



EXECUTIVE OFFICER'S REPORT  
June 1, 2023 – June 30, 2023

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**1. Personnel Report – *Sandra Lopez***

**New Hires**

- David Ryan, Water Resource Control Engineer, 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.

**Vacancies**

- 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.
- Senior Water Resource Control Engineer, Wastewater & Agricultural Unit, Victorville. This position will assign and direct the work of the unit; provide daily supervision and review work products. Prepare annual work plans and track budget expenditures.

- Senior Engineering Geologist, Land Disposal Unit, Victorville. This position will assign and direct the work of the unit; provide daily supervision and review work products. Prepare annual work plans and track budget expenditures.
- Senior Engineering Geologist, Department of Defense Unit, Victorville. This position will assign and direct the work of the unit; supervise staff performing tasks related to department of defense and site cleanup program sites; prepare annual work plans and track budget expenditures.

## Departures

- Doug Carey, Senior Engineering Geologist (Specialist) (retired annuitant), South Lake Tahoe

## 2. **Racial Equity Working Group (REWG): August 2023 Water Board Update – Ed Hancock**

Beginning in September 2022, staff from both Lahontan Water Board offices across a range of technical classifications and career stages formed an internal group called the *Racial Equity Working Group* (REWG). The mission of the REWG is to advance racial equity at the Lahontan Water Board, both internally for staff, and externally for the communities the Board serves.

The workgroup is comprised of approximately fifteen Lahontan staff members, about half of whom serve as the core team. The core team is supported by the remaining participants who provide auxiliary support when they are able. The REWG has an open-door policy to participation and encourages staff members to join if they are interested and able to do so. The REWG also understands that existing members may have to step away from workgroup commitments as dictated by the operational needs of their technical or programmatic work at the Water Board. Within the REWG, staff participate in smaller subcommittees including Communications, which focus on messaging and outreach to internal and external parties, Resolution Development to draft the Racial Equity Resolution which the Water Board will consider early in 2024, and Action Plan Development to craft the Racial Equity Action Plan tailored to the Lahontan Region.

The work of the REWG builds upon the State Water Resources Control Board's (State Water Board) Racial Equity Resolution and Action Plan, which were adopted in November 2021 and heard as an informational item in January 2023, respectively. While the overarching goals of the State Board's resolution and action plan are to advance racial equity within Water Boards operations, the goals of Lahontan Water Board's resolution and action plan are to recognize region-specific issues around racial equity and to develop an action plan to address those issues. To begin the process, the REWG has reviewed the State Board's racial equity work, participated in trainings around the subject of racial equity, and met with similar workgroups from other Regional Boards to learn and information share around the subject of advancing racial equity.

The Lahontan Water Board Racial Equity Resolution is intended to formally recognize that racial equity considerations are a foundational component to all public processes

that the Water Board undertakes. The resolution recognizes that, in the past, the work of the Water Board has not always adequately considered topics of race and equity in decisions that have affected regional communities. While the Lahontan Water Board has been proactive in the topic area of environmental justice over recent years<sup>1</sup>, the Racial Equity Resolution seeks to formalize the concepts of race and equity into the public participation processes which staff use to complete their technical work. Additionally, the Resolution will recognize that, internally, the organization can be more proactive in advancing racial equity at staff level through provision of staff trainings and forums, and by providing better employment information and opportunities to historically underserved and underrepresented communities.

While the Racial Equity Resolution is an important step toward advancing racial equity in the Lahontan Region, the subsequent Action Plan will detail the steps of how this will be achieved. Action Plan development is in its early stages, and REWG staff are scheduled to present the Plan to the Board in summer 2024. To support development of the Plan, REWG members are working on two strands of communications with affected communities. The first is internally focused and seeks to educate and solicit feedback from Lahontan Water Board staff around topics of racial equity. The REWG recognizes that staff participation is crucial to identify issue areas that should be considered in 6Lahontan Water Board's racial equity work. As the technical experts in their program areas, Water Board staff are well placed to identify groups and communities that intersect with the work of the Water Board and who may want to contribute to Lahontan Water Board's racial equity discussion. The REWG encourages Water Board staff to contribute their own perspectives and experiences around racial equity issues with a view to advancing racial equity at the staff level as well as in the communities they serve.

The second communication strand of the REWG focuses on external communities, including disadvantaged communities (DACs), historically under-represented groups, environmental justice communities, and partner organizations. These regional communities will be invited to share their experiences and contribute to Action Plan development in the latter half of 2023. External community perspectives are essential to ensure the Action Plan correctly recognizes the diversity of the Lahontan Region and identifies key topic areas for the Plan to focus on. By connecting with external communities on the subject, the REWG will be better placed to develop an Action Plan that ensures racial equity is advanced and realized in the Lahontan Region.

The REWG looks forward to working with staff, regional communities, and the Lahontan Water Board to advance racial equity in the Lahontan Region. More information and resources related to the racial equity work of the Water Boards are available at the State Water Board's [Racial Equity website](#) and at the Lahontan Region's [Environmental](#)

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<sup>1</sup> In January 2015 Lahontan Water Board heard an informational item from staff called the [Lahontan Environmental Justice Report](#). The report laid out eleven recommendations to the Board to further environmental justice in the Lahontan Region. To date staff have implemented, or are actively implementing, all of the recommendations in this report.

[Justice webpage](#). Parties who are interested in receiving communications from the REWG are encouraged to sign up for the *Racial Equity and Environmental Justice* email subscription service, available at the Water Boards [subscription page](#).

### 3. Hinkley Community Breakfast with Dr. John Izbicki Presenting on the USGS Background Study – Amanda Lopez

Lahontan Water Board staff, Amanda Lopez, Engineering Geologist, attended the Hinkley Community Breakfast on June 10, 2023, at the Hinkley Community and Senior Center. Dr. John Izbicki with the United States Geological Survey provided a short presentation with approximately 15 community members in attendance (Figure 3.1). Dr. Raudel Sanchez, Anand Helekar, Lorena Barahona, and Margaret DeAngelis of the Independent Review Panel (IRP) were in attendance, as well as Jessica Bails with Pacific Gas and Electric Company.



**Figure 3.1: Dr. Izbicki giving a presentation to the Hinkley community members**

Dr. Izbicki's presentation began with a brief background of concentrations of hexavalent chromium in the Hinkley and Water Valleys. He described the summative scale analysis, anthropogenic chromium plume boundary, and the background numbers. At the end of the presentation, Dr. Izbicki provided an opportunity for community members to ask questions. Dr. Izbicki, Amanda Lopez, and IRP responded to various questions from the community. Community members were most interested in how this study will be used for the Cleanup and Abatement Order (CAO) revision. Water Board staff highlighted the importance of participation in future meetings and providing input on the upcoming CAO revision. The first Technical Working Group meeting is tentatively scheduled for the afternoon of Tuesday July 18, 2023.

#### **4. Standing Item – City of Barstow Nitrate – *Omid Bozorg-Haddad***

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. R6V-2019-0252 (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) and a receiving water limitation for nitrate as nitrogen of 10 mg/L.

According to self-monitoring reports submitted by the City (2022 fourth quarter report), the monthly total nitrogen concentrations in effluent samples averaged 6.23 mg/L and concentrations of nitrate as nitrogen averaged 4.04 mg/L for the year 2022.

Groundwater sample data results, in conjunction with groundwater flow patterns, indicate the nitrate concentrations predominantly increase from upgradient to downgradient in the Soapmine area north of the Mojave River as the mass of nitrate in groundwater diffuses and migrates eastward, as illustrated in Figure 4.1.

##### **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 remains on hold until a comingled perchlorate plume, not the City's responsibility, is addressed.



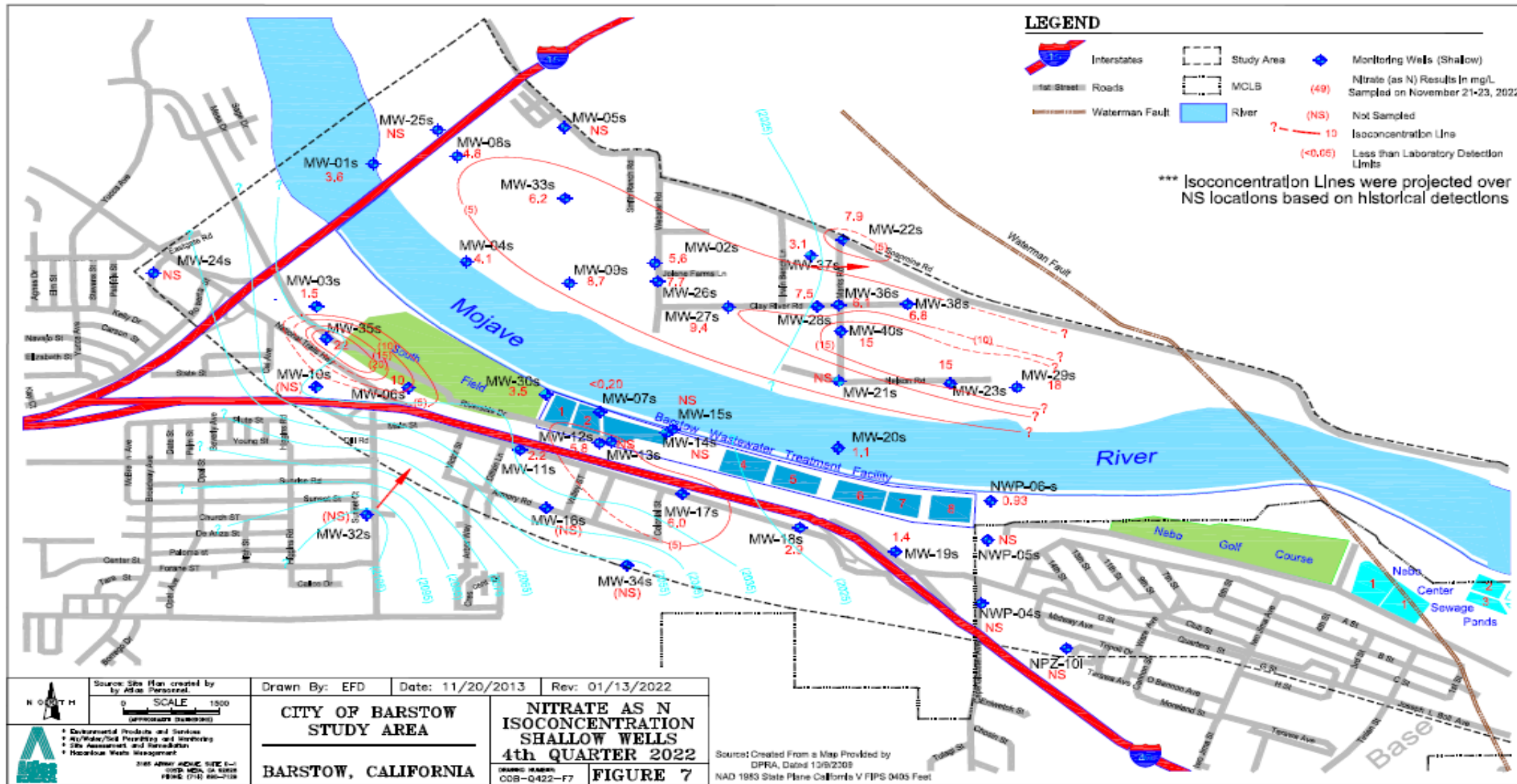
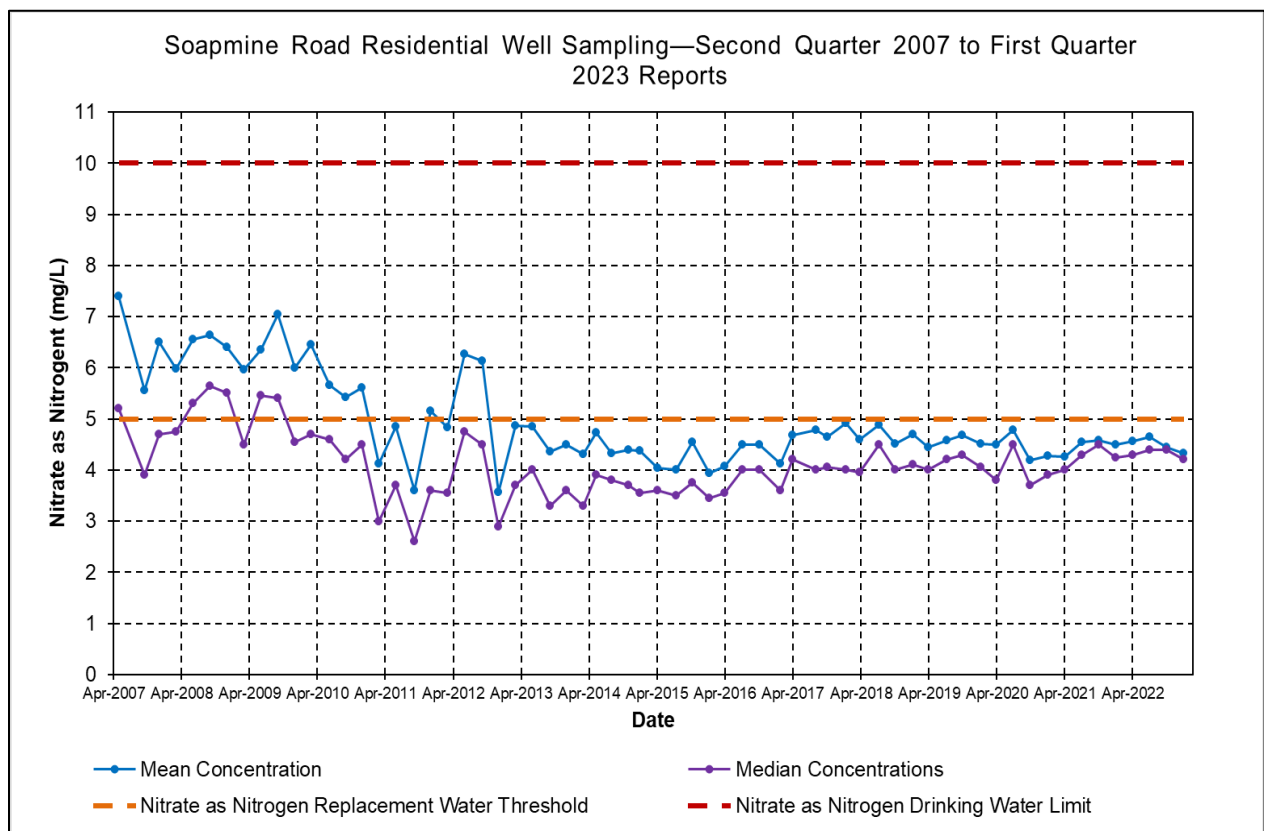


Figure 4.1: Map illustrating groundwater gradient and sampled nitrate concentrations based on shallow groundwater monitoring wells from the City's 4<sup>th</sup> Quarter 2022 monitoring event.

## Residential Well Sampling and Replacement Water in the Soapmine Road Area

The City continues to conduct quarterly sampling of residential drinking water wells to measure nitrate concentrations in groundwater, as required by CAO No. R6V-2007-0017. If a residential well sample contains a nitrate as nitrogen concentration equal to or greater than 5 mg/L, then the City must provide that residence with uninterrupted replacement water in the Soapmine Road area. For the first quarter of 2023, the City sampled 32 out of 42 residential wells. This count can vary based on the number of occupied residences in the Soapmine Road study area at the time of sampling.

In aggregate, the nitrate concentration trends have become relatively stable, with a decreasing trend in residential wells sampled since quarterly monitoring began (illustrated in Figure 4.2). According to the City's submitted first quarter 2023 report, seven wells sampled contained nitrate as nitrogen concentrations exceeding the replacement water threshold concentration (5 mg/L). However, the City is providing 16 residences within the required study area with uninterrupted replacement water service (bottled water).



**Figure 4.2: 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.**

Based on the difference between the historical groundwater impact and current sampling data, the City has requested that the Water Board modify residential well sampling and replacement water requirements in CAO No. R6V-2007-0017, as follows.

1. Reduce sampling frequency for some residences from quarterly to either semi-annually or annually based on nitrate as nitrogen sample concentrations consistently measuring less than 5 mg/L.
2. Increase nitrate (as nitrogen) trigger threshold concentration from 5 mg/L to 10 mg/L.
3. Amend CAO No. R6V-2001-0017 to provide a methodology that would allow the City to propose cessation of the requirement to provide replacement water to Soapmine Road area residents if certain criteria are met.

Water Board staff plan to address the City's request to revise CAO No. R6V-2007-0017 during this fiscal year.

## **5. Standing Item: Annual Barstow Perchlorate Update, July 2023 – *Alonzo Poach***

### **SB445 Remediation Update**

In May 2021, APTIM, Inc. (APTIM) finalized a Focused Feasibility Study, Remedy Conceptual Design, and Full-Scale Work Plan (FS/work plan) for the Barstow Perchlorate remediation project which is funded by Senate Bill 445 (SB445). The FS portion of the document evaluated various remediation options based on expected effectiveness, ability to implement, and cost. Based on the FS analysis, in-situ bioremediation using a dilute carbon substrate and nutrient amendment was selected as the remedy for the perchlorate source areas and the full-scale work plan was developed. In June 2022, the contract for the full-scale implementation of remediation work was awarded and APTIM began with bench scale testing to select the carbon substrate. Both emulsified vegetable oil (EVO) and lactate were carbon substrates evaluated during bench scale testing. EVO was selected utilizing diammonium phosphate (DAP) because it degraded perchlorate faster than lactate and EVO functioned better at varying soil moisture levels. DAP is a nutrient amendment utilized as a nitrogen and phosphorus source for the microorganisms degrading the perchlorate. The bench scale testing indicated that perchlorate was degraded within 30 days by the EVO at various soil moisture content levels indicating EVO would be the more suitable substrate.

APTIM mobilized to the site in mid-March 2023 to begin in situ remediation. From March 29, 2023, through June 20, 2023, approximately 16,400 pounds of EVO was injected into the subsurface utilizing 118 injection points advanced using a direct push drill rig. The treatment areas are shown on Figure 5.1 below. The next steps are soil verification sampling at various time intervals at 30, 60, 90 days postinjection to measure effectiveness and evaluate if additional soil moisture needs to be added to the subsurface. If additional moisture is needed, APTIM will irrigate the treatment area(s) using soaker hoses similar to those used on drip irrigation systems.



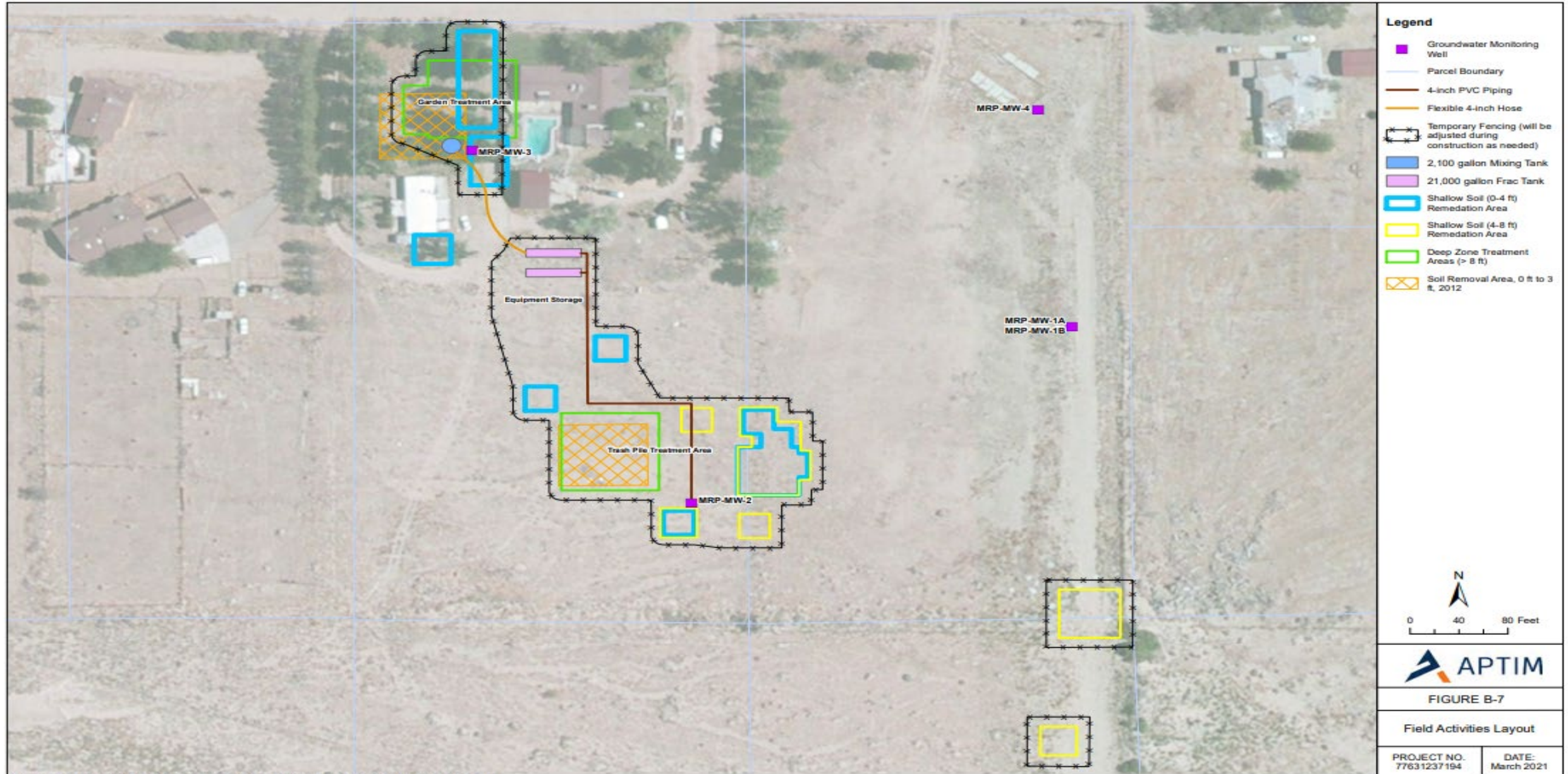


Figure 5.1: from the Full-Scale work plan showing the various treatment areas. The 118 injection points are within the treatment areas shown above.



Below are photos of the field efforts showing the injection setup.



Photo 5.2: The EVO mixing in a 55-gallon steel drum prior to injection



Photo 5.3: The pressure and flow manifold. Up to 10 borings were injected simultaneously.





**Photo 5.4: The 5-foot-long injection rod. EVO was injected into the subsurface at pressures as high as 150 pounds per square inch.**



**Photo 5.5: The “garden area” source zone, injection borings, and the direct push drill rig. Photo facing north.**





**Photo 5.6: Water tank holding water used to mix with the EVO and mobile office for field operations located in roughly in the center of the treatment areas. The field office was also used to store field materials. Photo facing north.**

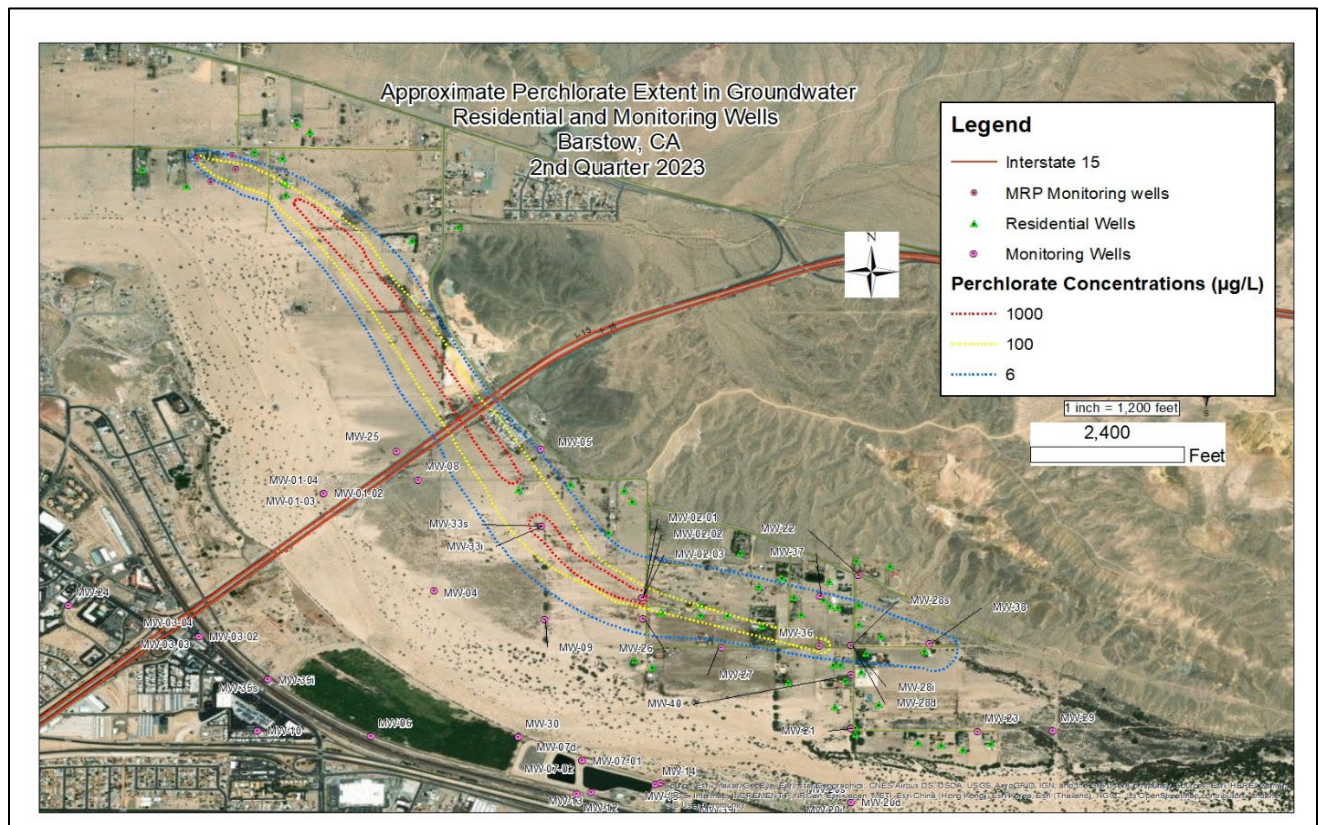


**Photo 5.7: Field technician checking connections and making note of injection operations in the “garden area.” Photo facing northeast.**



## 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 of four groundwater monitoring wells installed under the SB445 contract. In fiscal year (FY) 22/23, Water Board staff collected approximately 110 groundwater samples to track plume movement over four quarters. Overall, the plume footprint has not changed drastically since April 2019, but the most downgradient portion of the plume is undefined beyond monitoring well MW-38 (see Figure 5.8 below). Concentrations of perchlorate are generally increasing south of Interstate 15. As part of the SB445 contract with APTIM, a groundwater investigation is planned for mid-July to better define the plume north and south of Interstate 15 with the goal of understanding where targeted treatment of the groundwater plume would be most effective. Grab groundwater samples will be collected from temporary wells and up to 4 groundwater monitoring wells will be installed based on the results of the grab groundwater samples.



**Figure 5.8: 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 2023.**



## **Bottled Water Update**

Replacement bottled water has been provided for eligible residents since 2011. Bottled water funding was set to expire June 30, 2022, but has been extended to June 30, 2026 through the State Board Division of Financial Assistance cleanup and abatement account. With the extension of funding, Lahontan staff requested a new contract to supply bottled water to residents and it was put into effect July 1, 2023, and will be in place until June 30, 2026. Under the terms of the funding, Lahontan Water Board can provide bottled water to residents that meet income eligibility criteria. The contract currently provides bottled water to 4 of the 18 affected residents. This is down from 5 residents because of a property being sold and currently being vacant.