EXECUTIVE OFFICER'S REPORT • January 2021
Covers November 16, 2020 – December 15, 2020

Contents

State and Regional

1. Personnel Report – *Eric Shay*

New Hires – None

Promotions

- Mike Plaziak, Executive Officer for the Lahontan Region.

Vacancies

- C.E.A. (Career Executive Assignment) to serve as the Region's Assistant Executive Officer.
- Scientific Aid, Planning & Assessment Unit, South Lake Tahoe. This position helps the SWAMP program collect and process water quality samples and ensure data quality. The position supports the TMDL and Basin Planning programs through mapping and data analysis, outreach, and reporting.
- Environmental Scientist, Forestry / Dredge & Fill Unit, South Lake Tahoe. This position will engage in permit development and/or enrollments under the Lahontan Timber Waiver, Clean Water Act section 401 Water Certification for activities in Waters of the U.S., dredge and fill permits for Waters of the State, environmental document preparation or compliance for projects where the LRWQCB is a lead or responsible agency under CEQA, and regulatory actions as needed.
- Environmental Scientist, Regulatory and Enforcement Unit, South Lake Tahoe. The position is being considered for reclassification to Water Resource Control Engineer to provide support for Wastewater and NPDES permitting work.

Departures

- Eric Taxer, Senior Water Resource Control Engineer, Cannabis Regulatory Unit, South Lake Tahoe.

2. Standing Item - Lake Tahoe Programs Update – *Laura Korman*

The Water Board's Lake Tahoe water quality protection efforts fall into three general programs: Lake Tahoe Total Maximum Daily Load (TMDL), Municipal Separate Storm Sewer System National Pollutant Discharge Elimination System permit (Municipal Permit), and Lake Tahoe Nearshore.

The Lake Tahoe Total Maximum Daily Load (TMDL)

The Lake Tahoe TMDL (2010) provides the framework for restoring the lake to historic clarity depths of nearly 100 ft. The TMDL identified urban storm water runoff as the primary source of pollutants impairing clarity and established numeric load reduction values needed to achieve clarity improvement. Lake Tahoe TMDL adoption, associated Water Quality Control Plan amendments, and adopted implementation Orders guide Lake Tahoe program implementation. The California Lahontan Regional Water Quality Control Board (Water Board) and Nevada Division of Environmental Protection (NDEP), together the TMDL Management Agencies, jointly administer the TMDL Program, which guides efforts to restore Lake Tahoe. Runoff from roads and other urban land uses is the largest single source of fine sediment particles (FSP) impacting Lake Tahoe's clarity, accounting for more than 70% of the fine sediment particles load to the lake. TMDL research found that urban stormwater provides the greatest opportunity to control FSP pollution. In 2019, the efforts of the urban implementors prevented nearly 477,000 lbs. of sediment from entering Lake Tahoe. While the tremendous efforts of the TMDL implementors continue, Lake Tahoe's clarity measurements continue to fall short of the proposed clarity targets, with the interim clarity target 80 ft by 2026. In July of 2019, the University of California at Davis' State of the Lake Report found that Lake Tahoe's average annual clarity declined nearly 8 ft from the previous year's dramatic 10-foot improvement. The average annual value in 2019 was 62.7 feet. The State of the Lake Report, coupled with Water Board-funded research and monitoring programs, identified improvements in winter clarity and reductions in summer clarity. These patterns of clarity change prompted the Water Board to work with the Nearshore Agency Working Group (NAWG) to approach the Tahoe Science Advisory Council (TSAC) for assistance evaluating these diverging clarity trends.

Figure 2.1 - The 2020 State of the Lake Report outlines the mixed clarity results of 2019.

Tahoe Science Advisory Council

Over the past year, the NAWG has been working closely with TSAC to examine questions surrounding Lake Tahoe's pelagic clarity, resulting in formal Work Orders for the TSAC. Of the utmost importance to the Water Board was the Seasonal Clarity Assessment Work Order. This Work Order examined seasonal and long-term clarity trends. The NAWG brought TSAC five hypotheses to examine: 1) clarity is controlled predominantly by the distribution and (volumetric) density of fine particles in suspension; 2) the change in trend of winter clarity is a response to decreasing suspended fine sediment concentrations resulting from load reductions; 3) changing hydrodynamic conditions within the lake are

increasing thermal stability and resistance to mixing; 4) the trend in summer clarity is a result of earlier, prolonged, and more intense stratification; and 5) ecological (food web) interactions are causing changes in the trends of seasonal or annual clarity. The Work Order results completed in October 2020, indicated the Water Board needed to consider collecting improved data to evaluate the influence of fine sediment particles on clarity to better answer these hypotheses. The Water Board and NDEP are working with TSAC to evaluate how best to update the Regional Stormwater Monitoring Program to better capture the necessary data to evaluate the relationship between FSP reduction and Lake Tahoe's clarity. Additional findings in the October 2020 Work Order suggest climate change, altered lake mixing, and ecological shifts are contributing to Lake Tahoe's clarity loss.

Lake Tahoe Nearshore & Senate Bill 630 Investments

A subset of these emerging areas of concern for Lake Tahoe's clarity are being investigated through agreements the Water Board has entered with local federal, academic, and regional partners. More specifically, the Water Board has invested Senate Bill 630 funds to support monitoring, to determine the impacts of climate change, and investigate ecological changes within Lake Tahoe. In September 2013, Senate Bill 630 passed which dedicated funding annually for Lake Tahoe nearshore research and monitoring. The Water Board receives an annual allocation of $500,000 to invest in projects that to improve nearshore water quality monitoring and research. Senate Bill 630 continues to provide a steady source of funding for the Lake Tahoe Nearshore Science and Monitoring Program. The Water Board along with our NAWG partners developed the Nearshore Resource Allocation Program (NRAP) to define a process to best invest Senate Bill 630 resources. The NRAP defined six Focus Areas: 1) Algae, 2) Aquatic Invasive Species, 3) Community Structure, 4) Nearshore Clarity, 5) Public Health, and 6) Trash. Guided by the NRAP Focus Areas, the Water Board has invested in the following researching and monitoring efforts: 1) investigating the role climate change plays changes to periphyton, sediments, and nutrients; 2) investigating the role invasive crayfish play in relation to algal (periphyton) dynamics in Lake Tahoe; 3) investigating the role nutrients from groundwater plays in algal growth in Lake Tahoe's nearshore; and 4) supporting Lake Tahoe tributary monitoring and human health monitoring along Lake Tahoe beaches. Overall, these investments will help guide best management practices in the face of a changing climate.

Moving Forward - Lake Tahoe Program Management

In response to the findings identified in the Seasonal Clarity Assessment, TSAC developed a second Work Order to examine the Lake Clarity Model. The Lake Clarity Model was used in tandem with the Lake Tahoe Watershed Model to develop the TMDL. The results of this work will help inform what considerations need to be taken to adaptively manage the Lake Tahoe TMDL program in the future. This may include examining if the focus on FSP as the main driver of Lake Tahoe's clarity needs to be reevaluated. As Lake Tahoe's dynamics have shifted over the years, the TMDL program will have to adapt to address these changes in order to improve the lake's clarity. In addition to examining the Lake Clarity Model, TSAC will also complete a Work Order to examine the impacts of ecological food web dynamics on Lake Tahoe's clarity. The Water Board will continue to work closely with our agency and science partners to adaptively manage and improve the

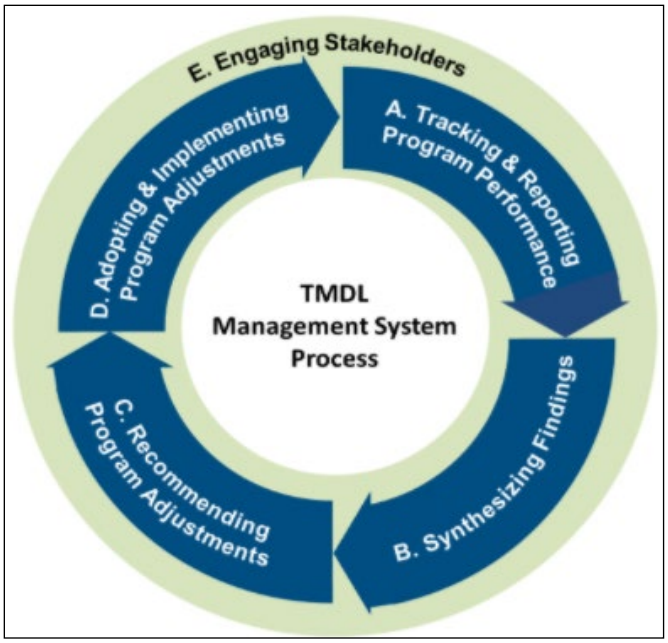

Figure 2.3 - Lake Tahoe TMDL Management System Process Schematic.

Lake Tahoe TMDL program as we move forward with permit updates. The Municipal Permit, which regulates the City of South Lake Tahoe, El Dorado County, and Placer County will be renewed and presented to the Board in March 2022. Additionally, Water Board staff is working with State Board to update the Caltrans Municipal Permit to ensure that elements of the Lake Tahoe TMDL are incorporated as requirements of the permit. The Caltrans Municipal Permit is expected to go before the State Board for consideration of adoption by late 2021.

Emerging Areas of Concern

Water Board staff has been evaluating upcoming areas of concerns for Lake Tahoe. The NRAP Focus Areas of Public Health and Trash overlap when considering the emerging threat of microplastics in Lake Tahoe. In June 2017, the Lahontan Water Board Executive Officer issued a Water Code Section 13383 Order to Permit holders to comply with statewide trash provisions, which have been added to the Municipal Permit. Additionally, the NAWG has invested in trash cleanups in and along Lake Tahoe's nearshore. In 2018, Senate Bill 1422 mandated an investigation of microplastics in drinking water sources and required that California define, develop detection methods, and regulate microplastics. In 2020, the State Water Resources Control Board's adopted a definition of microplastics in drinking water which includes plastic particles with three dimensions that are less than 5 millimeters in length. By mid-2021 the San Francisco Bay Regional Water Quality Control Board will have standardized methods of detection, drinking water thresholds, and water quality objectives (ecosystem and public health). These regional requirements may extend statewide in the coming years. The Desert Research Institute has also begun to study the presence of microplastics in Lake Tahoe and how they are influencing our freshwater systems. While no studies on

Figure 2.4: Photo of 2020 Spirit of TRPA Award that the Lahontan Water Board received in November 2020.

microplastics in Lake Tahoe have been published; microplastics have been identified in Lake Tahoe's surface waters. A major contributor of microplastics to surfaces waters is the wear from car tires. In 2020, exacerbated by the pandemic, over 15 million people visited the Lake Tahoe Basin. With the most common form of transportation being car, the microplastics generated by car tires may be a focus area for remediation. Data has shown that green stormwater infrastructure, including the best management practices of the TMDL, greatly reduce the transport of microplastics and their associated containments. In the future, the Water Board may consider investing in research and monitoring surrounding microplastics.

Lahontan Water Board Recipient of Spirit of TRPA Award

Alongside the Nevada Division of Environmental Protection and U.S. EPA, the Lahontan Water Board was honored with the Spirit of TRPA Award (Category Best of the 2010s) for its work on the Lake Tahoe TMDL. The Lake Tahoe TMDL continues to be recognized as an innovative science-based plan developed and implemented to effectively restore Lake Tahoe to its famed water clarity of nearly 100 feet.

3. **Standing Item - Leviathan Mine, Alpine County** – *Chris Stetler & Cathe Pool*

Water Board staff continues to coordinate with the United States Environmental Protection Agency (USEPA) and Atlantic Richfield Company (AR) for the completion of current and proposed site work at Leviathan Mine.

2020 Summer Pond Water Treatment Operations

On an annual basis since 1999, the Water Board has conducted summer treatment of fluids stored in onsite evaporation ponds. The fluids stored in the evaporation ponds consists of snowmelt and rainwater mixed with Acid Mine Drainage (AMD) from the mine site. The summer treatment effort typically commences in early-July and finishes in mid-September. The purpose of summer treatment is to create enough capacity in the pond system to store and contain all of the snowmelt, rainwater, and AMD that enters the pond system between the fall (October) and subsequent spring (May).

The summer treatment program creates storage capacity in the pond system by removing fluids contained in the evaporation ponds, treating those fluids, then discharging the treated effluent to Leviathan Creek. Treatment is accomplished by means of a lime treatment system constructed by the Water Board in 1999, which is referred to as the Pond Water Treatment system (PWT). The location of the PWT is on the mine site and adjacent to the evaporation pond system. The PWT draws fluids from the evaporation pond system then mixes lime into the pond fluids. The addition of lime increases the pH of the mixture sufficiently to cause metals in the mixture to precipitate out as metal hydroxides along with gypsum (calcium sulfate) – this material is referred to as sludge. The sludge is then settled out from the mixture, and the nearly metal-free effluent with near neutral pH is decanted and discharged to Leviathan Creek. Treated discharge to the creek is subject to USEPA discharge criteria. Sludge is hauled off the site annually and disposed of at a hazardous waste facility.

The Water Board's PWT contractor began operations 24-hours per day, 5-days per week, on July 13, 2020 and continued through August 12, 2020. During this period, approximately 3.3 million gallons of pond fluids were treated and discharged. Additionally, approximately 1,432 tons of sludge generated by PWT operations in 2019 were hauled and disposed of at an offsite hazardous waste facility. The Water Board's 2020 summer treatment effort continued until the evaporation pond system was essentially empty, and

combined with natural evaporation, resulted in restoring nearly all of the pond system capacity.

Early Final Remedial Action

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Early Final Remedial Actions (EFRA) can be implemented as a means to achieve significant risk reduction, address immediate risks to human health and the environment, or to control migration of contamination before the sitewide Remedial Investigation/Feasibility Study is completed. For the last 18 months, Water Board staff has been coordinating with USEPA and AR on the development of an EFRA that would implement year-round capture and treatment of the five main sources of AMD at the mine site for metals removal. The discussions between USEPA, AR, and Water Board staff regarding the EFRA are ongoing. A milestone in the EFRA process is the preparation of a Focused Feasibility Study. Under CERCLA, the Focused Feasibility Study is intended to document the objectives of the EFRA, identify the Applicable, or Relevant and Appropriate Requirements (ARARs), identify and screen technologies, and evaluate alternatives. Under USEPA's current schedule, AR will make available to the project stakeholders a draft Focused Feasibility Study for the EFRA by March 31, 2021. Project stakeholders include, but are not limited to, the following parties: Water Board, Washoe Tribe of Nevada and California, United States Forest Service, and the Nevada Division of Environmental Protection.

2020 Pilot-Scale Testing for the EFRA: During the 2020 field season, and in support of the draft Focused Feasibility Study for the EFRA, AR completed field pilot-scale testing of a particular process for the treatment of AMD known as High Density Sludge (HDS) Treatment. HDS Treatment has had great success throughout the world for the treatment of AMD for metals removal but had not been successfully demonstrated at Leviathan Mine for the combined treatment of the five main AMD sources that are to be addressed by the EFRA. It should be noted, AR does operate a full-scale HDS Treatment from two of the five main sources at the site, but that system was unable to successfully treat a combination of the five main sources of AMD at the site during a full-scale demonstration test conducted in 2017.

Similar to the simple lime treatment process provided by the Water Board's PWT, the HDS process involves the controlled mixing of AMD and lime to raise pH and to cause metals to precipitate out; however, the HDS process differs from simple lime treatment by continuously recycling a portion of the AMD/lime mixture back into the treatment process. This recycling process has been shown to improve metals removal and to generate sludge with higher density.

AR conducted the pilot-scale testing during the 2020 field season at Leviathan Mine using a portable pilot plant contained in a 40-foot cargo container. For the pilot-scale testing, AR blended the five main AMD sources at the site in specific ratios to mimic site conditions that persisted at the site during the spring of 2020. Several configurations of the HDS Process were tested to tease out arrangements for the various HDS components (reactors, clarifiers, multi-media filters, etc.) that would result in reliable production of acceptable effluent and sludge density.

Water Board staff observed AR's pilot plant operations, and AR conducted weekly meetings to update interested parties, including USEPA and the Water Board, on the progress of the testing. AR expects to issue a draft report of findings on the pilot-scale testing in January of 2021. The final report for the pilot-scale testing is expected to be included as part of the Focused Feasibility Study for the EFRA. Findings of the pilot-scale

testing will be of critical importance to the Water Board as it will likely shape the direction of future water treatment efforts at the mine site. Under the *Leviathan Mine Site Work and Cost Allocation Settlement Agreement*, the Water Board and AR will share the costs for design, construction, and operation/maintenance of Remedial Actions at the site, such as those contemplated by the EFRA (i.e., year-round capture and treatment of the five main sources of AMD at the site). Although the costs for design, construction, and operation/maintenance are shared, the work falls 100 percent on the Water Board. Water Board staff has begun strategizing for future Budget Change Proposals to cover upcoming design and construction activities to implement the Record of Decision for the EFRA.

Development of Potential Effluent Limits for EFRA: Water Board staff are evaluating potential effluent limits for a treatment system implemented as part of an Early Final Remedial Action (EFRA) to provide year-round capture and treatment of the five main sources of acid mine drainage (AMD) at Leviathan Mine for metals removal. These effluent limits are being developed using the effluent data from the Water Board's Pond Water Treatment system, AR's existing HDS Treatment Plant, and AR's recently completed pilot-scale testing. The State Implementation Plan (SIP) is a State Water Board policy that applies to discharges of toxic pollutants into the inland surface waters of California subject to regulation under the State's Porter-Cologne Water Quality Control Act and the federal Clean Water Act. The SIP establishes a standardized approach for permitting discharges of toxic pollutants to non-ocean water surface waters in a manner that promotes statewide consistency.

As part of the Leviathan Mine Superfund cleanup managed by USEPA, the Water Board has identified the SIP as a substantive state law requirement, also known as an Applicable, or Relevant and Appropriate Requirement (ARAR). The use of the SIP to develop effluent limitations will provide substantive compliance with state law as well as the federal Clean Water Act and associated National Pollutant Discharge Elimination System (NPDES) regulations for the proposed discharge. In addition, Water Board staff utilize flow and water quality data from Upper Leviathan Creek to ensure compliance with the State and Federal Anti-Degradation policies. In this case, establishing effluent limitations may allow degradation up to the applicable water quality objective or objectives and still provide for the reasonable protection of beneficial uses in compliance with state and federal law. In pertinent part, the State's Anti-Degradation Policy notes that the existing high quality of water will be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than prescribed in State Board and Regional Board policies. The State's Anti-Degradation Policy also requires that for any activity which produces or may produce a waste or increased volume or concentration of waste and which discharge or proposes to discharge to high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (1) a pollution or nuisance will not occur; and (2) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

Sitewide Remedial Investigation and Feasibility Study

Site Characterization Report: Under order from USEPA, AR submitted a Site Characterization Report (SCR) for the Leviathan Mine Site on December 31, 2017. Water Board staff reviewed the SCR and provided comments to the USEPA by letter dated August 7, 2018. In the letter, Water Board staff discussed several key issues regarding information presented in the SCR. Of the issues raised by Water Board staff, those

pertaining to statistical analyses set forth in the SCR were largely supported by AR consultants who were hired to review and address Water Board staff comments. The AR consultants newly proposed statistical process requires recalculation of all Reference Threshold Values (RTV) presented in the 2017 SCR. According to USEPA, a revised SCR will not be prepared; instead, the new RTV calculations and other revisions will be presented in the draft Sitewide Remedial Investigation report.

Water Board staff continues to work with USEPA and AR on resolving additional issues identified in the Water Board's August 7, 2018 letter as they pertain to AR's release of a Focused Feasibility Study for the EFRA, and the eventual release of a Sitewide Remedial Investigation report, including those related to the selection of a reference stream for stream sediment and floodplain soils. USEPA is currently reassessing the schedule for completing the Sitewide Remedial Investigation report and Feasibility Study, taking into consideration the current effort to develop an EFRA.

Groundwater Report: On May 14, 2020, AR submitted to the Water Board an evaluation of groundwater conditions for Leviathan Mine. The evaluation puts forth a conceptual groundwater model based upon various data from the site. Following initial input from USEPA and Water Board staff, AR issued a revised draft of the groundwater evaluation on August 19, 2020. Water Board staff met with representatives with AR and the USEPA on October 19, 2020 to discuss the revised draft of the groundwater evaluation. In response to items discussed during the October 19, 2020 meeting, and follow-up discussions between Water Board staff and USEPA, Water Board staff expect to receive a revised draft of the groundwater evaluation in early January 2021.

Water Board staff working with State Water Board Division of Administrative Services staff secured a contract with the Desert Research Institute (DRI) to assist Water Board staff in reviewing AR's groundwater evaluation. DRI representatives are preparing preliminary comments on the August 19, 2020 revised groundwater evaluation and are available to review the revised draft (expected delivery early January 2021). Thorough documentation of groundwater conditions at the site and the development of a representative conceptual model will be critical components to the sitewide Remedial Investigation and Feasibility Study, and potentially to the Focused Feasibility Study for the EFRA.

Settlement Agreement Activities

Water Board staff has continued its efforts to review quarterly cost reports submitted by AR for Remedial Investigation and Feasibility Study activities AR has conducted. Since the time of Water Board staff's last EO's Report in July 2020, Water Board staff has reviewed AR's cost reports and additional information for the fourth quarter of 2019, the first quarter of 2020, and a report of additional costs between January 11, 2019 and March 31, 2020. Issues remain with AR's cost reports for the first quarter of 2020 and additional costs between January 11, 2019 and March 31, 2020, but staff anticipates these issues will be satisfactorily resolved. Staff's review of AR's Remedial Investigation/Feasibility Study costs will continue for the next several years and is a critical element of a complex cost-sharing and accounting system established by the *Leviathan Mine Site Work and Cost Allocation Settlement Agreement* between the Water Board and AR. The Settlement Agreement provides that for every dollar AR spends for Remedial Investigation/Feasibility Study work over $11 million, AR is to receive a 40-cent credit from the Water Board towards the amount AR will have to pay for construction of the final Remedial Action for Leviathan Mine. Through the fourth quarter of 2019, Water Board staff and AR have come to agreement that AR has spent nearly $52 million in Remedial Investigation/Feasibility Study costs, putting the credit due to AR for Remedial Action construction costs at approximately $16 million.

4. **Notice of Public Workshop and Opportunity for Public Comment on Hexavalent Chromium Maximum Contaminant Level Estimates of Costs, Division of Drinking Water** – *Amanda Lopez*

On December 8 and 9, 2020, the State Water Resources Control Board (State Water Board) held a two session public workshop to receive information and solicit public input regarding estimates of costs associated with a range of potential hexavalent chromium maximum contaminant levels (MCL) and treatment technologies. Due to the COVID-19 emergency, this workshop was held as a webcast.

The workshop began with a presentation from Division of Drinking Water (DDW) staff, Mark Bartson, Chief of Technical Operations Section and Bethany Robinson, Technical Operations Section. Their presentation provided a brief overview of the pitfalls that led to the judgement against the previously established MCL and the purpose of the current workshop in the development of the new MCL. DDW provided draft determinations of hexavalent chromium occurrence and estimates of costs that are available for review on the DDW's Hexavalent Chromium MCL web page (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Regulations.html).

In 2013, California Department of Public Health (CDPH) proposed an MCL for hexavalent chromium at 10 ug/L. In 2014, CDPH submitted the regulation package to the Office of Administrative Law, and the MCL became effective in July 2014. In May 2017, the Superior Court of Sacramento County issued a judgment invalidating the MCL on the basis that CDPH did not follow the requirements of California Health and Safety Code, section 116365, while developing the MCL and did not properly consider economic feasibility of MCL compliance. Just after the MCL was issued, CDPH was transferred to the jurisdiction of the State Water Board as the DDW. DDW is developing a new regulatory package to reissue an MCL for hexavalent chromium.

The cost estimates are complicated, but for purposes of developing the MCL, DDW will consider the following criteria: the number of public water system sources that would be impacted at various potential MCL values; the information on the costs of various treatment technologies to lower the levels of hexavalent chromium in the water delivered to the public; and information on the anticipated overall costs for public water systems impacted by various potential MCL values. As the MCL is being developed, consideration will also be given to both the capital and operational costs estimated across various sizes of water systems.

After the DDW presentation, the workshop was open for comments from the public. Comments were heard from representatives of water agencies and water purveyors from across the state. As part of the next steps in reissuing an MCL for hexavalent chromium, the DDW anticipates issuing a Notice of Proposed Rulemaking in Spring 2021. During 2021, DDW will also hold a public comment period, more workshops, and a board hearing. The new MCL is anticipated to go into effect in early 2022.