desalination projects. Senator Boxer also introduced legislation that would reauthorize the *Desalination Act*, but at lower

funding levels.

Water recycling

(*$350 million through 2020*)

☐ The bill identifies **110 water recycling and reuse projects** with the potential to provide more than 1,060,334 acre-feet per year of "new" water. *(Section 121)*

☐ Increases the authorization for the Bureau of Reclamation's **WaterSMART program from $350 million to $500 million**. These grants are for long-term water conservation, reclamation and recycling projects, including small-scale storage and reclamation projects. *(Section 101)*

☐ Authorizes **$200 million for water-recycling projects** through Title XVI that reclaim and reuse wastewaters and naturally impaired ground and surface water. (*Section 123).*

RIFIA and WaterSense

(*$210 million through 2020*)

By providing funds for the most cost-effective federal programs, Washington can help state and local agencies leverage existing dollars into larger projects.

☐ **Reclamation Infrastructure Finance and Innovation Act (*RIFIA*):**

Authorizes

$200 million RIFIA. This loan-guarantee and low-cost loan program will allow water districts and municipalities to leverage loans and loan guarantees for water projects, reducing repayment loan costs by as much as 25 percent. This is modeled after TIFIA, a successful loan-guarantee program for transportation projects. *(Subtitle IV.E; Sections 131 through 141)*

☐ **WaterSense:** Authorizes **$10 million for EPA's WaterSense program**, which provides information on which household products are water-efficient. The program is modelled after the successful Energy Star program for energy efficient household appliances. *(Section 124)*

ACTIONS TO BENEFIT FISH AND WILDLIFE

(*Title II*)

Protecting fish populations

(*$45 million through 2020*)

☐ The bill includes **$45 million to assist in the protection and recovery of fish** populations. *(Section 201)*

☐ Directs federal agencies to develop and implement a pilot program—funded by local water districts—to **protect threatened and endangered salmon and**

steelhead by removing non-native predator fish from the Stanislaus River, such as striped bass, smallmouth bass, largemouth bass and black bass. (*Section 203)*

☐ Directs federal agencies to develop and implement pilot projects to **reduce invasive aquatic vegetation to improve survival and recovery of endangered fish**. Invasive species—such as water hyacinth—have played major roles in the decline of listed fish in the Bay-Delta, including the Delta Smelt. (*Section 204)*

Assisting refuges for migratory birds
(*additional $2 million annually through 2020*)

☐ Authorizes an additional $2 million dollars per year to **improve water conveyance infrastructure**, which will help deliver water to wildlife refuges. (*Section 202)*

SHORT-TERM, TEMPORARY OPERATIONS
(*Title III*)

☐ *Includes six provisions to move water during the drought in California all while operating within environmental laws and regulations.*

☐ *Also includes language that makes clear all actions must be taken consistent with*
law and that none of the provisions violate the Endangered Species Act, the Clean Water Act, the biological opinions, or state law

☐ *Since the recycling, desalination, and storage projects this bill identifies will take*
years, and in some cases decades to construct, we cannot overlook the importance of short-term relief.

Environmental protections

☐ The legislation includes a "savings clause" making clear that **nothing in the bill**
overrides or modifies the *Endangered Species Act* or any other environmental law. (*Section 701*)

☐ **The federal agencies with expertise in the *Endangered Species Act*** (the National Marine Fisheries Service and U.S. Fish and Wildlife Service) **helped write the operations provisions to ensure pumping is in compliance with environmental laws and biological opinions**.

Real-time monitoring to protect fish species

☐ **Equips the agencies with the tools necessary to operate the system more**

precisely, by pumping when the fish are close to the pumps and ratcheting down pumping when the fish are close. (*Section 301*)

- Authorizes **daily boat monitoring to survey for smelt near the pumps** when turbidity levels are high and the smelt are often attracted to the pumps.

- Authorizes studies to **identify smelts' location in the Delta on a realtime basis**, so pumping can be increased when the fish are not near the pumps and reduced when fish are present.
- Authorizes a Delta Smelt Distribution Study to **identify how many smelt are in different parts of the Delta** in drier and wetter years, information that is key to running pumps in a manner that isn't harmful to fish.

Temporary Operational Provisions

The bill includes eight provisions to allow more water to be captured and stored during the drought:

1. Improved data to operate pumps at higher levels when no fish are present and reduce pumping levels when fish are nearby.

☐ Requiring **daily boat monitoring to survey for smelt near the pumps** when turbidity levels are high, so that pumping reductions are made based on the facts.

☐ Authorizing studies to identify smelts' location in the Delta on a realtime basis.

☐ Authorizing a Delta Smelt Distribution Study to **identify how many smelt are in different parts of the Delta** in drier and wetter years. This is critical to know what limitations the agencies can impose on pumping.

2. Allow agencies to keep the additional water they are able to pump during winter storms.

☐ The bill authorizes agencies to increase pumping during winter storms, using their best judgment to determine when and by how much.

☐ Once the storms end, the agencies would no longer be required to "payback" water already pumped unless there was an environmental reason, such as harm to fish.

☐ This so-called "payback" has led to the loss of tens of thousands of acre-feet. Payback currently requires agencies to reduce subsequent water pumping by an equal amount of water as was captured during the

storms, which means the loss of tens of thousands acre-feet of water that could instead be stored or transferred for use throughout the state.

3. Agencies must explain reductions in pumping under the Delta Smelt Biological Opinion.

☐ The bill does not impose any mandated pumping levels, instead leaving those pumping levels up to the discretion of the water agencies. But **the bill does require officials to justify the levels at which they pump under the smelt biological opinion**.

☐ By requiring written justification for the level of pumping, the bill attempts to maximize the amount of water pumped by directing officials to consider whether real-time monitoring justifies lowering pumping levels. The agencies must explain their decisions based on improved data, not just rely on their intuition.

☐ To be clear: The revised text does not include any pumping mandate. We removed a provision that would have mandated pumping at -5000 cubic feet per second in the Old and Middle Rivers, unless pumping at these levels would cause additional adverse effects on the Delta smelt.

4. Agencies must maximize water supplies consistent with applicable laws and biological opinions.

☐ Federal agencies should be capable of doing more than one thing at once: they should try to both protect species and provide reliable water supplies.

☐ The bill makes very clear that the agencies cannot harm the fish in violation of the biological opinions – but **within this environmental protection mandate the agencies should try to increase water supplies**.

☐ This requirement complements the additional requirement that agencies must explain any harm to fish that results from a reduction in water supplies.

5. Open Delta Cross-Channel Gates more often.

☐ The bill requires the Secretary of the Interior and the Secretary of Commerce to take actions to ensure the Delta Cross Channel Gates remain open to the greatest extent possible, consistent with state and federal law.

☐ Keeping the gates open for longer helps both Delta farmers and communities and South of Delta communities. Keeping the gates open means that water from the Sacramento River is used to control salinity instead of releasing water from the Central Valley Project (like Folsom or San Luis) that would otherwise be pumped south.

☐ When the gates are closed, water no longer flows directly from the Sacramento River into the interior Delta.

☐ The gate's closures means that the agencies must either reduce pumping or use stored water to "flush" salty water back out through the Delta.

Given that we never have enough water, water transfers are a mechanism to use the voluntary, market process to move water to those who truly need it. The bill includes three provisions to increase water transfers.

6. Extending the time period for water transfers by five months. The bill extends by five months the time period when transfers may take place. The current transfer window of July through September is extended to April through November. This would allow water transfers to be available during the spring planting season. All transfers must remain consistent with the biological opinions and their adaptive management provisions.

7. The 1:1 transfer ratio. The strong El Niño means more water is likely to be available for voluntary transfers from willing sellers with extra water to buyers downstream who need water. This provision helps facilitate those transfers in April and May by allowing a 1:1 transfer ratio. In past years, agencies have reduced the likelihood of transfers by requiring water users to send more water downstream than can be pumped out (up to a 4:1 ratio). By allowing for a 1:1 ratio—while adhering to environmental law and biological opinions—more water transfers can be accomplished, providing water to users who truly need it.

☐ Expediting review of transfers and the construction of barriers. Environmental reviews of water transfers and the installation of temporary barriers must be completed within 60 days, unless an environmental impact statement is required.

ADDITIONAL PROVISIONS

(Titles IV and V)

☐ Protect and preserve water rights and ensure that some State Water Project and Central Valley Project water contractors do not benefit from the legislation at the

expense of others. *(Sections 401 to 404)*

☐ Authorizes the Bureau of Reclamation to expand its service area to include Kettleman City and directs the Bureau of Reclamation to enter into a long-term contract with the Kettleman City Community Services District to **provide them up to 900 acre feet of water**. Kettleman City residents have struggled with contaminated groundwater for years, and this provision would help ensure Kettleman City's 1,500 residents secure access to clean water supplies. *(Section 501)*

☐ This section requires the Secretary of the Interior to **publish expenditures and an evaluation of those expenditures for the Restoration Fund** (in 2014, revenues were approximately $53 million), publicize a draft work plan for the upcoming year and solicit public comment. *(Section 502)*

☐ Directs the Department of the Interior to **complete its assessment of the risks to water resources** in specific watersheds posed by climate change. *(Section 503)*

☐ *If requested*, the Departments of Interior and Commerce are required to provide technical and modeling assistance to the State Water Resources Control Board in protecting water quality during the drought. *(Section 504)*

☐ Directs the Bureau of Reclamation to **publish an annual report on water releases for benefit of fish** and evaluate their environmental benefits. *(Section 505)*

☐ Requires the Bureau of Reclamation to **identify potential additional storage capacity in New Melones Reservoir** that may be made available to local water and irrigation districts in the Stanislaus River Basin. *(Section 506)*

☐ Facilitates efforts by the California Department of Water Resources and U.S.

Fish and Wildlife Service to **construct a unified federal/state Delta Research Station at the old Rio Vista Army Base**. (*Section 507)*

☐ Authorizes a Department of the Interior program to establish an open system with data on water quality, climate and weather effects, and erosion, which would be accessible to the public online. *(Section 508)*

☐ Allows Departments of Interior and Commerce to **provide a single annual report** under the reporting requirements of the Act to reduce the burden on the agencies. *(Section 509)*

PAYING FOR THE BILL
(Title VI)

☐ Based on recently enacted legislation to **deauthorize inactive Army Corps of Engineers projects**, this section requires the Secretary of the Interior to identify projects and program that have not received funding in the past five years. After providing an opportunity for public comment and congressional disapproval, the Interior Secretary may formally deauthorize those projects or programs. *(Section 601)*
Estimated by the Bureau of Reclamation to provide between **$700 million and $1.3 billion.**

☐ Directs the Department of the Interior to **convert certain existing water service**
contracts between the United States and water users' associations to repayment contracts **to allow for prepayment** of such contracts, upon the request of the contractor. Requires a specified percentage of certain receipts generated from prepayment of contracts under this title to fund the construction of CALFED surface water storage. Estimated by the Bureau of Reclamation to provide **$630 million**. *(Sec.602)*

DURATION
(Title VII)

☐ **The temporary provisions will sunset two years after the date of enactment or when the governor's drought declaration ends, whichever is later.** *(Sec.*

Letter: Verdi deserves assurance that water will continue to flow

Reno Gazette-Journal 1:04 a.m. PST February 11, 2016

Letter to the Editor(Photo: RGJ, RGJ)Buy Photo

Lemmon Valley wells going dry. Golden Valley wells going dry. Galena wells going dry.

Facts: Verdi wells have been going dry. According to historic water records, ground water in our local basin has been declining since 1970.

The Reno City Council recently approved 273 new homes. To serve these homes an out-of-state developer will establish a privately owned water system. 1,500,000 gallons of water from the local aquifer will be pumped and stored in huge tanks by Boomtown.

During the recent council meeting, Meridian 120 North, the project's developer, promised to donate $100,000 to benefit local schools. After the council passed the project, the developer graciously donated another $100,000.

The fact is, no one will be held accountable to provide water when the wells in Verdi go dry. Not the developer, not the Reno City Council, not TMWA.

We deserve some assurance that the aquifer will sustain the area and that Verdi will have water in the future.

Walt and Helene Walker, Verdi

Not Flint: Oceanside Warns of 'Water-Quality Test' Sellers at Door

POSTED BY KEN STONE ON FEBRUARY 9, 2016 IN LIFE | 400 VIEWS | LEAVE A RESPONSE

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Oceanside City Hall. Photo by Chris Stone

Oceanside is not Flint, Michigan, but some door-to-door solicitors are trying to capitalize on public water-quality fears.

Officials say the city has had reports of salesmen offering Oceanside residents home water testing.

Ignore them, says Rosemarie Chora, Water Utilities Division manager.

Oceanside says it conducts water-quality tests regularly and consistently finds its drinking water meeting or exceeding all state and federal health standards, she said in a statement Tuesday.

- **Related: Oceanside's 2014 water-quality report**

"The water distributed to city residents and businesses is routinely tested for approximately 90 different substances to ensure that the water is of the highest quality," she said.

Cari Dale, Oceanside's Water Utilities director, said: "I understand how recent water events in Michigan heighten everyone's awareness about water quality. I want to assure our customers, with the utmost confidence and based on recent testing, the water being distributed to the City of Oceanside's residents and businesses is clean and lead-free."

Each year before July 1, the city issues a Water Quality Report, also knowns as the Consumer Confidence Report, available for public review, the city says.

The document is state-mandated and includes details about where the city's water comes from, what it contains and how it compares to state standards. The latest results did not find lead or copper in water distributed to Oceanside's customers, the city says.

For more information, call the city's Customer Care line at 760-435-4500.

LETTERS TO THE EDITOR

City OK'd housing despite well trouble

The Truckee Basin is classified as being in an exceptional drought, with exceptional being the highest level of drought.

Domestic wells are going dry from the drought but also from the quasi-municipal and municipal wells in areas where domestic wells are relied on as the sole water source.

These mega-wells have drawn down the water table/aquifer in the North Valleys and Galena Creek area, causing domestic wells in these areas to go dry.

TMWA is very aware of the draw down caused by municipal wells. Three Reno City Council members are on TMWA's Board.

The city recently approved development in Verdi that will rely on a private municipal well system for the 273 homes planned. The city approved this knowing it is a matter of time before Verdi's domestic wells are dry.

Verdi has no vote in city elections.

Josh Spyrow, Verdi

Truckee Meadows Team Tackles Water Variability

- By Ted J. Rulseh
- Quality Leaders - Plant
- March 2016
- Appeared in print as "Why Not the Best?"

A Presidents Award from the Partnership for Safe Water was a natural result of commitment to excellence by the entire Truckee Meadows team.

Sometimes the Truckee River flows clear.

Other times it flows like chocolate milk. The change can take place within minutes. Whatever the river water's condition, the Truckee Meadows Water Authority turns it into drinking water at no more than 0.08 NTU.

The river water's variability is one big challenge facing the TMWA, which serves about 400,000 residents of the Reno-Sparks area in northern Nevada. Another is a drought that has persisted for four years, putting stress on water supplies. On both counts, the utility's 16-member operations team has come through, with lots of help from the rest of the 190-member staff and from customers who know the value of water in a high desert environment.

Related: Digital Technology

Most water heading to customers passes through conventional treatment at the 90 mgd (design) Chalk Bluff Water Treatment Facility. That plant, commissioned in 1994, received a 2015 Presidents Award for excellence in water treatment from the Partnership for Safe Water.

Paul Miller, manager, operations and water quality, says the award is a natural outcome of his team's dedication to quality. "It's a tribute to the operators and a testament to their pursuit of excellence," he says. "That pursuit of excellence is shared throughout the entire company."

Newly expanded

The TMWA was formed in 2001. In January 2015, the utility completed a consolidation with the Washoe County Department of Water Resources and the South Truckee Meadows General Improvement District. The merger aimed to reduce the cost of service and to maximize use of surface water resources across the region.

Related: Advances in Monitoring and Instrumentation

During non-drought years, the TMWA draws about 90 percent of its water from the Truckee River and the rest from 92 groundwater wells. Demand averages about 62.5 mgd but can peak at 125 mgd in summer. At such times, the utility calls on its 27 mgd (design) Glendale Water Treatment Facility.

"During periods of drought such as this, we rely much more heavily on groundwater," says Miller. "We have a drought plan that we are following, and everything is going according to plan. The best thing for this community is that we have stored surface water upstream in a number of reservoirs. We have used about 20 percent of that stored water during this drought. We've also asked our customers for a voluntary 10 percent reduction in usage. They have responded even better than we've requested."

All members of the operations team are dual-certified, licensed in treatment and distribution. Foremen are required to have Grade 4 certifications; all operators are certified to Grade 3.

Related: *Top Performer - Plant:* Less Is More

The team includes:

- Will Raymond, water operations supervisor
- Working foremen Tim Flanagan, Pat Kuykendall, Brian Luczkow and Ted Saxe
- Treatment plant operators III Kurtis Arnold, Mike Bryant, Travis Bunkowski, Darrin Garland, Ben Goodrich, Bill Hovda, Jeremy Keele, Scott Knecht, Michael Nevarez and Jimmy Winters (James Bryant is an apprentice operator)

River's challenges

Operating the Chalk Bluff plant means constantly watching raw water quality. The Truckee River flows out of Lake Tahoe and drains part of the high Sierra Nevadas. "You can imagine flowing from a mountain watershed with snow melt, how variable the raw water can be," says operator Knecht. "We get heavy thunderstorms in spring, and we have a fire-scarred watershed.

"Combine those two and you can get huge runoffs very quickly. We get some seriously dirty water. In minutes, we can go from 2 NTU up to 5,000 NTU — that's like thick chocolate milk. We continuously surveil the upstream watershed conditions for any problems coming down toward us so we can decide how to treat it, or even close the plant intakes and let the slug go by, if we can afford to. Usually, though, we treat the water."

Seasonally low raw water temperatures and wide diurnal pH swings add to the treatment challenges. The pH, driven by algae, can exceed 9 in the early evening and bottom out below 7 in the early morning. Despite all this, the imperative is to produce water that never exceeds 0.08 NTU.

Treating with precision

Water comes to the Chalk Bluff plant in a 6 1/2-mile concrete-lined canal and passes through coarse screens before entering two 2-million-gallon pretreatment ponds. Although their main purpose is gravity settling, the ponds can be chlorinated to oxidize taste and odor (which can be caused by algae blooms in the river) or fed primary coagulant to speed settling (such as when the raw water is extremely turbid).

The water then passes through a pair of Envirex and Link-Belt fine, mechanically cleaned screens (WSG & Solutions) and is dosed with carbon dioxide as needed to bring the pH below 7.7. Next, the water enters two treatment trains where polyaluminum chloride coagulant is added. After flash mixing, the flow enters six flocculation/sedimentation basins. These are followed by 12 gravity filters containing 54 inches of anthracite and 10 inches of silica sand media, and licensed for a loading rate up to 8 1/2 gallons per square foot per minute.

The filtered water is disinfected with sodium hypochlorite to achieve an overall 4-log pathogen removal/inactivation, then adjusted to pH 8 with soda ash before distribution to minimize potential leaching of copper and lead from customer piping.

Fine tuning

A variety of measures helps ensure that water leaving the filters stays below 0.08 NTU. “We have turbidimeters (Hach) a few miles upriver so we can watch a plume of dirty water come down toward us,” Knecht says. “In the raw water canal, we have cameras and turbidimeters. Then we have turbidimeters throughout the plant, all the way through the process. We adjust our feed rates based on turbidity and flow, the temperature of the water, and the type of dirt that’s in it, whether it’s large or small, easy to treat or not.”

Coagulant addition is flow-paced; jar tests also support dose determination. “We continuously change the dose, anywhere from 14 to 30 mg/L,” says Knecht. “It’s automated based on how much water is coming into the plant, as read by the flowmeters. Each metering pump is checked at least twice a day for accuracy to make sure those pumps are giving us exactly what we want.”

Two streaming current detectors (Milton Roy) help operators regulate the coagulant feed rate and optimize flocculation and sedimentation. But pure operator observation helps, too.

“Through experience, you can tell by the color how big or small the particles are and how easily they’re going to settle,” says Knecht. “We look at the floc continuously. When we have good treatment, it looks much like storm clouds and it goes right to the bottom of the sedimentation basin.”

A Zeta potential analyzer (Brookhaven Instruments, a Nova Instruments Company) can be used to measure the electrical potential of particles in the water to help assess how well the primary coagulant is working.

To deal with extremely cold water, operators can add anionic and non-ionic polymers to aid coagulation and flocculation, or reduce the filter loading rate. A final line of defense is a fail-safe mechanism on the filters. If a turbidimeter on a filter detects turbidity rising toward the limit of 0.08 NTU, the effluent valve closes, a waste valve automatically opens, and the water is returned to the primary settling ponds while the issue is diagnosed and resolved.

A SCADA system with Wonderware software (Schneider Electric - Invensys) with some 7,500 inputs oversees the distribution system and more than 90 storage tanks. Each day, the SCADA system distills flow data into a production number and a consumption number that, along with the weather forecast, helps the staff set the next day's production.

"We're on a fine tightrope," Knecht says. "We're using our drought resources stored upstream, and we have to husband those resources carefully. So our production/consumption numbers are critical for our planning. We don't have any water to waste. We need to plan how much we're going to make the next day."

Quality first

The TMWA's focus on quality made pursuit of the Presidents Award natural, according to Miller: "We decided it was just the best a utility could do to protect public health and the best water we could offer to our customers, so we embraced the goal.

"We talked to the members of our firm and said, 'Look, we're going to embrace this and go the whole way with it.' I'm glad we did. I'm not an award-seeking individual, but it was a good goal for the utility. It's a good goal for any utility to try to achieve. When we received the award, I believe only 18 other utilities had won it. You wouldn't achieve this without having a committed team of people. It took an operations team fully on board to achieve this high standard (0.08 NTU) 100 percent of the time. They made it happen through some really challenging conditions over the last several years."

Knecht observes, "For the 14 years I've been with this company, every operator or apprentice has been really inculcated with the fact that water quality is job one. Yes, we try to do it in a fiscally responsible manner, but we simply don't cut corners when it comes to water quality. I'm sure everybody who works at TMWA feels the same. But as operators, we're on the front lines. It's ingrained in us that water quality will not be sacrificed for anything."

Tomorrow's operators

The Truckee Meadows Water Authority helps fill the pipeline for water operators through a state-certified apprenticeship program, in cooperation with the International Brotherhood of Electrical Workers union.

"We put candidates through a two-year program that includes the Sacramento State University curriculum," says Scott Knecht, operator III. "There are numerous milestones of achievement to be met each month. Work hours are aligned to the different disciplines in water treatment and distribution.

“All the hours are carefully calculated and recorded to enable participants to qualify for state certification. There are milestone tests that each apprentice has to take and pass. It’s a very rigorous program.” Apprentices rotate through day and night shifts and among four crews, gaining exposure to all facets of the processes.

“After the two years, they should have their Grade 2 state treatment and distribution licenses and be ready to go to work,” Knecht says.

Openings for apprentices attract multiple applicants, from high school graduates on up to people with bachelor’s and master’s degrees in a variety of fields, says Knecht. “We look for people who want more than just a job. It takes a big commitment to make it work, but it’s worthwhile. It’s satisfying, it’s a great career, and it’s a great company.”

Weber

Sullivan

Carlisle

Stoever

McGinnes

Bybee

Hastings

Schaper

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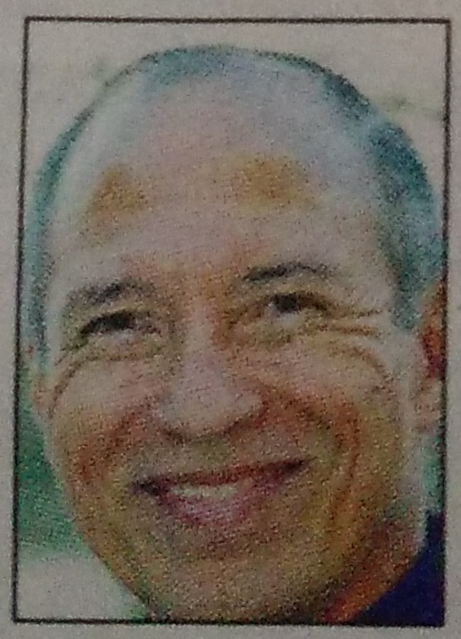
Krauser



Vegas

RON WEBER

Ron Weber has been named the 2016 executive board president of the Sierra Nevada Concrete Association.

Weber currently is senior sales representative for the admixture division of BASF.

He graduated from West Virginia Wesleyan University.

Also elected to the board were: Brent Coulson, Euclid Chemical, secretary and vice president; and Keith Comphel, CEMEX, treasurer.

Vance DeMars of 3D Concrete is past president.

MICHELE SULLIVAN
TABITHA CARLISLE

Michele Sullivan and Tabitha Carlisle have joined the staff of Truckee Meadows Water Authority (TMWA).

Sullivan was named chief financial officer and is replacing Jeff Tissier, who will be retiring this year.

Sullivan, who has more than 25 years experience in accounting, most recently served as senior manager of corporate accounting with International Game Technology (IGT). She also worked as an independent accounting consultant, as chief accountant for FMC Gold, and began her career at Ernst & Young.

She earned a bachelor's of science degree in accounting from California State University, Sacramento.

Carlisle was named TMWA's controller.

She has worked with companies such as PricewaterhouseCoopers, IGT and Fusion-io.

Carlisle earned an MBA/master of accountancy and information systems from Arizona State University.

KELVIN DUSHNISKY

Kelvin Dushnisky has been appointed to the board of directors for Barrick Gold Corp.

Dushnisky, who has more than 25 years of international mining

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Dry February prompts water forecasters to dial back expectations

Buy Photo

(Photo: Jason Bean/RGJ)

Old man winter took a step in the wrong direction in February, at least from the perspective of people hoping for a bigger snowpack.

With only one real storm so far this month experts are dialing back water forecasts for Lake Tahoe and the Truckee River. It's a departure from the El Nino conditions credited with helping winter snowpack get off to a strong start through January.

That's according to the latest from the Nevada Natural Resource Conservation Service, which issues stream forecasts and snowpack analyses.

"We went from the forecast being slightly above average to a little below," said Jeff Anderson, snow survey hydrologist.

According to the latest forecast, which captured information from the most recent storms, Lake Tahoe is most likely to receive 92 percent of average inflows before it peaks for the year, down from the 99 percent forecasted on Feb. 1.

The Truckee River flow forecast for April through July fell from 102 percent of normal to 83 percent.

With the months of January through March generally responsible for producing the bulk of the region's winter precipitation there's still time for the numbers to bounce back.

For now, though, the odds are against significant storm activity in the next six to 10 days, according to the National Weather Service Climate Prediction Center.

The three-month outlook, however, calls for a slightly higher-than-normal chance the region will see higher-than-normal precipitation.

"Their models are still showing that March should be a wet month, hopefully that comes true," Anderson said.

A more complete look at snowpack and what it means for streams this spring is expected in early March.

Home made

Sewer plant to produce fertilizer and electricity

By Kelsey Fitzgerald

This article was published on 02.25.16.

With the local food movement going strong in Northern Nevada, could local fertilizer be the next big thing? In March, the Truckee Meadows Water Reclamation Facility will begin production of Crystal Green, a phosphorus-based plant fertilizer made from, well, the stuff that goes down the pipes when we flush our toilets. Working with a Canadian company called Ostara Nutrient Recovery Technologies, TMWRF will mine phosphorus and small amounts of nitrogen and other nutrients from Truckee Meadows wastewater, precipitating the nutrients out to form small white fertilizer pellets.

"Basically, the phosphorus pellets are one of three components you'd buy at Home Depot in a bag of fertilizer: phosphorus, nitrogen, maybe a potash or potassium-type additive," explained Reno Public Works Department professional engineer David Kershaw.

At TMWRF, wastewater is processed by microorganisms as it travels through a complex series of tanks and digesters. Digested sludge is separated into a solid (called "cake") and liquid (called "centrate") via a centrifuge. The cake is then hauled off to Lockwood Landfill. The nutrient-rich centrate is where the fertilizer will come from.

"The centrate that comes off the digested sludge, the liquid part of it, it's kind of a dark beer color," said Kershaw. "That is really high in phosphorus and ammonia, nitrogen."

With new equipment purchased as part of a $24.9 million program to make improvements at the facility, TMWRF will produce approximately 2,000 pounds of Crystal Green pellets per day. The pellets will then be sold back to Ostara at a fixed price, providing income for the facility and helping to reduce costs in other ways.

"There's another current process to remove the phosphorus from the centrate," said Kershaw. "It uses a lot of a certain chemical, so [the Ostara process] will allow us to stop using that chemical, for the most part. It'll be a chemical cost savings there. Then, we'll be making the product and selling the product as well. So all that goes to offset the operating costs at the treatment plant."

Engineer David Kershaw stands near a new co-generation unit which will supply 30 percent of TMWRF's energy. PHOTO/KELSEY FITZGERALD

For information on the Truckee Meadows Water Reclamation Facility:http://cityofsparks.us/departments/community-services/tmwrf

For information on Ostara and Crystal Green:http://ostara.com/

Another component of the improvements at TMWRF is a new co-generation unit that will allow the facility to produce electricity by combusting methane gasses that come off the digester tanks. TMWRF had this capability in the past, but the previous system stopped working about 10 years ago. The replacement unit went online in late January, and will generate about one third of the power required to operate the plant, said Kershaw.

Although the cities of Reno and Sparks were fined in 2013 for water quality violations related to nitrogen discharges to the Truckee River, TMWRF is back in compliance. When the violation occurred, the facility was operating at 99 percent of its capacity to process nitrogen. Last year, according to Kershaw, the plant operated at about 82 percent of capacity, and should be able to handle projected growth for approximately the next 20 years—assuming no major changes occur in arriving water chemistry.

It's all about keeping the microorganisms happy, said Kershaw. "If the bugs aren't happy, which they weren't at the time, they're not as efficient. Since that time, we've identified the issues and implemented corrected measures."

DWR Increases 2016 SWP Allocation Estimate to 30%

Submitted by Pamela Martineau on Wed, 02/24/2016 - 4:58pm

in

- Water Supply Challenges
- All
- Water News

Winter storms have allowed the California Department of Water Resources to increase its estimated State Water Project water delivery allocation for most recipients to 30% of requests, up from a 15% estimate in late January, DWR announced today.

Officials warn water recipients, however, that extended dry weather could force an allocation reduction and the current remarkably dry February actually limited today's allocation increase.

"Today's increase, although good news, does not mean the drought is ending," DWR Director Mark Cowin said in a written statement. "After more than four dry years, we still have a critical water shortage. We need a lot more wet weather this winter to take the edge off drought. Using water carefully and sparingly is still the quickest, most effective way to stretch supplies."

In December, DWR made an initial allocation estimate of 10%.

According to DWR, the 29 public agencies that receive SWP water requested 4,172,786 acre-feet of water for 2016. With today's allocation increase, they will receive 1,268,724 acre-feet. The 30% allocation announced today may be increased if storms bring more rain and snow.

DWR also stressed in its statement that outdated water delivery infrastructure in the Sacramento-San Joaquin Delta affected the new allocation increase. SWP pumping in the Delta has been limited this winter in order to minimize harm to native fish species. DWR estimates that 458,000 acre-feet of water – enough to supply 3.4 million people for

a year – could have been captured if the new intakes, tunnels, and operating criteria proposed by California WaterFix had been in place. That project proposal is now undergoing environmental review.

Officials also stated that there is no exact formula for ending the drought and conditions vary region by region, but a rough guidepost is that approximately 150% of average winter precipitation – rain and snow – would significantly ease statewide conditions, with the major exception of groundwater depletion.

Key reservoirs are rising from early winter storms, but most remain low. Lake Oroville in Butte County, the SWP's principal reservoir, early this morning was holding 1,808,410 acre-feet, 51% of its 3.5 million acre-foot capacity and 74% of its historical average for the date. Shasta Lake north of Redding, California's and the federal Central Valley Project's largest reservoir, was holding 2,690,554 acre-feet, 59% of its 4.5 million acre-foot capacity and 82% of its historical average.

San Luis Reservoir, a critical south-of-Delta pool for both the SWP and CVP, reflects the same trend of lower reservoir storage this year. San Luis was holding 854,623 acre-feet, 42% of its 2 million acre-foot capacity and 50% of normal for the date. Folsom Lake, a CVP reservoir near Sacramento, has risen to 64% of its 977,000 acre-foot capacity, 117% of its historic average for the date. Folsom fills more rapidly than many other reservoirs due to its relatively small size compared with its huge watershed.

Last year's 20% allocation was the second lowest since 1991, when agricultural customers of the SWP got a zero allocation and municipal customers received 30 percent of requests. In 2014, SWP deliveries were 5% of requested amounts for all customers.

The last 100% allocation – difficult to achieve even in wet years largely because of Delta pumping restrictions to protect threatened and endangered fish species – was in 2006.

Judge orders release of turf removal rebate data

Posted: Feb 26, 2016 7:46 AM PST Friday, February 26, 2016 10:46 AM EST*Updated: Feb 26, 2016 7:46 AM PST* Friday, February 26, 2016 10:46 AM EST

LOS ANGELES (AP) - A judge has ordered the release of the names and addresses of Los Angeles residents who received turf removal rebates aimed at helping drought-plagued California conserve water.

The Los Angeles Times reports Friday (http://lat.ms/1Qi8rBM) that Superior Court Judge James Chalfant said the Metropolitan Water District of Southern California must release the data but granted a temporary exemption to more than two dozen law enforcement officials.

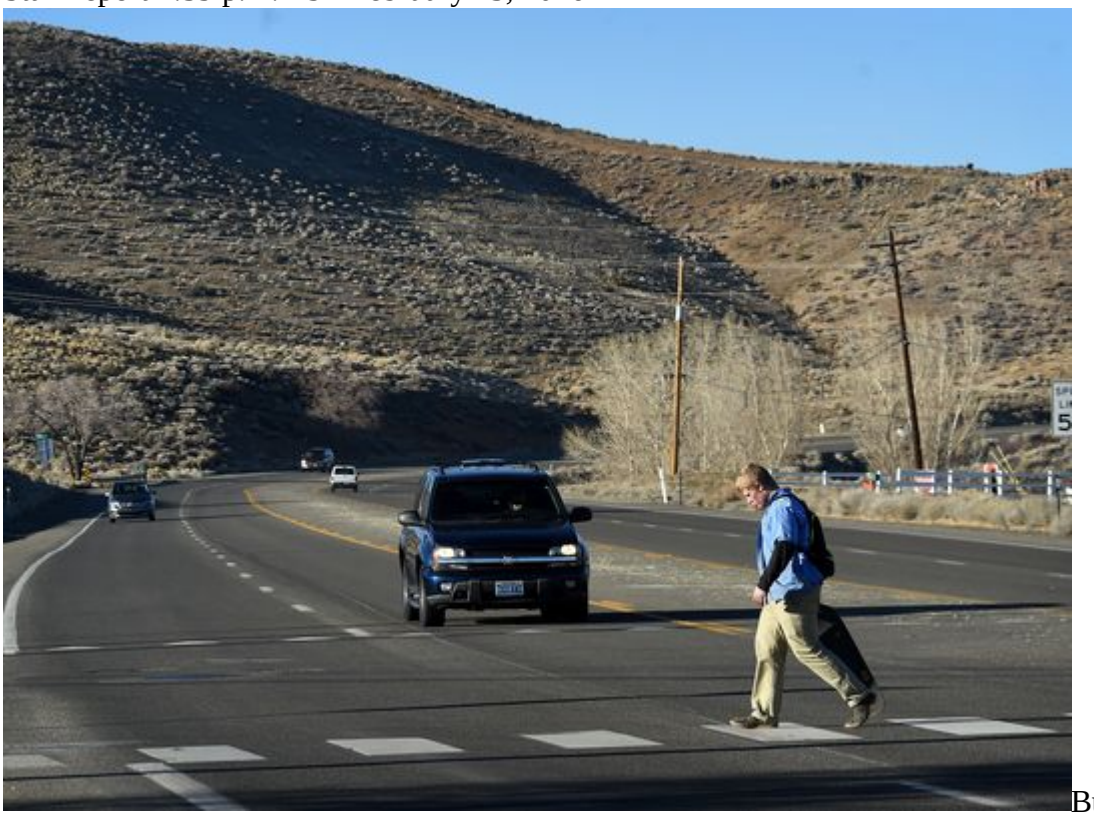
The ruling follows a seven-month legal battle after the Los Angeles Department of Water and Power sued to prevent the district from releasing the information to the San Diego Union-Tribune.

Chalfant had found the public interest outweighed the case for keeping the data confidential. Other agencies belonging to the district have already released such data.

Information from: Los Angeles Times, http://www.latimes.com/

RGJ staff win watchdog, public service awards

Staff report 2:59 p.m. PST February 25, 2016

 Buy Photo

Jason Bean/RGJPedestrian Michael Irwin crosses North Virginia Street at Hoge Road while making his way home from work on Jan. 7. Irwin, who crosses this stretch of road twice a day, said motorists are driving quickly and usually fail to yield or stop. Pedestrian Michael Irwin crosses N. Virginia at Hoge Rd. while making his way home from work in Reno on Jan. 7, 2015. Irwin, who crosses this stretch of road twice a day, claimed that this particular crossing is very dangerous as motorists are traveling quickly and usually fail to yield or stop.(Photo: Jason Bean/RGJ)Buy Photo

The Reno Gazette-Journal staff won recognition in the annual Best of Gannett awards, which honor the outstanding work of the 92 Gannett newspapers across the country. The RGJ was among the top winners, receiving four awards, including for public service and watchdog reporting.

The awards were:

First place for public service reporting, for a series of articles looking at Truckee Meadows water use in a time of serious drought. Reporter Jeff DeLong and content coach Brian Duggan broke

down the data of thousands of Truckee Meadows water users to ascertain that water use had increased during the drought, and pinpointed some of the worst offenders, including an unused private golf course in southwest Reno that used more than six million gallons of water in a year. Adding to the reporting was the public outreach by Engagement Editor Mark Robison, which included creating a Water Savers Club and engaging local Girl Scouts on education projects.

Third place for watchdog reporting, for government reporter Anjeanette Damon's investigation into deadly intersections. Damon examined years' worth of accident reports to uncover the deadliest stretches of road in the Truckee Meadows, and uncovered that officials had largely ignored recommendations for improvements. Her reporting evoked outrage from Gov. Brian Sandoval, and helped get a crossing light installed at one site where several pedestrians had been hit.


A GANNETT COMPANY SUNDAY, JANUARY 11, 2015 • ONLINE AT RGJ.COM

RGJ INVESTIGATES

DANGEROUS CROSSINGS

12 Northern Nevada pedestrians were killed in

Government reporter Anjeanette Damon's investigation into deadly intersections brought a Best of Gannett award. (Photo: RGJ)

Second place in the category that recognizes smart use of digital and print to tell news stories, awarded to reporter Jenny Kane and photographer Andy Barron for their coverage of Burning Man. From the controversy over VIP accommodations for government officials to compelling photos of Burners on the playa, Kane and Barron covered every angle. Among the innovative features was a "What's Your Playa Name" generator.

First place in the category that recognizes innovation in reaching new readers, with The Reno Memo. Written by content coach Brian Duggan and community content editor Brett McGinness, with support from Executive Editor Kelly Scott, Consumer Experience Director James Ku and Audience Analyst Caren Roblin, the newsletter reshapes content and presents it in a smart, fun read that makes the news a must-read three days a week

Why did Spanish Springs septic conversion stop?

Mark Robison/RGJ

Mark Robison, mrobison@rgj.com6:32 a.m. PST February 29, 2016

(Photo: Provided by Washoe County)

What happened to plans in Spanish Springs to convert homes away from septic and toward sewer because of rising nitrate levels in groundwater?

• **Short answer:** Funds dried up to help homeowners with the cost of conversion so the number of homes on septic in Spanish Springs has changed little in the past decade. For about 20 years, new developments have been required to install sewer connections. Nitrate levels are higher now in some areas.

Full questions

John Bilka writes, “When we moved to Spanish Springs 10 years ago, we were told many of the homes here were on septic systems (and that) because of the amount of nitrates these systems released into the soil, they would have to be replaced. ... A surcharge was to be added to our sewer bills to pay for upgraded sewer systems. Ten years later, I see very few of these homes being connected to a sewer system. What happened? With new developments hooking to the sewer system, will there be enough capacity to handle the septic tank conversions?”

Full reply

To learn more, I spoke multiple times with Dwayne Smith, engineering and capital projects director with Washoe County. What follows is a quick summary of the history as told by Smith followed by a deeper look at Bilka’s concerns.

In about the year 2000, Spanish Springs residents showed up at a town hall meeting and tore into Washoe County staff over reports of high nitrate levels in the groundwater.

Studies were done, reports made and a 10-phase plan was created to convert septic users over to sewer. The first phase involved 168 homes closest to existing sewer lines, meaning they would cost the least to convert.

The overall project was estimated to cost $50 million. Federal grant money in the amount of $3 million was secured to help the first phase of homeowners, lowering their cost to around $5,000 each to connect to sewer.

And here is where the story basically ends. No more grant money was found, the cost is generally prohibitive otherwise and so no one else converted.

Smith said that after funding issues, “the second biggest problem is there’s no regulatory mechanism currently in place that requires the conversion from a septic system to the municipal sewer once a sewer line is available to connect. There is nothing that compels them (homeowners with septic) to do it.”

New developments are another matter. In the late 1990s, planning rules were changed to require all new developments in Spanish Springs to connect to municipal sewer. The farthest sewer lines go is to the Pebble Creek subdivision on the north end of Spanish Springs.

As for where things stand now, there are about 4,540 municipal sewer customers in the unincorporated Spanish Springs area of Washoe County. This compares with about 2,880 sewer customers in 2000, Smith said.

This year, he said, the number of homes on septic systems is 2,189, a little lower than the 2,260 homes on septic in 2000. Smith attributes the decrease to people who converted in that first phase.

In other words, Bilka’s impression is correct that there have been little to no conversions from septic to sewer since he moved to Spanish Springs.

Nitrates

The point of all this action was to address nitrates in the groundwater. They are “regulated in drinking water primarily because excess levels can cause methemoglobinemia, or ‘blue baby’ disease,” according to a report by the Cornell University Cooperative Extension.

They do not pose a direct threat to older children or adults. Nitrates do occur naturally in water but can also come from fertilizer, manure at agricultural operations and septic systems.

“Septic systems also can elevate groundwater nitrate concentrations because they remove only half of the nitrogen in wastewater, leaving the remaining half to percolate to groundwater,” the Cornell report says.

Smith said efforts to recharge the water table can cause nitrate concentrations to be diluted, but this is partially counteracted by septic systems that raise levels. This means some areas have lower nitrate levels than in 2000, others more, depending on geologic features, drainage and additional factors.

"In those areas where the nitrate levels have gone up, this is where you have residential septic systems and there is no recharge and there are naturally occurring nitrates," he said.

More nitrates sounds like a problem.

Smith said that this would only affect people in Spanish Springs on wells, but "by far the majority are on city water where we see these concentrations of septic systems."

In other words, the people in areas with higher nitrate concentrations are almost all on municipal water, not wells. The municipal water is tested to be as good or better than federal nitrate limits.

"There are no water quality standards for domestic wells," Smith said. "For anybody on a domestic well, it's suggested that they occasionally check their water, not just for nitrates but for arsenic and magnesium. That way you know what you need to do with the information."

He said that people on domestic wells often use reverse osmosis or other filtration methods to treat their water.

Surcharge

Regarding the claim about a sewer surcharge, that is incorrect.

"There was no surcharge that was placed regarding the sewer system," Smith said. "It could be he's got a surcharge associated with the storm system. It's referred to on the sewer bill as the North Spanish Springs Flood Detention Facility. It's $9.31 for everybody in Spanish Springs that lives within the Spanish Springs hydro basin."

For residents who converted to sewer in the first phase, there was a "Special Assessment District" item on their taxes but it was paid by no one else, Smith said.

Conversion capacity

Bilka's last concern was to understand whether there is enough capacity in the treatment system if 2,189 homes with septic suddenly convert to sewer.

The city of Sparks treats the sewage coming out of Spanish Springs. Sparks spokesman Adam Mayberry said by email, "There is sufficient capacity allocated to allow for septic conversions and growth in the unincorporated Washoe County (Spanish Springs) service area. If development trends in that area turn to higher density residential and multi-family uses, that remaining allocation could be used up quicker, resulting in less capacity available to convert existing septic systems to sanitary sewer service."

Smith added that the agreement between the county and Sparks for conveying sewage is capped at 8,495 residential connections. If Spanish Springs' population grows too much, this limit could be reached.

In other words, there may not be enough capacity to convert all the septic systems to sewer in Spanish Springs if the population booms there.

County Chairwoman Kitty Jung and Commissioner Vaughn Hartung have asked for an update on this issue, and Smith said a "presentation will likely be in the next couple of months."

TMWA Wells Used to Recharge Aquifers

Posted: Mar 01, 2016 3:34 PM PSTUpdated: Mar 01, 2016 10:36 PM PST
By Paul Nelson
CONNECT

Since 1993, the Truckee Meadows Water Authority has been using wells to pump water into the ground. About 90 wells are spread around Reno and Sparks, used when the Truckee River does not meet the demand.

Now, they are being used for storage.

"We're looking at restoring groundwater flow in the aquifer, putting water back into the system," Paul Miller, TMWA Manager of Operations and Water Quality said.

TMWA puts the water back into the ground from about October to March. About four times as much water is used during the summer than in the winter. That allows about 10 million gallons per day of treated water to be saved underground.

"We're able to use the excess treatment capacity, produce more treated surface water, spread it throughout the distribution system, and put it back into 20 different sites across town," Miller said.

Miller says they would like to double the amount of wells, used for recharging the aquifers. 4,000 acre feet of water were pumped into the ground, last year. A typical well has a pipe for pumping the water out, but water cannot go both ways. That is why another pipe is installed, allowing water to bypass the system and flow into the ground.

"It's invaluable," Miller said. "It's just another asset of our water supply that we can rely upon during times of need."

One pump house can inject 310-325 gallons of water into the well, per minute. The levels are observed in the control room, where the treatment plant and distribution center are monitored, 24 hours a day. The control room shows where the water mains are, throughout the Truckee Meadows, and allows TMWA to check the water levels in each well.

Keeping them full can be very important, down the road.

"We always say we treat groundwater like money in the bank," Miller said. "We only use it when we have to but we like to operate the wells, keep them in service, keep them utilized. We use them for different reasons, just to keep them in place all the time, so that they're ready when we do need them."

Warm month saps Sierra snowpack, late winter storms needed

Warm, sunny February pushed the Sierra Nevada snowpack below median levels for the date. Snow lovers and water experts March storms prompt recovery. Benjamin Spillman/RGJ

Benjamin Spillman, bspillman@rgj.com 6:51 a.m. PST March 1, 2016

Jeff Anderson of the Natural Resources Conservation Service measures snowpack at the Mt. Rose Snotel site on Feb. 29, 2016.(Photo: Benjamin Spillman/RGJ)Buy Photo

An unusually warm and sunny February took a toll on the Sierra Nevada snowpack, leaving mountain snow lovers to hope for a comeback in March.

Measurements Monday at the Snotel site on Slide Mountain at Mt. Rose Ski Tahoe showed a little more than 31 inches of water content in the snowpack. That translates to 96 percent of the median for the site.

It's a number that looks good at first glance, but it's coming after a month that was warm, sunny and had just one significant storm.

While the Slide Mountain site, which is situated at more than 8,800 feet, managed to retain coverage during the warm month lower level sites showed more melting.

RENO GAZETTE JOURNAL

Watch: Sierra snowpack took beating in February

Overall, the Truckee River Basin fell to 87 percent of median for the date for the first time this season the Tahoe Basin fell below 100 percent of normal, landing at 99 percent on Monday, according to Jeff Anderson of the Natural Resources Conservation Service.

"We are definitely slipping," Anderson said.

There is hope on the horizon, with the National Weather Service Climate Prediction Center calling for colder-than-normal temperatures and greater-than-normal precipitation in the Sierra Nevada in the eight to 14-day forecast.

"The forecast looks good but forecasts can change," said Chad Blanchard, federal water master in Reno. "We just have to wait for it to actually snow and get on the ground."

February was a drastic change of pace for winter weather in the Sierra Nevada.

After December and January produced numerous cold, snowy storms the snowpack was above normal by the beginning of February.

On February 1 the snowpack at Mt. Rose was 124 percent of normal. The Lake Tahoe basin was 135 percent of normal and the Truckee River basin was 114 percent of normal.

"We started out pretty good in the early part of the winter and we dried out significantly," Blanchard said.

The evidence bears out not only in the numbers posted by Snotel measuring stations but in observations by anyone who lives in or visits the region.

Snow is disappearing from the lower slopes and roadsides that just a few weeks ago were piled high with snowbanks have been reduced to muddy messes.

"You've certainly seen the snowmelt retreat up the mountains from Reno," Anderson said. "If you look at the southern aspects a lot of those have burned off."

With February in the books all hopes now turn to March.

The beginning of April is traditionally when water officials try to estimate how much water will be available for the coming summer.

That means March likely represents the last gasp for the winter of 2015-16.


Buy Photo

Jeff Anderson of the Natural Resources Conservation Service measures snowpack at the Mt. Rose Snotel site on February 29, 2016. (Photo: Benjamin Spillman/RGJ)

It will take multiple, significant storms for the region to notch its first above average winter since before the western drought set in about five years ago.

March isn't traditionally a huge snowfall month in the Sierra Nevada. But there are examples when a "miracle March," has saved winter.

The winter of 1990-91 is among the most often cited. That season, which also happened during a drought, March delivered about 50 inches of snow in the Lake Tahoe area.

"The average March precipitation drops off significantly but we still can have really big events," Blanchard said

After Flint, A Closer Look At Reno's Water Quality

By JULIA RITCHEY · MAR 3, 2016

<img src="http://kunr.org/sites/kunr/files/styles/default/public/201603/IMG_2456.JPG" alt="Paul Miller, manager of operations at the Truckee Meadows Water Authority, gives a tour of the Chalk Bluff Water Treatment Plant. The facility is one of the main sources of tapwater in Reno. ">

Paul Miller, manager of operations at the Truckee Meadows Water Authority, gives a tour of the Chalk Bluff Water Treatment Plant. The facility is one of the main sources of tapwater in Reno.

Credit Julia Ritchey

The Obama administration announced plans this week to step up its oversight of state agencies in charge of drinking water. This follows revelations earlier this year that authorities in Flint, Mich., repeatedly ignored evidence that lead-contaminated water was reaching the public. Reno Public Radio's Julia Ritchey spoke to some local water managers to get their thoughts on the Flint crisis and how they're working to keep our taps safe.

There are about 600 water systems in the state of Nevada, each in charge of following federal and state drinking water standards. That includes Northern Nevada's main utility, the Truckee Meadows Water Authority.

"So here's where water comes into the Chalk Bluff Plant — the Truckee River, maybe about 7 miles upstream, and comes into the Highland Canal, and the canal delivers it by gravity to this plant."

That's Paul Miller, TMWA's manager of operations and water quality. He's giving me a tour of the Chalk Bluff Water Treatment plant, where he's in charge of ensuring that water from the Truckee River is properly treated.

"All water treatment is is if you ever take a glass of water from the Truckee River and set it on a countertop, you'd see a cloudy glass of water, and it would just sit there and be cloudy," he says. "But once you add this coagulant, it helps those particles grow together and then become larger particles. Then we settle them out and then we filter them out."

Chalk Bluff is the main source of tap water for this area, serving more than a third of TMWA's 330,000 customers.

"When I first heard about Flint, I was incredulous. I go: 'How could something like that happen?'"

<img src="http://kunr.org/sites/kunr/files/styles/default/public/201603/IMG_2464.JPG" alt="TMWA's Paul Miller shows a lab inside the Chalk Bluff Water Treatment plant where water quality is tested daily. ">

TMWA's Paul Miller shows a lab inside the Chalk Bluff Water Treatment plant where water quality is tested daily.

Credit Julia Ritchey

Miller says he's been fielding more questions lately since the Flint crisis unfolded.

"And what TMWA doesn't have, and what everyone's been asking — and what they need to know — is there is no lead pipe within our system," he says.

Additionally, he says, the utility has an active corrosion control program and that most federal lead and copper rules are more specifically targeted at homes built before 1980 that may have older pipes.

In fact, conditions are different here than they are in Michigan, according to Jennifer Carr, deputy administrator for the Nevada Division of Environmental Protection.

“Very few water systems in Nevada have had an issue with lead. One of those things we get to enjoy is the fact that we have hard water in our area, and that generally makes it less corrosive naturally,” says Carr.

In Michigan, state officials decided two years ago to save money by switching Flint's water supply to the Flint River, which was not being properly treated. As a result, the water eroded old iron and lead pipes, turning the tapwater brown and leeching contaminants into the supply.

Carr says although lead contamination is fairly rare in Nevada, there are a few problem areas.

“There’s a couple of communities in Douglas County in particular — subdivisions — that we’ve been working with to add corrosion control protection to their water system to eliminate that problem," she says.

For concerned homeowners who are on private wells or who may be in a home with older pipes, Carr says they can look up a lead-analysis lab to test their water. Another option is to use a filter.

“So we would just advise that anyone looking to purchase a filter for their home, to read the fine print to make sure the device is designed and certified to remove lead, because not all of them are.”

TMWA's Paul Miller says they release an annual water quality report online where customers can review the data. They've also been making millions of dollars in capital improvements to their delivery system.

"We're a community water system ... and we all drink the water. And when we go to a restaurant and they sometimes offer you a bottle of water, we say no, we'll drink the tap water. We like it."

Miller says he understands there's a huge degree of public trust when it comes to drinking water, especially after an event like the one in Flint.

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Why Not the *Best?*

A PRESIDENTS AWARD FROM THE PARTNERSHIP FOR SAFE WATER WAS A NATURAL RESULT OF COMMITMENT TO EXCELLENCE BY THE ENTIRE TRUCKEE MEADOWS TEAM

STORY: **Ted J. Rulseh**
PHOTOGRAPHY: **David Calvert**

The Truckee Meadows Water Authority Chalk Bluff Water Treatment Facility in Reno, Nevada.

SOMETIMES THE TRUCKEE RIVER FLOWS CLEAR. Other times it flows like chocolate milk. The change can take place within minutes. Whatever the river water's condition, the Truckee Meadows Water Authority turns it into drinking water at no more than 0.08 NTU.

The river water's variability is one big challenge facing the TMWA, which serves about 400,000 residents of the Reno-Sparks area in northern Nevada. Another is a drought that has persisted for four years, putting stress on water supplies. On both counts, the utility's 16-member operations team has come through, with lots of help from the rest of the 190-member staff and from customers who know the value of water in a high desert environment.

Most water heading to customers passes through conventional treatment at the 90 mgd (design) Chalk Bluff Water Treatment Facility. That plant, commissioned in 1994, received a 2015 Presidents Award for excellence in water treatment from the Partnership for Safe Water.

Paul Miller, manager, operations and water quality, says the award is a natural outcome of his team's dedication to quality. "It's a tribute to the operators and a testament to their pursuit of excellence," he says. "That pursuit of excellence is shared throughout the entire company."

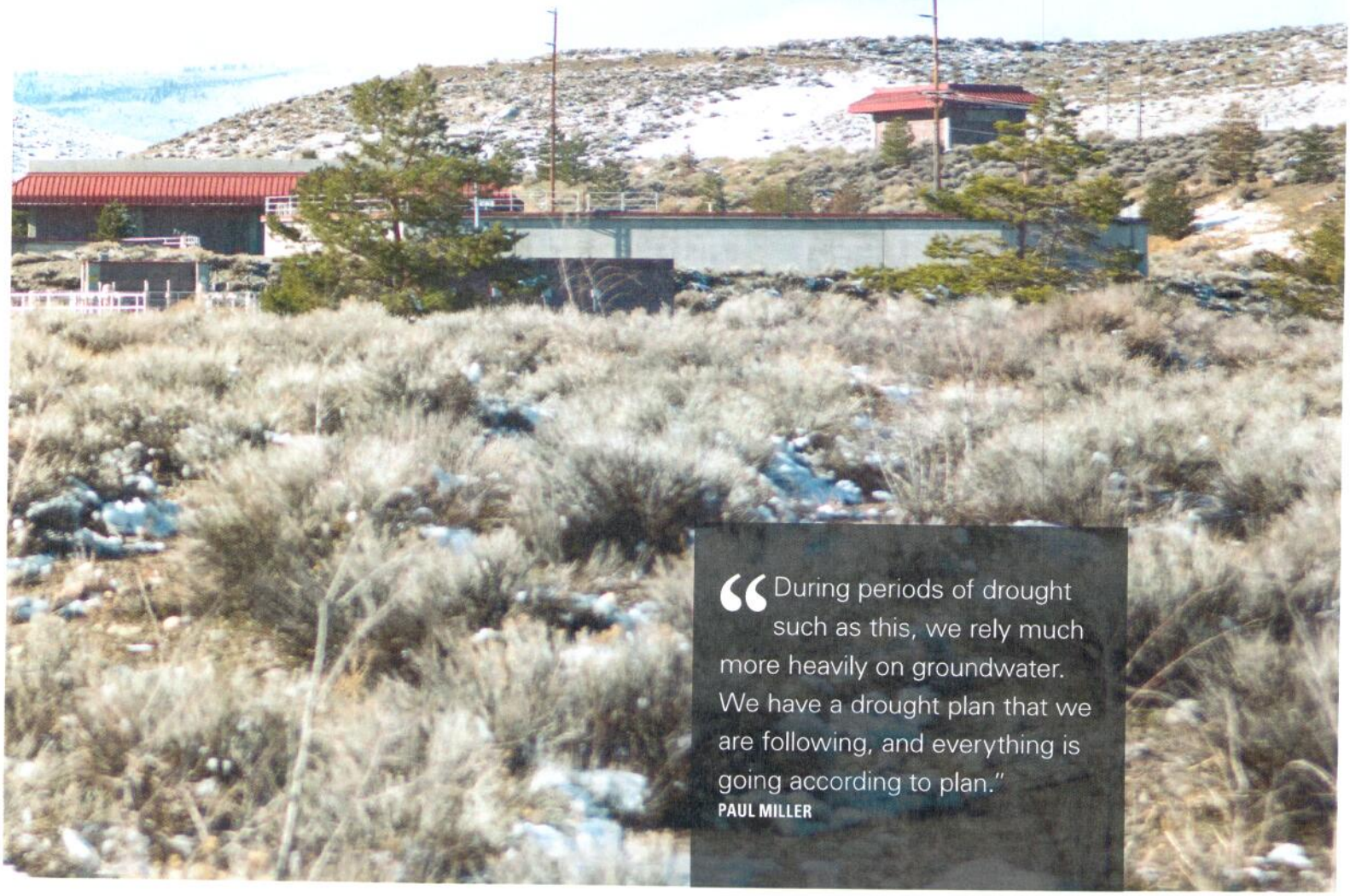
NEWLY EXPANDED

The TMWA was formed in 2001. In January 2015, the utility completed a consolidation with the Washoe County Department of Water Resources and the South Truckee Meadows General Improvement District. The merger aimed to reduce the cost of service and to maximize use of surface water resources across the region.

During non-drought years, the TMWA draws about 90 percent of its water from the Truckee River and the rest from 92 groundwater wells. Demand averages about 62.5 mgd but can peak at 125 mgd in summer. At such times, the utility calls on its 27 mgd (design) Glendale Water Treatment Facility.

Truckee Meadows Water Authority, Reno, Nevada

FOUNDED: |	**2001**
POPULATION SERVED: |	**400,000 (120,000 connections)**
SERVICE AREA: |	**8 communities, 2 water districts**
SOURCE WATER: |	**Truckee River, 92 groundwater wells**
CAPACITY: |	**65 mgd average, 125 mgd peak**
TREATMENT PROCESS: |	**Conventional**
DISTRIBUTION: |	**1,900 miles of pipeline**
SYSTEM STORAGE: |	**150 million gallons**
KEY CHALLENGE: |	**Maintaining supply during drought**
WEBSITE: |	**www.tmwa.com**
GPS COORDINATES: |	**Latitude: 39°30'23.67"N; longitude: 119°45'4.85"W**



"During periods of drought such as this, we rely much more heavily on groundwater. We have a drought plan that we are following, and everything is going according to plan."
PAUL MILLER

> "You wouldn't achieve this without having a committed team of people. It took an operations team fully on board to achieve this high standard 100 percent of the time."
> **PAUL MILLER**

Truckee Meadows Water Authority team members include, from left, James Bryant, apprentice operator; Jeremy Keele, operator; Paul Miller, operations and water quality manager; Will Raymond, water operations supervisor; Eric Mothershead, operations and maintenance supervisor; and Scott Knecht and Bill Hovda, operators.

TOMORROW'S OPERATORS

The Truckee Meadows Water Authority helps fill the pipeline for water operators through a state-certified apprenticeship program, in cooperation with the International Brotherhood of Electrical Workers union.

"We put candidates through a two-year program that includes the Sacramento State University curriculum," says Scott Knecht, operator III. "There are numerous milestones of achievement to be met each month. Work hours are aligned to the different disciplines in water treatment and distribution.

"All the hours are carefully calculated and recorded to enable participants to qualify for state certification. There are milestone tests that each apprentice has to take and pass. It's a very rigorous program." Apprentices rotate through day and night shifts and among four crews, gaining exposure to all facets of the processes.

"After the two years, they should have their Grade 2 state treatment and distribution licenses and be ready to go to work," Knecht says.

Openings for apprentices attract multiple applicants, from high school graduates on up to people with bachelor's and master's degrees in a variety of fields, says Knecht. "We look for people who want more than just a job. It takes a big commitment to make it work, but it's worthwhile. It's satisfying, it's a great career, and it's a great company."

"During periods of drought such as this, we rely much more heavily on groundwater," says Miller. "We have a drought plan that we are following, and everything is going according to plan. The best thing for this community is that we have stored surface water upstream in a number of reservoirs. We have used about 20 percent of that stored water during this drought. We've also asked our customers for a voluntary 10 percent reduction in usage. They have responded even better than we've requested."

All members of the operations team are dual-certified, licensed in treatment and distribution. Foremen are required to have Grade 4 certifications; all operators are certified to Grade 3. The team includes:

- Will Raymond, water operations supervisor
- Working foremen Tim Flanagan, Pat Kuykendall, Brian Luczkow and Ted Saxe
- Treatment plant operators III Kurtis Arnold, Mike Bryant, Travis Bunkowski, Darrin Garland, Ben Goodrich, Bill Hovda, Jeremy Keele, Scott Knecht, Michael Nevarez and Jimmy Winters (James Bryant is an apprentice operator)

RIVER'S CHALLENGES

Operating the Chalk Bluff plant means constantly watching raw water quality. The Truckee River flows out of Lake Tahoe and drains part of the high Sierra Nevadas. "You can imagine flowing from a mountain watershed with snow melt, how variable the raw water can be," says operator Knecht. "We get heavy thunderstorms in spring, and we have a fire-scarred watershed.

"Combine those two and you can get huge runoffs very quickly. We get some seriously dirty water. In minutes, we can go from 2 NTU up to 5,000 NTU — that's like thick chocolate milk. We continuously surveil the upstream watershed conditions for any problems coming down toward us so we can decide how to treat it, or even close the plant intakes and let the slug go by, if we can afford to. Usually, though, we treat the water."

Seasonally low raw water temperatures and wide diurnal pH swings add to the treatment challenges. The pH, driven by algae, can exceed 9 in the early evening and bottom out below 7 in the early morning. Despite all this, the imperative is to produce water that never exceeds 0.08 NTU.

TREATING WITH PRECISION

Water comes to the Chalk Bluff plant in a 6 1/2-mile concrete-lined canal and passes through coarse screens before entering two 2-million-gallon pretreatment ponds. Although their main purpose is gravity settling, the ponds

Frequent sampling and analysis helps the Chalk Bluff team know when to adjust the process to keep finished water quality consistent.

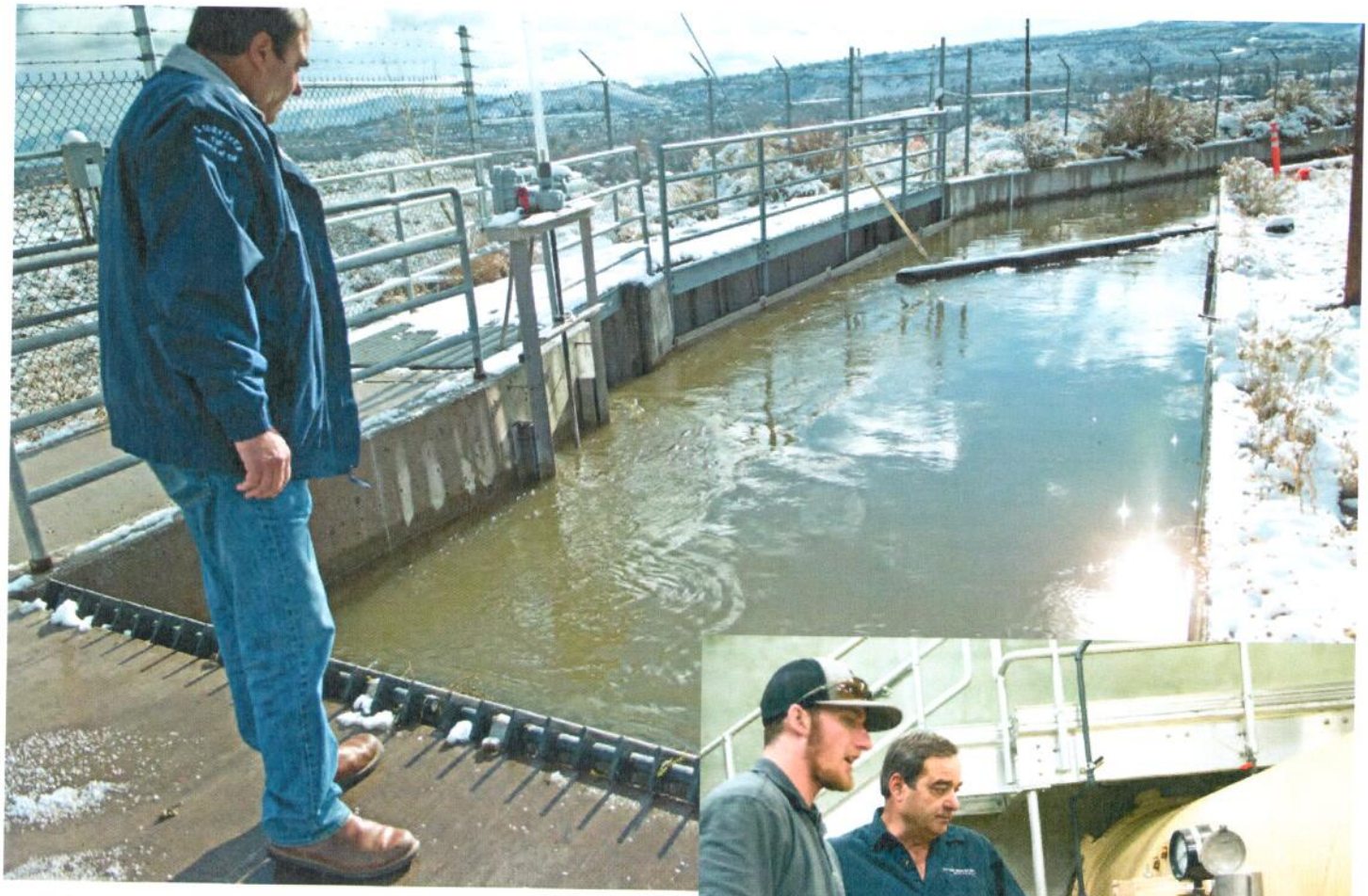
can be chlorinated to oxidize taste and odor (which can be caused by algae blooms in the river) or fed primary coagulant to speed settling (such as when the raw water is extremely turbid).

The water then passes through a pair of Envirex and Link-Belt fine, mechanically cleaned screens (WSG & Solutions) and is dosed with carbon dioxide as needed to bring the pH below 7.7. Next, the water enters two treatment trains where polyaluminum chloride coagulant is added. After flash mixing, the flow enters six flocculation/sedimentation basins. These are followed by 12 gravity filters containing 54 inches of anthracite and 10 inches of silica sand media, and licensed for a loading rate up to 8 1/2 gallons per square foot per minute.

The filtered water is disinfected with sodium hypochlorite to achieve an overall 4-log pathogen removal/inactivation, then adjusted to pH 8 with soda ash before distribution to minimize potential leaching of copper and lead from customer piping.

FINE TUNING

A variety of measures helps ensure that water leaving the filters stays below 0.08 NTU. "We have turbidimeters (Hach) a few miles upriver so we can watch a plume of dirty water come down toward us," Knecht says. "In



ABOVE: Scott Knecht checks bar screens where raw water is delivered.
RIGHT: Knecht discusses the rapid mixer and jet diffuser with Dillon Hansen, apprentice operator.

the raw water canal, we have cameras and turbidimeters. Then we have turbidimeters throughout the plant, all the way through the process. We adjust our feed rates based on turbidity and flow, the temperature of the water, and the type of dirt that's in it, whether it's large or small, easy to treat or not."

Coagulant addition is flow-paced; jar tests also support dose determination. "We continuously change the dose, anywhere from 14 to 30 mg/L," says Knecht. "It's automated based on how much water is coming into the plant, as read by the flowmeters. Each metering pump is checked at least twice a day for accuracy to make sure those pumps are giving us exactly what we want."

Two streaming current detectors (Milton Roy) help operators regulate the coagulant feed rate and optimize flocculation and sedimentation. But pure operator observation helps, too. "Through experience, you can tell by the color how big or small the particles are and how easily they're going to settle," says Knecht. "We look at the floc continuously. When we have good treatment, it looks much like storm clouds and it goes right to the bottom of the sedimentation basin."

A Zeta potential analyzer (Brookhaven Instruments, a Nova Instruments Company) can be used to measure the electrical potential of particles in the water to help assess how well the primary coagulant is working.

To deal with extremely cold water, operators can add anionic and non-ionic polymers to aid coagulation and flocculation, or reduce the filter loading rate. A final line of defense is a fail-safe mechanism on the filters. If a turbidimeter on a filter detects turbidity rising toward the limit of 0.08 NTU, the effluent valve closes, a waste valve automatically opens, and the water is returned to the primary settling ponds while the issue is diagnosed and resolved.

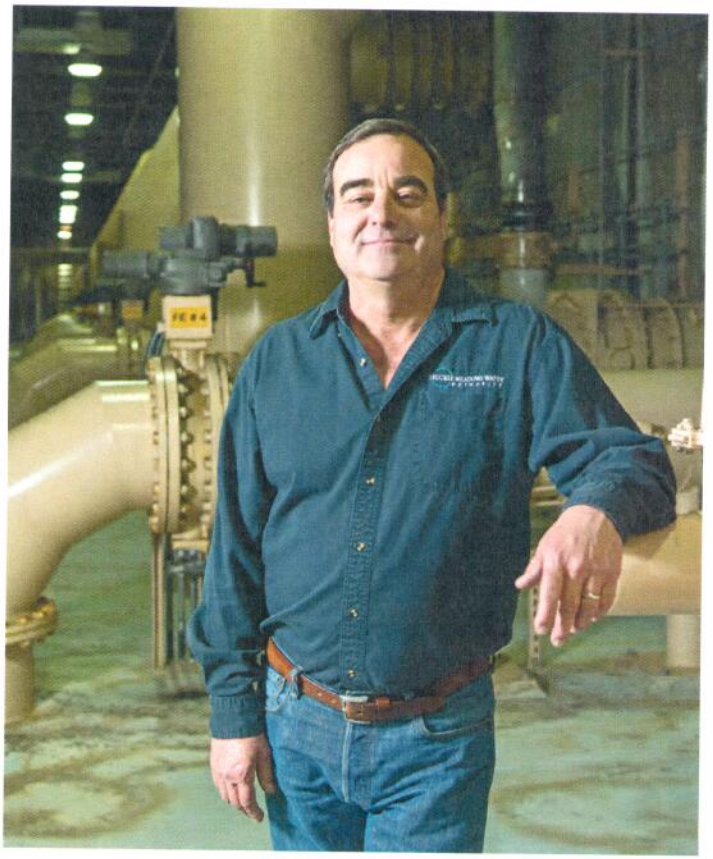
A SCADA system with Wonderware software (Schneider Electric - Invensys) with some 7,500 inputs oversees the distribution system and more than 90 storage tanks. Each day, the SCADA system distills flow data into a production number and a consumption number that, along with the weather forecast, helps the staff set the next day's production.

"We're on a fine tightrope," Knecht says. "We're using our drought resources stored upstream, and we have to husband those resources carefully. So our production/consumption numbers are critical for our planning. We don't have any water to waste. We need to plan how much we're going to make the next day."

QUALITY FIRST

The TMWA's focus on quality made pursuit of the Presidents Award natural, according to Miller: "We decided it was just the best a utility could do to protect public health and the best water we could offer to our customers, so we embraced the goal.

"We talked to the members of our firm and said, 'Look, we're going to embrace this and go the whole way with it.' I'm glad we did. I'm not an award-



Operator Scott Knecht and the Chalk Bluff team take pride in producing quality water in a fiscally responsible manner.

seeking individual, but it was a good goal for the utility. It's a good goal for any utility to try to achieve. When we received the award, I believe only 18 other utilities had won it. You wouldn't achieve this without having a committed team of people. It took an operations team fully on board to achieve this high standard (0.08 NTU) 100 percent of the time. They made it happen through some really challenging conditions over the last several years."

Knecht observes, "For the 14 years I've been with this company, every operator or apprentice has been really inculcated with the fact that water quality is job one. Yes, we try to do it in a fiscally responsible manner, but we simply don't cut corners when it comes to water quality. I'm sure everybody who works at TMWA feels the same. But as operators, we're on the front lines. It's ingrained in us that water quality will not be sacrificed for anything." tpo

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Submission to the Board: Clint Vanderford

We have worked with this customer and believe the issue is resolved. The representative was a bit abrupt and rude, so she has been counselled. Marci spoke with the customer and we were able to turn their water on. We waived the fee and apologized. Customer never mentioned the rude representative to Marci, but did mention that they didn't like our website. We will look into his complaint and make adjustments if warranted.

Thanks!

Andy Gebhardt
Director Customer Relations
Truckee Meadows Water Authority
1355 Capital Blvd. I Reno, NV 89502
O: (775) 834-8007, M: (775) 230-3699
agebhardt@tmwa.com I www.tmwa.com

-----Original Message-----
From: Marlene Olsen [mailto:marlene@goodstandingoutreach.com]
Sent: Wednesday, February 17, 2016 9:09 AM
To: Charpentier, Robert; Gebhardt, Andy; Mazeres, Kim
Subject: FW: Worst Customer Service

This is in your court, however, I could send a message that I have passed this along to the appropriate staff member and they will be in touch.....

Marlene Olsen
GoodStanding Outreach
775-829-2810
775-772-0020-cell

-----Original Message-----
From: Clint
Sent: Wednesday, February 17, 2016 8:58 AM
To: tmwaboard@tmwa.com
Subject: Worst Customer Service

We are very disappointed with your customer service especially your supervisor Linda.

We did not get our service turned on on-time because you couldn't complete a call.

We filled out the online form several days in advance but you claimed you tried to call us and it didn't go through. A very, very weak excuse.

Since you couldn't complete a simple call to us and couldn't be bothered to try twice we are stuck with a $50 activation fee and a bitter experience.

Again, very very disappointed.

Clint A. Vanderford, PEtx