EXECUTIVE OFFICER'S REPORT
Covers June 1, 2022 – June 30, 2022

Contents

1. Personnel Report – *Sandra Lopez*

New Hires - None

Vacancies

- 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.
- 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.

- Engineering Geologist, Cannabis Unit, 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.
- Scientific Aid, Regulatory & Enforcement Unit, South Lake Tahoe. This position supports staff primarily though 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.
- Scientific Aid, Planning & Assessment Unit, South Lake Tahoe. This position will help the Water Board's programs that conduct surface water quality monitoring, identify water quality impairments, conduct water quality and watershed restoration planning, and update and improve the Water Quality Control Plan (Basin Plan) of the Lahontan 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.

Promotions

- Timothy Middlemis-Clark, Supervising Water Resource Control Engineer, South Lake Tahoe. This position will plan, organize, coordinate, and report the work of the Regulatory and Enforcement Unit's activities.

2. NPDES permit update on implementation of the Tahoe Keys Lagoons Aquatic Weeds Control Methods Test – *Tiffany Racz*

This report provides an update on the discharge of aquatic pesticides in the Tahoe Keys Lagoon for the Tahoe Keys Lagoons Aquatic Weed Control Methods Test (CMT).

On January 13, 2022, the Lahontan Water Board adopted Order No. R6T-2022-0004 (Order) authorizing the Tahoe Keys Property Owners Association (TKPOA) discharges associated with the CMT. The CMT is a three-year test designed to evaluate the effectiveness of methods to eradicate aquatic invasive species in the Tahoe Keys Lagoons. The first year includes both chemical and non-chemical methods, and the last two years include only non-chemical methods.

Non-chemical methods consist of ultraviolet light (UV-C) and laminar flow aeration in 30.9 acres of the Tahoe Keys Lagoons. Chemical methods involve use of two aquatic pesticides, Endothall and Triclopyr, in 15.5 acres of the Tahoe Keys Lagoons.

The TKPOA provided a monitoring plan, contingency plan, and amendments to the aquatic pesticide application plans prior to application of aquatic pesticides. Requirements also included use of an advective tracer dye concurrent with pesticide application to track movement of water carrying both chemicals.

The TKPOA began a week of pesticide application on May 25, 2022, when hydraulic flow conditions from Lake Tahoe were into the Tahoe Keys Lagoons. Application continued to May 31st. During that period there was a release of both Endothall and Triclopyr outside of the treatment area. TKPOA implemented contingency procedures for an unauthorized discharge. The procedure included increasing the sampling frequency of tracer dye and pesticide and extending the monitoring area to the Main Channel (site CSTN106 in Figure 2.1). Additional contingencies included extra protective barriers and further extending the monitoring area beyond requirements. These practices continued until the concentrations in the receiving waters were less than detection limits.

The most recent draft monitoring results show no detection of aquatic pesticides at the monitoring site closest to Lake Tahoe at the main channel entrance (site number CSTN106). During this time, water was flowing from the lake into the lagoons.

The next major stages in the CMT are responding to any potential harmful algal bloom (HAB) associated with the CMT if it occurs and removing the protective barriers in accordance with the conditions specified in the NPDES permit.

Figure 2.1 Map of TKPOA CMT treatment sites, monitoring locations, and barriers

3. **Lahontan Water Board Tribal Summit –** *Jennifer Watts*

Staff in the Planning and Assessment Unit (PAU) held a virtual Tribal Summit on June 15, 2022, via Zoom. The Tribal Summit served as a kick-off event for the Water Board's effort to designate waterbodies in the Lahontan Region with Tribal Beneficial Uses (TBUs). The TBUs were established by the State Water Board in 2017 and recognize the need to protect water quality to support cultural and subsistence uses of water by California Native American Tribes. The Lahontan Water Board adopted a basin plan amendment in 2020 to add the definitions for the TBUs to the Water Quality Control Plan for the Lahontan Region (Basin Plan) that was fully approved in 2021, however, no waterbodies were designated at that time. Background information about the TBUs can be found on the State Water Board website located here: https://www.waterboards.ca.gov/tribal_affairs/beneficial_uses

The goals of the Tribal Summit included 1) introduce TBUs as a way to protect Tribal cultural uses of water, 2) share information so Tribal Nations can meaningfully engage in the TBU designation process, and 3) establish relationship and dialogue with Tribes to hear concerns, needs, or questions and discuss the path to designation of waterbodies with TBUs. Throughout the Tribal Summit, staff emphasized the need for participation and input from Tribal Nations, since they play an essential role in identifying waterbodies deserving of TBU designation. Staff provided guidance on the information that Tribal Nations should provide to the Water Board to support proposed TBU waterbody designations. Staff also shared a proposed timeline for developing a Basin Plan amendment to designate TBUs that is projected to take about two years.

Staff solicited questions, comments, and input from attendees of the Tribal Summit and provided responses where appropriate. Examples of the issues that came up during the meeting include comments by several Tribal members about the importance of looking at water resources in a holistic fashion and recognizing the connections between surface water and groundwater. Commenters shared how Tribal water management and irrigation practices based on traditional ecological knowledge had previously maintained heathy waterways. An additional concern brought up was the importance of establishing standards in how to communicate with each other to avoid misinterpretation and to improve understanding.

PAU staff oversaw the planning and coordination for this event, with assistance from Tribal Affairs staff in the State Water Board's Office of Public Participation. Over 80 Tribes with current or ancestral lands in the Lahontan Region were invited to attend the Tribal Summit and attendance was limited to Tribal leaders and Tribal government representatives. Altogether, Tribal leaders and representatives from ten Tribal Nations located throughout the Lahontan Region and the west slope of the Sierra Nevada attended the Tribal Summit.

As we move forward with the TBU designation project, the next steps involve continuing outreach efforts to Tribal Nations with ties to the Lahontan Region. This includes preparing a letter to Tribal leaders and Tribal government representatives to request input on the proposed timeline and a process for receiving requests for TBU designations. Additionally, the letter will provide guidance on the information needed to support those requests and encourage Tribes to begin submitting them to us now. We also plan to extend invitations to Tribal Nations to meet individually or in regional groups with Water Board staff and management to discuss any questions or concerns they may have. Ultimately, the Tribal Summit served as a valuable opportunity to establish relationships with Tribal leaders and Tribal government representatives that we intend to build on in the future as we continue our outreach to Tribal Nations.

4. **Projects to Inform Future Strategies for Aquatic Invasive Plants and Harmful Algal Bloom Control Measures** – *Sabrina Rice*

Tahoe Keys Property Owners Association Laminar Flow Aeration Special Study

Since 2019, the Tahoe Keys Property Owners Association (TKPOA) has been testing the effectiveness of a Laminar Flow Aeration (LFA) system to control aquatic invasive plants. Since installation of the LFA system, Water Board staff has collaborated with

TKPOA to learn if LFA technology may also be effective as a non-chemical control measure for harmful algal blooms (HABs).

LFA technology relies on inverting and oxygenating water to help reduce and lock up nutrients from being biologically available for plant growth. The system is placed at the bottom of the water column where it releases oxygenated bubbles allowing the water column to completely mix and introduce dissolved oxygen throughout the water and sediment. The system also creates a healthier environment for microbes to thrive and help decompose the muck layer at the bottom of the water column.

In partnership with TKPOA, and as weather and funding allow, sampling has occurred monthly during the typical growing period (April – November). Three locations within the influence of the LFA system and one control site are monitored. Analytes monitored are Total Nitrogen, Nitrate, Nitrite, Total Phosphorus, Ortho Phosphorus, Ammonia, Chlorophyll-a, and HABs. Field staff are also recording field observations and collecting meter readings for parameters including temperature, pH, turbidity, conductivity, and dissolved oxygen.

Harmful Algal Bloom Results Associated with the LFA Special Study

Results from the past three years of data collection have shown that anatoxin-a, a toxin associated with HABs present in the Tahoe Keys lagoons, is the first detectable toxin present, occurring in mid-late July and peaking in September. Overall, the mean value of toxin levels in 2021 were lower at three of the four sample locations, which included the control site, compared with those measured during 2019 and 2020. It is unknown whether reduced toxin levels are associated with the operation of the LFA system alone and/or a combination of other factors (changes in weather, water levels, nutrient inputs).

Tahoe Keys Property Owners Association - Control Methods Test

After receiving approval from the Water Board, the TKPOA moved forward with implementation of the Control Methods Test (CMT) - a three-year project to evaluate treatment methods to control target aquatic invasive weeds (refer to EO Report item 2, above). In addition to the monitoring associated with the LFA Special Study, TKPOA is expanding its monitoring throughout the Tahoe Keys lagoons to determine the effectiveness of the control measures being implemented with the CMT project. Results on the efficacy of treatment measures are expected in the Fall 2022. The results will provide key information toward development of a long-term strategy to address the infestation of invasive weeds within the Tahoe Keys lagoons and their potential spread to Lake Tahoe.

Moving forward, Water Board staff is hopeful that the information provided by the CMT effectiveness monitoring study and the LFA special study will help inform effective approaches that can be applied to control Aquatic Invasive Plants and HABs within the Tahoe Basin and other impacted surface waters throughout the Lahontan region.

5. **Standing Item - Clean Water Act Section 319(h) Program 2022 Updates –** *Mo Loden*

Restoration Grant Awarded to Truckee River Watershed Council

The State Water Resources Control Board's (State Water Board) Nonpoint Source Grant Program is supported by funds from the U.S. EPA provided under the Clean Water Act (CWA) section 319(h). Annually, funding to reduce nonpoint source pollution is awarded in a competitive statewide grant solicitation and review process in which Nonpoint Source Unit staff actively participate. During the 2022 CWA 319(h) grant cycle, the Truckee River Watershed Council (TRWC) submitted a successful proposal to reduce sediment and enhance wetland and riparian areas within the Snow Crest meadow located in the Bear Creek watershed, a key tributary to the Truckee River. The project is a multi-jurisdictional partnership between non-profit and project proponent TRWC and the landowners Alpine Springs County Water District, U.S. Forest Service, Tahoe National Forest-Truckee Ranger District, and a private landowner. The total project cost is $406,932; the 319(h) grant award is $305,199. Matching funds and services totaling 25% of the total project cost were contributed by California Department of Fish and Wildlife and The Martis Fund. Since this project was approved for 319(h) funding, TRWC requested to add an additional $80,000 to 100,000 to the project to reconnect spring flow at two locations within the Bear Creek watershed upstream of the Snow Crest Project to its natural course. The State Water Board has approved this request and the official paperwork is in process.

The Snow Crest Tributary Restoration Project will remove abandoned road grades, address channel incision, increase floodplain connectivity, and restore approximately two acres of degraded montane meadow to reduce suspended sediment to the Truckee River by 0.26 tons/year. This project directly supports the middle Truckee River watershed's Total Maximum Daily Load (TMDL) plan for sediment as established by the Lahontan Water Board in 2008.

Lahontan Water Board staff strongly advocated for the project during the 2022 CWA 319(h) grant review and selection process. Staff will continue to support the project by processing grant invoices and work products, reviewing final design plans, and issuing CWA section 401 water quality certification and Basin Plan prohibition exemptions to ensure project success.

The TRWC has proven to be an incredibly competent and effective restoration-driven organization and 319(h) grantee. They have received funds from this program several times including the last four cycles since 2019 totaling near $2.5 million. Their positive work has made immense progress towards improving and protecting the Lahontan Region's watersheds.

Surplus of Clean Water Act (CWA) Section 319(h) Funds

Due to a record low number of CWA 319(h) applications submitted during the 2022 request for proposal period (RFP) and various other circumstances, there was a surplus of approximately $2 million available. Both State and Regional Water Board staff working in the 319(h) Program met in early 2022 to discuss options for the excess funds. Collaboratively, staff determined existing grantees could request additional funds to expand on existing 319(h) projects as a first preference for expending the funds. Any subsequent funding leftover was re-allocated to a second 2022 CWA section 319(h) RFP period. TRWC submitted an additional application for $395,418 in the second RFP to reduce sediment loading in the Prosser Creek watershed through approximately 16

miles of dirt road improvements. The final selection period for the second 2022 RFP will occur in September. Current regional 319 grantee, TRWC, also requested an additional $361,259 in total to increase Coldstream Canyon and Euer Valley scopes of work to include more wetland habitat rehabilitation and improved roads to reduce excess transfer of sediments and to restore hydrologic connectivity in each respective area.

State and Regional Water Board staff are exploring program improvements to increase 319(h) outreach in the future as well as considering adaptations to the 2023 Grant Guidelines that would encourage more eligible organizations to apply for funding. Due to the West Fork Carson River Vision Plan nearing adoption this upcoming fall, staff proposed expanding the Lahontan Regional Program Preferences to allow for implementation or planning proposals in that waterbody. Furthermore, to be creative and diversify the 319 funding throughout the Lahontan Region, staff also recommended that all 303(d) listed waterbodies be included in the 2023 Regional Program Preferences to allow planning proposals to be submitted in those waterbodies. The proposed expansions in the 2023 Grant Guidelines requires State Water Board and U.S. EPA approval before being considered final.

Three Recently Completed Restoration Projects Supported by 319(h) Grants

- TRWC's Mainstem Truckee River Sediment Reduction Project closed out and completed all necessary work by February 2022. The project was awarded $300,000 in the 2016 NPS 319(h) grant cycle to reduce excess sediment generated along the main stem of the Truckee River in support of attainment of the Truckee River TMDL. Primary outcomes of the project included reducing sediment loads by up to 60 tons per year, identifying 15 additional sediment sources for future work, improving 275 linear feet of incised stream channel, and restoring four acres of wetland meadow.
- In the 2017 grant cycle, both TRWC and Trout Unlimited were awarded grants to reduce sediment in the Middle Truckee River watershed.

Figure 5.1 - Pre-project: Roadway without drainage features exhibiting significant erosion

Figure 5.2 - Post-project: Improved road conditions and drainage features

- TRWC was awarded $524,640 for the Truckee River Tributaries Sediment Reduction Project. Pre-project monitoring narrowed the project's focus to various tributaries identified as the highest sediment discharges to the Truckee River. The project improved over 30 miles of dirt roads, decommissioned nine miles of unnecessary dirt roads, and enhanced watershed function across 11,000+ acres reducing sediment load by up to 326 tons per year. By project completion in December 2021, each of the objectives were met, and pre- and post-project monitoring demonstrated the project was successful in reducing excess sediment generated in key tributaries to the Truckee River in support of the Truckee River TMDL, the project goal.

Figure 5.3 - Artificial beaver dam slowing and dispersing water so sediment can settle, and erosion is decreased

- Trout Unlimited was awarded $782,454 for the Reducing Sediment in Squaw Creek through Meadow Restoration Project to reduce sediment loading to the creek as well as improve aquatic and riparian habitat. The project successfully re-activated 3,000+ linear feet of relict channel system, installed 13 artificial beaver dam structures, connected approximately 25 acres of wet meadow habitat, and activated approximately five acres of inset riparian floodplain. Sediment load reductions were estimated at 25 tons per year. Observations made during field visits demonstrated an overwhelming surge in fish and dragonfly hatches in 2020 and 2021 and abundant garter snake populations. Though not quantitatively evaluated, project management observations and communications with longtime residents indicated an increase in species abundance. Aquatic habitat and benthic macroinvertebrate scores were higher towards the project's end in February 2022. These improvements are working towards achieving the numerical target for biological health as set in the Squaw Creek TMDL plan.

6. **USEPA Decision on Arroyos Dispute - Item 6 (Soil Remedy), Edwards Air Force Base Operable Unit 4/9 – July 2022** – *Alonzo Poach*

The Edwards Air Force Base (Edwards AFB) Arroyos Record of Decision (ROD) dispute was initiated in November 2014 by the Department of Toxics Substances Control (DTSC) and the United States Environmental Protection Agency (USEPA), Region 9. After over seven years of formal negotiations, the USEPA Region 9 Regional Administrator (RA), Martha Guzman Aceves, issued a written position (i.e., a decision)

on the Edwards AFB Arroyos Dispute in a letter dated March 10, 2022. The decision became final on March 25, 2022.

The resolution, as outlined in RA Guzman Aceves' written position, requires the Air Force to incorporate 10^{-6} risk levels for cleanup goals, remove references to proposed 10^{-5} action levels, update several other issues regarding risk with previously agreed upon language, implement worker protection actions for specific buildings, and issue a new Proposed Plan.

The decision settled the disputed items listed above and directed the dispute resolution committee (DRC) to finalize a Written Decision on an EPA dispute item regarding the soil remedy (dispute item 6). The Air Force and regulatory agencies agreed to remove the soil exposure pathway from the Arroyos ROD and address the soil pathway in a separate future decision document. The collective decision was finalized on June 15, 2022, and signed by all DRC members representing the USEPA, DTSC, Lahontan Water Board and the Air Force.

The Air Force provided a revised Draft Final Arroyos ROD implementing the RA's and DRC's decision on May 22, 2022. The revised Draft Final Arroyos ROD is currently under review by DTSC, USEPA, and the Lahontan Water Board. Comments are due by July 25, 2022.

7. **Updates on Water Banking Study and 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 June 2, 2022. Items covered at the MWA TAC meeting included updates on the MWA's Water Banking Study and Short-term Drought Response Program for the Centro Subarea.

MWA Principal Hydrogeologist, Tony Winkel, provided a presentation on a potential water banking project being considered for the MWA Service Area. As a State Water Contractor, MWA currently has the ability to import State Water Project (SWP) water from the California Aqueduct (Aqueduct) to artificially recharge groundwater basins in the MWA Service Area. MWA can later extract, or pump, the recharged water from the basin for use. MWA also participates in water transfers and exchanges with other State Water Contractors. The proposed project would expand MWA's efforts by developing a water banking program that would involve storing imported SWP water through artificial recharge into basins within their Service Area for later extraction and return to the Aqueduct for downstream users. MWA is expecting to charge a fee for rental of space in their groundwater basins and that a portion of the banked water would be left behind to support the health of their groundwater basins. MWA is looking to a potential partnership with the Metropolitan Water District of Southern California for the construction of infrastructure including pipelines and recharge, extraction, and monitoring facilities.

Mr. Winkel also presented an update on the Short-term Drought Response Program for the Centro Subarea. 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 occurs along the Mojave River and is focused around the Lenwood area. It has been over 11 years since there was significant flow in the Mojave River at Barstow and the Lenwood area sentinel water level monitoring well is documenting historic water level lows. MWA is currently delivering 5,000-acre feet (AF) of SWP water to their Lenwood Recharge Facility to provide short-term relief under this drought response pilot program. This is the largest artificial recharge event that MWA has implemented at the Lenwood Recharge Facility. The facility has an operating capacity of 15 cubic feet per second (cfs), but for safety reasons, MWA is expecting to deliver the imported SWP water at 6 cfs. At that rate, MWA anticipates it will take over a year to complete the delivery. Mr. Winkel is estimating an increase in water levels of approximately 10-to-20-feet from this 5,000 AF artificial recharge event. MWA is closely monitoring water levels, and this artificial recharge event is an opportunity for MWA to evaluate basin response. Mr. Winkel also noted that if during the time that MWA is delivering water to the Lenwood Recharge Facility a large storm causes stormflows in the Mojave River, MWA will stop delivery of imported SWP water to reduce the potential for impacts from flooding.

Other business was also discussed. The next MWA TAC meeting is scheduled for August 4, 2022.

8. **Fire at Nursery Products Hawes Composting Facility, Smoldering and Smokey: No Water Quality Impacts and Management Changes Already Underway** – *Jan Zimmerman*

Nursery Products Hawes Composting Facility (Nursery Products) site personnel reported a compost fire to Water Board staff on May 31, 2022. The fire reportedly started in the afternoon of May 28, 2022, while the area was experiencing relatively high winds. San Bernardino County Fire responded and found that water was not as effective as they had thought it would be due to the high winds; what proved to be more effective was the use of heavy equipment to move material around and to cut contingency lines through the piles to cool it off, periodically dowsing with water to reduce smoke and increase cooling rates. On May 29, 2022, the fire department determined that since there was no threat to life or structures, site personnel could manage the fire with their own resources. By June 2, 2022, open flames had been put out, but areas were still smoldering, and smoke was detected as far east as Barstow. Firefighting operations continued at the site throughout the month of July.

The Nursery Products Hawes Composting Facility is owned and operated by Synagro WWT, Inc. and sits on 80 acres located about 8 miles west-southwest of the town of Hinkley in San Bernardino County (Figure 8.1). The facility was constructed in 2010 as a “waste pile” under Board Order No. R6V-2010-0010 in accordance with California Code of Regulations, title 27. The composting operation is underlain by an engineered pad and all onsite stormwater runoff is directed to the two lined surface impoundments on the north side of the site. In 2016, the Water Board rescinded Board Order No. R6V-2010-0010 and enrolled Nursery Products under the statewide General Waste Discharge Requirements for Composting Operations, Water Quality Order 2015-0121-DWQ (General Order) because site operations warranted it. Water Board staff have and

continue to work closely with staff from CalRecycle and the San Bernadino County Department of Public Health, which is the Local Enforcement Agency (LEA), as co-regulators of the site.

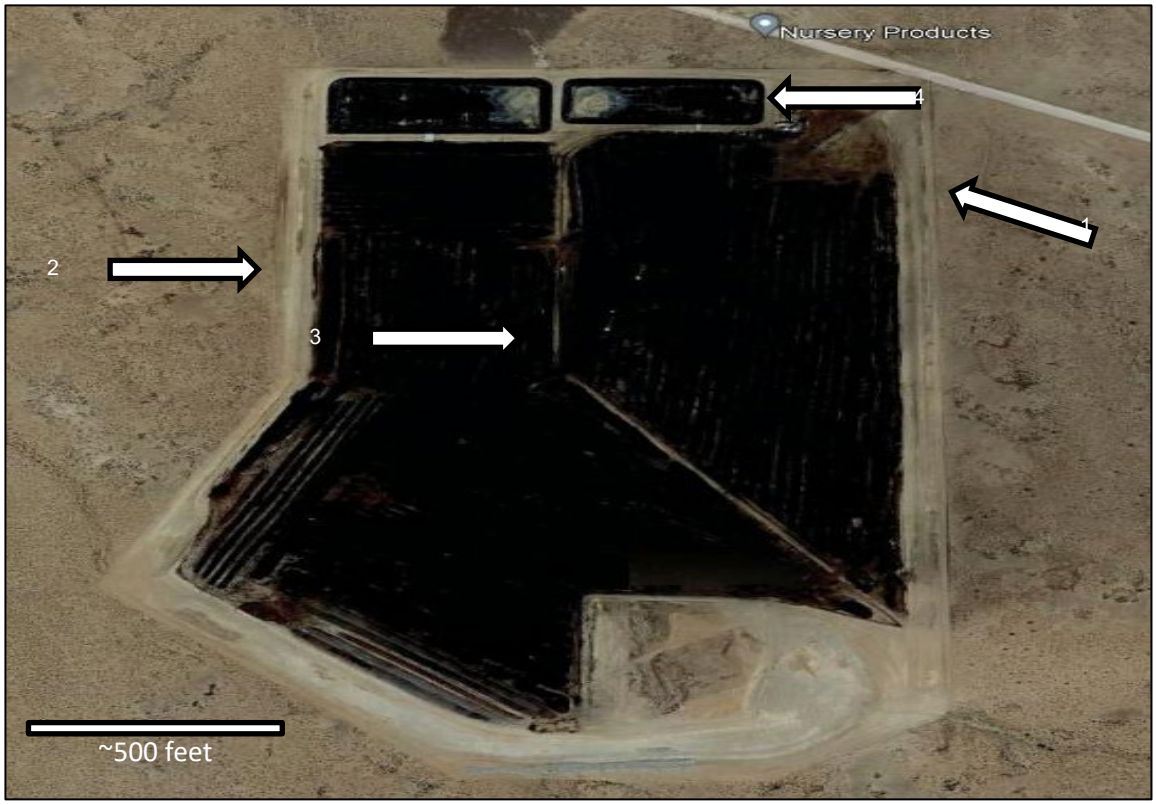

Figure 8.3 - Google Earth image of Nursery Products Hawes Composting Facility. Block arrows indicate location and direction of photograph in subsequent figures (i.e., “photo location no. 1”).

Nursery Products composts green waste and biosolids and adds amendments in lesser quantities to achieve their final product which is sold to retailers and industry. Unfortunately, fire at composting facilities is common due to the temperatures needed to meet treatment requirements, and there is an uptick in frequency of fires at these types of facilities as outside temperatures rise during the summer months. For facilities that compost biosolids, the curing process requires the material to be at 131 degrees Fahrenheit for 15 consecutive days to treat for pathogens and to create the product for the consumer. It’s when temperatures reach 180 degrees or higher that there is a potential for the material to spontaneously combust. That means that site personnel need to pay close attention to compost temperatures and rotate and mix the material to keep it at optimum temperature. It also means that site operations need to ensure that windrow size is manageable to monitor temperatures effectively (not too tall and not too long) and to maintain sufficient room between piles to allow easy access for heavy equipment to enter and maneuver around.

Since the fire erupted at Nursery Products on May 28, 2022, there have been many complaints submitted to the California Environmental Protection Agency (CalEPA) complaint system, the California Office of Emergency Services (CalOES), and directly to

various state and local agencies. The Mojave Desert Air Quality Management District (AQMD) has reportedly received nearly 200 individual complaints regarding poor air quality associated with the fire and smoke at Nursery Products. The Water Board received one individual complaint and it was regarding smoke in Barstow. From the beginning, San Bernardino County LEA has been instrumental in coordinating with and sharing information amongst state and local agency staff investigating the fire at Nursery Products.

On June 23, 2022, Water Board staff, Jan Zimmerman, attended a multi-agency inspection of the facility that was led by San Bernardino County LEA. Other agencies represented included CalRecycle, Mojave Desert AQMD, San Bernardino County Fire Prevention, and San Bernardino Hazardous Materials Division. The purpose of the inspection was to observe activities underway and planned, to control and manage the fire and to document conditions at the site.

At the time of the inspection, approximately 24 acres of the 80-acre site was still smoldering. In the northeastern portion of the site, it was observed that there was an apparent lack of discrete windrows (Figure 8.2), and that heavy equipment had limited access to the interior portion of the smoldering area and was primarily tilling and moving material around the perimeter of the pile. Site personnel indicated that they were awaiting the arrival of a second bulldozer which would be used to cut accessibility paths through this area of the site. Site personnel indicated that they also use a helicopter to strategically drop water (325 gallons per bucket) on areas of limited access, using up to 14,000 gallons of water a day when the helicopter is in use; the helicopter was not in use at the time of the inspection.

Figure 8.4 - Photo location no. 1, view of smoldering material in the northeastern portion of the site. The material was oxidized from the heat of the fire and excessive internal temperatures of the material.

In the western and central portions of the site the windrows were more apparent (Figures 8.3 and 8.4), though it was observed that the heights of the rows varied, which site personnel indicated, was the result of turning and tilling to cool the material and not an operational norm. Also, the smoke appeared to be denser on the western side of the site with pockets of hot material as seen in Figure 8.3. Site personnel indicated that they plan to continue to turn the windrows, dowse with water to control smoke, and build sand berms to control and extinguish the smoldering as soon as possible. Site personnel also plan to return the windrows to their normal operating height of about 10 feet when the fire response is over.

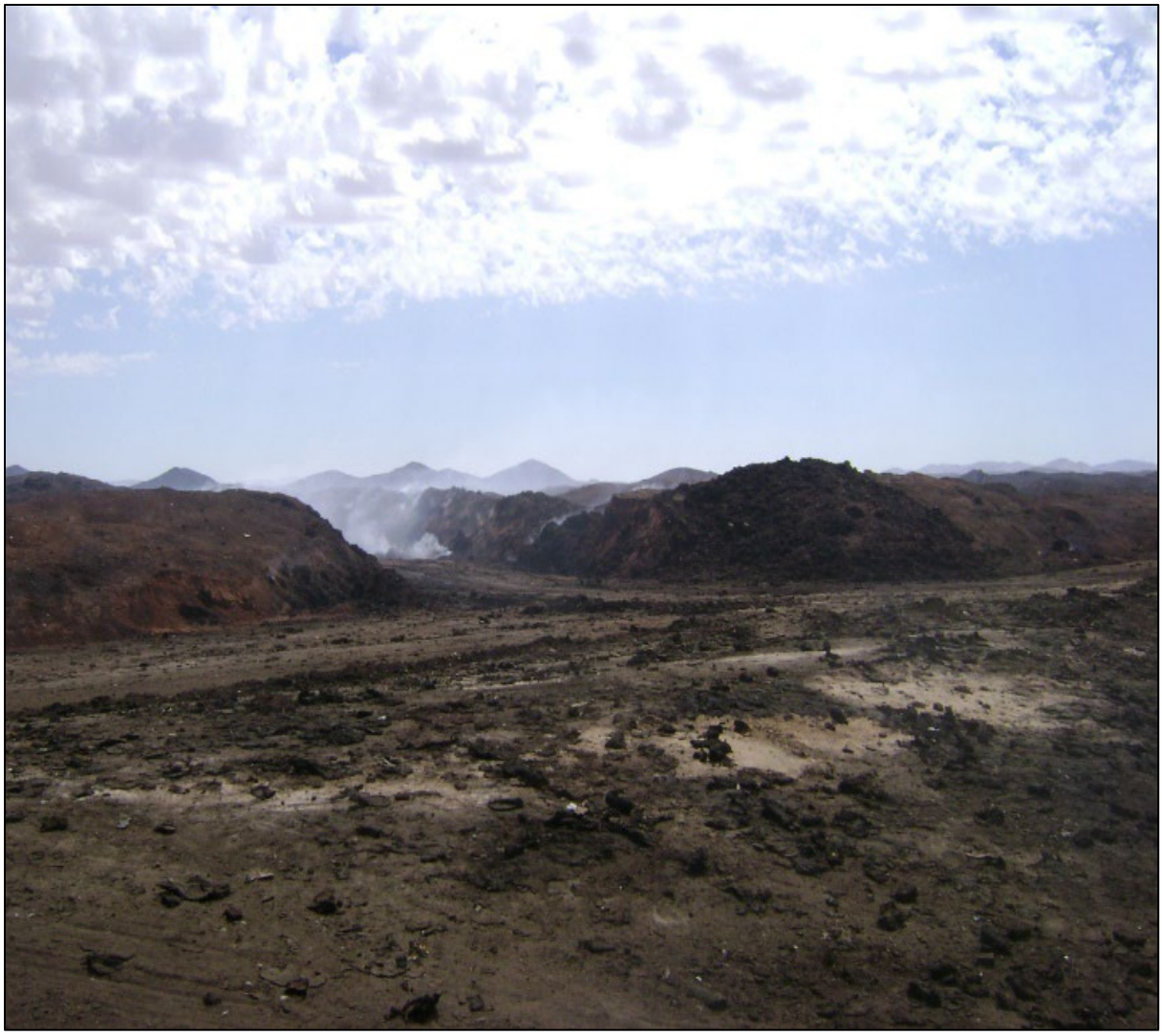

Figure 8.3 - Photo location no. 2, view of smoldering material along the western portion of the site. The windrows are more apparent in this portion of the site, though the heights vary due to heavy equipment frequently turning and tilling the piles.

During the inspection, San Bernardino County Fire personnel made note of the access roads throughout the site, with the access roads between windrows generally being about 15 feet wide (see Figure 8.4). Fire regulations require that the roads be a minimum of 26 feet wide throughout the site to allow for sufficient access for firefighting equipment to enter and turn around. Site personnel indicated that they would work to widen all access roads to the required 26-foot width.

Figure 8.5 - Photo location no. 3, view of interior of site between windrows. The access road between windrows is about 15 feet wide. During the inspection, San Bernardino County Fire indicated that roads need to be a minimum of 26 feet wide between windrows.

At the time of the inspection, the surface impoundments were surprisingly dry given the volume of water that was being used daily for suppression since the fire started (Figure 8.5). What little water was observed in the surface impoundments is likely attributed to the storm event that rolled over the site the night before and dropped approximately 1/10-inch of rain. The lack of evidence of runoff observed during the inspection is likely the result of a high rate of evaporation/steam from the smoldering piles and a reflection of the high holding capacity of compost material.

Figure 8.6 - Photo location no. 4, view of one of the onsite lined surface impoundments. All runoff from the site is directed to the surface impoundments for evaporation.

Water Board staff did not identify any violations during the inspection but did note that there appeared to be an excessive volume of material on the site. This excess volume of material is likely a primary factor hindering site personnel from getting the upper hand on the smoldering piles; there is simply too much material given the size of the site and the area within, that site personnel must work within. Site personnel indicated that in November 2021, there was a total of 560,000 cubic yards of material onsite (including feedstock and finished product) and that their plan going forward is to reduce the onsite total volume to less 300,000 cubic yards per year. This lesser onsite volume will allow site operations to ensure that windrow size is manageable to monitor temperatures effectively (not too tall, not too wide, and not too long) and to maintain the required 26-foot road widths between windrows and throughout the site to allow easy access for heavy equipment to enter and maneuver around.

To meet their goal of 300,000 cubic yards per year or less, Nursery Products has already reduced inbound feedstock volumes and is moving the finished product out as fast as it's ready to go, which currently is about 15 tons per month, and may be increased to as much as 20 tons per month as product becomes available. There are

two main locations where Nursery Products is reportedly delivering finished product to, the *305 Ranch* near the Abengoa and SEGS solar facilities adjacent to Harper Lake, and the *SKJ Farm* in Palmdale. Generally, the Water Board does not regulate finished product so long as the product is not discharged in a manner that constitutes a waste discharge or causes or threatens to cause a discharge of waste or nuisance, as defined by the California Water Code. However, Water Board staff are collaborating with San Bernardino County LEA and CalRecycle and investigating whether the landowners where the Nursery Products finish product is being delivered to is compliant with applicable state and local regulations.

As firefighting activities approach day 45, Nursery Products site personnel continue to make progress with a target date to have the smoldering completely out by July 15, 2022, per a San Bernardino County LEA directive. On July 7, 2022, site personnel reported that approximate 70,000 cubic yards of material was smoldering onsite, compared to July 11, 2022, when it was reported that approximately 50,000 cubic yards of smoldering materials were onsite. San Bernardino County LEA is planning a follow-up inspection for July 15, 2022, to document compliance with their directive to extinguish all smoldering materials onsite by that date. Nursery Products site personnel will continue to provide daily updates to Water Board staff regarding firefighting and suppression activities, and reporting on weather and other onsite conditions that have hindered or aided their efforts.

9. Standing Item: Annual Barstow Perchlorate Update, July 2022 – *Alonzo Poach*

SB445 Project Status

A contract was awarded to APTIM, Inc. (APTIM) in July 2018 to characterize and design a remediation system for perchlorate source areas in northeast Barstow. The project was awarded throug**h** the Site Cleanup Subaccount Program (SCAP), which is a non-competitive funding program established under California Health and Safety Code Section 25299.6 in 2014. It allows the State Water Resources Control Board (State Water Board) to issue grants for the reasonable and necessary costs associated with projects that remediate the harm to human health, safety, or the environment caused by existing or threatened surface or groundwater contamination. Under this grant, Water Board staff are actively overseeing a contract with APTIM. In May 2021, APTIM finalized a Focused Feasibility Study, Remedy Conceptual Design, and Full-Scale Work Plan (FS/work plan) for the Barstow Perchlorate remediation project. The Focused FS portion of the report evaluated various remediation options based on expected effectiveness, implementability, and cost. Based on APTIM's analysis, in-situ bioremediation using a dilute carbon substrate and nutrient amendment was selected as the remedy for the source areas. The FS/work plan report estimates the cost of remediation in the source area to be approximately $2.2 million; and the work will take approximately one year to complet**e.**

SCAP originally awarded a grant of $2.67 million dollars for the overall project to our region in December 2016. Consequently, the Department of General Services (DGS) awarded $447,000 for site characterization, conceptual site model development, an FS, and remediation work plan for the project (July 2018). The remaining grant funding– $2.2 million dollars – was recently awarded to APTIM on June 14, 2022, to carry out the

remediation work in the source area. Work on the source area remediation is expected to begin mid to late-July 2022. The first steps are to schedule field sampling to support a bench-scale study and select the most effective carbon substrate. Both emulsified vegetable oil and lactate are being considered and evaluated as carbon substrates.

The Final FS/work plan report can be found here: **https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/2878511905/T10000002830.PDF**.

Status of Plume Monitoring

Water Board staff conducts quarterly groundwater monitoring of private residential wells and groundwater monitoring wells owned by the City of Barstow. In addition, APTIM conducts groundwater monitoring on four groundwater monitoring wells installed under the SB445 contract. In fiscal year 21/22, Water Board staff collected approximately 150 groundwater samples to track plume movement over four quarters. Overall, the plume footprint has not changed drastically since April 2019, but the adequacy of the well network leaves the most downgradient portion of the plume undefined beyond well MW-38 (see Figure 1 below). Concentrations of perchlorate are generally increasing south of Interstate 15. As part of the SB445 contract with APTIM, a groundwater investigation will be conducted to better define the plume south of Interstate 15.

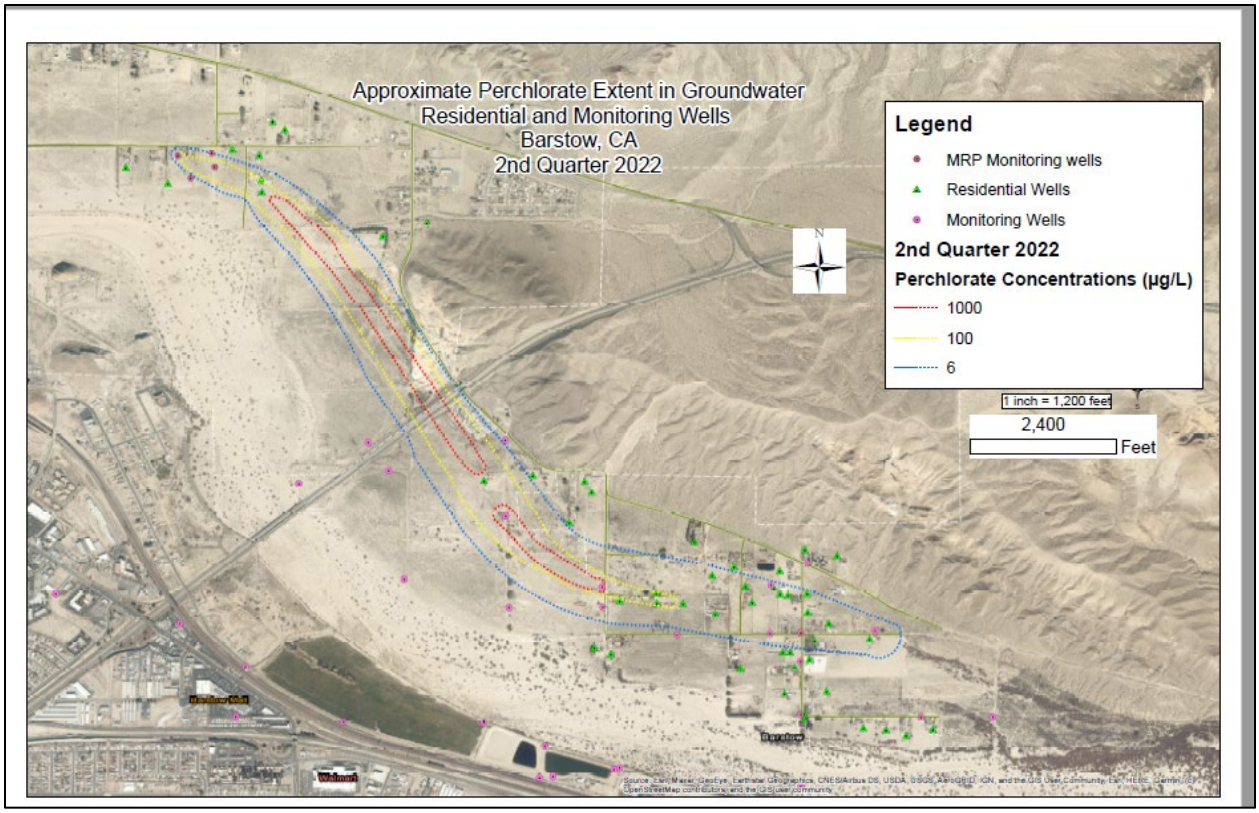

Figure 9.1 - Approximate extent of perchlorate plume in groundwater based on sampling results from residential and monitoring wells, Soapmine Road area of Barstow, CA, for second quarter 2022.

10. Standing Item – City of Barstow Nitrate *–Timothy Middlemis-Clark and Ghasem Pour-ghasemi*

This standing item describes the compliance status for the City of Barstow (City) with waste discharge requirements (WDRs) and various compliance orders issued by the Water Board regarding historical disposal practices from its wastewater treatment plant.

Waste Discharge Requirements

Discharge from the Barstow Wastewater Treatment Plant is currently regulated by waste discharge requirements, Board Order No. R6V20190252 (Board Order). This Board Order requires monitoring and reporting of nitrate effluent and groundwater monitoring well sampling results. Submitted monitoring reports must include maps and graphs to show nitrate trends in groundwater. Additionally, the Board Order established an effluent limit for total nitrogen of 10 milligrams per liter (mg/L). According to self-monitoring reports submitted by the City, the monthly total nitrogen concentrations in effluent samples averaged 6.24 mg/L and concentrations of nitrate as nitrogen averaged 4.41 mg/L for 2021.

Fourth quarter groundwater sample data results, in conjunction with groundwater flow patterns, indicate the nitrate concentrations predominantly increase from upgradient to downgradient in the Soapmine area. This area is north of the Mojave River with the

mass of nitrate in groundwater apparently diffusing and migrating eastward, as illustrated in Figure 10.1.

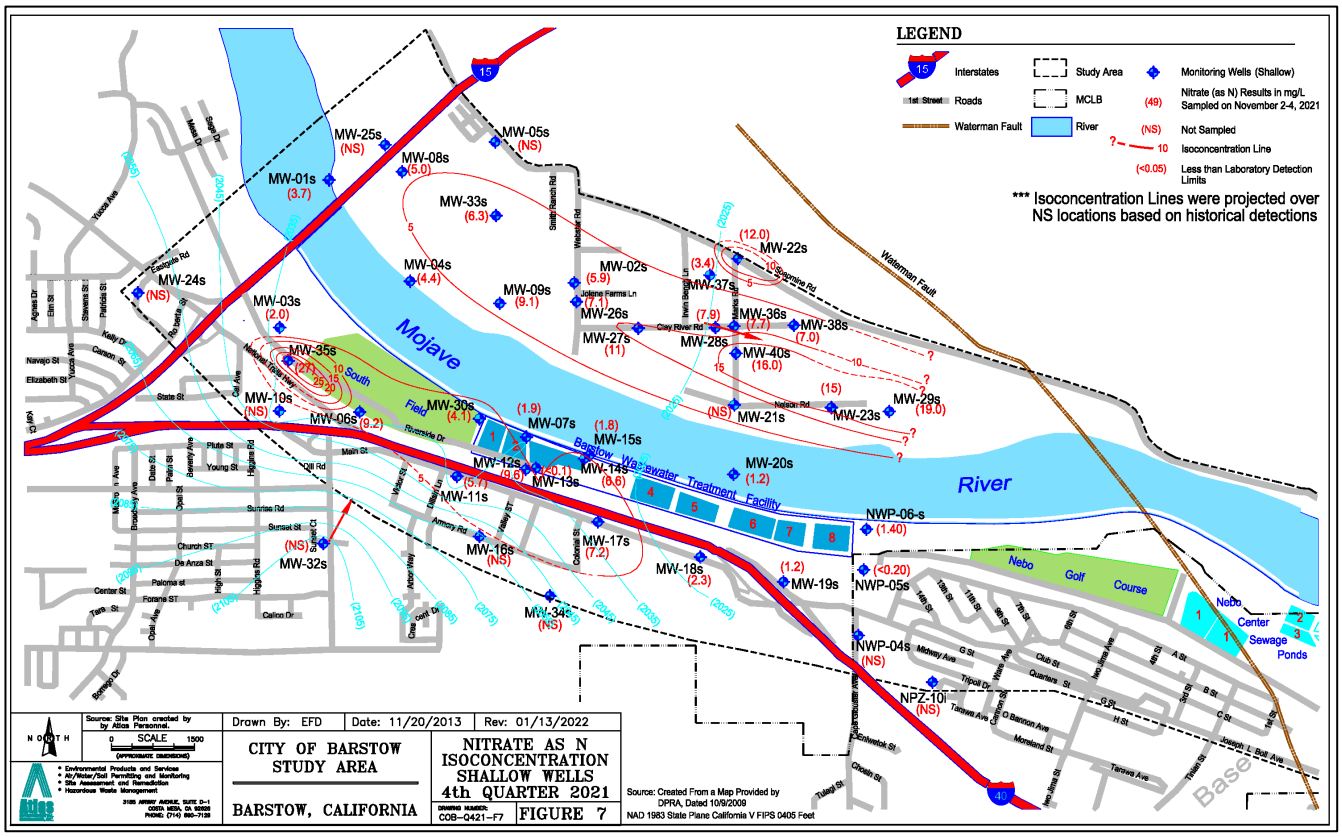

Figure 10.1 - Map illustrating groundwater gradient and sampled nitrate concentrations based on shallow groundwater monitoring wells from the City's 2021 annual self-monitoring report.

Nitrate Pollution Groundwater Cleanup

The Water Board adopted Cleanup and Abatement Order (CAO) No. R6V-2013-0045 requiring the City to address nitrate polluted groundwater on the north side of the Mojave River. The cleanup status is unchanged and on hold until a comingled perchlorate plume, not the City's responsibility, is addressed.

Residential Well Sampling and Replacement Water in the Soapmine Road Area

As required by CAO No. R6V-2007-0017, the City continues to conduct quarterly sampling of residential drinking water wells to measure nitrate concentrations in groundwater. The City continues to provide residents with uninterrupted replacement water in the Soapmine Road area where residential wells contain nitrate as nitrogen concentrations equal to or greater than 5 mg/L. For the first quarter of 2022, the City sampled 32 residential wells (results shown in Figure 10.2). This count may vary based

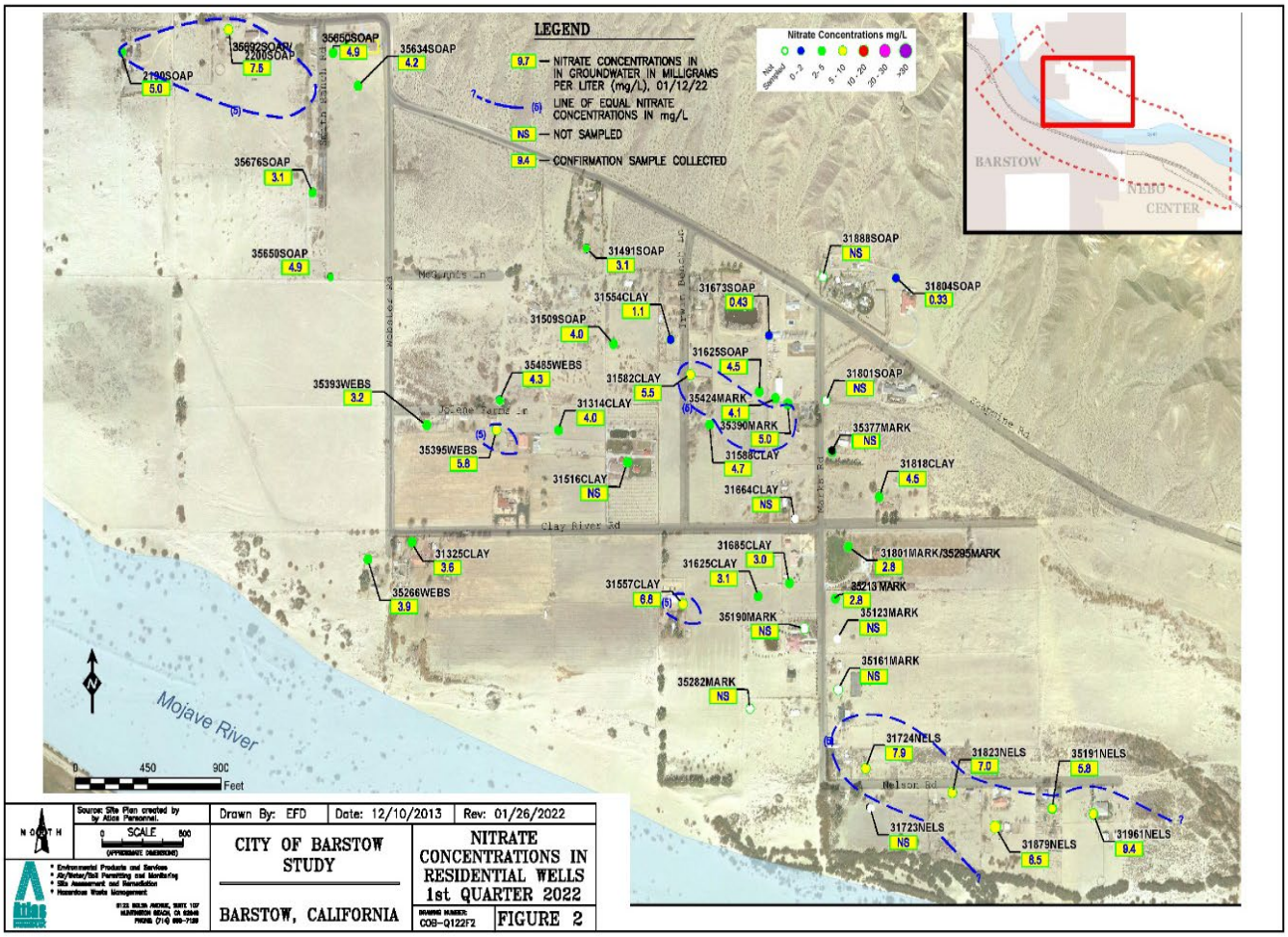

Figure 10.2 - Map illustrating residential well locations and concentrations of sampled nitrate as nitrogen as reported in the City's first quarter 2022 report.

on the number of active residences in the Soapmine Road study area. Since 2013, nitrate concentration trends have become relatively stable in residential wells (illustrated in Figure 10.3). This may be an artifact of groundwater levels dropping during the preceding years. The dropping groundwater levels may result in less nitrate mobilizing from the soil column in the north field into the groundwater table.

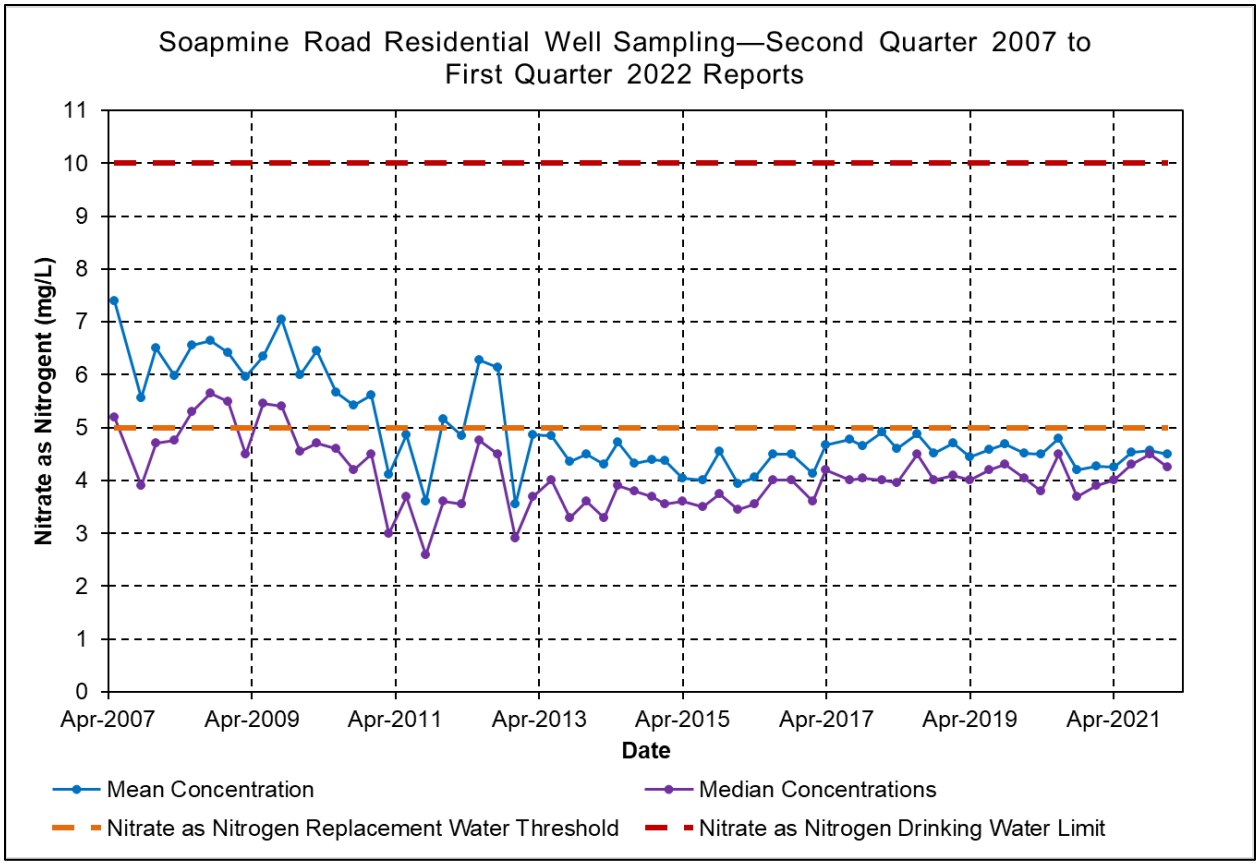

Figure 10.3 - Chart illustrating sampled nitrate as nitrogen concentrations from residential wells reported on a quarterly basis compared to the replacement water threshold concentration contained in the CAO and the drinking water limit.

According to the City's submitted first quarter 2022 report, only 9 residential well samples contained nitrate as nitrogen concentrations exceeding the replacement water threshold concentration (5 mg/L). No residential well samples contained nitrate as nitrogen exceeding the drinking water limit concentration (10 mg/L). However, the City is providing 15 residences within the required study area with uninterrupted replacement water service (bottled water). Based on the difference between the historical groundwater impact and current sampling data, the City requested that the Water Board modify CAO No. R6V-2007-0017 and clarify a methodology for ending replacement water delivery at some residences.

Water Board staff are working on the City's request to modify residential well sampling and replacement water requirements in CAO No. R6V-2007-0017. However, this effort has been delayed due to a staff resources shortage during the past fiscal year (FY21/22). Further, the Mojave Water Agency has begun recharging water to the Lenwood Recharge Basin and expects that groundwater levels in the surrounding area will rise between 10 and 20 feet. Water Board staff propose to continue monitoring the groundwater levels and nitrate as nitrogen concentrations measured in City monitoring wells and Soapmine Road residential wells over the next fiscal year (FY22/23). It is possible that nitrate concentrations may increase in groundwater as higher groundwater levels may encounter and mobilize nitrates stored in the soil.