



EXECUTIVE OFFICER'S REPORT
Covers August 1, 2022 – August 31, 2022

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1. Personnel Report – *Sandra Lopez*

New Hires – None

Transfers

- Liz Van Diepen, Engineering Geologist, Non-Point Source Unit, South Lake Tahoe

This position will assist with technical, regulatory, and administrative procedures related to review of project environmental disclosure and permitting documents.

Vacancies

- Senior Engineering Geologist (Specialist), Leviathan Mine, South Lake Tahoe. This position will evaluate and provide advice to Water Board management regarding the Water Board's cleanup and abatement actions needed at the Leviathan Mine to comply with the USEPA's Administrative Abatement Action Order.
- Water Resource Control Engineer, Cannabis Unit, South Lake Tahoe/Victorville. This position will work as a part of an interdisciplinary team and will perform duties regulating the discharge of waste from illegal or permitted cannabis cultivation sites and associated facilities or operations with similar environmental effects.

- Engineering Geologist, Land Disposal Unit, Victorville. This position will oversee waste discharges and site investigation/cleanup at various types of regulated and unregulated facilities including landfills, mines, and site cleanup sites.
- Engineering Geologist, Department of Defense Site Cleanup Unit, Victorville. This position will oversee site investigations and cleanups at Department of Defense sites in the South Lahontan area as well as various types of regulated and unregulated facilities including landfills, mines, and site cleanup sites.
- Water Resource Control Engineer, Wastewater & Agricultural 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.
- Scientific Aid, Regulatory & Enforcement Unit, South Lake Tahoe. This position supports staff primarily through review of submitted self-monitoring reports, along with other special projects.
- Scientific Aid, Forestry/Dredge & Fill and Non-Point Source Units, South Lake Tahoe. This position will evaluate water quality data and assess compliance with water quality orders and permits associated with grazing, restoration, timber, and forestry activities.
- Office Technician (Typing), Victorville. This position will assist in proofreading and editing staff documents, engage with staff and the public at the front office desk, provide support to technical and administrative staff, ensure documents comply with accessibility standards, and provide administrative support at regional board meetings held throughout the region.
- Office Technician (Typing), South Lake Tahoe. This position will assist in proofreading and editing staff documents, engage with staff and the public at the front office desk, provide support to technical and administrative staff, ensure documents comply with accessibility standards, and provide administrative support at regional board meetings held throughout the region.
- Engineering Geologist, Cleanup/Site Investigation & Enforcement Unit, South Lake Tahoe. This position will oversee/direct site investigation and cleanup activities at various sites, such as underground storage tank sites, dry cleaner sites, mines, landfills, and Department of Defense sites

Departures

- Angelica Soto, Office Technician, Victorville
- Linda Stone, Engineering Geologist, South Lake Tahoe
- Thomas Browne, Water Resource Control Engineering, Victorville

2. Update on MWA Drought Response Program from MWA TAC – Anna Garcia

The purpose of this article is to provide the Lahontan Water Board with information presented at the Mojave Water Agency (MWA) Technical Advisory Committee (TAC) meeting on August 11, 2022. Items covered at the MWA TAC meeting included updates on MWA's Drought Program Development and Short-term Drought Response Program for the Centro Subarea.

MWA Assistant General Manager, Adnan Anabtawi, provided an update on the development of MWA's Drought Program. The Mojave River has not experienced significant flow in more than 11 years and drought conditions are persisting. In April 2022, the MWA Board directed MWA staff to initiate development of a program to address drought concerns for their region. MWA staff reviewed water level data for their service area and report that water levels in some wells are at record lows. Mr. Anabtawi reported that due to a lack of substantial rainfall in the region, water levels are moving further along a long-term downward trend. Mr. Anabtawi noted that while the Mojave Basin Area Judgment is a long-term solution to overdraft and is working as intended, it is focused on long-term balance, rather than drought protection. As MWA staff develop the Drought Program, they are exploring whether factors other than local hydrology are impacting water levels and how the program will be funded. MWA staff plan to provide additional presentations to the MWA TAC and receive comments from stakeholders in the region as development of the Drought Program moves forward.

MWA Principal Hydrogeologist, Tony Winkel, provided an update on the Short-term Drought Response Pilot Program for the Centro Subarea. Mr. Winkel noted that these efforts comprise a case study for the Drought Program discussed previously by Mr. Anabtawi. The roughly 1,230 square mile Centro Subarea is located in the western portion of MWA's service area and includes the Lenwood area, Hinkley Valley, the City of Barstow, and Harper Dry Lake. Mr. Winkel reported that approximately 85% of the pumping in the Centro Subarea is focused around the area of Lenwood and Barstow. In an effort to address water level declines in that area, MWA began delivering State Water Project (SWP) water to the Lenwood Recharge Facility in May 2022. As of August 8, 2022, 1,741- acre feet (AF) of SWP water have been delivered, at an average rate of approximately 8 cubic feet per second. MWA staff have been measuring water levels in monitoring wells near the Lenwood Recharge Facility and have seen positive responses in some of the wells. Mr. Winkel provided hydrographs displaying water levels over time which showed water levels in some wells increased a couple of feet since the recharge efforts began. During this pilot program, MWA expects to deliver a total of 5,000 AF to the Lenwood Recharge Facility and Mr. Winkel estimates it will take another six to seven months to complete the delivery.

Other business was also discussed. The next MWA TAC meeting is scheduled for October 6, 2022.

3. Site 297 and Site 298 Site Visits and Remediation System Progress

– *Alonzo Poach*

On August 30, 2022, Water Board staff, Engineering Geologists Alonzo Poach and Todd Battey visited Site 297 and Site 298 at Edwards Air Force Base. Staff visited the sites during a groundwater monitoring event and toured the remediation systems at each site. Both sites are former gas stations. Site 297 is a former Army & Air Force Exchange Service (AAFES) gas station that was demolished in 2013. The primary chemicals of concern (COCs) at this Site include benzene, ethylbenzene, toluene, and xylenes (BTEX) compounds. Site 298 is a military vehicle fueling station with the primary COC being methyl tert-butyl ether (MTBE). The fueling station is still active, but fuel has been stored in aboveground tanks since 1995 when the underground tanks were removed.

During the site visit, Water Board staff were shown recent upgrades and briefed on remedial progress. Site remediation has been progressing quite well at both sites especially since site upgrades and remediation optimization activities have taken place during the last reporting period. Below is a summary of remedial progress at both sites and a summary of the site walk conducted on August 30, 2022.

Site Walk

Both sites have had extensive remediation system upgrades and system optimization efforts in the last one to two years. Water Board staff toured the remediation systems and well fields at both Site 297 and Site 298 and oversaw Air Force consultants conducting groundwater sampling.



Photo 3.1: View of the air sparge (AS)/soil vapor extraction (SVE) system at Site 297. The SVE system (beige system in background) was upgraded with a new Mako Industries Inc. (Mako) thermal/catalytic oxidizer SVE system in June 2021. This replaced the repurposed Baker Furnace SVE system that was installed onsite in 2019.



Photo 3.2: View of the upgraded BioSparging system at Site 298. Air compressor was upgraded/replaced (inside of trailer). Several flow regulators were also upgraded (seen on left side of photo) so that more air can be delivered to the subsurface.



Photo 3.3: Air Force consultant field crews collecting groundwater samples using low-flow sampling methodology at Site 298.

Remediation System Progress Site 297

In June 2021, The SVE portion of the system was upgraded. The old Baker Furnace system averaged 70-80% system uptime due to system issues. Since the SVE system was replaced, petroleum mass removal rates increased by 3.5 kilograms per day and the percent uptime for the SVE and AS systems increased to 98.5% and 97.0%, respectively. The system has made significant progress in remediating the site since the Corrective Action Plan was prepared in 2015.

A comparison of plume lengths over time for Site 297 is shown in the table below:

COC	Length of Plume in Feet			
	(February 2015)	(Nov-Dec 2018)	(February 2020)	(August 2021)
Benzene	600	529	424	272
Toluene	640	173	188	262
Ethylbenzene	505	140	188	163
Total Xylenes	305	150	188	190
1,2-DCA	697	635	654	511
EDB	330	288	344	122
MTBE	102	100	121	30

As shown in the table above, Site 297 has shown significant remedial progress in reducing benzene (i.e., the primary risk driver) and other contaminant concentrations at the site. Currently, the groundwater plume characteristic of the site meets low-threat closure criteria, but additional operation of the AS/SVE system is recommended to continue removal of residual petroleum hydrocarbons before rebound testing and confirmation soil samples can be collected.

Remediation System Progress Site 298

In March 2021, optimization efforts began at Site 298. A failing compressor was replaced and upgraded to a larger unit capable of delivering more air to the subsurface. The system at Site 298 is injecting a mixture of air and propane to the subsurface to aerobically biodegrade MTBE in the groundwater. The optimization and upgrades at Site 298 have been successful. Since the new compressor was installed April 2021, the system uptime has been approximately 96%. This is an approximate 40% increase in system uptime since the new compressor was installed. The BioSparging system has reduced concentrations in the treatment area by at least an order of magnitude. Although the optimization of Site 298 is progressing, the site is much more challenging because of the fractured granitic bedrock in the subsurface. Due to the complex nature of the fractured bedrock and fracture flow in groundwater, the BioSparge system needs continuous adjustment and optimization.

4. Standing Item: Status of Triennial Review Projects – Daniel Sussman

The Water Board adopted the current Triennial Review Priorities on March 10, 2022. State and federal laws require periodic review and revision of Basin Plans ([Resolution No. R6T-2022-0011](#)). The federal process is called “Triennial Review.” The 2022 Triennial Review priority list includes seven Basin Planning issues identified as High Priority. Additionally, the Triennial Review identifies six issues as Medium Priority and five as Low Priority.

Basin Planning is primarily the responsibility of the Planning and Assessment Unit. The unit is also responsible for the impaired waters (TMDL, Integrated Report) and surface water monitoring efforts (SWAMP). The unit currently consists of four Environmental

Scientists, one Water Resource Control Engineer, and one Scientific Aid under the supervision of a Senior Environmental Scientist.

The below table lists the prioritized 2022 Triennial Review High Priority issues and notes any progress. Issues are not prioritized within the High Priority category.

High Priority Issue	Progress
Evaluate Bacteria Water Quality Objectives	Draft amendment language, staff report, and Substitute Environmental Document distributed for review in February 2022. Board meeting informational item presented in March 2022. Response to comments and project refinement in process.
Editorial Amendment (Mojave)	The Board adopted Resolution No. R6T-2022-0021 in June 2022. The item is scheduled for State Board action December 6, 2022.
Groundwater Protection Prohibitions	No progress. Staff assessing organization of Basin Plan groundwater basins differing from Department of Water Resources basins.
High Quality Beneficial Use	No progress.
Riparian, Floodplain, and Wetland Protection Updates	No progress; hours included in FY 22-23 workplan.
Tribal Beneficial Use and Subsistence Beneficial Use Designations	Tribal Summit held June 15, 2022. Currently in period of soliciting Tribal requests for designation.
Update Total Nitrogen WQO for Hot Creek	Initial stages of data collection, site visit, intra-divisional coordination, discussions with California Department of Fish and Wildlife, and information summary.

5. Leviathan Mine, Alpine County – Leviathan Unit

Water Board staff continue site cleanup work at Leviathan Mine. This work also involves directly coordinating with United States Environmental Protection Agency (USEPA), Atlantic Richfield Company (AR), and project stakeholders. The stakeholders include the Washoe Tribe of Nevada and California, Nevada Division of Environmental Protection, and the United States Forest Service.

Leviathan Mine Background

Leviathan Mine is an inactive mine located in Alpine County, California, approximately six miles east of Markleville as shown in Figure 5.1. Past mining activities resulted in

the perpetual generation and discharge of acid mine drainage (AMD) from the mine property. The discharge of AMD adversely impacts downstream receiving waters.



Figure 5.1— Leviathan Mine site location

USEPA placed Leviathan Mine on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List on May 11, 2000. This action made the site a federal Superfund site. As such, pollution abatement work at the site must follow the Superfund process outlined in Figure 5.2.

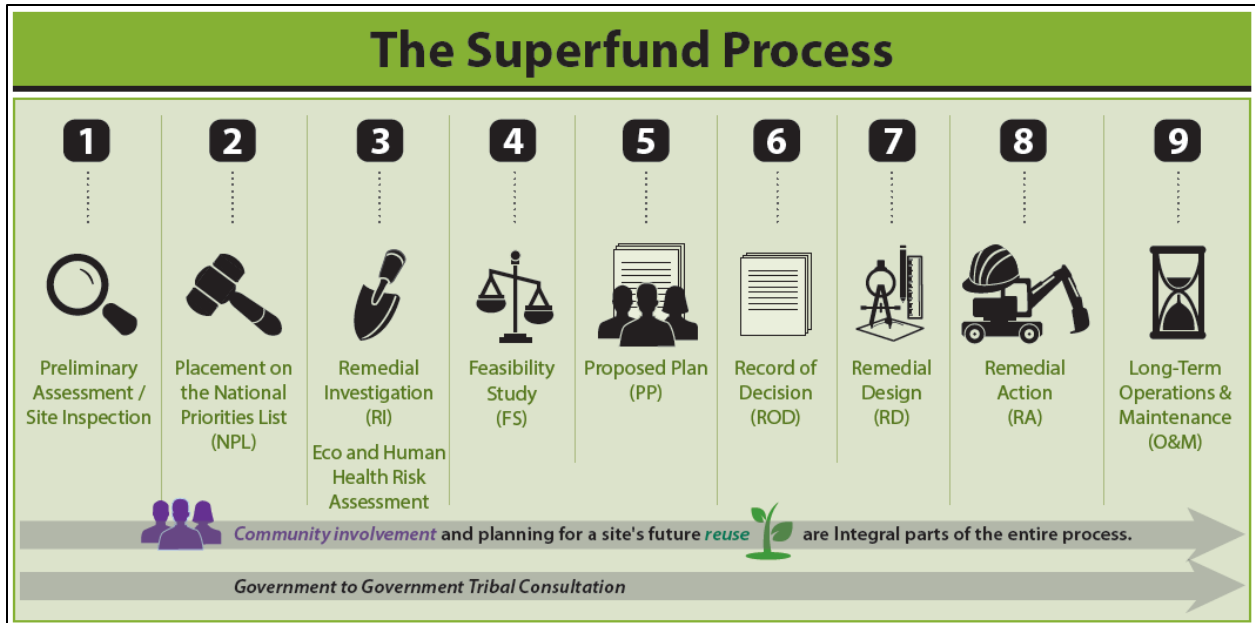


Figure 5.2—The Superfund Process

As an outcome of Step 1 in the Superfund process (Preliminary Assessment/Site Inspection), the Water Board and AR were ordered by USEPA to perform specific early response actions (also referred to as removal actions), including the capture and treatment of AMD. Water Board and AR continue to implement these early response actions on an annual basis.

The Water Board and AR are currently working through Steps 3 and 4 of the Superfund process (Remedial Investigation and Feasibility Studies) with the USEPA. For these steps, AR performs various remedial investigations. The studies generated from these investigations will inform the selection of final remedial actions for the site. An Early Final Remedial Action can be implemented prior to completion of remedial investigations that are needed to address broader issues at the site. USEPA is currently considering a possible Early Final Remedial Action to address remaining untreated discharges of AMD.

Long term, the Superfund process resolves to selecting a final remedial action in a Record of Decision (Step 6), followed by the design (Step 7) and construction of the remedial action (Step 8).

Field Season Activities (June to October)

Treatment System Operation

The Water Board’s treatment goal for each year is to empty the evaporation ponds during the field season (June 1 to October 15) so that maximum storage capacity is available to contain AMD captured during the wet season. This year, treatment occurred for 22 days from July 6 to 28, 2022. During this time, the system processed approximately 2.7 million gallons of AMD. Since 2000, the system has treated over 168 million gallons of AMD.

Treatment System Improvements

Water Board staff anticipate that USEPA will require the Water Board to continue treating AMD on an annual basis for the next 5 to 10 years. Therefore, improvements are needed to extend the service life of the existing treatment system. Primary objectives of the proposed improvements include removal of system components that are no longer in use, reduction of system footprint, replacement of reactor tanks, and modifications to improve the health and safety for system operators and Water Board staff.

Water Board staff are working with design consultants to develop construction drawings and specifications for proposed improvements to the Water Board's AMD treatment system. Initial work on the system improvements is planned for the 2022 field season. Additional improvements will occur during the 2023 and 2024 field seasons.

Early Season Treatment Improvements

Water Board contractors constructed improvements for a backup AMD treatment system. This system can be used to treat AMD in the evaporation ponds during years when inflow to the evaporation ponds is expected to exceed pond storage capacity before the summer treatment system can be brought online. Completed improvements included regrading/resurfacing of a service road and construction of a concrete pad to provide a stable location for placing the backup AMD treatment system.

Fire Hardening Activities

Water Board staff met with California Department of Forestry and Fire Protection (CalFire) and Alpine County Volunteer Fire Department representatives on August 17, 2022 to discuss wildfire infrastructure hardening measures. CalFire staff provided specific recommendations for vegetation management in areas adjacent to the Water Board's AMD treatment system. Water Board staff plan to complete this vegetation management during the 2022 field season.

Settlement Agreement Activities

A complex cost-sharing and accounting system established by the *Leviathan Mine Site Work and Cost Allocation Settlement Agreement* requires the Water Board to credit AR for costs related to remediation investigation studies (Figure 5.2, Steps 3 and 4). Specifically, AR is to receive a 40-cent credit toward future remedial action construction (Figure 5.2, Steps 7 and 8) from the Water Board for every one-dollar more than \$11 million spent by AR on these studies. Water Board staff therefore review AR's study expense reports. As of the review of second quarter 2021 expenses, Water Board staff and AR agreed that AR had spent \$55.9 million in total on these studies, making AR's credit approximately \$18 million.

Outreach Activities

Working with the community and consulting with tribal governments is a part of the

entire superfund process, as shown by the grey areas on Figure 5.2.

Online Site Tour

USEPA hosted an online site tour of Leviathan Mine on April 28, 2022. This online tour was a joint venture between Water Board, USEPA, and AR representatives. The presentations focused on past, present, and future activities at the mine site. This online meeting was well attended by representatives from the Washoe Tribe of Nevada and California, members of the public, and other stakeholders.

Online Presentation

USEPA hosted an online presentation sponsored by a volunteer-run, educational non-profit organization on August 29, 2022. The organization, GreenACTnv, promotes sustainable practices and environmental responsibility. Water Board staff joined USEPA, AR, and Washoe Tribe of Nevada and California representatives to present to GreenACTnv members and plan to follow up the presentation with a site tour on September 28, 2022.

In-person Site Tour and Public Meeting

USEPA is planning for a site tour and an in-person public meeting in November 2022. The site tour is planned for Washoe Tribe on November 1, 2022. The in-person meeting is tentatively planned for later in November 2022. Water Board and AR staff will lead the November 1 site tour.

Long-term Remediation Activities

Early Final Remedial Action

AR submitted a Focused Feasibility Study for a proposed Early Final Remedial Action (EFRA) on August 6, 2021, and a Technical Impracticability Evaluation for the EFRA on September 30, 2021. Water Board staff submitted comments on both these documents on January 14, 2022 and presented these comments at the March 10, 2022 Board Meeting (see Item No. 10). These documents lead into Step 5 on Figure 5.2. Water Board staff have not yet received a response to their comments from either USEPA or AR.

Sitewide Remedial Investigation and Feasibility Study

USEPA recently set a date of April 28, 2023 for AR's submittal of the Draft Remedial Investigation Report for stakeholder review. This report is part of finalizing the work for Step 3 on Figure 5.2. Water Board staff plan to meet with USEPA to discuss and hopefully resolve concerns prior to the stakeholder review. As a starting point for further discussion, Water Board staff are submitting a list of concerns to USEPA in October 2022.

