EXECUTIVE OFFICER'S REPORT • December 2019
Covers October 16, 2019 – November 15, 2019

Contents

State and Regional

1. Personnel Report – *Eric Shay*

New Hires

- Mark Lemus, Water Resource Control Engineer, Wastewater and Agricultural Operations Unit, Victorville. This position provides regulatory oversight of projects involving discharges to groundwater or surface waters and projects intended to restore and/or enhance water quality in the Waste Discharge Requirements (WDRs), National Pollutant Discharge Elimination System (NPDES), and Site Cleanup Programs.

Promotions

- Mark Minsky has promoted from Staff Services Analyst to Associate Governmental Program Analyst. In this position, Mr. Minsky will implement and maintain cost tracking systems related to Leviathan Mine activities; develop contracting and funding mechanisms related to Leviathan Mine capital outlay projects; and develop a financial assurance compliance and enforcement program for the Land Disposal Program.

Vacancies – We are currently recruiting for the following positions:

- Scientific Aid, Planning & Assessment Unit, South Lake Tahoe. This position assists with the collection, preparation, and chemical analysis of water samples;

creates maps to display and analyze data; updates TMDL reporting products; and assists staff with data management and analysis tasks.

- Scientific Aid, Cleanup/Site Investigation & Enforcement Unit, South Lake Tahoe. This position assists staff with administering the site cleanup, underground storage tank, land disposal, and enforcement programs; reviewing reports, and maintaining databases; reviews self-monitoring reports for cases, permits and enforcement actions; reviews project files and water quality data to prepare for field inspections and permit updates; assists with field inspections; and reviews California Environmental Quality Act documents.
- Water Resource Control Engineer, Forestry Unit, South Lake Tahoe. This position will be focused on implementing the Water Board's elements of recent legislation (SB 901) related to increasing the pace and scale of forest fuels treatments.
- Engineering Geologist, Forestry Unit, South Lake Tahoe. This position will be focused on implementing the Water Board's elements of recent legislation (SB 901) related to increasing the pace and scale of forest fuels treatments.
- Environmental Scientist, Forestry Unit, South Lake Tahoe. This position will be focused on implementing the Water Board's elements of recent legislation (SB 901) related to increasing the pace and scale of forest fuels treatments.
- Engineering Geologist, Land Disposal Unit, Victorville. This position will be part of a team that provides regulatory oversight for the land disposal, site cleanup, storm water, and dredge/fill programs in the South Lahontan Basin.
- Senior Environmental Scientist (Supervisor). This position oversees the Non-Point Source Unit, whose tasks include issues such as grazing, harmful algal blooms, 319(h) grants, Lake Tahoe Total Maximum Daily Load (TMDL), Lake Tahoe nearshore, Mono Lake, and management of our in-house laboratory.

Departures

Kathy Otermat, Executive Assistant, has accepted a position with the Department of Motor Vehicles.

North Lahontan Region

2. Emergency Cleanup – Meyers Fuel Tanker Truck Crash Site – *John Steude*

A fatal vehicle collision involving a fuel tanker truck hauling 7,700 gallons of gasoline occurred on the Highway 50 bridge over the Upper Truckee River on September 7, 2019 near the town of Meyers (Figure 2.1). The truck overturned during the collision, releasing gasoline from the trailer and diesel from the truck's fuel tank, which caught on fire and flowed to lower elevations. Fuel flowed along the Highway and down a soil and rock embankment to the bank of the river within a few feet of the flowing water. All observations and data collected during the incident and subsequent cleanup indicate the fuel did not directly reach the water in the river. Approximately 1,700 gallons of fuel were recovered from the trailer after the fire was extinguished indicating approximately 6,000 gallons burned or infiltrated into the ground. The Lake Valley Fire Department and the City of South Lake Tahoe Fire Department extinguished the fire following standard industry practice in such an emergency by applying Aqueous Film Forming Foam (AFFF-Figure 2.2). Fuel and AFFF also flowed into the stormwater drainage system near the

crash site including drop inlets and a rock-lined drainage ditch. These stormwater conveyances discharge to meadow areas adjacent to the River.

AFFF contains a class of emerging contaminants known as per- and poly-fluoroalkyl substances (PFAS). PFAS has become a rapidly evolving environmental health concern in drinking water across the nation, primarily at fire-fighting training facilities and military bases where PFAS have been applied in the same location over many years.

Immediately following notification of the incident, Hunt and Sons, Inc. trucking company dispatched environmental consultants, Apex Envirotech, Inc., and hazardous waste removal experts, Fremouw Environmental Services, Inc., to conduct emergency remediation and restoration efforts.

Staff from the U. S. Environmental Protection Agency, California Fish and Wildlife, and the Water Board responded to the crash site and formed a Joint Incident Command Team to conduct oversight of the environmental cleanup and restoration. Stakeholders with property and infrastructure affected by the fuel release and fire include the California Department of Transportation, El Dorado County, California State Parks, and the California Tahoe Conservancy. These stakeholders also provided staff to assist with the environmental cleanup and restoration efforts. Caltrans provided traffic control and restoration of the bridge and highway.

Fremouw Environmental Services, Inc. excavated approximately 400 cubic yards of soil impacted with fuel and AFFF. Some inaccessible areas were treated with hydrogen peroxide to break down the petroleum hydrocarbons to inert compounds. Excavation, soil treatment, and confirmation sampling were completed on September 24, 2019 and the site was backfilled and restored by October 1, 2019.

Confirmation sampling results for petroleum hydrocarbons following excavation and treatment actions indicate the petroleum released at the site has been adequately cleaned up. However, residual AFFF in soil at the stormwater drop inlet and drainage ditch areas remain a concern. Plans are being developed to address the residual AFFF in soil near stormwater drop inlets and the rock-lined ditch.

All work performed during the cleanup and restoration has been voluntary and based on consensus with the regulatory agencies. All stakeholders involved have been helpful and cooperative.

Figure 2.1 – Aerial View of Crash Site (source: KOLO News 8)

Figure 2.2 – Application of Aqueous Film Forming Foam (source: CDL Life News)

3. **Annual California Aquatic Bioassessment Workgroup Conference –** *Alanna Misico*

The California Aquatic Bioassessment Workgroup (CABW) celebrated its 26th annual meeting this year on October 23-24, 2019. Staff attended Day One of the two-day conference. Relevant topics included fire effects on water quality and supporting management decisions with bioassessment data. Staff member Alanna Misico attended the conference.

Angela De Palma of Lake County Water Resources Department and Alisha Wenzel of the Central Valley Regional Water Board discussed results of water quality monitoring in fire affected landscapes. Post-fire monitoring was performed by state, federal and local entities at several sites within the Camp Fire and Mendocino Complex Fire areas to assess impacts to drinking water sources, to ensure public safety, and to determine the impacts on local fisheries. The sites were also monitored during storm events throughout the wet season. Total Phosphorus (TP) and Aluminum concentrations were elevated at several locations during post-fire sampling events. Aluminum and other trace metal contaminates are often a byproduct of structure fires. Fire retardants are potential contributors of TP loading; however, it is difficult to quantify the amount of loading, especially at sites with no pre-fire data. Climate change has also intensified dry-season conditions in California, leading to more disastrous fires and increasing use of fire retardants. The impacts of the increasing use of fire retardants to fisheries and water quality is largely unknown due to lack of research on the subject. Researchers are seeking funding to further investigate this issue.

Key findings from the presentations included the importance of quick collaborations with multiple agencies to perform post-fire monitoring, the need for immediate installation of Best Management Practices to prevent post-fire runoff, and the need for pre-fire data to compare to post-fire results. The presenters recommend that post-fire monitoring take place for 3-5 years following a fire event.

Raphael Mazor of the Southern California Coastal Water Research Project (SCCWRP) presented on Stream Quality Index (SQI) and the importance of rapid communication of scientific data to the public. SCCWRP is working to make bioassessment data easier to interpret for non-scientists without losing valuable information. The SQI was published in July of 2019 and uses physical, chemical, and biological data (including the California Stream Index and the Algal Stream Condition Index) to determine overall stream health. The new assessment tool provides an integrated assessment of the three key lines of evidence and will allow water quality managers to identify potential impacts and help prioritize concerns in a timelier fashion.

To read the full article please see link below

http://ftp.sccwrp.org/pub/download/DOCUMENTS/JournalArticles/1091_SQIJournal.pdf

To learn more about the Statewide Bioassessment Monitoring Program and to obtain the meeting agenda please see the link below

https://www.waterboards.ca.gov/water_issues/programs/swamp/bioassessment/

4. **Carson River Coalition Seminar: River Projects / Successes and Funding Opportunities –** *Anne Holden and Cindy Wise*

The Carson River Coalition is a stakeholder group of the Carson Water Sub-conservancy District. The group held a seminar on October 23, 2019 in Carson City featuring speakers from the Alpine Watershed Group and the Carson and Dayton Valley Conservation Districts, who discussed restoration projects planned or implemented on the Carson River.

Successes highlighted during the seminar included recent projects on the West Fork Carson River in the Hope Valley area where eroding streambanks were stabilized and riparian vegetation was enhanced using a combination of bioengineering and rock revetments. The speakers also covered many of the challenges of implementing restoration projects in our alpine and high desert environments: the short growing season for re-vegetation, limited project implementation periods for instream work, and remote work environments driving up costs and complicating logistics.

The seminar also involved a restoration funding panel discussion comprising various state and federal representatives, including the state of Nevada's Conservation Department and Division of Environmental Protection, the federal Natural Resources Conservation Service and Lahontan Water Board staff Anne Holden and Cindy Wise. Water Board staff gave a presentation and answered questions on the 2020 funding available from the US EPA's annual Clean Water Act section 319(h) grant, and from the Timber Regulation and Forest Restoration (TRFR) grant. For the 2020 319(h) grant cycle, the statewide funding pool is anticipated to be approximately $4 million. These dollars are allocated to the State Water Board for nonpoint source pollution control projects statewide. Approximately $1 million is available within the State Responsibility Area (SRA) for TRFR grant projects that focus on forest health management and post-fire recovery. Staff provided information on the types of eligible projects, application requirements, and timelines for proposal review, grant award, and project implementation. The grant award process is very competitive, with typically more than twice the number of project applications received than can be funded. The request for project proposals and grant guidelines was released in late September 2019, and the application deadline is December 17, 2019.

The Carson River Coalition seminar was attended by over 50 participants and provided a good opportunity for Water Board staff to inform project implementers of this annual pool of nonpoint source pollution control funding.

5. Fall 2019 Soil Disturbance Prohibition Variances – *Dale Payne*

The Water Board grants variances to the soil disturbance prohibition for projects and activities occurring between October 15 and May 1 in the Lake Tahoe Basin and Truckee River Watershed, provided adequate controls are in place to protect water quality. The soil disturbance prohibition is included in the Lake Tahoe Basin construction permit and has been added to other orders of the Water Board for some projects outside of the Lake Tahoe Basin in similarly high elevations. The following projects received soil disturbance prohibition variances:

Storm Water Improvement Projects

- Wildwood Commons Development, variance issued for October 23-November 1, 2019.
- Alpine Meadows Ski Resort Hot Wheels Chairlift Replacement, variance issued for October 22-November 5, 2019.
- City of South Lake Tahoe Sierra Blvd. Complete Streets, variance issued for October 21-November 4, 2019.
- Liberty Utilities North Lake Tahoe Parking Lot Improvements, variance issued for October 29-November 12, 2019.
- Lake Tahoe Wildlife Care Wildlife Facility, variance issued for October 7-22, 2019.

Infrastructure/Maintenance Projects

- CalTrans Conway Guardrail, first variance issued for October 16-28, 2019.

- CalTrans Y to Trout Creek, first variance issued for October 16-November 1; second variance issued for November 1-November 15, 2019.
- CalTrans Aspen/Walker Shoulder Widening, first variance issued for October 16-25, 2019.
- Squaw Valley Ski Corp WDR Annual Work Plan, variance issued for October 16-November 1, 2019.

401 Certification Order Projects

- U.S. Bureau of Reclamation Boca Dam Seismic Modifications, variance issued for November 1-15, 2019.
- Coldstream Specific Plan, first variance issued for October 16-November 1; second variance issued for November 2-10; third variance issued for November 11-16, 2018.
- Truckee River Watershed Council Lower Perazzo Meadow Restoration, variance issued for October 16-21, 2019.
- Truckee River Watershed Council Dry Creek Restoration Site 8, variance issued for October 18-31, 2019.

Underground Storage Tank Remedial Action

- Tahoe Speedboat Company, variance issued for October 28-November 11, 2019.

Additional variances may be granted for work between October 15, 2019, and May 1, 2020, on an individual basis.

South Lahontan Region

6. US EPA Bio-Solids and Federal Regulations Webinar – *John Morales*

On October 23, 2019, staff members attended the first of a multi-part bio-solids webinar sponsored by the United States Environmental Protection Agency (US EPA). Some of the key points from this webinar are discussed below.

Nationwide Bio-Solids Use Statistics (based on annual reports for 2017)

- About 4.3 million dry metric tons of bio-solids generated
- About 2.2 million metric tons of bio-solids were applied to land
- About 584,000 dry metric tons of bio-solids were incinerated
- About 1.5 million dry metric tons of bio-solids were disposed of by other management practices
- About 58% of bio-solids applied to land were applied to agricultural land (2016)

Bio-solids are the solids by-product of clarifiers and filtration processes in a wastewater treatment plant (Figure 6.1).

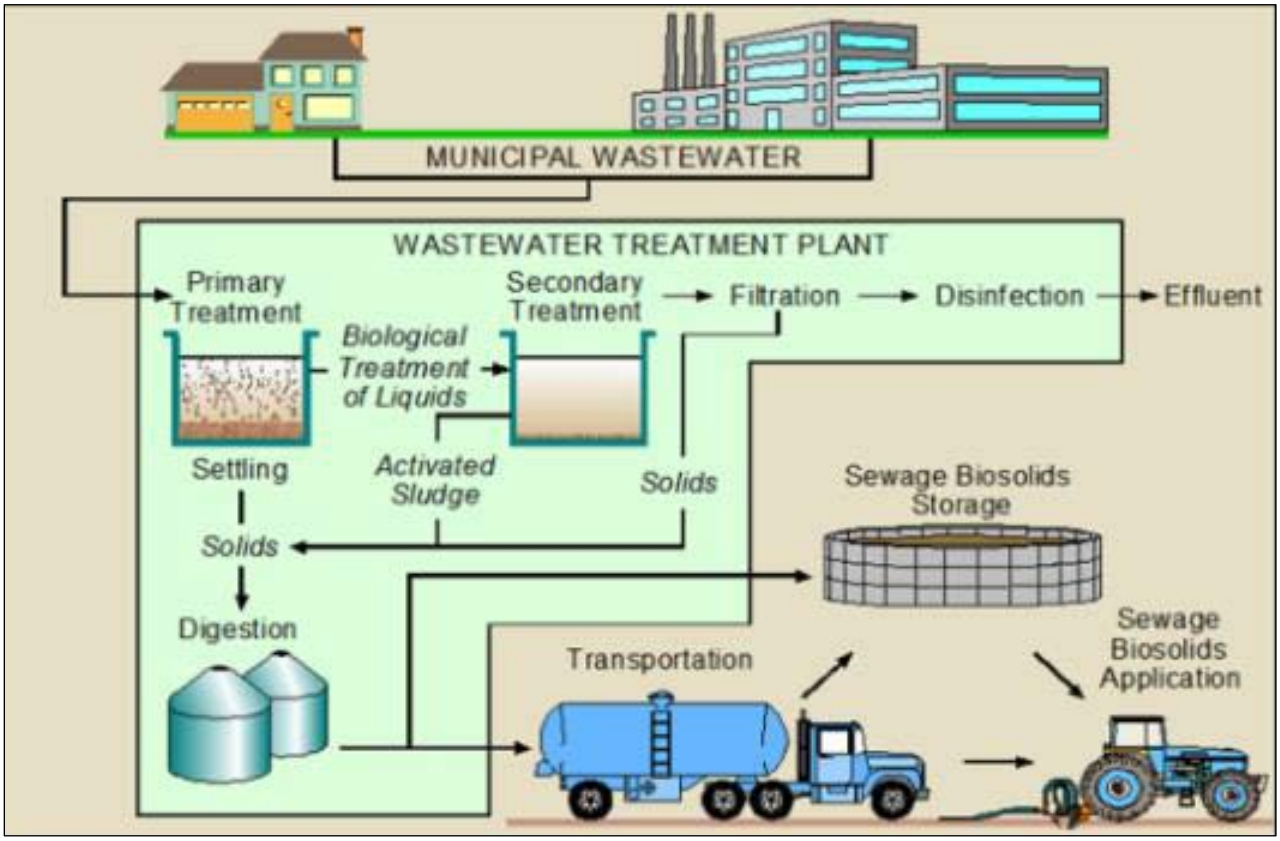

Figure 6.1 – Bio-solids generation, storage, and disposal.

The federal Clean Water Act (CWA) law required US EPA to adopt sewage sludge regulations (Code of Federal Regulations, title 40, Part 503) for numeric limits and management practices for bio-solids management that protect public health and the environment from the effects of chemical and microbial pollutants during the use or disposal of sewage sludge.

There are three common ways in which bio-solids are disposed – surface disposal, incineration, and land disposal.

Surface Disposal

Bio-solids are placed in a dedicated land area for final disposal. Liners and leachate collection systems may be used to contain surface disposal sites (Figure 6.2)

Figure 6.2 – Bio-solids in a lined surface impoundment.

Types of surface disposal sites for bio-solids include:

- Surface impoundments and lagoons – lined evaporation ponds for liquid waste disposal
- Waste piles – lined above ground disposal units for dried waste
- Dedicated disposal sites – lined landfill cells dedicated to biosolids waste disposal only

Incineration

Incineration is the combustion of organic and inorganic matter in sewage sludge by high temperatures in an enclosed device. For incineration of bio-solids, the combustion units are coupled with air pollution control devices to remove small particles, adhering metals in exhaust gas, or further decompose organics. Bio-solids can be fired in several different types of incinerators or in a waste-to-energy plant (Figure 6.3).

Figure 6.3 – Fluidized bed bio-solids incinerator used for most new installations to meet federal emissions standards

Fluidized bed incinerators are generally better at meeting air emission standards, so most new installations use this technology.

Land Application

Bio-solids are applied to land to condition the soil or fertilize crops or other vegetation grown in the soil via spreading or spraying on the soil surface, tilling into soil after being surface applied, or injected directly below the surface (Figure 6.4).

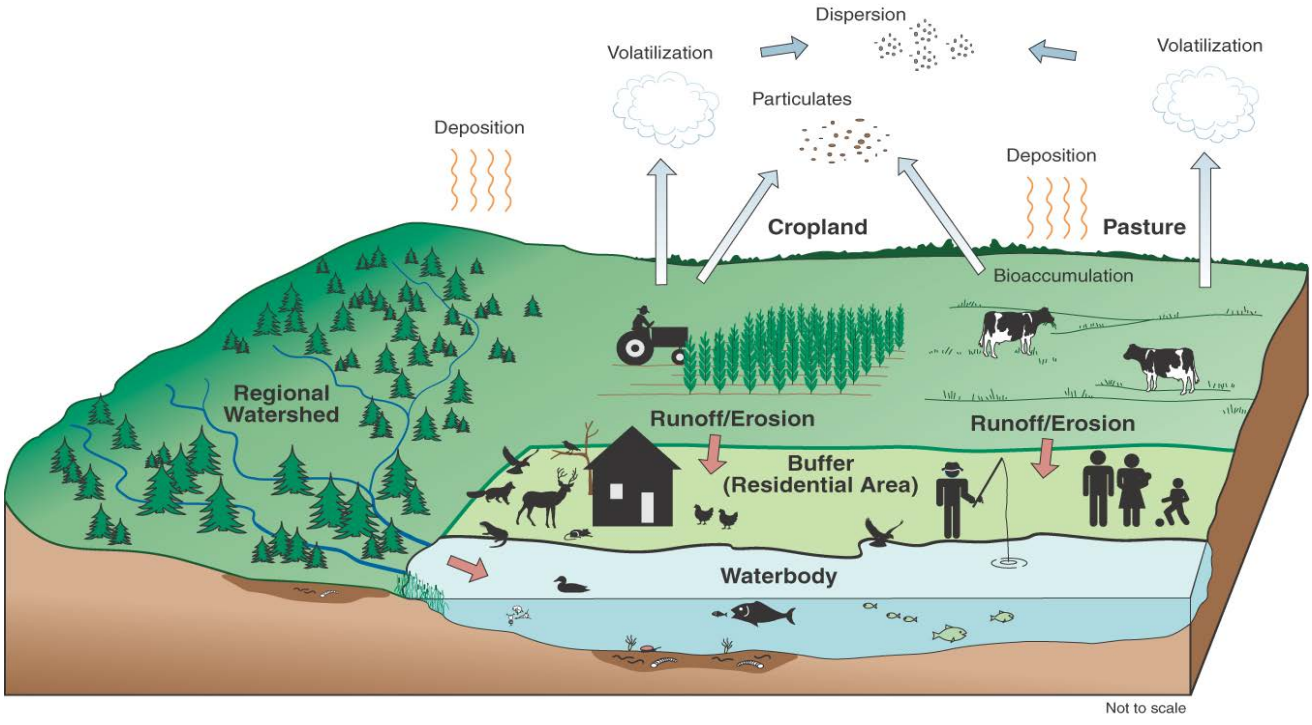

Figure 6.4 – Typical Bio-solids land application sites and contaminant pathways.

Regulated pollutants in bio-solid applications to land include the metals arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.

Vector attraction (such as a fly or mosquito) to bio-solids are a concern to humans because vectors may transmit infectious diseases between humans or from animals to humans. There are two ways to achieve vector attraction reduction:

1. *Reduction through treatment* – Treatment through aerobic and anaerobic digestion, composting, alkali addition, drying, and elevating pH (domestic septage only).
2. *Reduction through barriers* – Soil cover is used as a physical barrier to prevent vectors from contacting land applied bio-solids.

Additional webinars in this series are forthcoming.

7. Rosamond CSD Water Reclamation Plant Groundbreaking – *Sergio Alonso*

Water Board staff, Jehiel Cass and Sergio Alonso, attended the groundbreaking event for the Rosamond Community Services District's (District) Water Reclamation Plant construction on November 6, 2019. The groundbreaking event's key speaker was the District's General Manager, Steve Perez. In attendance was staff from both the District and its consultant, Kennedy Jenks, and members of the District's Board. Jehiel Cass publicly recognized the District's work in renovating the wastewater treatment plant and its benefit to the community of Rosamond.

On July 10, 2019, waste discharge requirements (WDR) were adopted for the District's wastewater treatment plant including a time schedule to complete upgrades by March 1, 2021. Currently, the facility is discharging to evaporation ponds that have been leaking for some time, resulting in elevated nitrate as nitrogen concentrations in the groundwater below the facility. The new treatment plant will improve effluent quality by reducing total nitrogen to less than 10 milligrams per liter.

The renovated treatment plant will have a treatment capacity of 1.27 million gallons per day and produce secondary treated, denitrified, undisinfected effluent that will be discharged to percolation ponds. Current use of the existing evaporation ponds will cease and sludge in the pond bottoms will be removed and disposed offsite. Discharge to the percolation ponds will provide the District with an additional 1,000 to 1,200 acre-feet of potable water credit under terms of the Antelope Valley groundwater adjudication.

The new treatment plant is estimated to cost approximately $15 million. To fully finance the project, the District will obtain funds through cash reserves, loans, and a grant from Proposition 1 (Prop. 1) funds awarded through the California Department of Water Resources. The Prop. 1 Proposal Solicitation Package allows projects with compliance orders to be eligible for Prop. 1 funding. The compliance requirements included in the 2019 adopted WDR allow the District to qualify for funding.

Funding Sources for the Rosamond CSD Water Reclamation Plant

Private Loans	$12.5 Million
Cash Reserves	$2.5 Million
Prop. 1 Funds	$880,000

The Rosamond Water Reclamation Plant is expected to be fully operational by the spring of 2021.

Figure 7.1 - Rosamond CSD Water Reclamation Plant - Pictured from left to right: Director, Ben Stewart; Director, Byron Glennan; Board President, Greg Wood; General Manager, Steve Perez; Lahontan Water Board Staff, Sergio Alonso; Kennedy Jenks Consultant, Rachel Druffel-Rodriguez; Project Manager, Sean Harms. Holding the ribbon are Director of Public Works, John Houghton and Assistant General Manager, Lizette Guerrero.

8. Water Quality Concerns – Wrightwood Community Services District – *Jehiel Cass*

Wrightwood is a community of about 4,500 people in unincorporated San Bernardino County (County). It sits at an elevation of about 6,000 ft in the Angeles National Forest where it straddles the San Andreas Fault. Swartout and Sheep Creeks merge east of Wrightwood, providing headwaters for groundwater recharge to the El Mirage groundwater basin. All domestic sewage is disposed though onsite wastewater treatment systems. There are no sewerage facilities. Most all lots in Wrightwood are less than the Lahontan Basin Plan's minimum one-half acre for septic systems, with older lot sizes as small as 2,000 to 5,000 square feet.

Domestic water service is provided by the private Golden States Water Company that operates municipal supply wells generally south (upgradient) of the community. The Sheep Creek Water Company has municipal supply wells located less than one mile downgradient of Wrightwood.

The high concentration of septic systems in Wrightwood provides a large flux of organic waste and nutrients to groundwater. Septic system failures are increasing as solids move

through septic tanks into the leach dispersal lines clogging soil pores. From 2003 to 2011, there was an average of seven septic system failures per year. In Fiscal Year 2017-2018 alone, the County reported 16 replacement septic systems. Additionally, some areas of the community have periodically high groundwater causing wastewater to back up into homes.

From 1976 to 2013, the Water Board maintained Waste Discharge Requirements issued to the County under Board Order No. 6-76-38 for County Services Area No. 56 – Wrightwood. One of the monitoring requirements of that Order was for the County to periodically sample a dedicated monitoring well and report constituent concentrations to the Water Board. This data collection stopped in 2011, when the Water Board determined that it was not appropriate to name the County as a discharger because it had no wastewater treatment facility and produced no waste. Thus, the Board Order was rescinded in 2013.

Data from that monitoring well and other wells in the area show that total dissolved solids (salt) and nitrate concentrations were increasing over time and with distance downgradient of Wrightwood. When the San Bernardino County Local Agency Management Program (LAMP) was approved, the County committed to efforts leading to resuming data collection from the monitoring well.

On October 25, 2019, Water Board staff Patrice Copeland and Jehiel Cass met with Lori Golden, General Manager of the Wrightwood Community Services District (District) to discuss long-standing Water Board concerns about the need for sewerage treatment and to request the District begin sampling their monitoring well. After this meeting, the District reported that this well is dry at about 215 feet below ground surface. A well completion report was found for this well that indicated it was drilled to approximately 400 feet below ground surface. Staff will recommend that this well be professionally inspected to determine if it is useable.

The District was formed in 2017 as an independent entity with an elected board and given sewerage planning authority by the Local Agency Formation Commission of San Bernardino County. The assets of former San Bernardino County Services Area No. 56 were transferred to the new District, which included the monitoring well and a small portion of Los Angeles County.

During this meeting, Water Board staff requested the District to work with the County to develop a Sampling and Analysis Plan and resume periodic monitoring, starting with annual sampling in the late spring. Water Board staff also provided information regarding financial assistance from the State Water Board to pursue long-range sewerage planning. Water Board staff suggested that the District may also coordinate with the San Bernardino County Office of Special Districts and Mojave Water Agency for help with well sampling. General Manager, Lori Golden, indicated that she would bring these issues to the District's board in December 2019.

Figure 8.1 - Main Street Wrightwood looking north towards Swartout Creek.

9. Standing Item – Lake Tahoe Water Quality Update – *Laura Korman*

Water Board staff continue to focus efforts to investigate the complex and dynamic factors which influence Lake Tahoe's nearshore (see Figure 9.1). Multiple contracts, funded by dedicated Lake Tahoe nearshore resources, have been developed to investigate drivers of change within this critical environment. The areas under investigation include changes in attached algae (periphyton) growth, alternations to the nearshore ecological community, influence of climate change, and changes in Lake Tahoe's clarity. Collectively, these studies will further our understanding of changes within Lake Tahoe's nearshore that will ultimately inform management direction.

The Nearshore Agency Working Group (NAWG) comprised of Water Board, Tahoe Regional Planning Agency, Nevada Division of Environmental Protection, U.S. EPA, and Tahoe Resource Conservation District staff, have used the Nearshore Resource Allocation Program (NRAP) framework to prioritize information needs. In partnership with the NAWG, in 2018 the Water Board updated the Lake Tahoe Nearshore Water Quality Protection Plan. The update to this Plan identified five implementation strategies, which Water Board staff have been working to fulfill (see page 19 of the 2018 Updated Lake Tahoe Nearshore Water Quality Protection Plan for a more detailed summary).

Figure 9.1 - Lake Tahoe's Nearshore

Continue implementing established programs that benefit nearshore water quality: Water Board staff along with the other regulators continue to implement the Lake Tahoe Total Daily Maximum Load (TMDL) program. Continual updates and improvements are being made to the Lake Tahoe TMDL to increase efficacy. The permit requires the three co-permittees (El Dorado County, Placer County, and the City of South Lake Tahoe) to reduce fine sediment particles, total phosphorus, and total nitrogen loads by 21%, 14% and 14%, respectively, by September 30, 2020. All co-permittees of the TMDL permit have met their target goals for 2018 and continue to be on track for their 2019 targets. In coordination with the three co-permittees, the California Department of Transportation (CalTrans) is required to meet pollutant load reduction requirements. Fine sediment particles have been found to have the greatest impact on Lake Tahoe's clarity; the 2010 TMDL Report identified that fine sediment particles from roadways are one of the leading sources of fine sediment to Lake Tahoe. As such, CalTrans continues to improve roadway operations and reduce fine sediment particles entering Lake Tahoe. CalTrans met their 2018 target for the reduction of fine sediment and nutrients and continues to be on track to meet their 2019 goals.

Establish monitoring to assess nearshore conditions: This strategy is being accomplished through multiple efforts including: (1) completion of a lake-wide aquatic plant survey to guide invasive species management action; (2) a comprehensive human health survey to assess bacteria and toxin levels at popular public access sites; (3) an on-going and expanded human health surveys conducted in 2019 and will be continued in 2020; (4) continued research to understand the drivers of changing periphyton conditions; and (5) coordination of two peer reviews with the Tahoe Science Advisory Council to further investigate the divergence in seasonal clarity and evaluate the current monitoring methods of algal growth. Additionally, an area of great complexity within the nearshore is that of the ecological community. To better understand the dynamics of the ecological community Water Board staff have partnered with University of Nevada, Reno researchers to explore the impact of introduced crayfish on the periphyton population.

Evaluate the cause of identified hotspots: In 2019, Water Board staff entered into a research agreement with the United States Geological Survey (USGS) to investigate periphyton hotspots. The USGS will use isotopic analysis to better understand the source of nutrients delivered to the nearshore via groundwater.

Investigate climate change influence: Water Board staff have contract with the University of California, Davis (UCD) to conduct a study investigating the impacts of climate change within the nearshore. UCD partners will investigate the impact of warming lake waters on nutrient and carbon cycling to evaluate climate change impacts on periphyton growth. Additionally, the NAWG helped organize a conference in Lake Tahoe which brought limnologists from across the world to discuss the implications of climate change in lakes globally.

Assess the need to revise standards: This strategy will be begin to be addressed in 2020 by utilizing outputs of the numerous research agreements the Water Board has invested in. As summarized above, the work being accomplish by Water Board staff, in coordination with interagency partners, will help to inform adaptive management and key future decisions that may involve modifying Water Board standards and polices to provide additional protection measures for Lake Tahoe's nearshore environment.

10. Standing Item – Pacific Gas and Electric (PG&E) Hinkley Cleanup – *Jan Zimmerman*

PG&E continues to implement cleanup actions to abate the effects of chromium waste discharges in Hinkley in accordance with the directives in Cleanup and Abatement Order No. R6V-2015-0068. Water Board staff routinely review technical documents associated with the Hinkley chromium cleanup, many of which warrant a response for PG&E to adapt their cleanup actions in real-time to address changing site conditions. The technical documents reviewed by Water Board staff during second half 2019 are summarized in *Status of Actions July 2019* (Attachment 10.1) and *Status of Actions October 2019* (Attachment 10.2). These information sheets were provided to the public at the regularly scheduled Hinkley Community Meetings on July 25, 2019 and October 24, 2019, respectively.

CALIFORNIA Water Boards

GAVIN NEWSOM GOVERNOR

JARED BLUMENFELD SECRETARY FOR ENVIRONMENTAL PROTECTION

Lahontan Regional Water Quality Control Board

Status of Actions July 2019
PG&E Hinkley Chromium Contamination

Chromium Plume Boundary

The First Quarter 2019 chromium plume map is posted on the Water Board's Hinkley website at: http://www.waterboards.ca.gov/lahontan/water_issues/projects/pge/index.shtml, at the bottom of the page under the section titled “Other Documents and Information.” The Second Quarter 2019 plume map is due on August 10, 2019, consistent with the reporting due dates contained in Cleanup and Abatement Order No. R6V-2015-0068 (CAO).

Annual Status Update to Regional Water Board

Water Board staff, with staff from Pacific Gas and Electric (PG&E) and the Independent Review Panel (IRP) Manager, presented the annual update on the status of activities related to PG&E’s chromium cleanup in the Hinkley Valley at the regularly scheduled meeting of the Lahontan Regional Board. The meeting was held on June 12, 2019, at the Hampton Inn Suites in Barstow. The update included a summary of major activities and milestones for the 2018 calendar year. Regional Board members, Water Board staff, and members of the public were in attendance.

Other Remedial Actions

PG&E has been aware of increasing chromium concentrations in certain monitoring wells located in the southern and southeastern portion of the chromium plume. PG&E installed off-site piezometers and on-site extraction wells to better understand groundwater flow and improve hydraulic containment. Data from the new wells is being used to evaluate if the groundwater flow direction is changing on a regional scale due to drought conditions or from pumping at agricultural wells for the two fields located north of the Compressor Station. PG&E will continue groundwater extraction and monitoring chromium changes for the first three quarters of 2019. The Fourth Quarter 2019 monitoring report will evaluate remedial results and state whether additional monitoring wells are needed to define the southern and southeastern chromium boundary. Results of this investigation are promising as chromium concentrations appear to be decreasing in this area, as reported in the First Quarter 2019 monitoring report for the In Situ Reactive Zone and Northwest Freshwater Injection Projects.

Chromium Background Study

Data interpretation, groundwater flow model evaluation, and report writing continue to be the focus of the United States Geological Survey and Dr. John Izbicki’s current efforts. A Draft Final Report is expected to be released to the Technical Working Group for review September 2019; the Final Report is expected to be released to the public early 2020.

Your Water Board Staff Contacts

Oversight of PG&E's chromium cleanup in Hinkley is now being provided primarily by staff in the Water Board's Victorville office. The contact information is listed below. Please feel free to call, email, or stop by the office if you need assistance.

Jan Zimmerman, Senior Engineering Geologist, (760) 241-7376
jan.zimmerman@waterboards.ca.gov

Shelby Barker, Engineering Geologist, (760) 241-7307
shelby.barker@waterboards.ca.gov

Christina Guerra, Engineering Geologist, (760) 241-7333
christina.guerra@waterboards.ca.gov

Lahontan Regional Water Quality Control Board
15095 Amargosa Road, Building 2, Suite 210, Victorville, CA 92394
(760) 241-6583, general number
https://www.waterboards.ca.gov/lahontan/

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Lahontan Regional Water Quality Control Board

Status of Actions October 2019
PG&E Hinkley Chromium Contamination

Chromium Plume Boundary

The Second Quarter 2019 chromium plume maps can be viewed on GeoTracker at: https://geotracker.waterboards.ca.gov/esi/uploads/geo_report/1616646826/SL0607111288.PDF, and are Figures 5-1 through 5-6 of this report. In general, the Second Quarter Plume 2019 chromium plume outlines the upper and lower aquifers and are similar to those defined by the First Quarter 2019 concentrations. The Second Quarter 2019 maximum composite chromium plume contour lines show slight decreases in some areas and slight increases in other areas; these changes are generally interpreted to reflect natural fluctuations in the plume boundaries as remediation progresses, and not necessarily an indication that plume migration is occurring.

Previous quarters chromium plume maps are posted on the Water Board's Hinkley website at: http://www.waterboards.ca.gov/lahontan/water_issues/projects/pge/index.shtml, at the bottom of the page under the section titled "Other Documents and Information." The Third Quarter 2019 plume map is due on November 9, 2019, consistent with the reporting due dates contained in Cleanup and Abatement Order No. R6V-2015-0068 (CAO).

Annual Evaluation of Groundwater Monitoring Program

Consistent with the CAO, in January 2019 PG&E submitted its annual evaluation of the groundwater monitoring program and recommendations to optimize sampling frequency for wells used to contour the plume boundary. The CAO's monitoring and reporting program contains decision trees that specify criteria to be used to evaluate the sampling frequencies of each monitoring well to determine if those frequencies should be changed. PG&E's current evaluation proposes reducing the sampling frequency for some wells, increasing the sampling frequency at other wells, and keeping the sampling frequency the same at most wells. Water Board staff has reviewed the evaluation and has verified that the proposed monitoring well sampling frequency changes are consistent with the criteria set forth in the CAO and accepted these monitoring well sampling frequencies for calendar year 2019.

Request to Expand In-Situ Remediation Zone Permitted Area

PG&E requested a revision to the In-Situ Remediation Zone (IRZ) permitted area under the existing Notice of Applicability (NOA) of General Waste Discharge Requirements, Board Order No. R6V-2008-0014, for the IRZ and Northwest Freshwater Injection Systems. PG&E's proposal to expand the IRZ areas is as follows: 600 feet to the west

for the Central Area; and 140 feet to the west and 650 feet to the north for the South-Central Reinjection Area. The proposal also includes changes to the sentry well monitoring network used to monitor for water quality impacts from IRZ operations. These increases in the IRZ areas would allow for future remedial expansion and are conservative; IRZ expansion is not considered necessary in the entirety of the proposed IRZ expansion areas at this time. PG&E's proposal was received in March 2019. Upon review, Water Board staff are working with PG&E to better define the IRZ areas and to allow flexibility in the new NOA for minor modifications within the defined IRZ areas.

Work Plan for Fresh Water Injection Pilot Test

PG&E has requested to conduct a short-term, 2-month long, freshwater injection pilot test to evaluate hydraulic containment contingency alternatives for the southeast chromium plume boundary. The pilot test will involve freshwater (sourced from PG&E supply wells located along Dixie Road) being injected into one or two existing (but idle) PG&E supply wells located along Summerset Road. PG&E's pilot test work plan was received in May 2019. Implementation of the pilot study, as proposed, did not warrant a discharge permit by the Water Board. Water Board staff requested that PG&E submit to the Water Board, within 60 days following completion of the test, a comprehensive report documenting the activities and results of the pilot study. Depending on the results of the pilot study, PG&E may develop a full-scale freshwater injection project as a means for hydraulic containment in and adjacent to the Source Area IRZ. Water Board staff will review any future request to authorize freshwater injection in this area if and when that proposal is submitted and make a determination at that time whether those proposed discharges warrant authorization under the General WDRs, Board Order No. R6V-2008-0014.

Notification of Plan to Convert Existing Extraction Wells to IRZ Injection Wells

PG&E provided notification to convert eight existing extraction wells to IRZ injection wells and to install additional IRZ injection wells, if needed, near Community Boulevard at the PG&E Compressor Station. The planned extraction well conversions and possible additional injection well installations (collectively referred to as the "Community IRZ") are part of actions being implemented for sitewide cleanup to achieve remedial timeframes outlined under the CAO. The purpose of the planned Community IRZ project is to target hexavalent chromium along and north of Community Boulevard. PG&E's notification was submitted in August 2019. The notification of proposed well conversion is consistent with the 14-day notification requirement specified in NOA General Requirement IX.b, which allows for planned design changes in the IRZ areas. Water Board staff requested PG&E document the well conversions and installations in the regularly scheduled monitoring reports submitted under the NOA, and informed PG&E that work could commence 14 days following the date the notification was received by the Water Board.

Other Remedial Actions
PG&E has been aware of increasing chromium concentrations in certain monitoring wells located in the southern and southeastern portion of the chromium plume. PG&E installed off-site piezometers and on-site extraction wells to better understand groundwater flow and improve hydraulic containment. Data from the new wells is being used to evaluate if the groundwater flow direction is changing on a regional scale due to drought conditions or from pumping at agricultural wells for the two fields located north of the Compressor Station. PG&E has continued groundwater extraction and monitoring chromium changes during the first three quarters of 2019. The Fourth Quarter 2019 monitoring report will evaluate remedial results and state whether additional monitoring wells are needed to define the southern and southeastern chromium boundary. Results of this investigation are promising as chromium concentrations appear to be decreasing in this area, as reported in the First and Second Quarter 2019 monitoring reports for the In Situ Reactive Zone and Northwest Freshwater Injection Projects.

Chromium Background Study
Groundwater flow model evaluation and report writing continue to be the focus of the United States Geological Survey and Dr. John Izbicki's current efforts. A Draft Final Report is expected to be released to the Technical Working Group for review in December 2019; the Final Report is expected to be released to the public in 2020.

Your Water Board Staff Contacts
Oversight of PG&E's chromium cleanup in Hinkley is now being provided primarily by staff in the Water Board's Victorville office. The contact information is listed below. Please feel free to call, email, or stop by the office if you need assistance.

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